SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING

(An Autonomous Institution)
Kalavakkam – 603 110

SELF STUDY REPORT

3.2.2 Number of research projects per teacher funded by government, non-government , industry, corporate houses, international bodies during the last five Years

Submitted to

The National Assessment and Accreditation Council

February 2024

Scheme for Promotion of Academic and Research Collaboration

No.: SPARC/2019-2020/P2723/SL **Dt.:** 28.07.2023

To
Prof. Kamaraj V,
Department of Electrical and Electronics Engineering,
Sri Sivasubramaniya Nadar College of Engineering,
India

Dear Sir/Madam,

Sub: Sanction letter of SPARC proposal

Based on the recommendation of the Apex Committee of SPARC, MoE has sanctioned the following project. The details are mentioned below

Project Code	**:**	P2723
Proposal-Id	**:**	2723
Title	**:**	Artificial Intelligence Techniques to Design and Development of Power Quality Monitoring System
Indian PI	**:**	Prof. Kamaraj V (Sri Sivasubramaniya Nadar College of Engineering)
Indian Co-PI(s)	**:**	Dr. Rengaraj R (Sri Sivasubramaniya Nadar College of Engineering)
International PI	**:**	Dr. Prahlad Vadakkepat (NATIONAL UNIVERSITY OF SINGAPORE (NUS))
International Co-PI(s)	**:**	Dr. Rajesh Chandrasekhara Panicker (NATIONAL UNIVERSITY OF SINGAPORE (NUS))

Sanctioned Budget Details :

Budget Head	Sanctioned Amount (in INR)
Travel - International Faculty	26,05,700
Travel - International Scholar	2,00,000
Travel - Indian Scholar	7,38,116
Publication - Monograph	2,00,000
Workshop / Symposium	3,00,000
Overhead and Contingency	10,10,000
Total	**50,53,816**

The start date and the duration for the project are as follows

Start Date: 28.07.2023 **Duration:** 2 years

All procedures to be followed including expenditure will be as per SPARC norms.

As per rule 211 of GFR, the accounts of project shall be open for inspection by sanctioning authority/audit whenever the institute is called upon to do so.

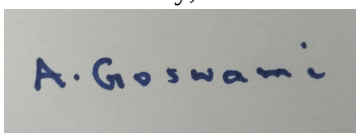
The Institute has to maintain a separate account for each project.

V E ANNAMALAI
Digitally signed by V E ANNAMALAI
Date: 2024.02.21 13:40:03 +05'30'

The Institute Coordinator of SPARC is requested to arrange for uploading provisional statement of accounts/UC in the site for all projects approved for the Institute during the 1st week of April and to upload the audited statement of accounts/UC by July.

The sanction is issued as per the approval of the National Coordinator, SPARC.

Yours sincerely,



For National Coordinator
IIT, Kharagpur

F.No. MoES/PAMC/DOM/06/2022(E-12844)
Government of India
Ministry of Earth Sciences

Prithvi Bhawan, Lodhi Road
New Delhi-110003

Dated: 13/10/2023

ADMINISTRATIVE ORDER

Sanction of the President is hereby conveyed under Rule 18 of the Delegation of Financial Power Rules 1978 for implementation of the project entitled "**Human Reliability Assessment and in-situ health monitoring for manned submersible crew**" by Principal Investigator (PI), Dr. R. Jayaparvathy, Professor, Electrical & Electronics Engineering, SSN College of Engineering, Kalavakkam at a total cost of **Rs. 46,18,400/** - (Rupees Forty Six Lakh Eighteen Thousand Four Hundred only) for a period of two years (2023-24 to 2024-25) under Deep Ocean Mission scheme of the Ministry of Earth sciences. The details of the project are as under:

2. Details of the Proposal are as under:

(i). Project: Human Reliability Assessment and in-situ health monitoring for manned submersible crew.

(ii). Implementing Institute: The project will be implemented by Sri Sivasubramania Nadar (SSN) College of Engineering, Kalavakkam, Tamil Nadu in collaboration with NIOT, Chennai.

(iii). Principal Investigator (PI): Dr. R. Jayaparvathy, Professor, Electrical & Electronics Engineering, SSN College of Engineering, Kalavakkam.

(iv). Co-PI: Dr. Pravin Kumar, Associate Professor, Department of Biomedical Engineering, SSN College of Engineering, Kalavakkam.

3. Objectives of the Project:

(i). To develop a novel human reliability modeling and safety assessment for the deep sea manned submersibles as a quantitative approach to mitigate the environmental uncertain situation.

(ii). To evaluate the human errors posed during the sequence of submersible research operation and to ensure the Human reliability standards are up to date following every emergency measures.

(iii). To design a wearable device to continually monitor the cardiac activity along with theSpO2 level and body temperature of the crew members and intimate in time of emergency.

(iv). To develop a method with reduced complexity that can identify the abnormality in the human cardiac activity through the Signal Averaged ECG (SA-ECG) that is automatically obtained from the ECG recordings of the crew members.

4. Deliverables of the projects:

(i). Identification of the Human errors during the submersible mission.

(ii). Obtaining the probability of every possible human error during the operation.

(iii). Evaluating the impact of psychological facts affecting active work of the crew member during every sequence of operation.

(iv). Designing the human reliability and error analysis standards.

(v). Developing deep-learning model for cardiac functions of submersible crew under different scenarios.

13/10/2023

(vi). Development of prototype in-situ health monitoring system using wearable sensors.

(vii). Demonstration of the system in the laboratory conditions through anemology detection and reporting.

5. Estimated Project Cost and Budget:

(i). The total estimated cost of the project is Rs. 46,18,400/ - (Rupees Forty Six Lakh Eighteen Thousand Four Hundred only) for a period of two years (2023-24 to 2024-25). The year wise/item-wise fund requirements are as under.

(ii). Budget requirement for the project: (Amount in Rs.)

No	Items	1st year	2nd year	Total(₹/Rs.)
A.	Recurring Cost			
1.	Salaries/Manpower* Research Associate - I -1 No. Senior Research Fellow -1 No.	12,96,000	12,96,000	25,92,000
2	Consumables	60,000	60,000	1,20,000
3	Travel	30,000	30,000	60,000
4	Contractual Services (Field visit, boat hiring, fabrication, etc)	1,00,000	1,00,000	2,00,000
5	Contingencies	30,000	30,000	60,000
	Total A	15,16,000	15,16,000	30,32,000
B	Non Recurring Cost			
6	Equipment (Major, Minor, Computer, Software, Design, Development Data Analysis etc.)	14,86,400	0.00	14,86,400
C	Overhead	50,000	50,000	1,00,000
	Grand Total (A+B+C)	**30,52,400**	**15,66,000**	**46,18,400**
**Emoluments as per DoE/DST/MoES norms*				

6. Manpower Requirement: The project requires one Research Associate - I and Senior Research Fellow for a period of two years.

7. List of Equipment: Supporting Software and development system modules, LifeSigns 1AX Biosensor Patch and Niso 204 BP and Spo2 Device, Processing boards and system, etc.

8. Project Recommendation, Monitoring & Evaluation: The project proposal has been reviewed and recommended by the Project Appraisal Monitoring Committee (PAMC) constituted for examination of collaborative projects under Deep Ocean Mission in its meeting held on 23rd January, 2023 and 9th March 2023. The progress of the project will be monitored and reviewed by the same Committee.

9. The expenditure will be debited from the following head of account:

3403- Oceanographic Research (Major Head)

11- Deep Ocean Mission (DOM) (Sub Head)

11.01-DOM-Establishment (Detailed Head)

11.01.31- Grants-in-Aid General

M Daniel
13/10/2023

10. Time Schedule: The duration of the project is two years (2023-24 to 2024-25). The work schedule and detailed plan of the implementation with year wise time lines and targets is as under:

Part A : Human Reliability Assessment

	Work Activity Plan	Year 1 (2023 - 2024)												Year 2 (2024 - 2025)											
	Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		Part A : Human Reliability Assessment																							
1	Literature Survey																								
2	Study of the Layout of the Submersible																								
3	Study of the Control/Power architectures of the submersible																								
4	Model Development- Human Error Identification at every Stage																								
5	Model Simulation																								
6	Case Study																								
7	Design Up gradation Human Error Reduction - Corrective actions																								
8	Comparison of the Model																								
9	Documentation																								

PART B: Health Monitoring of the manned submersible crew

	Work Activity Plan	Year 1 (2023 - 2024)												Year 2 (2024 - 2025)											
	Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		Part B Health Monitoring System																							
1	Literature Survey																								
2	Training of ML system using public database																								
3	Data Collection																								
4	Validating the trained System																								
5	Modifying the system to improve the performance and Field Testing																								
6	Documentation and paper publication																								

11. Terms and Conditions: The specific and general terms and conditions are given at **Annexure –I.**

13/10/2023

12. This issues under powers delegated to this Ministry and with the concurrence of IFD vide Dy.No. 221/IFD/12095/2023-24/DOM dated 18.07.2023, approval of Secretary vide Dy.No. E- 12095 dated 18.07.2023 and with the approval of Program Head (DOM) vide E-12844 dated 12/10/2023 in accordance with the Ministry's OM No. MoES/DOM/GIA/PAMC/01/2023 dated 07.08.2023.

M Daniel
13/10/2023

(Manjula Daniel)
Under Secretary to the Government of India

To

The Principal
Sri Sivasubramaniya Nadar (SSN) College of Engineering
Rajiv Gandhi Salai (OMR), Kalavakkam – 603 110
Tamil Nadu, India

Copy for information and necessary action:

1. The Pay & Accounts Officer, Pay and Accounts Office, Ministry of Earth Sciences,Prithvi Bhavan, Lodhi Road, New Delhi-110003.
2. The Controller of Accounts, MoES, New Delhi.
3. The Cash Section, MoES, New Delhi.
4. The Principal Director of Audit (Scientific Department), A. G. C. R. Building, I.P. Estate, New Delhi-110002.
5. The Director, National Institute of Ocean Technology (NIOT), Chennai, In-charge TSA, DOM.
6. The Project Director, DOM (Vertical 1), National Institute of Ocean Technology (NIOT), Chennai.
7. Dr. R. Jayaparvathy, Professor, Electrical & Electronics Engineering, SSN College of Engineering, Kalavakkam, Tamil Nadu
8. Program Head (MVR)/Program Director (MV)/Program Officer (NEP)-DOM
9. IFD/TSA CNA/Guard file/sanction folder

(Manjula Daniel)
Under Secretary to the Government of India

Annexure - I

Terms and Conditions:

1. In case of private institution, sanction and release of the fund shall be done after submission of bond executed between the PI's institution and MoES for proper use and the management of the funds.
2. In case the proposal does not have a Co-PI, then Head of Institute shall ensure that in the event of PI leaving the institute, the institute shall depute a competent expert from the institute as PI for the successful completion of the project.
3. The financial assistance to the project is for supporting the Deep Ocean Mission objectives. Therefore, the output/data/product/technology developed through the project shall be shared with MoES.
4. Approval of the research proposal and the grant being released is for the specific project sanctioned and should be exclusively spent on the project within the stipulated time. The Institute is not permitted to seek or utilize funds from any other organization (Government, Semi-Government, Autonomous and Private Bodies) for this research project. Any un-spent balance out of the amount sanctioned must be surrendered to the Government of India through online transfer in Consolidated Fund of India/ crossed Cheque/ Demand Draft drawn in favour of Drawing & Disbursing Officer, MoES.
5. For permanent, semi-permanent assets acquired solely or mainly out of the project grants, an audited record shall be maintained by the Institute. The term "Assets" include (a) the immovable property acquired out of the grant; and (b) movable property of capital nature where the value exceeds Rs. 1000/-. All Institutes is required to send to the MoES a list of assets acquired out of the grant. All grants shall not be utilized for construction of any building unless specific provision is made for that purpose. Any infrastructure facilities by way of accommodation, water, electricity, communication etc. for smooth implementation of the project shall be given by the Institute.
6. All the assets acquired from the grant will be the property of Government of India and should not be disposed off or encumbered or utilized for purpose other than those for which the grant had been sanctioned, without the prior sanction of this Ministry. MoES reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of MoES.
7. The Head of the Institute shall ensure that idle capacity of the permanent equipment procured under the Project will be made available to other users of the host Institute or nearby Institutes.
8. International travel is normally not allowed under this grant. It may be considered on case to case basis subject to prior approval of MoES.
9. At the conclusion/ termination of the project, the Government of India will be finalized to sell or otherwise dispose of the assets which are the property of the Government. The Institute shall surrender to the government necessary facilities for arranging the sale of these assets. Government of India has the discretion to gift the assets to Institute or transfer them to any other' institute if it is considered appropriate.

M Daniel

13/10/2023

10. The Institute will furnish Annual progress Report of the work on the project on yearly basis. In addition, the MoES will designate Scientist/ Specialist or an Expert Panel to visit the Institute periodically to review the progress of the work being carried out and to suggest suitable measures to ensure realization of the objectives of the project. During the implementation of the project the Institute will provide all facilities to the visiting Scientist/ Specialist or Expert Panel by way of accommodation etc. at the time of their visit.

11. At the time of seeking further installment of grant, the Institute/ PI has to furnish the following documents to the TSA/CNA of Deep Ocean Mission:

    (i). Audited Utilization Certificate and Statement of Expenditure in the prescribed format as per GFR, 2017 for the previous financial year (in original or soft copy if sent earlier) duly reflecting interest earned/accrued on the grants received under the project.

    (ii). Latest authenticated Statement of Expenditure including Committed Expenditure, for expenditure since 1st April of that financial year till the previous month; and demand for the remained period of the said financial year.

    (iii). Technical Annual Progress Report, duly authorised and singed by the appropriate authority.

    (iv). The final statement of expenditure with cumulative expenditure statement, UC and project completion report should be submitted within one year from the scheduled date of completion of the project.

12. The Director, TSA/CNA of Deep Ocean Mission shall accept the UC/SoE/Progress Report and submit to the MoES for further settlement of advance.

13. The grantee organisation will have to enter and upload the UC in the PFMS portal besides sending it in physical form to MoES. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by MoES and entry of previous UC in the PFMS.

14. A transparent procurement procedure in line with the provisions of GFR, 2017 will be followed by the Institute/organisation under the appropriate rules of the grantee organisation.

15. Request for specific approval of the Department to carry forward the unutilized grant to the next financial year for utilization for the same project, should be sent along with provisional UC, after completion of the financial year.

16. Due acknowledgement of technical support/financial assistance from the Ministry of Earth Sciences for this project should mandatorily be acknowledged by the grantee organisation in all publications/ presentation of papers/media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

17. The account of the grantee orgnisation shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the MoES), whenever the organisation is call upto to do so, as laid down under Rule 236 (1) of GFR, 2017.

18. The institute will maintain separate audited accounts for the project. If it is found expedient to keep a part or whole of the grant in a bank account earning interest, the interest thus earned should be reported to the MoES and should be reflected in the Statement of Expenditure. The interest thus earned will be treated as a credit to the Institute to be adjusted towards further installment of grant.

19. The institute will not entrust the implementation of the work for which the grant is being sanctioned to another institution nor will it divert the grant receipts to other

institute as assistance. In case the Institute is not in a position to implement or complete the project, it should forward to this Ministry the entire grant received by it or the balance grant with it.

20. All the personnel including Research personnel appointed under the project, for the full/ part duration of the project, are to be treated as temporary employees and will be governed by the administrative rules/ service conditions (for leave, HRA/DA etc.) issued by DoE/MoES/DST from time to time. They are not to be treated as employees of the Government of India and the MoES will have no liability, whatsoever, for the project staff after completion of the project duration.
21. For the expeditious implementation of the research project, the PI will take the assistance of the Institute in the process of selection and appointment of staff and payment to them. Scale and emoluments for the posts not covered under DoE/MoES/DST guidelines shall be governed by norms prevailing in the implementing Institution or as may be decided in consultation with MoES.
22. The MoES reserve the right to terminate the project at any stage, if it is convinced that grant has not been properly utilized or appropriate progress has not been made.
23. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in the account opened for the purpose. The interest earned /accrued, if any, should be reported to MoES (financial year wise) while submitting the Statement of Expenditure/Utilization Certificate. As per Rule 230(8) of GFR 2017, all interests or other earnings against Grants-in-aid or advances should be mandatorily remitted to the Consolidated Fund of India immediately after finalization of the accounts.
24. Expenditure, Advance and Transfer (EAT) module, as applicable, of PFMS should be activated for the grants released under the project and expenditure under the project shall be monitored through the module.
25. Goods (Consumables/equipment) available in GeM portal are to be procured mandatorily online through GeM only as per the provisions of Rule 149 of GFR.
26. The grantee Institute will appropriately limit the expenditure within the sanctioned amount in case of any expected excess expenditure. The grantee Institute is requested to utilize the released funds within the year.
27. The overhead expenses are meant for providing infrastructural facilities and benefits to the staff employed in the project etc.

175

TPN - 52/2
E - 3952

GOVERNMENT OF INDIA
Ministry of Science & Technology
Department of Science & Technology
DST/ICD/Serbia/P-18/2021 (G)
(International Cooperation Division)

Technology Bhawan, New Delhi
Dated: **25/01/2023**

Sanction Order

Subject: Financial assistance for the project entitled **"Design and Development of Replicable and Scalable Cyber Physical Micro Grid System"** submitted by **Dr. C Vaithilingam, VELLORE INSTITUTE OF TECHNOLOGY (VIT) CHENNAI, CHENNAI, CHENNAI, TAMILNADU, 600127** Release of the **First** installment regarding

Sanction of the President is hereby accorded to the approval to the above mention project at a total cost of **Rs. 1215000.00/- (Rupees Twelve Lakh Fifteen Thousand only)** for a duration of **3 Years** . The detailed breakup of the grant for General as well as Capital Components are given below:-

General Component : **₹ 1215000.00/-**
Capital Component : **₹ 0.00/-**

	Budget Summary (in Rs.)			
Items	**Year-1**	**Year-2**	**Year-3**	**Total**
1- Non-Recurring				
Subtotal (Capital)	0	0	0	
2- Recurring				
Travel	405000	405000	405000	**1215000**
Subtotal (General)	405000	405000	405000	**1215000**
Total Project Cost (Cap.+ Gen.)	405000	405000	405000	**1215000**

S. No.	Budget Head	1st Year INR	2nd Year INR	3rd Year INR	Total INR
1.	*Air Travel International travel by shortest route by lowest economy class (to and fro) for visit of Indian participants to Slovenia and domestic travel in India (*as per actual) including Visa Fee, silver class medical insurance **For 01 visit Rs. 80000** **For 02 visit 80,000*2** **= 1,60,0000/-**	1,60,000	1,60,000	1,60,000	4,80,000
2.	#Per diem For 01 visit PI and CO PI @ 2500/ per day = 10 * 2500=25000/- For 01 visit young researcher Rs. 60000/ - per month 60000*2= 120000	25,000 1,20,000	25,000 1,20,000	25,000 1,20,000	75,000 3,60,000
3.	#Accommodation For 01 visit for PI and CO PI 4000/- per day 10 days * 4000= 40000 For visit for young researcher Rs. 1000 per day for 60 days 60*1000=60000	40,000 60,000	40,000 60,000	40,000 60,000	1,20,000 1,80,000
5.	Total	4,05000	4,05000	4,05000	12,15000
7.	**Grand total**	**4,05000**	**4,05000**	**4,05000**	**12,15000**

2. The sanction of the President is also accorded to the release of **Rs. 405000/- (Rupees Four Lakh Five Thousand only)** to the **"Director/Registrar/Principal/Controller/Comptroller, VELLORE INSTITUTE OF TECHNOLOGY (VIT) CHENNAI"** being the **First** installment of grant as mentioned above table under **"General Component"** for the above mentioned project.

3. The expenditure involved is debitable to **Demand No. 89**, Department of Science & Technology for the year **2022-23:**

3425	Other Scientific Research(Major Head)
3425.60	Others : (Sub-Major Head)
3425.60.798	International Cooperation (Minor Head)
3425.60.798.14	Research and Development
3425.60.798.14.00	Detailed Head
3425.60.798.14.00.31	Grants-in-aid-General
	(Previous: 3425.60.798.12.00.31)

4. The amount of **Rs. 405000/- (Rupees Four Lakh Five Thousand only)** will be drawn by DDO, DST and disbursed to the **"CNA account of Autonomous body SERB in respect of Research and Development Scheme".**

Name of A/C Holder	**Research And Development SERB**
Bank A/C No	**60418655210**
Name of the Bank & branch	**Bank of Maharashtra, Press Enclave - New Delhi**
RTGS/IFSC code	**MAHB0000593**

5. The amount of **Rs. 405000/- (Rupees Four Lakh Five Thousand only)** will be drawn by the **"CNA account of Autonomous body SERB and will be disbursed to the Director/Registrar/Principal/Controller/Comptroller, VELLORE INSTITUTE OF TECHNOLOGY (VIT) CHENNAI"** . The bank details for electronic transfer of funds through RTGS are given below:-

Name of A/C Holder	**VELLORE INSTITUTE OF TECHNOLOGY CHENNAI**
Bank A/C No	**60427551457**
Name of the Bank & branch	**Bank of Maharashtra**
RTGS/IFSC code	**MAHB0002038**

6. As per Rule 234 of GFR 2017, the sanction has been entered at S. No **237** . in the register of grants maintained in the **International Cooperation Division** for the scheme **Call for India Serbia Joint S and T Proposals .**

7. This issues with the concurrence of IFD vide their Concurrence Dy. No. **IFD/C/II /300922/31/01081 dated 30/09/2022.**

8. The GI will keep all the funds received in the Central Nodal Account only and shall not transfer the funds to any other account or not divert the same to Fixed Deposits/ Flexi-Account/ Multi-Option Deposit Account/ Corporate Liquid Term Deposit (CLTD) account etc. The funds released to GI shall not be parked in bank account of any other agency.

9. The GI will ensure the compliance of OM. No. F. No. **1/(18)/PFMS/FCD/2021 dated March 9, 2022** of Department of Expenditure, Ministry of Finance.

10. This sanction order is subject to the **Terms & Conditions** as annexured .

Jyoti Sharma

JYOTI SHARMA
(Scientist - 'E')
sharma.jyoti@nic.in

To,
The Pay & Accounts Officer,
Department of Science & Technology,
New Delhi – 110 016.

Copy of information and necessary action to:

1. The Principal Director of Audit, Scientific Department, IIIrd floor, AGCR Building, I.P. Estate, New Delhi.
2. The Financial Advisor, Integrated Finance Division, Technology Bhavan, New Mehrauli Road, Block C, Qutab Institutional Area, New Delhi, Delhi 110016
3. The Internal Audit Wing, Department of Science & Technology,Technology Bhavan, New Mehrauli Road, Block C, Qutab Institutional Area, New Delhi, Delhi 110016
4. Drawing and Disbursing Officer, DST, Cash Section. (two copies)
5. Dr. C Vaithilingam, Associate Professor, Electrical Engineering, VELLORE INSTITUTE OF TECHNOLOGY (VIT) CHENNAI, Chennai, Chennai, Tamilnadu - 600127
6. The Director/Registrar/Principal/Controller/Comptroller/Chief Executive Officer(CEO), VELLORE INSTITUTE OF TECHNOLOGY (VIT) CHENNAI, Chennai, Chennai, Tamilnadu - 600127
7. Secretary, SERB, New Delhi (for allocation of limits to implementing agency)
8. Head (International Cooperation Division) DST
9. Sanction Folder (International Cooperation Division)

Jyoti Sharma

JYOTI SHARMA
(Scientist - 'E')
sharma.jyoti@nic.in

Mrunal Deshpande <mrunald@ssn.edu.in>

CRS project approved without student fellowship

9 messages

CRS Project <support@csruserportal.com> Wed, Mar 22, 2023 at 11:52 PM
Reply-To: support@csruserportal.com
To: mrunald@ssn.edu.in

विश्वविद्यालय अनुदान आयोग - परमाणु ऊर्जा विभाग वैज्ञानिक अनुसंधान संकुल
UGC-DAE Consortium for Scientific Research
(An Autonomous Institution of University Grants Commission, New Delhi)

CRS Program

CRS Projects FY 2022-23.

Dear Dr Mrunal Deshpande,

With reference to the CRS project proposal **CRS/2022-23/984** submitted at UGC-DAE CSR, this project was evaluated by the User Committee and the status of your project proposal is:

Approved without student fellowship.

Kindly note that we have received a larger number of project proposals and due to limited resources and funds only few could be approved with a student fellowship.

In case you are willing to take up this project, please login to our user portal and accept our guidelines by **March 25, 2023**. Guidelines: https://www.csruserportal.com/data/Guidelines_for_CRS_Project.pdf

Please note that the decision of the User Committee is final and no communication regarding this can be entertained.

Best regards,

User Office

UGC-DAE Consortium for Scientific Research, Indore

CSR User Portal: https://www.csruserportal.com/

Please do not reply,This is system generated email.

Mrunal Deshpande <mrunald@ssn.edu.in> Thu, Mar 23, 2023 at 8:50 AM
To: "Annamalai V.E." <annamalaive@ssn.edu.in>, viceprincipal SSN <viceprincipal@ssn.edu.in>

Dear Sir/ Madam

Good morning!

Happy to inform that our project proposal submitted to UGC DAE CSR has been accepted. We can now use their lab facilities for our developed products.

Thank you

Regards

Mrunal Deshpande
[Quoted text hidden]

Mrunal Deshpande <mrunald@ssn.edu.in> Thu, Mar 23, 2023 at 8:50 AM
To: Govindaraj R <govindarajr@ssn.edu.in>

---------- Forwarded message ---------
From: **CRS Project** <support@csruserportal.com>
Date: Wed, 22 Mar, 2023, 11:52 pm
Subject: CRS project approved without student fellowship
To: <mrunald@ssn.edu.in>

[Quoted text hidden]

Mrunal Deshpande <mrunald@ssn.edu.in> Thu, Mar 23, 2023 at 8:51 AM
To: Ashutosh Deshpande <ashutosh.deshpande@avcontechnics.com>

---------- Forwarded message ---------
From: **CRS Project** <support@csruserportal.com>
Date: Wed, 22 Mar, 2023, 11:52 pm
Subject: CRS project approved without student fellowship
To: <mrunald@ssn.edu.in>

[Quoted text hidden]

Annamalai V.E. <annamalaive@ssn.edu.in> Thu, Mar 23, 2023 at 8:53 AM
To: Mrunal Deshpande <mrunald@ssn.edu.in>

Madam,
great. Congrats

[Quoted text hidden]
[Quoted text hidden]
::DISCLAIMER::

The contents of this e-mail and any attachment(s) are confidential and intended for the named recipient(s) only. Views or opinions, if any, presented in this email are solely those of the author and may not necessarily reflect the views or opinions of SSN Institutions (SSN) or its affiliates. Any form of reproduction, dissemination, copying, disclosure, modification, distribution and / or publication of this message without the prior written consent of authorized representative of SSN is strictly prohibited. If you have received this email in error please delete it and notify the sender immediately.

Header of this mail should have a valid DKIM signature for the domain ssn.edu.in

::DISCLAIMER::

The contents of this e-mail and any attachment(s) are confidential and intended for the named recipient(s) only. Views or opinions, if any, presented in this email are solely those of the author and may not necessarily reflect the views or opinions of SSN Institutions (SSN) or its affiliates. Any form of reproduction, dissemination, copying, disclosure, modification, distribution and / or publication of this message without the prior written consent of authorized representative of SSN is strictly prohibited. If you have received this email in error please delete it and notify the sender immediately.

Header of this mail should have a valid DKIM signature for the domain ssn.edu.in

viceprincipal SSN <viceprincipal@ssn.edu.in> Thu, Mar 23, 2023 at 9:37 AM

To: Mrunal Deshpande <mrunald@ssn.edu.in>

Dear Madam,

Congratulations and happy to note that.

Regards,
Radha

[Quoted text hidden]
[Quoted text hidden]
[Quoted text hidden]
[Quoted text hidden]

Ashutosh Deshpande <ashutosh.deshpande@avcontechnics.com> Thu, Mar 23, 2023 at 9:46 AM
To: Mrunal Deshpande <mrunald@ssn.edu.in>

Good congratulations

Ashutosh Deshpande
9370286011

On 23-Mar-2023, at 8:51 AM, Mrunal Deshpande <mrunald@ssn.edu.in> wrote:

[Quoted text hidden]
[Quoted text hidden]

Mrunal Deshpande <mrunald@ssn.edu.in> Thu, Mar 23, 2023 at 10:54 AM
To: "Annamalai V.E." <annamalaive@ssn.edu.in>

Thank you Sir.

Regards

Mrunal Deshpande
[Quoted text hidden]

Mrunal Deshpande <mrunald@ssn.edu.in> Thu, Mar 23, 2023 at 11:17 AM
To: viceprincipal SSN <viceprincipal@ssn.edu.in>

Thank you Mam.

Regards

Mrunal Deshpande
[Quoted text hidden]

தமிழ் இணையக் கல்விக்கழகம்
(முந்தைய தமிழ் இணையப் பல்கலைக்கழகம்)
Tamil Virtual Academy
(Erstwhile Tamil Virtual University)
முனைவர் வீ.ப. ஜெயசீலன், இ.ஆ.ப. / Dr. V.P. Jeyaseelan, I.A.S.
இயக்குநர் (மு.கூ.பொ.) / Director (FAC)

Lr.N0.TVA/TC-EOI/2022/006-1 Date: 05.01.2023

To

Dr. B. Bharathi
The Principal Investigator
Associate Professor, Dept. of CSE, SSNCE,

Co-Investigators
1. Dr. P. Vijayalakshmi, Prof. & Head, Dept. of ECE, SSNCE,
   Sri Sivasubramaniya Nadar College of Engineering,
2. Dr. T. Nagarajan, Prof. & Head, Dept. of CSE, Shiv Nadar University

Madam,

Sub: TVA – Tamil Computing tools and Software project - Awarding of project for developing "**Real-time multi-dialect automatic speech recognition system for Tamil**"– reg.

Ref: 1. Your proposal Date: 11.08.2022
2. G.O. Information Technology and Digital Services (B-2) No.2, Date: 02.01.2023

I invite your attention to the reference cited. Tamil Virtual Academy is pleased to award the project for developing "**Real-time multi-dialect automatic speech recognition system for Tamil**" with the following terms and conditions:

Terms and Conditions:

Scope of work:

This speech to text project convert the speech into text dynamically and an output will be shown visibly and stored separately as a text file. At least 100 hours of speech data shall be

Anna University Campus,Gandhi Mandapam Road,Kottur, Chennai - 600 025.
Tel : 91-44-2220 9400, Fax : 91-44-2220 9405, E-mail: tva@tn.gov.in, URL:www.tamilvu.org

collected and given (200 males & 200 females). This speech data will be consisted of 5 dialects (Northern, Southern, Central, Western dialects of Tamil Nadu along with Brahmin dialect).

Milestone activities:

The project is to be completed in 3 stages, each accomplishing a milestone activity as follows:

Milestone 1:.

Deliverables: Text data required for **Automatic Speech Recognition (ASR) system** shall be given and all the split sentences along with punctuation marks shall be added and given.

Period of Completion: Milestone activity 1 should be completed in 4 months from the date of acceptance of the work-order.

Milestone 2:

Deliverables: 200 males' and 200 females' speech corpus collected from 5 different dialects of Tamil Nadu shall be given.

Period of Completion: Milestone activity 2 should be completed in 5 months from the date of completion of milestone activity 1.

Milestone 3:

Deliverables: A real time multi dialect speech recognition system for Tamil and a widget for ASR system shall be given.

Period of Completion: Milestone activity 3 should be completed in 3 months from the date of completion of milestone activity 2.

1. **Total Value of the project:**

Total fund to be provided for the above development project is **Rs. 13.77 lakh (Rs. Thirteen lakh and seventy seven thousand only)** which will be released as per the payment terms mentioned below.

2. **Release of fund:**

i. The fund for the project will be released on the basis of milestone deliverables.
ii. The first installment shall be released after completion of 1 milestone of the project i.e 30% of the total sanctioned amount.

iii. The subsequent installment of fund would be released on the basis of milestone deliverables of the proposed project.

a. 30% on completion of Milestone 2.

b. 20% on completion of Milestone 3, testing and validation of entire project.

c. 20% will be released after 3 months after confirming the usage.

iv. The request for release of the next installment should be accompanied by the following documents:

Technical Progress Report with milestone deliverables.

3. Deliverables:

You have to deliver the product developed with the above mentioned milestone implementations in the form of two CDs, with 5 sets of documents. The product documentation should cover design, Technical Manual, and User Manuals in Tamil and English should be supplied to Tamil Virtual Academy (TVA), both in soft and hard copy along with one demo video for few minutes (5 minutes) how to install and works.

4. Project Schedule:

The Project should be completed within a period of 12 months from the date of acceptance of the work-order. The contract shall be effective till the time period mentioned for completion of the project work. It may be extended if necessary with the prior approval of TVA.

5. General:

1. Quarterly reports on the progress of the project shall be submitted. The project will be reviewed on completion of each and every milestone activity.
2. Necessary technology support shall be provided for maintaining the product for a minimum period of one year.
3. In case of failure to complete the project and deliver the project deliverables satisfactorily to Tamil Virtual Academy (TVA), the amount already released in instalments is liable to be recovered from you / your institution if needed with interest.
4. In the event of any dispute or difference of opinion arising, the decision of the TVA shall be final and binding.

If it is accepted, an acceptance letter may be sent with an undertaking that the Institution / Investigator will abide with all the above terms and conditions of TVA. It may also be stated that this program is a free software product and it can be redistributed and / or modified under the terms of the GNU General Public License as published by the Free Software Foundation, version 2+ of the License.

The above terms and conditions should be signed by the authorized signatory in a stamp paper.

Thanking you

/Sd-

Director (FAC)

//True Copy//

5/1/23

For Director

Kavitha S. <kavithas@ssn.edu.in>

Fwd: SERB-Notification

Mirnalinee T T <MirnalineeTT@ssn.edu.in> Tue, May 23, 2023 at 9:24 AM
To: "Kavitha S." <kavithas@ssn.edu.in>

---------- Forwarded message ---------
From: **Shahina A** <shahinaa@ssn.edu.in>
Date: Sat, May 6, 2023 at 7:34 PM
Subject: Fwd: SERB-Notification
To: Mirnalinee T T <MirnalineeTT@ssn.edu.in>, A Nayeemulla Khan <nayeemulla.khan@vit.ac.in>, <prasad77.md@gmail.com>

Dear All,

Our project on brain computer interface (from EEG to speech) has been approved. Hoping that our team effort can result in a beneficial outcome to people, and hope it leads to other fruitful joint endeavors.

Regards,
Shahina.

---------- Forwarded message ---------
From: <SERB_Administrator@serbonline.in>
Date: Thu, May 4, 2023 at 8:11 PM
Subject: SERB-Notification
To: <serbinfo1@gmail.com>

Science and Engineering Research Board

(Statutory Body Established Through an Act of Parliament : SERB Act 2008)
Department of Science and Technology, Government of India

SCIENCE & ENGINEERING RESEARCH BOARD (SERB)

(Statutory Body Established Through an Act of Parliament : SERB Act 2008)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Approval Letter

File Number: SUR/2022/003341

Dated: 04-May-2023

Subject: Project titled "Dhi-Vach: A Brain-Computer Interface System Converting thoughts to Speech for Speech-Impaired Patients with neurodegenerative Diseases".

Dear Dr. SHAHINA A,

The project cited above has been recommended by the related **State University Research Excellence (SERB SURE)** to the Science and Engineering Research Board (SERB) for funding. The following are the

items recommended for a period of 3 years. The final budget to be sanctioned would be based on quotations received, existing norms, funds availability etc.

The committee recommended the following budget

Manpower :
-> Project Associate-I - 1
Equipment Details : Rs. 600000
-> Prototype development - 1
-> EMOTIV EPOC X is a 14-channel wireless EEG - 1
-> Neuphony EEG headset – dry - 1
-> Multifunction laser printer - 1
-> Laptop with 16GB RAM and RTX 3060 12-GB GPU - 1
-> Nvdia Jetson board AGX - 1
-> Accessories and connectors - 1
-> Neuphony EEG headset – s/w - 1
-> Emotiv Analysis software-3yr - 1
Consumables : Rs. 36000
Travel Cost : As per norms
Contingencies : As per norms
Overhead : As per norms

You need to accept the above budgetary allocation before proceeding further. To accept the budgetary recommendations , you may follow the following steps :

1. Go to www.serbonline.in through your credentials

2. Go to Menu --> Proposal submission --> View submitted proposals

3. Click on the link under Status column "Proposal Approved, Acknowledgment pending from PI"'

You are requested to upload the following documents of the approved budget strictly within one month from the date of this letter.

1. Upload the lowest quotation for equipment/s (including freight, insurance, customs charges etc., if any).
2. Salary structure for the project staff (including HRA, Medical Benefits, if applicable etc.).
3. A certificate stating that any visit abroad for a period more than eight weeks would be undertaken after due permission from SERB, may also be submitted.
4. RTGS details of the implementing institute to facilitate transfer of the fund as per the template.
5. Any other documents (as detailed bellow specific the programme concerned).

SERB has adopted the Scientific Social Responsibility (SSR) Policy which mandates SERB Grantees to undertake some SSR activities during their project period. You are requested to read the SSR guidelines available under SSR menu and choose the activities according to your preference. Please note that choosing the SSR activities is mandatory for issue of financial sanction subject to submission and acceptance of other necessary documents

Kindly upload the documents related viz., animal ethical clearance certificate, institutional bio safety clearance certificate, etc., matching with exact approved title of project submitted to SERB.

If the project does not require (viz., animal ethical clearance certificate, institutional bio safety clearance certificate, etc.,) please confirm with a self-certification saying that it does not involve any animal/human studies or genetic modification in any organisms or bio safety issues.

(Kindly note that during the issue of sanction order or during the implementation of this project, if SERB come across/found that the project work involves/requires animal/human studies or genetic modification in any organisms or bio safety issues, RCGM approval/ approval from Biodiversity Management Committee Environmental clearance, the project may be terminated without any notice.)

Please note that release of grant is subject to availability of funds under the scheme. Kindly quote the reference number in all future correspondence. The project's reference no. **SUR/2022/003341** may also be mentioned in all research communications arising from the above project.

Yours sincerely,

(Dr. V Ramesh)

Email: ms_pac_sure@serbonline.in

Dr. SHAHINA A

Information Technology

SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110

********** LEGAL DISCLAIMER **********

Please do not reply to this mail !!

[SERB is now on Social-Media. Kindly follow us on Twitter: @serbonline https://www.twitter.com/serbonline]

This is a system generated information and does not require any signature.This E-Mail may contain Confidential and/or legally privileged Information and is meant for the intendedrecipient(s) only. If you have received this e-mail in error and are not the intended recipient/s, kindly notify us at info@serbonline.in and then delete this e-mail immediately from your system. Any unauthorized review, use, disclosure, dissemination, forwarding, printing or copying of this email or any action taken in reliance on this e-mail is strictly prohibited and may be unlawful. Internet communications cannot be guaranteed to be timely,secure, error or virus-free. The sender does not accept any liability for any errors, omissions, viruses or computer problems experienced by any recipient as a result of this e-mail.

****

'SAVE PAPER - THINK BEFORE YOU PRINT!'

* Don't want to receive such notification anymore?Click here to send a mail to unsubscribe

--
Dr. A. Shahina
Professor, Department of Information Technology,
SSN College of Engineering, Kalavakkam - 603 110
Ph: 044 - 2747 4844/45/46 Extn: 375
Email: shahinaa@ssn.edu.in
shahina.faiqa@gmail.com

::DISCLAIMER::

Web Site : http://ifgtb.icfre.gov.in
Fax : 91 - 422-2430549

Phone : 0422 -2484100
Email : dir_ifgtb@icfre.org

वन आनुवंशिकी एवं वृक्ष प्रजनन संस्थान

(भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद)

(पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार का एक स्वायत्त निकाय)

पी.बी.नं.१०६१, कोयम्बत्तूर -६४१००२, तमिलनाडु, भारत

INSTITUTE OF FOREST GENETICS & TREE BREEDING

(INDIAN COUNCIL OF FORESTRY RESEARCH & EDUCATION)

(An autonomous body of Ministry of Environment Forest & Climate Change, Govt. of India)

P.O.No.1061, Coimbatore – 641002, Tamil Nadu, India

IFGTB/FECC/AICRP-IAPS/

10th February 2020

To

Dr. R.Jayaparvathy, M.E., Ph.D,
Professor,
Department of Electronics and Communication Engineering,
SSN College of Engineering,
Old Mahabalipuram Road,
SSN Nagar, Kalavakkam- 603 110 (off. Chennai).

Subject: Approval of Project Proposal AICRP-7 Reg.
Ref: ICFRE No.75/2019/ICFRE(R)/RP/SFRESPE(CAMPA)/AICRP-7/30 dated 10/01/2020
ICFRE No.75/2019/ICFRE(R)/RP/SFRESPE(CAMPA)/AICRP-7/107 dated 04/02/2020

Dear Dr. R.Jayaparvathy,

As you are aware that the project component submitted by you (In pursuance to the telephonic discussion) was included as a part of All India Coordinated Research Project (AICRP – 7) titled "Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key Invasive Alien Plant Species in different regions of the country". The AICRP - 7 was submitted by Indian Council of Forestry Research & Education (ICFRE), Dehradun for funding as part of a scheme titled "Strengthening Forestry Research for Ecological Sustainability and Productivity Enhancement" to Compensatory Afforestation Fund Management and Planning Authority (CAMPA) of Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India.

The CAMPA has approved the proposals for funding and the details of budget approved for various partner institutes/organizations of AICRP – 7 are attached herewith for your reference. In this connection, it is requested that a separate bank account need to be opened and a Memorandum of Agreement (MoA) needs to be executed at the earliest so that funds can be transferred to your account. A draft MoA is attached herewith for further necessary action please.

With regards,

Yours faithfully

Dr A. Rajasekaran
National Project Coordinator

No.75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/107 Dated: 04th February, 2020

Directorate of Research
Indian Council of Forestry Research and Education (ICFRE)
Dehradun

REVISED OFFICE ORDER (I)

Sub: Partial modification of Office order No.75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/30, dated 10/01/2020

1. In partial modification of this office order No. 75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/30, dated 10/01/2020 on "Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key Invasive Alien Plant Species in different regions of the country" vide which sanction was issued, for implementation of the project encompassing the budget of individual institutes and the total outlay of the project. The competent authority has now approved 10% institutional charges to Non-ICFRE institutes (SSN College of Engineering, Chennai, Bharathidasan University, Tamil Nadu, ICAR - Directorate of Weed Research (DWR), Jabalpur) for their component. The modified outlay including institutional charges (10%) for Non-ICFRE institutes is detailed below. The ICFRE budget component is accordingly modified. Necessary changes in the total project outlay are incorporated. Total budget outlay however remains same.

1.1 SSN College of Engineering, Chennai

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Total of SSNC component	9.31	3.92	3.66	4.16	4.66	2.61	28.32
10% institutional charges	0.931	0.392	0.366	0.416	0.466	0.261	2.832
Grand Total	10.241	4.312	4.026	4.576	5.126	2.871	31.152

The total outlay of SSN college will now be Rs. 31.152 lakhs instead of Rs. 28.32 lakhs

1.2 Bharathidasan University (BU), Tamil Nadu

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. in lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Total of BU component	1.39	4.17	3.91	3.41	3.16	2.28	18.32
10% institutional charges	0.139	0.417	0.391	0.341	0.316	0.228	1.832
Grand Total	1.529	4.587	4.301	3.751	3.476	2.508	20.152

The total outlay of Bharathidasan University will now be Rs. 20.152 lakhs instead of Rs. 18.32 lakhs

1.3 ICAR - Directorate of Weed Research (DWR), Jabalpur

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Total of ICAR- DWR component	2.20	3.36	3.11	3.86	3.61	2.41	18.55
10% institutional charges	0.220	0.336	0.311	0.386	0.361	0.241	1.855
Grand Total	2.42	3.696	3.421	4.246	3.971	2.651	20.405

The total outlay of ICAR-DWR will now be Rs. 20.405 lakhs instead of Rs. 18.55 lakhs

1.4 ICFRE, Dehradun Component of Budget

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Institutional charges (10%) (ICFRE Institutes)	4.070	6.095	6.282	5.917	5.357	3.760	31.48
Monitoring cost (5%)	2.68	3.62	3.67	3.53	3.25	2.25	19.00
Overall project escalation cost (5%)	2.68	3.62	3.67	3.53	3.25	2.25	19.00
Total	9.43	13.335	13.622	12.977	11.857	8.26	69.48

The total ICFRE component of budget will now be Rs. 69.48 Lakhs instead of Rs. 76.00 lakhs. ICFRE institutional charges will be now Rs.31.48 lakhs instead of Rs.38.00 lakhs

1.5 Total project outlay

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	12.26	36.78	40.14	40.14	40.44	24.52	194.28
M&S (Consumables)	2.33	6.00	6.25	5.50	6.60	4.67	31.35
Travel	4.35	14.55	14.35	11.75	8.75	8.7	62.45
Field Research Expenses (FRE)	3.48	11.95	10.5	10.5	7.75	6.97	51.15
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	31.15	3.15	2.25	2.70	1.50	0.00	40.75
Total	53.58	72.43	73.49	70.59	65.04	44.85	379.98
Institutional charges (10%) (ICFRE institutes)	4.070	6.095	6.282	5.917	5.357	3.760	31.48

Institutional charges (10%)** (Non- ICFRE Institutes)	1.29	1.145	1.068	1.143	1.143	0.73	6.52
Monitoring cost (5%)	2.68	3.62	3.67	3.53	3.25	2.25	19.00
Overall project escalation cost (5%)	2.68	3.62	3.67	3.53	3.25	2.25	19.00
Grand total	64.30	86.91	88.18	84.71	78.04	53.84	455.98

**(SSN, Bharathidasan University, ICAR-DWR)

This order is to be conjointly read with order No. 75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/30, dated 10/01/2020. The other terms and conditions of expenditure remain unchanged.

DDG (Research)
Directorate of Research, ICFRE, Dehradun

Copy for information and necessary action:

1. Deputy Director General (Administration), ICFRE
2. Directors of the concerned ICFRE Institutes (IFGTB, Coimbatore; FRI, Dehradun; RFRI, Jorhat; HFRI, Shimla; IFP, Ranchi;IWST, Bengaluru; AFRI, Jodhpur; TFRI, Jabalpur)
3. National Project Coordinator, IFGTB, Coimbatore
4. PIs of Non-ICFRE Institutes (SSN College of Engineering, Chennai; Bharathidasan University, Tamil Nadu; ICAR - Directorate of Weed Research (DWR), Jabalpurthat the funds shall be released soon after signing of MoA
5. DDG (Research), ICFRE
6. ADG (M&E), ICFRE
7. DDO/ Accounts Officer, ICFRE
8. Master file, project file/Review Committee file/PEG file of the project AICRP- 7
9. Sr. P.S. to DG, ICFRE for kind information of DG, ICFRE

No.75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/ 30 Dated: 10-01-2020

Directorate of Research
Indian Council of Forestry Research and Education (ICFRE)
Dehradun

OFFICE ORDER

Sub: All India Coordinated Research Project (AICRP)-7 on "Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key invasive Alien Plant Species in different regions of the country" – approval and grant for participating Institutes/organizations

1. Governing Body of National Authority (CAMPA) in its 1st meeting held on 15th November 2019 has approved the scheme titled **"Strengthening Forestry Research for Ecological sustainability and Productivity Enhancement"** for funding (OM No. 13-30/2019 – NA dated 6th December 2019). Subsequently, Government of India, Ministry of Environment, Forest and Climate Change has approved the scheme vide No. 13-28/2018-CAMPA dt. 02-01-2020. As a component of the Scheme, thirty-one All India Coordinated Research Projects (AICRPs) have been approved for funding.
2. XVIII Research Policy Committee (RPC) 2018 and XIX RPC 2019 has recommended above mentioned 31 AICRPs for approval.
3. Now, ICFRE hereby approves the AICRP titled **"Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key Invasive Alien Plant Species in different regions of the country"** for implementation under the AICRP component of the scheme at a total cost of **Rs. 455.98 lakhs** for **a duration of 5 years (60 months)** as per the budget details provided in this order.
4. The institutional partners in this research project and their designated National Project Coordinator (NPC), Principal Investigators (PI) and Co-PIs are as follows:

Sl. No.	Name of the Institute/ Non-ICFRE Organization	ICFRE/ Non-ICFRE organization	Members of the project team	NPC/ PI/ Co-PI
1	Institute of Forest Genetics and Tree Breeding, Coimbatore **(lead Institute)**	ICFRE	Dr. A. Rajasekaran	NPC & PI
			Dr. N. Senthilkumar	Co-PI
			Dr. A. Vijayaraghavan	Co-PI
			Dr A.C.Suryaprabha	Co-PI
2	Forest Research Institute, Dehradun	ICFRE	Mr. Manoj Kumar	PI
			Dr V.P. Panwar	Co-PI
			Dr. Hukum Singh	Co-PI
3	Rain Forest Research Institute, Jorhat	ICFRE	Dr. Rajib Kumar Borah	Co-PI
			Dr. Dhruba Joyti Das	PI
			Shri Dinesh Kumar Meena	Co-PI
			Shri Ajay Kumar	Co-PI
			Dr. Nizara Borthakur	Co-PI
4	Himalayan Forest Research Institute, Shimla	ICFRE	Dr. Ranjeet Kumar	PI
5	Institute of Forest Productivity, Ranchi	ICFRE	Dr. Sharad Tiwari	PI

6	Institute of Wood Science and Technology, Bengaluru	ICFRE	Mr. Ritesh D Ram	PI
7	Arid Forest Research Institute, Jodhpur	ICFRE	Dr. Seema Kumar	PI
8	Tropical Forest Research Institute, Jabalpur	ICFRE	Dr S. Saravanan	PI
			Dr. S. C. Biswas	Co-PI
9	SSN College of Engineering, Chennai	Non- ICFRE	Dr R.Jayaparvathy	PI
10	Bharathidasan University, Tamil Nadu	Non- ICFRE	Dr R. Mohanraj	PI
			Dr. M. Ravichandran	Co-PI
11	ICAR - Directorate of Weed Research (DWR), Jabalpur	Non- ICFRE	Dr Sushil Kumar	PI

5. A Review Committee (RC) of the project is hereby constituted comprising of the National Project Coordinator (NPC) and Principal Investigators (PIs) of each of the institutional partners as in para 4 above. The Review Committee will be chaired and convened by National Project Coordinator. In the absence of the chairperson of the project, the members present in the meeting shall elect one of the members (PI) to chair the meeting. The RC will review the progress of the project at least once in 2 months. The progress report approved by the chairperson of the Review Committee shall be submitted to the Chairperson of Project Expert Group (Deputy Director General (Research), ICFRE) and Directors of all concerned ICFRE institutes within one week of the meeting held.

6. A Project Expert Group (PEG) will be constituted by the competent authority of ICFRE to monitor the project for achieving the defined project objectives within the time and costs projected. The Project Expert Group will meet at least once in six months. The meetings of the Project Expert Group will be facilitated and convened by ADG (Monitoring and Evaluation), Directorate of Research of the ICFRE. The Project Expert Group is empowered to recommend to ICFRE to revise the project including its objectives within the approved budget and time.

7. The meetings of the Review Committee and PEG may be held through video conferencing, whenever feasible.

8. Out of the total budget allocation of **Rs. 455.98 lakhs** for a project **duration of 5 years (60 months)**, the Institute wise budget as detailed below is sanctioned as grant-in-aid:

8.1 Institute of Forest Genetics and Tree Breeding, Coimbatore

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	2.72	8.16	8.64	8.64	8.94	5.44	42.54
M&S (Consumables)	0.25	0.75	0.75	0.50	2.10	0.50	4.85
Travel	0.67	2.00	2.60	1.50	1.00	1.33	9.10
Field Research Expenses (FRE)	0.67	2.00	2.00	0.75	0.50	1.33	7.25
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	3.40	2.40	1.50	2.20	1.00	0.00	10.50
Total	7.70	15.31	15.49	13.59	13.54	8.61	74.24

8.2 Forest Research Institute, Dehradun

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.28	3.84	4.32	4.32	4.32	2.56	20.64
M&S (Consumables)	0.17	0.50	0.50	0.50	1.00	0.33	3.00
Travel	0.33	2.50	2.50	1.00	1.00	0.67	8.00
Field Research Expenses (FRE)	0.33	1.00	1.00	1.00	1.00	0.67	5.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	2.50	0.50	0.50	0.50	0.50	0.00	4.50
Total	4.61	8.34	8.82	7.32	7.82	4.23	41.14

8.3 Rain Forest Research Institute, Jorhat

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.28	3.84	4.32	4.32	4.32	2.56	20.64
M&S (Consumables)	0.33	1.00	1.00	1.00	0.50	0.67	4.50
Travel	0.67	2.50	2.50	2.50	1.50	1.33	11.00
Field Research Expenses (FRE)	0.17	1.00	1.00	1.00	0.50	0.33	4.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	1.50	0.00	0.00	0.00	0.00	0.00	1.50
Total	3.95	8.34	8.82	8.82	6.82	4.89	41.64

8.4 Himalayan Forest Research Institute, Shimla

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.26	3.78	4.02	4.02	4.02	2.52	19.62
M&S (Consumables)	0.25	1.00	1.00	0.50	0.50	0.50	3.75
Travel	0.67	1.50	1.50	1.50	1.00	1.33	7.50
Field Research Expenses (FRE)	0.50	1.00	1.00	1.00	1.00	1.00	5.50
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	3.00	0.00	0.00	0.00	0.00	0.00	3.00
Total	5.68	7.28	7.52	7.02	6.52	5.35	39.37

8.5 Institute of Forest Productivity, Ranchi

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.92	5.76	6.48	6.48	6.48	3.84	30.96
M&S (Consumables)	0.08	0.25	0.50	0.50	0.50	0.17	2.00
Travel	0.67	2.50	2.50	2.00	1.00	1.33	10.00
Field Research Expenses (FRE)	0.67	2.00	2.00	2.00	1.00	1.33	9.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	7.50	0.00	0.00	0.00	0.00	0.00	7.50
Total	10.84	10.51	11.48	10.98	8.98	6.67	59.46

8.6 Institute of Wood Science and Technology, Bengaluru

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M&S (Consumables)	0.17	0.00	0.00	0.00	0.00	0.33	0.50
Travel	0.10	0.30	0.00	0.00	0.00	0.20	0.60
Field Research Expenses (FRE)	0.23	0.70	0.00	0.00	0.00	0.47	1.40
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.50	1.00	0.00	0.00	0.00	1.00	2.50

8.7 Arid Forest Research Institute, Jodhpur

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.26	3.78	4.02	4.02	4.02	2.52	19.62
M&S (Consumables)	0.17	1.00	1.00	1.00	0.50	0.33	4.00
Travel	0.33	1.00	1.00	1.00	0.50	0.67	4.50
Field Research Expenses (FRE)	0.33	1.00	1.00	1.00	1.00	0.67	5.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	3.00	0.00	0.00	0.00	0.00	0.00	3.00

Total	5.09	6.78	7.02	7.02	6.02	4.19	36.12

8.8 Tropical Forest Research Institute, Jabalpur

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.64	1.92	2.16	2.16	2.16	1.28	10.32
M&S (Consumables)	0.25	0.00	0.00	0.00	0.00	0.50	0.75
Travel	0.25	0.50	0.50	0.75	0.75	0.50	3.25
Field Research Expenses (FRE)	0.17	1.00	1.00	1.50	1.00	0.33	5.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Total	2.31	3.42	3.66	4.41	3.91	2.61	20.32

8.9 SSN College of Engineering, Chennai

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.64	1.92	2.16	2.16	2.16	1.28	10.32
M&S (Consumables)	0.17	0.50	0.50	1.00	1.00	0.33	3.50
Travel	0.33	1.00	0.50	0.50	1.00	0.67	4.00
Field Research Expenses (FRE)	0.17	0.50	0.50	0.50	0.50	0.33	2.50
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	8.00	0.00	0.00	0.00	0.00	0.00	8.00
Total	9.31	3.92	3.66	4.16	4.66	2.61	28.32

8.10 Bharathidasan University, Tamil Nadu

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.64	1.92	2.16	2.16	2.16	1.28	10.32
M&S (Consumables)	0.25	1.00	1.00	0.50	0.50	0.50	3.75
Travel	0.08	0.25	0.25	0.25	0.25	0.17	1.25
Field Research Expenses (FRE)	0.17	0.75	0.25	0.50	0.25	0.33	2.25
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							

Equipment & Accessories	0.25	0.25	0.25	0.00	0.00	0.00	0.75
Total	1.39	4.17	3.91	3.41	3.16	2.28	18.32

8.11 ICAR - Directorate of Weed Research (DWR), Jabalpur

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.62	1.86	1.86	1.86	1.86	1.24	9.30
M&S (Consumables)	0.25	0.00	0.00	0.00	0.00	0.50	0.75
Travel	0.25	0.50	0.50	0.75	0.75	0.50	3.25
Field Research Expenses (FRE)	0.08	1.00	0.75	1.25	1.00	0.17	4.25
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Total	2.20	3.36	3.11	3.86	3.61	2.41	18.55

8.12 ICFRE, Dehradun Component of Budget

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Institutional charges (10%)	5.36	7.24	7.35	7.06	6.50	4.49	38.00
Monitoring cost (5%)	2.68	3.62	3.67	3.53	3.25	2.24	19.00
Overall project escalation cost (5%)	2.68	3.62	3.67	3.53	3.25	2.24	19.00
Total	10.72	14.48	14.69	14.12	13.00	8.97	76.00

8.13 Total project outlay

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	12.26	36.78	40.14	40.14	40.44	24.52	194.28
M&S (Consumables)	2.33	6.00	6.25	5.50	6.60	4.67	31.35
Travel	4.35	14.55	14.35	11.75	8.75	8.7	62.45
Field Research Expenses (FRE)	3.48	11.95	10.5	10.5	7.75	6.97	51.15
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	31.15	3.15	2.25	2.70	1.50	0.00	40.75
Total	53.58	72.43	73.49	70.59	65.04	44.85	379.98

Institutional charges (10%)	5.36	7.24	7.35	7.06	6.50	4.49	38.00
Monitoring cost (5%)	2.68	3.62	3.67	3.53	3.25	2.24	19.00
Overall project escalation cost (5%)	2.68	3.62	3.67	3.53	3.25	2.24	19.00
Grand total	64.30	86.91	88.18	84.71	78.04	53.82	455.98

9. The grant to institutes is debitable from **CAMPA project- AICRP.**
10. The institution/ organization receiving the grant will maintain a separate account of the project expenditure and shall submit a utilization certificate for the period ending 31st March, 30th June and 30th September and 31st December by 15th April, 15th July, 15th October and 15th January of the year respectively as per the formats given in the guidelines for AICRP. Further grant may be released only after submission of utilization certificate. ICFRE shall have the right to inspect the accounts of all the institutions/organizations pertaining to grant for the project.
11. The terms and conditions as received from MoEF&CC/ CAMPA National Authority from time to time and detailed in the Agreement executed by ICFRE with non-ICFRE institutions/organizations shall be read together with other terms and conditions mentioned in AICRP guidelines of ICFRE.
12. Director of the lead institute of ICFRE where NPC is placed will sign MoA with organization other than ICFRE before release of funds. Funds to such organization will be released after receipt of copy of signed MoA from the lead institute by ICFRE.
13. A copy of the approved research project is annexed.

Encl.: As above.

(_____)
DDG (Research)
Directorate of Research, ICFRE, Dehradun

Copy for information and necessary action:

1. Deputy Director General (Administration), ICFRE
2. Directors of the concerned ICFRE Institutes (IFGTB, Coimbatore; FRI, Dehradun; RFRI, Jorhat; HFRI, Shimla; IFP, Ranchi; IWST, Bengaluru; AFRI, Jodhpur; TFRI, Jabalpur)
3. National Project Coordinator, IFGTB, Coimbatore
4. PIs of Non-ICFRE Institutes (SSN College of Engineering, Chennai; Bharathidasan University, Tamil Nadu; ICAR - Directorate of Weed Research (DWR), Jabalpur that the funds shall be released soon after signing of MoA
5. DDG (Research), ICFRE
6. ADG (M&E), ICFRE
7. DDO/ Accounts Officer, ICFRE
8. Master file, project file/Review Committee file/PEG file of the project AICRP- 7
9. Sr. P.S. to DG, ICFRE for kind information of DG, ICFRE

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

3. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

4. While providing operational flexibility among various subheads under head Recurring-A, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

5. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

6. The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

7. The research personnel sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

8. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

9. The sanctioned equipments and consumables would be produced as per GFR 2005 and its disposal would be done with prior approval of SERB.

10. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Pravin Kumar S** **Biomedical Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: pravinkumars@ssn.edu.in** **Mobile: 919994246503** **Dr. SARANYA S** **Biomedical Engineering** **SSN College Of Engineering** **Dr. Kavitha Anandan** **Biomedical Engineering** **SSN College Of Engineering** **Dr. G SUDHIR** **Orthopedic And Spine Surgery** **Sri Ramachandra Institute Of Higher Education And Research** **Dr. S. Kanagaraj** **Department Of Mechanical Engineering** **Indian Institute Of Technology Guwahati** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Dean (Reseach),** **Sri Ramachandra Institute Of Higher Education And Research , No.1, Ramachandra Nagar Porur, Chennai** **Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

FILE NO. CRG/2022/008910

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 05 October, 2023

ORDER

Subject: Financial Sanction of the research project titled **A personalized visual guidance system for musculoskeletal therapeutic interventions** under the guidance of Dr. Pravin Kumar S, Biomedical Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. SARANYA S, Assistant Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. Kavitha Anandan, Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. G SUDHIR, ASSISTANT PROFESSOR AND SENIOR CONSULTANT ORTHO SPINE SURGEON, Orthopedic And Spine Surgery, Sri Ramachandra Institute Of Higher Education And Research and by Dr. S. Kanagaraj, Professor, Department Of Mechanical Engineering, Indian Institute Of Technology Guwahati - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 2273832/- (Rs.** Twenty Two Lakh Seventy Three Thousand Eight Hundred and Thirty Two **Only)** with break-up of **Rs. *150000*/- under Capital (Non-recurring) head** and **Rs.*2123832*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 2273832/-** has been approved are given below:

The following budget may be considered for **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Wireless IMU motion tracking -> Posture tracking system	150000
A'	*Total (Non-Recurring)*	***150000***
B	**Recurring Items**	
1	Recurring - I : (Research Personnel) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1257120 600000 60000
2	Recurring - IV : (Overhead Charges)	206712
B'	*Total (Recurring)*	***2123832***
C	**Total cost of the project (A' + B')**	**2273832**

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

3. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

4. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

5. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

6. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

7. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

8.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

9. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

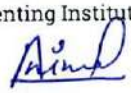
10. The research personnel sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

11. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

12. The project File no. CRG/2022/008910 should be mentioned in all communications arising from the above project. The organization/institute/university should ensure that the technical support/financial assistance provided to them by SERB should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

13. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by SERB.

14. Sanction order for release of funds under a) Non-recurring and b) Recurring will be issued separately depending on the availability of funds. The project become operational from the day the first release of grant received by the implementing Institute.



(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Pravin Kumar S** **Biomedical Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: pravinkumars@ssn.edu.in** **Mobile: 919994246503** **Dr. SARANYA S** **Biomedical Engineering** **SSN College Of Engineering** **Dr. Kavitha Anandan** **Biomedical Engineering** **SSN College Of Engineering** **Dr. G SUDHIR** **Orthopedic And Spine Surgery** **Sri Ramachandra Institute Of Higher Education And Research** **Dr. S. Kanagaraj** **Department Of Mechanical Engineering** **Indian Institute Of Technology Guwahati** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)

5.	**Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

FILE NO. CRG/2022/008910-G

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 05 October, 2023

ORDER

Subject: Research project entitled **A personalized visual guidance system for musculoskeletal therapeutic interventions** under the guidance of Dr. Pravin Kumar S, Biomedical Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. SARANYA S, Assistant Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. Kavitha Anandan, Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. G SUDHIR, ASSISTANT PROFESSOR AND SENIOR CONSULTANT ORTHO SPINE SURGEON, Orthopedic And Spine Surgery, Sri Ramachandra Institute Of Higher Education And Research and by Dr. S. Kanagaraj, Professor, Department Of Mechanical Engineering, Indian Institute Of Technology Guwahati.

1. In continuation of SERB's sanction order No. CRG/2022/008910 dated 05 October, 2023, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*747944/-*** under 'Grants-in-aid General' to SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110 being the grant for the financial year 2022-2023 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 05 October, 2023.

3. As this is the first grant being released under 'Grants-in-aid General' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under Core Research Grant **(PAC Electrical Electronics & Computer Engineering)** (General) .

5. The Sanction has been issued with the approval of the competent authority on **29 September, 2023** and vide Diary No. **SERB/F/7240/2023-2024** dated **04 October, 2023**..

6. The release amount of **Rs. 747944/-** (Rupees Seven Lakh Forty Seven Thousand Nine Hundred and Forty Four only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD., THIRUVANMIYUR BRANCH NO.3 THIRUVALLUVAR SALAI THIRUVANMIYUR CHENNAI 600 041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	pravinkumars@ssn.edu.in

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Pravin Kumar S** **Biomedical Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: pravinkumars@ssn.edu.in** **Mobile: 919994246503** **Dr. SARANYA S** **Biomedical Engineering** **SSN College Of Engineering** **Dr. Kavitha Anandan** **Biomedical Engineering** **SSN College Of Engineering** **Dr. G SUDHIR** **Orthopedic And Spine Surgery** **Sri Ramachandra Institute Of Higher Education And Research** **Dr. S. Kanagaraj** **Department Of Mechanical Engineering** **Indian Institute Of Technology Guwahati** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

FILE NO. CRG/2022/008910-C

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 05 October, 2023

ORDER

Subject: Research project entitled **A personalized visual guidance system for musculoskeletal therapeutic interventions** under the guidance of Dr. Pravin Kumar S, Biomedical Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. SARANYA S, Assistant Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. Kavitha Anandan, Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. G SUDHIR, ASSISTANT PROFESSOR AND SENIOR CONSULTANT ORTHO SPINE SURGEON, Orthopedic And Spine Surgery, Sri Ramachandra Institute Of Higher Education And Research and by Dr. S. Kanagaraj, Professor, Department Of Mechanical Engineering, Indian Institute Of Technology Guwahati.

1. In continuation of SERB's sanction order No. CRG/2022/008910 dated 05 October, 2023, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*150000/-*** under 'Grants-in-aid Capital' to SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110 being the grant for the financial year 2022-2023 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 05 October, 2023.

3. As this is the first grant being released under 'Grants-in-aid Capital' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under Core Research Grant **(PAC Electrical Electronics & Computer Engineering)** (Capital).

5. The Sanction has been issued with the approval of the competent authority on **29 September, 2023** and vide Diary No. **SERB/F/7239/2023-2024** dated **04 October, 2023**.

6. The release amount of **Rs. 150000/-** (Rupees One Lakh Fifty Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD., THIRUVANMIYUR BRANCH NO.3 THIRUVALLUVAR SALAI THIRUVANMIYUR CHENNAI 600 041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	pravinkumars@ssn.edu.in

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.

FILE NO. CRG/2022/008910

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 05 October, 2023

ORDER

Subject: Financial Sanction of the research project titled **"A personalized visual guidance system for musculoskeletal therapeutic interventions"** under the guidance of Dr. Pravin Kumar S, Biomedical Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. SARANYA S, Assistant Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. Kavitha Anandan, Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. G SUDHIR, ASSISTANT PROFESSOR AND SENIOR CONSULTANT ORTHO SPINE SURGEON, Orthopedic And Spine Surgery, Sri Ramachandra Institute Of Higher Education And Research and by Dr. S. Kanagaraj, Professor, Department Of Mechanical Engineering, Indian Institute Of Technology Guwahati - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 507408/-** (Rs. Five Lakh Seven Thousand Four Hundred and Eight Only) with break-up of **Rs. *0*/- under Capital (Non-recurring) head** and **Rs.*507408*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 507408/-** has been approved are given below:
The following budget may be considered for **Sri Ramachandra Institute Of Higher Education And Research , No.1, Ramachandra Nagar Porur, Chennai**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment	0
A'	*Total (Non-Recurring)*	***0***
B	**Recurring Items**	
1	Recurring - I : (Research Personnel) Recurring - II : Recurring - III : Scientific Social Responsibility	461280 0 0
2	Recurring - IV : (Overhead Charges)	46128
B'	*Total (Recurring)*	***507408***
C	**Total cost of the project (A' + B')**	**507408**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 169136/-** (Rupees One Lakh Sixty Nine Thousand One Hundred and Thirty Six only) under 'Grants-in-aid General' to **Dean (Reseach), Sri Ramachandra Institute Of Higher Education And Research , No.1, Ramachandra Nagar Porur, Chennai** being the first installment of the grant for the year 2022-2023 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Core Research Grant. (PAC Electrical Electronics & Computer Engineering)

4. The Sanction has been issued to Sri Ramachandra Institute Of Higher Education And Research , No.1, Ramachandra Nagar Porur, Chennai with the approval of the competent authority under delegated powers on **29 September, 2023** and vide Diary No. **SERB/F/7241/2023-2024** dated **04 October, 2023**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

9. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

10. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

11. The release amount of **Rs. 169136/-** (Rupees One Lakh Sixty Nine Thousand One Hundred and Thirty Six only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SRUC
Account Name	SRIHER 1023 SERB R&D Account
Account Number	6772805572
Bank Name & Branch	Indian Bank Sri Ramachandra University PO(1974) No 1 Ramachandra Nagar Porur Chennai - 600116
IFSC/RTGS Code	IDIB000S180
Email id of A/C Holder	deanresearch@sriramachandra.edu.in
Email id of PI	pravinkumars@ssn.edu.in

12.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

13. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

14. The project File no. CRG/2022/008910 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

15. The research personnel sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

16. As this is the first grant being released for the project, no previous U/C is required.

17. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

18. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

19. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board.

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Pravin Kumar S** **Biomedical Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: sudhir_axon@yahoo.co.in** **Mobile: 919962277126** **Dr. SARANYA S** **Biomedical Engineering** **SSN College Of Engineering** **Dr. Kavitha Anandan** **Biomedical Engineering** **SSN College Of Engineering** **Dr. G SUDHIR** **Orthopedic And Spine Surgery** **Sri Ramachandra Institute Of Higher Education And Research** **Dr. S. Kanagaraj** **Department Of Mechanical Engineering** **Indian Institute Of Technology Guwahati** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Dean (Reseach),** **Sri Ramachandra Institute Of Higher Education And Research , No.1, Ramachandra Nagar Porur, Chennai** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

Email : erip-er.hqr@gov.in
Tele : 011 - 23902714
Fax : 011 - 23902719

No. ERIP/ER/202302002/M/01/1822

Directorate of Extramural Research &
Intellectual Property Rights (ER&IPR)
Defence Res & Dev Orgn (DRDO)
V[th] Floor, DRDO HQ. ANNEXE
Metcalfe House, Civil Lines
Delhi – 110054

Dated: 06 Apr 2023

To

Dr. S. R. Koteswara Rao
Professor
Dept. of Mechanical Engineering
Sri Sivasubramaniya Nadar College of Engineering
Kalavakkam – 603 110, Tamil Nadu

Sub: Grants-in-Aid for research project titled **"Wire arc additive manufacturing of Inconel 718 to stainless steel functionally graded material using dual filler TIG welding."**.

Approval of the competent authority is hereby conveyed for a grant of **Rs. 24.20687** (Rupees Twenty Four Lakhs Twenty Thousand Six Hundred Eighty Seven Only), to Sri Sivasubramaniya Nadar College of Engineering for pursuing the research on the subject titled project Dr. S. R. Koteswara Rao, Professor, Dept. of Mechanical Engineering, Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110, Tamil Nadu as Principal Investigator and Dr. A. K. Lakshminarayanan of the same institute as Co-Investigator.

2. The grant shall be spent as follows:

Expenditure on ↓ (Rs in lakh) during →	Year 1	Year 2	Year 3	Line Total
a) Staff : 01 Junior Research Fellow (JRF) @ Rs.31,000/- pm for first two years & 01 Senior Research Fellow (SRF) @ Rs. 35,000/- pm for last third year	3.72000	3.72000	4.20000	**11.64000**
b) Equipment (including spares thereof)	0.0000	0.0000	0.0000	**0.0000**
c) Operation and maintenance	0.0000	0.0000	0.0000	**0.0000**
d) Expendables	3.26467	0.80395	0.80395	**4.87257**
e) Travel (Domestic)	0.10000	0.30000	0.30000	**0.70000**
f) Contingencies	0.09500	0.34000	0.27500	**0.71000**
g) Visiting Faculty or Research Consultant	0.00000	0.00000	0.00000	**0.00000**
h) Workshops	0.00000	0.00000	2.00000	**2.00000**
i) Procured services (other than (g)) and metered utilities	0.82895	1.38355	0.95580	**3.16830**
j) Institutional Overheads	0.37200	0.37200	0.37200	**1.11600**
Column Totals	**8.38062**	**6.91950**	**8.90675**	**24.20687**

Grand total: Rs. 24.20687 (Rupees Twenty Four Lakhs Twenty Thousand Six Hundred Eighty Seven Only).

3) The project will last for **Three Years** from the **date of release of the first installment by the PCDA (R&D)** and it will be governed by the terms and conditions given overleaf.

4) Objectives of the proposal and its application to Defence (DRDO) :-

- In situ deposition of required alloy composition by simultaneously melting two different alloy filler wires in a Tungsten Inert Gas welding arc and by controlling the filler wire feed rate.
- Wire arc additive manufacturing of functionally graded structures with gradual variation in composition from one end to the other: Inconel 718 to stainless steel.
- Optimizing the process parameters to obtain sound functionally graded structures metallurgical characterization and mechanical property evaluation of the additively manufactured functionally graded materials.

BP- 2022-23-11822

FILE NO. CRG/2022/001395-G

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 03 March, 2023

ORDER

Subject: Research project entitled **A powered EMG-based embedded system controlled transfemoral prosthesis** under the guidance of Dr. Satheesh Kumar Gopal, Mechanical, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Prof. Vijayalakshmi P, Professor, Electronics And Communication Engineering, SSN College Of Engineering and by Dr. Dhanalakshmi M, Assistant Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. RAJINIKUMAR PALANIYAPPAN, Assistant Professor, Biomechanics, Tamilnadu Physical Education And Sports University.

1. In continuation of SERB's sanction order No. CRG/2022/001395 dated 03 March, 2023, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*50000/-*** under 'Grants-in-aid General' to SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110 being the grant for the financial year 2022-2023 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 03 March, 2023.

3. As this is the first grant being released under 'Grants-in-aid General' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under Core Research Grant **(PAC on Mechanical, Manufacturing, Aerospace Engineering & Robotics)** (General) .

5. The Sanction has been issued with the approval of the competent authority on **02 March, 2023** and vide Diary No. **SERB/F/11242/2022-2023** dated **03 March, 2023**..

6. The release amount of **Rs. 50000/-** (Rupees Fifty Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNADU MERCHANTILE BANK LTD., THIRUVANMIYUR BRANCHNO. 3 THIRUVALLUVAR SALAI THIRUVANMIYUR CHENNAI - 600 041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	human_flag@yahoo.com

(Dr. Pankaj K. Rawat)
Scientist D
ms_cmer@serbonline.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Satheesh Kumar Gopal** **Mechanical** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: human_flag@yahoo.com** **Mobile: 919444776969** **Prof. Vijayalakshmi P** **Electronics And Communication Engineering** **SSN College Of Engineering** **Dr. Dhanalakshmi M** **Biomedical Engineering** **SSN College Of Engineering** **Dr. RAJINIKUMAR PALANIYAPPAN** **Biomechanics** **Tamilnadu Physical Education And Sports University** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Pankaj K. Rawat)
Scientist D
ms_cmer@serbonline.in

FILE NO. CRG/2022/001395

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 03 March, 2023

ORDER

Subject: Financial Sanction of the research project titled **A powered EMG-based embedded system controlled transfemoral prosthesis** under the guidance of Dr. Satheesh Kumar Gopal, Mechanical, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Prof. Vijayalakshmi P, Professor, Electronics And Communication Engineering, SSN College Of Engineering and by Dr. Dhanalakshmi M, Assistant Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. RAJINIKUMAR PALANIYAPPAN, Assistant Professor, Biomechanics, Tamilnadu Physical Education And Sports University - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB**) is hereby accorded to the above mentioned project at a total cost of **Rs. 3481808/- (Rs.** Thirty Four Lakh Eighty One Thousand Eight Hundred and Eight **Only)** with break-up of **Rs. *1298160*/- under Capital (Non-recurring) head** and **Rs.*2183648*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 3481808/-** has been approved are given below:

The following budget may be considered for **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Experimental Setup -> Micrcontroller -> Micrcontroller nucleo board -> Desktop computer -> Motion MEMS and environmental sensor expansion board for STM32 Nucleo -> Prosthetic device assembly -> Servo Motor with driver -> Stewart Platform mechanism	1298160
A'	*Total (Non-Recurring)*	***1298160***
B	**Recurring Items**	
1	Recurring - I : (Research Personnel) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1257120 550000 60000
2	Recurring - IV : (Overhead Charges)	316528
B'	*Total (Recurring)*	***2183648***
C	**Total cost of the project (A' + B')**	**3481808**

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

3. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

4. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

5. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

6. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

7. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

8.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of

accounts pertaining to the grant immediately after the end of each financial year.

9. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

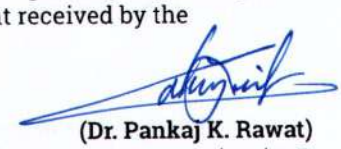
10. The research personnel sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

11. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

12. The project File no. CRG/2022/001395 should be mentioned in all communications arising from the above project. The organization/institute/university should ensure that the technical support/financial assistance provided to them by SERB should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

13. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by SERB.

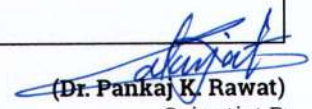
14. Sanction order for release of funds under a) Non-recurring and b) Recurring will be issued separately depending on the availability of funds. The project become operational from the day the first release of grant received by the implementing Institute.



(Dr. Pankaj K. Rawat)
Scientist D
ms_cmer@serbonline.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Satheesh Kumar Gopal** **Mechanical** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: human_flag@yahoo.com** **Mobile: 919444776969** **Prof. Vijayalakshmi P** **Electronics And Communication Engineering** **SSN College Of Engineering** **Dr. Dhanalakshmi M** **Biomedical Engineering** **SSN College Of Engineering** **Dr. RAJINIKUMAR PALANIYAPPAN** **Biomechanics** **Tamilnadu Physical Education And Sports University** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)



(Dr. Pankaj K. Rawat)
Scientist D
ms_cmer@serbonline.in

BP-2022-23-11823

FILE NO. CRG/2022/001395-C

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 03 March, 2023

ORDER

Subject: Research project entitled **A powered EMG-based embedded system controlled transfemoral prosthesis** under the guidance of Dr. Satheesh Kumar Gopal, Mechanical, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Prof. Vijayalakshmi P, Professor, Electronics And Communication Engineering, SSN College Of Engineering and by Dr. Dhanalakshmi M, Assistant Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. RAJINIKUMAR PALANIYAPPAN, Assistant Professor, Biomechanics, Tamilnadu Physical Education And Sports University.

1. In continuation of SERB's sanction order No. CRG/2022/001395 dated 03 March, 2023, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*1298160/-*** under 'Grants-in-aid Capital' to SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110 being the grant for the financial year 2022-2023 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 03 March, 2023.

3. As this is the first grant being released under 'Grants-in-aid Capital' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under Core Research Grant **(PAC on Mechanical, Manufacturing, Aerospace Engineering & Robotics)** (Capital).

5. The Sanction has been issued with the approval of the competent authority on **02 March, 2023** and vide Diary No. **SERB/F/11241/2022-2023** dated **03 March, 2023**.

6. The release amount of **Rs. 1298160/-** (Rupees Twelve Lakh Ninety Eight Thousand One Hundred and Sixty only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNADU MERCHANTILE BANK LTD., THIRUVANMIYUR BRANCHNO. 3 THIRUVALLUVAR SALAI THIRUVANMIYUR CHENNAI - 600 041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	human_flag@yahoo.com

(Dr. Pankaj K. Rawat)
Scientist D
ms_cmer@serbonline.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Satheesh Kumar Gopal** **Mechanical** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: human_flag@yahoo.com** **Mobile: 919444776969** **Prof. Vijayalakshmi P** **Electronics And Communication Engineering** **SSN College Of Engineering** **Dr. Dhanalakshmi M** **Biomedical Engineering** **SSN College Of Engineering** **Dr. RAJINIKUMAR PALANIYAPPAN** **Biomechanics** **Tamilnadu Physical Education And Sports University** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Pankaj K. Rawat)
Scientist D
ms_cmer@serbonline.in

FILE NO. CRG/2022/002734

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 20 January, 2023

ORDER

Subject: Financial Sanction of the research project titled "**Development of large size and high quality Piperazine derivative single crystal: Unidirectional RSR and ISR methods**" under the guidance of Dr. SenthilPandian M, SSN Research Centre and Department of Physics, Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110 - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 1998832/- (Rs.** Nineteen Lakh Ninety Eight Thousand Eight Hundred and Thirty Two **Only)** with break-up of **Rs. *0*/- under Capital (Non-recurring) head** and **Rs.*1998832*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 1998832/-** has been approved are given below:
The following budget may be considered for **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment	0
A'	*Total (Non-Recurring)*	***0***
B	**Recurring Items**	
1	Recurring - I : (Research Personnel) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1257120 500000 60000
2	Recurring - IV : (Overhead Charges)	181712
B'	*Total (Recurring)*	***1998832***
C	**Total cost of the project (A' + B')**	**1998832**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 706000/-** (Rupees Seven Lakh Six Thousand only) under 'Grants-in-aid General' to **PRINCIPAL, Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam** being the first installment of the grant for the year 2022-2023 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Core Research Grant. (PAC Physics-1 (Condensed Matter Physics and Material Sciences))

4. The Sanction has been issued to Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam with the approval of the competent authority under delegated powers on **19 January, 2023** and vide Diary No. **SERB/F/9541/2022-2023** dated **20 January, 2023**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

9. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

10. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

11. The release amount of **Rs. 706000/-** (Rupees Seven Lakh Six Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD THIRUVANMIYUR BRANCH & NO.3, THIRUVALLUVAR SALAI, THIRUVANMIYUR, CHENNAI-600041, TAMIL NADU
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	msenthil.cgc@gmail.com

12.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

13. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

14. The project File no. CRG/2022/002734 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

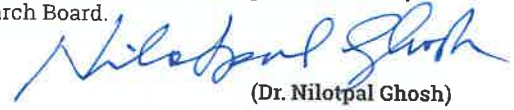
15. The research personnel sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

16. As this is the first grant being released for the project, no previous U/C is required.

17. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

18. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

19. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board.



(Dr. Nilotpal Ghosh)
MS
nilotpal@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. SenthilPandian M** **SSN Research Centre and Department of Physics** **Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110** **Email: msenthil.cgc@gmail.com** **Mobile: 919944294169** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)



(Dr. Nilotpal Ghosh)
MS
nilotpal@serb.gov.in

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद
COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH
मानव संसाधन विकास समूह (एचआरडीजी)
HUMAN RESOURCES DEVELOPMENT GROUP (HRDG)
बाह्य अनुसंधान प्रभाग (ईएमआर-II)
EXTRAMURAL RESEARCH DIVISION (EMR-II)
सीएसआईआर कॉम्प्लेक्स, पूसा, नई दिल्ली - 110 012
CSIR COMPLEX, PUSA, NEW DELHI - 110 012

संख्या: **03/1503/23/EMR-II** दिनांक:- 10/08/2023

स्वीकृति आदेश/ SANCTION ORDER

DR.. K ARAVINTH
SSN RESEARCH CENTRE
SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
CHENNAI- 603110
TAMIL NADU

Subject :Grant-in-aid & Financial Sanction of the Research Project entitled "SINGLE CRYSTAL GROWTH OF 1,4-BIS(2-METHYLSTYRYL) BENZENE AND 1,1,4,4-TETRAPHENYL-1,3-BUTADIENE ORGANIC SCINTILLATORS FOR RADIATION DETECTION
."

महोदय,
मुझे उपरोक्त शीर्षक वाले आपके प्रस्ताव का सीएसआईआर योजना की मंजूरी के संदर्भ में आपके नीचे दिए गए विवरण के अनुसार डीजी सीएसआईआर के अनुमोदन से अवगत कराने का निर्देश दिया गया है:

I am directed to refer to your proposal for sanction of CSIR Scheme titled above and to convey the approval of DG CSIR as per the details given below.

I	Duration of the Scheme (from the date of Commencement)	**36 Months**		
II	Staff	JRF-1		
III	Contingency (per annum in Rs.)	1st Year : 300000/-	2nd Year :200000/-	3rd Year :200000/-
IV	Equipment (lumpsum in Rs.)	7,00,000/-		

1. The above sanction is subject to review of periodical progress of the project by expert committee.

2 The sanctioned scheme shall start from the date of issue of the letter or within 3 months from the date of issue of the letter or commenced as soon as some expenditure has been incurred out of the grant/date of joining of fellow, unless otherwise authorized by CSIR, failing which the scheme will be treated as withdrawn.

The Institute should ensure to provide

1 a certificate by the PI countersigned by the Head of the department/institution that no other aid-giving agency is funding the work proposed to be done under the scheme sanctioned by CSIR (non-funding certificate);
2. an agreement in the prescribed Form-A on non-judicial stamp paper of Rs 10/- (each page duly signed by PI);
3. date of commencement and
4. RBI-NEFT form (Form-K) to CSIR-HRDG immediately after the receipt of sanction letter.
5. Acceptance Certificate.

3. Sanction of the grant to appointment of JRF/SRF/RA under this scheme is subject to the conditions as attached. Staff Stipend" will be utilized from the date the Research Fellow/Associate joins duty in accordance with the rules stipulated in the terms and conditions and he/she will be paid stipend after receipt of approval of appointment from CSIR. Further, **Selection of JRF/SRF/RA** should be **strictly** as per CSIR HRDG guidelines available on website and the sample advertisement is attached for reference. **Not following the guidelines will lead to disapproval of fellow appointment.**

4. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and CSIR-HRDG will have no liability to meet the fellowship and salary of supporting staff prior to formalization of selection or beyond the duration of the project.

5. "Contingency" amount will be utilized on pro-rata from the date of the commencement of the scheme."

6. Purchase of equipment:The proforma invoice of the supplier, with whom the order has been placed is to be furnished by PI along with the claim bill to CSIR through the Registrar/Principal/Director of the Institute upon completion of purchase formalities, in any case within 3 months from the date of receipt of the equipment grant.

7. Due acknowledgement of technical support/financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publications/media releases as well as in the opening paragraphs of their Annual Reports during and after completion of the project.

8. Sanction of grants is subject to strict compliance of the terms and conditions enclosed or as may be modified from time to time. You are also required to follow the instructions /mandatory guidelines of CSIR-HRDG governing Research Schemes which are attached.

9. Funds @ 25% of the amount earmarked for the financial year in one installment will be released initially. Next installment of funds may be released after utilization of at least 75% of the funds released earlier. You may kindly register yourself in EAT Module on PFMS for enabling us to release grant.

10. CSIR Guidelines for Ethics in Research and in Governance attached should be followed strictly.

11. The project File no. 03/1503/2023/EMR-II may also be mentioned in all research communications arising from the above project with due acknowledgement of CSIR-HRDG.

12. All the related documents of project have to be sent to CSIR-HRDG by email to the Section Officer, EMR II at soemr2@csirhrdg.res.in. Hard copy should follow by post invariably which should be sent to the Section Officer, Room no 503 EMR-II, CSIR Complex, Pusa, New Delhi - 110 012

भवदीय,

जे.यम.मेनन

(जयशंकर मेनन)
अनुभाग अधिकारी, ईएमआर -II

Copy to:
1. The Registrar, CHENNAI- 603110, TAMIL NADU

2. Sr. DFA/DFA /FAO/SO EMR-III

Encl: Timeline sheet, Man power draft Advertisement Circulars, EMR Bank Details ,CSIR-HRDG Guidelines, CSIR guidelines on ethics in research

Obligations of the PI (Time line Sheet)

i) Acceptance of the grants sanctioned, an Undertaking in the prescribed form-A executed on non-judicial stamp paper of RS. 10/- each page duly signed immediately.

ii) A certificate duly countersigned by the Head of the Department/Head of the institution that no other aid giving agency is funding your above scheme immediately.

iii) RBI-NEFT form (Form-K) to CSIR-HRDG immediately after the receipt of sanction letter

iv) Form G immediately after the selection of the Scholar.

v) Communication of Date of commencement of the scheme. This should be started within 3 months from the date of issue of the letter or as soon as some expenditure has been incurred out of the grant/date of joining of fellow, unless otherwise authorized by CSIR, failing which the scheme will be treated as withdrawn.

vi) Submission of Documents regarding Purchase of equipment: 3 months from the date of receipt of the equipment grant.

vii) While claiming grants for the subsequent year/period the position regarding unspent balances of the previous year's grants must be mentioned head-wise in the bill failing which the same may be returned unpassed for compliance. Statement of accounts duly audited by the Account Officer and countersigned by the next higher authority in respect of the grants received and expenditure incurred with balance, if any, during the previous year should also be invariably enclosed with the bill.

viii) Submission of Annual Progress Report to CSIR by 1st October, each year including the progress of work as on 31st Aug. (as per Form-E1) Non-receipt of this report in time will lead to the scheme being withdrawn.

ix) Submission of Final Technical Reports in Form-F of the booklet within 3 months after completion of the work describing the original objectives of the scheme, how far these objectives have been achieved and how the results would benefit technological development or enrich the existing knowledge on the subject.

x) Sending of copies of Research Papers published in Journals and Proceedings of Prestigious national/international conferences under this grant with due acknowledgement of CSIR support for information as and when published. The project numbers should always be mentioned in the acknowledgements.

xi) Submission of the Audit Utilization Certificate and audited statement of accounts for the grants paid by the CSIR immediately on termination of the scheme.

ALL INSTRUMENTS/EQUIPMENT PURCHASED OUT OF/PROVIDED BY CSIR EXTRAMURAL RESEARCH FUND SHOULD CARRY THE LABEL "CSIR FUNDED"

Ref:	Date: 15-05-2023

Sanction Order

To,
The Registrar/Principal/Financial Authority,
Through Dr. Srinivasan Manickam
SSN Research Centre, SSN College of Engineering

Subject: Collaborative Research Scheme(CRS) Project of UGC-DAE CSR entitle '' by **Dr. Srinivasan Manickam**.

Dear Madam/Sir,

In continuation to our sanction letter the CRS project submitted to UGC-DAE CSR by **Dr. Srinivasan Manickam** of your institution has been approved by the competent authority. The principal collaborator from UGC-DAE CSR is **Dr. Shamima Hussain**.The details of the remittance are given below:

Student fellowship(@ ₹14,000/- pm+HRA)	Consumable	Contingency	Total Amount	Date of remittance	PFMS Ref. No.
₹	₹30,000	₹15,000	₹45000	2023-03-30	SBIN223151984496
No overheads are available under this scheme					

This project has been approved as per the guidelines given below:

1. This is a Collaborative Research Scheme (CRS) of UGC-DAE CSR. In view of the complex and involved nature of the experiments, any publication emerging under the project must be of collaborative in nature with due consents from the scientists at UGC-DAE CSR and/or DAE centres, and in consultation with the Principal Collaborator/Coordinator. Following phrase must be included in the acknowledgement: “This work was partially/fully carried out using the facilities of UGC-DAE CSR. The authors acknowledge the financial support from UGC-DAE CSR through a Collaborative Research Scheme (CRS) project number .”

2. This project is sanctioned for **one year** but it may be extended on yearly basis subject to a total period of three years.

3. In case the CRS project has been approved without student fellowship, it will not be possible to grant student fellowship in subsequent years as well.

4. The PI must ‘**Apply for an Experiment Time**’ through our online user portal https://csruserportal.com/ for utilization of each experimental facility each time.

5. The project will be reviewed at the end of each year to consider sanction and financial allocation for the succeeding year.

6. The release of grants for the subsequent years can be made only upon receipt of funds from UGC towards the scheme. A separate sanction order will be issued for the subsequent years.

7. At the end of the financial year (i.e. by March 31) the PI should submit:
(i) Utilization Certificate in the format provided at our website for the amount spent and
(ii) A Statement of Expenditure duly signed by the Registrar/Principal/competent financial authority of your university/institution to the Centre-Director of respective Centre. The release of funds for the subsequent year(s) can only be made after receiving the above documents.

8. The UGC-DAE CSR will be able to reimburse the travel expenses to Project Investigators as per rules, limited to 2nd AC train fare visiting a centre on project work. However, the student participant is permitted for a sleeper class train fare by the shortest route and is as per prevailing norms of UGC-DAE CSR.

Rules for selection of a CRS project fellow

The CRS project fellow (if approved) should be made by an open selection procedure as per UGC guidelines. The recruitment procedure should be completed within 3 months after the release of the sanction order. The details for recruitment are given below:

#	Designation	Remuneration	Qualifications
1	CRS Project Fellow (Junior) -I	₹14,000 + HRA	M.Sc. (not earlier than 3 years) with a minimum of 55% marks in the concerned subject (**for Science**) M.E. / M. Tech. (not earlier than 3 years) 1st Class (**for Engineering**)
2	CRS Project Fellow (Senior)-I	₹16,000 + HRA	After completion of 2 years as a **CRS Project Fellow (Junior) -I** + at least one research paper in a reputed SCI journal + assessment of the student by a 3 member expert committee approved by the Centre-Director
3	CRS Project Fellow (Junior)-II	₹31,000 + HRA	**Same as (1)** + valid JEST/GATE/NET-JRF/Lectureship/UGC-CSIR NET JRF/Lectureship + Ph.D. registration of the student under the supervision of the PI at the University where PI's institute is affiliated
4	CRS Project Fellow (Senior)-II	₹35,000 + HRA	After completion of 2 years as a **CRS Project Fellow (Junior)-II** + at least one research paper in a reputed SCI journal + assessment of the student by a 3 member expert committee approved by the Centre-Director

1. All recruitment should be authorized by a selection committee as per rules of University/Institution in which the PI is working. The advertisement should be widely circulated electronically and a copy should be sent to the Principal Collaborator.

2. For appointing a student in the CRS project, the interview panel must be approved by the Centre-Director of the respective Centre. The PI should inform the interview schedule as least 2 weeks in advance. The entire process should be conducted in an online/hybrid mode.

3. A UGC-DAR CSR nominee along with Principal Collaborator is needed for all interviews and upgradations.

4. For all appointments, it has to be mentioned that it is on purely temporary basis and will co-terminate with the CRS project. Leave rules for the appointed fellow will be as per the host institution of PI.

5. Appointment of student in the project is not permitted in the second or third year of the project.

6. While appointing as well as upgrading, a copy of relevant documents including CV along with educational qualification documents (incl. NET/GATE, etc.), minutes of the selection committee/upgradation committee, appointment letter, joining report etc. must be send to the Centre-Director of the respective Centre.

7. The student appointed under this project should spend a substantial amount of time at UGC-DAE CSR.

8. Contingency fund to be utilized for computational work, purchase of stationary and other consumables pertaining to the concerned project. No grant is allocated for any capital equipment/asset.

Copy to: Through User Portal to: Director, concerned Centre-Director, User Office, Dr. Srinivasan Manickam, Dr. Shamima Hussain, AO for information.



Narian Kr.Lengay
Administrative Officer-I
(UGC-DAE CSR)

金研研
令和５年２月２２日
22 February, 2023

SSN Institutions
Dear Dr. Manickam Srinivasan

令和５年度新素材共同研究開発センター
共同利用研究課題の審査結果について(通知)
Review Results for FY2023 GIMRT Proposals
of Cooperative Research and Development Center for Advanced Materials

先に申請のありました下記共同研究課題について、審査の結果「採択」となりましたので、お知らせします。
なお、本採択通知は課題代表者にのみ通知しますので、貴職から所属長、分担者ほか関係者にご連絡願います。

Thank you for GIMRT proposal application. I am pleased to inform you that your proposal has been accepted. Please notify this to your collaborator, your department head and other relevant persons.

１．課題番号 Proposal Number：202212-CRKEQ-0501

２．申請課題 Proposal Title：
Synthesis and Characterizations of Novel Heusler Alloys for Thermoelectric Applications

東北大学金属材料研究所
所長　古　原　忠
Tadashi Furuhara
Director of Institute for Materials Research, Tohoku University

金研研
令和５年２月２７日
27 February, 2023

SSN Institutions
Dear Dr. Manickam Srinivasan

令和５年度研究部共同利用研究課題の審査結果について(通知)
Review Results for FY2023 GIMRT Proposals
of Research Divisions and Groups

先に申請のありました下記共同研究課題について、審査の結果「採択」となりましたので、お知らせします。

なお、本採択通知は課題代表者にのみ通知しますので、貴職から所属長、分担者ほか関係者にご連絡願います。

また、末尾に審査員によるコメントを添付しておりますので、研究遂行にあたり参考にしていただきますようお願いします。

Thank you for GIMRT proposal application. I am pleased to inform you that your proposal has been accepted. Please notify this to your collaborator, your department head and other relevant persons.

１．課題番号 Proposals Number：202212-RDKGE-0505

２．申請課題 Proposal Title：
In-situ observations of Si based crystalline materials with various dopants for PV Applications

３．コメント Comment from Reviewers：

研究の学術的な重要性が高く、研究計画も適切である。関連する研究が進んでおり、既に論文化もなされているので研究実施能力も高く、準備状況も十分である。

東北大学金属材料研究所
所長　古　原　忠
Tadashi Furuhara
Director of Institute for Materials Research, Tohoku University

INDIA-TAIWAN PROGRAMME OF COOPERATION IN SCIENCE & TECHNOLOGY 2022
SHORTLISTED PROJECTS

S NO	India (Gita) Application	Project Title	IPL Organisation	IPL Name of Project Lead	Taiwan PL Organisation	Taiwan PL Name of Project Lead
1	2022TW0202076	Development and Growth of industry scale DS and CCZ silicon ingots for PV applications	Sri Sivasubramaniya Nadar (SSN) College of Engineering	Manikkam Srinivasan	Department of Mechanical Engineering, National Central University	Jyh-Chen Chen
2	2022TW0204115	Combined Machine Learning and Molecular Simulation for New Broadly Neutralizing Antibodies against COVID-19 and AIDS	Indian Institute of Science	Prabal K. Maiti	Department of Chemical Engineering, National Taiwan University	Shiang-Tai Lin
3	2022TW0202073	Nanoconfinement of hydrides in functionalized porous hybrid materials based on silica, metal-organic framework, and polymers for tunable hydrogen release	Indian Institute of Technology Delhi	Leena Nebhani	Department of Materials Science and Engineering, National Yang Ming Chiao Tung University	Cheng-Yu Wang
4	2022TW0202041	Renewable energy storage based on reversible PEM fuel cell for grid applications	Indian Institute of Technology(IIT) Jammu	Satya Sekhar Bhogilla	Department of Mechanical and Electro-Mechanical Engineering, National Sun Yat-Sen University	Jenn-Kun Kuo
5	2022TW0201097	AI/ML-based Reconfigurable Intelligent Surface Assisted IoT Networks	Indian Institute of Information Technology Guwahati, India	Sudip Biswas	Department of Communication Engineering, National Central University	Meng-Lin Ku
6	2022TW0203098	A study of a water-drop-based electricity generator by using different hydrophobic and superhydrophobic substrates	Indian Institute of Technology Delhi	Bahni Ray	Institute of Applied Mechanics, National Taiwan University	An-Bang Wang
7	2022TW0204043	Vaccine development for Streptococcus agalactiae and Streptococcus iniae in tilapia and hybrid grouper	School of Marine Sciences Cochin University of Science & Technology Kochi-16, Kerala, INDIA	Preetham Elumalai	Department of Veterinary Medicine, National Pingtung University of Science and Technology	Shih-Chu Chen

8	2022TW0204030	ALDH binding PROTACs for cancer therapy: Computational design, synthesis, and biological testing	Pondicherry University	Mohane Coumar Selvaraj	Institute of Biotechnology and Pharmaceutical Research	Hsing Pang Hsieh
9	2022TW0202029	Probing Ion Transport and Osmotic Energy Harvesting through Sub-nm Channels in Two-Dimensional Metal-Organic Frameworks	Indian Institute of Technology, Gandhinagar	Gopinadhan Kalon	Department of Chemical Engineering, National Taiwan University of Science and Technology	Li-Hsien Yeh
10	2022TW0201091	AI/ML- based Channel Estimation and Beamforming for mmWave MIMO-OTFS in 6G.	IIT Guwahati	Kuntal Deka	Institute of Electrical and Control Engineering, National Yang Ming Chiao Tung University	Yuan-Pei Lin
11	2022TW0203051	Integration of group-III oxide and III-nitride-based wide bandgap semiconductors for next-generation electronics applications	Indian Institute of Technology Guwahati	Ankush Bag	Department of Electrical Engineering, National Central University	Jen-Inn Chyi

Ref: CRS/2022-23/01/674	Date: 15-05-2023

Sanction Order

To,
The Registrar/Principal/Financial Authority,
Through Dr. Karuppasamy P
Sri Sivasubramaniya Nadar College of Engineering

Subject: Collaborative Research Scheme(CRS) Project of UGC-DAE CSR entitle '' by Dr. Karuppasamy P.

Dear Madam/Sir,

In continuation to our sanction letter the CRS project submitted to UGC-DAE CSR by **Dr. Karuppasamy P** of your institution has been approved by the competent authority. The principal collaborator from UGC-DAE CSR is **None**.The details of the remittance are given below:

Student fellowship(@ ₹14,000/- pm+HRA)	Consumable	Contingency	Total Amount	Date of remittance	PFMS Ref. No.
₹0	₹30,000	₹15,000	₹45000	2023-03-30	C032392284797
No overheads are available under this scheme					

This project has been approved as per the guidelines given below:

1. This is a Collaborative Research Scheme (CRS) of UGC-DAE CSR. In view of the complex and involved nature of the experiments, any publication emerging under the project must be of collaborative in nature with due consents from the scientists at UGC-DAE CSR and/or DAE centres, and in consultation with the Principal Collaborator/Coordinator. Following phrase must be included in the acknowledgement: “This work was partially/fully carried out using the facilities of UGC-DAE CSR. The authors acknowledge the financial support from UGC-DAE CSR through a Collaborative Research Scheme (CRS) project number **CRS/2022-23/01/674**.”

2. This project is sanctioned for **one year** but it may be extended on yearly basis subject to a total period of three years.

3. In case the CRS project has been approved without student fellowship, it will not be possible to grant student fellowship in subsequent years as well.

4. The PI must ‘**Apply for an Experiment Time**’ through our online user portal https://csruserportal.com/ for utilization of each experimental facility each time.

5. The project will be reviewed at the end of each year to consider sanction and financial allocation for the succeeding year.

6. The release of grants for the subsequent years can be made only upon receipt of funds from UGC towards the scheme. A separate sanction order will be issued for the subsequent years.

7. At the end of the financial year (i.e. by March 31) the PI should submit:
(i) Utilization Certificate in the format provided at our website for the amount spent and
(ii) A Statement of Expenditure duly signed by the Registrar/Principal/competent financial authority of your university/institution to the Centre-Director of respective Centre. The release of funds for the subsequent year(s) can only be made after receiving the above documents.

8. The UGC-DAE CSR will be able to reimburse the travel expenses to Project Investigators as per rules, limited to 2nd AC train fare visiting a centre on project work. However, the student participant is permitted for a sleeper class train fare by the shortest route and is as per prevailing norms of UGC-DAE CSR.

Rules for selection of a CRS project fellow

The CRS project fellow (if approved) should be made by an open selection procedure as per UGC guidelines. The recruitment procedure should be completed within 3 months after the release of the sanction order. The details for recruitment are given below:

#	Designation	Remuneration	Qualifications
1	CRS Project Fellow (Junior) -I	₹14,000 + HRA	M.Sc. (not earlier than 3 years) with a minimum of 55% marks in the concerned subject (**for Science**) M.E. / M. Tech. (not earlier than 3 years) 1st Class (**for Engineering**)
2	CRS Project Fellow (Senior)-I	₹16,000 + HRA	After completion of 2 years as a **CRS Project Fellow (Junior) -I** + at least one research paper in a reputed SCI journal + assessment of the student by a 3 member expert committee approved by the Centre-Director
3	CRS Project Fellow (Junior)-II	₹31,000 + HRA	**Same as (1)** + valid JEST/GATE/NET-JRF/Lectureship/UGC-CSIR NET JRF/Lectureship + Ph.D. registration of the student under the supervision of the PI at the University where PI's institute is affiliated
4	CRS Project Fellow (Senior)-II	₹35,000 + HRA	After completion of 2 years as a **CRS Project Fellow (Junior)-II** + at least one research paper in a reputed SCI journal + assessment of the student by a 3 member expert committee approved by the Centre-Director

1. All recruitment should be authorized by a selection committee as per rules of University/Institution in which the PI is working. The advertisement should be widely circulated electronically and a copy should be sent to the Principal Collaborator.

2. For appointing a student in the CRS project, the interview panel must be approved by the Centre-Director of the respective Centre. The PI should inform the interview schedule as least 2 weeks in advance. The entire process should be conducted in an online/hybrid mode.

3. A UGC-DAR CSR nominee along with Principal Collaborator is needed for all interviews and upgradations.

4. For all appointments, it has to be mentioned that it is on purely temporary basis and will co-terminate with the CRS project. Leave rules for the appointed fellow will be as per the host institution of PI.

5. Appointment of student in the project is not permitted in the second or third year of the project.

6. While appointing as well as upgrading, a copy of relevant documents including CV along with educational qualification documents (incl. NET/GATE, etc.), minutes of the selection committee/upgradation committee, appointment letter, joining report etc. must be send to the Centre-Director of the respective Centre.

7. The student appointed under this project should spend a substantial amount of time at UGC-DAE CSR.

8. Contingency fund to be utilized for computational work, purchase of stationary and other consumables pertaining to the concerned project. No grant is allocated for any capital equipment/asset.

Copy to: Through User Portal to: Director, concerned Centre-Director, User Office, Dr. Karuppasamy P, None, AO for information.



Narian Kr.Lengay
Administrative Officer-I
(UGC-DAE CSR)

The updated RTGS details of the Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110 is as below:

PFMS Unique Code	SSNCE
Account Name	**THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING**
Account Number	**158100710400509**
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD THIRUVANMIYUR BRANCH NO.3 THIRUVALLUVAR SALAI, THIRUVANMIYUR, CHENNA 600041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in

29/06/22

FILE NO. SPG/2021/003623

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)..

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 08 June, 2022

ORDER

Subject: Financial Sanction of the research project titled **EXPERIMENTAL ANALYSIS AND OPTIMIZATION OF ELECTRIC FIELD DISTRIBUTION AROUND POLYMERIC INSULATORS IN EXTRA HIGH VOLTAGE TRANSMISSION LINES** under the guidance of Dr. Usha K, Electrical and Electronics, Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110 - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 2974400/- (Rs.** Twenty Nine Lakh Seventy Four Thousand Four Hundred **Only)** with break-up of **Rs. *1250000*/- under Capital (Non-recurring) head** and **Rs.*1724400*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 2974400/-** has been approved are given below:

The following budget may be considered for **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Field Meter -> Insulators	1250000
A'	*Total (Non-Recurring)*	***1250000***
B	**Recurring Items**	
1	Recurring - I : (Research Personnel) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1164000 230000 60000
2	Recurring - IV : (Overhead Charges)	270400
B'	*Total (Recurring)*	***1724400***
C	**Total cost of the project (A' + B')**	**2974400**

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

3. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

4. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

5. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

6. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

7. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

8.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

9. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

10. The research personnel sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

11. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

12. The project File no. SPG/2021/003623 should be mentioned in all communications arising from the above project. The organization/institute/university should ensure that the technical support/financial assistance provided to them by SERB should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

13. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by SERB.

14. Sanction order for release of funds under a) Non-recurring and b) Recurring will be issued separately depending on the availability of funds. The project become operational from the day the first release of grant received by the implementing Institute.

for **(Dr. Monika Agarwal)**
Scientist F
monika@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Usha K** **Electrical and Electronics** **Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110** **Email: ushak@ssn.edu.in** **Mobile: 919677238170** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

FILE NO. SPG/2021/003623-G

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 08 June, 2022

ORDER

Subject: Research project entitled **EXPERIMENTAL ANALYSIS AND OPTIMIZATION OF ELECTRIC FIELD DISTRIBUTION AROUND POLYMERIC INSULATORS IN EXTRA HIGH VOLTAGE TRANSMISSION LINES** under the guidance of Dr. Usha K, Electrical and Electronics, Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110.

1. In continuation of SERB's sanction order No. SPG/2021/003623 dated 08 June, 2022, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*614700/-*** under 'Grants-in-aid General' to Sri Sivasubramaniya Nadar College Of Engineering , Old Mahabalipuram Road, Kalavakkam, Chennai, Tamil Nadu-603110 being the grant for the financial year 2022-2023 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 08 June, 2022.

3. As this is the first grant being released under 'Grants-in-aid General' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under SERB POWER Grant (General).

5. The Sanction has been issued with the approval of the competent authority on **07 June, 2022** and vide Diary No. **SERB/F/1371/2022-2023** dated **08 June, 2022**..

6. The release amount of **Rs. 614700/-** (Rupees Six Lakh Fourteen Thousand Seven Hundred only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD THIRUVANMIYUR BRANCH NO,3 THIRUVALLUVAR SALAI, THIRUVANMIYUR, CHENNA 600041
IFSC/RTGS Code	TMBL000015
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	ushak@ssn.edu.in

for **(Dr. Monika Agarwal)**
Scientist F
monika@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Usha K** **Electrical and Electronics** **Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110** **Email: ushak@ssn.edu.in** **Mobile: 919677238170** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

The updated RTGS details of the Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110 is as below:

PFMS Unique Code	SSNCE
Account Name	**THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING**
Account Number	**158100710400509**
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD THIRUVANMIYUR BRANCH NO.3 THIRUVALLUVAR SALAI, THIRUVANMIYUR, CHENNA 600041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in

29/06/2022

FILE NO. SPG/2021/003623-C

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 08 June, 2022

ORDER

Subject: Research project entitled **EXPERIMENTAL ANALYSIS AND OPTIMIZATION OF ELECTRIC FIELD DISTRIBUTION AROUND POLYMERIC INSULATORS IN EXTRA HIGH VOLTAGE TRANSMISSION LINES** under the guidance of Dr. Usha K, Electrical and Electronics, Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110.

1. In continuation of SERB's sanction order No. SPG/2021/003623 dated 08 June, 2022, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*1250000*/-** under 'Grants-in-aid Capital' to Sri Sivasubramaniya Nadar College Of Engineering , Old Mahabalipuram Road, Kalavakkam, Chennai, Tamil Nadu-603110 being the grant for the financial year 2022-2023 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 08 June, 2022.

3. As this is the first grant being released under 'Grants-in-aid Capital' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under SERB POWER Grant (Capital).

5. The Sanction has been issued with the approval of the competent authority on **07 June, 2022** and vide Diary No. **SERB/F/1370/2022-2023** dated **08 June, 2022**.

6. The release amount of **Rs. 1250000**/- (Rupees Twelve Lakh Fifty Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD THIRUVANMIYUR BRANCH NO,3 THIRUVALLUVAR SALAI, THIRUVANMIYUR, CHENNA 600041
IFSC/RTGS Code	TMBL000015
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	ushak@ssn.edu.in

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Usha K** **Electrical and Electronics** **Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110** **Email: ushak@ssn.edu.in** **Mobile: 919677238170** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

for **(Dr. Monika Agarwal)**
Scientist F
monika@serb.gov.in

TO
Dr. R. Seyezhai

AU-NLCIL INNOVATION HUB

for

ENERGY, ENVIRONMENT AND SUSTAINABILITY – 'ANIHEES'

ANNA UNIVERSITY, CHENNAI – 600 025

Dr. V. KUMARESAN
Coordinator

Phone: 044 2235 7964
Email: aniheescoordinator@gmail.com

ANIHEES / 2nd Wave – Prototype / 001 – (2023-24)

Date: 10.04.2023

Dear Madam,

Sub: ANIHEES – Prototype Demonstration – DPP & Budget details – Reg.

Ref: Lr. No. /CARD / CGM / IIC / ANIHEES / Prototype / 2023, dated 25.03.2021

*****

With reference to the letter cited above, I am glad to inform you that your innovative proposal titled "Eco Friendly Solar Photovoltaic Pole for Multi - utility" has been approved for prototype demonstration under second wave of ANIHEES. As a part of this, you are requested to submit the following to the office of ANIHEES on or before **18.04.2023.**

1. Detailed Project proposal (DPP), not exceeding 15 pages (Specific objectives, Novelty, Flow / Schematic / Line Diagram if any, Timeline, Outcome, Cost-Analysis, Possible Business Model).
2. Prototype Proposal details (as per the format attached in the email).

I would also like to inform that your proposal will be considered only upon submission of the above documents.

Looking forward to your utmost cooperation in this regard.

COORDINATOR – ANIHEES
10/04/2023

Cc : File

भारत सरकार
Government of India
इलेक्ट्रॉनिकी और सूचना प्रौद्योगिकी मंत्रालय
Ministry of Electronics & Information Technology
इलेक्ट्रॉनिक्स निकेतन, 6,सी जी ओ कॉम्प्लेक्स, नई दिल्ली-110003
Electronics Niketan, 6, C G O Complex, New Delhi-110003
Website: www.meity.gov.in

संख्या No. 11(1)/2022-HCC(TDIL)

दिनांक Date 18.02.2022

ADMINISTRATIVE APPROVAL

Subject : Administrative Approval for implementation of the Project '**Speech technologies in Indian languages**' under the Project titled 'National Language Translation Mission (NLTM) : BHASHINI'.

Implementing Agency: IIT Madras as (Consortium Leader), And IIIT-Hyderabad, IIT Kanpur, IIT Hyderabad, IISc Bangalore, NITK-Surathkal, CDAC Mumbai, IIT Dharwad, NIT Goa, IIT Mandi, IIT Guwahati, CDAC Kolkata, NIT Manipur, IIIT Sri City, SNU Chennai, IIT-Kharagpur, DA-IICT Gandhinagar, SSNCE Chennai, KLEF Vaddeswaram (Consortium Members).

The undersigned is directed to refer to this Ministry's letter of No.11(14)/2018-HCC(TDIL) dated 13.10.2021 conveying the Administrative Approval for the implementation of the Project titled 'National Language Translation Mission (NLTM) : BHASHINI' by Digital India Corporation (DIC), C-DAC, R&D Institutions for research through call for proposals and Other Implementing Agencies (To be identified) with the total outlay of the project of Rs. 495.51 Crore (Rupees four hundred ninety-five crore fifty one lakh only) as Grants-in-aid from Ministry of Electronics and Information Technology (MeitY). The duration of the projects is 36 months. The start of the Mission will be the date of the first release of Grant-in-aid. However, disbursement may go beyond duration of the Mission.

2. Now, the undersigned is directed to convey the Administrative Approval for the implementation of the sub-project namely '**Speech technologies in Indian languages**' under the Project titled 'National Language Translation Mission (NLTM) : BHASHINI' to be implemented by IIT Madras as (Consortium Leader), And IIIT-Hyderabad, IIT Kanpur, IIT Hyderabad, IISc Bangalore, NITK-Surathkal, CDAC Mumbai, IIT Dharwad, NIT Goa, IIT Mandi, IIT Guwahati, CDAC Kolkata, NIT Manipur, IIIT Sri City, SNU Chennai, IIT-Kharagpur, DA-IICT Gandhinagar, SSNCE Chennai, KLEF Vaddeswaram as consortium members at the total outlay of the project is Rs. 50,65,47,00/- (Rupees fifty crore sixty-five lakh forty-seven thousand only) as Grants-in-aid from Ministry of Electronics and Information Technology (MeitY) for a period of 03 years. The details of the project are at Annexure– I2.

3. The standard terms and conditions governing the Grants-in-aid are enclosed at Annexure II.

Hema A Murthy
Professor
Dept of CSE
IIT Madras 600036

Digital India
Power To Empower

स्वच्छ भारत
एक कदम स्वच्छता की ओर

ELECTRONICS INDIA
Billion Needs Million Chips

4. This issues with the approval of Secretary, MeitY vide computer no. 3083369 dated 18.02.2022 and concurrence of Integrated Finance Division, MeitY vide computer no. 3083369 dated 17.02.2022.

(Ramesh Kumar)
Deputy Director

Copy to:

1. Pay & Accounts Officer, Pay & Accounts Office. MeitY.
2. Office of Principal Director of Audit, Finance and Communication, Shamnath Marg, Civil Lines, Delhi – 110 054.
3. Finance Division. MeitY.
4. DDO, MeitY.
5. Chief Investigator, Co-Investigators and Head of Implementing Agencies of the Projects.
6. Economic Advisor, MeitY.
7. Shri Vijay Kumar, Scientist 'F', MeitY.
8. Shri Rajeshwar Singh Janwar, Scientist 'E', MeitY.
8. Shri Bharat Gupta, Scientist 'D', MeitY and Sanction File.

Hema A Murthy
Professor
Dept of CSE
IIT Madras 600036

Annexure – I to the Administrative Approval No. 11(1)/2022-HCC(TDIL) dated 18.02.2022.

1.	**Title of Project:**	Speech technologies in Indian languages
2.	**Implementation Agencies:**	IIT Madras as Consortium Leader, And IIIT-Hyderabad, IIT Kanpur, IIT Hyderabad, IISc Bangalore, NITK-Surathkal, CDAC Mumbai, IIT Dharwad, NIT Goa, IIT Mandi, IIT Guwahati, CDAC Kolkata, NIT Manipur, IIIT Sri City, SNU Chennai, IIT-Kharagpur, DA-IICT Gandhinagar, SSNCE Chennai, KLEF Vaddeswaram – Consortium Members.
3.	**Chief Investigator:**	Prof. Hema A Murthy Computer Science and Engineering Dept. IIT Madras Chennai And C V Jawahar (IIIT-Hyderabad), Vipul Arora (IIT Kanpur), K Sri Rama Murty (IITHyderabad), Sriram Ganapathy (IISc Bangalore), Deepu Vijayasenan (NITK-Surathkal), Pranaw Kumar (CDAC Mumbai), S R Mahadeva Prasanna (IIT Dharwad), T. Veena (NIT Goa), A. D. Dileep (IIT Mandi), Padmanabhan R (IIT Mandi), Prasanta Kumar Ghosh (IISc Bangalore), Preethi Jyothi (IIT Bombay), Rohit Sinha (IIT Guwahati), Joyanta Basu (CDAC Kolkata), Y Jina Chanu (NIT Manipur), Achintya Kumar Sarkar (IIIT Sri City), T. Nagarajan (SNU Chennai), K Sreenivasa Rao (IIT-Kharagpur), Hemant A Patil (DA-IICT Gandhinagar), P Vijayalakshmi (SSNCE Chennai), Suryakanth V Gangashetty (KLEF Vaddeswaram)

Hema A Murthy
Professor
Dept of CSE
IIT Madras 600036

	Annexure X: Budget (R&D SNU: Prosody Modeling) in lakhs of rupees				Annexure X: Budget (R&D IITKgp: Prosody Modeling) in lakhs of rupees				
Head	**Year 1**	**Year 2**	**Year 3**	**Total**	**Year 1**	**Year 2**	**Year 3**	**Total**	
Equipment**	8.50	0.00	0.00	**8.50**	8.50	0.00	0.00	**8.50**	
Manpower*	25.00	25.00	25.00	**75.00**	25.00	25.00	25.00	**75.00**	
Consumables	1.25	1.25	1.25	**3.75**	1.25	1.25	1.25	**3.75**	
Travel	1.00	1.00	1.00	**3.00**	1.00	1.00	1.00	**3.00**	
Contingency	0.50	0.50	0.50	**1.50**	0.50	0.50	0 50	**1.50**	
Overhead (8% excl.equip)	2.22	2 22	2.22	**6.66**	2.22	2 22	2 22	**6.66**	
Total	**38.47**	**29.97**	**29.97**	**98.410**	**38.47**	**29.97**	**29.97**	**98.410**	**196.820**

Annexure XI: Budget (R&D DAIICT: Assistive Speech Technologies) in lakhs of rupees					Annexure XI: Budget (R&D SSNCE: Assistive Speech Technologies) in lakhs of rupees				
Head	Year 1	Year 2	Year 3	Total	Head	Year 1	Year 2	Year 3	Total
Equipment**	7.50	0.00	0.00	**7.50**	Equipment**	7.50	0.00	0.00	**7.50**
Manpower*	21.00	21.00	21.00	**63.00**	Manpower*	21.00	21.00	21.00	**63.00**
Consumables	1.00	1.00	1.00	**3.00**	Consumables	1.00	1.00	1.00	**3.00**
Travel	1.00	1.00	1.00	**3.00**	Travel	1.00	1.00	1.00	**3.00**
Contingency	1.00	1.00	1.00	**3.00**	Contingency	1.00	1.00	1.00	**3.00**
Overhead(8% excl. equip)	1.92	1.92	1.92	**5.76**	Overhead(8% excl. equip)	1.92	1.92	1.92	**5.76**
Total	**33.42**	**25.92**	**25.92**	**85.26**	**Total**	**33.42**	**25.92**	**25.92**	**85.26**	**170.52**

Annexure XII: Budget (R&D KLU: Speech Quality Control) in lakhs of rupees				
Head	Year 1	Year 2	Year 3	Total
Minor Equipments (From Minor Equipments Table)**	16.00	-	-	**16.00**

Hema A Murthy
Professor
Dept of CSE
IIT Madras 600036

भारत सरकार
Government of India
इलेक्ट्रॉनिकी और सूचना प्रौद्योगिकी मंत्रालय
Ministry of Electronics & Information Technology
इलेक्ट्रॉनिक्स निकेतन, 6,सी जी ओ कॉम्प्लेक्स, नई दिल्ली-110003
Electronics Niketan, 6, C G O Complex, New Delhi-110003
Website: www.meity.gov.in

संख्या No. 11(1)/2022-HCC(TDIL)

दिनांक Date 18.02.2022

ADMINISTRATIVE APPROVAL

Subject : Administrative Approval for implementation of the Project '**Speech technologies in Indian languages**' under the Project titled 'National Language Translation Mission (NLTM) : BHASHINI'.

Implementing Agency: IIT Madras as (Consortium Leader), And IIIT-Hyderabad, IIT Kanpur, IIT Hyderabad, IISc Bangalore, NITK-Surathkal, CDAC Mumbai, IIT Dharwad, NIT Goa, IIT Mandi, IIT Guwahati, CDAC Kolkata, NIT Manipur, IIIT Sri City, SNU Chennai, IIT-Kharagpur, DA-IICT Gandhinagar, SSNCE Chennai, KLEF Vaddeswaram (Consortium Members).

The undersigned is directed to refer to this Ministry's letter of No.11(14)/2018-HCC(TDIL) dated 13.10.2021 conveying the Administrative Approval for the implementation of the Project titled 'National Language Translation Mission (NLTM) : BHASHINI' by Digital India Corporation (DIC), C-DAC, R&D Institutions for research through call for proposals and Other Implementing Agencies (To be identified) with the total outlay of the project of Rs. 495.51 Crore (Rupees four hundred ninety-five crore fifty one lakh only) as Grants-in-aid from Ministry of Electronics and Information Technology (MeitY). The duration of the projects is 36 months. The start of the Mission will be the date of the first release of Grant-in-aid. However, disbursement may go beyond duration of the Mission.

2. Now, the undersigned is directed to convey the Administrative Approval for the implementation of the sub-project namely '**Speech technologies in Indian languages**' under the Project titled 'National Language Translation Mission (NLTM) : BHASHINI' to be implemented by IIT Madras as (Consortium Leader), And IIIT-Hyderabad, IIT Kanpur, IIT Hyderabad, IISc Bangalore, NITK-Surathkal, CDAC Mumbai, IIT Dharwad, NIT Goa, IIT Mandi, IIT Guwahati, CDAC Kolkata, NIT Manipur, IIIT Sri City, SNU Chennai, IIT-Kharagpur, DA-IICT Gandhinagar, SSNCE Chennai, KLEF Vaddeswaram as consortium members at the total outlay of the project is Rs. 50,65,47,00/- (Rupees fifty crore sixty-five lakh forty-seven thousand only) as Grants-in-aid from Ministry of Electronics and Information Technology (MeitY) for a period of 03 years. The details of the project are at Annexure– I2.

3. The standard terms and conditions governing the Grants-in-aid are enclosed at Annexure II.

Hema A Murthy
Professor
Dept of CSE
IIT Madras 600036

Digital India
Power To Empower

स्वच्छ भारत
एक कदम स्वच्छता की ओर

ELECTRONICS INDIA
Billion Needs Million Chips

4. This issues with the approval of Secretary, MeitY vide computer no. 3083369 dated 18.02.2022 and concurrence of Integrated Finance Division, MeitY vide computer no. 3083369 dated 17.02.2022.

(Ramesh Kumar)
Deputy Director

Copy to:

1. Pay & Accounts Officer, Pay & Accounts Office. MeitY.
2. Office of Principal Director of Audit, Finance and Communication, Shamnath Marg, Civil Lines, Delhi – 110 054.
3. Finance Division. MeitY.
4. DDO, MeitY.
5. Chief Investigator, Co-Investigators and Head of Implementing Agencies of the Projects.
6. Economic Advisor, MeitY.
7. Shri Vijay Kumar, Scientist 'F', MeitY.
8. Shri Rajeshwar Singh Janwar, Scientist 'E', MeitY.
8. Shri Bharat Gupta, Scientist 'D', MeitY and Sanction File.

Hema A Murthy
Professor
Dept of CSE
IIT Madras 600036

Annexure – I to the Administrative Approval No. 11(1)/2022-HCC(TDIL) dated 18.02.2022.

1.	**Title of Project:**	Speech technologies in Indian languages
2.	**Implementation Agencies:**	IIT Madras as Consortium Leader, And IIIT-Hyderabad, IIT Kanpur, IIT Hyderabad, IISc Bangalore, NITK-Surathkal, CDAC Mumbai, IIT Dharwad, NIT Goa, IIT Mandi, IIT Guwahati, CDAC Kolkata, NIT Manipur, IIIT Sri City, SNU Chennai, IIT-Kharagpur, DA-IICT Gandhinagar, SSNCE Chennai, KLEF Vaddeswaram – Consortium Members.
3.	**Chief Investigator:**	Prof. Hema A Murthy Computer Science and Engineering Dept. IIT Madras Chennai And C V Jawahar (IIIT-Hyderabad), Vipul Arora (IIT Kanpur), K Sri Rama Murty (IITHyderabad), Sriram Ganapathy (IISc Bangalore), Deepu Vijayasenan (NITK-Surathkal), Pranaw Kumar (CDAC Mumbai), S R Mahadeva Prasanna (IIT Dharwad), T. Veena (NIT Goa), A. D. Dileep (IIT Mandi), Padmanabhan R (IIT Mandi), Prasanta Kumar Ghosh (IISc Bangalore), Preethi Jyothi (IIT Bombay), Rohit Sinha (IIT Guwahati), Joyanta Basu (CDAC Kolkata), Y Jina Chanu (NIT Manipur), Achintya Kumar Sarkar (IIIT Sri City), T. Nagarajan (SNU Chennai), K Sreenivasa Rao (IIT-Kharagpur), Hemant A Patil (DA-IICT Gandhinagar), P Vijayalakshmi (SSNCE Chennai), Suryakanth V Gangashetty (KLEF Vaddeswaram)

Hema A Murthy
Professor
Dept of CSE
IIT Madras 600036

	Annexure X: Budget (R&D SNU: Prosody Modeling) in lakhs of rupees				Annexure X: Budget (R&D IITKgp: Prosody Modeling) in lakhs of rupees				
Head	**Year 1**	**Year 2**	**Year 3**	**Total**	**Year 1**	**Year 2**	**Year 3**	**Total**	
Equipment**	8.50	0.00	0.00	**8.50**	8.50	0.00	0.00	**8.50**	
Manpower*	25.00	25.00	25.00	**75.00**	25.00	25.00	25.00	**75.00**	
Consumables	1.25	1.25	1.25	**3.75**	1.25	1.25	1.25	**3.75**	
Travel	1.00	1.00	1.00	**3.00**	1.00	1.00	1.00	**3.00**	
Contingency	0.50	0.50	0.50	**1.50**	0.50	0.50	0 50	**1.50**	
Overhead (8% excl.equip)	2.22	2 22	2.22	**6.66**	2.22	2 22	2 22	**6.66**	
Total	**38.47**	**29.97**	**29.97**	**98.410**	**38.47**	**29.97**	**29.97**	**98.410**	**196.820**

Annexure XI: Budget (R&D DAIICT: Assistive Speech Technologies) in lakhs of rupees					Annexure XI: Budget (R&D SSNCE: Assistive Speech Technologies) in lakhs of rupees				
Head	Year 1	Year 2	Year 3	Total	Head	Year 1	Year 2	Year 3	Total
Equipment**	7.50	0.00	0.00	**7.50**	Equipment**	7.50	0.00	0.00	**7.50**
Manpower*	21.00	21.00	21.00	**63.00**	Manpower*	21.00	21.00	21.00	**63.00**
Consumables	1.00	1.00	1.00	**3.00**	Consumables	1.00	1.00	1.00	**3.00**
Travel	1.00	1.00	1.00	**3.00**	Travel	1.00	1.00	1.00	**3.00**
Contingency	1.00	1.00	1.00	**3.00**	Contingency	1.00	1.00	1.00	**3.00**
Overhead(8% excl. equip)	1.92	1.92	1.92	**5.76**	Overhead(8% excl. equip)	1.92	1.92	1.92	**5.76**
Total	**33.42**	**25.92**	**25.92**	**85.26**	**Total**	**33.42**	**25.92**	**25.92**	**85.26**	**170.52**

Annexure XII: Budget (R&D KLU: Speech Quality Control) in lakhs of rupees				
Head	Year 1	Year 2	Year 3	Total
Minor Equipments (From Minor Equipments Table)**	16.00	-	-	**16.00**

Hema A Murthy
Professor
Dept of CSE
IIT Madras 600036

सत्यमेव जयते

Dr. Akhilesh Mishra
Scientist-E
Technology Development & Transfer
Phone : (011) 26590254
E-mail: akhilesh.mishra@nic.in

दूरभाष / Tel. : 26962819, 26567373,
26562134, 26562122 (EPBAX)
फैक्स / Fax : 26569908, 26515637,
26863847, 26862418
वेबसाइट / website : www.dst.gov.in

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
टेक्नोलॉजी भवन, नया महरौली मार्ग
नई दिल्ली-110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI-110 016

No. **DST/TDT/TDP-05/2022** **08-02-2023**

Subject: Financial support for the project titled **"BARF-Blind Abled Reading Frame".**

Dear Dr. Thenmozhi,

I am pleased to inform you that Department of Science & Technology has sanctioned the above mentioned project with a total cost of **Rs.23,86,696/- (Rupees Twenty Three Lakh Eighty Six Thousand Six Hundred Ninty Six Only)** under TDP programme. A copy of sanction (recurring and non-recurring) has already been sent at your email ID. As per DST guidelines, the date of start of the project is the date of receipt of the fund with CNA account of ZBSA of the Host Institution. Please intimate the date of start of the project to DST immediately.

Under the manpower head, 1-JRF has been sanctioned in this project. Kindly recruit the manpower as per DST norms **(OM No. SR/S9/Z-08/2018 dated 30.01.2019 and SR/S9/Z-05/2019 dated 10.07.2020).**

Foreign travel is not permitted out of the grant sanctioned under "Travel Head" of the project. For any consumable item costing more than Rs. 20,000/- a copy of the purchase order may kindly be furnished to the undersigned. Diversion of funds from one head to another head is normally not allowed. The diversion of funds from recurring head i.e. Manpower, contingencies, consumables, travel etc. is also not allowed. However, any re-allocation of grants under different heads requires prior approval of this Department. The Statement of Expenditure and Financial year wise audited Utilization Certificate may be submitted to DST at the end of every financial year.

You may be called for a mid-term review during the execution of the project. You have to submit a Project Completion Report (PCR) along with the final audited UC and SE to the DST at the end of the project.

We wish you a grand success during the implementation of the above project.

Yours sincerely,

8/02/23

(Akhilesh Mishra)

Encl: As above

Dr. D. Thenmozhi,
Associate Professor,
Department of Computer Science and Engineering,
SSN College of Engineering,
Rajiv Gandhi Salai OMR, Kalavakkam,
District-Kanchipuram-603110
Chennai, Tamilnadu.

GOVERNMENT OF INDIA
Ministry of Science & Technology
Department of Science & Technology
DST/TDT/TDP-05/2022 (G)
(Technology Development Transfer)

Technology Bhawan, New Delhi
Dated: **16/01/2023**

Sanction Order

Subject: Financial assistance for the project entitled **"BARF - Blind Abled Reading Frame"** submitted by **Dr. D Thenmozhi, SSN COLLEGE OF ENGINEERING, CHENNAI, KANCHIPURAM, TAMILNADU, 603110** Release of the **First** installment regarding

Sanction of the President is hereby accorded to the approval to the above mention project at a total cost of **Rs. 2386696.00/- (Rupees Twenty Three Lakh Eighty Six Thousand Six Hundred Ninty Six only)** for a duration of **3 Years .** The detailed breakup of the grant for General as well as Capital Components are given below:-

General Component : ₹ **1674000.00/-**
Capital Component : ₹ **712696.00/-**

	Budget Summary (in Rs.)			
Items	**Year-1**	**Year-2**	**Year-3**	**Total**
1- Non-Recurring				
Raspberry Pi 4 4GB, Logitech C270 Digital HD Webcam, Head Strap, Supply of SanDisk Ultra Micro SD UHS-I Card 32GB, 120MB/s R, 3D printed Pi Enclosure Glass Model (Design and Printing), USB Microphone wired, USB Extension Cable, Assembling and Installation-. - 20	178174	178174	356348	**712696**
Subtotal (Capital)	178174	178174	356348	**712696**
2- Recurring				
Project Staff	372000	372000	420000	**1164000**
Junior Research Fellow (JRF)-1(@Rs.31,000/-)	372000	372000	0	**744000**
Senior Research Fellow (SRF)-1(@Rs.35,000/-)	0	0	420000	**420000**
Consumables	20000	20000	20000	**60000**
Contingency	50000	50000	50000	**150000**
Travel	50000	50000	50000	**150000**
Overhead	50000	50000	50000	**150000**
Subtotal (General)	542000	542000	590000	**1674000**
Total Project Cost (Cap.+ Gen.)	720174	720174	946348	**2386696**

2. The sanction of the President is also accorded to the release of **Rs. 542000/- (Rupees Five Lakh Forty Two Thousand only)** to the **"Director/Registrar/Principal/Controller/Comptroller, SSN COLLEGE OF ENGINEERING"** being the **First** installment of grant as mentioned above table under **"General Component"** for the above mentioned project.

3. The expenditure involved is debitable to **Demand No. 89**, Department of Science & Technology for the year **2022-23:**

3425	Other Scientific Research(Major Head)
3425.60	Others : (Sub-Major Head)
3425.60.789	Special Component Plan for Scheduled Castes
3425.60.789.15	Innovation,Technology Development and Deployment
3425.60.789.15.00	Detailed Head
3425.60.789.15.00.31	Grants-in-aid General
	(Previous: 3425.60.789.01.01.31)

4. The amount of **Rs. 542000/- (Rupees Five Lakh Forty Two Thousand only)** will be drawn by DDO, DST and disbursed to the **"CNA account of Autonomous body SERB in respect of Innovation,Technology Development and Deployment Scheme".**

Name of A/C Holder	**Innovation Technology Development and Deployment**
Bank A/C No	**349902010051240**
Name of the Bank & branch	**Union Bank of India, Safdarjang Enclave - New Delhi**
RTGS/IFSC code	**UBIN0534994**

5. The amount of **Rs. 542000/- (Rupees Five Lakh Forty Two Thousand only)** will be drawn by the **"CNA account of Autonomous body SERB and will be disbursed to the Director/Registrar/Principal/Controller/Comptroller, SSN COLLEGE OF ENGINEERING" .** The bank details for electronic transfer of funds through RTGS are given below:-

16/01/23

Name of A/C Holder	**SSN COLLEGE OF ENGINEERING 1819 INOVATION TECHNOLOGY DEVELOPMENT AND DEPLOYMENT**
Bank A/C No	**111022010000476**
Name of the Bank & branch	**Union Bank of India**
RTGS/IFSC code	**UBIN0911101**

6. As per Rule 234 of GFR 2017, the sanction has been entered at S. No **114** . in the register of grants maintained in the **Technology Development Transfer** for the scheme **Technology Development Programme .**

7. This issues with the concurrence of IFD vide their Concurrence Dy. No. **IFD/C/III/130123/31/03044 dated 13/01/2023.**

8. The GI will keep all the funds received in the Central Nodal Account only and shall not transfer the funds to any other account or not divert the same to Fixed Deposits/ Flexi-Account/ Multi-Option Deposit Account/ Corporate Liquid Term Deposit (CLTD) account etc. The funds released to GI shall not be parked in bank account of any other agency.

9. The GI will ensure the compliance of OM. No. F. No. **1/(18)/PFMS/FCD/2021 dated March 9, 2022** of Department of Expenditure, Ministry of Finance.

10. This sanction order is subject to the **Terms & Conditions** as annexured .

11. The organization is registered on NGO Darpan Portal and their Unique ID is **TN/2017/0118071**

16/01/23

Dr. Akhilesh Mishra
(Scientist - 'E')
akhilesh.mishra@nic.in

To,
The Pay & Accounts Officer,
Department of Science & Technology,
New Delhi – 110 016.

Copy of information and necessary action to:

1. The Principal Director of Audit, Scientific Department, IIIrd floor, AGCR Building, I.P. Estate, New Delhi.
2. The Financial Advisor, Integrated Finance Division, Technology Bhavan, New Mehrauli Road, Block C, Qutab Institutional Area, New Delhi, Delhi 110016
3. The Internal Audit Wing, Department of Science & Technology,Technology Bhavan, New Mehrauli Road, Block C, Qutab Institutional Area, New Delhi, Delhi 110016
4. Drawing and Disbursing Officer, DST, Cash Section. (two copies)
5. Dr. D Thenmozhi, Associate Professor, Computer Science and Engineering, SSN COLLEGE OF ENGINEERING, Chennai, Kanchipuram, Tamilnadu - 603110
6. The Director/Registrar/Principal/Controller/Comptroller/Chief Executive Officer(CEO), SSN COLLEGE OF ENGINEERING, Chennai, Kanchipuram, Tamilnadu - 603110
7. Secretary, SERB, New Delhi (for allocation of limits to implementing agency)
8. Head (Technology Development Transfer) DST
9. Sanction Folder (Technology Development Transfer)

16/01/23

Dr. Akhilesh Mishra
(Scientist - 'E')
akhilesh.mishra@nic.in

ANNEXURE

GOVERNMENT OF INDIA
Ministry of Science & Technology
Department of Science & Technology
DST/TDT/TDP-05/2022 (G)

Terms & Conditions

1. The grantee organization will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report (Vis-a-Vis Target Vs-Achievement) at the end of each financial year duly reflecting the interest earned / accrued on the grant received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

2. The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

3. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

4. The grant-in-aid being released is subject to the condition that:-

a) A transparent procurement procedure in line with Provisions of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant.
b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to be ensure submission of supporting documentary evidences with regard of the purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

5. As per the GFR 2017 Rule 230 (8) the Grantee Institute should ensure that all the interests or other earnings against Grant-in-Aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted to the Consolidated Fund of India immediately after finalization of the accounts. Such advances will not be allowed to be adjusted against future releases.

6. As per the GFR 2017 Rule 230 (17) "the Grantee Institute should agree to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts or services under its control on the lines indicated by the Government of India"

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e. **www.bharatkosh.gov.in**), immediately after finalization of accounts, as it shall not be adjusted towards future release of Grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/ Utilization Certificate for considering subsequent release of Grant/ Closure of Project accounts.

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

10. Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publication / media release as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

11. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

12. It is mandatory to use EAT module in PFMS, failing which no further funds shall be released.

13. Goods (Consumable/Equipment) available in GeM portal are to be procured mandatorily online through GeM only as per the provisions of Rule 149 of GFR.

14. The Grantee Institute should follow Global Tendering Enquiry (GTE) conditions as per Department of Expenditure ID Note No:4/1/2021-PPD dated 10.09.2021.

15. If One time assistance or non-recurring grant as Grant-in-Aid for Rs. 10.00 lakhs to Rs. 50.00 lakhs, it should be included in the Annual Report of the Institute.

16. The Grantee Institute must ensure any other provisions of GFR-2017 and guidelines/amendments issued from Govt. of India from time to time.

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
DST/TDT/TDP-05/2022 (G)
निबंधन और शर्तें

1. अनुदानग्राही संस्थान प्रत्येक वित्त वर्ष के अंत में इस परियोजना के अंतर्गत प्राप्त अनुदान पर अर्जित/प्रोद्भूत ब्याज को विधिवत रूप से दर्शाते हुए अद्यतन प्रगति रिपोर्ट (लक्ष्य बनाम उपलब्धि) के साथ जीएफ़आर 2017 में विनिर्दिष्ट प्ररूप में वित्तीय वर्ष-वार उपयोग प्रमाण पत्र (यूसी) और व्यय का लेखापरीक्षित विवरण (एसई) विज्ञान और प्रौद्योगिकी विभाग को प्रस्तुत करेगा। यह परियोजना की समाप्ति की निर्धारित तारीख से एक वर्ष भीतर व्यय का अंतिम विवरण, उपयोग प्रमाण-पत्र और परियोजना समाप्ति रिपोर्ट प्रस्तुत करने की शर्त के भी अध्यधीन है।

2. अनुदानग्राही संस्थान को उपयोग प्रमाण-पत्र इस प्रभाग में भौतिक रूप में भेजने के साथ-साथ पीएफ़एमएस पोर्टल पर प्रविष्ट और अपलोड करना होगा। अनुवर्ती/अंतिम किस्त प्रभाग द्वारा यूसी की स्वीकृति की पुष्टि और पीएफ़एमएस में पूर्ववर्ती उपयोग प्रमाण-पत्र की प्रविष्टि के बाद ही जारी की जाएगी।

3. यदि अनुदान एक ही परियोजना के अंतर्गत उपस्कर (रों) की खरीद के लिए पृथक संस्वीकृति आदेश के माध्यम से पूंजी-शीर्ष के अंतर्गत जारी किया गया है तो जारी किया गया पूंजी-शीर्ष अनुदान के लिए पृथक एसई/यूसी प्रस्तुत करना होगा।

4. जारी किया जा रहा सहायता अनुदान निम्नलिखित शर्तों के अध्यधीन है-

क) उपर्युक्त परियोजना के लिए संस्वीकृत पूंजी आस्तियों की खरीद करते समय अनुदानग्राही संस्थान के उचित नियमों के तहत संस्थान/संगठन द्वारा सामान्य वित्तीय नियमावली 2017 के उपबंधों के अनुरूप पारदर्शी खरीद प्रक्रिया का अनुपालन किया जाए और अनुदान प्राप्ति पर तुरंत प्रभाव से अनुदानग्राही संगठन द्वारा इस आशय का प्रमाण-पत्र प्रस्तुत किया जाए।
ख) उपयोग प्रमाण-पत्र/ व्यय विवरण प्रस्तुत करते समय, संगठन को जीएफ़आर 2017 के उपबंधों के अनुसरण में उपस्कर/पूंजी आस्तियों की खरीद के संबंध में संबन्धित दस्तावेज़-साक्ष्य प्रस्तुत करना सुनिश्चित करना होता है।

5. जीएफ़आर नियमावली 2017 के नियम 230 (8) के अनुसार अनुदानग्राही संस्थान को सुनिश्चित करना चाहिए कि किसी भी अनुदानग्राही संस्थान को जारी किए गए सहायता अनुदान या अग्रिम (प्रतिपूर्ति से भिन्न) पर प्राप्त समस्त प्रकार के ब्याज या अन्य आय को लेखों को अंतिम रूप दिए जाने के तुरंत बाद भारतीय समेकित निधि में अनिवार्य रूप से विप्रेषित किया जाए। ऐसे अग्रिमों को भविष्य में जारी की जाने वाली निधियों में समायोजित करने की अनुमति नहीं दी जाएगी।

6. जीएफ़आर नियमावली 2017 के नियम 230 (17) के अनुसार, "अनुदानग्राही संस्थान को भारत सरकार के निर्देशानुसार अपने नियंत्रणाधीन पदों या सेवाओं में अनुसूचित जाति या अनुसूचित जनजाति या ओबीसी के लिए आरक्षण रखने पर सहमत होना चाहिए।"

7. अनुदानग्राही संस्थान परियोजना का पृथक परीक्षित लेखा रखेगा और अनुदान की समस्त राशि बैंक खाते में सब्याज रखी जाएगी। वित्तीय वर्ष 2017-18 के दौरान और उसके बाद जारी अनुदान के लिए, अनुदान के लिए सभी प्रकार के ब्याज या अन्य आय ऐसे लेखों को अंतिम रूप दिए जाने के तुरंत बाद भारतीय समेकित निधि में (गैर कर प्राप्ति पोर्टल (एनटीआरपी) अर्थात www.bharatkosh.gov.in के माध्यम से) विप्रेषित की जाएगी, क्योंकि यह राशि भविष्य में जारी की जाने वाली राशि में समायोजित नहीं की जाएगी। अनुवर्ती अनुदान के निर्गम/ परियोजना खाते को बंद करने पर विचार किए जाने के लिए, व्यय विवरण/ उपयोग प्रमाण-पत्र के साथ इस आशय का प्रमाण पत्र प्रस्तुत करना होगा।

8. डीएसटी, अनुदान से सृजित परिसंपत्तियों पर एकमात्र सुरक्षित अधिकार रखता है। सरकारी अनुदानों से पूरी तरह से या पर्याप्त रूप से अर्जित संपत्ति (जीएफआर 2017 में निर्धारित प्रक्रिया के अनुसार अप्रचलित और अनुप्रयोज्य, अनुपयोगी घोषित अनुदानों से इतर), का निपटारा डीएसटी का पूर्व अनुमोदन प्राप्त किए बिना नहीं किया जाएगा।

9. जैसा कि सामान्य वित्तीय नियमावली 2017 के नियम 236 (1) के तहत निर्धारित किया गया है, अनुदानग्राही संगठन का लेखा स्वीकृति प्रदाता प्राधिकरी और लेखा परीक्षक (भारत के नियंत्रक एवं महालेखापरीक्षक और डीएसटी के प्रधान लेखा कार्यालय दोनों द्वारा आंतरिक लेखा परीक्षा) द्वारा निरीक्षण किए जाने, जब भी संगठन को ऐसा करने के लिए कहा जाता है, हेतु अभिगम्य होगा।

10. इस परियोजना अनुदान से प्राप्त तकनीकी सहायता/वित्तीय सहायता की उचित पावती को अनुदानग्राही संगठन द्वारा सभी प्रकाशनों/मिडिया प्रकाशनी में मोटे अक्षरों में और परियोजना के पूरा होने के दौरान और तदुपरांत उनकी वार्षिक रिपोर्टों के शुरुआती पैराग्राफों में अनिवार्य रूप से दिखाया किया जाना चाहिए।

11. बॉन्ड के नियमों और शर्तों का पालन करने में असफल होने पर जीएफआर 2017 के नियम 231 (2) के अनुसार पूरी राशि सब्याज वापस करनी होगी।

12. पीएफएमएस में ईएटी मॉड्यूल का उपयोग करना अनिवार्य है, ऐसा न करने पर अन्य कोई भी आगामी निधि जारी नहीं की जाएगी।

13. जीएफआर के नियम 149 के उपबंधों के अनुसार जीईएम पोर्टल पर उपलब्ध वस्तुओं (उपभोज्य वस्तु /उपस्कर) का अनिवार्यतया आनॅ लाइन प्रापण जैम (जीईएम) ही के माध्यम से किया जाना है।

14. अनुदान ग्राही संस्थान को व्यय विभाग के आईडी नोट संख्या: 4/1/2021-पीपीडी दिनांक 10.09.2021 के अनुसार वैश्विक निविदाकरण जांच-पड़ताल (जीटीई) नियमों का पालन करना चाहिए।

15. यदि एकबारगी सहायता या गैर-आवर्ती अनुदान 10.00 लाख रुपये से 50.00 लाख रुपये के सहायता अनुदान का हो तो इसे संस्थान की वार्षिक रिपोर्ट में दर्ज किया जाना चाहिए।

16. अनुदान ग्राही संस्थान को जीएफआर-2017 के किसी भी अन्य उपबंध और समय-समय पर भारत सरकार द्वारा जारी दिशा-निर्देश/संशोधन का अनुपालन सुनिश्चित करना चाहिए।

GOVERNMENT OF INDIA
Ministry of Science & Technology
Department of Science & Technology
DST/TDT/TDP-05/2022 (C)
(Technology Development Transfer)

Technology Bhawan, New Delhi
Dated: **16/01/2023**

Sanction Order

Subject: Financial assistance for the project entitled **"BARF - Blind Abled Reading Frame"** submitted by **Dr. D Thenmozhi, of grant as mentioned above table under SSN COLLEGE OF ENGINEERING, CHENNAI, KANCHIPURAM, TAMILNADU, 603110.** Release of the **First** installment regarding

Sanction of the President is hereby accorded to the approval to the above mention project at a total cost of **Rs. 2386696/- (Rupees Twenty Three Lakh Eighty Six Thousand Six Hundred Ninty Six only)** for the duration of **3 Years .** The detailed breakup of the grant for general as well as capital components are given below: -

General Component: **₹ 1674000.00/-**
Capital Component : **₹ 712696.00/-**

			Non-Recurring Head (in Rs.)			
Sl.No.	**Name of the Equipment**	**Qty.**	**1 Year**	**2 Year**	**3 Year**	**Total**
1	**Raspberry Pi 4 4GB, Logitech C270 Digital HD Webcam, Head Strap, Supply of SanDisk Ultra Micro SD UHS-I Card 32GB, 120MB/s R, 3D printed Pi Enclosure Glass Model (Design and Printing), USB Microphone wired, USB Extension Cable, Assembling and Installation-.**	20	178174	178174	356348	**712696**
Total			**178174**	**178174**	**356348**	**712696**

2. The sanction of the President is also accorded to the release of **Rs. 178174/- (Rupees One Lakh Seventy Eight Thousand One Hundred Seventy Four only)** to the **"Director/Registrar/Principal/Controller/Comptroller, SSN COLLEGE OF ENGINEERING"** being the **First** installment of grant as mentioned above table under **"Capital Component"** for the above mentioned project.

3. The expenditure involved is debitable to **Demand No. 89** , Department of Science & Technology for the year **2022-23:**

3425	Other Scientific Research(Major Head)
3425.60	Others : (Sub-Major Head)
3425.60.789	Special Component Plan for Scheduled Castes
3425.60.789.15	Innovation,Technology Development and Deployment
3425.60.789.15.00	Detailed Head
3425.60.789.15.00.35	Grants for creation of capital assets
	(Previous: 3425.60.789.01.01.35)

4. The amount of **Rs. 178174/- (Rupees One Lakh Seventy Eight Thousand One Hundred Seventy Four only)** will be drawn by DDO, DST and disbursed to the **"CNA account of Autonomous body SERB in respect of Innovation,Technology Development and Deployment Scheme".**

Name of A/C Holder	**Innovation Technology Development and Deployment**
Bank A/C No	**349902010051240**
Name of the Bank & branch	**Union Bank of India, Safdarjang Enclave - New Delhi**
RTGS/IFSC code	**UBIN0534994**

5. The amount of **Rs. 178174/- (Rupees One Lakh Seventy Eight Thousand One Hundred Seventy Four only)** will be drawn by the **"CNA account of Autonomous body SERB and will be disbursed to the Director/Registrar/Principal/Controller/Comptroller, SSN COLLEGE OF ENGINEERING".**

The bank details for electronic transfer of funds through RTGS are given below: -

Name of A/C Holder	**SSN COLLEGE OF ENGINEERING 1819 INOVATION TECHNOLOGY DEVELOPMENT AND DEPLOYMENT**
Bank A/C No	**111022010000476**
Name of the Bank & branch	**Union Bank of India**
RTGS/IFSC code	**UBIN0911101**

6. As per Rule 234 of GFR 2017, the sanction has been entered at S. No **115** . in the register of grants maintained in the **Technology Development Transfer** for the scheme **Technology Development Programme.**

7. This issues with the concurrence of IFD Vide their Concurring Dy. No **IFD/C/III/130123/35/03045 dated 13/01/2023.**

8. The GI will keep all the funds received in the Central Nodal Account only and shall not transfer the funds to any other account or not divert the same to Fixed Deposits/ Flexi-Account/ Multi-Option Deposit Account/ Corporate Liquid Term Deposit (CLTD) account etc. The funds released to GI shall not be parked in bank account of any other agency.

9. The GI will ensure the compliance of OM. No. F. No. **1/(18)/PFMS/FCD/2021 dated March 9, 2022** of Department of Expenditure, Ministry of Finance.

10. This sanction order is subject to the **Terms & Conditions** as annexured .

11. The organization is registered on NGO Darpan Portal and their Unique ID is **TN/2017/0118071**

16/01/23

Dr. Akhilesh Mishra
Scientist - 'E'
akhilesh.mishra@nic.in

To,
The Pay & Accounts Officer,
Department of Science & Technology,
New Delhi – 110 016.

Copy of information and necessary action to: -

1. The Principal Director of Audit, Scientific Department, IIIrd floor, AGCR Building, I.P. Estate, New Delhi.
2. The Financial Advisor, Integrated Finance Division, Technology Bhavan, New Mehrauli Road, Block C, Qutab Institutional Area, New Delhi, Delhi 110016
3. The Internal Audit Wing, Department of Science & Technology,Technology Bhavan, New Mehrauli Road, Block C, Qutab Institutional Area, New Delhi, Delhi 110016
4. Drawing and Disbursing Officer, DST, Cash Section. (two copies)
5. Dr. D Thenmozhi, Associate Professor, Computer Science and Engineering, SSN COLLEGE OF ENGINEERING, Chennai, Kanchipuram, Tamilnadu - 603110
6. The Director/Registrar/Principal/Controller/Comptroller/Chief Executive Officer(CEO), SSN COLLEGE OF ENGINEERING, Chennai, Kanchipuram, Tamilnadu - 603110
7. Secretary, SERB, New Delhi (for allocation of limits to implementing agency)
8. Head (Technology Development Transfer) DST
9. Sanction Folder (Technology Development Transfer)

16/1/23

Dr. Akhilesh Mishra
Scientist - 'E'
akhilesh.mishra@nic.in

ANNEXURE

GOVERNMENT OF INDIA
Ministry of Science & Technology
Department of Science & Technology
DST/TDT/TDP-05/2022 (C)
Terms & Conditions

1. The grantee organization will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report (Vis-a-Vis Target Vs-Achievement) at the end of each financial year duly reflecting the interest earned / accrued on the grant received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

2. The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

3. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

4. The grant-in-aid being released is subject to the condition that:-

a) A transparent procurement procedure in line with Provisions of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant.
b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to be ensure submission of supporting documentary evidences with regard of the purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

5. As per the GFR 2017 Rule 230 (8) the Grantee Institute should ensure that all the interests or other earnings against Grant-in-Aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted to the Consolidated Fund of India immediately after finalization of the accounts. Such advances will not be allowed to be adjusted against future releases.

6. As per the GFR 2017 Rule 230 (17) "the Grantee Institute should agree to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts or services under its control on the lines indicated by the Government of India"

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e. **www.bharatkosh.gov.in**), immediately after finalization of accounts, as it shall not be adjusted towards future release of Grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/ Utilization Certificate for considering subsequent release of Grant/ Closure of Project accounts.

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

10. Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publication / media release as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

11. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

12. It is mandatory to use EAT module in PFMS, failing which no further funds shall be released.

13. Goods (Consumable/Equipment) available in GeM portal are to be procured mandatorily online through GeM only as per the provisions of Rule 149 of GFR.

14. The Grantee Institute should follow Global Tendering Enquiry (GTE) conditions as per Department of Expenditure ID Note No:4/1/2021-PPD dated 10.09.2021.

15. If One time assistance or non-recurring grant as Grant-in-Aid for Rs. 10.00 lakhs to Rs. 50.00 lakhs, it should be included in the Annual Report of the Institute.

16. The Grantee Institute must ensure any other provisions of GFR-2017 and guidelines/amendments issued from Govt. of India from time to time.

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
DST/TDT/TDP-05/2022 (C)
निबंधन और शर्तें

1. अनुदानग्राही संस्थान प्रत्येक वित्त वर्ष के अंत में इस परियोजना के अंतर्गत प्राप्त अनुदान पर अर्जित/प्रोद्भूत ब्याज को विधिवत रूप से दर्शाते हुए अद्यतन प्रगति रिपोर्ट (लक्ष्य बनाम उपलब्धि) के साथ जीएफ़आर 2017 में विनिर्दिष्ट प्ररूप में वित्तीय वर्ष-वार उपयोग प्रमाण पत्र (यूसी) और व्यय का लेखापरीक्षित विवरण (एसई) विज्ञान और प्रौद्योगिकी विभाग को प्रस्तुत करेगा। यह परियोजना की समाप्ति की निर्धारित तारीख से एक वर्ष भीतर व्यय का अंतिम विवरण, उपयोग प्रमाण-पत्र और परियोजना समाप्ति रिपोर्ट प्रस्तुत करने की शर्त के भी अध्यधीन है।

2. अनुदानग्राही संस्थान को उपयोग प्रमाण-पत्र इस प्रभाग में भौतिक रूप में भेजने के साथ-साथ पीएफ़एमएस पोर्टल पर प्रविष्ट और अपलोड करना होगा। अनुवर्ती/अंतिम किस्त प्रभाग द्वारा यूसी की स्वीकृति की पुष्टि और पीएफ़एमएस में पूर्ववर्ती उपयोग प्रमाण-पत्र की प्रविष्टि के बाद ही जारी की जाएगी।

3. यदि अनुदान एक ही परियोजना के अंतर्गत उपस्कर (रों) की खरीद के लिए पृथक संस्वीकृति आदेश के माध्यम से पूंजी-शीर्ष के अंतर्गत जारी किया गया है तो जारी किया गया पूंजी-शीर्ष अनुदान के लिए पृथक एसई/यूसी प्रस्तुत करना होगा।

4. जारी किया जा रहा सहायता अनुदान निम्नलिखित शर्तों के अध्यधीन है-

क) उपर्युक्त परियोजना के लिए संस्वीकृत पूंजी आस्तियों की खरीद करते समय अनुदानग्राही संस्थान के उचित नियमों के तहत संस्थान/संगठन द्वारा सामान्य वित्तीय नियमावली 2017 के उपबंधों के अनुरूप पारदर्शी खरीद प्रक्रिया का अनुपालन किया जाए और अनुदान प्राप्ति पर तुरंत प्रभाव से अनुदानग्राही संगठन द्वारा इस आशय का प्रमाण-पत्र प्रस्तुत किया जाए।
ख) उपयोग प्रमाण-पत्र/ व्यय विवरण प्रस्तुत करते समय, संगठन को जीएफ़आर 2017 के उपबंधों के अनुसरण में उपस्कर/पूंजी आस्तियों की खरीद के संबंध में संबन्धित दस्तावेज़-साक्ष्य प्रस्तुत करना सुनिश्चित करना होता है।

5. जीएफ़आर नियमावली 2017 के नियम 230 (8) के अनुसार अनुदानग्राही संस्थान को सुनिश्चित करना चाहिए कि किसी भी अनुदानग्राही संस्थान को जारी किए गए सहायता अनुदान या अग्रिम (प्रतिपूर्ति से भिन्न) पर प्राप्त समस्त प्रकार के ब्याज या अन्य आय को लेखों को अंतिम रूप दिए जाने के तुरंत बाद भारतीय समेकित निधि में अनिवार्य रूप से विप्रेषित किया जाए। ऐसे अग्रिमों को भविष्य में जारी की जाने वाली निधियों में समायोजित करने की अनुमति नहीं दी जाएगी।

6. जीएफ़आर नियमावली 2017 के नियम 230 (17) के अनुसार, "अनुदानग्राही संस्थान को भारत सरकार के निर्देशानुसार अपने नियंत्रणाधीन पदों या सेवाओं में अनुसूचित जाति या अनुसूचित जनजाति या ओबीसी के लिए आरक्षण रखने पर सहमत होना चाहिए।"

7. अनुदानग्राही संस्थान परियोजना का पृथक परीक्षित लेखा रखेगा और अनुदान की समस्त राशि बैंक खाते में सब्याज रखी जाएगी। वित्तीय वर्ष 2017-18 के दौरान और उसके बाद जारी अनुदान के लिए, अनुदान के लिए सभी प्रकार के ब्याज या अन्य आय ऐसे लेखों को अंतिम रूप दिए जाने के तुरंत बाद भारतीय समेकित निधि में (गैर कर प्राप्ति पोर्टल (एनटीआरपी) अर्थात www.bharatkosh.gov.in के माध्यम से) विप्रेषित की जाएगी, क्योंकि यह राशि भविष्य में जारी की जाने वाली राशि में समायोजित नहीं की जाएगी। अनुवर्ती अनुदान के निर्गम/ परियोजना खाते को बंद करने पर विचार किए जाने के लिए, व्यय विवरण/ उपयोग प्रमाण-पत्र के साथ इस आशय का प्रमाण पत्र प्रस्तुत करना होगा।

8. डीएसटी, अनुदान से सृजित परिसंपत्तियों पर एकमात्र सुरक्षित अधिकार रखता है। सरकारी अनुदानों से पूरी तरह से या पर्याप्त रूप से अर्जित संपत्ति (जीएफआर 2017 में निर्धारित प्रक्रिया के अनुसार अप्रचलित और अनुप्रयोज्य, अनुपयोगी घोषित अनुदानों से इतर), का निपटारा डीएसटी का पूर्व अनुमोदन प्राप्त किए बिना नहीं किया जाएगा।

9. जैसा कि सामान्य वित्तीय नियमावली 2017 के नियम 236 (1) के तहत निर्धारित किया गया है, अनुदानग्राही संगठन का लेखा स्वीकृति प्रदाता प्राधिकरी और लेखा परीक्षक (भारत के नियंत्रक एवं महालेखापरीक्षक और डीएसटी के प्रधान लेखा कार्यालय दोनों द्वारा आंतरिक लेखा परीक्षा) द्वारा निरीक्षण किए जाने, जब भी संगठन को ऐसा करने के लिए कहा जाता है, हेतु अभिगम्य होगा।

10. इस परियोजना अनुदान से प्राप्त तकनीकी सहायता/वित्तीय सहायता की उचित पावती को अनुदानग्राही संगठन द्वारा सभी प्रकाशनों/मिडिया प्रकाशनी में मोटे अक्षरों में और परियोजना के पूरा होने के दौरान और तदुपरांत उनकी वार्षिक रिपोर्टों के शुरुआती पैराग्राफों में अनिवार्य रूप से दिखाया किया जाना चाहिए।

11. बॉन्ड के नियमों और शर्तों का पालन करने में असफल होने पर जीएफआर 2017 के नियम 231 (2) के अनुसार पूरी राशि सब्याज वापस करनी होगी।

12. पीएफएमएस में ईएटी मॉड्यूल का उपयोग करना अनिवार्य है, ऐसा न करने पर अन्य कोई भी आगामी निधि जारी नहीं की जाएगी।

13. जीएफआर के नियम 149 के उपबंधों के अनुसार जीईएम पोर्टल पर उपलब्ध वस्तुओं (उपभोज्य वस्तु /उपस्कर) का अनिवार्यतया आनॅ लाइन प्रापण जैम (जीईएम) ही के माध्यम से किया जाना है।

14. अनुदान ग्राही संस्थान को व्यय विभाग के आईडी नोट संख्या: 4/1/2021-पीपीडी दिनांक 10.09.2021 के अनुसार वैश्विक निविदाकरण जांच-पड़ताल (जीटीई) नियमों का पालन करना चाहिए।

15. यदि एकबारगी सहायता या गैर-आवर्ती अनुदान 10.00 लाख रुपये से 50.00 लाख रुपये के सहायता अनुदान का हो तो इसे संस्थान की वार्षिक रिपोर्ट में दर्ज किया जाना चाहिए।

16. अनुदान ग्राही संस्थान को जीएफआर-2017 के किसी भी अन्य उपबंध और समय-समय पर भारत सरकार द्वारा जारी दिशा-निर्देश/संशोधन का अनुपालन सुनिश्चित करना चाहिए।

WhiteChilly

December 26, 2021

Dr Thiruvenkadam T
SSN School of Management
Old Mahabalipuram Road
Kalavakkam Off, Chennai
Kanchipuram DT - 603110

Dear Dr. Thiruvenkadam. T,

Reference to our discussions with you, we are pleased to appoint you as a consultant for the period of six months (starting with January 02, 2022) to work on the requirements pertaining to spiritual360.com ecommerce marketplace project of the company. As a consultant, we expect you to advise us in the following areas:

1. Building a credible supplier database that leads to creating Ideal Vendor Profile.
2. Building a strategy document that supports expanding the scope and scalability.
3. Identification of market opportunities for the product lines of the company.

The other important terms and conditions are:

1. **Confidentiality:** The consultant is expected to maintain the confidentiality regarding the company business details and should not be used for any other purpose. However the company can selectively agree to share the information that assists in research publications.
2. **Contract Period:** This assignment is contracted for a period of six months (January 02, 2022 – June 30, 2022) and extendable for a further period based on mutual interest.
3. **Data and Business Models:** All the business models of the company and the survey/ market research outcomes coming out from the consultant's work are part of company's property.
4. **IPR:** The consultant or the company sponsoring him for consulting role has no control on any of the intellectual property of the company.
5. **Consulting Fee:** The consultant is paid a consulting fee for the projects identified in mutual discussion. Each of the projects will have approved commercials based on the scope defined for the projects. All payments will be made in the name of SSN School of Management Chennai.
6. **Engagement window:** The consultant is expected to be engaged for a period of six months. The work can be executed through a flexible way of working. The consultant could visit company/ offer the services on a virtual mode according to the requirements.

We look forward to work with you for mutually beneficial outcomes.

Thanking you

For Whitechilly Trading and Services Pvt Ltd

Gnanasekaran Saravanakumar
Director

WHITECHILLY TRADING AND SERVICES PVT LTD
No.2 Marudhupandiar Road, Second Floor Phase II
Velachery, Chennai – 600 042
Ph: 94454 77032 Email: contactus@whitechilly.com

WhiteChilly

December 26, 2021

Dr Thiruvenkadam T
SSN School of Management
Old Mahabalipuram Road
Kalavakkam, Off Chennai
Kanchipuram DT 603110

Dear Dr. Thiruvenkadam. T,

Reference to our discussions with you, we are happy to accept your recommendation to work towards creating a Seller Data warehouse for our company.

The assignment involves identification and listing of maximum number of "Categories" that fall into Spiritual Domain, use data technologies to build the database of potential sellers of products under the identified categories and set up a path for company to move the leads towards creating Ideal Vendor Profile (IVP) that leads to the vendor registration on our portal.

Based on your recommendation, we are happy to appoint a three-member consulting team that can work towards building the Seller Data Warehouse.

Dr. T. Thiruvenkadam,
Associate Professor, SSN School of Management (**Chief Consultant**)

Dr. Valli Devi,
Associate Professor, Department of Computer Science,
SSN College of Engineering (**Technical Consultant**)

Dr. Hariharanath K,
Director, SSN School of Management (**Mentor for the project**)

Scope and Coverage:

1. Identifying different categories of products
2. Identifying different types of products under each category
3. Identifying prospective sellers for each category
4. Getting required coordinates of sellers for each of the products.

Outcomes:

1. List of categories of products (expected to provide a minimum of 50 categories).
2. A detailed list of products under each category
3. 1000 Seller coordinates (Demographics - name, address, contact details, Firmographics- products produced, specifications, any other relevant information).

The other important terms and conditions are:

1. **Confidentiality:** The consultants are expected to maintain the confidentiality regarding the company business details and should not be used for any other purpose. However, the company can selectively agree to share the information that assists in research publications.
2. **Contract Period:** This assignment is contracted for a period of three months (January 02, 2022 – March 31, 2022) and extendable for a further period based on mutual interest.

3. **Data and Business Models:** All the business models of the company and the survey/ market research outcomes coming out from the consultant's work are part of company's property.
4. **IPR:** The consultants or the company sponsoring them for consulting role has no control on any of the intellectual property of the company.
5. **Consulting Fee:** The assignment involves a consulting fee of Rs. 1,60,000/- (one lakh sixty thousand only) payable in Rs. 80000 + taxes as fixed component for consulting and market research. 50% of this can be paid on Jan 31, 2022, and balance at the closure of the project. Rs. 80000 + taxes for leads generated @ Rs. 80/ lead. The payments can be made in two stages, 500 leads per stage. All payments will be made in the name of SSN School of Management Chennai.
6. **Engagement window:** The consultants are expected to spend about 350 hours during the period of three months towards the above defined assignments. The work can be executed through a flexible way of working. The consultants could visit company as deemed necessary for discussions.

We look forward to work with the team of SSN.

Thanking you

For Whitechilly Trading and Services Pvt Ltd

Gnanasekaran Saravanakumar
Director

WHITECHILLY TRADING AND SERVICES PVT LTD
No.2 Marudhupandiar Road, Second Floor Phase II
Velachery, Chennai – 600 042
Ph: 94454 77032 Email: contactus@whitechilly.com

Project Proposal for Creating a Seller Data Warehouse

Submitted to

WhiteChilly Trading & Services Pvt Ltd., Chennai on 21-12-2021 (Confidential)

1. **About company:**

WhiteChilly Trading & Services Pvt Ltd., Chennai is a recognized Startup Company under the Ministry of Industries, Govt. of India and in the process of launching an e-commerce marketplace called Spritual360.com for specialty products (**Spiritual & Religious Products/Services**).

2. **Statement and Scope of work:**

The client is in the process of populating the portal with Vendors (Suppliers) to initiate the commercial business.

Data Search needs to be conducted to identify the potential sellers across India and the process involves capturing their details that largely fall into the following categories:

Demographics - name, address, contact details

Firmographics- products produced, specifications, any other relevant information.

This will help the firm to identify Ideal Vendor Profiles (IVPs) who can register on portal and convert them into business partners.

If the data warehouse is created with reliable data, the firm can create Ideal Vendor Profiles (IVPs) who can register on portal and convert them into business partners.

The different stages involved in the process are:

a. Identification and listing of maximum number of "Categories" that fall into Spiritual Domain.
b. Use data technologies to build the database of potential sellers of products under the identified categories.
c. Set up a path for company to move the leads towards IVP that leads to the vendor registration.

3. **Technical approach:**

Suitable web crawling and data scraping is followed using the internal resources.

4. **Proposed plan of for Seller Acquisition along with deliverables:**

Milestone	Process	Estimated Man-Hours	Deliverables
Define the client requirements and make a proposal	Requirements understanding and establishing a process	5 hours	Proposal document (Approval required from client)
Identifying different categories of products	Benchmarking with the market leader, and other market players. Review a minimum of 10 top selling portals/ retails to build an effective categories list. The characteristics of categories should reflect the inclusivity and diversity to ensure wide variety is made available on portal.	15 hours	List of categories of products. Expected to provide a minimum of 50 categories.
Identifying different types of products under each category	Benchmarking with the market leader, and other market players. Each category will have all possible products that are commonly sought by customers. An effort will be made to get a minimum of 10 products and a maximum of 25 products in each of the categories subject to the scope.	20 hours	A detailed list of products under each category
Identifying prospective sellers for each category	Web Crawling/Data Scraping	For each category, 5 -6 hours, Total: 250-300 hours	Sellers List
Getting required coordinates of sellers for each of the products.			1000 Seller coordinates (Minimum) Demographics - name, address, contact details Firmographics- products produced, specifications, any other relevant information.

Proposed work involves 350-man hours of work.

5. **Resources Deployment**

Mentor:
Dr. K. Hariharanath, Director, SSN School of Management

Principal Investigators:

1. **Dr. Thiruvenkadam. T**
   Associate Professor
   SSN School of Management
   Kalavakkam, OMR, Chennai – 603 110.

2. **Dr. K. Vallidevi,**
   Associate Professor,
   Department of CSE,
   Sri Sivasubramaniya Nadar College of Engineering,
   Kalavakkam-603110

   A group of 5-6 students with good technical capabilities will be used to clean the data and provide in the right format.

6. **Time Frame:**

   350 hours of work = 45 working days. However, the progress on work can be reviewed at the end of every 15 days (in three stages).

   Start date: Jan 3, 2022.

   End date: March 4, 2022

   However, seller database in specified format will be released as and when a category is completed so that the company can move towards supplier acquisition.

7. **Budget:** Rs.1.6 lacs + taxes

8. **Specified Deliverables:**
   a. Categories of products and different varieties of products under each category.
   b. Coordinates of prospective sellers

9. **Invoicing and Payments:**

   Rs. 80000 + taxes as fixed component for consulting and market research. 50% of this can be paid on Jan 31, 2022, and balance at the closure of the project.

   Rs. 80000 + taxes for leads generated @ Rs. 80/ lead. The payments can be made in two stages, 500 leads per stage.

   All payments will be made in the name of SSN School of Management Chennai against the invoices raised.

10. Non-disclosures and data protection:

All the data that is being generated will be handed over to the company. SSN has no right on data. SSN will not share this data with any other competing players of the client company.

11. Visits to the company:

Permission to interact with decision makers of company need to be provided. Consultants from SSN will make visits to the company in a mutually agreed manner.

12. Contact and Escalation points:

SSN: Dr. Hariharanath K, Director, SSN School of Management, Chennai.
Whitechilly: Mr. Kabaleeswaran, Consultant.

13. Jurisdiction:
Parties agree to submit to exclusive jurisdiction of **Courts at Chennai**.

For Whitechilly Trading and Services Pvt. Ltd

Director

(Authorized Signatory)
WhiteChilly Trading and Services Pvt Ltd
Gnanasekaran Saravanakumar
Director

Date: 21-12-2021

SSN SCHOOL OF MANAGEMENT
Kalavakkam 603 110

(Authorized Signatory)
SSN School of Management

Director
SSN School of Management
Old Mahabalipuram Road
Kalavakkam - 603 110.
Tamilnadu

****

AQIS ID: 1-9305890572

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
Nelson Mandela Marg, Vasant Kunj,
New Delhi-110070

RPS - Sanction Letter

Faculty Development Cell, AICTE
Dy. No.

File No. 8-136/FDC/RPS/POLICY-1/2021-22 **Date:** 18 FEB 2022

The Drawing and Disbursing Officer
All India Council for Technical Education
Nelson Mandela Marg,
Vasant Kunj, New Delhi-110070,

Sub: Release of a sum of Rs. 839125/- being the 1st installment of the total grant of Rs. 959000/- for conduct of Project under Research Promotion Scheme (RPS) during the financial year 2021-22.

Sir,

With reference to the proposal submitted by the institute, this is to convey the sanction of the Council for payment of **Rs. 839125/- (Rupees Eight Lakh Thirty Nine Thousand One Hundred Twenty Five Only)** as 1st installment out of a total approved grant-in-aid of **Rs.959000/-** for conduct of a Project under the Research Promotion Scheme (RPS), as per details given below:-

I.	Name and address of the Beneficiary Institution (University / College / Institution)	:	**Registrar / Director / Principal, SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING, RAJIV GANDHI SALAI (OMR) KALAVAKKAM, KANCHIPURAM DIST-603110, TAMIL NADU**
II.	Principal Investigator's Name & Dept./Course	:	**Dr. SURESH JAGANATHAN (COMPUTER SCIENCE & ENGINEERING)**
III.	Co-Principal Investigator's Name & Dept.	:	**DATTULURI VARAPRASAD (COMPUTER SCIENCE AND ENGINEERING)**
IV.	Grant-in-aid Sanctioned	:	**Rs. 959000/-** (Rs. 719250/- for non-recurring and Rs.239750/- for recurring expenditure)
V.	**Amount to be Released during the year 2021-22 (as 1st installment)**	:	**Rs. 839125/-** (Rs. 719250/- Full amount of non-recurring & Rs. 119875/- recurring i.e. 50 % of total sanctioned recurring grant)
VI.	Project Duration	:	**3 Years**
VII.	Title of the Project	:	**Designing a lightweight Consensus Mechanism in Block-chain for IoT based Asset Management**

I. Release of funds:

1. The amount of the grant shall be drawn by the Drawing and Disbursing Officer (DDO), All India Council for Technical Education, New Delhi on the Grants-in-aid bill and shall be disbursed to and credited to the account of SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING, RAJIV GANDHI SALAI (OMR) KALAVAKKAM, KANCHIPURAM DIST-603110, TAMIL NADU through **PFMS**.
2. The sanctioned grant-in-aid is debitable to the **Major Head "601.12.a (RPS Plan)" Gen.** and is valid for payment during the financial year 2021-22.
3. The sanction issues in exercise of the powers delegated to the Council. It is also certified that grant-in-aid is being released in conformity with the rules and principles of the Scheme.
4. The grant-in-aid is being released in conformity with the Terms & Conditions as well as norms of the scheme as already communicated and also being communicated in this letter.

II. Maintenance of account by the Institute/PI:

1. Funds covered by this grant shall be kept separately and would not be mixed up with other funds so as to know the amount of interest accrued on the grant.
2. The grant is intended to cover items of expenditure/equipment approved by AICTE.
3. Acknowledgement of receipt of grant and letter of acceptance of terms and conditions is to be submitted to AICTE **within 15 days** from the receipt of the grant to the following address:

Director (Faculty Development Cell), AICTE, Nelson Mandela Marg, Vasant Kunj, New Delhi-110070

Contd...2/-

4. The accounts of the grantee will be opened for test check by the Council or Comptroller & Auditor General of India or by any officer designated by them.

5. The Principal and PI of the institute are requested to verify the correctness of the undermentioned bank account/RTGS/**PFMS** details submitted by them alongwith the Proposal, in which the grant is being released. In case of any omission, the same should be reported to AICTE immediately along with refund of entire grant: -

Institute Pan No.	Bank Name	Bank Branch	Bank Branch Add.	Account Holder Name	Account Type	Account Number	IFSC Code
AAATS2240Q	TAMILNAD MERCANTILE BANK LTD.	Thiruvanmiyur	No.3, Thiruvalluvar Salai, Chennai - 600041	The Principal, SSN College of Engineering	Saving Account	158100050070022	TMBL0000158

6. The grantee Institution shall observe all financial norms and guidelines as prescribed by the AICTE/Government of India from time to time. Grantee institution must follow GFR guidelines in procuring the sanctioned items and maintain an audited record of assets acquired wholly or substantially out of the grant-in-aid and a register for assets shall be maintained by the Institute in the prescribed form i.e. GFR-19.

7. **Interest accrued on the sanctioned grant-in-aid will be reported and refunded to AICTE and not adjusted against the subsequent installment.**

III. General Instructions:

1. It should be ensured that no RPS project in favour of the same P.I. has been sanctioned during the last 03 years before utilizing this amount and the matter be brought to the notice of this Council immediately in case a faculty is sanctioned multiple RPS Projects.

2. The duration of Project is 03 years and the **date of release of the grant by AICTE shall be taken as the date of commencement of the project**. The **Registrar/Director/Principal** shall intimate about the receipt of the grant to AICTE. Any Expenditure, incurred prior to issuance of this Sanction Order, would not allowed to be adjusted in the grant and if the University/Institution do not take-up the project work **within 6 months** of the receipt of the grant, approval shall *ipso facto* lapse **and the Institute has to necessarily refund the entire grant to AICTE along with interest within a month. In case the grant is not refunded within said duration 18% interest will be levied on it.** The grant has to be refunded to AICTE, through RTGS as per details given below:

Account Number	**55113199952**
Name of the Account Holder	**Member Secretary, AICTE, New Delhi**
Bank Name	**State Bank of India**
Branch Name	**Shashtri Bhawan, New Delhi**
IFSC Code	**SBIN0050203**

3. The Institute may constitute a Project Monitoring Committee (PMC). The composition of the PMC shall be as under:
   i. Principal/Director of the institution (Chairperson)
   ii. Two HODs from institute (Members)
   iii. In case of private institute one subject expert from government institute, not below the rank of Associate Professor (Member)
   iv. Coordinator of the project (Member Secretary)

4. The grant shall be utilized strictly for the purpose as specified in the sanction letter. Re-appropriation of funds from one Head to another is strictly not permitted viz. Recurring and non-recurring Heads. Further, the equipment(s)/item(s) purchased should be as per the specifications and individual item-wise costs sanctioned by AICTE, and not taking the total grant sanctioned as one entity. Item-wise purchase cost shall be matched with the sanctioned cost, and the cost of item purchased below the sanction cost shall be restricted as actual cost. If the item purchase cost is higher than its sanctioned cost, the cost shall be restricted to the sanctioned cost and the additional amount shall be met by the Institute from its own resources.

5. Similarly, the recurring grant can be used for the items (non-recurring) sanctioned by the AICTE. No money be used for going abroad to attend Conference / seminars. However, for presenting a Paper in a Seminar / Conference **within the country,** the travel expenses may be met from the recurring grant.

Contd...3/-

6. No request for additional grant over and above the sanctioned grant shall be considered by the AICTE. The additional amount, if any, expended beyond the sanctioned grant shall be met by the Institute from its own resources.

7. The institute/University shall not charge any overheads on this Project and will provide all the administrative support **and timely release of grant to PI** for completion of the Project.

8. The grantee shall utilize grants only on approved items as per list of equipment attached. However, if the grantee wishes to recast the Project, approval of Council must be obtained for the revised item of expenditure and they will maintain proper accounts of the expenditure as per the norms/procedures of AICTE/Government of India. **The revised proposal should be within the total grant sanctioned and duly supported with reasons and recommendations of the Project Monitoring Committee (PMC).**

9. The assets acquired wholly or substantially out of All India Council for Technical Education's grant shall not be disposed or encumbered or utilized for the purpose other than those for which the Grant was given without proper sanction of the All India Council for Technical Education.

10. Each project sanctioned by AICTE is assigned a specific Reference Number, which is given on pre-page. All correspondence address to AICTE regarding the project must quote this number alongwith year of sanction of the project, otherwise correspondence may not be entertained.

11. The grantee shall follow the terms and conditions of Research Promotion Scheme (RPS) as laid down by the Council from time to time.

IV. Submission of documents by the institute/PI to AICTE:

A. Documents to be submitted within one month of completion of each financial year:

i. Annual Progress Report, indicating therein the number of patents, publications or any other achievement.

ii. Utilization Certificate, Audited Utilization Certificate, Receipt & Payments, Statement of Expenditure.

iii. Audited record of assets acquired wholly or substantially out of the grant-in-aid and a register for assets in the prescribed form i.e. GFR-19.

iv. Separate Bills/vouchers related to Non-recurring and recurring expenditures duly signed & stamped by the PI & Head of the institution.

v. Stock entry register duly verified by the Store-in-charge and PI & counter signed by Head of institution.

B. Documents to be submitted within two month of completion of the Project:

i. The consolidated Utilization Certificate (UC) and Receipt & Payment Account for the Project duration, duly audited.

ii. Consolidated audited statement of expenditure, to the effect that the grant has been utilized for the purpose for which it has been sanctioned. It should contain the head-wise break up of expenditure made from the grant-in-aid provided by the Council.

iii. Project Completion Report duly signed & stamped by the PI & Head of the institution and Project Evaluation Committee (PEC) Members.

iv. Principal Investigator/institute to submit the Feed Back Form in AICTE format.

v. The prescribed formats for submission of necessary mandatory documents and Terms & Conditions may please be downloaded from **www.aicte-india.org/schemes/research-innovations-development-schemes.**

Note: Any deviation from the above said time schedule will cause serious action against the institute.

Contd.....4/-

V. Approved List of Items under Non-recurring grant:

S. No.	Approved Items (As per proposal)	No. of Units	Amount recommended (in Rs.)
A.	Non-recurring		
i)	Camera Module	5	Rs. 719250/-
ii)	Dell Desktop	1	
iii)	Dell Workstation	1	
iv)	Display (10.1 inch Diagonal IPS screen)	5	
v)	IoT Device	5	
vi)	RFID Reader	5	
vii)	RFID Tags	500	
viii)	Wireless Router	5	
B.	Recurring i.e. 50% of total approved recurring grant) for Contingencies & Consumables only		Rs. 119875/-
	Grand Total (A) + (B)		Rs. 839125/-

Copy forwarded for information and necessary action to:

1. **REGISTRAR / DIRECTOR / PRINCIPAL,**

   SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING,
   RAJIV GANDHI SALAI (OMR) KALAVAKKAM,
   KANCHIPURAM DIST-603110,
   TAMIL NADU

2. **NAME OF PRINCIPAL INVESTIGATOR,**

   Dr. SURESH JAGANATHAN,
   (COMPUTER SCIENCE & ENGINEERING)
   SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING,
   RAJIV GANDHI SALAI (OMR) KALAVAKKAM,
   KANCHIPURAM DIST-603110, TAMIL NADU

3. **OFFICE OF DIRECTOR GENERAL OF AUDIT**
   GENERAL REVENUES, AGCR BUILDING
   I.P. ESTATE, NEW DELHI-110002.

4. **GUARD FILE**

10 FEB 2022

(Col. B. Venkat)
Director (FDC)

AQIS ID: 1-9285379875

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
Nelson Mandela Marg, Vasant Kunj,
New Delhi-110070

RPS - Sanction Letter

File No. 8-197/FDC/RPS(SC&ST)/POLICY-1/2021-22 **Date:** 27 JAN 2022

The Drawing and Disbursing Officer
All India Council for Technical Education
Nelson Mandela Marg,
Vasant Kunj, New Delhi-110070,

Sub: Release of a sum of Rs.361375/- being the 1st installment of the total grant of Rs.413000/- for conduct of Project under Research Promotion Scheme (RPS) during the financial year 2021-22.

Sir,

With reference to the proposal submitted by the institute, this is to convey the sanction of the Council for payment of **Rs.361375/- (Rupees Three Lakh Sixty One Thousand Three Hundred Seventy Five Only)** as 1st installment out of a total approved grant-in-aid of **Rs. 413000/-** for conduct of a Project under the Research Promotion Scheme (RPS), as per details given below:-

I.	Name and address of the Beneficiary Institution (University / College / Institution)	:	**Registrar / Director / Principal, SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING, RAJIV GANDHI SALAI (OMR) KALAVAKKAM, KANCHIPURAM -603110, TAMIL NADU**
II.	Principal Investigator's Name & Dept./Course	:	**Dr. VIJAY JEYAKUMAR (BIOMEDICAL ENGINEERING)**
III.	Co-Principal Investigator's Name & Dept.	:	**NIRMALA K (BIOMEDICAL ENGINEERING)**
IV.	Grant-in-aid Sanctioned	:	**Rs.413000/-** (Rs. 309750/- for non-recurring and Rs.103250/- for recurring expenditure)
V.	**Amount to be Released during the year 2021-22 (as 1st installment)**	:	**Rs. 361375/-** (Rs.309750/- Full amount of non-recurring & Rs.51625/-recurring i.e. 50 % of total sanctioned recurring grant)
VI.	Project Duration	:	**3 Years**
VII.	Title of the Project	:	**An Integrated Framework to aid Non-Contact Measurement of vital parameters for mass Infection Screening**

I. Release of funds:

1. The amount of the grant shall be drawn by the Drawing and Disbursing Officer (DDO), All India Council for Technical Education, New Delhi on the Grants-in-aid bill and shall be disbursed to and credited to the account of **SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING, RAJIV GANDHI SALAI (OMR) KALAVAKKAM, KANCHIPURAM -603110, TAMIL NADU** through **PFMS**.
2. The sanctioned grant-in-aid is debitable to the **Major Head "601.12.b (RPS Plan)" SC.** and is valid for payment during the financial year 2021-22.
3. The sanction issues in exercise of the powers delegated to the Council. It is also certified that grant-in-aid is being released in conformity with the rules and principles of the Scheme.
4. The grant-in-aid is being released in conformity with the Terms & Conditions as well as norms of the scheme as already communicated and also being communicated in this letter.

II. Maintenance of account by the Institute/PI:

1. Funds covered by this grant shall be kept separately and would not be mixed up with other funds so as to know the amount of interest accrued on the grant.
2. The grant is intended to cover items of expenditure/equipment approved by AICTE.
3. Acknowledgement of receipt of grant and letter of acceptance of terms and conditions is to be submitted to AICTE **within 15 days** from the receipt of the grant to the following address:

Director (Faculty Development Cell), AICTE, Nelson Mandela Marg, Vasant Kunj, New Delhi-110070

Contd...2/-

4. The accounts of the grantee will be opened for test check by the Council or Comptroller & Auditor General of India or by any officer designated by them.

5. The Principal and PI of the institute are requested to verify the correctness of the undermentioned bank account/RTGS/**PFMS** details submitted by them alongwith the Proposal, in which the grant is being released. In case of any omission, the same should be reported to AICTE immediately along with refund of entire grant: -

Institute Pan No.	Bank Name	Bank Branch	Bank Branch Add.	Account Holder Name	Account Type	Account Number	IFSC Code
AAATS2240Q	TAMILNAD MERCANTILE BANK LTD.	Thiruvanmiyur	No.3, Thiruvalluvar Salai, Chennai - 600041	The Principal, SSN College of Engineering	Saving Account	158100050070022	TMBL0000158

6. The grantee Institution shall observe all financial norms and guidelines as prescribed by the AICTE/Government of India from time to time. Grantee institution must follow GFR guidelines in procuring the sanctioned items and maintain an audited record of assets acquired wholly or substantially out of the grant-in-aid and a register for assets shall be maintained by the Institute in the prescribed form i.e. GFR-19.

7. **Interest accrued on the sanctioned grant-in-aid will be reported and refunded to AICTE and not adjusted against the subsequent installment.**

III. General Instructions:

1. It should be ensured that no RPS project in favour of the same P.I. has been sanctioned during the last 03 years before utilizing this amount and the matter be brought to the notice of this Council immediately in case a faculty is sanctioned multiple RPS Projects.

2. The duration of Project is 03 years and the **date of release of the grant by AICTE shall be taken as the date of commencement of the project**. The **Registrar/Director/Principal** shall intimate about the receipt of the grant to AICTE. Any Expenditure, incurred prior to issuance of this Sanction Order, would not allowed to be adjusted in the grant and if the University/Institution do not take-up the project work **within 6 months** of the receipt of the grant, approval shall *ipso facto* lapse **and the Institute has to necessarily refund the entire grant to AICTE along with interest within a month. In case the grant is not refunded within said duration 18% interest will be levied on it.** The grant has to be refunded to AICTE, through RTGS as per details given below:

Account Number	**55113199952**
Name of the Account Holder	**Member Secretary, AICTE, New Delhi**
Bank Name	**State Bank of India**
Branch Name	**Shashtri Bhawan, New Delhi**
IFSC Code	**SBIN0050203**

3. The Institute may constitute a Project Monitoring Committee (PMC). The composition of the PMC shall be as under:
   i. Principal/Director of the institution (Chairperson)
   ii. Two HODs from institute (Members)
   iii. In case of private institute one subject expert from government institute, not below the rank of Associate Professor (Member)
   iv. Coordinator of the project (Member Secretary)

4. The grant shall be utilized strictly for the purpose as specified in the sanction letter. Re-appropriation of funds from one Head to another is strictly not permitted viz. Recurring and non-recurring Heads. Further, the equipment(s)/item(s) purchased should be as per the specifications and individual item-wise costs sanctioned by AICTE, and not taking the total grant sanctioned as one entity. Item-wise purchase cost shall be matched with the sanctioned cost, and the cost of item purchased below the sanction cost shall be restricted as actual cost. If the item purchase cost is higher than its sanctioned cost, the cost shall be restricted to the sanctioned cost and the additional amount shall be met by the Institute from its own resources.

5. Similarly, the recurring grant can be used for the items (non-recurring) sanctioned by the AICTE. No money be used for going abroad to attend Conference / seminars. However, for presenting a Paper in a Seminar / Conference **within the country,** the travel expenses may be met from the recurring grant.

Contd...3/-

6. No request for additional grant over and above the sanctioned grant shall be considered by the AICTE. The additional amount, if any, expended beyond the sanctioned grant shall be met by the Institute from its own resources.

7. The institute/University shall not charge any overheads on this Project and will provide all the administrative support **and timely release of grant to PI** for completion of the Project.

8. The grantee shall utilize grants only on approved items as per list of equipment attached. However, if the grantee wishes to recast the Project, approval of Council must be obtained for the revised item of expenditure and they will maintain proper accounts of the expenditure as per the norms/procedures of AICTE/Government of India. **The revised proposal should be within the total grant sanctioned and duly supported with reasons and recommendations of the Project Monitoring Committee (PMC).**

9. The assets acquired wholly or substantially out of All India Council for Technical Education's grant shall not be disposed or encumbered or utilized for the purpose other than those for which the Grant was given without proper sanction of the All India Council for Technical Education.

10. Each project sanctioned by AICTE is assigned a specific Reference Number, which is given on pre-page. All correspondence address to AICTE regarding the project must quote this number alongwith year of sanction of the project, otherwise correspondence may not be entertained.

11. The grantee shall follow the terms and conditions of Research Promotion Scheme (RPS) as laid down by the Council from time to time.

IV. Submission of documents by the institute/PI to AICTE:

A. Documents to be submitted within one month of completion of each financial year:

i. Annual Progress Report, indicating therein the number of patents, publications or any other achievement.

ii. Utilization Certificate, Audited Utilization Certificate, Receipt & Payments, Statement of Expenditure.

iii. Audited record of assets acquired wholly or substantially out of the grant-in-aid and a register for assets in the prescribed form i.e. GFR-19.

iv. Separate Bills/vouchers related to Non-recurring and recurring expenditures duly signed & stamped by the PI & Head of the institution.

v. Stock entry register duly verified by the Store-in-charge and PI & counter signed by Head of institution.

B. Documents to be submitted within two month of completion of the Project:

i. The consolidated Utilization Certificate (UC) and Receipt & Payment Account for the Project duration, duly audited.

ii. Consolidated audited statement of expenditure, to the effect that the grant has been utilized for the purpose for which it has been sanctioned. It should contain the head-wise break up of expenditure made from the grant-in-aid provided by the Council.

iii. Project Completion Report duly signed & stamped by the PI & Head of the institution and Project Evaluation Committee (PEC) Members.

iv. Principal Investigator/institute to submit the Feed Back Form in AICTE format.

v. The prescribed formats for submission of necessary mandatory documents and Terms & Conditions may please be downloaded from **www.aicte-india.org/schemes/research-innovations-development-schemes.**

Note: Any deviation from the above said time schedule will cause serious action against the institute.

Contd.....4/-

V. Approved List of Items under Non-recurring grant:

S. No.	Approved Items (As per proposal)	No. of Units	Amount recommended (in Rs.)
A.	Non-recurring		
i)	HP Z4 – G4 Work station with Nvidia RTX 2080Ti-11GB graphics card	1	Rs.309750/-
B.	Recurring i.e. 50% of total approved recurring grant) for Contingencies & Consumables only		Rs.51625/-
	Grand Total (A) + (B)		Rs.361375/-

Copy forwarded for information and necessary action to:

1. REGISTRAR / DIRECTOR / PRINCIPAL,
   SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING,
   RAJIV GANDHI SALAI (OMR) KALAVAKKAM,
   KANCHIPURAM -603110, TAMIL NADU

2. NAME OF PRINCIPAL INVESTIGATOR,
   Dr. VIJAY JEYAKUMAR
   (BIOMEDICAL ENGINEERING),
   SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING,
   RAJIV GANDHI SALAI (OMR) KALAVAKKAM,
   KANCHIPURAM -603110, TAMIL NADU

3. OFFICE OF DIRECTOR GENERAL OF AUDIT
   GENERAL REVENUES, AGCR BUILDING
   I.P. ESTATE, NEW DELHI-110002.

4. GUARD FILE

27 JAN 2022

(Col. B. Venkat)
Director (FDC)

भारतीय कृषि अनुसंधान परिषद
Indian Council of Agricultural Research
राष्ट्रीय कृषि विज्ञान कोष
National Agricultural Science fund (NASF)
भारतीय कृषि अनुसंधान भवन-1, पूसा परिसर, नई दिल्ली-110012
Krishi Anusandhan Bhavan-I, Pusa Campus New Delhi-110012

F. No. NASF/PA-9028/2022-23 **Dated:** 30/12/2022

To,

The Vice-Chancellor,
Tamil Nadu Veterinary and Animal Sciences University
(TNVASU), Chennai - 600 051

Subject: Sanction letter for the Research project entitled, **"Artificial Intelligence and IoT based Smart Vet Ecosystem for Animal Health, Patient Care and Precision Livestock Farming"** under the National Agricultural Science Fund (NASF)

Sir,

The Empowered Committee (EC) of the NASF considered the proposal on **"Artificial Intelligence and IoT based Smart Vet Ecosystem for Animal Health, Patient Care and Precision Livestock Farming"** in its 47th meeting held on November 18 and 19, 2022 and approved for implementation under the NASF. The total cost of this project is ₹ **215.38632** lakhs (**Rupees two crore fifteen lakh one thirty eight thousand six hundred and thirty two only)** for a period of 3 years (January, 2023 to December 2025). The financial sanction of the competent authority for the project is now being accorded for the period from 1st January 2023 to 31st March, 2023. The sanction for the period from 1st April 2023 to till the end of the project i.e. 31st December 2025 will be conveyed later. **The release of fund will be through PFMS/FMS-MIS and the funded centre need to comply accordingly.**

1. **Name of the Lead Centre**
   Tamil Nadu Veterinary and Animal Sciences University (TNVASU), Madras Veterinary College - Dept. of Veterinary Clinical Medicine, Chennai - 600007

2. **Name & Designation of the Principal Investigator**
   Dr. P. Selvaraj, Professor, Department of Veterinary Clinical Medicine Madras Veterinary College, TNVASU, Chennai - 600 007

3. **Names of Cooperating Centre**
   i. Indian Institute of Technology, BHU, Varanasi
   ii. ICAR-Indian Veterinary Research Institute, Izatnagar
   iii. Sri Sivasubramaniya Nadar (SSN) College of Engineering, Chennai - 603110
   iv. Indian Institute of Information Technology, Design & Manufacturing, Chennai- 600127

4. **Name & Designation of the Cooperating Centre Principal Investigator**
   i. Prof. Sanjay Kumar Singh, Professor and Head, IIT, BHU, Varanasi
   ii. Dr. Sameer Shrivastava, Senior Scientist, ICAR-IVRI, Izattnagar
   iii. Dr. A. Kavitha, Professor & Head, SSN College of Engineering, Chennai
   iv. Dr. Pandiyarasan Veluswamy, Assistant Professor, IIIT, Design & Manufacturing, Chennai

The details of the project are given in the project document in **Annexure I**. The head-wise and year-wise budget (both consolidated and for each partner) are given in the **Annexures II to VII**.

The Sanction will be subject to the following conditions:

1. The Principal Investigator (PI) and the Lead Centre will have the overall responsibility of carrying out the work shown in the project as given in **Annexure I**. Each Cooperating Centre Principal Investigator (CCPI) and the Cooperating Centre will have the responsibility for work assigned to the Centre under the project by the competent authority of NASF and the centre will fully cooperate with the Lead Centre and the NASF authorities.

2. All the Centres and the scientists will follow the rules and regulations of the ICAR set for the operation of the projects sanctioned under NASF.

3. Financial and Procurement

i. Funds will be released by the Secretariat of the NASF directly to the institutions of the PI (Lead Centre) and to the institutions of the CCPIs (Cooperating Centre).

ii. The Lead Centre and each of the Cooperating Centre will submit to the ADG (NASF) head-wise Utilization Certificate (UC) in the prescribed format duly verified by the concerned Finance Officer(s) twice every financial year: the first will be the UC for the immediate preceding financial year ending 31st March and will be submitted by the 15th of April and the second a six-monthly UC for the period from 1st April to 30th September of the year by the 15th of October. Each Cooperating Centre will submit a copy each of the aforesaid UCs to the PI.

iii. For facilitating smooth and speedy implementation of the activities envisaged under the sanctioned project, the PI and the CCPI from each Cooperating Centre will exercise powers for executing the project to the extent of sanctioned funds of his/her respective component of the project as given in **Annexure VIII**.

iv. The Heads of the Lead Centre and the Cooperating Centre(s) will ensure that the project runs in an efficient manner, provide laboratory space, salary, logistic facilities and services required for the same and monitor its progress on a regular basis.

v. **The expenditure will be made only on the approved items.** The amount sanctioned under each head/subhead is the maximum budgetary limit for that item but the actual expenditure will not exceed the amount actually released by the ADG under the head for the period concerned. In case of public organizations the expenditure under any head shall be made by the Lead or Cooperating centre in accordance with their own institutional prescribed rules/ norms. However, in cases of conducting workshops, meetings, and cost of Advisory Committee meetings norms and rules enclosed as **Annexure IX** should be followed. **Any re-appropriation from one head to another is not permissible.** All institutions including those belonging to the ICAR will maintain a separate ledger for the project. In case of private and non-governmental organizations the expenditure will be made in accordance with ICAR/NASF rules. In case any guidance is required in this matter, the Lead or Co-operating centre should

take the guidance of the Finance and Accounts Officer of the nearest ICAR institutes with information to the ADG, NASF.

vi. There will be **no revalidation of unspent funds released for recurring expenditure** from one financial year to the next financial year. For funds released for non-recurring expenditure such revalidation will be allowed in exceptional cases. Funds revalidated once will not be revalidated for the second time.

vii. Accrual accounting system has to be followed for the funds of the project without any exception. The reporting of annual accounts will also be in accordance with the accrual accounting system.

viii. At the end of each financial year, a Utilization Certificate will be submitted by the designated Finance Officer/F&AO/Comptroller of the Lead and each Cooperating Centre by 15th April indicating the head wise expenditure incurred in the previous year and resultant unspent balances/savings. Only on the receipt of UC, any funds will be released for the next financial year after adjusting for the savings from the previous financial year. Each of the Lead and the Cooperating Centre will submit an Audited Utilization Certificate (AUC) for the previous financial year by the 30th September of each year in the prescribed proformas. The Central Government/State Government Institutes will get the certificate from the CAG/State AG. The Universities (General and Agricultural) and the non-ICAR institutes will have the option to get the certificate from their statutory auditors or from a Chartered Accountant empanelled by ICAR (Please see the website http://www.icar.org.in/nasf/index.html for the list of empaneled chartered accountants and their remunerations). The private and NGO institutions will get the certificate from a Chartered Account empanelled as given in the above website. The cost of hiring the Chartered Accountants will be met out of the institutional charges. In case it is not sufficient operational cost budget may be used with the permission of ADG, NASF.

ix. Only after the receipt of the AUC and the half yearly UC any funds for the second half of a financial year will be released.

x. The salaries of the RAs and SRFs will be according to ICAR norms prevalent during the period of appointment (copy of the current norms in vogue is enclosed as **Annexure X**). Adequate transparent and competitive procedure should be adopted for the selection of the contractual staff.

xi. The ICAR will have no liability, whatsoever, for the SRFs and RAs or any other staff employed under the Project on contractual basis during and after expiry of the project term.

xii. Institutional charges will be available to the Institution concerned for meeting expenditure on overheads, institutional services, monitoring, reporting, and audit which are required by the Lead or Cooperating Centres to support the project. Expenditure under this item should be properly accounted for.

xiii. Funds for every year will be released after the submission of UC and on the basis of demands for funds, scientific/technical reports, submission of data and recommendations of the PI and the ADG regarding the satisfactory achievement of research targets set for the period. The UC should be submitted head wise duly verified by competent finance officer of the institution concerned indicating head wise closing/unspent balances.

xiv. Submission of research publication, data management and cost of publication need to be as per ICAR guidelines.

4. **Monitoring:**

(i) This sanction letter, and the research project (as given in **Annexure I**) approved by the EC will be treated as a Work Programme Agreement between the ICAR and the Lead and the Cooperating Centres.

(ii) ADG, NASF will form an Advisory Committee consisting of two external members (one as Chairman and the other as a member) who are very eminent scientists in the field of the project. The ADG or his representative, the Head of the Lead Centre or his nominee, the CCPI(s), Head of Finance and the Head of Administration of the Lead Centre will be the members. The PI of the project will be the Member Secretary. The recommendations of the Advisory Committee may be reviewed by the NASF. The NASF decision will be final on all recommendations/suggestions of the Advisory Committee. The Advisory Committees would be constituted by the ADG/Director, ACs may recommend additional fund of Rs. 1.5 lakhs to NASF within the approved budget for consideration during midterm evaluation/monitoring.

ACs will be evaluating, monitoring and review the project once in a year. Besides, it may visit laboratory/field/sites in consultation with NASF office.

Chairman(s) of ACs may participate during the annual review meetings of the projects, based on requirements.

The names of the External Members of the Advisory Committee and the powers delegated to the Committee are given in **Annexure XI**.

As the Member Secretary, the PI will conduct one meeting of the Advisory Committee in one year to formulate the plan of work, review and monitor, the progress of work and, suggestions for the improvement in the project.

(iii) The PI will submit to the ADG an Annual Report for the previous year (ending 31st March) by 15 April of every year in a prescribed Proforma(s).

(iv) The PI and the CCPIs may be called to present their progress before the EC or in a Workshop organized by the NASF whenever required.

(v) A final report of the project will be submitted to the ADG within 30 days of the closure of the project with all technical and financial details. This deadline will be strictly followed.

(vi) The ADG or his representative will visit the project institutions as and when required.

5. Intellectual Property Rights:

(i) The rights on any intellectual property shall be vested in the ICAR, who shall be the absolute and full owner.

(ii) The sharing of income from Intellectual Property Rights (IPR) from the project would be in accordance with the proportion/percentage given below:

(a) Share of ICAR: 60%

(b) Share of Project Participating Institutions: 40%. Out of this 40%, the share of major/inventing partner(s) will be 50% and the rest 50% shall be shared equally among other partner(s) if any.

(iii) The intellectual properties may be licensed against a fee (premium) which may be in a lump sum or with royalty for a fixed/defined period of time.

(iv) The intellectual properties to be licensed on exclusive basis or non-exclusive basis will be decided by the ICAR depending upon the welfare/gains considerations or public consideration or public welfare embedded in the intellectual properties.

(v) Whereas a minimum price for the intellectual properties is to be evaluated, it may not be rigidly adhered to; and the offers made by different parties shall be given due consideration in consultation with the Empowered Committee on the basis of recommendations of ICAR. The spirit behind this should be to commercialize the intellectual properties in the best interest of the investment.

(vi) If one or more of the partners (i.e., the Lead or Cooperating Centre) of the Project is (are) interested to commercialize the intellectual properties, it may be given preference over other parties at mutually agreed terms and conditions between the interested partner and the ICAR.

(vii) The ICAR will hold the right to use the intellectual property for non-commercial purposes in public interest.

(viii) The services of the inventor(s) rendered subsequent to the transfer of intellectual property may entail earning of charges/fees etc., distribution of which will be as per the clause stated in para 4(ii) above.

(ix) It will not be incumbent upon the ICAR to protect every Intellectual Property (IP) generated from the Project. On refusal by the ICAR to own the IP, the inventor(s) shall be free to protect it at their own cost provided ICAR has no objection to it in public interest.

6. The PI and the CCPI will not be removed/ transferred from the project without the prior consent of the Empowered Committee of the NASF.

7. The decision of the Empowered Committee of the NASF will be final in all matters of the project.

Receipt of this letter may please be acknowledged. The PI is requested to make copies of the sanction letter along with all the Annexures and distribute the same to the CCPI(s) and the heads of the Lead and Cooperating Centers.

Yours faithfully,

(D.K. Yadava)
ADG (NASF)

Copy for information and necessary action to:

(i) PI/CCPIs of the project
(ii) Heads of Cooperating Centres
(iii) F&AO, NASF Secretariat
(iv) Office copy

Annexure - I

Gist of the project proposal approved

Title of the project: Artificial Intelligence & IoT based Smart Vet Ecosystem for Animal Health, Patient Care & Precision Livestock Farming

Objectives and activities of the project:

Objectives	Activities
• To develop Smart Electronic Veterinary Medical Records System and AI & IoT based Smart Vet Ecosystem for Advancing Animal Health, Patient Care & Precision Farming	Development and Validation of: • Smart Electronic Health Records for Animals (EHRA) for Animal Owners & Electronic Veterinary Medical Records (EVMR) System for Vets. • Wearable sensors & IoT Tools for medical data capture & monitoring applications in animals • AI Tools for Veterinary Syndromic Surveillance & Disease Monitoring • Smart Farming & Health Care Apps for Ruminants & Pet Animals and Smart Telemedicine Tools for Remote Consulting to Farmers & Vets.
• To develop Artificial Intelligence Based Smart System for Precision Livestock Farming	• Creating datasets based on muzzle imprint / facial images of individual animals to develop unique digital signature for sheep/goats and pigs & developing smart-phone based App for recognition of each animal using facial/muzzle images. • Developing deep learning models for recognition of individual animals using digital signatures & testing performance of biometric authentication system & generating unique ID for each farm animal. • Developing thermal imaging-based recognition/biometric authentication system & Thermal imaging-based monitoring/recording of temperature and nasal / ocular discharges • Developing Smartphone based recording & retrieval of Production / Performance data of animals for precision livestock farming.

Expected outputs of the project:

- Mobile phone deployable, Smart Digital VMR System, which is practicable for applications in our 70 plus Veterinary Colleges, more than 30000 animal hospitals, and 100 plus research centers of ICAR/SAUs/SVUs/Institutions.
- Huge cost saving, as each institution need not invest high to develop EMR (Rs.75 Lakh/unit).
- Digital ID Tech for Ruminants and Pet Animals as Unique IDs for animal health care and animal census applications.
- Mobile based tools & apps for Farmers Empowerment for participatory health care
- Smart Farming & Health Care App for Ruminants and Pet Animals

- Electronic Health Records for Animals (eHRA) for Farmers/Animal Keepers
- Electronic Veterinary Medical Records (eVMR) for Field Vets, Veterinary Specialists & Hospitals.
- Vet Investigatons Information Systems (Vet IIS) for real time-large scale research.
- IoT –Sensor Integrated day today usage Animal Health/Medical Gadgets:
  - IoT GPS Thermometers for Early identification of Fever Clusters & Monitoring
  - Smart Sensor based Heart Rate Monitors – Farm gate Applicable
  - Smart Sensor based Oxygen Saturaion Monitors – Farm gate Applicable
  - Mobile phone based Auscultation Tools for Remote and Real Time Field Investigations
  - Digital Tools for ECG and Critical Care Monitoring

- Machine Learning Tools for
  - Veterinary Medical Coding Systems for Multi Species of Animals (as against existing single species human coding system)
  - Improved Diagnostic Yields, Accuracy, Early Predictions & Real time Monitoring

- AI Tools for
  - Veterinary Syndromic surveillance for Animal Disease Diagnosis & Monitoring
  - Predictions, Therapy Guidance & Monitoring
  - AI support for Triaging & Emergency Care Support, for access by anyone from across India.

- Block chain adaptability readiness for handling extremely large scale animal health data
- Low Cost, Mobile based Veterinary Telemedicine Tools, First Aid Chatbots & Remote Consults.
- Enabling Evidence based Animal Health Care Practices to cut costs & enhance returns.
- Enabling Veterinary Clinical Audits, Cost Cutting & helping to rank priorities & reforms.
- **Smart animal recognition and farm monitoring tools:**
  - Working prototype system and method for animal recognition based on facial biometrics.
  - Digital data related to production and health management of individual farm animals.
  - Smartphone based apps / programmes for real-time monitoring of farm records.
  - Patents on the AI models and techniques deployed for real-time farm management will be filed to protect IP.
  - Publication of research in high impact factor journals and books for educational purposes.

Major National Achievements would be:

- National Animal Medical Data Repository for handling animal health data for various usages.
- National Veterinary Medical Informatics Centre to sustain skill development, education & research.

(The project proposal approved is available with NASF and the funded centre)

Annexure - II

Year-wise and head-wise breakup in budget

Name of the Institute: TNVASU, Chennai-Lead Centre		Sanction Budget (₹ in lakhs)				
Sr. No.	**Head**	**2022-23 (Jan- March, 2023)**	**2023-24**	**2024-25**	**2025-26 (April-Dec, 2025)**	**Total**
A.	**Grants for creation of Capital Assets (CAPITAL) Non-Recurring**					
1	Works/Renovation of Lab, New structures for experimental facilities for special housing for New equipment etc.	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Equipment's** (Plant & machinery, Name & Cost to be specified)	7.32958	0.00000	0.00000	0.00000	7.32958
3	**Information Technology** (Computer Hardware & software related specifically to the project) (Vet EMR Lab & Telemedicine Hardwares & Soft wares and related accessories)	4.00000	0.00000	0.00000	0.00000	4.00000
4	**Livestock**	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (A)	**11.32958**	**0.00000**	**0.00000**	**0.00000**	**11.32958**
B.	**Grants in Aid - General (REVENUE) Recurring**					
1	Domestic TA	0.00000	1.00000	0.75000	0.25000	2.00000
2	**Research Expenses** (Chemicals, glassware, fertilizers, seeds, farm manure, petty animals, feeds, medicine etc.)-Raw material	0.00000	1.00000	0.50000	0.50000	2.00000
3	**Operational Expenses** **(i)** Contractual Staff (RA/SRF/YP-II/YP-I)	0.00000	4.72440	4.72440	4.00050	13.44930
	(ii) Semi-skilled/Un skilled labour & outsourcing for farm/lab work	0.00000	24.80000	4.80000	5.40000	35.00000
4	**Repairs & Maintenance** (small repair of lab equipment's/farm machinery etc.)	0.00000	0.00000	0.00000	0.00000	0.00000
5	**Others (excluding TA)** (vehicle Hiring, Computer stationery and data hosting cost)	0.00000	0.80000	0.80000	0.65000	2.25000
6	**HRD** (Workshops/seminars, Organizing Training etc.)					
	(i) Review meeting of the Advisory Committee	0.00000	1.00000	1.00000	1.00000	3.00000
	(ii) Workshop/Seminar/Symposium (India)	0.00000	0.00000	0.00000	0.00000	0.00000
	(iii) Organizing Training/workshop-cum-Training	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (B)	**0.00000**	**33.32440**	**12.57440**	**11.80050**	**57.69930**
C.	**Institutional Charges** (10% of recurring costs for the Lead Centre and 5% for partners)	0.00000	3.33244	1.25744	1.18005	5.76993
	Grand Total (A+B+C)	**11.32958**	**36.65684**	**13.83184**	**12.98055**	**74.79881**

Name of the Institute: IIT, BHU, Varanasi-Cooperating Centre 1		Sanction Budget (₹ in lakhs)				
Sr. No.	Head	2022-23 (Jan- March, 2023)	2023-24	2024-25	2025-26 (April-Dec, 2025)	Total
A.	**Grants for creation of Capital Assets (CAPITAL) Non-Recurring**					
1	Works/Renovation of Lab, New structures for experimental facilities for special housing for New equipment etc.	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Equipment's** (Plant & machinery, Name & Cost to be specified)	26.50000	0.00000	0.00000	0.00000	26.50000
3	**Information Technology** (Computer Hardware & software related specifically to the project)	0.00000	0.00000	0.00000	0.00000	0.00000
4	**Livestock**	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (A)	**26.50000**	**0.00000**	**0.00000**	**0.00000**	**26.50000**
B.	**Grants in Aid - General (REVENUE) Recurring**					
1	Domestic TA	0.00000	0.50000	0.50000	0.50000	1.50000
2	**Research Expenses** (Chemicals, glassware, fertilizers, seeds, farm manure, petty animals, feeds, medicine etc.)-Raw material	0.00000	0.50000	0.50000	0.25000	1.25000
3	**Operational Expenses**					
	(i) Contractual Staff (RA/SRF/YP-II/YP-I)	0.00000	7.64640	7.64640	5.73480	21.02760
	(ii) Outsourcing for farm/lab work	0.00000	2.50000	2.00000	1.50000	6.00000
4	**Repairs & Maintenance** (small repair of lab equipment's/farm machinery etc.)	0.00000	0.00000	0.00000	0.00000	0.00000
5	**Others (excluding TA)** (Computer stationery, Miscellaneous urgent purchases)	0.00000	0.55000	0.55000	0.50000	1.60000
6	**HRD** (Workshops/seminars, Organizing Training etc.)					
	(i) Review meeting of the Advisory Committee	0.00000	0.00000	0.00000	0.00000	0.00000
	(ii) Workshop/Seminar/Symposium (India)	0.00000	0.00000	0.00000	0.00000	0.00000
	(iii) Organizing Training/workshop-cum-Training	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (B)	**0.00000**	**11.69640**	**11.19640**	**8.48480**	**31.37760**
C.	**Institutional Charges** (10% of recurring costs for the Lead Centre and 5% for partners)	**0.00000**	**0.58482**	**0.55982**	**0.42424**	**1.56888**
	Grand Total (A+B+C)	**26.50000**	**12.28122**	**11.75622**	**8.90904**	**59.44648**

Name of the Institute: ICAR-IVRI, Izatnagar-Cooperating Centre 2		Sanction Budget (₹ in lakhs)				
Sr. No.	Head	2022-23 (Jan- March, 2023)	2023-24	2024-25	2025-26 (April-Dec, 2025)	Total
A. Grants for creation of Capital Assets (CAPITAL) Non-Recurring						
1	Works/Renovation of Lab, New structures for experimental facilities for special housing for New equipment etc.	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Equipment's** (Plant & machinery, Name & Cost to be specified)	0.00000	17.50000	0.00000	0.00000	17.50000
3	**Information Technology** (Computer Hardware & software related specifically to the project)	0.00000	0.00000	0.00000	0.00000	0.00000
4	**Livestock**	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (A)	**0.00000**	**17.50000**	**0.00000**	**0.00000**	**17.50000**
B. Grants in Aid - General (REVENUE) Recurring						
1	Domestic TA	0.00000	0.50000	0.50000	0.50000	1.50000
2	**Research Expenses** (Chemicals, glassware, fertilizers, seeds, farm manure, petty animals, feeds, medicine etc.)-Raw material	0.00000	1.00000	1.00000	0.50000	2.50000
3	**Operational Expenses**					
	(i) Contractual Staff (RA/SRF/YP-II/YP-I)	0.00000	4.20000	4.20000	3.15000	11.55000
	(ii) Semi-skilled/Un skilled labour for farm/lab work	0.00000	3.00000	3.00000	3.00000	9.00000
4	**Repairs & Maintenance** (small repair of lab equipment's/farm machinery etc.)	0.00000	0.00000	0.00000	0.00000	0.00000
5	**Others (excluding TA)** (Miscellaneous urgent purchases)	0.00000	0.50000	0.50000	0.50000	1.50000
6	**HRD** (Workshops/seminars, Organizing Training etc.)					
	(i) Review meeting of the Advisory Committee	0.00000	0.00000	0.00000	0.00000	0.00000
	(ii) Workshop/Seminar/Symposium (India)	0.00000	0.00000	0.00000	0.00000	0.00000
	(iii) Organizing Training/workshop-cum-Training	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (B)	**0.00000**	**9.20000**	**9.20000**	**7.65000**	**26.05000**
C.	**Institutional Charges** (10% of recurring costs for the Lead Centre and 5% for partners)	0.00000	0.46000	0.46000	0.38250	1.30250
	Grand Total (A+B+C)	**0.00000**	**27.16000**	**9.66000**	**8.03250**	**44.85250**

Name of the Institute: SSNCE, Chennai-Cooperating Centre 3		Sanction Budget (₹ in lakhs)				
Sr. No.	Head	2022-23 (Jan- March, 2023)	2023-24	2024-25	2025-26 (April-Dec, 2025)	Total
A.	**Grants for creation of Capital Assets (CAPITAL) Non-Recurring**					
1	Works/Renovation of Lab, New structures for experimental facilities for special housing for New equipment etc.	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Equipment's** (Plant & machinery, Name & Cost to be specified)	5.00000	0.00000	0.00000	0.00000	5.00000
3	**Information Technology** (Computer Hardware & software related specifically to the project)	0.00000	0.00000	0.00000	0.00000	0.00000
4	**Livestock**	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (A)	**5.00000**	**0.00000**	**0.00000**	**0.00000**	**5.00000**
B.	**Grants in Aid - General (REVENUE) Recurring**					
1	Domestic TA	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Research Expenses** (Chemicals, glassware, fertilizers, seeds, farm manure, petty animals, feeds, medicine etc.)-Raw material	0.00000	0.00000	0.00000	0.00000	0.00000
3	**Operational Expenses**					
	(i) Contractual Staff (RA/SRF/YP-II/YP-I)	0.00000	4.72440	4.72440	4.00050	13.44930
	(ii) Outsourcing for farm/lab work	0.00000	1.75000	0.00000	0.00000	1.75000
4	**Repairs & Maintenance** (small repair of lab equipment's/farm machinery etc.)	0.00000	0.00000	0.00000	0.00000	0.00000
5	**Others (excluding TA)** (Computer stationery)	0.00000	0.05000	0.05000	0.05000	0.15000
6	**HRD** (Workshops/seminars, Organizing Training etc.)					
	(i) Review meeting of the Advisory Committee	0.00000	0.00000	0.00000	0.00000	0.00000
	(ii) Workshop/Seminar/Symposium (India)	0.00000	0.00000	0.00000	0.00000	0.00000
	(iii) Organizing Training/workshop-cum-Training	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (B)	**0.00000**	**6.52440**	**4.77440**	**4.05050**	**15.34930**
C.	**Institutional Charges** (10% of recurring costs for the Lead Centre and 5% for partners)	0.00000	0.32622	0.23872	0.20252	0.76746
	Grand Total (A+B+C)	**5.00000**	**6.85062**	**5.01312**	**4.25302**	**21.11676**

Name of the Institute: IIITDM, Chennai-Cooperating Centre 4		Sanction Budget (₹ in lakhs)				
Sr. No.	Head	2022-23 (Jan- March, 2023)	2023-24	2024-25	2025-26 (April-Dec, 2025)	Total
A. Grants for creation of Capital Assets (CAPITAL) Non-Recurring						
1	Works/Renovation of Lab, New structures for experimental facilities for special housing for New equipment etc.	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Equipment's** (Plant & machinery, Name & Cost to be specified)	0.00000	0.00000	0.00000	0.00000	0.00000
3	**Information Technology** (Computer Hardware & software related specifically to the project)	0.00000	0.00000	0.00000	0.00000	0.00000
4	**Livestock**	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (A)	**0.00000**	**0.00000**	**0.00000**	**0.00000**	**0.00000**
B. Grants in Aid - General (REVENUE) Recurring						
1	Domestic TA	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Research Expenses** (Chemicals, glassware, fertilizers, seeds, farm manure, petty animals, feeds, medicine etc.)-Raw material	0.00000	0.00000	0.00000	0.00000	0.00000
3	**Operational Expenses**					
	(i) Contractual Staff (RA/SRF/YP-II/YP-I)	0.00000	4.72440	4.72440	4.00050	13.44930
	(ii) Outsourcing for farm/lab work	0.00000	1.00000	0.00000	0.00000	1.00000
4	**Repairs & Maintenance** (small repair of lab equipment's/farm machinery etc.)	0.00000	0.00000	0.00000	0.00000	0.00000
5	**Others (excluding TA)** (monograph manual, vehicle Hiring, Computer stationery, Petty Non-consumable items like spade Khurpi etc.)	0.00000	0.00000	0.00000	0.00000	0.00000
6	**HRD** (Workshops/seminars, Organizing Training etc.)					
	(i) Review meeting of the Advisory Committee	0.00000	0.00000	0.00000	0.00000	0.00000
	(ii) Workshop/Seminar/Symposium (India)	0.00000	0.00000	0.00000	0.00000	0.00000
	(iii) Organizing Training/workshop-cum-Training	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (B)	**0.00000**	**5.72440**	**4.72440**	**4.00050**	**14.44930**
C.	**Institutional Charges** (10% of recurring costs for the Lead Centre and 5% for partners)	0.00000	0.28622	0.23622	0.20003	0.72247
	Grand Total (A+B+C)	**0.00000**	**6.01062**	**4.96062**	**4.20053**	**15.17177**

Annexure – III

Consolidated Project Budget Year Wise		Sanction Budget (₹ in lakhs)				
Sr. No.	Head	2022-23 (Jan- March, 2023)	2023-24	2024-25	2025-26 (April-Dec, 2025)	Total
A.	**Grants for creation of Capital Assets (CAPITAL) Non-Recurring**					
1	Works/Renovation of Lab, New structures for experimental facilities for special housing for New equipment etc.	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Equipment's** (Plant & machinery, Name & Cost to be specified)	38.82958	17.50000	0.00000	0.00000	56.32958
3	**Information Technology** (Computer Hardware & software related specifically to the project)	4.00000	0.00000	0.00000	0.00000	4.00000
4	**Livestock**	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (A)	**42.82958**	**17.50000**	**0.00000**	**0.00000**	**60.32958**
B.	**Grants in Aid - General (REVENUE) Recurring**					
1	Domestic TA	0.00000	2.00000	1.75000	1.25000	5.00000
2	**Research Expenses** (Chemicals, glassware, fertilizers, seeds, farm manure, petty animals, feeds, medicine etc.)- Raw material	0.00000	2.50000	2.00000	1.25000	5.75000
3	**Operational Expenses**					
	(i) Contractual Staff (RA/SRF/YP-II/YP-I)	0.00000	26.01960	26.01960	20.88630	72.92550
	(ii) Semi-skilled/Un skilled labour & outsourcing for farm/lab work	0.00000	33.05000	9.80000	9.90000	52.75000
4	**Repairs & Maintenance** (small repair of lab equipment's/farm machinery etc.)	0.00000	0.00000	0.00000	0.00000	0.00000
5	**Others (excluding TA)** (monograph manual, vehicle Hiring, Computer stationery, Petty Non-consumable items like spade Khurpi etc.)	0.00000	1.90000	1.90000	1.70000	5.50000
6	**HRD** (Workshops/seminars, Organizing Training etc.)					
	(i) Review meeting of the Advisory Committee	0.00000	1.00000	1.00000	1.00000	3.00000
	(ii) Workshop/Seminar/Symposium (India)	0.00000	0.00000	0.00000	0.00000	0.00000
	(iii) Organizing Training/workshop-cum-Training	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (B)	**0.00000**	**66.46960**	**42.46960**	**35.98630**	**144.92550**
C.	**Institutional Charges** (10% of recurring costs for the Lead Centre and 5% for partners)	0.00000	4.98970	2.75220	2.38934	10.13124
	Grand Total (A+B+C)	**42.82958**	**88.95930**	**45.22180**	**38.37564**	**215.38632**

Annexure - IV

Lead/Cooperating Centre wise/head-wise beak-up of the total fund (Recurring and non-recurring heads)

Consolidated Project Budget Centre Wise		Sanction Budget (₹ in lakhs)					
Sr. No.	Head	TNVASU, Chennai	IIT, BHU, Varanasi	ICAR-IVRI, Izatnagar	SSNCE, Chennai	IIITDM, Chennai	Total
A.	**Grants for creation of Capital Assets (CAPITAL) Non-Recurring**						
1	Works/Renovation of Lab, New structures for experimental facilities for special housing for New equipment etc.	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	**Equipment's** (Plant & machinery, Name & Cost to be specified)	7.32958	26.50000	17.50000	5.00000	0.00000	56.32958
3	**Information Technology** (Computer Hardware & software related specifically to the project)	4.00000	0.00000	0.00000	0.00000	0.00000	4.00000
4	**Livestock**	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (A)	**11.32958**	**26.50000**	**17.50000**	**5.00000**	**0.00000**	**60.32958**
B.	**Grants in Aid - General (REVENUE) Recurring**						
1	Domestic TA	2.00000	1.50000	1.50000	0.00000	0.00000	5.00000
2	**Research Expenses** (Chemicals, glassware, fertilizers, seeds, farm manure, petty animals, feeds, medicine etc.)-Raw material	2.00000	1.25000	2.50000	0.00000	0.00000	5.75000
3	**Operational Expenses**						
	(i) Contractual Staff (RA/SRF/YP-II/YP-I)	13.44930	21.02760	11.55000	13.44930	13.44930	72.92550
	(ii) Semi-skilled/Un skilled labour & outsourcing for farm/lab work	35.00000	6.00000	9.00000	1.75000	1.00000	52.75000
4	**Repairs & Maintenance** (small repair of lab equipment's/farm machinery etc.)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5	**Others (excluding TA)** (monograph manual, vehicle Hiring, Computer stationery, Petty Non-consumable items like spade Khurpi etc.)	2.25000	1.60000	1.50000	0.15000	0.00000	5.50000
6	**HRD** (Workshops/seminars, Organizing Training etc.)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	(i) Review meeting of the Advisory Committee	3.00000	0.00000	0.00000	0.00000	0.00000	3.00000
	(ii) Workshop/Seminar/Symposium (India)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	(iii) Organizing Training/workshop-cum-Training	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Total (B)	**57.69930**	**31.37760**	**26.05000**	**15.34930**	**14.44930**	**144.92550**
C.	**Institutional Charges** (10% of recurring costs for the Lead Centre and 5% for partners)	5.76993	1.56888	1.30250	0.76746	0.72247	10.13124
	Grand Total (A+B+C)	**74.79881**	**59.44648**	**44.85250**	**21.11676**	**15.17177**	**215.38632**

Annexure – V

Number of **RAs/SRFs/YP-I/YP-II** required for the lead and each participating institution

Sl. No.	Centres	RAs/SRFs/YP-I/YP-II	Nos.	Budget (₹ in lakhs)
1.	TNVASU, Chennai	SRF	01	13.44930
2.	IIT, BHU, Varanasi	RA	01	21.02760
3.	ICAR-IVRI, Izatnagar	YP-II	01	11.55000
4.	SSNCE, Chennai	SRF	01	13.44930
5.	IIITDM, Chennai	SRF	01	13.44930

Annexure -VI

List of Equipments (both Imported and Indian)

If in the following list any brand name has been it is solely because it was given like that in the project proposal despite the note given in the project proposal proforma for not to give brand names. It will be the responsibility of the PI/CCPI to ensure that it is replaced by the proper generic name. If any procurement is made on the basis of the brand name without going through a due tendering process the expenditure will be considered invalid.

A. Lead Centre (TNVASU, Chennai):

Sl No	Name of the equipment	Cost in INR (Lakhs)
1	IoT supported Digital Wireless Portable Medical Assessment & Monitoring Equipments and their accessories	7.32958
	Total	**7.32958**

B. Cooperating Centre 1 (IIT, BHU, Varanasi):

Sl No	Name of the equipment	Cost in INR (Lakhs)
1	HPCC System with GPU/ (Complete set with required accessories for running the system smoothly)	25.50000
2	Need based Minor equipment's like Data Capturing Device, sensors, network storage etc.	1.00000
	Total	**26.50000**

C. Cooperating Centre 2 (ICAR-IVRI, Izatnagar):

Sl No	Name of the equipment	Cost in INR (Lakhs)
1	Thermal Camera (Compete set with accessories)	15.50000
2	High End Notebook / Data workstation	1.00000
3	High Resolution Digital Camera (Compete set with accessories)	1.00000
	Total	**17.50000**

D. Cooperating Centre 3 (SSNCE, Chennai):

Sl No	Name of the equipment	Cost in INR (Lakhs)
1	Biosensors, Sensor Testing Tools & Systems, Digital Devices and Analyers for comparative validation of sensor performances, Sensor integration Systems & related accessories	5.00000
	Total	**5.00000**

E. Cooperating Centre 4 (IIITDM, Chennai): Nil

Annexure - VII

Centre- wise List of Works

S. No.	Centre	Amount (₹ in lakhs)
1.	**TNVASU, Chennai**	Nil
2.	**IIT, BHU, Varanasi**	Nil
3.	**ICAR-IVRI, Izatnagar**	Nil
4.	**SSNCE, Chennai**	Nil
5.	**IIITDM, Chennai**	Nil
	Total	Nil

Delegation of Power to Principal Investigator (PI) and Cooperating Centre Principal Investigator (CCPI) of the projects operating under the National Agricultural Scientific Fund (NASF)

In this Document wherever "Prescribed Procedure" is written it means, "Subject to the rules and procedures of the institution concerned in case of public institutions if those rules and procedures with respect to the concerned issue are not expressly overridden by NASF directives. For non-public institutions the GOI/ICAR/NASF rules and procedures have to be followed. The non-public organizations may seek the help and advise of the Finance and Procurement officer of the nearest ICAR institute. In the Procurement Committees Constituted for processing goods/services under the NASF project such non-public institutions, the finance officer from the nearest ICAR institute may be kept as a member. If necessary the secretariat of NASF may also provide guidance in this matter.

Sl. No.	Nature of Power	Extent of Power to PIs/ CCPIs	Remarks
1.	Sanctioning tour programme and counter signature of TA bills	Full power including for self. However, the CPIs/CCPIs will submit tour reports to his/ her higher official	With sufficient prior information to the Controlling Officer , submit tour report to his/her higher official
2.	Sanctioning tour advances for self, and other staff	Subject to the rules of the institution concerned in case of public organizations if not over-ridden by NASF directives. For non-public institutions the GOI/ICAR/ NASF rules will be followed	The adjustment of account bills to be submitted within 30 days in each case
3.	Power to restrict the frequency and duration of Journeys (SR 63)	Full power including for self	-
4.	Sanctioning reimbursement of cancellation charges on unused railway tickets/ air tickets	Full power for all staff working under him/her excluding self	The cancellation should with information to the controlling officer and should be justified and in public interest
5.	Expenditure on holding workshops, meetings/ conferences / deputation on short duration need based trainings in India	Full, subject to provision of fund under the head in the approved/ sanctioned project	Number of participants in the meeting workshops should not exceed 20. The norms for expenditure in workshops/meetings/ conferences will be in accordance with the following ICAR norms. Lunch per head: 150 maximum Tea (per session). ₹. 5/- Stationary (per participant) ₹. 40/- POL (per participant) ₹. 40/- Miscellanies Expenditure ₹.1,500/-
6.	Sanction of registration charges at Symposia/ seminar at national level	Full only if the topic is related to the sanction project and it is organized by a private institution.	
7.	Recurring contingent charges for management and operating laboratories and farms including purchase of working stores, chemicals, glasswares, tools, plants	₹.1 lakh in each case subject to provision of fund under the head in the sanctioned project	According to prescribed procedure.

	and equipment, insecticides, including consumables for research work		
8.	Capital expenditure on equipments and works	Full to the limit of sanctioned quantity/ budget for each approved item	According to prescribed procedure.
9.	Conveyance hire	Full power	According to prescribed procedure.
10.	Purchase of annuals publications and reprints of scientific paper	Upto ₹. 10,000 per annum	Subject to sanctioned budget provision for the purpose and availability of funds and adherence to prescribed procedure
11.	Printing and binding	Upto ₹. 20,000 per annum	-do-
12.	a) Local purchase of stationary stores b) Local purchase of rubber stamps and office seals	Up to ₹. 25,000 per annum subject to observance to prescribed procedures Full	-do- -do-
13.	To incur recurring expenditure on maintenance and repair of scientific instruments, laboratory equipments, agricultural implements and machinery being used for the project	Upto ₹. 1 lakh per annum	Subject to sanctioned budget provision for the purpose and availability of funds and adherence to prescribed procedure. Beyond ₹.1 lakh, Advisory Committee can approve upto ₹. 1.5 lakh.
14.	Repair of office machines	Full	-do-
15.	Maintenance of computer and peripherals	Up to ₹. 25,000 per annum including cost of stores, and other materials required for maintenance	-do-
16.	Payment of charges on postage (excluding private courier), telegrams, telex, fax, telephone bills internet use, cell phone etc.	The reimbursement of calls to PIs/C CPIs will be made as per rules	Subject to the availability of funds and the adherence to rules and procedures
17.	Freight Charges	Full power subject to this being part of the supply order relating to project work	Subject to sanctioned budget provision for the purpose and availability of funds and adherence to prescribed procedure
18.	Sanctioning casual leave	Full, excluding for himself/ her self	-
19.	Contractual staff & help (casual labour/ data collector etc.) approved in the project.	Job should be out sourced through job contractor	Subject to sanctioned budget provision for the purpose and availability of funds and adherence to prescribed procedure
20.	Engagement of RA/ SRF on Contract Basis, approved in the project	Full	Subject to provision of the position in the approved project and availability of funds and following a transparent competitive process. The cost of advertisement should be minimal and effective use of institution should be made for this purpose

For sanctioning leave other than casual leave, the PI/CPI can recommend only in respect of supporting peronnel (non-gazetted) working under his/ her administrative control. However, sanction

of leave will be made by the Head of Division/Department to whom power of sanction are vested. The leave for scientific staff will be granted as per the institutional norms.

These powers will apply to PIs and CPIs of Projects under NASF. The power will be exercised subject to remarks given against each item and also subject to fulfillment of the following requirements.

(i) Expenditure is incurred only for bonafide NASF purpose as per the approved project
(ii) The necessary funds sanctioned to meet the expenditure for a particular item is available in the sanction project budget
(iii) No additional manpower will be provided to project implementing centres for running project.
(iv) Expenditure proposals involving amounts in excess of the power of the PI/CCPI etc. may be submitted to the competent authority concerned for sanction in the respective institutions.
(v) All contractual staff are co-terminus with the project or as per the terms and conditions of the job contract and there is absolutely no liability to ICAR or hiring institution whatsoever.

The above delegation of power is subject to the condition that the exercise of power will not contradict any GOI/ICAR/NASF norms & rules

Annexure - IX

Norms of Expenditure for Conducting Workshops, meetings and Advisory Committee Meetings

Honorarium

INDIAN COUNCIL OF AGRICULTURAL RESEARCH
KRISHI BHAVAN: NEW DELHI

F. No. FIN/10/1/2013-CDN (A&A) Dated the 19th July, 2017

Office Memorandum

Sub: Revision of Honorarium to the Non-Official Members for attending the meetings of ICAR Society: Reg.

The matter regarding enhancement of rates of Honorarium to the experts/advisers of the Committees of ICAR was under consideration of the Council in consultation with the Ministry of Finance, Department of Expenditure (DOE). The Ministry of Finance vide their OM No.190-17/10/2016-Estt.IV dated the 12th April, 2017 (Copy enclosed) has now agreed to enhance the sitting fee for the Non-Official Members of various committees based on their categorization. Accordingly, the revised rates of Honorarium as per the categorization indicated by the MoF in the aforesaid instructions, for following Committee of ICAR will be as under:

Sl. No.	Name of the Committee in ICAR	Honorarium/Sitting Fee	
		Existing Rate	Enhancement as per MoF, Govt. of India
1.	All Non-Official Members of i. Members of AGM of ICAR ii. Governing Body of ICAR (Under 2.1 (i) of MoF orders for High Level Committee)	Rs.2000/-	Rs.10,000/-
2.	I) All Non-Official (outside Experts and subject matter specialist) of i) Experts of Research Advisory Committee (s) (RAC) and NASF.	Rs.2000/-	Rs.4,000/-
	II) i) Board of Management (BOM). ii) Institute of Management Committee (IMC). iii) Institute Research Council (IRC) & other Committee (Edn. Division, NAHEP etc.) and iv) Quinquennial Review Team (QRT) v) ICAR (Official Advisers/Experts) other than DG's nominee in ASRB, etc (Under 2.1 (ii) of MoF orders for High Level Committee)	Rs.1500/-	Rs.4,000/-

The rates and other conditions for all the Committees remain unchanged.

(SANJEEVAN PRAKASH)
DEPUTY DIRECTOR (FIN.)

Contd...2/-

Expenditure for Workshops/Meetings

5/6

INDEX No. 165 2015 (CDN(A&A))

INDIAN COUNCIL OF AGRICULTURAL RESEARCH (ICAR)
KRISHI BHAVAN: NEW DELHI: 110 001

F. No.: 12(4)/2007-CDN (A&A)/ Dated: 29th September 2015.

OFFICE ORDER

Subject: Economy in expenditure: serving of refreshments during meetings: regarding.

Reference: MoF DoE Order No.: 7(3)/E-Coord/2013, dated: 6th May 2015, endorsed by ICAR vide 12(4)/2007-CDN (A&A), dated: 13th May 2015 (S. No.:2).

Secretary, DARE & DG ICAR has reviewed the instructions contained in order in reference above in consultation with the AS&FA, DARE/ICAR and is pleased to approve the following ceiling of expenditure for serving of refreshments during meetings/seminars/conferences as per the following ceilings:

S. No.	Item	Ceiling	ICAR Institutes located in City
(A)	Tea + Snacks	Rs. 200/-	High level meetings such as the Governing Body Meeting, AGM, Foundation Day of ICAR and any such meeting attended by High dignitaries.
	High Tea	Rs. 450/-	
	Lunch/Dinner	Rs. 700/-	
(B)	Tea + Snacks	Rs. 100/-	New Delhi, Kolkata, Chennai
	High Tea	Rs. 200/-	Mumbai, Pune
	Lunch/Dinner	Rs. 400/-	Ahmedabad, Bengaluru, Hyderabad
(C)	Tea + Snacks	Rs. 75/-	All other cities not mentioned in (B) above.
	High Tea	Rs. 150/-	
	Lunch/Dinner	Rs. 300/-	

Proposal for relaxation of ceiling, in specific cases, may be moved for concurrence of AS&FA.

No change has been made in the rates of refreshments fixed by the MEA for Lunch/Dinner.

(DEVENDRA KUMAR)
Director (Finance)

Distribution:

(I) ICAR Institutes

1. The Directors of all Research Institutes/Zonal Project Directorates/National Research Centres/ Project Directorates/ASRB/ICAR Hqrs.
2. The Comptroller/Chief Finance & Accounts Officer/Senior Finance & Accounts Officer/Finance & Accounts Officer/Assistant Finance & Accounts Officer, of all Research Institutes/Zonal Project Directorates/National Research Centres/ Project Directorates/ASRB/ICAR Hqrs.

Annexure – X (a)

RA/SRF Emoluments & Rules

INDIAN COUNCIL OF AGRICULTURAL RESEARCH
KRISHI ANUSANDHAN BHAVAN - II,
PUSA, NEW DELHI – 110012
(AGRICULTURAL EDUCATION DIVISION)

F. No. Ag. Edn. 6/27/2014-HRD Dated 30th July, 2019

OFFICE MEMORANDUM

Sub: Revision of emoluments and guidelines for Junior Research Fellows (JRFs)/ Senior Research Fellows (SRFs) and Research Associates (RAs) working in various schemes of ICAR/ pursuing Ph. D. program- Reg.

Attention is invited to the O.M. No. Edn/6/27/2014-HRD dated 1st July 2015, 13th July 2015 and Office Order No. Ag. Edn. 2(9)/2018-HRD dated 30th October 2018 issued by the Indian Council of Agricultural Research (ICAR) on the above subject. Consequent to the revision of emoluments and guidelines on service conditions for research personnel engaged in R & D programmes by the DST vide O.M. No. SR/S9/Z-08/2018 dated 30th January 2019, the matter has been further considered by the Competent Authority in the Council and the following revised emoluments payable for Junior Research Fellows (JRFs)/ Senior Research Fellows (SRFs) pursuing Ph. D. program in ICAR-AU System and Senior Research Fellows (SRF)/ Research Associates (RAs) working in various schemes of ICAR have been approved:

Sl No.	Designation & Qualification	Existing Rates	Revised Rates
1.	**Junior Research Fellows (JRFs) / Senior Research Fellows (SRFs) pursuing Ph. D. program in ICAR-AU System** After completion of two years, an external assessment by the institution where the student is enrolled for Ph.D. is mandatory for up-gradation from JRF to SRF. The fellow may be awarded SRF after successful assessment. Annual satisfactory assessment is mandatory to continue the benefit of fellowship during SRF period. The other terms and conditions will remain same as per Council's guidelines for JRF/SRF (PGS).	Rs. 25,000/- per month for 1st and 2nd year & Rs. 28,000/- per month for 3rd year. Contingency Grant payable remains unchanged.	Rs. 31,000/- per month for 1st and 2nd year & Rs. 35,000/- per month for 3rd year. Contingency Grant payable remains unchanged.
2.	**Senior Research Fellows (SRFs) working in Research Schemes funded by ICAR** Master degree in relevant subject with 4 years / 5 years of Bachelor's Degree. Candidates having Post-graduate degree in Basic Sciences with 3 years Bachelor's degree and 2 years Master's degree should have NET qualifications and 2 years of research experience as mentioned in OM No. Edn./6/27/2014/HRD dated 13th July, 2015, OM No. Agril. Edn. 6/27/2014-HRD 9th October, 2015 of the Council and OM SR/S9/Z-09/2018 of DST dated 30th January, 2019.	Rs. 25,000/- per month + HRA for 1st and 2nd year & Rs. 28,000/- per month + HRA for 3rd year.	Rs. 31,000/- per month + HRA* for 1st and 2nd year & Rs. 35,000/- per month + HRA* for 3rd year.

Contd...2

3.	**Research Associates (RAs) working in Research Schemes funded by ICAR** **With Doctoral degree:** Ph.D. in the relevant subject. OR **With Master's degree holders:** Master's degree in the relevant subject with 4/5 years of Bachelor's degree having 1st division or 60% marks or equivalent overall grade point average, with at **least three years of research experience** as evidenced from Fellowship/ Associate ship/ Training/ other engagements as circulated vide F. No. 2-9/2012-HRD dated 25.04.2014 and **one research paper in Science Citation Index (SCI) / NAAS rated (≥4.0) Journal** as per OM SR/S9/Z-09/2018 of DST dated 30.01.2019.	Rs. 38,000/- per month + HRA (for Master Degree holders) & Rs. 40,000/- per month + HRA (for Ph. D).	Rs. 49,000/- per month + HRA* (for Master Degree holders) & Rs. 54,000/- per month + HRA* (for Ph. D).

*The House Rent Allowance (HRA) will be given as per existing Central Government rates applicable in various cities/locations where SRF / RA are working in ICAR funded projects.

The revised qualifications would not be applicable for those already in position as on the date of issue of this order.

The travel entitlement for the JRF/SRF/RA for participation in scientific events/workshops in India will continue to be the same as earlier i.e. 2nd AC by Rail.

Income tax may be deducted at source from the emoluments of SRFs/RAs working in various schemes of ICAR as per rules.

The other term and conditions will remain same as per the Council's guidelines of Fellowship/scholarship. The revised emoluments will take effect from 01-01-2019.The additional expenditure on this account will be met from the sanctioned budget of the respective schemes. This has the concurrence of IFD vide their Dy.No. AS&FA(DARE/ICAR) 1039 dated 27-06-2019.

This issues with the approval of competent authority.

30/7/19

(Ravi Kumar)
Director (Agril. Edn.)

Distribution:

1. All Vice Chancellors, Central Agricultural Universities / ICAR-DUs / SAUs / Central Universities with Agriculture Faculty.
2. Directors of all the ICAR Institutes /Project Directors / Project Coordinators.
3. Sr. PPS to Secretary, DARE & DG, ICAR.
4. PPS to Addl. Secretary, DARE & Financial Adviser, ICAR/DARE.
5. PPS to Addl. Secretary, DARE & Secretary, ICAR.
6. Director Finance, ICAR, Krishi Bhawan
7. Finance & Account Officer, Agricultural Education Division ICAR.
8. Nodal Officers & Comptrollers of Agricultural Universities.
9. PA to DDG, (Agril. Edn.)ICAR.
10. Controller of Examination, (Agril. Edn.) ICAR.
11. All Officers / Sections of ICAR, Krishi Bhawan / KAB-I/ KAB-II/ASRB/ NAHEP.
12. M & I Unit, KB & ISO, DKMA for uploading the same on the ICAR website.

Annexure – X (b)

F.No.Agril.Edn.1-06/2020-A&P
Indian Council of Agricultural Research
Krishi Anusandhan Bhawan-II, Pusa,
New Delhi-110012

Dated the 4th December, 2020

Office Memorandum

Sub: Revised Guidelines for hiring of technical manpower on short term basis in the ICAR -reg.

Guidelines for hiring of technical manpower/Young Professional-I (YP-I) and Young Professional-II (YP-II) were issued with the approval of Governing Body of Indian Council of Agricultural Research (ICAR) in its 227th meeting held on 28.06.2013 vide council's order No.17(1)/2013-Estt.IV dated 12.08.2013 and subsequently amended vide letter dated 13.11.2013. The Council is in receipt of representations requesting for enhancement of remunerations of YP-I and YP-II after issue of revised guidelines by Government Departments vide DEA OM No.A-40011/07/2017-Ad.IA dated 15.02.2019 and DoB order No.A-42/57/2019-Estt-DBT dated 21.09.2019. A committee constituted under the chairmanship of Dr. J. K. Jena, DDG (FS) has reviewed important aspects of YP-I and YP-II in light of the relevant orders issued by ICAR/GoI and made detailed deliberations and submitted its recommendations. Based on the recommendations of the committee, guidelines for engagement of YP-I and YP-II in ICAR Hqrs/Institutes are revised as under:

1. **Inclusion of ICAR Headquarter in the Scheme**

The ICAR Headquarter sometimes require technical help in important assignments. There are sanctioned strength of technical staff in the ICAR Headquarter. Therefore, as per the recommendation of the Committee (Para VI of the recommendations), ICAR HQ has been included in the ambit of the scheme so that YPs can be engaged in the ICAR HQ as well, if required.

Further, according to the need YP-II can be selected for a position in place of YP-I and vice versa after obtaining the approval of competent authority.

2. **Terms of Reference:**

Heads of Functional Wings/Units at ICAR Hqrs/Institutes will provide terms of reference, describing the work to be performed by the YPs. The terms of reference shall include the functions to be performed and outputs to be delivered. The functions and outputs shall be specific, measurable, attainable, results-based and time-bound.

3. **Selection Procedure**

a. For each requirement/position of YP, at least five applicants shall be shortlisted based on their qualifying academic performance as per an assessment criteria. These shortlisted candidates will undergo a panel interview. For specialized jobs related to administrative/finance/legal positions at Headquarters/Institutes, if necessary, written tests and assignments may also be conducted before the panel interview. In case of tie at any stage all the candidates who have same marks will be considered to have qualified for further rounds.

b. Candidates having more than one eligible qualification shall have to choose only one for selection process.

4. **Educational Qualification**

A. Revised Educational Qualifications for YP-I and YP-II are as under:

Young Professional-I: Graduates in relevant subjects or Diploma holders in relevant Agricultural Sciences*/ Engineering/Technology.

Young Professional-II: Postgraduates in relevant subjects or graduate degree holders in relevant Agricultural Sciences/ Engineering/Technology/ Business Administration/ areas of "Humanities"** according to need.

*Term "Agricultural Sciences" includes all agriculture & allied sciences, i.e. Crop Science, Horticulture Science, NRM related disciplines, Animal Science, Veterinary Sciences, Fisheries Sciences, Agriculture Engineering, Agriculture Extension, Agriculture Education etc.

** Humanities would include Finance, Economics, Languages, Psychology, as per need.

YPs to be engaged for handling legal issues at ICAR Hqrs and ICAR- Deemed Universities only should have the following qualifications:

YP-II (Legal):- "Law graduate from a University/ Institution recognized by UGC, enrolled as an advocate with Bar Council of State in which practising and 2 years' experience for dealing with Civil/Service/Labour Arbitration cases and exposure to drafting of Agreement/MoUs/Deeds etc." after enrolment. While considering the application for YPs the ranking of Institution provided under established framework shall be the deciding factor.

YPs to be engaged for handling Audit and Accounts of ICAR Hqrs. as well as ICAR institutes should have the following qualifications:

YP-I (F&A):- B.Com/BBA/BBS (With minimum 60 % marks) from a recognized University/College. (With minimum 1 year of experience in relevant field).
Knowledge of IT applications, virtual meeting platforms and computer skills (MS Word, Excel, PowerPoint, Tally, etc.) will be added advantage.

YP-II (F&A):- B.Com/BBA/BBS (With minimum 60 % marks) from a recognized University/College and CA (Inter)/ICWA (Inter)/CS (Inter) (With minimum one year of experience in relevant field)

OR

B.Com/BBA/BBS (With minimum 60 % marks) from a recognized University/College and MBA (Finance) or equivalent (with minimum 60% marks) from a recognized Institution (with minimum one year of experience in relevant field).

Knowledge of IT applications, virtual meeting platforms and computer skills (MS Word, Excel, PowerPoint, Tally, etc.) will be added advantage.

YPs to be engaged for handling Information Technology related activities in ICAR Hqrs as well as ICAR institutes should have the following qualifications:

YP-I (IT):- Graduates with at least 60% marks in Computer Application/Information Technology/Computer Science/ Artificial Intelligence/ Operating Systems/ Software Engineering/ Computer Graphics.

YP-II (IT):- Graduates with at least 60% marks in Computer Application/Information Technology/Computer Science/ Artificial Intelligence/ Operating Systems/ Software Engineering/ Computer Graphics with one-year experience in the relevant field.

OR

Masters in Computer Application/Information Technology/Computer Science/ Artificial Intelligence/ Operating Systems/ Software Engineering/ Computer Graphics.

B. Relevant subjects should be defined on case to case basis as per the job-requirement for which YP-I and YP-II is being proposed to be engaged.

5. **Maximum duration of engagement of the YPs**

Initial engagement of YP will be for one year which is extendable for two more years (01 year at a time) subject to requirement of the services of the YP in the organisation and satisfactory performance of the candidate after evaluation by an officer of the level of ADG/Director. Thus maximum duration of engagement of YP in the ICAR is three years (1+1+1).

6. **Age limit**

The minimum age under Young Professional category will be 21 years and maximum 45 years with relaxation as per rules.

7. **Consolidated emoluments of the YPs**

Revised consolidated emoluments of Young Professional-I (YP-I) and Young Professional-II (YP-II) will be Rs.25, 000/- per month and Rs.35, 000/- per month respectively. No House Rent Allowance (HRA) will be paid to the YPs.

8. **Tax deduction at source**

The income tax or any other tax liable to be deducted as per the prevailing rules will be deducted at source before effecting payment of monthly salary.

9. **TA/DA for the YPs**

TA/DA will be admissible to YPs for undertaking domestic tour for official work as under:

YP-I: To and fro journey by train in AC-3 Tier/AC Chair Car and DA at fixed rate of Rs.1200/- per day for other tour related expenses on Guest House/Hotel Accommodation, food and local conveyance etc.

YP-II: To and fro journey by train in AC-2 Tier/AC Chair Car and DA at fixed rate of Rs.1500/- per day for other tour related expenses on Guest House/Hotel Accommodation, food and local conveyance etc.

10. **Attendance and working hours/days:**

The working hours for the YPs will be same as regular employees of ICAR. No extra benefit will be allowed for working beyond office hours. Unauthorised absence from the project/work for a continuous period of 08 days without valid reasons shall lead to automatic termination of the engagement.

11. **Leave entitlement for the YPs**

The YPs in ICAR are eligible for 08 days leave in a calendar year on pro-rata basis and 02 restricted holidays as per the rules of Govt. of India/ICAR. Intervening weekly holidays or gazetted holidays during a spell of leaves should not be counted against the admissible leaves. The un-availed leaves will not be carried forward to next calendar year. In addition to this, YPs may also be allowed compensatory leave in lieu of the duty assigned on holidays but not more than 02 leaves can accrue in a month. The Compensatory leaves can be accumulated only up to 05 days at a time and the YPs may be allowed to avail the same within 03 months.

Female YPs will be entitled to maternity leave as per provision in the Maternity Benefit (Amendment) Act 2017. However, there will be no paternity leave for male YPs.

13. **Intellectual Property Rights**

Intellectual Property created due to the work of Young Professional during his/her valid tenure in ICAR Hqrs/ institutions will be governed by the IPR guidelines of the Council.

14. **Prohibition of Sexual Exploitation and Abuse**

The Young Professionals shall have to comply with the "Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013.

15. **Other terms and conditions**

i. The young professional (YP) shall be subject to the laws of secrecy of the country and will sign a declaration of secrecy and Non-Disclosure Agreement before reporting (Annexure-I).

ii. The engagement will not constitute a regular job or appointment of any nature in the ICAR.

iii. During the term of engagement the YP shall comply with the Standards of Conduct. Failure to comply with the same will become a ground for termination of the YP without notice.

iv. Young Professionals will be entitled to other facilities like transport/canteen/library/dispensary available in ICAR Hqrs/Institutes.

Engagement of YP-I/YP-II in ICAR shall henceforth be regulated as per the revised guidelines/procedures in supersession of existing procedures and guidelines.

(Nirmal Sarkar)
US (Agril.Edn.)

Note: Copy of the OM may be obtained from ICAR Website / Notice Board of E-office as and when required. No physical copy / email of this OM will be issued.

ANNEXURE-I

I Sh./Ms./Mrs..... s/o,d/o Sh..... will comply with the Official Secrets Act, 1923, as amended from time to time and will not disclose any information/data acquired by me during my engagement to any unauthorised person(s). I will not, except with the prior sanction/approval of competent authority in the ICAR, or in the bona fide discharge of my duties, publish a book or a compilation of articles or participate in media broadcast or contribute an article or write a letter to any newspaper(s) or periodical(s) either in my own name or anonymously or pseudonymously in the name of any other person if such book, article, broadcast or letter relates to subject matter pertaining to official business of ICAR.

Signature.....
Name.....
Address.....
.....
.....
Mob.....
Email.....

The following External Member are approved for the **Advisory Committee:**

S.No.	Reg. No.	Title of the project	External Member of Advisory Committee
1.		**Development of Nano-Micro Matrices for the Delivery of Bioactives, Micronutrients and Therapeutics**	***Chairman:** ***Member**:

***It will decided by the ADG, NASF**

Delegation of Power to Advisory Committees (AC) of the Projects under NASF

1. The 'Advisory Committees will be constituted by the ADG/ Director, NASF.
2. Individual ACs will be available for each project.
3. ACs may recommend additional fund of ₹1.5 lakhs to NASF within the approved budget for consideration during midterm evaluation/ monitoring.
4. ACs will be evaluating, monitoring and review the project once in a year. Besides it may visit laboratory/field/sites in consultation with NASF office.
5. Chairman(s) of ACs may participate during the annual review meetings of the projects, based on requirements.

srushty
creations engineered

Srushty Global Solutions Pvt Ltd,
Sri Durga Enclave - Phase II, Plot No.22&23,
River View Residency, 2nd Street,
Karapakkam, Chennai - 600 097,India.
Phone: +91 44 4264 0754
info@srushty.com, www.srushty.com

Date:05.04.2022

To

The Principal
Sri Sivasubramaniya Nadar College of Engineering
OMR, Rajiv Gandhi Salai, Kalavakkam-603110. Tamil Nadu.

Dear Sir,

Sub: Funded Project – Grant Letter – Dr. N. Lakshmi Narasimhan, Assoc. Prof/Mech- Release of Grant amount Rs. 1,50,000/- to your institution – Reg:-

Post our Review of the project proposal submitted by Dr. N. Lakshmi Narasimhan, Associate Professor in the department of Mechanical Engineering of your institution and further discussions, on the "Design and Development of a Thermal Chamber" for one of our applications, We are pleased to grant and release a sum of Rs. 1,50,000/- (Rupees One Lakh and Fifty Thousand only) to your institution's account towards the project expenses covering fabrication, purchase of related equipments, testing, consumables, overheads, labour, and other miscellaneous expenses if any. As a Principal Investigator (PI), Dr. N. Lakshmi Narasimhan shall take the responsibility for the completion of the project on time as per the terms and conditions stated below. We request you to kindly acknowledge the receipt of the grant. Our transaction details shall be communicated to the principal investigator. We wish to have long term relations with your Institution and will be glad to support in future, faculty Projects in key areas that are of mutual interests and benefits.

Project Title: Design and Development of a Thermal Chamber

Duration: Max time period of 2 Months from the date of release of the grant

Grant Released: Rs.1,50,000/- (Rupees One Lakh and Fifty Thousand Only)

Principal Investigator: Dr. N. Lakshmi Narasimhan, Associate Professor, Dept. of Mechanical Engineering, SSN College of Engineering, Kalavakkam-603110.

Terms & Conditions

1. Project Expenditures shall be under the mentioned heads.
2. The grant shall not cover any "salary to manpower" components under this project.
3. A duly audited report on the utility of the funds to be made available to the company after the completion of the project or at end of the financial year 2022-23 whichever is earlier.
4. Any unused balance funds available from the grant to be returned to the company within two months from the date of completion of the project.
5. In case of PI leaving the institute before completion of the project, the PI shall nominate a suitable faculty member of your institution who can take charge as PI and complete the project.

CC to Dr. N. Lakshmi Narasimhan,

Associate Professor, Dept. of Mechanical Engineering, SSNCE.

For SRUSHTY GLOBAL SOLUTIONS PVT. LTD.

SRUSHTY GLOBAL SOLUTIONS PVT. LTD. CHENNAI 600 020

Authorised Signatory

AQIS ID: 1-9290999782

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
Nelson Mandela Marg, Vasant Kunj,
New Delhi-110070

RPS - Sanction Letter

Date: 18 FEB 2022

File No. 8-135/FDC/RPS/POLICY-1/2021-22

The Drawing and Disbursing Officer
All India Council for Technical Education
Nelson Mandela Marg,
Vasant Kunj, New Delhi-110070,

Sub: Release of a sum of Rs. 1272771/- being the 1st installment of the total grant of Rs. 1454596/- for conduct of Project under Research Promotion Scheme (RPS) during the financial year 2021-22.

Sir,

With reference to the proposal submitted by the institute, this is to convey the sanction of the Council for payment of Rs. 12727719- (Rupees Twelve Lakh Seventy Two Thousand Seven Hundred Seventy One Only) as 1st installment out of a total approved grant-in-aid of Rs.1454596/- for conduct of a Project under the Research Promotion Scheme (RPS), as per details given below:-

I.	Name and address of the Beneficiary Institution (University / College / Institution)	:	**Registrar / Director / Principal, SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING, RAJIV GANDHI SALAI (OMR) KALAVAKKAM, KANCHIPURAM DIST-603110, TAMIL NADU**
II.	Principal Investigator's Name & Dept./Course	:	**Dr. . RAJKUMAR (MECHANICAL ENGINEERING)**
III.	Co-Principal Investigator's Name & Dept.	:	**KANNAPPAN GOPINATH (CHEMICAL ENGINEERING)**
IV.	Grant-in-aid Sanctioned	:	Rs. 1454596/- (Rs. 1090947/- for non-recurring and Rs.363649/- for recurring expenditure)
V.	**Amount to be Released during the year 2021-22 (as 1st installment)**	:	**Rs. 1272771/- (Rs. 1090947/- Full amount of non-recurring & Rs. 181824/- recurring i.e. 50 % of total sanctioned recurring grant)**
VI.	Project Duration	:	**3 Years**
VII.	Title of the Project	:	**Upgradation of Municipal Solid Wastes into Commercial Grade Fuel using Co-Liquefaction and Study of its Effects on Performance and Emission characteristics of Dual Fuel Compression Ignition Engine**

I. Release of funds:

1. The amount of the grant shall be drawn by the Drawing and Disbursing Officer (DDO), All India Council for Technical Education, New Delhi on the Grants-in-aid bill and shall be disbursed to and credited to the account of SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING, RAJIV GANDHI SALAI (OMR) KALAVAKKAM, KANCHIPURAM DIST-603110, TAMIL NADU through PFMS.
2. The sanctioned grant-in-aid is debitable to the Major Head **"601.12.a (RPS Plan)" Gen.** and is valid for payment during the financial year 2021-22.
3. The sanction issues in exercise of the powers delegated to the Council. It is also certified that grant-in-aid is being released in conformity with the rules and principles of the Scheme.
4. The grant-in-aid is being released in conformity with the Terms & Conditions as well as norms of the scheme as already communicated and also being communicated in this letter.

II. Maintenance of account by the Institute/PI:

1. Funds covered by this grant shall be kept separately and would not be mixed up with other funds so as to know the amount of interest accrued on the grant.
2. The grant is intended to cover items of expenditure/equipment approved by AICTE.
3. Acknowledgement of receipt of grant and letter of acceptance of terms and conditions is to be submitted to AICTE **within 15 days** from the receipt of the grant to the following address:

   Director (Faculty Development Cell), AICTE, Nelson Mandela Marg, Vasant Kunj, New Delhi-110070

Contd...2/-

Tele : 011-2390 7661
Fax : 011-2301 4085
E-mail : dnrdoff@hqr.drdo.in

NRB/4003/MAT/P3/499
DRDO HQ Annexe
Naval Research Board
Room No.410 , 4th Floor
Old LASTEC Building
Metcalfe House, Civil Lines
New Delhi – 110 054
12 Oct 2021

The Registrar
Sri Sivasubramaniya Nadar College of Engineering
Kalavakkam, Chennai – 603 110, Tamil Nadu

SANCTION OF PROJECT UNDER NAVAL RESEARCH BOARD (NRB)

Under the powers vested in the NRB vide Government of India, Ministry of Defence, letter No.DNRD/0100/NRB/4179/D (R&D) dated 20 Aug 96, amended from time to time and in terms of Sl. No. 3.1 of GOI, MoD letter No.DRDO/DFMM/PL/83226/M/01/1976/D(R&D) dated 18 Dec 2019, I am directed to convey the sanction of the CFA i.e DG(TM) for the following project:-

Title	:	**"Understanding the influence of corrosion on the shock response of DMR 249A steel plates and welded joints"**
Project No.	:	**NRB-485/MAT/21-22**
PI	:	**Dr. S. Suresh Kumar, Associate Professor** Department of Mechanical Engineering. Sri Sivasubramaniya Nadar College of Engineering Old Mahabalipuram road,Kalavakkam Chennai – 603 110, Tamil Nadu
Co PI	:	**Dr. S. R Koteswara Rao**, Professor, SSNCE **Dr. Ajay Krishanan**
Lab Collaborator	:	**Dr. Atul Kumar, Sc 'F', DMRL**

2. **Cost and duration of the project**: - Total budget for the project is **Rs. 42,05,000/-** (Rupees **Forty Two Lakhs & FiveThousand** only) **for 3 years duration**. The breakup of fund for various activities of the project is as given below: -

Head	1st Year	2nd Year	3rd Year	Total
Research Staff	3,72,000/-	3,72,000/-	4,20,000/-	11,64,000/-
Specific Equipment	23,40,000/-	----------	----------	23,40,000/-
Consumable Stores	50,000/-	25,000/-	15,000/-	90,000/-
Contingencies	50,000/-	40,000/-	21,000/-	1,11,000/-
Travel (TA/DA)	50,000/-	50,000/-	50,000/-	1,50,000/-
Others(Operation and maintenance of equipment)	50,000/-	25,000/-	25,000/-	1,00,000/-
Institute Over heads	1,00,000/-	1,00,000/-	50,000	2,50,000/-
Grand Total	**30,12,000/-**	**6,12,000/-**	**5,81,000**	**42,05,000/-**

Contd.....2/-

Research file

Revathy Vishwanath
Deputy Director
RP Division In-charge
Tel #011-26716690
E-mail: rpsicssr@gmail.com

Indian Council of Social Science Research
(Ministry of Education)
JNU Institutional Area, Aruna Asaf Ali Marg
New Delhi 110067
Website: www.icssr.org

SANCTION ORDER

F.No. 02/60/2021-22/ICSSR/RP/MN **Dated: 25-03-2022**

The Principal
Sri Sivasubramaniya Nadar College of Engineering
Rajiv Gandhi Salai (OMR)
Kalavakkam 603110

Subject: Sanction of **Minor Project** entitled **"A Project on Identifying Social Entrepreneurial Opportunities for Women in New Areas of Urbanisation"** to **Dr. Srinivas Gumparthi, Professor, Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam 603110.**

Dear Madam,

1. The Indian Council of Social Science Research (ICSSR) considered the above Research Programme project submitted by **Dr. Srinivas Gumparthi,** Professor, Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam 603110, Co-Project Directors of the study are: **1. Dr. K. Sampath Kumar,** Professor, Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam 603110, **2. Dr.** T. Girjia, Associate Professor, Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam 603110.

2. The study, as proposed by the researcher, is to be located at and financially administered by your institution as per the guidelines of this award.

3. The ICSSR has sanctioned a grant-in-aid of **Rs.4,00,000** (Rupees **Four lakh** only) for the above research project and the grant will be released as follows:

First instalment @40% :	Rs. 1,60,000/-
Second instalment @20%:	Rs. 80,000/-
Third instalment @10% :	Rs. 40,000/-
Fourth Instalment @10% :	Rs 40,000/-
Final instalment @15%:	Rs. 60,000-
Publication Grant* @5-6% :	Rs. 20,000/-
Total	**Rs. 4,00,000/-**
Overhead charges over and above 5% or maximum Rs.1,00,000 :	Rs20,000/-**

(* to be retained by the ICSSR. ICSSR would publish it subject to the recommendation by the expert and relevant Committees for the purpose, from the overall budget, so to be retained by the ICSSR).

**will be released on successful completion of project after evaluation.
(The break-up budget approved by the ICSSR of Rs. 4,00,000/- is enclosed.)

4. The **First** installment of the approved grant-in-aid will be released after receiving the grant-in-aid bill duly filled in, stamped and signed by the Project Director as well as the affiliating organization. **(GIB already received).**

5. In case, the study involves survey research, the finalized schedules/questionnaires (2 copies) designed to elicit information should be sent to the ICSSR as per the following schedule:
   a) If the schedule /questionnaire for eliciting information is as per standard questionnaire, these will have to be sent to ICSSR immediately,
   b) If the schedule /questionnaire for eliciting information are to be designed afresh keeping in view the requirements of the project, these will have to be sent to the ICSSR within a period of six months in any case.

Revathy

MOUNT CARMEL COLLEGE, AUTONOMOUS

58, Palace Road, Bengaluru - 560 052

20.1.22

Dr. R. Sundareswaran
Co-Investigator
Associate Professor, Department of Mathematics
Sri Sivasubramaniya Nadar College of Engineering
Chennai.

Subject: Sanction of Research Proposal under management funded projects (Major) entitled "Vulnerability parameters of graphs and their applications in Biomedical Engineering".

With reference to the project sanctioned order no. MCC/RC-MRP-33/2021-22, I am glad to inform you that our project proposal entitled "Vulnerability parameters of graphs and their applications in Biomedical Engineering" has been approved a grant-in-aid not exceeding Rs.1,20,000/- for this project. A copy of the approved budget is attached herewith for your kind information.

Sl.No	Head	Total in Rupees
1	Non-Recurring(Capital Head) 1. Books 2. Journals(Publication) 3. Equipment	 5000 5000 .....
2	Recurring(General head) 1. Chemicals and Galssware 2. Contingency including special need 3. Hiring charges 4. Fieldwork and Travel	..... 30,000 40,000 40,000
	Total	1,20,000

Encl: Sanction order (original)

With best wishes

Vijayalakshmi - 13

Dr. Vijayalakshmi
HOD, Mathematics

HEAD OF THE DEPARTMENT
DEPARTMENT OF MATHEMATICS
MOUNT CARMEL COLLEGE (AUTONOMOUS)
58, PALACE ROAD, BANGALORE - 560 052

Scanned with CamScanner

To

The Principal
Sri Sivasubramaniya Nadar College of Engineering,
Kalavakkam , Chennai – 603110

Sir/Madam,

Sub: TNSCST – Student Project Scheme – 2022-2023 – approval intimation–grant release- reg.

With respect to the above scheme, the list of projects approved by the State Council is enclosed along with terms and conditions. You are requested to adhere to terms and conditions such as submission of UC and Seminar Paper on Time.

1.	Dr. Sundareswaran R, Associate Professor, Department of Mathematics, Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam , Chennai - 603110	Analysing diabetic neuropathy - A graph theoretic approach	R Dhanush Babu, M Vahini Shakti Varsha ,	MS-0733	The Principal	Rs 7500/-
2.	Mr.Pandikumar M, Associate Professor, Department of EEE, Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai – 603 110	Design and development of low-cost solar powered electric vehicle	R Sriganesh, S Rajadurai,	EEE-1852	The Principal	Rs 7500/-
3.	Dr.P.Sangeetha, Associate Professor, Department of Civil Engineering, SSN College of Engineering, Kalavakkam, Chennai - 603 110.	Structural Behaviour of Deficient Hollow Steel Stub Columns Strengthened using GFRP	T.R.Sathya Shree, S.N.Rakshana, S. Sadhana,	ECV-418	The Principal	Rs 7500/-
						Rs 22500/-

Herewith enclosed the cheque for the approved grant and disburse the grant to the concerned students through the guides at the earliest

Kindly send the utilisation certificate (format enclosed) and seminar paper (Ref.T&C) on completion of the project.

Thanking you,

Yours faithfully,

Member Secretary.

Encl: a) Terms & Conditions (T&C)
b) Format of Utilisation Certificate (UC)
c) Cheque for Rs.22500/- Cheque No:575036 dt.03.03.2023

Copy to: Individual Guides

To Mr RG

* cheque to accounts
* info to faculty concerned

14/3

इंडियन बैंक Indian Bank
इलाहाबाद ALLAHABAD

Branch :DOTE CAMPUS
DOTE OFFICE BUILDINGS
GUINDY,CHENNAI
IFS Code :IDIB000D050

A/c. Payee Only

VALID FOR THREE MONTHS ONLY

दिनांक Date 06/02/2023
D D M M Y Y Y Y

PAY The Pricipal, SSN College of Engineering, Kalavakkam, Chennai OR BEARER या धारक को

RUPEES रुपये Twenty Two Thousand five Hundred only अदा करें ₹ 22,500/-

SB	खा. सं. A/c. No.	479135159

FOR MEMBER SECRETARY, TAMILNADU STATE COUNCIL SCIENCE & TECHNOLOGY

CBS Code: 01636

AUTHORISED SIGNATORY
Please sign above

992000095

PAYABLE AT PAR AT ALL OUR BRANCHES

⑈575036⑈ 600019119⑆ 135159⑈ 31

TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY

DOTE campus, Chennai-600 025

STUDENT PROJECT SCHEME 2022-2023

Terms and Conditions for the granted SPS projects

1. Every sanctioned project will be given a Project code Number. Please refer to this number while corresponding with TNSCST.

2. The project team **SHOULD NOT** change the topic of the project and should not deviate from the objectives of the sanctioned proposal. In the event of any such changes, sponsoring will be treated as canceled and the college should return the sanctioned amount to TNSCST.

3. The sanctioned projects should be completed and the reports should be submitted before the end of **MAY 2023.**

4. On completion of the project, a soft copy (CD) of the final project report and **TWO** copies of 2-3 page seminar paper (500 words-MS Word format), utilization certificate (**UC**) and statement of expenditure (**SE**) should be sent to **The Member Secretary, Tamilnadu State Council For Science and Technology, DOTE Campus, CHENNAI-600 025.**

5. The seminar paper will be included in the form of PROCEEDINGS which will be brought out during the Seminar cum Exhibition, only for those who submit the **UC & SE.**

6. The Utilization Certificate and Statement of Expenditure should be countersigned by the GUIDE, HOD and Principal/Registrar with an official **seal** as the case may be.

7. The guides are responsible for the timely submission of SEMINAR PAPER, UC and SE.

8. It is mandatory for the project team (**anyone student**) should present and exhibit the findings before the experts in the Seminar cum Exhibition which will be organized during **JULY / AUGUST 2023.**

9. During the Seminar cum Exhibition, "the best project award and certificate" will be presented to the outstanding projects and completion certificates to all.

TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
DOTE CAMPUS, CHENNAI - 600 025

STUDENT PROJECT SCHEME 2022-2023
UTILISATION CERTIFICATE

(TWO COPIES)

1. Name of the guide and address :

2. Name of the student(s) :

3. Title of the project :

4. Project code :

It is certified that a sum of Rs..... (Rupees) sanctioned by the Council for carrying out above mentioned student project has been utilized for thepurpose for which it was sanctioned and sum of Rs..... remaining unutilized is refunded.

Signature of the Guide

Signature of the HOD

Signature of the
REGISTRAR / PRINCIPAL / D
with seal

金研研
令和４年３月９日
9 March, 2022

SSN Institutions
Dear Dr. Manickam Srinivasan

令和４年度研究部共同利用研究課題の審査結果について(通知)
Review Results for FY2022 GIMRT Proposals
of Research Divisions and Groups

先に申請のありました下記共同研究課題について、審査の結果「採択」となりましたので、お知らせします。
なお、本採択通知は課題代表者にのみ通知しますので、貴職から所属長、分担者ほか関係者にご連絡願います。

Thank you for GIMRT proposal application. I am pleased to inform you that your proposal has been accepted. Please notify this to your collaborator, your department head and other relevant persons.

１．課題番号 Proposals Number：202112-RDKGE-0503

２．申請課題 Proposal Title：
Computational and Experimental Investigations of Novel Heusler ThermoelectricMaterials for Waste Heat Recovery

東北大学金属材料研究所
所長　古　原　忠
Tadashi Furuhara
Director of Institute for Materials Research, Tohoku University

Ref: CRS/2021-22/01/413	Date: 24-06-2022

Sanction Order

To,
The Registrar/Principal/Financial Authority,
Through Dr. Nafis Ahmed
Sri Sivasubramaniya Nadar College of Engineering

Subject: Collaborative Research Scheme(CRS) Project of UGC-DAE CSR entitle ': *Investigations on Ag/Au nanoparticles decorated Au assisted PECVD grown Si nanowires for highly sensitive SERS substrate* ' by Dr. Nafis Ahmed.

Dear Madam/Sir,

In continuation to our sanction letter the CRS project submitted to UGC-DAE CSR by **Dr. Nafis Ahmed** of your institution has been approved by the competent authority. The principal collaborator from UGC-DAE CSR is **Dr. Vasant Sathe**.The details of the remittance are given below:

Student fellowship(@ ₹14,000/- pm+HRA)	Consumable	Contingency	Total Amount	Date of remittance	UTR No.
₹Nill	₹30,000	₹15,000	₹45000	2022-04-04	SBIN322097937964
No overheads are available under this scheme					

This project has been approved as per the guidelines given below:

1. This is a Collaborative Research Scheme (CRS) of UGC-DAE CSR. In view of the complex and involved nature of the experiments, any publication emerging under the project must be of collaborative in nature with due consents from the scientists at UGC-DAE CSR and/or DAE centres, and in consultation with the Principal Collaborator/Coordinator. Following phrase must be included in the acknowledgement: “This work was partially/fully carried out using the facilities of UGC-DAE CSR. The authors acknowledge the financial support from UGC-DAE CSR through a Collaborative Research Scheme (CRS) project number **CRS/2021-22/01/413**.”

2. This project is sanctioned for **one year** but it may be extended on yearly basis subject to a total period of three years.

3. In case the CRS project has been approved without student fellowship, it will not be possible to grant student fellowship in subsequent years as well.

4. The PI must ‘**Apply for an Experiment Time**’ through our online user portal https://csruserportal.com/ for utilization of each experimental facility each time.

5. The project will be reviewed at the end of each year to consider sanction and financial allocation for the succeeding year.

6. The release of grants for the subsequent years can be made only upon receipt of funds from UGC towards the scheme. A separate sanction order will be issued for the subsequent years.

7. At the end of the financial year (i.e. by March 31) the PI should submit:
(i) Utilization Certificate in the format provided at our website for the amount spent and
(ii) A Statement of Expenditure duly signed by the Registrar/Principal/competent financial authority of your university/institution to the Centre-Director of respective Centre. The release of funds for the subsequent year(s) can only be made after receiving the above documents.

8. The UGC-DAE CSR will be able to reimburse the travel expenses to Project Investigators as per rules, limited to 2nd AC train fare visiting a centre on project work. However, the student participant is permitted for a sleeper class train fare by the shortest route and is as per prevailing norms of UGC-DAE CSR.

Rules for selection of a CRS project fellow

The CRS project fellow (if approved) should be made by an open selection procedure as per UGC guidelines. The recruitment procedure should be completed within 3 months after the release of the sanction order. The details for recruitment are given below:

#	Designation	Remuneration	Qualifications
1	CRS Project Fellow (Junior) -I	₹14,000 + HRA	M.Sc. (not earlier than 3 years) with a minimum of 55% marks in the concerned subject (**for Science**) M.E. / M. Tech. (not earlier than 3 years) 1st Class (**for Engineering**)
2	CRS Project Fellow (Senior)-I	₹16,000 + HRA	After completion of 2 years as a **CRS Project Fellow (Junior) -I** + at least one research paper in a reputed SCI journal + assessment of the student by a 3 member expert committee approved by the Centre-Director
3	CRS Project Fellow (Junior)-II	₹31,000 + HRA	**Same as (1)** + valid (a) National Eligibility Tests- CSIR-UGC NET including lectureship(Assistant Professor) or GATE or(b) A selection process through National level examinations conducted by Central Government Department and their Agencies and Institutions. + Ph.D. registration of the student under the supervision of the PI at the University where PI's institute is affiliated
4	CRS Project Fellow (Senior)-II	₹35,000 + HRA	After completion of 2 years as a **CRS Project Fellow (Junior)-II** + at least one research paper in a reputed SCI journal + assessment of the student by a 3 member expert committee approved by the Centre-Director

1. All recruitment should be authorized by a selection committee as per rules of University/Institution in which the PI is working. The advertisement should be widely circulated electronically and a copy should be sent to the Principal Collaborator.

2. For appointing a student in the CRS project, the interview panel must be approved by the Centre-Director of the respective Centre. The PI should inform the interview schedule as least 2 weeks in advance. The entire process should be conducted in an online/hybrid mode.

3. A UGC-DAR CSR nominee along with Principal Collaborator is needed for all interviews and upgradations.

4. For all appointments, it has to be mentioned that it is on purely temporary basis and will co-terminate with the CRS project. Leave rules for the appointed fellow will be as per the host institution of PI.

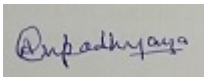
5. Appointment of student in the project is not permitted in the second or third year of the project.

6. While appointing as well as upgrading, a copy of relevant documents including CV along with educational qualification documents (incl. NET/GATE, etc.), minutes of the selection committee/upgradation committee, appointment letter, joining report etc. must be send to the Centre-Director of the respective Centre.

7. The student appointed under this project should spend a substantial amount of time at UGC-DAE CSR.

8. Contingency fund to be utilized for computational work, purchase of stationary and other consumables pertaining to the concerned project. No grant is allocated for any capital equipment/asset.

Copy to: Through User Portal to: Director, concerned Centre-Director, User Office, Dr. Nafis Ahmed, Dr. Vasant Sathe, AO for remittance of funds



Administrative Officer-II
(UGC-DAE CSR)

FILE NO. CRG/2021/002239

SCIENCE & ENGINEERING RESEARCH BOARD

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 21-Feb-2022

ORDER

Subject: Financial Sanction of the research project titled **"Characterization of Novel Mutants of Human Protein Z-dependent Protease Inhibitor (ZPI):Potential Therapeutics for Hemophilia"** under the guidance of Dr. Tanusree Sengupta, Chemistry, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. N Manoj, Associate Professor, Department Of Biotechnology, Indian Institute Of Technology Madras - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 6046392/- (Rs.** Rupees Sixty Lakh Forty Six Thousand Three Hundred and Ninety Two only **Only)** with break-up of **Rs.** *1250000/-* **under Capital (Non-recurring) head** and **Rs.***4796392/-* **under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 6046392/-** has been approved are given below:

The following budget may be considered for **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Autoclave -> Dry bath -> Thermal Cycler -> UV transilluminator -> Orbital shaker incubator	850000
A'	*Total (Non-Recurring)*	***850000***
B	**Recurring Items**	
1	Recurring - I (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1443360 600000 10000
2	Recurring - IV : (Overhead Charges)	290336
B'	*Total (Recurring)*	***2343696***
C	**Total cost of the project (A' + B')**	3193696

The following budget may be considered for **Indian Institute Of Technology Madras, I.I.T. Post Office Chennai**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Dry shipper CX-100 -> Shipping case CX100 -> Wizard Cubic LCP Kit	400000
A'	*Total (Non-Recurring)*	***400000***
B	**Recurring Items**	
1	Recurring - I (Manpower) Recurring - II (Consumables, Travel, Contingencies) Recurring - III Scientific Social Responsibility	1443360 750000 0
2	Recurring - IV (Overhead Charges)	259336
B'	*Total (Recurring)*	***2452696***
C	**Total cost of the project (A' + B')**	**2852696**

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

3. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project

4. While providing operational flexibility among various subheads under head Recurring-A, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

5. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

6. The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

7. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any beyond the duration of the project

8. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

9. The sanctioned equipments and consumables would be produced as per GFR 2005 and its disposal would be done with prior approval of SERB.

10. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

(Dr. Thangaradjou T)
Scientist F
msls@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Tanusree Sengupta** **Chemistry** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: tanusrees@ssn.edu.in** **Mobile: 919940401250** **Dr. N Manoj** **Department Of Biotechnology** **Indian Institute Of Technology Madras** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** **Dean ICSR,** **Indian Institute Of Technology Madras, I.I.T. Post Office Chennai** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Thangaradjou T)
Scientist F
msls@serb.gov.in

BigCat Wireless Private Limited
CIN: U72900TN2013PTC089742
GST: 33AAFCB3739B1Z5
http://www.bigcatwireless.com
kannan@bigcatwireless.com
Ph: +91 97 9090 6307

SANCTION ORDER

Date: 10.01.2021		Date of amendment: NA
Title of the project:	Optimum Design of C And Ku Band Reflector Array Antenna	
Issuing Establishment:		BigCat Wireless Pvt. Ltd., Chennai
Project coordinators:	Dr. M. Gulam Nabi Alsath Associate Professor, Department of ECE Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai – 603 110. Phone: 9841225829; Email: gulamnabialsathm@ssn.edu.in Dr. S. Radha Professor, Department of ECE Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai – 603 110. Phone: 9381032356; Email: radhas@ssn.edu.in	
Principal technical features of Research Service to be provided:		As per SoW document
Tenure: The technical performance of this sanction letter shall be completed in this time duration		10 Months (September 2021 – June 2022)

Expenditure (in INR): Expenditure on items below shall not exceed sums shown against each. Efforts to optimize the cost shall be undertaken taken as part of design. SSN shall take prior approvals for all expenses from BigCat Wireless.

Manpower	₹ 12,00,000
Lab Equipment and Testing	₹ 10,00,000
Contingency	₹ 2,00,000
Risk mitigation – Parabolic reflector	₹ 3,00,000
Horn Antenna	₹ 2,00,000*
Controller Electronics (Beam steering and varactor diodes)	₹ 22,00,000*
Reflector array antenna Fabrication charges	TBD**

* For one antenna.

** To be decided based on actuals by getting quote after design is ready

For BigCat Wireless Pvt. Ltd

BigCat Wireless Private Limited Chennai

Authorized Signatory
Kannan G, Managing Director

Registered Office Address
No 21, Flat C2, Dwaraka Apartment
I Avenue, Shastri Nagar
Chennai – 600020, India

Work Office Address
6th Floor, Unit 06B1, block E, Phase 1
IIT Madras Research Park,
Kanagam Road, Taramani
Chennai – 600113, India

No. DST/INT/SL/P-28/2021

Government of India
Ministry of Science and Technology
Department of Science & Technology
(International Cooperation Division)
****

Technology Bhavan,
New Mehrauli Road,
New Delhi-110016
Date: 27.09.2021

ORDER

Subject: Implementation of **Indo-Sri Lanka** Project proposal entitled, **"Design, Development and Experimental Evaluation of Highly Integrated Multi-Standard Antennas for Mimo Implementation in Automobiles as a Part of Intelligent Transport System"**, submitted by **Dr. Malathi Kanagasabai,** Professor, Department of Electronics and Communication Engineering Anna, University, Guindy Campus, Sardar Patel Road, Chennai-600025, India.

Sanction of the President is hereby accorded for incurring an expenditure not exceeding **Rs.20,88,364/- (Rupees Twenty Lakh Eighty Eight Thousand Three Hundred Sixty Four Rupees Only)** for implementation of the **Indo-Sri-Lanka** joint project entitled, **"Design, Development and Experimental Evaluation of Highly Integrated Multi-Standard Antennas for Mimo Implementation in Automobiles as a Part of Intelligent Transport System",** coordinated by **Dr. Malathi Kanagasabai,** Professor, Department of Electronics and Communication Engineering Anna, University, Guindy Campus, Sardar Patel Road, Chennai-600025, India, in collaboration with **Dr. Jeevani Jayasinghe**, Senior Lecturer, Department of Electronics, Wayamba, University of Sri Lanka., for a total duration of 2 years from the date of issue of the Sanction Order. The detailed breakups of the grant for General as well as Capital Components are given below:

General Component	:	Rs.20, 88,364/-
Capital Component	:	Rs. ___N.A.__

2. Under the existing terms and conditions of the PoC, sending side cover international travel expenses to the state of the receiving country. The receiving side will make local logistic arrangements including local travel and stay arrangements (halt expenses, per diem etc.) in the country visited. The break-up of approved expenditure is as indicated below:

S. no	Items of Expenditure	1st year (I st 6 months) INR	1st year (II nd 6 months) INR	2nd year INR	Total INR
1	Manpower @ 01 JRF for two years Rs.31,000/- per month and 24 percent HRA i.e., Rs.7440/- Total=Rs.38,440/- month	4,61,280		4,61,280	9,22,560
2	Mobility of Indian Scientist to Sri Lanka for 2 visits per year (*as calculated below)	Nil	1,30,000	1,30,000	2,60,000
3	Mobility of Sri-Lankan scientist to India for 2 visits per year (**as calculated below)	Nil	1,50,000	1,50,000	3,00,000
4	Contingency	50,000/-	-	50,000	1,00,000
5.	Consumables & Minor equipment	2,00,000	-	2,00,000	4,00,000
6.	**Total**	**7,11,280**	**2,80,000**	**9,91,280**	**19,82,560**
7	Overhead @ 8%	52,902	-	52,902	1,05,804
8	**Grand total** **(column 6 + column 7)**	**7,64,182**	**2,80,000**	**10,44,182**	**20,88,364**

***Breakup of expenditure on each visit of Indian Scientist visiting Sri Lankan collaborative institute is calculated broadly as below:**

a. International Fare Delhi-Colombo-Delhi — Rs 40,000
   By excursion /economy class (cheapest available fare)
b. Medical Insurance (silver class) — Rs 5,000
c. Domestic Travel related to visit — Rs 10,000
d. Visa Fee (as per actual) — Rs 10,000

Total: **Rs.65, 000**

** **Break up of expenditure on each visit of Sri Lankan Scientists and project staff visiting Indian collaborative Institute (for an average duration of one month).**

a.	Per diem@ RS 2500*14 days	Rs 35, 000
b.	Accommodation@ Rs 2500*14 days	Rs 35,000
c.	Local Transport	Rs 5000
	Total:	**Rs 75,000**

3. Sanction of the President is hereby accorded for release of 1st installment amounting to Rs.**7, 64,182/- (Rupees Seven Lakh Sixty Four Thousand One Hundred Eighty Two Rupees Only)** to the grantee Institute. The amount of grant will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to, Varanasi, India. The bank details for electronic transfer of funds through RTGS are given below:

1	Agency name as registered	The Director, Centre for International Relations Anna University, Chennai-600025
2	Account Holders name/ designation	The Director, Centre for International Relations Anna University, Chennai-600025
3	Name of Bank and Address	State Bank of India, Anna University Chennai-600025, CEG Campus
4	Bank Account Number	31753273528
5	IFSC Code	SBIN0006463
7	Email ID	malijan2011@gmail.com

Condition for placing of grant amount:

4. The institute will maintain separate audited account for the project and the amount of grant will be kept in a bank account earning interest. The interest earned should be reported to DST while submitting the (financial year wise) Statement of Expenditure/Utilization Certificate.
As per Financial Rule 230 (8), "All interests or other earnings against Grants-in-aid or advances (other than reimbursement) released to any grantee institution should be mandatorily remitted to the Consolidated Fund of India immediately after finalization of the accounts. Such advances should not be allowed to be adjusted against future releases".

Conditions for submission of SE/UC and Progress report:

5. (a) The grantee organisation will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year duly reflecting the interest earned / accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

(b) While submitting Utilisation Certificate/Statement of Expenditure, the organisationhas to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

(c) A transparent procurement procedure in line with the Provisions of General Financial Rules 2017 will be followed by the Institute/ Organisation under the appropriate rules of the grantee organisation while procuring capital assets sanctioned for the above-mentioned project and a certificate to this effect will be submitted by the Grantee organisation immediately on receipt of the grant;

6. The grantee organisation will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final instalment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

7. In the event grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

Conditions of Assets (if any):

8. (a) DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

(b) The equipment/instrument shall have to be purchased within twelve months from the date of release of the capital grant. Fresh permission shall have to be sought from DST, in the event, the Institute fails to purchase the equipment/instrument within the prescribed period of twelve months from the date of release of sanctioned amount.

Conditions for International Visits:

9. All project related visits to be undertaken by the Scientists from either side in connection with the implementation of the project shall require prior approval from this Department separately on a case to case basis before any expenditure is incurred in this regard.

10. As per MoF instructions, it has been decided that in all cases of air travel, both domestic and international, where the Government of India bears the cost of air passage, the officials concerned may travel only by Air India. For travel to stations not connected by Air India, the officials may travel by Air India to the hub/point closest to their eventual destination, beyond which they may utilize the services of another airline which should also preferable be an alliance partner of Air India.

11. The foreign visit of the PI(being non-official) would be subject to approval by the competent authority as mentioned in the guidelines issued by DoE vide OM dated 5th January, 2016.The travel may be considered once the travel restrictions were lifted by the Govt.

Other Conditions:

12. The account of the grantee organisation shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organisation is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

13. Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organisation in bold letters in all publications / media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

14. In case the scheme provides for payment of honorarium / remuneration / fellowship / scholarship to the PI, a para may suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/ salary/fellowship from any other project either supported by DST or by any other funding agency.

15. As per the GFR 2017 Rule 230 (8) the Grantee Institute should ensure that all the interests or other earnings against Grant-in-Aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted to the Consolidated Fund of India (through Non- Tax Receipt Portal (NTRP), i.e. www. Bharatkhosh.gov.in) immediately after finalisation of the accounts, as it shall not be adjusted towards future release of Grant. A certificate to the effect shall have to be submitted along with Statement of Expenditure / Utilisation Certificate for considering subsequent release of Grant Closure of Project account.

16. GI should also follow Rule 230 (17) of GFR, 2017 concerning reservation of SC/ST/OBC, if applicable.

17. Goods (consumable/equipment) available in Government eMarket (GeM) Portal are to be procured mandatorily online through GeM only.

18. **Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.**

19. The expenditure involved is debatable to **Demand No.88**, Department of Science & Technology for the financial year **2021-22**:

3425	:	Other Scientific Research (Major Head)
60	:	Others
60.798	:	International Cooperation (Minor Head)
14	:	Research & Development
14.00.31	:	Grants-in-aid General for the year 2021-22 (**Previous**: ICD-3425.60.798.12.00.31)

20. This sanction order being 1st installment for implementation of this project, no SE/UC is due from the grantee institution against this project.

21. This issues with the concurrence of IFD vide their Diary No **2243**/IFD, **dated: 27.09.2021**

22. As per Rule 234 of GFR 2017, this sanction has been entered at S. No. 104 ..in the register of grants maintained in the Division.

23. PI to procure consumable and permanent equipment with price implication in accordance with provisions contained in GFR-2017 as far as possible.

24. Continuation of the Project beyond 31st March 2021 will be subject to appraisal and approval of the continuation of the Umbrella Scheme "Research and Development" under which the Project is funded.

25. All grantee organizations in respect of various Research and Development Schemes in DST has to compulsorily use Expenditure Advance & Transfer (EAT) Module of Plan Finance Management System (PFMS) for maintaining expenditure and processing further releases.

(Dr. Charu Agarwal)
Scientist-C
International Cooperation Division, DST

To,

The Pay & Accounts Officer,
Department of Science & Technology,
New Delhi-110016

Copy to:

1. Office of the Principal Director of Audit, AGCR Bldg., IP Estate, New Delhi-110002
2. Cash Section (3 copies), DST
3. I.F.D/Accounts Section, DST
4. **Dr. Dr. Malathi Kanagasabai , Professor, Department of Electronics and Communication Engineering, Anna University, Guindy Campus, Sardar Patel Road, Chennai-600025**
5. **Director, Anna, University**, Guindy Campus, Sardar Patel Road, Chennai-600025
6. Sanction Folder
7. Project File
8. Office of Head IC Division

Charu

(Dr. Charu Agarwal)
Scientist-C
International Cooperation Division, DST

सत्यमेव जयते

दूरभाष / Tel : 26962819, 26567373,
26562134, 26562122 (EPBAX)
फैक्स / Fax : 26569908, 26515637,
26863847, 26862418
वेबसाइट/website : www.dst.gov.in

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
टेक्नोलॉजी भवन, नया महरौली मार्ग
नई दिल्ली-110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI-110 016

Dated 22.10.2021

File No. DST/INT/SL/P-28/2021

Dr. Malathi Kanagasabai, Professor,
Department of ECE College of Engineering Guindy,
Anna, University, Sardar Patel Road, Gandhi Mandapam,
Chennai- 600025, India.

Subject: The Indo-Sri Lanka Joint project entitled **"Design, Development and Experimental Evaluation of Highly Integrated Multi-Standard Antennas for Mimo Implementation in Automobiles as a Part of Intelligent Transport System"** reg.

Dear Professor,

As per the project proposal submitted by the PI, **Dr. Gulam Nabi Alsath**, Associate Professor, Department of Electronics and Communication Engineering, Sri Sivasubramaniya Nadar (Ssn) College Of Engineering, Chennai, Tamil Nadu - 603110 and **Dr. Y V Ramana Rao**, Professor, Department of Electronics and Communication Engineering, Anna University, Chennai, Tamil Nadu-600025 are the **Co-PIs** of the project.

It will entirely be the role and responsibility of the Principal Investigator of the Project to disburse funds to Co-PIs, if needed, supervise their project activities, collect fund utilization reports and project progress reports from them and submit to this Department in consolidated form on completion of each financial year as per the approved project plan and provisions in GFR 2017.

Department of Science and Technology will coordinate on the project directly with the PI involved in the Project.

All other terms and conditions of the Sanction Order dated 27.09.2021 shall remain unchanged.

This issues with the approval of Head (ICD), DST.

Charu 22/10/2021

(Dr. Charu Agarwal)
Scientist-C/DST

To,

The Pay & Accounts Officer
Ministry of Science and Technology
Department of Science and Technology
New Delhi-110016

Copy to:

1. Office of the Principal Director & Audit, 3rd Floor, AGCR Building, IP Estates, New Delhi
2. Cash Section, DST
3. IFD, DST
4. **Dr. Malathi Kanagasabai, Professor,** Department of ECE College of Engineering Guindy, Anna, University, Sardar Patel Road, Gandhi, Mandapam, Chennai- 600025, India.
5. **The Registrar,** Anna, University, Sardar Patel Road, Gandhi, Mandapam, Chennai-600025
6. **Dr. Gulam Nabi Alsath**, Department of Electronics And Communication Engineering, Sri Sivasubramaniya Nadar (Ssn) College of Engineering Chennai, Tamil Nadu- 603110
7. **Dr. Y V Ramana Rao**, Professor, Department of Electronics and Communication Engineering, Anna University, Chennai, Tamil Nadu- 600025
8. Sanction Folder/Project File
9. Head IC Division

Chaw
12/10/2024

इलेक्ट्रॉनिक्स तथा रेडार विकास स्थापना
भारत सरकार – रक्षा मंत्रालय
रक्षा अनुसंधान तथा विकास संगठन
पो.बा.स. 9324, सी.वी. रामन नगर

आई एस ओ 9001-2015 प्रमाणित
ISO 9001 : 2015 Certified

Electronics & Radar Development Establishment
Govt of India, Ministry of Defence
Defence Research & Development Organisation
P.B. No.9324, C V Raman Nagar
Bengaluru – 560 093, India
Fax : 2524 2916
Phone : 2524 1959 / 2502 5331
E-Mail : director@lrde.drdo.in

No.44418 /CAPSI/CG/RTMD

09 July 2021

The Principal
Sri Sivasubramaiya Nadar College of Engineering
Kalavakkam – 603110
Tamilnadu.

Kind Attn: Dr. Krishnasamy T. Selvan, Professor

Sir,

"DESIGN OF METASURFACE BASED SHARED APERTURE PHASED ARRAY ANTENNA OPERATING IN S & X BANDS"

Refer your Summary of Offer Letter dated 29/06/2021

2. Contract for Acquisition of Research Services (CARS) between LRDE and Sri Sivasubramaniya Nadar College of Engineering , Tamilnadu 603110, bearing No. LRDE/CARS-84/RAMD/2021 dated 09/07/2021 on the subject is sent herewith for your necessary action please.

Thanking you,

A. Vengadarajan

(Dr. A. Vengadarajan)
Sc G
For DIRECTOR

The C D A (R&D) (Through MMFD (AG))
CV Raman Nagar
Bangalore-560 093

O/o Director General (ECS)
Ministry of Defence, DRDO
LRDE Campus
CV Raman Nagar
Bangalore-560093

The Director
Dte of ER & IPR
Ministry of Defence, DRDO Bhavan
Rajaji Marg, New Delhi – 110 011

The Director
Dte of Planning & Coordination (DP&C)
Ministry of Defence, DRDO Bhavan
Rajaji Marg, New Delhi - 110 011

The Director
Dte of Finance and Material Management (DFMM)
Ministry of Defence, DRDO Bhavan
Rajaji Marg, New Delhi - 110 011

Internal copies to :
AIG
RAMD

CONTRACT FOR ACQUISITION OF RESEARCH SERVICES (CARS)

By signature of authority identified at (12) below, DRDO hereby Contracts on the Research Service Provider identified at (3), the provision of the Research Services described at (7), within the Time stated, Payments and subject to other conditions overleaf, as follows:

1) Short title of Research Service to be provided: **DESIGN OF METASURFACE BASED SHARED APERTURE PHASED ARRAY ANTENNA OPERATING IN S AND X BANDS.**	Contract No.: LRDE/CARS - 84/RAMD/2021 Date: 09/07/2021	
2) RSQR Ref: No.& Date : **44418/CARS/CG/RTMD dated 03 June 2021**	Issuing DRDO Establishment : LRDE, CV Raman Nagar, Bangalore-93	Dates of CARS Amendments :
3) Name and address of Research Service Provider (RSP): Dr. Krishnasamy T. Selvan, Professor Sri Sivasubramaiya Nadar College of Engineering, Kalavakkam, Chennai, Tamilnadu. – 603110 Phone: **9952008420** Fax : Email : selvankt@ssn.edu.in	4) RSP's Offer Ref.: Nil Date: 29/6/21	
5) This contract will require a formal amendment if the following key professionals are not available to RSP		
6) RSP is authorized to engage these professionals as research consultants (names, institutes / companies) : **NIL**		
7) Principal technical features of Research Service to be provided : As per Appendix-A		
8) DRDO will make available the following DRDO-owned equipment to RSP : **NIL**		
9) The technical performance of this contract shall be complete when RSP submits the Final Report before (date)		**18 Months**

10.1) Expenditure on items below shall not exceed sums shown against each	Rs.
(a) Personnel	**5,88,000/-**
(b) Equipment	**--**
(c) Others	**2,35,200/-**
Sub-Total	**8,23,200/-**
Goods Services Tax inclusive (claimed along with Milestones payment proportionately)	**1,48,176/-**
Total :	**9,71,376/-**

10.2) Schedule of Payments	Date	Rs.
(a) Initial advance (25%)	**To***	**2,42,844/-**
(b) at Performance Milestone I of RSQR (25%)	**To + 6**	**2,42,844/-**
(c) at Performance Milestone II of RSQR (25%)	**To + 12**	**2,42,844/-**
(d) at Performance Milestone III of RSQR (25%)	**To + 18**	**2,42,844/-**
Payments will be made within 45 days of receipt by L/E/P of contingent Bill ***To will be one month from the date of signing the contract.**	Total	**9,71,376/-**

11) DRDO will deem this contract, including amendments thereto, to have been consummated when signed below by the authority of the academic institution (e.g. Registrar) competent to enter into this contract:	12) Signature of L/E/P Contract administrator:
[Sign over seal] Name: Dr. V. E. ANNAMALAI Designation: Principal Sri Sivasubramaniya Nadar College of Engineering Rajiv Gandhi Salai (OMR) Kalavakkam - 603 110.	A. Vengadarajan Name: Dr. A VENGADARAJAN Designation: SCIENTIST 'G' Address: LRDE, CV Raman Nagar Bangalore-560093 Ph : 25241959 , Fax: 2524 2916 LRDE, Min of Defence CV Raman Nagar Bang-93

Thenmozhi D <theni_d@ssn.edu.in>

SERB-Notification

SERB_Administrator@serbonline.in <SERB_Administrator@serbonline.in> Mon, Jul 27, 2020 at 11:54 AM
To: serbinfo1@gmail.com

Science and Engineering Research Board

(Statutory Body Established Through an Act of Parliament : SERB Act 2008)
Department of Science and Technology, Government of India

FILE NO. EEQ/2018/000262

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 15-Jul-2020

ORDER

Subject: Research project entitled "**An Automated Tool for Early Detection of Depression from Social Media Text for Mental Health using Deep Learning Approach to Assist Student Counsellors and Psychiatrists of Hospitals in India"** under the guidance of Dr. Thenmozhi Doraiaj, Computer Science and Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110.

1. This is in continuation of SERB's sanction order No. "EEQ/2018/000262" dated "15 February, 2019 " of **Science and Engineering Research Board (SERB**).

2. Sanction of the competent authority is hereby accorded to the payment of a sum of **Rs. 400000/-** (Rupees Four Lakh only) under 'Grants-in-aid General' to **PRINCIPAL, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the 2nd grant for the financial year 2020-2021 for implementation of the above said project.

3. Sanction of the competent authority is also accorded to the carry forward of unspent balance of **Rs. 247216/-** (Rupees Two Lakh Forty Seven Thousand Two Hundred and Sixteen only) (Recurring Rs. 240494 and Non-Recurring Rs. 6722) to SSN College of Engineering, Sri Sivasubramaniya Nadar College of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam from FY 2019-2020 to FY 2020-2021 for the same purpose for which it was sanctioned.

.

4. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in).

5. It is certified that provision of GFR 212 relating to Utilization Certificates (Ucs) for the funds released under the grant have been satisfied and the UC/s is/are enclosed herewith.

6. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**

This release is being made under Empowerment and Equity Opportunities for Excellence in Science. (Task force Committee) (SC)

7. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **14 July, 2020** and vide Diary No. **SERB/F/1472/2020-2021** dated **15 July, 2020**

8. The release amount of **Rs. 400000/-** (Rupees Four Lakh only) (Recurring Rs. 400000 and Non-Recurring Rs. 0) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	NA
Account Name	THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100050070022
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD., THIRUVANMIYUR BRANCHNO.3, THIRUVALLUVAR SALAI, THIRUVANMIYURCHENNAI 600 041. TAMILNADU
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	info@ssn.edu.in
Email id of PI	theni_d@ssn.edu.in

9. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

10. As per rule 211 of GFR the accounts of Grantee Institution shall be open to inspection by the sanctioning authority / audit whenever the institute is called upon to do so.

11. The institute will furnish to the SERB, Utilization certificate(separate for Recurring & Non-Recurring) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

12. After completion of the project unspent balance if any should be returned as Demand Draft drawn in favour of "Fund for Science and Engineering Research" payable at New Delhi.

13. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

14. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.

(Dr. Pramod Kumar Prasad)

Scientist-D

pk.prasad@serb.gov.in

To,

Under Secretary

SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Thenmozhi Doraiaj** **Computer Science and Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: theni_d@ssn.edu.in** **Mobile: 919884054239**
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

(Dr. Pramod Kumar Prasad)

Scientist-D

pk.prasad@serb.gov.in

********** LEGAL DISCLAIMER **********

Please do not reply to this mail !!

[SERB is now on Social-Media. Kindly follow us on Twitter: @serbonline https://www.twitter.com/serbonline]

This is a system generated information and does not require any signature.This E-Mail may contain Confidential and/or legally privileged Information and is meant for the intendedrecipient(s) only. If you have received this e-mail in error and are not the intended recipient/s, kindly notify us at info@serbonline.in and then delete this e-mail immediately from your system. Any unauthorized review, use, disclosure, dissemination, forwarding, printing or copying of this email or any action taken in reliance on this e-mail is strictly prohibited and may be unlawful. Internet communications cannot be guaranteed to be timely,secure, error or virus-free. The sender does not accept any liability for any errors, omissions, viruses or computer problems experienced by any recipient as a result of this e-mail.

****

'SAVE PAPER - THINK BEFORE YOU PRINT!'

* Don't want to receive such notification anymore?Click here to send a mail to unsubscribe

Exhibit 1
PROJECT DESCRIPTION
CIESPL-SSN -2022-003

Upon execution by the Parties below, the Project specified herein shall be awarded and performed in accordance with the Master Sponsored Research Agreement ("Agreement"), effective_10th December 2021 (which is incorporated herein in its entirety), between SSN College of Engineering (hereinafter, "Institute") and Caterpillar India Engineering Solutions Private Limited (hereinafter, "Caterpillar").

1. Project Title: Scalable Mobile Application for Performing Full Text Search(FTS) in SQLite Database

2. Statement of Work: See attached **Annexure-A**

3. Principal Investigator: Dr. Chitra Babu, Professor and Head,
   Ms. S.Rajalakshmi, Assistant Professor,
   Ms.S.Angel Deborah , Assistant Professor,

4. Term/Period of Performance: 7 months

5. Amount of Research Support (Direct Costs and Indirect Costs), Payment Provisions: INR 1,87,000/-

6. Specified Deliverable Items (if any): As per Annex-A

7. Institute Pre-Existing Intellectual Property and open-source works of authorship:

8. Caterpillar Equipment Loans or Gifts (if any): None

9. Proposed Caterpillar Visitor(s) (if any), Duration of Visit: TBD

10. Caterpillar Liaison / Contact Responsible for the Project: Mr. Antony Sebastian,

Project Authorization:

CATERPILLAR INDIA ENGINEERING SOLUTIONS PRIVATE LIMITED (CIESPL)

Authorized Signature

Bansi Phansalkar, Director - CIESPL
Name & Title

04/02/2022
Date

SSN COLLEGE OF ENGINEERING

Authorized Signature

Dr. Kala Vijayakumar, President – SSN Institutions
Name & Title

28/01/2022
Date

28/1/2022

REVIEWED AND ACCEPTED:

Principal Investigator

Caterpillar: Confidential Yellow

Exhibit 2

CATERPILLAR'S STANDARD SETTLEMENT SCHEDULE

Caterpillar shall pay SSN the respective amount after completion and upon receipt of deliverables for each milestone specified in the table below.

Milestone	Deliverables	Timeline	Cost (INR)
M1	Proof of concept for FTS in desktop/mobile	3rd week of November 2021	25,000
M2	Generate and model data	3'd week of December 2022	30,000
M3	A system to retrieve data using normal search and FTS	2nd week of January 2022	60,000
M4	Front end Development and Pagination	4th week of January 2022	30,000
M5	System that works on heterogeneous platform	2nd Week of February 2022	
Grand Total		**Total**	**1,87,000**

*Refer Annexure-A for further details

Caterpillar: Confidential Yellow

ANNEXURE -A

Project Proposal

CIESPL-SSN-2022-003

Caterpillar: Confidential Yellow

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
(An Autonomous Institution)
Approved by AICTE, New Delhi and Affiliated to Anna University
Rajiv Gandhi Salai (OMR), Kalavakkam – 603 110, TN, India.
Tel: +91 44 27469700
www.ssn.edu.in

Administrative Office: New No.19, Old No.8, 3rd Main Road, Kasthuribai Nagar, Adyar, Chennai - 600 020.
Tel: +91 44 24411656, 24416474

Annexure – A

Project Proposal for

Scalable Mobile Application for Performing Full Text Search(FTS) in SQLite Database

Submitted to Caterpillar on 09-12-2021

1. Statement of Work:

Problem Statement:

A scalable mobile application should be developed which is capable of searching through the HTML content that is stored in a mobile database such as SQLite in an offline mode. This application should work in various mobile environments such as Android, iOS and Windows.

Detailed Summary:

The objective of this project is to develop a scalable mobile application that has the ability to search across the HTML content which is stored in a mobile database such as SQLite. The mobile device user initially downloads all the relevant documents such as operation manuals and other pertinent documentations. It should not be stored as flat files in the mobile device.

When the user is in the field, he/she may not have the internet connection. Hence, there should not be a necessity for the mobile device to connect to any server for performing this search. The search should happen entirely in an offline mode. The response time for producing the results should not exceed 5 seconds even when the database size becomes 10 GB.

The result of a search query should be in a predetermined order and it should have 50 characters before and after the exact keyword(s). The search should not be performed on the HTML semantic tags.

A simplistic minimal UI needs to be developed, with search bar, order by and filter options, and the time taken for the search query and pagination to present the search results in multiple pages without overwhelming the user. Optionally, the size of the database that is being searched, can also be displayed. Optionally, an *order by* feature can be provided to the end-user. Filtering options should be provided for end-users to make the search more effective. Join queries should involve at least 5 different tables.

For queries that contain complex keywords, the document needs to be searched for an exact matching string. Optionally, the keywords can also be tokenized for queries that contain

complex keywords by using delimiters and can be subsequently searched on individual tokens. This tokenization should exclude the duplicate search results resultant from hits on searching for individual tokens while presenting to the user. If the retrieved set of results is more than 50 records, then pagination should be implemented to display the results incrementally.

As a proof of concept, this can initially be developed with biodata of students belonging to different departments instead of the actual Caterpillar operation manuals and documentations. The mobile application can be initially developed for the Android platform. It can later be extended to other platforms such as iOS and Windows.

2. Framework:

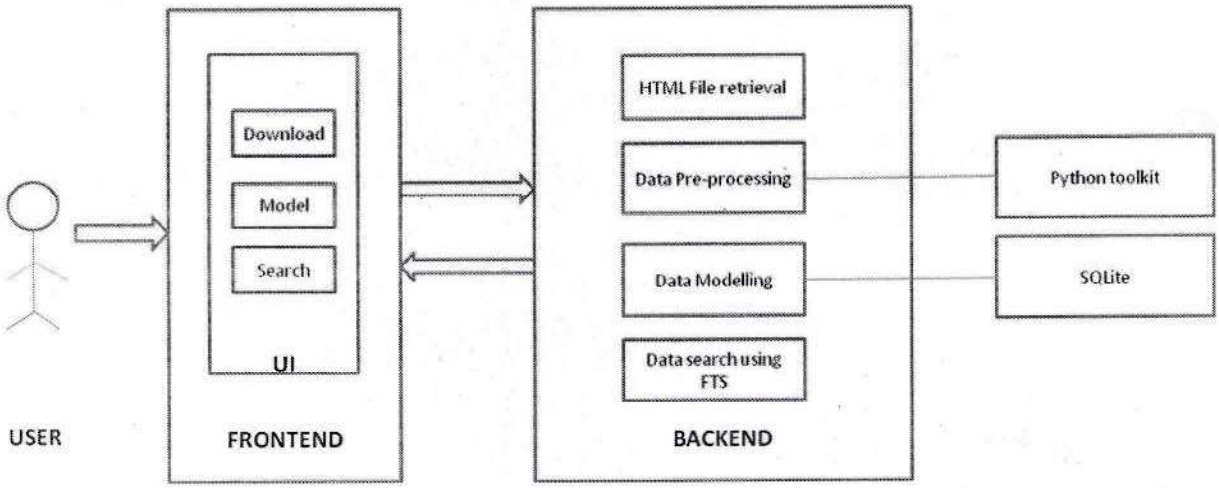


Figure 1: System Framework

3. Steps to be taken:

1. Study and select the appropriate tech stack that satisfies the project requirements.
2. Analyse the working of FTS in desktop environment.
3. Feasibility study of FTS implementation in mobile environment.
4. Generate the required data using python script
5. Apply techniques to pre-process the data to remove the HTML semantic tags.
6. Design an appropriate schema to store in mobile SQLite.
7. Model the pre-processed data into SQLite format.
8. Transform the SQLite data into FTS format.
9. Perform normal search in single table of the database.
10. Perform FTS search in single table of the database.
11. Retrieve the result of a search query in a predetermined order and it should have 50 characters before and after the exact keyword(s).
12. Analyse the response time for producing the results and display it along with the results.
13. Design the User Interface for the scalable mobile app.
14. Apply pagination concept on search result.
15. Validate the scalable mobile app on heterogeneous platforms.

Caterpillar Confidential: Yellow

4. Proposed Milestones:

Milestone 1:

FTS working in Desktop /Mobile

Milestone 2:

Data Generation

Data modelling

Milestone 3:

Single Table search

Normal search and FTS analysis

Results with 50 characters before and after the search term

Milestone 4:

UI Design

System to support pagination

Milestone 5:

System that works on heterogeneous platform

5. Principal Investigator:

Dr. Chitra Babu, Professor and Head,
Ms. S.Rajalakshmi, Assistant Professor,
Ms.S.Angel Deborah , Assistant Professor,
Department of CSE,
Sri Sivasubramaniya Nadar College of Engineering.
Email: chitra@ssn.edu.in, rajalakshmis@ssn.edu.in, angeldeborahs@ssn.edu.in

6. Term/Period of Project: 7 months

7. Amount of Research Support:

Milestones	Process	Estimated Deadline	Deliverables	Amount (INR)
M1	Selection of Tech Stack	3rd week of November 2021	Proof of concept for FTS in desktop/mobile	25,000
	Applying FTS in Desktop environment			
	Applying FTS in mobile environment			

Caterpillar Confidential: Yellow

M2	Resume Generation with HTML Tags Database migration /modelling to mobile SQLite	3rd week of December 2022	Generate and model data	30,000
M3	Implementing normal search from mobile SQLite Implementing FTS from mobile SQLite Retrieving 50 characters before and after the search Response time analysis	2nd week of January 2022	A system to retrieve data using normal search and FTS	60,000
M4	Designing the front end Pagination	4th week of January 2022	Front end Development and Pagination	30,000
M5	Testing and redesigning for iOS Testing and redesigning for windows desktop and laptop Testing and redesigning for windows mobile	2nd Week of February 2022	System that works on heterogeneous platform	42,000
Grand Total				1,87,000

8. Specified Deliverables:

1. A scalable mobile app with efficient Full Text Search (FTS) feature that searches the HTML content
2. Cross platform app: Android, iOS and Windows

9. Institute pre-existing Intellectual Property and Open- Source works of authorship: -

10. Caterpillar equipment loans or gifts (if any): -

11. Proposed Caterpillar visitors, duration of visit(if any): -

12. Caterpillar Liason/ Contact responsible for the project:

Mr. Vijayagopan Kanniapillai, Mr. Antony Sebastian, Mr. Dinesh T. Vincent, Mr. Franklin Gerald

Signature of the Principal Investigator

Dr. CHITRA BABU
Head of the Department
Department of Computer Science and Engineering
SSN College of Engineering
Kalavakkam - 603 110.

No. TDP/BDTD/09/2021 (General)
Government of India
Ministry of Science & Technology
Department of Science & Technology
(Technology Development & Transfer)

Technology Bhavan,
New Mehrauli Road, New Delhi
Dated 04.03.2021

ORDER

Sub: - Financial assistance for project entitled 'Design and development of 16 channel functional near infrared spectroscopy system for measuring hemodynamics in brain prefrontal cortex' by Dr. Bagyaraj S., Associate Professor, Deptt. of Biomedical Engineering, Sri Sivasubramaniya Nadar College of Engineering, Kacheepuram , Tamil Nadu – **Project sanction and release of first installment** regarding.

Sanction of the President is hereby accorded to the approval to the above-mentioned project at a total cost of **Rs. 25,33,872/- (Rupees Twenty-five Lakh Thirty-three Thousand Eight Hundred Seventy-two only)** for the duration of **24 months**. The detailed break-up of the grant is given below: -

General Component = **Rs. 25,33,872 /-**

S. No.	Items	Budget (Rs. in Lakhs)		
		Year-I	Year-II	Total
1.	Manpower (1 JRF @ Rs. 31,000/- + 8% HRA)	4,01,760	4,01,760	8,03,520
2.	Consumables	10,50,000	2,50,000	13,00,000
3.	Travel	50,000	50,000	1,00,000
4.	Contingency	50,000	50,000	1,00,000
5.	Overheads @ 8%	1,55,176	75,176	2,30,352
	Total	17,06,936	8,26,936	25,33,872

2. The sanction of the President is also accorded to the release of **Rs. 17,06,936/- (Rupees Seventeen Lakh Six Thousand Nine Hundred Thirty-six only)** to **The Principal, Sri Sivasubramaniya Nadar College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of grant as mentioned in the above table.

3. **This sanction is accorded with the stipulation that continuation of the project beyond 31/03/2021 will be subject to the appraisal and approval of the umbrella scheme "Innovation, Technology Development and Deployment" under which the project is funded.**

4. This sanction is subject to the condition that the grantee organization will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year duly reflecting the interest earned / accrued on the grant received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

5. The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

6. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the release Capital head grant.

4/3/21

7. The grant-in-aid being released is subject to the condition that:-

a) A transparent procurement procedure in line with Provisions of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant.

b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to be ensure submission of supporting documentary evidences with regard of the purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

8. As per the GFR 2017 Rule 230 (8) the Grantee Institute should ensure that all the interests or other earnings against Grant-in-Aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted to the Consolidated Fund of India immediately after finalization of the accounts. Such advances will not be allowed to be adjusted against future releases.

9. As per the GFR 2017 Rule 230 (17) "the Grantee Institute should agree to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts or services under its control on the lines indicated by the Government of India".

10. As per the GFR 2017, it is mandatory for the grantee organization to purchase the equipment through the Government e-Marketplace (GeM), to the extant available there as the project involves government funding.

11. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e. www.bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of Grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/ Utilization Certificate for considering subsequent release of Grant/ Closure of Project accounts.

12. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

13. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

14. Due acknowledgement of technical support/ financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publication / media release as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

15. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

16. The expenditure involved is debatable to Demand No. 87, Department of Science & Technology for the year 2020-21:

3425	Other Scientific Research (Major Head)
60	Others
60.200	Assistance to Other Scientific Bodes (Minor Head)
70	Innovation, Technology Development & Deployment

17. The amount of **Rs. 17,06,936/- (Rupees Seventeen Lakh Six Thousand Nine Hundred Thirty-six only)** will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to **"The Principal, Sri Sivasubramaniya Nadar College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam.**

18. The bank details for electronic transfer of funds through RTGS are given below:-

Name of A/C Holder	**The Principal, Sri Sivasubramaniya Nadar College of Engineering**
Bank A/C No	**158100050070022**
Name of the Bank & branch	**Tamilnad Mercantile Bank Ltd.**
IFSC code	**TMBL0000158**

19. As per Rule 234 of GFR 2017, the sanction has been entered at S. No. 355 in the register of grants maintained in the Division for the scheme BDTD.

20. This issue with the concurrence of IFD vide their Concurring Dy. No. C/5468/IFD/2020-21 dated 04.03.2021.

4/3/21

(Dr. Anita Aggarwal)
Scientist-F

To.

The Pay and Accounts Officer
Department of Science & Technology
New Delhi.

Copy of information and necessary action to: -

1. The Principal Director of Audit, Environment and Scientific Department, 3rd floor, AGCR Building, I.P. Estate, New Delhi.
2. Drawing and Disbursing Officer, DST, Cash Section. (two copies)
3. The Controller of Accounts, DST
4. IFD, DST
5. Head (TDT), DST
6. Office Copy
7. The Principal, Sri Sivasubramaniya Nadar College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam.
8. Dr. Bagyaraj S, Associate Professor, Deptt. of Biomedical Engineering, Sri Sivasubramaniya Nadar College of Engineering, Kacheepuram , Tamil Nadu.
9. Dr. S Arun Karthick, Associate Professor, Deptt. of Biomedical Engineering, Sri Sivasubramaniya Nadar College of Engineering, Kacheepuram , Tamil Nadu
10. Dr. Sachin Gaurishsankar Sarate, Full time Doctor-cum-Assistant Professor, Deptt. of Biomedical Engineering, Sri Sivasubramaniya Nadar College of Engineering, Kacheepuram , Tamil Nadu
11. Mr. M. Karthikeyan, Director, Nissi Engineering Solution Pvt. Ltd., No.14, Shanthi Street, Cholapuram, Ambattur, Chennai
12. File copy (E-32969)

4/3/21

(Dr. Anita Aggarwal)
Scientist-F

FILE NO. CRG/2020/003042

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 23-Mar-2021

ORDER

Subject: Financial Sanction of the research project titled **"Development of Multi-spectral (Thermal/Visible) Imaging System for Fever Screening in Crowded Places for Detection of Infectious Diseases"** under the guidance of Dr. Palani Thanaraj Krishnan, Electronics and Instrumentation, St Josephs College of Engineering , Old mamallapuram road, near sathyabhama campus, semmencherry, chennai, Kanchipuram, Tamil nadu-600119 and by Dr. Parvathavarthini B, Professor And Dean, CSE, St Josephs College Of Engineering and by Dr. Vijay Jeyakumar, Associate Professor, Biomedical Engineering, Sri Sivasubramaniya Nadar College Of Engineering - Release of Ist grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 1161629/- (Rs.** Eleven Lakh Sixty One Thousand Six Hundred and Twenty Nine **Only)** with break-up of **Rs. *514747*/- under Capital (Non-recurring) head** and **Rs.*646882*/- under General (Recurring) head** for a duration of 24 months. The items of expenditure for which the total allocation of **Rs. 1161629/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Digital Camera -> Thermal Camera	514747
A'	*Total (Non-Recurring)*	***514747***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	461280 70000 10000
2	Recurring - IV : (Overhead Charges)	105602
B'	*Total (Recurring)*	***646882***
C	**Total cost of the project (A' + B')**	**1161629**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 514747/-** (Rupees Five Lakh Fourteen Thousand Seven Hundred and Forty Seven only) under 'Grants for creation of capital assets' and **Rs. 328441/-** (Rupees Three Lakh Twenty Eight Thousand Four Hundred and Forty One only) under 'Grants-in-aid General' to **Principal, St Josephs College Of Engineering, Old Mamallapuram Road, Near Sathyabhama Campus, Semmencherry, Chennai** being the first installment of the grant for the year 2020-2021 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Core Research Grant. (PAC Electrical Electronics & Computer Engineering)

4. The Sanction has been issued to St Josephs College Of Engineering, Old Mamallapuram Road, Near Sathyabhama Campus, Semmencherry, Chennai with the approval of the competent authority under delegated powers on **23 March, 2021** and vide Diary No. **SERB/F/8770/2020-2021** dated **23 March, 2021**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

9. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

10. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

11. The release amount of **Rs. 843188/-** (Rupees Eight Lakh Forty Three Thousand One Hundred and Eighty Eight only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SJISTRDP
Account Name	St Josephs college of Engineering R and D Projects
Account Number	705270386
Bank Name & Branch	Indian Bank Indian Bank, JEC Branch, Semmancherry, Chennai 600119
IFSC/RTGS Code	IDIB000J037
Email id of A/C Holder	principal@stjosephs.ac.in
Email id of PI	palanithanaraj.k@gmail.com

12.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

13. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

14. The project File no. CRG/2020/003042 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

15. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

16. As this is the first grant being released for the project, no previous U/C is required.

17. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

18. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

19. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board.

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Palani Thanaraj Krishnan** **Electronics and Instrumentation** **St Josephs College of Engineering , Old mamallapuram road, near sathyabhama campus, semmencherry, chennai, Kanchipuram, Tamil nadu-600119** **Email: palanithanaraj.k@gmail.com** **Mobile: 919884735283** **Dr. Parvathavarthini B** **CSE** **St Josephs College Of Engineering** **Dr. Vijay Jeyakumar** **Biomedical Engineering** **Sri Sivasubramaniya Nadar College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Principal,** **St Josephs College Of Engineering, Old Mamallapuram Road, Near Sathyabhama Campus, Semmencherry, Chennai** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

FILE NO. SPG/2021/001684

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 30 June, 2021

ORDER

Subject: Financial Sanction of the research project titled **Augmented Reality based Surgical Support System** under the guidance of Dr. Kavitha Anandan, Biomedical Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. Pravin Kumar S, Associate Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. G SUDHIR, ASSISTANT PROFESSOR AND CONSULTANT ORTHO SPINE SURGEON, Orthopedic And Spine Surgery, Sri Ramachandra Medical College And Research Institute - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 2593932/- (Rs.** Twenty Five Lakh Ninety Three Thousand Nine Hundred and Thirty Two **Only)** with break-up of **Rs. *826000*/- under Capital (Non-recurring) head** and **Rs.*1767932*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 2593932/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Mannequins -> Hololens -> Optical Trackers Camera and Software	826000
A'	*Total (Non-Recurring)*	***826000***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1257120 275000 0
2	Recurring - IV : (Overhead Charges)	235812
B'	*Total (Recurring)*	***1767932***
C	**Total cost of the project (A' + B')**	**2593932**

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

3. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

4. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

5. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

6. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

7. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

8.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

9. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

10. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

11. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

12. The project File no. SPG/2021/001684 should be mentioned in all communications arising from the above project. The organization/institute/university should ensure that the technical support/financial assistance provided to them by SERB should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

13. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by SERB.

14. Sanction order for release of funds under a) Non-recurring and b) Recurring will be issued separately depending on the availability of funds. The project become operational from the day the first release of grant received by the implementing Institute.

Monika Agarwal

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Kavitha Anandan** **Biomedical Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: kavithaa@ssn.edu.in** **Mobile: 919677057669** **Dr. Pravin Kumar S** **Biomedical Engineering** **SSN College Of Engineering** **Dr. G SUDHIR** **Orthopedic And Spine Surgery** **Sri Ramachandra Medical College And Research Institute** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

Monika Agarwal

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

BP-2021-22-985

FILE NO. SPG/2021/001684-G

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 30 June, 2021

ORDER

Subject: Research project entitled **Augmented Reality based Surgical Support System** under the guidance of Dr. Kavitha Anandan, Biomedical Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. Pravin Kumar S, Associate Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. G SUDHIR, ASSISTANT PROFESSOR AND CONSULTANT ORTHO SPINE SURGEON, Orthopedic And Spine Surgery, Sri Ramachandra Medical College And Research Institute.

1. In continuation of SERB's sanction order No. SPG/2021/001684 dated 30 June, 2021, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*1767932/-*** under 'Grants-in-aid General' to SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110 being the grant for the financial year 2021-2022 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 30 June, 2021.

3. As this is the first grant being released under 'Grants-in-aid General' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under SERB POWER Grant (General).

5. The Sanction has been issued with the approval of the competent authority on **15 June, 2021** and vide Diary No. **SERB/F/898/2021-2022** dated **29 June, 2021**..

6. The release amount of **Rs. 588040/-** (Rupees Five Lakh Eighty Eight Thousand and Forty only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	Tamilnad Mercantile Bank Thiruvanmiyur BranchNo 3 Thiruvalluvar Salai ThiruvanmiyurChennai600041Tamilnadu
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	kavithaa@ssn.edu.in

Monika Agarwal

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Kavitha Anandan** **Biomedical Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: kavithaa@ssn.edu.in** **Mobile: 919677057669** **Dr. Pravin Kumar S** **Biomedical Engineering** **SSN College Of Engineering** **Dr. G SUDHIR** **Orthopedic And Spine Surgery** **Sri Ramachandra Medical College And Research Institute** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

Monika Agarwal

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

BP-2021-22-984

FILE NO. SPG/2021/001684-C

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 30 June, 2021

ORDER

Subject: Research project entitled **Augmented Reality based Surgical Support System** under the guidance of Dr. Kavitha Anandan, Biomedical Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. Pravin Kumar S, Associate Professor, Biomedical Engineering, SSN College Of Engineering and by Dr. G SUDHIR, ASSISTANT PROFESSOR AND CONSULTANT ORTHO SPINE SURGEON, Orthopedic And Spine Surgery, Sri Ramachandra Medical College And Research Institute.

1. In continuation of SERB's sanction order No. SPG/2021/001684 dated 30 June, 2021, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*826000/-*** under 'Grants-in-aid Capital' to SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110 being the grant for the financial year 2021-2022 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 30 June, 2021.

3. As this is the first grant being released under 'Grants-in-aid Capital' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under SERB POWER Grant (Capital).

5. The Sanction has been issued with the approval of the competent authority on **15 June, 2021** and vide Diary No. **SERB/F/897/2021-2022** dated **29 June, 2021**.

6. The release amount of **Rs. 826000/-** (Rupees Eight Lakh Twenty Six Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	Tamilnad Mercantile Bank Thiruvanmiyur BranchNo 3 Thiruvalluvar Salai ThiruvanmiyurChennai600041Tamilnadu
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	kavithaa@ssn.edu.in

Monika Agarwal

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Kavitha Anandan** **Biomedical Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: kavithaa@ssn.edu.in** **Mobile: 919677057669** **Dr. Pravin Kumar S** **Biomedical Engineering** **SSN College Of Engineering** **Dr. G SUDHIR** **Orthopedic And Spine Surgery** **Sri Ramachandra Medical College And Research Institute** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

Monika Agarwal

(Dr. Monika Agarwal)
Scientist F
monika@serb.gov.in

डॉ. बी.वेंकटरामन HFISNT
प्रतिष्ठित वैज्ञानिक
निदेशक, *संरक्षा, गुणवत्ता एवं संसाधन प्रबंधन समूह*
वरिष्ठ प्रोफ़ेसर, होमी भाभा राष्ट्रीय संस्थान

Dr. B. VENKATRAMAN HFISNT
Distinguished Scientist
Director, Safety Quality & Resource Management Group
Senior Professor, Homi Bhabha National Institute

सत्यमेव जयते

भारत सरकार
परमाणु ऊर्जा विभाग
इंदिरा गाँधी परमाणु अनुसंधान केन्द्र
कल्पाक्कम 603 102, तमिल नाडु, भारत
GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
INDIRA GANDHI CENTRE FOR ATOMIC RESEARCH
KALPAKKAM – 603102, TAMIL NADU, INDIA

Ref: IGC/SQRMG/RESG/EAD/CP-01/2021

August 28, 2021

Dear Prof. Rajesh,

Sub: Approval of project proposal entitled "Dose assessment of Partial Body exposure using Premature Chromosome Condensation (PCC) assay for mass casualty accidents"

It is informed that your project proposal titled "Dose assessment of Partial Body exposure using Premature Chromosome Condensation (PCC) assay for mass casualty accidents" has been accepted for and on behalf of The President of India for an amount of Rs. 24,34,000/- subjected to terms and conditions specified and agreed between the Principal Investigators from SSN Institutions (SSN I), Kalavakkam and Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam as specified below:

Terms & conditions:

1. Scope of the work is as mentioned in the project proposal.
2. The project shall be completed within a period of 24 months.
3. Any capital items to be procured under this project at SSN I have to be returned to SQRMG, IGCAR after the project is completed.
4. Progress of work will be reviewed by a committee consisting of senior members from IGCAR and SSN I as well as a few eminent scientists from outside IGCAR, if necessary. Payment will be made only after their recommendations.
5. Payment : Payment to The Principal, Sri Sivasubramaniya Nadar (SSN) College of Engineering, Kalavakkam will be released by IGCAR as per the milestones given below:
    a) Acceptance of the project - First month release of 1st year money as advance payment – Rs. 12,57,000/- .
    b) After submission of 1st year report and based on recommendation of review committee release of 2nd year money – Rs.11,77,000 /- .
    c) Data generated in this project should not be published in Symposia/Conferences etc., or as Reports/Journal publications etc without prior permission from IGCAR.

Kindly acknowledge receipt of this order and give your acceptance duly signed at the earliest.

28/8/2021

(B.VENKATRAMAN)

डॉ. बी.वेंकटरामन/Dr. B. VENKATRAMAN
निदेशक/Director
संरक्षा, गुणवत्ता एवं संसाधन प्रबंधन समूह
Safety, Quality & Resource Management Group
इंगांपअकें, पऊवि, कल्पाक्कम 603 102
IGCAR, DAE, Kalpakkam 603 102.

Dr. N.P. Rajesh
Head, Centre for Radiation Environmental Science and Technology
SSN Institutions
Kalavakkam-603 110

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING

(An Autonomous Institution)
Approved by AICTE, New Delhi and Affiliated to Anna University
Rajiv Gandhi Salai (OMR), Kalavakkam – 603 110, TN, India.
Tel: +91 44 27469700
www.ssn.edu.in

Administrative Office: New No.19, Old No.8, 3rd Main Road, Kasthuribai Nagar, Adyar, Chennai - 600 020.
Tel: +91 44 24411656, 24416474

ENDORSEMENT FROM THE HEAD OF INSTITUTION

Project Title : Dose Assessment of Partial body Exposure using Premature Chromosome Condensation assay for Mass Casualty Accidents

1. Certified that the Institute welcomes participation of Dr. N.P. Rajesh and Dr. R. Subashini as the Principal Investigators for the project and that in the unforeseen event of discontinuance by any of the Investigators, the other Investigator will assume the responsibility of the fruitful completion of the project (with due information to IGCAR).

2. Certified that the equipment and other basic facilities as enumerated and such other administrative facilities as per terms and conditions of the grant will be extended to the investigator(s) throughout the duration of the project.

3. Institute assumes to undertake the financial and other management responsibilities of the project.

Date: 15.12.2020

Place: Kalavakkam - 603110

Name and Signature of Head of Institution

Dr. V. E. ANNAMALAI
Principal
Sri Sivasubramaniya Nadar
College of Engineering
Rajiv Gandhi Salai (OMR)
Kalavakkam - 603 110.

SSN COLLEGE OF ENGINEERING ★ KALAVAKKAM ★

FILE NO. CRG/2020/004974

SCIENCE & ENGINEERING RESEARCH BOARD

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 03-Aug-2021

ORDER

Subject: Financial Sanction of the research project titled **"Enhancing Brain Cognition through Neuro-Feedback model in Indian Children with Learning Disability"** under the guidance of Dr. Geethanjali Balasubramaniam, Biomedical Engineering, Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110 and by Dr. Bikesh Kumar Singh, Assistant Professor, Biomedical Engineering, National Institute Of Technology, Raipur and by Dr. Mahesh Veezhinathan, Associate Professor, Biomedical Engineering, SSN College Of Engineering - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB**) is hereby accorded to the above mentioned project at a total cost of **Rs. 4403080/- (Rs.** Rupees Forty Four Lakh Three Thousand and Eighty only **Only)** with break-up of **Rs. *699200*/- under Capital (Non-recurring) head** and **Rs.*3703880*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 4403080/-** has been approved are given below:

The following budget may be considered for **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Sensors -> Procomp Infinti with Biograph software system	699200
A'	*Total (Non-Recurring)*	***699200***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1443360 325000 10000
2	Recurring - IV : (Overhead Charges)	247756
B'	*Total (Recurring)*	***2026116***
C	**Total cost of the project (A' + B')**	**2725316**

The following budget may be considered for **National Institute Of Technology, Raipur, NIT Raipur,G.E. Road, Raipur**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment	0
A'	*Total (Non-Recurring)*	***0***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel) Recurring - III : Scientific Social Responsibility	1350240 175000 0
2	Recurring - IV : (Overhead Charges)	152524
B'	*Total (Recurring)*	***1677764***
C	**Total cost of the project (A' + B')**	**1677764**

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

3. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

4. While providing operational flexibility among various subheads under head Recurring-A, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

5. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

6. The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

7. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

8. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

9. The sanctioned equipments and consumables would be produced as per GFR 2005 and its disposal would be done with prior approval of SERB.

10. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Geethanjali Balasubramaniam** **Biomedical Engineering** **Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110** **Email: geethanjalib@ssn.edu.in** **Mobile: 919840638572** **Dr. Bikesh Kumar Singh** **Biomedical Engineering** **National Institute Of Technology, Raipur** **Dr. Mahesh Veezhinathan** **Biomedical Engineering** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam** **Director, NIT Raipur,** **National Institute Of Technology, Raipur, NIT Raipur,G.E. Road, Raipur** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

BP-2021-22-1511

FILE NO. CRG/2020/004974-G

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 03 August, 2021

ORDER

Subject: Research project entitled **Enhancing Brain Cognition through Neuro-Feedback model in Indian Children with Learning Disability** under the guidance of Dr. Geethanjali Balasubramaniam, Biomedical Engineering, Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110 and by Dr. Bikesh Kumar Singh, Assistant Professor, Biomedical Engineering, National Institute Of Technology, Raipur and by Dr. Mahesh Veezhinathan, Associate Professor, Biomedical Engineering, SSN College Of Engineering.

1. In continuation of SERB's sanction order No. CRG/2020/004974 dated 03 August, 2021, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*720000/-*** under 'Grants-in-aid General' to Sri Sivasubramaniya Nadar College Of Engineering , Old Mahabalipuram Road, Kalavakkam, Chennai, Tamil Nadu-603110 being the grant for the financial year 2021-2022 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 03 August, 2021.

3. As this is the first grant being released under 'Grants-in-aid General' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under Core Research Grant **(PAC Electrical Electronics & Computer Engineering)** (General) .

5. The Sanction has been issued with the approval of the competent authority on **07 July, 2021** and vide Diary No. **SERB/F/1219/2021-2022** dated **09 July, 2021**..

6. The release amount of **Rs. 720000/-** (Rupees Seven Lakh Twenty Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL,SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD THIRUVANMIYUR BRANCH, NO.3, THIRUVALLUVAR SALAI, THIRUVANMIYUR, CHENNAI 600041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	geethanjalib@ssn.edu.in

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Geethanjali Balasubramaniam** **Biomedical Engineering** **Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110** **Email: geethanjalib@ssn.edu.in** **Mobile: 919840638572** **Dr. Bikesh Kumar Singh** **Biomedical Engineering** **National Institute Of Technology, Raipur** **Dr. Mahesh Veezhinathan** **Biomedical Engineering** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

BP-2021-22-2195

I-C

FILE NO. CRG/2020/004974-C

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 03 August, 2021

ORDER

Subject: Research project entitled **Enhancing Brain Cognition through Neuro-Feedback model in Indian Children with Learning Disability** under the guidance of Dr. Geethanjali Balasubramaniam, Biomedical Engineering, Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110 and by Dr. Bikesh Kumar Singh, Assistant Professor, Biomedical Engineering, National Institute Of Technology, Raipur and by Dr. Mahesh Veezhinathan, Associate Professor, Biomedical Engineering, SSN College Of Engineering.

1. In continuation of SERB's sanction order No. CRG/2020/004974 dated 03 August, 2021, sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.*699200/-*** under 'Grants-in-aid Capital' to Sri Sivasubramaniya Nadar College Of Engineering , Old Mahabalipuram Road, Kalavakkam, Chennai, Tamil Nadu-603110 being the grant for the financial year 2021-2022 for implementation of the above said project.

2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 03 August, 2021.

3. As this is the first grant being released under 'Grants-in-aid Capital' for the project, no previous U/C is required.

4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under Core Research Grant **(PAC Electrical Electronics & Computer Engineering)** (Capital).

5. The Sanction has been issued with the approval of the competent authority on **07 July, 2021** and vide Diary No. **SERB/F/1218/2021-2022** dated **09 July, 2021**.

6. The release amount of **Rs. 699200/-** (Rupees Six Lakh Ninety Nine Thousand Two Hundred only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL,SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
Account Number	158100710400509
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD THIRUVANMIYUR BRANCH, NO.3, THIRUVALLUVAR SALAI, THIRUVANMIYUR, CHENNAI 600041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	geethanjalib@ssn.edu.in

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Geethanjali Balasubramaniam** **Biomedical Engineering** **Sri Sivasubramaniya Nadar College of Engineering , Old mahabalipuram road, kalavakkam, Chennai, Tamil nadu-603110** **Email: geethanjalib@ssn.edu.in** **Mobile: 919840638572** **Dr. Bikesh Kumar Singh** **Biomedical Engineering** **National Institute Of Technology, Raipur** **Dr. Mahesh Veezhinathan** **Biomedical Engineering** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)

5.	**PRINCIPAL,** **Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

BP-2021-22-2196

FILE NO. CRG/2020/004974 II

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 03 August, 2021

ORDER

Subject: Financial Sanction of the research project titled **"Enhancing Brain Cognition through Neuro-Feedback model in Indian Children with Learning Disability"** under the guidance of Dr. Bikesh Kumar Singh, Biomedical Engineering, National Institute of Technology, Raipur , NIT Raipur,G.E. Road, Raipur and by Dr. Bikesh Kumar Singh, Assistant Professor, Biomedical Engineering, National Institute Of Technology, Raipur and by Dr. Mahesh Veezhinathan, Associate Professor, Biomedical Engineering, SSN College Of Engineering - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 1677764/- (Rs.** Sixteen Lakh Seventy Seven Thousand Seven Hundred and Sixty Four **Only)** with break-up of **Rs. *0*/- under Capital (Non-recurring) head** and **Rs.*1677764*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 1677764/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment	0
A'	*Total (Non-Recurring)*	***0***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel) Recurring - III : Scientific Social Responsibility	1350240 175000 0
2	Recurring - IV : (Overhead Charges)	152524
B'	*Total (Recurring)*	***1677764***
C	**Total cost of the project (A' + B')**	**1677764**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 560080/-** (Rupees Five Lakh Sixty Thousand and Eighty only) under 'Grants-in-aid General' to **Director, NIT Raipur, National Institute Of Technology, Raipur, NIT Raipur,G.E. Road, Raipur** being the first installment of the grant for the year 2021-2022 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Core Research Grant. (PAC Electrical Electronics & Computer Engineering)

4. The Sanction has been issued to National Institute Of Technology, Raipur, NIT Raipur,G.E. Road, Raipur with the approval of the competent authority under delegated powers on **07 July, 2021** and vide Diary No. **SERB/F/1220/2021-2022** dated **09 July, 2021**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

9. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

10. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

11. The release amount of **Rs. 560080/-** (Rupees Five Lakh Sixty Thousand and Eighty only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	NIT13
Account Name	National Institute of Technology Raipur
Account Number	38315253625
Bank Name & Branch	State Bank of India NIT Raipur Branch, NIT Raipur Campus, G.E Road
IFSC/RTGS Code	SBIN0002852
Email id of A/C Holder	director@nitrr.ac.in
Email id of PI	geethanjalib@ssn.edu.in

12.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

13. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

14. The project File no. CRG/2020/004974 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

15. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

16. As this is the first grant being released for the project, no previous U/C is required.

17. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

18. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

19. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board.

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Bikesh Kumar Singh** **Biomedical Engineering** **National Institute of Technology, Raipur , NIT Raipur,G.E. Road, Raipur** **Email: bsingh.bme@nitrr.ac.in** **Mobile: 919826469522** **Dr. Bikesh Kumar Singh** **Biomedical Engineering** **National Institute Of Technology, Raipur** **Dr. Mahesh Veezhinathan** **Biomedical Engineering** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Director, NIT Raipur,** **National Institute Of Technology, Raipur, NIT Raipur,G.E. Road, Raipur** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Anima Johari)
Scientist D
anima.johari@serb.gov.in

E-34176

No. DST/INT/JSPS/P-328/2021
Govt. of India
Ministry of Science and Technology
Department of Science and Technology
International Cooperation Division

Technology Bhawan, New Mehrauli Road
New Delhi – 110016
Dated 24.08.2021

Subject: Implementation of Indo-Japanese Joint Project entitled: "Development of Growth Process of High Quality Multicrystalline Silicon by Experiments, Computational Simulation and Machine Learning" coordinated by Prof. P. Ramasamy with the Japanese partner Prof. Noritaka Usami – regarding.

The undersigned is directed to refer to this Department's Sanction Order of even number dated 28.07.2021(copy enclosed) on the above subject and to say that Dr M. Srinivasan, Research Scientist, SSN Research Centre, Sri Sivasubramaniya Nadar College of Engineering, Chennai, Tamil Nadu will act as co-PI for the above Project.

Accordingly, the project will be managed by Prof. P. Ramasamy as PI and Dr. M. Srinivasan as Co-PI at SSN Research Centre, Sri Sivasubramaniya Nadar College of Engineering, Chennai, Tamil Nadu for the project.

All other terms and conditions of this Department's Order dated 28.07.2021 shall remain unchanged.

U. Tirkey
24/8/2021
(Ujjwala T.Tirkey)
Scientist-G/DST

To

The Pay & Accounts Officer
Ministry of Science and Technology
Department of Science and Technology
New Delhi.

Copy to:

1. Registrar, SSN Research Centre, Sri Sivasubramaniya Nadar College of Engineering, Chennai-603110, Tamil Nadu
2. Prof. P. Ramasamy , Dean, Department of physics SSN Research Centre, Sri Sivasubramaniya Nadar College of Engineering, Chennai-603110, Tamil Nadu
3. Dr. M. Srinivasan, Research SSN Research Centre, Sri Sivasubramaniya Nadar College of Engineering, Chennai-603110, Tamil Nadu
4. Cash Section/IFD, DST
5. Sanction Folder/Project File

E-34176

No. DST/INT/JSPS/P- 328/2021

Government of India
Ministry of Science and Technology
Department of Science & Technology
(International Cooperation Division)

Technology Bhavan,
New Mehraulli Road
New Delhi-110016
Date: 28.07.2021

ORDER

Subject: Implementation of Indo-Japanese Joint project entitled: "**Development of Growth Process of High Quality Multicrystalline Silicon by Experiments, Computational Simulation and Machine Learning**" coordinated **Prof. P. Ramasamy**with the **Japanese** partner **Prof. NoritakaUsami**- regarding.

Sanction of the President is hereby accorded for incurring an expenditure not exceeding **Rs. 5,24,000/- (Rupees Five Lakhs Twenty Four Thousand)** for implementation of Indo-Japanese project entitled, "**Development of Growth Process of High Quality Multicrystalline Silicon by Experiments, Computational Simulation and Machine Learning**" coordinated by **Prof. P. Ramasamy, Dean, Department of Physics, SSN Research Center, Sri Sivasubramaniya Nadar College of Engineering, Chennai-603110, Tamil Nadu** in collaboration with **Prof. Noritaka Usami,** Graduate School of Engineering, Nagoya University, Furocho, Nagoya, Japan for a total duration of **2 years** from the date of issue of the sanction order.

2. As per the terms and conditions, agreed by both side, under the project the sending side will bear the cost related to the International air travel, medical insurance and visa charges whereas the receiving side shall bear the cost of accommodation, hospitality and local travels of the visiting scientist. The break-up of approved expenditure is as indicated below:

Items of Expenditure	**1st Year**		**2nd Year**	**Total**
	I st Six Months	2nd Six Months		
Visit from India to Japan:				
Number of Visits and duration for each visit	Nil	2 visits (15 days each)	2 visits (15 days each)	4 visits
International to & fro Airfare by economy class including airport taxes @Rs. 80,000 x 2(as per actuals)	Nil	1,60,000/-	1,60,000/-	3,20,000/-
Related local travel in India from city parent institute to the nearest International Airport	Nil	2,000/-	2,000-	4,000/-
Visa Fee@ Rs. 2,000/- each	Nil	4,000/-	4,000/-	8,000/-

Overseas medical insurance@ Rs. 3,000/- each	Nil	6,000/-	6,000/-	12,000/-
Visits from Japan to India:				
Number of Visits and duration for each visit	Nil	2 visits (15 days each)	2 visits (15 days each)	4 visits
Accommodation in Guest House	Nil	30,000-	30,000-	60,000/-
Per diem @ Rs. 1000/- per day	Nil	30,000/-	30,000/-	60,000/-
Local travel in India between the host institute and the nearest International Air Port	Nil	5,000/-	5,000/-	10,000/-
Contingency		25,000/-	25,000/-	50,000/-
Total		**2,62,000/-**	**2,62,000/-**	**5,24,000/-**

3. As is indicated in the above table, as of now, no release is being made. Sanction of the President is hereby accorded for release of 1st instalment (first six months) amounting to nil to the grantee Institute. **The release will be made after appraisal and approval of Umbrella Scheme (Research & Development) as directed by Department of Expenditure's OM dated 9.2.2021**

Condition for placing of grant amount.

4 The institute will maintain separate audited account for the project and the amount of grant will be kept in a bank account earning interest. For Grants released during FY 2017-18 and onwards, all interest and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non Tax Receipt Portal (NTRP), i.e. www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/ closure of project accounts.

Conditions for submission of SE/UC and Progress report

5 (a) the grantee organisation will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year duly reflecting the interest earned / accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

(b) While submitting Utilisation Certificate/Statement of Expenditure, the organisation has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

(c) a transparent procurement procedure in line with the Provisions of General Financial Rules 2017 will be followed by the Institute/Organisation under the appropriate rules of the grantee organisation while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organisation immediately on receipt of the grant.

6 The grantee organisation will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final instalment will be

released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

7(a) In the event grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

(b) **It is Mandatory for the grantee organisation to implement EAT module of PFMS for monitoring of expenditure and release of further grant.**

Conditions of Assets (if any):

8 (a) DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

(b) The equipment/instrument shall have to be purchased within twelve months from the date of release of the capital grant. Fresh permission shall have to be sought from DST, in the event, the Institute fails to purchase the equipment/instrument within the prescribed period of twelve months from the date of release of sanctioned amount.

(c) Goods (consumables/equipment) available in GeM portal are to be procured mandatorily online through Gem only as per the provisions of Rule 149 of GFR.

Conditions for International Visits:

9 All project related visits to be undertaken by the Scientists from either side in connection with the implementation of the project shall require prior approval from this Department separately on a case to case basis before any expenditure is incurred in this regard.

10. As per Ministry of Finance, Department of Expenditure vide Office Memorandum No.19024/22/2017-E.IV dated 19th July, 2017, it has been decided that in all cases of air travel, both domestic and international, where the Government of India bears the cost of air passage, the officials concerned may travel only by Air India and air ticket, may be purchased directly from airlines (viz. Air India) at booking counters/website of airlines or from 3 authorized travel agents namely M/s. BalmerLawrie& Company Limited, M/s. Ashok Travels & Tours and IRCTC only. For travel to stations not connected by Air India, the officials may travel by Air India to the hub/point closest to their eventual destination, beyond which they may utilize the services of another airline which should also preferable be an alliance partner of Air India.

Other Conditions:

11. The account of the grantee organisation shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organisation is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

12 Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organisation in bold letters in all publications / media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

13 In case the scheme provides for payment of honorarium / remuneration / fellowship / scholarship to the PI, a para may suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/ salary/fellowship from any other project either supported by DST or by any other funding agency.

U. T. Arey

14 **Failure to comply with the terms and conditions of the sanction order will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.**

15 The expenditure involved is debitable to Demand No.88, Department of Science & Technology for the year 2021-22:

3425	:	Other Scientific Research (Major Head)
60	:	Others
60.798	:	International Cooperation (Minor Head)
14	:	Research and Development
14.00.31	:	Grants-in-aid General for the year 2021-22 (Plan) (**Previous**: ICD-3425.60.798.12.00.31)

16 This sanction order being 1st instalment for implementation of this project, no SE/UC is due from the grantee institution against this project.

17 This issues with the concurrence of IFD vide their concurrence Dy. No. **C/919/IFD 2021-22 dated 02.07.2021.**

18 Continuation of the Project beyond 31st March, 2021 will be subject to appraisal and approval of the continuation of the Umbrella Scheme "Research and Development" under which the Project is funded.

19 As per Rule 234 of GFR 2017, this sanction has been entered at S. No. 65 in the register of grants maintained in the Division.

U.T.key

(Ujjwala T. Tirkey)
Scientist 'G'

To,

The Pay & Accounts Officer,
Department of Science & Technology,
New Delhi-110016

Copy to:

1. Office of the Principal Director of Audit, AGCR Bldg., IP Estate, New Delhi-110002
2. Cash Section (3 copies), DST
3. I.F. Division/Accounts Section, DST
4. Sanction Folder
5. Project File.
6. **Registrar, SSN Research Center, Sri SivasubramaniyaNadar College of Engineering, Chennai-603110, Tamil Nadu**
7. **Prof. P. Ramasamy, Dean, Department of Physics, SSN Research Center, Sri SivasubramaniyaNadar College of Engineering, Chennai-603110, Tamil Nadu**

U.T.key

(Ujjwala T. Tirkey)
Scientist 'G'

Web Site : http://ifgtb.icfre.gov.in
Fax : 91 - 422-2430549

Phone : 0422 -2484100
Email : dir_ifgtb@icfre.org

वन आनुवंशिकी एवं वृक्ष प्रजनन संस्थान

(भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद)

(पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार का एक स्वायत्त निकाय)

पी.बी.नं.१०६१, कोयम्बत्तूर -६४१००२, तमिलनाडु, भारत

INSTITUTE OF FOREST GENETICS & TREE BREEDING

(INDIAN COUNCIL OF FORESTRY RESEARCH & EDUCATION)

(An autonomous body of Ministry of Environment Forest & Climate Change, Govt. of India)

P.O.No.1061, Coimbatore – 641002, Tamil Nadu, India

IFGTB/FECC/AICRP-IAPS/

10th February 2020

To

Dr. R.Jayaparvathy, M.E., Ph.D,
Professor,
Department of Electronics and Communication Engineering,
SSN College of Engineering,
Old Mahabalipuram Road,
SSN Nagar, Kalavakkam- 603 110 (off. Chennai).

Subject: Approval of Project Proposal AICRP-7 Reg.
Ref: ICFRE No.75/2019/ICFRE(R)/RP/SFRESPE(CAMPA)/AICRP-7/30 dated 10/01/2020
ICFRE No.75/2019/ICFRE(R)/RP/SFRESPE(CAMPA)/AICRP-7/107 dated 04/02/2020

Dear Dr. R.Jayaparvathy,

As you are aware that the project component submitted by you (In pursuance to the telephonic discussion) was included as a part of All India Coordinated Research Project (AICRP – 7) titled "Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key Invasive Alien Plant Species in different regions of the country". The AICRP - 7 was submitted by Indian Council of Forestry Research & Education (ICFRE), Dehradun for funding as part of a scheme titled "Strengthening Forestry Research for Ecological Sustainability and Productivity Enhancement" to Compensatory Afforestation Fund Management and Planning Authority (CAMPA) of Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India.

The CAMPA has approved the proposals for funding and the details of budget approved for various partner institutes/organizations of AICRP – 7 are attached herewith for your reference. In this connection, it is requested that a separate bank account need to be opened and a Memorandum of Agreement (MoA) needs to be executed at the earliest so that funds can be transferred to your account. A draft MoA is attached herewith for further necessary action please.

With regards,

Yours faithfully

Dr A. Rajasekaran
National Project Coordinator

No.75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/107 Dated: 04th February, 2020

Directorate of Research
Indian Council of Forestry Research and Education (ICFRE)
Dehradun

REVISED OFFICE ORDER (I)

Sub: Partial modification of Office order No.75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/30, dated 10/01/2020

1. In partial modification of this office order No. 75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/30, dated 10/01/2020 on "Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key Invasive Alien Plant Species in different regions of the country" vide which sanction was issued, for implementation of the project encompassing the budget of individual institutes and the total outlay of the project. The competent authority has now approved 10% institutional charges to Non-ICFRE institutes (SSN College of Engineering, Chennai, Bharathidasan University, Tamil Nadu, ICAR - Directorate of Weed Research (DWR), Jabalpur) for their component. The modified outlay including institutional charges (10%) for Non-ICFRE institutes is detailed below. The ICFRE budget component is accordingly modified. Necessary changes in the total project outlay are incorporated. Total budget outlay however remains same.

1.1 SSN College of Engineering, Chennai

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Total of SSNC component	9.31	3.92	3.66	4.16	4.66	2.61	28.32
10% institutional charges	0.931	0.392	0.366	0.416	0.466	0.261	2.832
Grand Total	10.241	4.312	4.026	4.576	5.126	2.871	31.152

The total outlay of SSN college will now be Rs. 31.152 lakhs instead of Rs. 28.32 lakhs

1.2 Bharathidasan University (BU), Tamil Nadu

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. in lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Total of BU component	1.39	4.17	3.91	3.41	3.16	2.28	18.32
10% institutional charges	0.139	0.417	0.391	0.341	0.316	0.228	1.832
Grand Total	1.529	4.587	4.301	3.751	3.476	2.508	20.152

The total outlay of Bharathidasan University will now be Rs. 20.152 lakhs instead of Rs. 18.32 lakhs

1.3 ICAR - Directorate of Weed Research (DWR), Jabalpur

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Total of ICAR- DWR component	2.20	3.36	3.11	3.86	3.61	2.41	18.55
10% institutional charges	0.220	0.336	0.311	0.386	0.361	0.241	1.855
Grand Total	2.42	3.696	3.421	4.246	3.971	2.651	20.405

The total outlay of ICAR-DWR will now be Rs. 20.405 lakhs instead of Rs. 18.55 lakhs

1.4 ICFRE, Dehradun Component of Budget

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Institutional charges (10%) (ICFRE Institutes)	4.070	6.095	6.282	5.917	5.357	3.760	31.48
Monitoring cost (5%)	2.68	3.62	3.67	3.53	3.25	2.25	19.00
Overall project escalation cost (5%)	2.68	3.62	3.67	3.53	3.25	2.25	19.00
Total	9.43	13.335	13.622	12.977	11.857	8.26	69.48

The total ICFRE component of budget will now be Rs. 69.48 Lakhs instead of Rs. 76.00 lakhs. ICFRE institutional charges will be now Rs.31.48 lakhs instead of Rs.38.00 lakhs

1.5 Total project outlay

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	12.26	36.78	40.14	40.14	40.44	24.52	194.28
M&S (Consumables)	2.33	6.00	6.25	5.50	6.60	4.67	31.35
Travel	4.35	14.55	14.35	11.75	8.75	8.7	62.45
Field Research Expenses (FRE)	3.48	11.95	10.5	10.5	7.75	6.97	51.15
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	31.15	3.15	2.25	2.70	1.50	0.00	40.75
Total	53.58	72.43	73.49	70.59	65.04	44.85	379.98
Institutional charges (10%) (ICFRE institutes)	4.070	6.095	6.282	5.917	5.357	3.760	31.48

Institutional charges (10%)** (Non- ICFRE Institutes)	1.29	1.145	1.068	1.143	1.143	0.73	6.52
Monitoring cost (5%)	2.68	3.62	3.67	3.53	3.25	2.25	19.00
Overall project escalation cost (5%)	2.68	3.62	3.67	3.53	3.25	2.25	19.00
Grand total	64.30	86.91	88.18	84.71	78.04	53.84	455.98

**(SSN, Bharathidasan University, ICAR-DWR)

This order is to be conjointly read with order No. 75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/30, dated 10/01/2020. The other terms and conditions of expenditure remain unchanged.

DDG (Research)
Directorate of Research, ICFRE, Dehradun

Copy for information and necessary action:

1. Deputy Director General (Administration), ICFRE
2. Directors of the concerned ICFRE Institutes (IFGTB, Coimbatore; FRI, Dehradun; RFRI, Jorhat; HFRI, Shimla; IFP, Ranchi;IWST, Bengaluru; AFRI, Jodhpur; TFRI, Jabalpur)
3. National Project Coordinator, IFGTB, Coimbatore
4. PIs of Non-ICFRE Institutes (SSN College of Engineering, Chennai; Bharathidasan University, Tamil Nadu; ICAR - Directorate of Weed Research (DWR), Jabalpurthat the funds shall be released soon after signing of MoA
5. DDG (Research), ICFRE
6. ADG (M&E), ICFRE
7. DDO/ Accounts Officer, ICFRE
8. Master file, project file/Review Committee file/PEG file of the project AICRP- 7
9. Sr. P.S. to DG, ICFRE for kind information of DG, ICFRE

No.75/2019/ICFRE (R)/RP/SFRESPE (CAMPA)/AICRP-7/Main File/ 30 Dated: 10-01-2020

Directorate of Research
Indian Council of Forestry Research and Education (ICFRE)
Dehradun

OFFICE ORDER

Sub: All India Coordinated Research Project (AICRP)-7 on "Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key invasive Alien Plant Species in different regions of the country" – approval and grant for participating Institutes/organizations

1. Governing Body of National Authority (CAMPA) in its 1st meeting held on 15th November 2019 has approved the scheme titled **"Strengthening Forestry Research for Ecological sustainability and Productivity Enhancement"** for funding (OM No. 13-30/2019 – NA dated 6th December 2019). Subsequently, Government of India, Ministry of Environment, Forest and Climate Change has approved the scheme vide No. 13-28/2018-CAMPA dt. 02-01-2020. As a component of the Scheme, thirty-one All India Coordinated Research Projects (AICRPs) have been approved for funding.
2. XVIII Research Policy Committee (RPC) 2018 and XIX RPC 2019 has recommended above mentioned 31 AICRPs for approval.
3. Now, ICFRE hereby approves the AICRP titled **"Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key Invasive Alien Plant Species in different regions of the country"** for implementation under the AICRP component of the scheme at a total cost of **Rs. 455.98 lakhs** for **a duration of 5 years (60 months)** as per the budget details provided in this order.
4. The institutional partners in this research project and their designated National Project Coordinator (NPC), Principal Investigators (PI) and Co-PIs are as follows:

Sl. No.	Name of the Institute/ Non-ICFRE Organization	ICFRE/ Non-ICFRE organization	Members of the project team	NPC/ PI/ Co-PI
1	Institute of Forest Genetics and Tree Breeding, Coimbatore **(lead Institute)**	ICFRE	Dr. A. Rajasekaran	NPC & PI
			Dr. N. Senthilkumar	Co-PI
			Dr. A. Vijayaraghavan	Co-PI
			Dr A.C.Suryaprabha	Co-PI
2	Forest Research Institute, Dehradun	ICFRE	Mr. Manoj Kumar	PI
			Dr V.P. Panwar	Co-PI
			Dr. Hukum Singh	Co-PI
3	Rain Forest Research Institute, Jorhat	ICFRE	Dr. Rajib Kumar Borah	Co-PI
			Dr. Dhruba Joyti Das	PI
			Shri Dinesh Kumar Meena	Co-PI
			Shri Ajay Kumar	Co-PI
			Dr. Nizara Borthakur	Co-PI
4	Himalayan Forest Research Institute, Shimla	ICFRE	Dr. Ranjeet Kumar	PI
5	Institute of Forest Productivity, Ranchi	ICFRE	Dr. Sharad Tiwari	PI

6	Institute of Wood Science and Technology, Bengaluru	ICFRE	Mr. Ritesh D Ram	PI
7	Arid Forest Research Institute, Jodhpur	ICFRE	Dr. Seema Kumar	PI
8	Tropical Forest Research Institute, Jabalpur	ICFRE	Dr S. Saravanan	PI
			Dr. S. C. Biswas	Co-PI
9	SSN College of Engineering, Chennai	Non- ICFRE	Dr R.Jayaparvathy	PI
10	Bharathidasan University, Tamil Nadu	Non- ICFRE	Dr R. Mohanraj	PI
			Dr. M. Ravichandran	Co-PI
11	ICAR - Directorate of Weed Research (DWR), Jabalpur	Non- ICFRE	Dr Sushil Kumar	PI

5. A Review Committee (RC) of the project is hereby constituted comprising of the National Project Coordinator (NPC) and Principal Investigators (PIs) of each of the institutional partners as in para 4 above. The Review Committee will be chaired and convened by National Project Coordinator. In the absence of the chairperson of the project, the members present in the meeting shall elect one of the members (PI) to chair the meeting. The RC will review the progress of the project at least once in 2 months. The progress report approved by the chairperson of the Review Committee shall be submitted to the Chairperson of Project Expert Group (Deputy Director General (Research), ICFRE) and Directors of all concerned ICFRE institutes within one week of the meeting held.

6. A Project Expert Group (PEG) will be constituted by the competent authority of ICFRE to monitor the project for achieving the defined project objectives within the time and costs projected. The Project Expert Group will meet at least once in six months. The meetings of the Project Expert Group will be facilitated and convened by ADG (Monitoring and Evaluation), Directorate of Research of the ICFRE. The Project Expert Group is empowered to recommend to ICFRE to revise the project including its objectives within the approved budget and time.

7. The meetings of the Review Committee and PEG may be held through video conferencing, whenever feasible.

8. Out of the total budget allocation of **Rs. 455.98 lakhs** for a project **duration of 5 years (60 months)**, the Institute wise budget as detailed below is sanctioned as grant-in-aid:

8.1 Institute of Forest Genetics and Tree Breeding, Coimbatore

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	2.72	8.16	8.64	8.64	8.94	5.44	42.54
M&S (Consumables)	0.25	0.75	0.75	0.50	2.10	0.50	4.85
Travel	0.67	2.00	2.60	1.50	1.00	1.33	9.10
Field Research Expenses (FRE)	0.67	2.00	2.00	0.75	0.50	1.33	7.25
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	3.40	2.40	1.50	2.20	1.00	0.00	10.50
Total	7.70	15.31	15.49	13.59	13.54	8.61	74.24

8.2 Forest Research Institute, Dehradun

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.28	3.84	4.32	4.32	4.32	2.56	20.64
M&S (Consumables)	0.17	0.50	0.50	0.50	1.00	0.33	3.00
Travel	0.33	2.50	2.50	1.00	1.00	0.67	8.00
Field Research Expenses (FRE)	0.33	1.00	1.00	1.00	1.00	0.67	5.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	2.50	0.50	0.50	0.50	0.50	0.00	4.50
Total	4.61	8.34	8.82	7.32	7.82	4.23	41.14

8.3 Rain Forest Research Institute, Jorhat

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.28	3.84	4.32	4.32	4.32	2.56	20.64
M&S (Consumables)	0.33	1.00	1.00	1.00	0.50	0.67	4.50
Travel	0.67	2.50	2.50	2.50	1.50	1.33	11.00
Field Research Expenses (FRE)	0.17	1.00	1.00	1.00	0.50	0.33	4.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	1.50	0.00	0.00	0.00	0.00	0.00	1.50
Total	3.95	8.34	8.82	8.82	6.82	4.89	41.64

8.4 Himalayan Forest Research Institute, Shimla

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.26	3.78	4.02	4.02	4.02	2.52	19.62
M&S (Consumables)	0.25	1.00	1.00	0.50	0.50	0.50	3.75
Travel	0.67	1.50	1.50	1.50	1.00	1.33	7.50
Field Research Expenses (FRE)	0.50	1.00	1.00	1.00	1.00	1.00	5.50
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	3.00	0.00	0.00	0.00	0.00	0.00	3.00
Total	5.68	7.28	7.52	7.02	6.52	5.35	39.37

8.5 Institute of Forest Productivity, Ranchi

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.92	5.76	6.48	6.48	6.48	3.84	30.96
M&S (Consumables)	0.08	0.25	0.50	0.50	0.50	0.17	2.00
Travel	0.67	2.50	2.50	2.00	1.00	1.33	10.00
Field Research Expenses (FRE)	0.67	2.00	2.00	2.00	1.00	1.33	9.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	7.50	0.00	0.00	0.00	0.00	0.00	7.50
Total	10.84	10.51	11.48	10.98	8.98	6.67	59.46

8.6 Institute of Wood Science and Technology, Bengaluru

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M&S (Consumables)	0.17	0.00	0.00	0.00	0.00	0.33	0.50
Travel	0.10	0.30	0.00	0.00	0.00	0.20	0.60
Field Research Expenses (FRE)	0.23	0.70	0.00	0.00	0.00	0.47	1.40
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.50	1.00	0.00	0.00	0.00	1.00	2.50

8.7 Arid Forest Research Institute, Jodhpur

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	1.26	3.78	4.02	4.02	4.02	2.52	19.62
M&S (Consumables)	0.17	1.00	1.00	1.00	0.50	0.33	4.00
Travel	0.33	1.00	1.00	1.00	0.50	0.67	4.50
Field Research Expenses (FRE)	0.33	1.00	1.00	1.00	1.00	0.67	5.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	3.00	0.00	0.00	0.00	0.00	0.00	3.00

Total	5.09	6.78	7.02	7.02	6.02	4.19	36.12

8.8 Tropical Forest Research Institute, Jabalpur

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.64	1.92	2.16	2.16	2.16	1.28	10.32
M&S (Consumables)	0.25	0.00	0.00	0.00	0.00	0.50	0.75
Travel	0.25	0.50	0.50	0.75	0.75	0.50	3.25
Field Research Expenses (FRE)	0.17	1.00	1.00	1.50	1.00	0.33	5.00
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Total	2.31	3.42	3.66	4.41	3.91	2.61	20.32

8.9 SSN College of Engineering, Chennai

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.64	1.92	2.16	2.16	2.16	1.28	10.32
M&S (Consumables)	0.17	0.50	0.50	1.00	1.00	0.33	3.50
Travel	0.33	1.00	0.50	0.50	1.00	0.67	4.00
Field Research Expenses (FRE)	0.17	0.50	0.50	0.50	0.50	0.33	2.50
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	8.00	0.00	0.00	0.00	0.00	0.00	8.00
Total	9.31	3.92	3.66	4.16	4.66	2.61	28.32

8.10 Bharathidasan University, Tamil Nadu

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.64	1.92	2.16	2.16	2.16	1.28	10.32
M&S (Consumables)	0.25	1.00	1.00	0.50	0.50	0.50	3.75
Travel	0.08	0.25	0.25	0.25	0.25	0.17	1.25
Field Research Expenses (FRE)	0.17	0.75	0.25	0.50	0.25	0.33	2.25
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							

Equipment & Accessories	0.25	0.25	0.25	0.00	0.00	0.00	0.75
Total	1.39	4.17	3.91	3.41	3.16	2.28	18.32

8.11 ICAR - Directorate of Weed Research (DWR), Jabalpur

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	0.62	1.86	1.86	1.86	1.86	1.24	9.30
M&S (Consumables)	0.25	0.00	0.00	0.00	0.00	0.50	0.75
Travel	0.25	0.50	0.50	0.75	0.75	0.50	3.25
Field Research Expenses (FRE)	0.08	1.00	0.75	1.25	1.00	0.17	4.25
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Total	2.20	3.36	3.11	3.86	3.61	2.41	18.55

8.12 ICFRE, Dehradun Component of Budget

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
Institutional charges (10%)	5.36	7.24	7.35	7.06	6.50	4.49	38.00
Monitoring cost (5%)	2.68	3.62	3.67	3.53	3.25	2.24	19.00
Overall project escalation cost (5%)	2.68	3.62	3.67	3.53	3.25	2.24	19.00
Total	10.72	14.48	14.69	14.12	13.00	8.97	76.00

8.13 Total project outlay

Head of expenditure	Allocation (Rs. In lakhs)						Total (Rs. In lakhs)
	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	
RECURRING							
Salary	12.26	36.78	40.14	40.14	40.44	24.52	194.28
M&S (Consumables)	2.33	6.00	6.25	5.50	6.60	4.67	31.35
Travel	4.35	14.55	14.35	11.75	8.75	8.7	62.45
Field Research Expenses (FRE)	3.48	11.95	10.5	10.5	7.75	6.97	51.15
Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPITAL							
Equipment & Accessories	31.15	3.15	2.25	2.70	1.50	0.00	40.75
Total	53.58	72.43	73.49	70.59	65.04	44.85	379.98

Institutional charges (10%)	5.36	7.24	7.35	7.06	6.50	4.49	38.00
Monitoring cost (5%)	2.68	3.62	3.67	3.53	3.25	2.24	19.00
Overall project escalation cost (5%)	2.68	3.62	3.67	3.53	3.25	2.24	19.00
Grand total	64.30	86.91	88.18	84.71	78.04	53.82	455.98

9. The grant to institutes is debitable from **CAMPA project- AICRP.**
10. The institution/ organization receiving the grant will maintain a separate account of the project expenditure and shall submit a utilization certificate for the period ending 31st March, 30th June and 30th September and 31st December by 15th April, 15th July, 15th October and 15th January of the year respectively as per the formats given in the guidelines for AICRP. Further grant may be released only after submission of utilization certificate. ICFRE shall have the right to inspect the accounts of all the institutions/organizations pertaining to grant for the project.
11. The terms and conditions as received from MoEF&CC/ CAMPA National Authority from time to time and detailed in the Agreement executed by ICFRE with non-ICFRE institutions/organizations shall be read together with other terms and conditions mentioned in AICRP guidelines of ICFRE.
12. Director of the lead institute of ICFRE where NPC is placed will sign MoA with organization other than ICFRE before release of funds. Funds to such organization will be released after receipt of copy of signed MoA from the lead institute by ICFRE.
13. A copy of the approved research project is annexed.

Encl.: As above.

(_____)
DDG (Research)
Directorate of Research, ICFRE, Dehradun

Copy for information and necessary action:

1. Deputy Director General (Administration), ICFRE
2. Directors of the concerned ICFRE Institutes (IFGTB, Coimbatore; FRI, Dehradun; RFRI, Jorhat; HFRI, Shimla; IFP, Ranchi; IWST, Bengaluru; AFRI, Jodhpur; TFRI, Jabalpur)
3. National Project Coordinator, IFGTB, Coimbatore
4. PIs of Non-ICFRE Institutes (SSN College of Engineering, Chennai; Bharathidasan University, Tamil Nadu; ICAR - Directorate of Weed Research (DWR), Jabalpur that the funds shall be released soon after signing of MoA
5. DDG (Research), ICFRE
6. ADG (M&E), ICFRE
7. DDO/ Accounts Officer, ICFRE
8. Master file, project file/Review Committee file/PEG file of the project AICRP- 7
9. Sr. P.S. to DG, ICFRE for kind information of DG, ICFRE

DST/TMD(EWO)/OWUIS-2018/TS-06 (G)

Government of India
Ministry of Science & Technology
Department of Science & Technology
Technology Mission Division (EWO)

Technology Bhavan
New Mehrauli Road
New Delhi -110 016
Dated: **08.09.2020**

ORDER

Sub: **Financial approval for Technology Stream: Demonstration of Lab Scale project entitled "High performance integrated two-stage electrochemical technology for recovery of water from electroplating effluent with real time monitoring & control system" under guidance of Dr. P. Jegathambal, Water Institute Department, Karunya Institute of Technology and Sciences, Karunya nagar, Coimbatore-641114 and Dr. S. Radha, Department of ECE, SSN College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam, Chennai – 603 110, Tamilnadu - India** - regarding release of 1st installment of the grant.

Sanction of the President is hereby accorded to the above said project at a total cost of **Rs.77,70,400/-**(Rupees seventy seven lakh seventy thousand and four hundred only) for a duration of **3** years. The items of expenditure for which total allocation of **Rs 77,70,400/-** has been approved for a period of **three** years are given below:

General Component: Rs. **56,70,400/-**
Capital Component: Rs. **21,00,000/-**

Consolidated budget for the project:-

(Amount in Rs.)

Budget head	*KITS Coimbatore*	*SSN Chennai*	*Total*
(A) Non-Recurring			
Equipment	13,00,000	8,00,000	21,00,000
Subtotal Non-Recurring	*13,00,000*	*8,00,000*	*21,00,000*
(B) Recurring			
Manpower	14,61,600	15,62,400	30,24,000
Consumables	7,00,000	4,00,000	11,00,000
National Travel	1,50,000	1,50,000	3,00,000
Contingencies	70,000	70,000	1,40,000
Work to be Out Sourced	2,50,000	1,50,000	4,00,000
Overhead Charges	3,93,160	3,13,240	7,06,400
Subtotal Recurring	*30,24,760*	*26,45,640*	*56,70,400*
Total(A+B)	**43,24,760**	**34,45,640**	**77,70,400**

KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES

(Amount in Rs.)

Budget head	*1st year*	*2nd year*	*3rd year*	*Total*
Non-Recurring(A)				
Equipment Spray Pyrolysis Unit, Stainless steel Rheometer, Surface Area Analyser, Electrospinning Machine	13,00,000	-	-	13,00,000
Subtotal Non-Recurring	*13,00,000*			*13,00,000*
Recurring(B)				
Manpower SRF (1) @35,000-35,000+ 16%HRA (as per DST norms)	4,87,200	4,87,200	4,87,200	14,61,600
Consumables	4,00,000	2,00,000	1,00,000	7,00,000
National Travel	50,000	50,000	50,000	1,50,000

contd on page 2/-

Contingencies	30,000	30,000	10,000	70,000
Work to be Out Sourced	1,00,000	1,00,000	50,000	2,50,000
Overhead Charges	2,36,720	86,720	69,720	3,93,160
Subtotal Recurring	*13,03,920*	*9,53,920*	*7,66,920*	*30,24,760*
Total(A+B)	**26,03,920**	**9,53,920**	**7,66,920**	**43,24,760**

SSN COLLEGE OF ENGINEERING

(Amount in Rs.)

Budget head	*1st year*	*2nd year*	*3rd year*	*Total*
Non-Recurring(A)				
Equipment : SILAR coating unit, Electrospinning machine, X-Ray Fluorescence Spectrometers	8,00,000	-	-	8,00,000
Subtotal Non-Recurring	*8,00,000*			*8,00,000*
Recurring(B)				
Manpower SRF (1) @35,000-35,000+ 24%HRA (as per DST norms)	5,20,800	5,20,800	5,20,800	15,62,400
Consumables	2,00,000	1,50,000	50,000	4,00,000
National Travel	50,000	50,000	50,000	1,50,000
Contingencies	30,000	30,000	10,000	70,000
Work to be Out Sourced	50,000	50,000	50,000	1,50,000
Overhead Charges	1,65,080	80,080	68,080	3,13,240
Subtotal Recurring	*10,15,880*	*8,80,880*	*7,48,880*	*26,45,640*
Total(A+B)	**18,15,880**	**8,80,880**	**7,48,880**	**34,45,640**

2. The sanction of the president is also accorded to the initial release of **Rs. 13,03,920/- (Rupees thirteen lakh three thousand nine hundred twenty only)** disbursed to the **"The Registrar, Karunya Institute of Technology and Sciences, Karunya Nagar"** being the first installment of grant under **General Component** for implementation of the above mentioned project.

3. The grantee organisation will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

4. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

5. The grant-in-aid being released is subject to the condition that: -

   a) A transparent procurement procedure in line with the provisions of General Financial Rules 2017 will be followed by the university/institute under the appropriate rules of the grantee organization while procuring capital assets sanctioned for the project and a certificate to this effect will be submitted by the university/institute immediately on receipt of the grant.

   b) While submitting Utilization Certificate/Statement of Expenditure, the university/institute has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent releases of grants under the project shall be considered only on receipt of the said documents.

   c) The PI of the aforementioned project is requested to obtain consumables/equipment available in Government e-Marketplace (GeM) only as per Rule 149 of GFR 2017.

6. As per the GFR 2017 Rule 230(8) the grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts.GI should also follow Rule 230(17) of GFR-2017 concerning reservation of SC/ST/OBC, if applicable.

contd. on page 3/-

G.V.Reddy

7. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

8. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by Principal Accounts Office of the DST), whenever the organization is called upon to do so on, as laid down under Rule 236(1) of General Financial Rules 2017.

9. Due acknowledgement of technical support/ financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publications/ media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

10. Failure to comply with the terms and condition of the Bond will entail full refund with interest in terms of Rule 231(2) of GFR 2017.

11. The implementing institute (being private funded organization) has communicated that the institute is already registered with NGO DARPAN Portal bearing No. **TN/2017/0154653**.

12. Overhead expenses are meant for the host Institute/University towards the cost for providing infrastructural facilities and benefits to the staff employed in the project etc.

13. The expenditure involved is debitable to Demand No. 87, Department of Science & Technology for the year 2020-21:

Demand No. 87	Department of Science & Technology
3425	Other Scientific Research (Major Head)
60	Others: (Sub-Major Head)
60.200	Assistance to other Scientific Bodies (Minor Head)
70	Innovation, Technology Development and Deployment
70.00.31	Grants-in-aid General for 2020-2021 (Plan) (**Previous**: TDP-TMD: 3425.60.200.26.01.31)
This release is being made under **TMD (E & W)**.	

14. The amount **Rs. 13,03,920/- (Rupees thirteen lakh three thousand nine hundred twenty only)** will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to the **"The Registrar, Karunya Institute of Technology and Sciences, Karunya Nagar".** The bank details for electronic transfer of funds through RTGS are given below: -

Saving Bank Account Number	**917010084549949**
Name of the bank and branch	**Axis Bank, Coimbatore main branch**
RTGS/IFSC Code	**UTIB0000090**
MICR Code	**641211002**

15. Continuation of the Project beyond **31st March, 2021** will be subject to appraisal and approval of the continuation of the Umbrella Scheme "Innovation, Technology Development & Deployment" under which the Project is funded.

16. As per rule 234 of GFR 2017, this sanction has been entered at S.No. 144 in the register of grants maintained in the Division for the scheme Technology Mission Division.

17. This issues with the concurrence of IFD Vide their Concurrence Dy. No. C/**1806**/IFD /2020-21 dated **08.09.2020**.

Gunderaghunath Reddy

(G.V RAGHUNATH REDDY)
Scientist-E

To

Pay & Accounts Office,
DST, New Delhi

contd. on page 4/-

Copy forwarded for information and necessary action to:

1. The Principal Director of Audit, Scientific Department IIIrd floor, AGCR Building, I.P. Estate, New Delhi
2. Drawing and Disbursing Officer, DST, Cash Section. (Copy with two spare copies)
3. **Dr. P. Jegathambal**
   Water Institute – A Centre of Excellence Water Institute Department
   Karunya Institute of Technology and Sciences
   Coimbatore, Karunya nagar
   Coimbatore-641114
4. **Dr. T. V. Christy**
   Department of Mechanical Engineering Karunya Institute of Technology and Sciences Coimbatore,
   Karunya Nagar
   Coimbatore-641114
5. **Dr. Sabitha Jannet**
   Department of Mechanical Engineering Karunya Institute of Technology and Sciences Coimbatore,
   Karunya Nagar
   Coimbatore-641114
6. **The Registrar**
   Karunya Institute of Technology and Sciences
   Coimbatore, Karunya nagar
   Coimbatore-641114
7. **The Principal**
   SSN College of Engineering
   Rajiv Gandhi Salai (OMR)
   Kalavakkam, Chennai – 603 110
8. **Dr. S. Radha**
   Department of ECE, SSN College of Engineering
   Rajiv Gandhi Salai (OMR)
   Kalavakkam, Chennai – 603 110
   Tamilnadu – India
9. **Dr. B. S. Sreeja**
   Department of ECE, SSN College of Engineering
   Rajiv Gandhi Salai (OMR)
   Kalavakkam, Chennai – 603 110
   Tamilnadu - India
10. **Dr. K.Muthumeenakshi**
    Department of ECE, SSN College of Engineering
    Rajiv Gandhi Salai (OMR)
    Kalavakkam, Chennai – 603 110
    Tamilnadu - India
11. **ATS Chem Equipments Pvt. Ltd Unit-I, C- 27, Sidco Industrial Estate Hosur-635126, Tamilnadu**
12. **Aruldas Electroplating works**
    14/6, Rajiv Gandhi Nagar, Udayampalayam
    Coimbatore- 28
13. The Pay & Accounts Officer, DST
14. Sanction folder.
15. File copy.
16. Office Copy.
17. Head, TMD (EW)

(G.V RAGHUNATH REDDY)
Scientist-E

Sl. no. 4(I)

10

Government of India
Department of Atomic Energy (DAE)
Board of Research in Nuclear Sciences (BRNS)

Dr Ashok Kumar Pandey
Programme Officer

BRNS
Secretariat,316-C,CFB,
BARC, Trombay,
Mumbai-400085
Email:
prg1.brns@barc.gov.in

No: 59/14/09/2020-BRNS/59007

Date: 28/8/20

OFFICE MEMORANDUM

Sub: **R/P entitled "Radiation Resilient RF Receiver Front End Components Through SIGe BICMOS: Design and Validation" under Dr. Srinivasan R, Department of Information Technology , S.S.N College of engineering, Kalavakkam, Tamil Nadu, 603110. bearing sanction 59/14/09/2020-BRNS with DIR, BRNS.**

On the recommendations of the Board of Research in Nuclear Sciences (BRNS), I am pleased to convey the administrative approval and sanction of the President of India for the captioned project for **3 years** beginning from financial year **2020-2021** with a total grant of **Rs. 32,49,850/- (Rupees thirty two lakh fourty nine thousand eight hundred fifty only)** for the project as under :

Item of expenditure	Year 1 (2020-2021)	Year 2 (2021-2022)	Year 3 (2022-2023)
Equipments	700000	800000	0
Staff Salary - JRF	372000	372000	0
Staff Salary - SRF (1)	0	0	420000
Travel - PI	25000	25000	25000
Contingencies	0	50000	50000
Overheads	82275	89775	33375
Total(INR)	**1179275**	**1336775**	**528375**

Note: * Chip Fabrication - I, Chip Fabrication - II
JRF salary calculated @31,000/- p.m. for first two years and on redesignation by committee on in third year as SRF @ 35,000/- p.m.
Please note that as per the goverment orders under **Direct Benefit Transfer (DBT)scheme, the staff salary has to be transferred to his/her bank account**. Accordingly, Aadhar Number(UID) of the appointed staff, Bank Account details and the Mobile number linked to the bank account should be obtained and it should be intimated to this office.
Overheads calculated @ 7.5% of the other heads except contingency. The remaining 7.5% towards overheads **(Rs. 2,05,425/-)** shall be released only on meeting the requirements specified (See Annex-B).

2. I am also pleased to convey the sanction of the President of India to incur an expenditure of **Rs. 11,79,275/- (Rupees eleven lakh seventy nine thousand two hundred seventy five only)** towards grant for the year 2020-2021 .
3. The expenditure involved is debitable to: **03 3401 00 004 27 0231.**
4. This is issued with the concurrence of the competent authority in the Department.

Pandey 27.8.2020

Dr. Ashok Kumar Pandey

Pay & Accounts Officer, DAE, Mumbai - 400 001.

Copy forwarded to:

1. Director of Audit, Scientific Department, AEAP, OYC, CSM Marg, Mumbai-400 001.
2. Joint Secretary (R&D), DAE, Anushakti Bhavan, CSM Marg, Mumbai-400 001.
3. Principal, S.S.N College of engineering, Kalavakkam, Tamil Nadu, 603110..
4. Principal Investigator(PI): Dr. Srinivasan R, Department of Information Technology, S.S.N College of engineering, Kalavakkam, Tamil Nadu, 603110.

A. First year grant is being released in full along with this Sanction Letter through Pay & Accounts Officer, Department of Atomic Energy, Anushakti Bhavan, CSM Marg, Mumbai-400 001 directly. You may await a Money transfer (MT) through ECS and The amount would be credited electronically to A/C No: 158100050070022, A/C Name: The Principal, SSN College of engihneering, IFSC: TMBL0000158, Tamilnad Mercantile Bank Ltd No. 3, thiruvalluvar Salai Thiruvanmiyur Chennai - 600 041 Tamilnadu.

i) Acceptance of this sanction and the MT for the amount sanctioned for the first financial year may please be acknowledged (Form-I).

ii) A sticker of the BRNS LOGO (Copy Enclosed) should be pasted on all the items procured under the project.

iii) THIS SANCTION IS FURTHER SUBJECT TO THE CONDITIONS STIPULATED IN ANNEX (ENCLOSED), WHICH MAY BE GONE THROUGH CAREFULLY.

B. Second year Sanction Letter will be issued automatically in the month of April/May of the 2nd financial year, however, the grant will be released (unspent balance of previous year and Interest earned will be adjusted) after the PI submits the following documents to the Programme Officer DIR:

a) Claim in Form-II quoting the reference of the sanction issued for the first year.

b) Utilisation Certificate (UC) as on 31st March of the preceding financial year in Form-III duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

c) Statement of Accounts (SA) as on 31st March of the preceding financial year should be updated on the website. Interest earned in previous year should be reflected in the Statement of Accounts. A printout of the same should be sent to BRNS after it is duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

d) Copy of appointment order and joining report of the staff appointed for the project along with minutes of the Selection Committee, alongwith HRA CLAIM (if applicable), should be uploaded in a single pdf file under the file head "Staff Appointment Details". In addition, the details of the appointed staff should also be updated in the available menu.

e) The inventory of equipment also should be updated in the menu, besides uploading the purchase order of the items costing more than 1 Lakh.

f) A One Page report on the progress of work during first year.

C. Third and subsequent years (if any) the Sanction Letter and the grant will be released on fulfillment of the following requirements:

i) Renewal/ Extension Application: Principal Investigator (PI) is required to upload by January 15 a pdf copy of duly signed renewal/ extension application in the prescribed form-(PRA) after logging into his/her account at https://brns.res.in. All applications received shall be examined by experts from the field and PIs may be invited to a Technical Programme Discussion Meeting (TPDM). Renewal of the project will be based on the recommendations of the TPDM, Advisory Committee and the Board.

ii) Sanction Letter: If the progress is found to be satisfactory the renewal sanction for the year will be issued in the beginning of that financial year in April/May.

iii) Claim: On receipt of the renewal sanction, the PI shall claim the funds sanctioned by submitting the following documents to Programme Officer DIR, 316-C, Common Facility Building, BARC, Trombay, Mumbai-400085:

a) Claim in Form-II quoting reference of the renewal sanction.

b) Utilisation Certificate (UC) as on 31st March of the preceding financial year in Form-III duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant. should be reflected in the Statement of Accounts.

c) Statement of Accounts (SA) as on 31st March of the preceding financial year including the amount of Interest earned in previous year and duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

d) Copy of appointment order and joining report of the staff appointed for the project along with minutes of the Selection Committee.

e) An inventory of equipment and the copy of Purchase order of equipments costing more than 1 Lakh.

D. At the end of Terminal Year the Settlement Grant and the Balance 7.5% Overheads will be released on fulfillment of the following requirements:

a) Claim Form-II if any,

b) The final Consolidated Statement of Accounts (SA) and Consolidated Utilization Certificate duly audited by an external Chartered Accountant or the Statutory (Govt.) Auditor. It is mandatory to include the amount of bank interest earned on the grant released into the SA.

c) Final Consolidated Progress Report and a brief report as per format given in Form-VII .

5. AAO (Cheque), DAE, Anushakti Bhavan, CSM Marg, Mumbai - 400 001 – With a request that the amount granted for the first year of the project may be released.
6. Member Secretary (DIR) : Dr. Nagaraj Alangi, ms9.brns@barc.gov.in; Ph:+91-1234
7. Co-Investigator (CI) : Premanand V Chandramani, Department of ECE, S.S.N College of engineering Kalavakkam - 603 110 Chennai, Tamilnadu, Email : premanandc@ssn.edu.in, Mobile :9003260540K K Nagarajan, Dept of ECE SSN College of engineering OMR Kalavakkam- 603 110
8. Project Collaborator (PC): Dr. Susanta Kumar Pal, Scientific Officer(H) Head, Applied Electronics Division, VECC Kolkata-700064, Email : sushant@vecc.gov.in, Mobile :9433381156

You or your nominee may please be the DAE representative for selection of Research Fellow/ Research Associate for the project.

Pandey 27.8.2020

Dr. Ashok Kumar Pandey

Note:

1. Please quote the Sanction Number 59/14/09/2020-BRNS in all your correspondence with BRNS

O/C 26/8/20.

बिल सं Bill No: 34007 तिथि 26/08/2020

Countersigned for Rs. 1179275/- eleven lakh seventy nine thousand two hundred seventy five Rupees Only.

अनुमोदन

Approved

27.8.2020

कार्यक्रम अधिकारी

Programme Officer DIR

परमाणू ऊर्जा विभाग

DEPARTMENT OF ATOMIC ENERGY

नाभिकीय विज्ञान अनुसंधान मंडल

BOARD OF RESEARCH IN NUCLEAR SCIENCES

Application Number:
{4937}
Please pay the amount to

A/C No: 158100050070022, A/C Name: The Principal, SSN College of engihneering, IFSC: TMBL0000158, Tamilnad Mercantile Bank Ltd No. 3, thiruvalluvar Salai Thiruvanmiyur Chennai - 600 041 Tamilnadu

Under intimation to

Dr. Srinivasan R, Department of Information Technology

Mobile Number:

द्योतन एंव लेखन अधिकारी, प.ऊ.वि,

Pay & Accounts Officer, DAE

F. No. DST/TM/EWO/MI/CCUS/25 (G1)
Government of India
Ministry of Science & Technology
Department of Science & Technology
TMD (Energy, Water & Others)

Technology Bhavan, New Delhi
Dated:20.01.2020

Sanction Order

Subject: Financial support for Mission Innovation – Innovation Challenge (IC3) CCUS project titled **"Bench-Scale Design and Development: Investigation of High-Frequency, High Intensity Ultrasonics for Carbon-Rich Solvent Regeneration in Solvent-Based Post-Combustion CO_2 Capture Process (PCCC) for Reducing CO_2 Capture Energy Demand"** led by **Dr. B. Ambedkar, SSN College of Engineering, Chennai.**

Sanction of the President is hereby accorded to the approval of the above mentioned project titled **"Bench-Scale Design and Development: Investigation of High-Frequency, High Intensity Ultrasonics for Carbon-Rich Solvent Regeneration in Solvent-Based Post-Combustion CO_2 Capture Process (PCCC) for Reducing CO_2 Capture Energy Demand"** with a total cost of ₹ **2,08,96,833/-** (*Rupees Two crore eight lakh ninety six thousand eight hundred thirty three only with **DST Share of*** ₹ **1,86,77,338/- and Lead organization share of ₹ 22,19,495/-**) to Consortia partners from SSN College of Engineering, Chennai and Indian Institute of Technology Madras, Chennai as per the following breakup :

SSN Chennai	1st-Year	Collab. Share – 1st year	2nd-Year	3rd-Year	Total	Total Collab
Capital	6136336	2219495	2833452	--	8969788	2219495
General	2978877	--	2542920	2373533	7895330	--
sub total	**9115213**	**2219495**	**5376372**	**2373533**	**16865118**	2219495
IIT Madras						
General	565740	--	700740	545740	1812220	--
sub total	**565740**	--	**700740**	**545740**	**1812220**	--
Total Capital	**6136336**	**2219495**	**2833452**	--	**8969788**	**2219495**
Total General	**3544617**	--	**3243660**	**2919273**	**9707550**	--
Grand Total	**9680953**	--	**6077112**	**2919273**	**18677338**	--
Collaborator share (SSNCE, Chennai- 20% of total capital cost by Host institution)	--	**2219495**	--	--	**2219495**	--
Total Share (DST + Collaborator)	**9680953**	**2219495**	**6077112**	**2919273**	**20896833**	--

SC E

With break up of a total cost of **₹ 1,68,65,118/-** (*Rupees One crore sixty eight lakh sixty five thousand one hundred eighteen only*) sanctioned to **SSN College of Engineering (SSNCE), Chennai** for a duration of 3 years. The detailed breakup of the grant for Capital and General Components to **SSNCE** are given below:

General Component: ₹ 78,95,330/-

Capital Component: ₹ 89,69,788/-

Lead Organization (SSNCE, Chennai) share : ₹ 2219495/-

S. No	ITEM HEAD	1st-Year	collab.	2nd-Year	collab.	3rd-Year	collab.	Total (DST share)	Total collab. (share)
A	**Capital - Non recurring**								
1	Permanent Equipment and Fabricated System/Models - Lab-scale experimental setup fabrication	6136336	**2219495**	2833452	--	--	--	**8969788**	**2219495**
	SUB TOTAL (CAPITAL ITEMS)	**6136336**	**2219495**	2833452	--	--	--	**8969788**	**2219495**
B	**Recurring**								
1	Manpower								
	Research Associate - I - 01 nos. @47,000/- + 24%HRA	699360	--	699360	--	699360	--	2098080	--
	JRF/Doctoral Scholar - 01 no.s @ 31000/- + 24% HRA	461280	--	461280	--	461280	--	1383840	--
	Field Worker/Helper - 01 @ 18,000/- + 24% HRA	267840	--	267840	--	267840	--	803520	--
	Sub-total -Manpower	**1428480**	--	**1428480**	--	**1428480**	--	**4285440**	--
2	Consumables	489857	--	443900	--	304513	--	1238270	--
3	Contingency	50000	--	50000	--	50000	--	150000	--
4	Domestic Travel	40000	--	40000	--	40000	--	120000	--
	International Travel	250000	--	0	--	50000	--	300000	--
5	Other cost - Outsourcing, Process Control & Instrumentation – Lab view	280000	--	140000	--	60000	--	480000	--
6	Overhead Cost	440540	--	440540	--	440540	--	1321620	--
	SUB TOTAL (GENERAL)	**2978877**	--	**2542920**	--	**2373533**	--	**7895330**	--
	Total Cost (A+B)	**9115213**	**2219495**	**5376372**	--	**2373533**	--	**16865118**	**2219495**

2. The sanction of the President is also accorded to the release of **₹ 29,78,877/-** (***Rupees Twenty nine lakh seventy eight thousand eight hundred seventy seven only***) to **SSN College of Engineering (SSNCE), Chennai** being the first instalment of grant under "General Component" for implementation of the above mentioned project.

Neelam
SCE

3. This sanction is subject to the condition that the grantee organisation will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year duly reflecting the interest earned / accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

4. The grantee organisation will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final instalment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

5. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

6. The grant-in-aid being released is subject to the condition that
a. A transparent procurement procedure in line with the Provisions of General Financial Rules 2017 will be followed by the Institute/Organisation under the appropriate rules of the grantee organisation while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organisation immediately on receipt of the grant:
b. While submitting Utilisation Certificate/Statement of Expenditure, the organisation has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. In case the scheme provides for payment of honorarium / remuneration / fellowship / scholarship to the PI, a para may suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/ salary/fellowship from any other project either supported by DST or by any other funding agency.

SCE

10. The account of the grantee organisation shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organisation is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

11Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organisation in bold letters in all publications / media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

12. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

13. The expenditure involved is debitable to-

Demand No 86	Department of Science and Technology for the year 2019-20
3425	Other Scientific Research (Major Head)
60	Others (Sub-Major Head)
789	Special Component Plan for Scheduled Castes
15	Innovation, Technology Development and Deployment
15.00.31	**Grants-in-aid for General for the year 2019-2020**

14. The amount of **₹ 29,78,877/- (*Rupees Twenty nine lakh seventy eight thousand eight hundred seventy seven only*)** will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to **SSN College of Engineering (SSNCE), Chennai.** The bank details for electronic transfer of funds through RTGS are given below:-

Name of the Account Holder	The Principal, SSN College of Engineering
Name of the bank	Tamilnad Mercantile Bank Ltd.,
Branch Address	No. 3, Thiruvalluvar Salai, Anna Nagar, Thiruvanmiyur, Chennai, Tamil Nadu 600041
IFSC code	TMBL0000158
Account Number	158100050070022

15. As per Rule 234 of GFR 2017, this sanction has been entered at **S. No. 568** (TMD,WE) in the register of grants maintained in the Division for the scheme (ITDD).

16. As per Rule 237 of GFR 2017, Time Schedule for submission of annual accounts - The dates prescribed for submission of the annual accounts for Audit leading to the issue of Audit Certificate by the Comptroller and Auditor General of India and for submission of annual report and audited accounts to the nodal Ministry for timely submission to the Parliament are listed below:-
(I) Approved and authenticated annual accounts to be made available by the Autonomous Body to the concerned Audit Office and commencement of audit of annual accounts-30th June
(ii) Issue of the final SAR in English version with audit certificate to Autonomous Body/ Government concerned -31st October
(iii) Submission of the Annual Report and Audited Accounts to the Nodal for it to be laid on the Table of the Parliament -31st December

17. The organization/Institute/University should ensure that the technical support/financial assistance provided to them by the Department of Science and Technology should invariably be highlighted/acknowledged in their media releases as well as in bold letters in the opening paragraph of their Annual Report.

18. It is important that the information and knowledge generated through the use of these funds are made publicly available as soon as possible. In order to achieve the aforementioned objectives, each institution is encouraged to set up its own inter-operable institutional open access repository ("IR") for its research papers and review articles published in peer reviewed journals. The Ministry of Science and Technology has set up a central harvester (www.sciencecentral.in) that will harvest the full text and metadata of these publications. Kindly update the findings accordingly.

19. The organization named **SSN College of Engineering (SSNCE), Chennai** and partnering institutes agrees to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts or services under its control on the lines indicated by the Government of India.

20. The goods (consumables/equipment) available in GeM portal are to be procured mandatorily online through GeM only.
21. PI is also informed to adhere to the guidelines of the Mission Innovation Call on IC#3.

22. This issues with the concurrence of IFD Vide their **Concurrence Dy. No. 5208 dated. 20.01.2020**

(Dr. Neelima Alam)
Scientist-E
Email: neelima.alam@nic.in

To
The Pay and Accounts Officer, DST, New Delhi.
Copy for information and necessary action to:

1. Cash Section (3 copies) for preparing the bill and remitting the amount to the above grantee.
2. Accounts Section, DST, New Delhi.
3. IFD, Department of Science & Technology, New Delhi.
4. Director of Audit (CW & M-II), AGCR Building, IP Estate, New Delhi.
5. **Dr. Ambedkar Balraj**
   Assistant Professor
   Chemical Engineering
   Department of Chemical Engineering, SSN College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam, Kanchipuram District, 603110
   Email : ambedkarb@ssn.edu.in
   Dr. Nagarajan Ramamurthy
   Professor
   Chemical Engineering
   Department of Chemical Engineering Indian Institute of Technology (IIT) Madras, Chennai 600036, India
   Email : nag@iitm.ac.in
   Phone : 04422574158
6. Sanction folder
7. Office Copy
8. Head- TMD (E,W & Others)

Dr. Neelima Alam
Scientist-E

(Dr. Neelima Alam)
Scientist-E

DST/TMD-EWO/WTI/2K19/EWFH/2019/83(C)

Government of India Ministry of Science & Technology
Department of Science & Technology (Technology Mission Division)

Technology Bhavan, New Delhi
Dated: 28/12/2020

Sanction Order

Subject: Financial support for project entitled **"Electrochemical sensing of sulfamethoxazole antibiotic in water at GO/ZnO Nanocomposites-modified electrodes: Optimization and Real time measurement"** submitted by **Dr. P. Senthil Kumar,** from **Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai.**

Sanction of the President is hereby accorded to the approval of the above-mentioned project at a total cost of **₹ 63,29,222/- (Rupees Sixty Three Lakhs, Twenty Nine Thousand, Two Hundred and Twenty Two Only)**, for a duration of **3 years**. The detailed breakup of the grant for Capital and General Components are given below:
Capital Component: ₹ 19,92,118/-
General Component: ₹ 43,37,104/-

S.No.	Item head	1st Year	2nd Year	3rd Year	Total
A.	**Capital-Non Recurring Cost**				
	Electrochemical work station	1992118	0	0	1992118
	Sonicator				
	Magnetic stirrer equipped with temperature reading				
	Sub Total (Capital Cost)	*1992118*	*0*	*0*	1992118
B	**General-Recurring Cost**				
	Manpower (2 JRF for two year and SRF for third Year) (1st two years @ 31000 + 24% and third year @ 35000 + 24 %	922560	922560	1041600	*2886720*
	Other cost	150000	100000	50000	*300000*
	Consumables	100000	100000	75000	*275000*
	Domestic Travel	50000	50000	50000	*150000*
	Contingencies	50000	50000	50000	*150000*
	Sub-Total (B)	1272560	1222560	1266600	3761720
C	**Total Cost (A + B)**	**3264678**	**1222560**	**1266600**	**5753838**
D	Overhead	326468	122256	126660	575384
	Sub Total (General Cost)	*1599028*	*1344816*	*1393260*	*4337104*
E	**G. Total Cost (Capital + General)**	**3591146**	**1344816**	**1393260**	**6329222**

2. The sanction of the President is also accorded to the release of **₹ 19,92,118/- (Rupee Nineteen Lakhs, Ninety Two Thousands, One Hundred and Eighteen Only)** to **Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai. Chennai.** being the first installment of grant under "**Capital Component**" for implementation of the above mentioned project.

3. This sanction is subject to the condition that the grantee organisation will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017

and audited statement of expenditure (SE) along with uptodateprogressreportattheendofeachfinancialyeardulyreflectingtheinterestearned/ accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

4. The grantee organisation will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final instalment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

5. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

6. The grant-in-aid being released is subject to the condition that

   a. A transparent procurement procedure in line with the Provisions of General Financial Rules 2017 will be followed by the Institute/Organisation under the appropriate rules of the grantee organisation while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organisation immediately on receipt of the grant.

   b. While submitting Utilization Certificate/Statement of Expenditure, the organisationhas to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. The grantee organization will maintain separate audited account for the project and the entire amountofgrantwillbekeptinaninterestbearingbankaccount.ForGrantsreleasedduring F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. In case the scheme provides for payment of honorarium / remuneration / fellowship / scholarship to the PI, a para may suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/ salary/fellowship from any other project either supported by DST or by any other funding agency.

10. The account of the grantee Organisation shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the Organisation is called upon to do so, as laid down under Rule 236(1) of General Financial Rules2017.

11. Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organisation in bold letters in all publications / media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR2017.

13. The expenditure involved is debitableto-

Demand No 87	Department of Science and Technology for the year 2020-21
3425	Other Scientific Research (Major Head)
60	Others
60.200	Assistance to Other Scientific Bodies (Minor head)
70	Innovation, Technology Development and Deployment
70.00.35	**Grant for creation of capital assets for the year2020-2021**
	(Previous: TDP-3425.60.200.26.01.35- (SERI/WTI)

14. The amount of **₹ 19,92,118/- (Rupee Nineteen Lakhs, Ninety Two Thousands, One Hundred and Eighteen Only)** will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed **Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai.** The bank details for electronic transfer of funds through RTGS are given below:-

Name of the Account Holder	The Principal, SSN College of Engineering
Name of the bank	Tamilnad Mercantile Bank Limited
Branch Address	No. 3, Thiruvalluar Salai, Thiruvanmiyur, Chennai – 600041
Agency Code (PFMS)	SSNCE
IFSC code	TMBL0000158
Account Number	158100050070022
MICR No.	

15. Continuation of the project beyond 31/03/2021 will be subject to appraisal and approval of the continuation of the Umbrella Scheme "Innovation, technology Development and Deployment "under which the project is funded.

16. As per Rule 234 of GFR 2017, this sanction has been entered at S. No **328** (TMD,WE) in the register of grants maintained in the Division for the scheme(ITDD).

17. As per Rule 237 of GFR 2017, Time Schedule for submission of annual accounts - The dates prescribed for submission of the annual accounts for Audit leading to the issue of Audit Certificate by the Comptroller and Auditor General of India and for submission of annual report and audited accounts to the nodal Ministry for timely submission to the Parliament are listed below:-

(i) Approved and authenticated annual accounts to be made available by the Autonomous Body to the concerned Audit Office and commencement of audit of annual accounts-30th June.

(ii) Issue of the final SAR in English version with audit certificate to Autonomous Body/ Government concerned - 31st October.

(iii) Submission of the Annual Report and Audited Accounts to the Nodal for it to be laid on the Table of the Parliament -31stDecember.

18. The organization/Institute/University should ensure that the technical support/financial assistance provided to them by the Department of Science and Technology should invariably be highlighted/acknowledged in their media releases as well as in bold letters in the opening paragraph of their Annual Report.

19. It is important that the information and knowledge generated through the use of these funds are made publicly available as soon as possible. In order to achieve the aforementioned objectives, each institution is encouraged to set up its own inter-operable institutional open access repository ("IR") for its research papers and review

articles published in peer reviewed journals. The Ministry of Science and Technology has set up a central harvester (www.sciencecentral.in) that will harvest the full text and metadata of these publications. Kindly update the findings accordingly.

20. The organization named **Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai.** and partnering institutes agrees to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts or services under its control on the lines indicated by the Government of India.

21. The goods (consumables/equipment) available in GeM portal are to be procured mandatorily online through GeM only.

22. The Organization/Institute/University should ensure that DoE Guidelines followed for International Travel.

23. The Organization /Institute /University is registered at DARPAN portal with unique DARPAN ID: **TN/2017/0118071.**

24. This issues with the concurrence of IFD Vide their Concurrence Dy. No. **4057** dated **24/12/2020**

(Dr. Sanjai Kumar)
Scientist-D
Email: Sanjai.k@gov.in

1. Cash Section (3 copies) for preparing the bill and remitting the amount to the above grantee.
2. Accounts Section, DST, New Delhi.
3. IFD, Department of Science & Technology, New Delhi.
4. Director of Audit (CW & M-II), AGCR Building, IP Estate, New Delhi.
5. **Principal Investigator (PI)**
   Name: Dr. P. Senthil Kumar
   Designation: Associate Professor
   Department: Department of Chemical engineering,
   Institute/University: Sri Sivasubramaniya Nadar College of Engineering
   Address: Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai – 603 110
   Email: senthilkumarp@ssn.edu.in
   Mobile: +91 9884823425

   Co-Principal Investigator (Co-PI)
   Name: Dr. B.S. Sreeja
   Designation: Associate Professor
   Department: Department of Electronics and Communication Engineering,
   Institute/University: Sri Sivasubramaniya Nadar College of Engineering,
   Address: Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai – 603 110
   Email: sreejabs@ssn.edu.in
   Mobile: +91 9790915273
6. Sanction folder
7. Office Copy
8. Head- TMD(EWO)

(Dr. Sanjai Kumar)
Scientist-D

on has been selected by ISHRAE Student Project Grant Committee - chennaisection@gmail.com - Gmail - Mozilla Firefox

r@ishraehq.in

ence SRPG_UG_48

e... itle: Experimental analysis of an Energy Recovery Ventilator (ERV) combined with UVGI and air filtration syst
lity) in non-ventilated spaces.

ıe of the Institute : SSN College of Engineering

ınt Chapter: ISHRAE Chennai Chapter

lent Team:

- Chemmal Swami Durai C

Chemmal Swami Durai C,

RAE is pleased to inform you that your ISPG-UG application has been selected by Student Project Grant Committee & the Grant
50000/- to support the following project: **Experimental analysis of an Energy Recovery Ventilator (ERV) combined with**
ıncing IAQ (Indoor Air Quality) in non-ventilated spaces.

are requested to contact your local ISHRAE Chennai Chapter, Chapter President / Student Chair for the sanction order and other f

wishes for the successful completion of project as per the Grant Guidelines and in keeping with the Schedule of completion.

ly contact us for any further clarification.

kind regards,

ir – SRPG-UG Committee

ent Activities Committee

n Society of Heating Refrigerating and Air-Conditioning Engineers

AE)

-1104, 11th Floor,Chiranjiv Tower 43, Nehru Place,

SRPG - UG application h...

BP-2020-21-2584

FILE NO. CRG/2020/003536

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 25-Dec-2020

ORDER

Subject: Financial Sanction of the research project titled **"FABRICATION OF HOMOGENEOUS PLASTIC SCINTILLATORS BY THERMAL POLYMERIZATION REACTION FOR FAST NEUTRON DETECTION APPLICATIONS"** under the guidance of Dr. Rajesh P, Physics, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. A Rajalakshmi, Professor, Physics, SSN College Of Engineering - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 4308832/-** (Rs. Forty Three Lakh Eight Thousand Eight Hundred and Thirty Two **Only)** with break-up of **Rs. *1700000*/- under Capital (Non-recurring) head** and **Rs.*2608832*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 4308832/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Fluorescence Spectrophotometry	1700000
A'	*Total (Non-Recurring)*	***1700000***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1257120 900000 60000
2	Recurring - IV : (Overhead Charges)	391712
B'	*Total (Recurring)*	***2608832***
C	**Total cost of the project (A' + B')**	**4308832**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 1009600/-** (Rupees Ten Lakh Nine Thousand Six Hundred only) under 'Grants-in-aid General' to **PRINCIPAL, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of the grant for the year 2020-2021 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER) This release is being made under Core Research Grant. (PAC Physics-1 (Condensed Matter Physics and Material Sciences))**

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **24 December, 2020** and vide Diary No. **SERB/F/6311/2020-2021** dated **25 December, 2020**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

9. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

10. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

11. The release amount of **Rs. 1009600/-** (Rupees Ten Lakh Nine Thousand Six Hundred only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SSN COLLEGE OF ENGINEERING
Account Number	158100050070022
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD Tamilnad Mercantile Bank Ltd Chennai Tiruvanmiyur, 3, Thiruvalluvar Salai, Thiruvanmiyur, Chennai - 600041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	rajeshp@ssn.edu.in

12. The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

13. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

14. The project File no. CRG/2020/003536 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

15. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

16. As this is the first grant being released for the project, no previous U/C is required.

17. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

18. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

19. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board.

Nilotpal Ghosh

(Dr. Nilotpal Ghosh)
MS
nilotpal@serb.gov.in

To,
Under Secretary

SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Rajesh P** **Physics** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: rajeshp@ssn.edu.in** **Mobile: 919445434893** **Dr. A Rajalakshmi** **Physics** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Nilotpal Ghosh)
MS
nilotpal@serb.gov.in

The updated RTGS details of the SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 is as below:

PFMS Unique Code	SSNCE
Account Name	**THE PRINCIPAL, SSN COLLEGE OF ENGINEERING**
Account Number	**158100710400509**
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD Tamilnad Mercantile Bank Ltd Chennai Tiruvanmiyur, 3, Thiruvalluvar Salai, Thiruvanmiyur, Chennai - 600041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in

28/12

डॉ. नीलोत्पल घोष
वैज्ञानिक ई

Government of India
Department of Atomic Energy (DAE)
Board of Research in Nuclear Sciences (BRNS)

Dr. Ashok Pandey
Programme Officer (BRE)

BRNS
Secretariat,316-C,CFB,
BARC, Trombay,
Mumbai-400085
Phone:+91-02225594566
Email: ashokk@barc.gov.in

No: 58/14/05/2020-BRNS/37059

Date: ~~23~~ 24/07/2020

OFFICE MEMORANDUM

Sub: **R/P entitled "Growth of CdMnTe single crystals by Bridgman Technique for application in Gamma ray Detectors" under Dr. P. Rajesh, Assistant Professor, Dept. of Physics, Sri Sivasubramaniya Nadar College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam, Kanchipuram, Tamil Nadu-603110. bearing sanction 58/14/05/2020-BRNS with BRE, BRNS.**

On the recommendations of the Board of Research in Nuclear Sciences (BRNS), I am pleased to convey the administrative approval and sanction of the President of India for the captioned project for **3 years** beginning from financial year **2020-2021** with a total grant of **Rs. 33,80,850/- (Rupees thirty three lakh eighty thousand eight hundred fifty only)** for the project as under :

Item of expenditure	**Year 1 (2020-2021)**	**Year 2 (2021-2022)**	**Year 3 (2022-2023)**
Equipments	900000	0	0
Staff Salary - JRF	372000	372000	0
Staff Salary - SRF	0	0	420000
Consumables	450000	200000	100000
Travel - PI	20000	20000	25000
Contingencies	20000	25000	25000
Overheads	130650	44400	40875
Total(INR)	**1892650**	**661400**	**610875**

Note: * ACRT assembly, Eurotherm Controllers Eurotherm Thyristors, Eurotherm Thyristors, Synthesis Furnace, Crystal Growth Furnace

JRF salary calculated @ Rs.31,000/- p.m. for first two years and on redesignation by committee on in third year asSRF @ Rs.35,000/- p.m.

Please note that as per the government orders under **Direct Benefit Transfer (DBT)scheme, the staff salary has to be transferred to his/her bank account**. Accordingly, Aadhar Number(UID) of the appointed staff, Bank Account details and the Mobile number linked to the bank account should be obtained and it should be intimated to this office.

Overheads calculated @ 7.5% of the other heads except contingency. The remaining 7.5% towards overheads **(Rs. 2,15,925/-)** shall be released only on meeting the requirements specified (See Annex-B).

2. I am also pleased to convey the sanction of the President of India to incur an expenditure of **Rs. 18,92,650/- (Rupees eighteen lakh ninety two thousand six hundred fifty only)** towards grant for the year 2020-2021 .
3. The expenditure involved is debitable to: **03 3401 00 004 27 0231.**
4. This is issued with the concurrence of the competent authority in the Department.

Pandey 24.7.2020

Dr. Ashok Pandey

Pay & Accounts Officer, DAE, Mumbai - 400 001.

Copy forwarded to:

1. Director of Audit, Scientific Department, AEAP, OYC, CSM Marg, Mumbai-400 001.
2. Joint Secretary (R&D), DAE, Anushakti Bhavan, CSM Marg, Mumbai-400 001.
3. Principal, Sri Sivasubramaniya Nadar College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam, Kanchipuram, Tamil Nadu-603110..
4. Principal Investigator(PI): Dr. P. Rajesh, Assistant Professor, Dept. of Physics, Sri Sivasubramaniya Nadar College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam, Kanchipuram, Tamil Nadu-603110..

A. First year grant is being released in full along with this Sanction Letter through Pay & Accounts Officer, Department of Atomic Energy, Anushakti Bhavan, CSM Marg, Mumbai-400 001 directly. You may await a Money transfer (MT) through ECS and The amount would be credited electronically to A/C No: 158100050070022, A/C Name: The Principal, SSN College of Engineering, IFSC: TMBL0000158, Tamilnad Mercantile Bank Ltd. Thiruvanmiyur, Chennai - 600 041.

i) Acceptance of this sanction and the MT for the amount sanctioned for the first financial year may please be acknowledged (Form-I).

ii) A sticker of the BRNS LOGO (Copy Enclosed) should be pasted on all the items procured under the project.

iii) THIS SANCTION IS FURTHER SUBJECT TO THE CONDITIONS STIPULATED IN ANNEX (ENCLOSED), WHICH MAY BE GONE THROUGH CAREFULLY.

B. Second year Sanction Letter will be issued automatically in the month of April/May of the 2nd financial year, however, the grant will be released (unspent balance of previous year and Interest earned will be adjusted) after the PI submits the following documents to the Programme Officer BRE:

a) Claim in Form-II quoting the reference of the sanction issued for the first year.

b) Utilisation Certificate (UC) as on 31st March of the preceding financial year in Form-III duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

c) Statement of Accounts (SA) as on 31st March of the preceding financial year should be updated on the website. Interest earned in previous year should be reflected in the Statement of Accounts. A printout of the same should be sent to BRNS after it is duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

d) Copy of appointment order and joining report of the staff appointed for the project along with minutes of the Selection Committee, alongwith HRA CLAIM (if applicable), should be uploaded in a single pdf file under the file head "Staff Appointment Details". In addition, the details of the appointed staff should also be updated in the available menu.

e) The inventory of equipment also should be updated in the menu, besides uploading the purchase order of the items costing more than 1 Lakh.

f) A One Page report on the progress of work during first year.

C. Third and subsequent years (if any) the Sanction Letter and the grant will be released on fulfillment of the following requirements:

i) Renewal/ Extension Application: Principal Investigator (PI) is required to upload by January 15 a pdf copy of duly signed renewal/ extension application in the prescribed form-(PRA) after logging into his/her account at https://brns.res.in. All applications received shall be examined by experts from the field and PIs may be invited to a Technical Programme Discussion Meeting (TPDM). Renewal of the project will be based on the recommendations of the TPDM, Advisory Committee and the Board.

ii) Sanction Letter: If the progress is found to be satisfactory the renewal sanction for the year will be issued in the beginning of that financial year in April/May.

iii) Claim: On receipt of the renewal sanction, the PI shall claim the funds sanctioned by submitting the following documents to Programme Officer BRE, 316-C, Common Facility Building, BARC, Trombay, Mumbai-400085:

a) Claim in Form-II quoting reference of the renewal sanction.

b) Utilisation Certificate (UC) as on 31st March of the preceding financial year in Form-III duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant. should be reflected in the Statement of Accounts.

c) Statement of Accounts (SA) as on 31st March of the preceding financial year including the amount of

Interest earned in previous year and duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

d) Copy of appointment order and joining report of the staff appointed for the project along with minutes of the Selection Committee.

e) An inventory of equipment and the copy of Purchase order of equipments costing more than 1 Lakh.

D. At the end of Terminal Year the Settlement Grant and the Balance 7.5% Overheads will be released on fulfillment of the following requirements:

a) Claim Form-II if any,

b) The final Consolidated Statement of Accounts (SA) and Consolidated Utilization Certificate duly audited by an external Chartered Accountant or the Statutory (Govt.) Auditor. It is mandatory to include the amount of bank interest earned on the grant released into the SA.

c) Final Consolidated Progress Report and a brief report as per format given in Form-VII .

5. AAO (Cheque), DAE, Anushakti Bhavan, CSM Marg, Mumbai - 400 001 – With a request that the amount granted for the first year of the project may be released.
6. Member Secretary (BRE) : Dr. Surendra Singh, SSPD, BARC surendra@barc.gov.in
7. Co-Investigator (CI) : Dr. P. Ramasamy, Dean (Research) SSN College of Engineering Kalavakkam 603110 Kanchipuram Tamilnadu, Email : ramasamyp@ssn.edu.in, Mobile :9283105760
8. Project Collaborator (PC): Dr. S.Ganesamoorthy, Scientific Officer - F, X-ray Scattering and Crystal Growth Section, CMPD, Materials Science Group, IGCAR, Kalpakkam 603102, Email : sgm@igcar.gov.in, Mobile :7598368880 - **You or your nominee may please be the DAE representative for selection of Research Fellow/ Research Associate for the project.**

Pandey 24.7.202

Dr. Ashok Pandey

Note:

1. Please quote the Sanction Number 58/14/05/2020-BRNS in all your correspondence with BRNS

23/7/2020

बिल स Bill No: 37009 तिथि 23/07/2020

Countersigned for Rs. 1892650/- eighteen lakh ninety two thousand six hundred fifty Rupees Only.

अनुमोदन

Approved

24.7.2020

कार्यक्रम अधिकारी

Programme Officer BRE

परमाणु ऊर्जा विभाग

DEPARTMENT OF ATOMIC ENERGY

नाभिकीय विज्ञान अनुसंधान मंडल

BOARD OF RESEARCH IN NUCLEAR SCIENCES

Application Number:201905BRE03RP05765-BRNS

कृपया निम्नलिखित को सूचित करते हुए
राशी का भुगतान इन्हे करे ।

Please pay the amount to

A/C No: 158100050070022, A/C Name: The Principal, SSN College of Engineering, IFSC: TMBL0000158, Tamilnad Mercantile Bank Ltd. Thiruvanmiyur, Chennai - 600 041

Under intimation to

Dr. P. Rajesh, Assistant Professor, Dept. of Physics

Mobile Number:9445434893

द्योतन एंव लेखन अधिकारी, प.ऊ.वि,

Pay & Accounts Officer, DAE

Tele: 23007803

ARDB/01/2031928/M/I
Government of India
Ministry of Defence
Aeronautics R&D Board
DRDO Hqrs, DRDO Bhawan,
New Delhi-110 011

11th Sep 2019

To,

Principal
SSN College of Engineering
Kalavakkam – 603110 (TN)

GRANT-IN-AID SCHEME OF AERONAUTICS R&D BOARD

Under the powers vested in the Aeronautics R&D Board vide Govt. of India, Ministry of Defence letter No. Aero/4806/5/69/105/S/D(R&D) dated 12th Feb 1971 and in exercise of power delegated vide Sl No. 3.1 of GoI, MoD letter No. DARO/DBFA/83226/M/01/2031/D (R&D) dated 30 Jul 2010 & DRDO/DBFA/83226/M/01 dated 05 Feb 2015 & MoD letter No. DRDO/DFMM/PL/83226/M/01/1174/D(R&D) dated 28 Jun 2018. I am directed to convey the sanction of the board for the following project for the year **2019-2020**.

TITLE OF THE PROJECT: "Development of high - Curie temperature piezoceramics for aviation applications"

SANCTION for the First year funds to be released during the year 2019-20 to the tune of **Rs 10.187 lakhs** is accorded.

Principal Investigator (PI) : Dr. G.Anandha Babu
Co-Principal Investigator : Dr. S. Masilla Moses Kennedy

2. Total estimated funds for the project is **Rs 12.297 lakhs.** However, the same is subject to revision based on performance and review. The year-wise break-up is given below:-

Sl.No.	Budget Head	Funds required (in lakhs)		
		I year	II year	III year
1.	Salary	----	----	----
2.	Equipments (Annexure: A)	7.587	----	----
3.	Consumable	1.80	1.26	----
4.	Contingency	0.50	0.20	0.20
5.	Travel	0.30	0.25	0.20
6.	Overheads	----	----	----
	Sub Total	10.187	1.71	0.40
	Total	12.297		

GrandTotal = Rs 12.297 lakhs (Rupees Twelve Lakhs Twenty Nine thousand Seven Hundered only)

2/-

3. Deliverables of the project are:

a) Ten number of device quality lead-free piezoelectric single crystals of NBT-0.062BT with the size of 5 × 5 mm2 will be delivered.

Domain Lab : DMRL Hydearabad
Coordinating Scientist : Dr Arut Chalvan

4. Funds for subsequent year(s) will be released on satisfactory progress and submission of annual progress report by PI to the Panel and Sectt. and based on Panel recommendation with due approval of competent authority. Statement of accounts and utilisation certificate duly certified by the executive financial authority of the Institution and audited by the competent audit authority is also required to be submitted along with the annual report. Excess expenditure, beyond the yearly sanction, unless authorised by AR&DB in writing, shall be the responsibility of the grantee institutions.

5. The duration of the project is **Three years.** The date of receipt of the grant would be reckoned as the commencement date of the project which has to be intimated to this Sectt. without any ambiguity.

6 **SSN College of Engineering, Kalavakkam (TN)** to open a saving bank account and refund the accrued interest to AR&DB. In case of common account held by institute, the institute can reflect the interest accrued separately and refund the accrued interest.

7. The grantee institution shall incorporate necessary clause to provide reservation for SC & ST or OBC in posts and services for appointing project staff under grant-in-aid scheme.

8. On completion of the project unspent balance if any should be deposited through MRO at your end against AR&DB sanction project No. "2031928" to the PCDA (R&D), New Delhi A/c No. 4055000004 and thereafter, a copy of the MRO duly receipted may be sent to PCDA (R&D), West Block-V, RK Puram New Delhi-110066 under intimation to AR&DB Sett with a copy of MRO for necessary records or unspent balance should be sent through Demand Draft drawn in favour of PCDA (R&D), New Delhi to AR&DB.

9. A list of inventory of equipment purchased out of AR&DB grant shall be intimated year wise along with its cost and source of procurement to AR&DB Sectt. On completion of the project, the grantee institution would forward the consolidated list with request, if any, for retention of any equipment for another project of in-house R&D, with due recommendations of their executive authority and the concerned panel. The conditions of retention of equipment by the grantee institute will be as under

(i) DRDO or any associate lab will make use of the equipment(s) retained in the institute under the subject project as and when required without any payment.

(ii) Any expenditure incurred for maintenance/up-keep of the above equipment will be borne by the institute.

(iii) In case of disposal of the above equipment, required by the institution, due to non performance, prior approval of DRDO to be obtained and money thus generated after sale will be refunded to DRDO in proportionate share.

10. The grantee institutions shall not disclose any information under RTI ACT, 2005 as DRDO is placed under second schedule and is exempted from disclosure of information under Sec 24(i) of the Act except information pertaining to the allegation of corruption and Human Right Violation.

(i) In case any application is received by the grantee institution for seeking information pertaining to DRDO project under RTI Act 2005, it may not be replied to directly and the same shall be transferred to CPIO, DRDO, HQ for necessary action and reply under sec(63) of the RTI Act at the following addresses :

314 A, 'B' Block, RTI CellDRDO Bhawan, Rajaji Marg, New Delhi – 110011

..3/-

11. Instruction and Conditions of Ownership of intellectual properties generated by this project is available in www.drdo.gov.in/drdo/boards/ardb/rules & grants-patents.htm. (A copy of govt. Letter regarding IPR is enclosed as Annexure B).

12. Instruction and Conditions of Publication of Technical Papers related to this project is available in www.drdo.gov.in/drdo/boards/ardb/index.htm.

13. On completion of the projects, Closure Report along with copies of technical report for each Panel member and also one soft copy to Sectt. may be submitted within sixty days of completion of project along with Statement-2 (Statement of Expenditure) & Statement-3 (Utilisation Certificate) as per Annexure III of Grant-in-aids rules duly audited from the Audit Authority of Institution/organization signed in ink in duplicate.

14. PCDA (R&D), West Block V, RK Puram, New Delhi-110066 will make disbursement of money as sanctioned.

15. The expenditure will be debited to Major Head 2080 – Defence Services, R&D, Minor Head 004-Research/Research & Development and Code Head 852/02 (AR&DB Grant-in-aid) of Defence Services Estimates.

16. Contingent bill (in triplicate) duly completed and stamped may please be forwarded to us within 30 days for countersignature and onward transmission to PCDA (R&D), West Block V, RK Puram, New Delhi-110066 for payment.

17. This is issued with the concurrence of IFA (R&D), New Delhi vide their UO No: IFA/R&D/0031/AR&DB/20196/Vol-I/0754 dated 03/09/19.

18. Sanction code is MSRB/TM/ARDB/GIA/19-20/059 dated 11/09/19.

(Dr. Maitreyee Nanda)
Secretary
AR&DB

Copy to:-

(1) Principal CDA(R&D), West Block V, RK Puram, New Delhi-110066

(2) IFA (R&D), DRDO Bhawan

(3) Dy. Director of Audit, Defence Services, Southern Command, Pune – 411 001

(4) Principal Director of Audit, Air Force & Navy, `M' Block, N. Delhi-110 001

(5) Prof. Amol A Gokhale, Convenor TC (Former DS & Director DMRL, Hyderabad), Mechanical Engineering Department, IIT Bombay,Powai, Mumbai- 400076

(6) Dr. G.Anandha Babu , Asst. Prof, SSN College of Engg, Kalavakkam – 603110 (TN)

(7) Dr. S. Masilla M Kennedy, Asso. Prof, SSN College of Engg, Kalavakkam – 603110

(8) Dr DK Das (Co-ordinator M&M Panel), Sc 'G' , DMRL, Kanchanbagh, Hyderabad - 500058

(9) Dr. Arut Chalvan, Sc F, DMRL, Kanchanbagh, Hyderabad – 500058

(10) Director, DMRL, Kanchanbagh , Hyderabad - 500058

Control No: 059 (2019-2020)

BP - 2020 - 21 - 2596

FILE NO. CRG/2020/003472

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 25-Dec-2020

ORDER

Subject: Financial Sanction of the research project titled **"Silver nanowires and MoS2 microsphere based filtration system for efficient bacterial removal from potable water"** under the guidance of Dr. Balaji Bhargav, SSN RESEARCH CENTER, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Mr. Balaji Chandra, Research Scientist, Research Center, SSN College Of Engineering and by Mr. Nafis Ahmed, Assistant Professor, Physics, SSN College Of Engineering - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 2367332/- (Rs.** Twenty Three Lakh Sixty Seven Thousand Three Hundred and Thirty Two **Only)** with break-up of **Rs. *320000*/- under Capital (Non-recurring) head** and **Rs.*2047332*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 2367332/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Programmable Triple Channel DC Power supply -> Vacuum Oven	320000
A'	*Total (Non-Recurring)*	***320000***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1257120 515000 60000
2	Recurring - IV : (Overhead Charges)	215212
B'	*Total (Recurring)*	***2047332***
C	**Total cost of the project (A' + B')**	**2367332**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 790800/-** (Rupees Seven Lakh Ninety Thousand Eight Hundred only) under 'Grants-in-aid General' to **PRINCIPAL, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of the grant for the year 2020-2021 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Core Research Grant. (PAC Physics-1 (Condensed Matter Physics and Material Sciences))

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **24 December, 2020** and vide Diary No. **SERB/F/6280/2020-2021** dated **25 December, 2020**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

9. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

10. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

11. The release amount of **Rs. 790800/-** (Rupees Seven Lakh Ninety Thousand Eight Hundred only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	SSNCE
Account Name	THE PRINCIPAL, SSN COLLEGE OF ENGINEERING
Account Number	158100050070022
Bank Name & Branch	TAMILNAD MERCANTILE BANK Ltd Thiruvanmiyur Branch, No.3, Thiruvalluvar Salai, Thiruvanmiyur,Chennai - 600041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in
Email id of PI	balajibhargavp@ssn.edu.in

12.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

13. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

14. The project File no. CRG/2020/003472 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

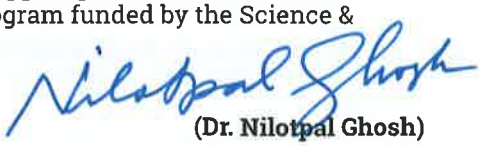
15. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

16. As this is the first grant being released for the project, no previous U/C is required.

17. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

18. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

19. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board.



(Dr. Nilotpal Ghosh)
MS
nilotpal@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Balaji Bhargav** **SSN RESEARCH CENTER** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: balajibhargavp@ssn.edu.in** **Mobile: 919789095983** **Mr. Balaji Chandra** **Research Center** **SSN College Of Engineering** **Mr. Nafis Ahmed** **Physics** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Nilotpal Ghosh)
MS
nilotpal@serb.gov.in

The updated RTGS details of the SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 is as below:

PFMS Unique Code	SSNCE
Account Name	**THE PRINCIPAL, SSN COLLEGE OF ENGINEERING**
Account Number	**158100710400509**
Bank Name & Branch	TAMILNAD MERCANTILE BANK Ltd Thiruvanmiyur Branch, No.3, Thiruvalluvar Salai, Thiruvanmiyur, Chennai - 600041
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	principal@ssn.edu.in

28/12

National University Corporation Kyushu University
744 Motooka, Nishi-ku, Fukuoka, 819-0395, JAPAN

18.06.2020

Prof. Hajme OKAMOTO,
Director of the Research Institute for Applied Mechanics,
on behalf of Chiharu KUBO, President of Kyushu University

Dear Prof. Hajime OKAMOTO,

This letter sets forth my understandings for **SSN Research Centre, SSN Institutions** researcher's conducting the joint use and/or joint research at Joint Usage/Research Center for Applied Mechanics of the Research Institute for Applied Mechanics, Kyushu University (hereinafter referred to as the "Center") which is defined as below, and I, on behalf of **SSN Research Centre, SSN Institutions** hereby ensure that:

1. the researcher, **Dr. M. Srinivasan**, will comply with the regulations prescribed in the "Handling Code for Joint Usage/Research Center for Applied Mechanics of the Research Institute for Applied Mechanics" (hereinafter referred to as the "Handling Code") and any other applicable regulations/rules of Kyushu University during his stay at the Center;

2. any research collaborator who is described in the "Joint Research Application Form" will comply with the Handling Code;

3. the researcher and research collaborator will never use the Center for military research purpose, and any research result created through his/her research activities at the Center will never be used or intended use for military purpose by my institution (or university) or any other third party; and,

4. any agreement on research activities may be concluded by and between my institution (or university) and Kyushu University as necessary upon Kyushu University's request, in that case, I will have the researcher and research collaborator comply with such agreement.

Details

Adoption No.: No.17_20RE-4
Research Representative:Dr.MANICKAM Srinivasan
Research Title:Renewable Energy Dynamics
Facility Caretaker:Prof.Kouichi KAKIMOTO
Term: 01/Apr./2020 ~ 31/Mar./2021

If this letter correctly sets forth your understandings above between your institution (or university) and Kyushu University, please kindly so indicate by signing this letter and retaining a duplicate copy for your record.

(Signature)

P. Ramasamy

Name: Prof. P. Ramasamy
Title: Director
Institution: SSN Research Centre, SSN Institutions
Date: 18.06.2020

DIRECTOR
SSN RESEARCH CENTRE
SSN INSTITUTIONS
KALAVAKKAM - 603 110.

Government of India
Department of Atomic Energy (DAE)
Board of Research in Nuclear Sciences (BRNS)

Dr. Ashok Pandey
Programme Officer (BRE)

BRNS Secretariat,
316-C,CFB,BARC,
Trombay,
Mumbai-400085
Phone:+91-02225594566
Email: ashokk@barc.gov.in

No: 58/14/15/2020-BRNS/37213

Date: ~~21/12/2020~~ 04/01/2021.

OFFICE MEMORANDUM

Sub: **R/P entitled "Synthesis of Lead-free Silver Bismuth Iodide light absorbers for mesoscopic solar cells" under Dr. R. Govindaraj, Research Scientist, SSN College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam, Chennai, Tamil Nadu, 603110. bearing sanction 58/14/15/2020-BRNS with BRE, BRNS.**

On the recommendations of the Board of Research in Nuclear Sciences (BRNS), I am pleased to convey the administrative approval and sanction of the President of India for the captioned project for **3 years** beginning from financial year **2020-2021** with a total grant of **Rs. 44,60,100/- (Rupees forty four lakh sixty thousand one hundred only)** for the project as under :

Item of expenditure	**Year 1 (2020-2021)**	**Year 2 (2021-2022)**	**Year 3 (2022-2023)**
Equipments	2100000	0	0
Staff Salary - JRF	372000	372000	0
Staff Salary - SRF	0	0	420000
Consumables	200000	150000	100000
Travel - PI	20000	20000	20000
Contingencies	40000	40000	40000
Overheads	201900	40650	40500
Total(INR)	**2933900**	**622650**	**620500**

Note: * Temperature Humidity Test Chamber, Ultrasonic soldering station, UV-Vis NIR Spectrophotometer
JRF salary calculated @ Rs.31,000/- p.m. for first two years and on redesignation by committee on in third year as SRF @ Rs.35,000/- p.m.

Please note that as per the government orders under **Direct Benefit Transfer (DBT)scheme, the staff salary has to be transferred to his/her bank account.** Accordingly, Aadhar Number(UID) of the appointed staff, Bank Account details and the Mobile number linked to the bank account should be obtained and it should be intimated to this office.

Overheads calculated @ 7.5% of the other heads except contingency. The remaining 7.5% towards overheads **(Rs. 2,83,050/-)** shall be released only on meeting the requirements specified (See Annex-B).

2. I am also pleased to convey the sanction of the President of India to incur an expenditure of **Rs. 29,33,900/- (Rupees twenty nine lakh thirty three thousand nine hundred only)** towards grant for the year 2020-2021 .
3. The expenditure involved is debitable to: **03 3401 00 004 27 0231.**
4. This is issued with the concurrence of the competent authority in the Department.

Pandey 4.1.2021

Dr. Ashok Pandey

Pay & Accounts Officer, DAE, Mumbai - 400 001.

Copy forwarded to:

1. Director of Audit, Scientific Department, AEAP, OYC, CSM Marg, Mumbai-400 001.
2. Joint Secretary (R&D), DAE, Anushakti Bhavan, CSM Marg, Mumbai-400 001.
3. Principal, SSN College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam, Chennai, Tamil Nadu, 603110..
4. Principal Investigator(PI): Dr. R. Govindaraj, Research Scientist, SSN College of Engineering, Rajiv Gandhi Salai (OMR), Kalavakkam, Chennai, Tamil Nadu, 603110..

A. First year grant is being released in full along with this Sanction Letter through Pay & Accounts Officer, Department of Atomic Energy, Anushakti Bhavan, CSM Marg, Mumbai-400 001 directly. You may await a Money transfer (MT) through ECS and The amount would be credited electronically to A/C No: 158100050070022, A/C Name: THE PRINCIPAL, SSN COLLEGE OF ENGINEERING, IFSC: TMBL0000158, Tamilnad Mercantile Bank Ltd. Thiruvanmiyur No.3. Thiruvalluvar Salai Chennai-600041.

i) Acceptance of this sanction and the MT for the amount sanctioned for the first financial year may please be acknowledged (Form-I).

ii) A sticker of the BRNS LOGO (Copy Enclosed) should be pasted on all the items procured under the project.

iii) THIS SANCTION IS FURTHER SUBJECT TO THE CONDITIONS STIPULATED IN ANNEX (ENCLOSED), WHICH MAY BE GONE THROUGH CAREFULLY.

B. Second year Sanction Letter will be issued automatically in the month of April/May of the 2nd financial year, however, the grant will be released (unspent balance of previous year and Interest earned will be adjusted) after the PI submits the following documents to the Programme Officer BRE:

a) Claim in Form-II quoting the reference of the sanction issued for the first year.

b) Utilisation Certificate (UC) as on 31st March of the preceding financial year in Form-III duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

c) Statement of Accounts (SA) as on 31st March of the preceding financial year should be updated on the website. Interest earned in previous year should be reflected in the Statement of Accounts. A printout of the same should be sent to BRNS after it is duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

d) Copy of appointment order and joining report of the staff appointed for the project along with minutes of the Selection Committee, alongwith HRA CLAIM (if applicable), should be uploaded in a single pdf file under the file head "Staff Appointment Details". In addition, the details of the appointed staff should also be updated in the available menu.

e) The inventory of equipment also should be updated in the menu, besides uploading the purchase order of the items costing more than 1 Lakh.

f) A One Page report on the progress of work during first year.

C. Third and subsequent years (if any) the Sanction Letter and the grant will be released on fulfillment of the following requirements:

i) Renewal/ Extension Application: Principal Investigator (PI) is required to upload by January 15 a pdf copy of duly signed renewal/ extension application in the prescribed form-(PRA) after logging into his/her account at https://brns.res.in. All applications received shall be examined by experts from the field and PIs may be invited to a Technical Programme Discussion Meeting (TPDM). Renewal of the project will be based on the recommendations of the TPDM, Advisory Committee and the Board.

ii) Sanction Letter: If the progress is found to be satisfactory the renewal sanction for the year will be issued in the beginning of that financial year in April/May.

iii) Claim: On receipt of the renewal sanction, the PI shall claim the funds sanctioned by submitting the following documents to Programme Officer BRE, 316-C, Common Facility Building, BARC, Trombay, Mumbai-400085:

a) Claim in Form-II quoting reference of the renewal sanction.

b) Utilisation Certificate (UC) as on 31st March of the preceding financial year in Form-III duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant. should be reflected in the Statement of Accounts.

c) Statement of Accounts (SA) as on 31st March of the preceding financial year including the amount of Interest earned in previous year and duly audited by the Internal Auditor of the University/ Institution or a Chartered Accountant.

d) Copy of appointment order and joining report of the staff appointed for the project along with minutes of the Selection Committee.

e) An inventory of equipment and the copy of Purchase order of equipments costing more than 1 Lakh.

D. At the end of Terminal Year the Settlement Grant and the Balance 7.5% Overheads will be released on fulfillment of the following requirements:

a) Claim Form-II if any,

b) The final Consolidated Statement of Accounts (SA) and Consolidated Utilization Certificate duly audited by an external Chartered Accountant or the Statutory (Govt.) Auditor. It is mandatory to include the amount of bank interest earned on the grant released into the SA.

c) Final Consolidated Progress Report and a brief report as per format given in Form-VII .

5. AAO (Cheque), DAE, Anushakti Bhavan, CSM Marg, Mumbai - 400 001 – With a request that the amount granted for the first year of the project may be released.
6. Member Secretary (BRE) : Dr. Surendra Singh, SSPD, BARC surendra@barc.gov.in
7. Co-Investigator (CI) : P. Ramasamy, SSN College of Engineering, Kalavakkam-603 110, Tamil Nadu, India, Email : ramasamyp@ssn.edu.in, Mobile :9283105760P. Balaji Bhargav, SSN Research Centre, SSN College of Engineering, Kalavakkam-603 110, Tamil Nadu, India, Email : balajibhar
8. Project Collaborator (PC): A.K. Chauhan, Thin Film Devices Section Technical Physics Division Bhabha Atomic Research Centre Trombay, Mumbai 400 085 INDIA, Email : akchau@barc.gov.in, Mobile :9094095000 - **You or your nominee may please be the DAE representative for selection of Research Fellow/ Research Associate for the project.**

Pandey 4.1.2021

Dr. Ashok Pandey

Note:

1. Please quote the Sanction Number 58/14/15/2020-BRNS in all your correspondence with BRNS

o/c 22/12/2020

बिल सं Bill No: 37099 तिथि 21/12/2020

Countersigned for Rs. 2933900/- twenty nine lakh thirty three thousand nine hundred Rupees Only.

अनुमोदन

Approved

4.1.2021

कार्यक्रम अधिकारी

Programme Officer BRE

परमाणु ऊर्जा विभाग

DEPARTMENT OF ATOMIC ENERGY

नाभिकीय विज्ञान अनुसंधान मंडल

BOARD OF RESEARCH IN NUCLEAR SCIENCES

Application Number:201912BRE03RP05811-BRNS

कृपया निम्नलिखित को सूचित करते हुए
राशी का भुगतान इन्हे करे ।

Please pay the amount to

A/C No: 158100050070022, A/C Name: THE PRINCIPAL, SSN COLLEGE OF ENGINEERING, IFSC: TMBL0000158, Tamilnad Mercantile Bank Ltd. Thiruvanmiyur No.3. Thiruvalluvar Salai Chennai-600041

Under intimation to

Dr. R. Govindaraj, Research Scientist

Mobile Number:9790346912

द्योतन एवं लेखन अधिकारी, प.ऊ.वि,

Pay & Accounts Officer, DAE

Er. Ravinder Gaur,
Scientist & Member Secretary
(State Science & Technology Programme)
TDT Divn., Room No.13, Hall-A,
Tel: 011-2659 0373, Email: rgaur@nic.in

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
टेक्नोलॉजी भवन, नया महरौली मार्ग
नई दिल्ली-110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI-110 016

D.O. No. **F. No. DST/SSTP/2018/289** Dated **05.03.2019**

Subject: Financial support for the project entitled "Development of GPS based comprehensive mobile App for Water Quality Assessment & Monitoring for promoting water security, farm security, urban development and civic improvement" by Dr. N. P. Rajesh, Head, Center for Radiation Environmental Science and Technology, SSN College of Engineering, Rajiv Gandi Salai (OMR), Kalavakkam, Thirupporur - 603110, Kancheepuram District, Tamilnadu- Release of the first instalment regarding

Dear **Dr. Rajesh**,

I am happy to inform your good self that above mentioned project proposal has been sanctioned by the DST for the implementation which is based on the Development of GPS based comprehensive mobile App for Water Quality Assessment & Monitoring for promoting water security, farm security, urban development and civic improvement. Please note that whenever any important activity organized by yourself may kindly to informed this Department so that persons may be nominated for the participation. We have also enclosed the terms and condition of the grants, GFR-2017 (attached along with this letter) please follow them while implementing the project. Please also inform the DST about following as they become applicable:

1. Date of receipt of funds
2. Project commencement date
3. Recruitment of manpower as per DST norms
4. Actual work plan for implementing the project indicating various milestones
5. Quarterly progress report of the project as per the format enclosed
6. Statement of Expenditure (SE) and Utilization Certificate (UC) as per the format attached for General and Capital Grant separately.
7. As per the new instructions of the Ministry, the PI is requested to deposit the whole project grant in an interest earning account and be remitted to the Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts while sending the SE/UC of each financial year for any further release from this Department.
8. The PI is requested to upload the UC in the PFMS website (https://pfms.nic.in/Users/LoginDetails/Login.aspx) and submit the UC number of General and Capital Head.
9. A formal acceptance letter from the competent authority of your institute for agreeing to the terms and conditions of the sanction order (within 15 days of receipt of this letter)

Cont..2

The sanction order contains various annexure which gives the various formats required to be submitted by the PI while implementing the project. We will be happy to provide further any information if needed. You are kindly requested to submit the various documents to this Department through to the undersigned for any further grants from this Department.

Looking forward your soon reply.

Thanking you with kind regards,

Your Sincerely,

(Ravinder Gaur)

Dr. N. P. Rajesh
Head
Center for Radiation Environmental Science and Technology
SSN College of Engineering,
Rajiv Gandi Salai (OMR), Kalavakkam,
Thirupporur - 603110, Kancheepuram
District, Tamilnadu

F. No.: DST/SSTP/2018/289 (G)
Government of India
Ministry of Science and Technology
Department of Science and Technology

Technology Bhavan
New Mehrauli Road
New Delhi- 110 016
Dated the 26.02.2019

ORDER

Subject: Financial support for the Project entitled "Development of GPS based comprehensive mobile App for Water Quality Assessment & Monitoring for promoting water security, farm security, urban development and civic improvement" by Dr. N. P. Rajesh, Head, Center for Radiation Environmental Science and Technology, SSN College of Engineering, Rajiv Gandi Salai (OMR), Kalavakkam, Thirupporur - 603110, Kancheepuram District, Tamilnadu- Release of the first instalment regarding

Sanction of the President is hereby accorded for the approval of the above mentioned project at a total cost of **Rs. 47,57,912/-** (Rupees Forty-Seven Lakh Fifty-Seven Thousand Nine Hundred Twelve Only) for a duration of 24 months to the **Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110,** as per the budget mentioned below. The detailed breakup of the DST contribution is given below with the following bifurcations:

- General Component: **Rs. 15,60,000/-** (Rupees Fifteen Lakh Sixty Thousand Only)
- Capital Component: **Rs. 31,97,912/-** (Rupees Thirty-One Lakh Ninety-Seven Thousand Nine Hundred Twelve Only)

Budget Outlay

Sl. No.	Items	1st Year	2nd year	Total
	Recurring expenses			
1	Salaries*	3,60,000	3,60,000	7,20,000
2	Consumables	3,00,000	2,00,000	5,00,000
3	Contingencies	50,000	50,000	1,00,000
4	Travel	70,000	70,000	1,40,000
5	Overhead expenses	50,000	50,000	1,00,000
	Subtotal (1)	**8,30,000**	**7,30,000**	**15,60,000**
	Non-Recurring expenses			
6	Permanent equipment	**31,97,912**	**0**	**31,97,912**
	Grand total	**40,27,912**	**7,30,000**	**47,57,912**

*** Salary:**

a) **Two Project Assistants @15,000/- PM fixed for 24 months**

2. The sanction of the president is also conveyed for the Initial release of **Rs. 8,30,000/-** (Rupees Eight Lakh Thirty Thousand Only) under 'General Component'.

3. This sanction is subject to the condition that the grantee organization will furnish to the Department of Science & Technology, financial year wise utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date of progress report at the end of each financial year duly reflecting the interest earned/accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

4. The grantee organization will have to enter and upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

Contd...2

5. If the grant has been released under the capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

6. The grant –in-aid being released is subject to the condition that:

(a) A transparent procurement procedure in line with the Provision of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of the grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant

(b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts.

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. In case the scheme provides for payment of honorarium/remuneration/fellowship/scholarship to the Principal Investigator, a para may be suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/salary/fellowship from any other project either supported by DST or by any other funding agency".

10. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236 (1) of General Financial Rules 2017.

11. Due acknowledgment of technical support/financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publications/media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

12. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

13. The expenditure involved is debitable to:-
Demand No. **84,** Department of Science & Technology

3425	**Other Scientific Research (Major Head)**
60	**Other (sub-major Head)**
60.200	**Assistance to other Scientific Bodies (Minor Head)**
68	**Science & Technology Institutional and Human Capacity Building**
68.00.31	**Grant –in-aid general for the year 2018-19(Plan Expenditure)**
Previous budget head	**3425.60.200.27.00.31 (State Science & Technology Programme Grant –in-aid general)**

14. The amount of **Rs. 8,30,000/-** (Rupees Eight Lakh Thirty Thousand Only) will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to the **Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu** The bank details for electronic transfer of funds through RTGS are given below:

Contd...3

Name of the agency	Principal, SSN College of Engineering
Account no.	158100050070022
Bank name	Tamilnadu Mercantile Bank Ltd.
IFSC code	TMBL0000158

15. As per the Rule 234 of GFR 2017, this sanction has been entered at S. No 68 in the register of grants maintained in the Division for the scheme State S&T programme.

16. This issues with the concurrence of IFD vide their Concurrence **Diary No. 5246 dated 13.02.2019**

17. DARPAN portal ID of the host institute: TN/2017/0118071

(Er. Ravinder Gaur)
Scientist – D
011-26590373

To
The Pay and Accounts Officer
Department of Science and Technology
New Delhi- 110 016
Copy for information and necessary action to:

1. Cash Section (3 copies) for preparing the bill and remitting the amount to the above grantee.
2. Accounts Section, DST, New Delhi.
3. IFD, Department of Science & Technology, New Delhi.
4. Director of Audit (CW& M-II), AGCR Building, IP Estate, New Delhi.
5. The Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu.
6. Dr. N. P. Rajesh, Head, Center for Radiation Environmental Science and Technology, SSN College of Engineering, Rajiv Gandi Salai (OMR), Kalavakkam, Thirupporur - 603110, Kancheepuram District, Tamilnadu (with a request to intimate the undersigned on receipt of the funds in the bank account)
7. Office Copy
8. Sanction Folder
9. Head (TDT)

(Er. Ravinder Gaur)
Scientist –D
011-26590373

F. No.: DST/SSTP/2018/289 (C)
Government of India
Ministry of Science and Technology
Department of Science and Technology

Technology Bhavan
New Mehrauli Road
New Delhi- 110 016
Dated the 26.02.2019

ORDER

Subject: Financial support for the Project entitled "Development of GPS based comprehensive mobile App for Water Quality Assessment & Monitoring for promoting water security, farm security, urban development and civic improvement" by Dr. N. P. Rajesh, Head, Center for Radiation Environmental Science and Technology, SSN College of Engineering, Rajiv Gandi Salai (OMR), Kalavakkam, Thirupporur - 603110, Kancheepuram District, Tamilnadu- Release of the first instalment regarding

With reference to sanction order no. **DST/SSTP/2018/289 (G)** dated the 26.02.2019 Sanction of the president is hereby accorded for the payment of **Rs. 31,97,912/-** (Rupees Thirty-One Lakh Ninety-Seven Thousand Nine Hundred Twelve Only) as first instalment of the above project towards Grant for creation of capital assets to **Principal, Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu,** as per the list of equipment mentioned below for the implementation of the project during F.Y **2018-19.**

Equipment:

Sl. No.	Name of the Permanent equipment	Amount in Rs.
1	Turbidity meter	44,574
2	Thermo Dionex Aquion Ion Chromatography System*	24,70,000
3	Flame Photometer	2,09,450
4	Laminar Air flow -Vertical	1,53,400
5	Autoclave	64,900
6	BOD incubator	76,700
7	Cooling Incubator	1,54,875
8	Colony Counter	12,803
9	Vortex Mixture	11,210
	Total	**31,97,912**

*** Conversion of US$ to INR is based on XE.Com on 10-01-2019**

2. The sanction of the president is also conveyed for the Initial release of **Rs. 31,97,912/-** (Rupees Thirty-One Lakh Ninety-Seven Thousand Nine Hundred Twelve Only) under 'Capital Component'.

3. This sanction is subject to the condition that the grantee organization will furnish to the Department of Science & Technology, financial year wise utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date of progress report at the end of each financial year duly reflecting the interest earned/accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

4. The grantee organization will have to enter and upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

Contd...2

5. If the grant has been released under the capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

6. The grant -in-aid being released is subject to the condition that:

(a) A transparent procurement procedure in line with the Provision of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of the grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant

(b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts.

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. In case the scheme provides for payment of honorarium/remuneration/fellowship/scholarship to the Principal Investigator, a para may be suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/salary/fellowship from any other project either supported by DST or by any other funding agency".

10. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236 (1) of General Financial Rules 2017.

11. Due acknowledgment of technical support/financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publications/media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

12. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

13. The expenditure involved is debitable to:-Demand No. **84**, Department of Science & Technology

3425	**Other Scientific Research (Major Head)**
60	**Other (sub-major Head)**
60.200	**Assistance to other Scientific Bodies (Minor Head)**
68	**Science & Technology Institutional and Human Capacity Building**
68.00.35	**Grant for creation of capital assets for the year 2018-19 (Plan Expenditure)**
Previous budget head	**3425.60.200.27.00.35 (State Science & Technology Programme Grant -in-aid for creation of capital assets)**

14. The amount of **Rs. 31,97,912/-** (Rupees Thirty-One Lakh Ninety-Seven Thousand Nine Hundred Twelve Only) for non-recurring grant will be drawn by the Drawing and Disbursing Officer, Department of Science and Technology and disbursed to the **Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu as per the budget mentioned above.** The bank details for electronic transfer of funds through RTGS are given below:

Name of the agency	**Principal, SSN College of Engineering**
Account no.	**158100050070022**
Bank name	**Tamilnadu Mercantile Bank Ltd.**
IFSC code	**TMBL0000158**

Contd...3

15. As per the Rule 234 of GFR 2017, this sanction has been entered at S. No 68 in the register of grants maintained in the Division for the scheme State S&T programme.

16. This issues with the concurrence of IFD vide their Concurrence **Dy. No. 5247 dated the 13.02.2019**

17. The DARPAN portal ID of the host institute: TN/2017/0118071

(Er. Ravinder Gaur)
Scientist – D
011-26590373

To
The Pay and Accounts Officer
Department of Science and Technology
New Delhi- 110 016
Copy for information and necessary action to:

1. **Cash Section (3 copies) for preparing the bill and remitting the amount to the above grantee.**
2. **Accounts Section, DST, New Delhi.**
3. **IFD, Department of Science & Technology, New Delhi.**
4. **Director of Audit (CW& M-II), AGCR Building, IP Estate, New Delhi.**
5. **The Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu.**
6. **Dr. N. P. Rajesh, Head, Center for Radiation Environmental Science and Technology, SSN College of Engineering, Rajiv Gandi Salai (OMR), Kalavakkam, Thirupporur - 603110, Kancheepuram District, Tamilnadu (with a request to intimate the undersigned on receipt of the funds in the bank account)**
7. **Office Copy**
8. **Sanction Folder**
9. **Head (TDT)**

(Er. Ravinder Gaur)
Scientist –D
011-26590373

AdhocReports
SchemeWiseContactDetails
Home
CAM Reports
Masters
Users
Agency
Sanctions
PreSanction
Sanction Custom Fields
Printing Templates
Sanction Templates
Employee Info. System
Reports
Masters
My Schemes
Agencies
Scheme Allocation
Register/ Track Issue
Utilisation Certificate
OLD UC

Payee Details

Controller:	037-SCIENCE AND TECHNOLOGY	**Sanction Status:**	**Approved**
Sanction Number:	DST/SSTP/2018/289(G)	**Sanction Date:**	26/02/2019
Sanction Type:	Transfer (DDO Bill)	**Sanction Amount:**	830000
IFD Number:	5246	**IFD Date:**	13/02/2019
Scheme:	1817-Science and Technology Institutional and Human Capacity Building	**PAO:**	058296-PAO(DST), New Delhi
DDO:	258297-DEPARTMENT OF SCIENCE & TECHNOLOGY (INCLUDING,NCST)	**Remarks:**	Release of the first installment regarding

Account Details:

Grant	Department (For UT Grants Only)	Function Head	Object Head	Category	Amount	External PAO	Available Budget
084 - Department of Science and Technology		3425602006800 - SCIENCE & TECHNOLOGY INSTITUTIONAL AND HUMAN CAPACITY BUILDING	31 - GRANTS-IN-AID GENERAL	5 - VOTED	830000		537339544

Agency	Bank Account No	Amount	Instrument Type
SSN COLLEGE OF ENGINEERING	158100050070022 - SSN College of En ▼	830,000.00	(•) RTGS

ePayment Details

Accredited Bank : * UNION BANK OF INDIA ▼ **Amount :** 830000 **Not Payable Before :** * ☐ Required

Party Name	IFSC Code	Party Account No	Amount	Payee Remarks
SSN COLLEGE O	TMBL0000158	158100050070022	830000	first installment

Note: If the IFSC Code is not automatically shown it means bank A/C is not validated.If payment process is urgent please key in the IFSC Code and process payment.Please ensure IFSC Code is correct.

Back

 ©2009 CENTRAL PLAN SCHEME MONITORING SYSTEM. All Rights Reserved.

AdhocReports
SchemeWiseContactDetails
Home
CAM Reports
Masters
Users
Agency
Sanctions
PreSanction
Sanction Custom Fields
Printing Templates
Sanction Templates
Employee Info. System
Reports
Masters
My Schemes
Agencies
Scheme Allocation
Register/ Track Issue
Utilisation Certificate
OLD UC

Payee Details

Controller:	037-SCIENCE AND TECHNOLOGY	**Sanction Status:**	**Approved**
Sanction Number:	DST/SSTP/2018/289(C)	**Sanction Date:**	26/02/2019
Sanction Type:	Transfer (DDO Bill)	**Sanction Amount:**	3197912
IFD Number:	5247	**IFD Date:**	13/02/2019
Scheme:	1817-Science and Technology Institutional and Human Capacity Building	**PAO:**	058296-PAO(DST), New Delhi
DDO:	258297-DEPARTMENT OF SCIENCE & TECHNOLOGY (INCLUDING,NCST)	**Remarks:**	Release of the first installment regarding (Capital)

Account Details:

Grant	Department (For UT Grants Only)	Function Head	Object Head	Category	Amount	External PAO	Available Budget
084 - Department of Science and Technology		3425602006800 - SCIENCE & TECHNOLOGY INSTITUTIONAL AND HUMAN CAPACITY BUILDING	35 - GRANTS FOR CREATION OF CAPITAL ASSETS	5 - VOTED	3197912		1540261261

Agency	Bank Account No	Amount	Instrument Type
SSN COLLEGE OF ENGINEERING	158100050070022 - SSN College of En ▼	3,197,912.00	(•) RTGS

ePayment Details

Accredited Bank : * UNION BANK OF INDIA ▼ **Amount :** 3197912 **Not Payable Before :** * ☐ Required

Party Name	IFSC Code	Party Account No	Amount	Payee Remarks
SSN COLLEGE O	TMBL0000158	158100050070022	3197912	first installment reg

Note: If the IFSC Code is not automatically shown it means bank A/C is not validated.If payment process is urgent please key in the IFSC Code and process payment.Please ensure IFSC Code is correct.

Back

 ©2009 CENTRAL PLAN SCHEME MONITORING SYSTEM. All Rights Reserved.

MHRD'S
INNOVATION CELL
(GOVERNMENT OF INDIA)

सत्यमेव जयते

Ministry of
Human Resource Development
Government of India

Sanction Order

Date: 15/07/2019

Sub: Grants to TBIs for further development of 11 Ideas prototyped during SIH2018

The Smart India Hackathon 2018 (SIH2018) Committee had selected hardware projects conceptualized by 12 teams for further development and to help them build start-ups upon these innovations. These 12 teams had prototyped their ideas during the grand finale of SIH2018 Hardware Edition. Below is the list of the aforementioned teams and their corresponding incubators.

Sr.No.	Team Name	Institute	Team Leader Contact Details	Selected Incubation Centre	Account Details of TBIs	Account No
1	whistling cookers	Avinashilingam Deemed University for Women	Name: Mounica.C.R Email:mounicaravichandran@gmail.com Phone: 9943415215	Forge Incubator	Coimbatore Innovation and Business Incubator	914010040254307
2	BVPSIHS	Bharati Vidyapeeth's College Of Engineering	Name: Saksham Madan Email : sakshammadan001@gmail.com Phone: 9716017643	Bharati Vidyapeeth's College Of Engineering	Principal, Bharati Vidyapeeth College of Engineering New Delhi	31976258020
3	BRAMHANSH	Shri Shankaracharya Group of Institutions	Name: Jaideep tiwari Email : JAIDEEP4UALL@GMAIL.COM Phone: 8770858176	BHAU Incubation Center	COEP'S Bhau Institute of Innovation Entrepreneurship and Leadership	37374129991
4	The Gladiators	G. H. Raisoni College Of Engineering, Nagpur.	Name: Nihal Wargantiwar Email : wargantiwar_nihal.ghrceme@raisoni.net Phone: 9689794809	G. H. Raisoni College Of Engineering, Nagpur	Director, G.H Raisoni College of Engineering	1404101018350
5	rainbow six	Vidya Academy of Science & Technology	Name: Nikhil P S Email : nikhilpsathyanathan@gmail.com Phone: 9995275909	Forge Incubator	Coimbatore Innovation and Business Incubator	914010040254307
6	TechEEE1	Sri Sivasubrmaniya Nadar College Of Engineering	Name: Vignesh R Email : vigneshravi130798@gmail.com Phone: 9092937550	Sri Sivasubrmaniya Nadar College Of Engineering	The Principal, SSN College of Engineering	158100050070022
7	Prayaas	Pillai College of Engineering	Name: Rushikesh Namdeo Shirke Email : shirusnam15@student.mes.ac.in Phone: : 8898928104	Rambhau Mhalgi Prabodhini Foundation/ Pillai College of Engineering	Ravindra Sathe, Director	918010103185234
8	The Skyporters	R.V. College of Engineering	Name: Supreeth Y S Email : supreethys.is15@rvce.edu.in Phone: 8095375309	Jain University Incubation Center	Jain University Incubation Center - Innovation	60333009757

Sr.No	Team Name	Institute	Team Leader Contact Details	Selected Incubation Centre	Account Details of TBIs	Account No
9	SLICK	Techno India Njr Institute Of Technology	Name: LOKESH PURI GOSWAMI Email : 14etcce030@technonjr.org Phone: 9694151808	Techno India NJR Institute Of Technology	Techno India NJR Institute of Technology	12731450000045
10	vision coders	L.J.Institute Of Engineering & Technology	Name: Vrushang Girishbhai Patel Email : vrushangpatel25@gmail.com Phone: 9714728457	L.J.Institute Of Engineering & Technology	L. J. Knowledge Foundation	104201000010727
11	Vidyut	Cambridge Institute Of Technology	Name: Pulkit Jain Email : pulkitjn97@gmail.com Phone: +91-9852222148.	36 Inc Raipur	CEO CHIPS 36 INC	004910400055802 0
12	Water Cops	Moradabad Institute Of Technology	Name: Yash Khanna Email : khannayash03@gmail.com Phone: 9760265427	Netaji Subhas Bose University of Technology		

However, upon follow-up with the teams, Team No. 12, Water Cops lead by Mr. Yash Khanna from Netaji Subhas Bose University of Technology (NSUT) expressed reluctance to take their idea forward. Hence, the grant amount to team Water Cops is hereby cancelled.

1. Sanction amount of Rs. 1.1 crore is hereby conveyed by the competent authority to the grantees.
2. The sanction is issued in exercise of the power delegated to All India Council for Technical Education and MHRD's Innovation Cell and other terms & conditions laid down for the purpose.
3. The sanctioned amount can be debited under the budget of MHRD's Innovation Cell (may be referred as MIC or Cell).
4. Amount covered by this head shall be kept separately and would not be mixed with other funds.
5. AICTE/MIC or its any nominee shall have the right to check/verify the accounts to satisfy that the funds have been utilised for the purpose for which it was sanctioned.
6. The Technology Business Incubators (may be referred as TBIs or Incubation Centres) shall maintain proper accounts of the expenditures out of the grant, which shall be utilised only on approved items of grant.
7. The assets acquired wholly or substantially of the MHRD's Innovation Cell's grant shall not be disposed or encouraged or utilised for the purposes other than those for which it was given without proper sanction of the Cell or Council and should, at any time the Incubator ceased to function, such assets shall revert to the MHRD's Innovation Cell or All India Council for Technical Education.
8. The total amount of grant that will be given to each project from AICTE/MHRD for deployment of hardware projects under TBIs would not exceed Rs. 10 Lakh for SIH Hardware projects. The grant amount will be transferred to TBIs directly by AICTE/MIC and the TBIs will release the grant to the teams in 3 instalments.

9. The teams will be incubating in the TBIs for 9 months with a stipend of Rs. 5000/month/member which would be covered under the total grant amount of Rs. 10 Lakh.
10. The incubation period is up to 9 months. But on case to case basis, the incubation period can be extended up to 3 more months with NO stipend, where the teams can utilize the resources.
11. TBIs will be directed to utilise the grant under 3 instalments. In the first 3 months TBIs can utilise up to 5 Lacs followed by 2.5 Lacs+2.5 Lacs in the following two instalment periods.
12. AICTE/MIC will not have any share/stake in the incubating teams or in their start-ups.
13. As per the rules of individual TBIs, few TBIs might claim some share/stake in the teams or their start-ups. AICTE/MIC will not be a part of it. This should be negotiated between the TBIs and the incubating teams.
14. Mentors are allowed to help the incubating teams during their deployment period but they will not get the stipend or any other financial support from the AICTE/MIC grant money.
15. TBIs will help their incubating teams with all the required activities and networks.
16. While the teams will start working in their respective TBIs to take their projects forward, in case any team member needs to be replaced or removed from the original winning team of SIH hardware edition, the teams need to inform MIC in advance with an NOC from the older members of the team & once approved from MIC, they will be able to change the members, with other rules being constant. Once TBI is contacted by MIC, they will allow to make the changes.
17. MIC team will visit and take an update every 3 months about the progress of the projects. The TBIs will be directed to submit the review to MIC every 3 months.
18. The total grant of Rs 10 Lacs has been distributed into following heads.

Sl. No.	Type	Details	Description	Upper Limit
1	Recurring	Stipend	Stipend upto 6 members per team at the rate of Rs. 5000 per month for upto 9 Months	₹ 2,70,000.00
2		Incubation charge	This includes incubator rental charges and usage of basic infrastructure for Rs. 4000 per month for upto 9 months	₹ 1,35,000.00
3		Mentoring	Time to time mentorship by external experts	₹ 1,00,000.00
4	Non Recurring	Consumables	Procurement of consumables, including IT Infrastructure, for Product Development, strictly related & limited to the project. This will NOT include equipment for personal uses & also laptops, computers, cameras, etc.	₹ 1,50,000.00
5		R&D and Product Development	R&D, Product Development, Designing & Fabrication Cost	₹ 1,50,000.00
6		IPR	For patents, trademarks or copyrights filing.	₹ 80,000.00
7		Domestic Travel	This covers travel cost for the student team for business development purpose only inside India. NO international travel will be covered under this budget.	₹ 1,50,000.00
8		Marketing & Business Development	This covers cost for physical, digital, other marketing, website development and product launch event cost.	₹ 2,00,000.00

9	Non Recurring	**Company Incorporation Cost**	This covers cost for company incorporation and related forms including DSC, DIN, RUN, SPICe, PAN and TAN form etc.	₹ 50,000.00
10		**Program management**	Managing day to day work by the incubator	₹ 70,000.00
11		**Miscellaneous**	This covers cost for contingencies and sundry expenses.	₹ 1,45,000.00
Total Grant				**This will NOT exceed Rs. 10,00,000 per project**

19. In case of poor progress of the projects, the next level of funding instalment shall not be released by TBI to their respective team(s).
20. Accommodation, food and any personal travel will not be covered under the MIC grant.
21. Purchase of laptops, computers, printers, telephone, server or any such non-recurring equipment will not be covered under this grant.
22. The unused amount under each budget head has to be returned to AICTE/MIC with UC. The unused amount under one head cannot be used under any other budget head.
23. The unutilised and undisbursed amount shall be returned in the form of Demand Draft payable in favour of Innovation Cell Account, New Delhi along with all related documents as mentioned previously and progress report of the Post-development activities of Smart India Hackathon 2018 Hardware edition before 6 months from the date of end of project.

Sanction of Rs 1.1 Crore (Rupees one crore ten lacs) is hereby conveyed by the competent authority towards Post Hackathon Development of Hardware Projects of SIH2018.

This is issued with the approval of the competent authority.

Dr. Mohit Gambhir
Innovation Director

Distributions:

1. Advisor (Finance), AICTE - with request to release the payment to the concerned TBIs
2. All Concerned TBIs:
   - Forge Incubator / Coimbatore Innovation and Business Incubator
   - Bharati Vidyapeeth's College Of Engineering
   - BHAU Incubation Center
   - G. H. Raisoni College Of Engineering, Nagpur
   - Sri Sivasubrmaniya Nadar College Of Engineering
   - Rambhau Mhalgi Prabodhini Foundation/ Pillai College of Engineering
   - Jain University Incubation Center
   - Techno India NJR Institute Of Technology
   - L.J.Institute Of Engineering & Technology
   - 36 Inc Raipur
   - Netaji Subash Bose University of Technology
3. Institutes to which the teams belong:
   - Avinashilingam Deemed University for Women
   - Bharati Vidyapeeth's College Of Engineering

- Shri Shankaracharya Group of Institutions
- G. H. Raisoni College Of Engineering, Nagpur.
- Vidya Academy of Science & Technology
- Sri Sivasubrmaniya Nadar College Of Engineering
- Pillai College of Engineering
- R.V. College of Engineering
- Techno India Njr Institute Of Technology
- L.J.Institute Of Engineering & Technology
- Cambridge Institute Of Technology
- Moradabad Institute Of Technology

4. File

Date:29.11.2019 F.No.9-78/RIFD/MOD/Policy-I/2018-19

All India Council for Technical Education
(A Statutory Body under Ministry of HRD, Govt. of India)
Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org

MODROB - Sanction Letter

F.No.9-78/RIFD/MOD/Policy-1/2018-19 Date: 02.12.2019

To,

The Drawing and Disbursing Officer,
All India Council for Technical Education,
Nelson Mandela Marg, Vasant Kunj,
New Delhi- 110070.

Sub: Release of a sum of Rs.880000/- (Rupees Eight Lakh Eighty Thousand Only) being the Grant-in-Aid under the scheme Modernization and Removal of Obsolescence (MODROB) for the year 2018-19 payable during the current financial year 2019-20- reg.

Sir,

With reference to the proposal submitted by the institute, this is to convey that the sanction of the Council for payment of **Rs.1100000/- (Rupees Eleven Lakh Only)** as Grant-in-Aid under the **Modernization and Removal of Obsolescence (MODROB)** scheme, as per details given below:

1.	Name and address of the Beneficiary Institution:	**Director/ Principal/ Registrar, SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING, RAJIV GANDHI SALAI (OMR) KALAVAKKAM - 603 110 KANCHIPURAM DIST TAMIL NADU Tamil Nadu -603110.**		
2.	Title of Project:	Modernization of Renewable Energy Laboratory		
3.	Name of Coordinator:	Dr. KAMARAJ V		
4.	Duration of the project:	**2 Years**		
4.	Total Grant-in-aid Sanctioned:	**Total:**	**Non-Recurring (85%):**	**Recurring (15%):**
		Rs.1100000/-	Rs.935000/-	Rs.165000/-
5.	Amount to be released during the year 2019-20:	**1st Installment Rs.880000/-**	**Non-Recurring (85%):** Rs.748000 /-	**Recurring (15%):** Rs.132000/-
6.	Sanctioned grant-in-aid is debitable to:	**Major Head 601.18(a) Gen. (Plan Head)**		

1. The amount of the Grant shall be drawn by the Drawing and Disbursing Officer, All India Council for Technical Education on the Grant-in-Aid bill and shall be disbursed to and credited to the account of Director/Principal/ Registrar of the Institute through RTGS/PFMS.
2. This Grant-in-Aid is being released in conformity with the terms & conditions as well as norms of the scheme as already communicated, and also being communicated in this letter.

THE INSTRUCTIONS/GUIDELINES TO BE FOLLOWED BY UNIVERSITY/INSTITUTION

I. Release of funds:

a. The Principal/ Director of the institute and the Coordinator of the project are hereby requested to verify the correctness of the undermentioned bank account/ RTGS details submitted by them along with the Proposal, in which the grant is being released:

Institute PAN No.	Bank Name	Bank Branch Name	Branch Address	Account Holder Name	Account Type	Account Number	IFSC
AAATS2240Q	tamilnad mercantile bank ltd.	Thiruvanmiyur	No.3, Thiruvalluvar Salai, Chennai - 600041	The Principal,SSN College of Engineering	Saving Account	15810005007 0022	TMBL0000158

In case of any omission the same should be reported to AICTE immediately.

b. The sanction is issued in exercise of the powers delegated to the council and other terms & conditions laid down in the guidelines of the scheme.

c. 100% grant of the sanctioned amount is being released to Government/Govt. Aided institutions. Utilization Certificate (UC) and other requisite documents are to be submitted within one month of the completion of the project.

d. To self-financed/Pvt. Institutions 80% of the sanctioned amount is being released as first installment followed by 20% as reimbursement after receipt of UC and other requisite documents as specified in terms & Conditions of MODROB Scheme.

II. Maintenance of accounts:

a) The Institute shall strictly follow the provisions laid down in the scheme document and sanction order No. F.No.9-78/RIFD/MOD/Policy-1/2018-19 Dated 02.12.2019 issued by this office. All correspondences related to the project must contain this number along with year of sanction of the project; failing which correspondence will not be entertained

b) Funds covered by this grant shall be kept separately and would not be mixed up with other funds, so as to know the amount of interest accrued on the grant AICTE.

c) The University/College/Institute shall maintain proper accounts of the expenditure out of the grants, which shall be utilized only on approved items of expenditure (list enclosed).

d) The Council or its nominee shall have the right to check /verify the account to satisfy that the fund has been utilized for the purpose for it was sanctioned.

e) The date of release of the grant by AICTE shall be taken as the date of commencement of the project. The Principal / Director / Registrar shall intimate about the receipt of the grant to AICTE. Any expenditure incurred prior to the issuance of the approval letter will not be allowed to be adjusted in the grant and if the Institution / University do not take the project work within one month of the receipt of the grant, the approval shall ipso facto lapse.

f) After receipt of the grant from AICTE, the Institute shall send a confirmation to AICTE within 2 months of receipt of grant that the sanctioned project has been started/is in progress.

III. Refund of grant by way of a demand draft in favour of Member Secretary, AICTE, New Delhi:

a) If the college/institute does not have the Letter of Approval (LOA) or Extension of Approval issued by AICTE for the academic year 2019-20, the fund released should be immediately refunded to AICTE with interest accrued thereon.

b) If project is not started within six months of the issuance of this Offer Letter, the released amount, along with interest accrued thereon, has to be necessarily returned to AICTE.

c) In any case, if the institute is required to refund the grant or interest accrued thereon or balance amount, the amount will be refunded to AICTE.

d) It may be ensured that the project is completed within the stipulated time. If the project is not completed in time, no further extension will be granted in any case and institute has to refund the entire amount to AICTE.

e) As AICTE needs adequate time for depositing the Demand Draft in the bank, the same be immediately dispatched to avoid any lapse of the validity period.

IV. Submission of documents by college/institution after completion of Project/Subsequent years:

The following mandatory relevant documents are required to be submitted by the college/institution within one month of the completion of the project: -

a) Feedback form in the prescribed proforma.

b) The Annual Progress Report (APR) in the prescribed format along with the original Statement of actual Expenditure in the prescribed proforma duly signed by the Head of the institution and shall be submitted to AICTE not later than one month after completion.

c) The Utilization Certificate (UC) supported by Audited Statement of Expenditure to the effect that the grant has been utilized for the purpose for which it has been sanctioned shall be furnished to the AICTE immediately after completion of the project. It should contain the head-wise break up

of expenditure made from the grant-in-aid provided by the Council. Audited Statement of Expenditure indicating expenditure incurred in the total duration of the project in the prescribed format and GFR-19 shall be submitted to the Council.

d) In case of self-financing/private institutions, Statement of actual Expenditure & Utilization Certificate are required to be audited & signed by a Charted Accountant (with membership no., full address & stamp). Photocopies of formats are enclosed.

e) Program Evaluation Committee (PEC) is required to be constituted at Institutional level. The constitution of the PEC shall be asunder:

i. Principal/Director/Registrar of the Institution(Chairperson)
ii. Coordinator of the project (Member Secretary),
iii. Two HODs and one subject expert(Members).
iv. The members of the said PEC shall not be below the rank of Associate Professor. The minutes of the meetings are to be submitted to the Council at end of the project along with other mandatory documents.

f) Project completion report project indicating the activities undertaking, number of students benefited, laboratory works photographs of students, together with their views is to be submitted.

g) Attested photocopies of supporting vouchers/bills of expenditure incurred for the completion of Project.

h) Photographs of equipment's purchased.

i) The balance amount of the grant will be reimbursed to the university/institution only on submission of the above documents. On receipt of these documents, the total amount of balance of financial assistance, admissible as per the norms, shall be worked out and grant-in-aid shall be released, as second installment, in favour of the beneficiary institution.

V. General instructions

a) The amount of interest accrued on the grant should be treated as part of the grant to be utilized for that particular project. However, the interest amount accrued along with grant disbursed should not exceed the total grant sanctioned for the project. The Institute receiving the grant should reflect the same in the audited statement of accounts/ utilization certificate and may either refund the interest amount to AICTE or AICTE shall adjust the same in the next installment of grant before its release.

b) Any unavoidable circumstantial change in the project with respect to name of Project Coordinator for the MODROB project would mandatorily require prior approval of the Council. All such requests should be addressed to AICTE, in advance, recording the specific reasons for proposed changes, failing which the offer for the grant already issued would be treated as automatically withdrawn and the financial assistance released in favour of the beneficiary institution shall be refunded immediately to the Council. Kindly mention the File No.9-78/RIFD/MOD/Policy-1/2018-19 in your future correspondence.

c) The grantee shall maintain an audited record of assets acquired wholly or substantially out of the Grant-in-Aid and a register of assets shall be maintained by the Institute in the prescribed form i.e.GFR-19.

d) The College / Institute receiving grant under MODROB is expected to put up a plaque at the main entrance of the Lab/Department, which has been modernized using the grant. All the equipment procured through the project should be super scribed with AICTE project file number.

e) The assets acquired wholly or substantially out of grant shall not be disposed or encumbered or utilized for the purpose other than those for which the Grant was given without proper sanction of the AICTE and should at any time the institution cease to function, such assets shall revert to the AICTE.

f) The grantee Institution shall observe all financial norms and guidelines as prescribed by the AICTE/ Government of India from time to time. GOI GFR rules (@https://doe.gov.in/order-circular/general-financial-rules2017-0) should be followed during utilization of grant.

Date:29.11.2019

F.No.9-78/RIFD/MOD/Policy-I/2018-19

List of Equipment's approved :

Name of Equipments
Solar array simulator (Chroma Make)
MPPT Solar Charge Controller
FPGA Artix 7 processor trainer
FLUKE 521 Battery Analyzers
PEM Fuel cell trainer kit
Super capacitors bank with protection circuit
GaN DC-DC Converter for PV
Megger PVM210 Solar Irradiance Meter
Single-phase PQ analyzer

Yours sincerely,

Prof. Dileep N. Malkhede
Advisor-1 (RIFD)

16 DEC 2019

Copy forwarded for information and necessary action to:

1. **Name and Address of the Coordinator,**
   Dr. KAMARAJ V,
   SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING,
   RAJIV GANDHI SALAI (OMR) KALAVAKKAM -
   603 110 KANCHIPURAM DIST TAMIL NADU Tamil Nadu -603110.

2. **The Registrar / Director / Principal,**
   SRI SIVASUBRMANIYA NADAR COLLEGE OF ENGINEERING,
   RAJIV GANDHI SALAI (OMR) KALAVAKKAM -
   603 110 KANCHIPURAM DIST TAMIL NADU Tamil Nadu -603110

3. **Guard File**

Prof. Dileep N. Malkhede
Advisor-1 (RIFD)

FILE NO. IRR/2016/000015

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(a statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 14-Mar-2018

ORDER

Subject: Financial Sanction of the research project titled **"Design and Development of Energy Efficient Permanent Magnet Assisted Reluctance Motor Drives for Pump Application"** under the guidance of Dr. V Kamaraj, Electrical and Electronics Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. M Balaji, Associate Professor, Electrical And Electronics Engineering, SSN College Of Engineering and by Mr. Nagarajan VS, Assistant Professor, Electrical And Electronics Engineering, SSN College Of Engineering - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 2118978/- (Rs.** Twenty One Lakh Eighteen Thousand Nine Hundred and Seventy Eight **Only)** with break-up of **Rs. *1236344*/- under Capital (Non-recurring) head** and **Rs.*882634*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 2118978/-** has been approved are given below:
The following budget may be considered for **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Simulation Software -> Sensors -> Power Module -> Conventional Prototype -> Optimized Prototype -> Digital Signal Processor	1236344
A'	*Total (Non-Recurring)*	***1236344***
B	**Recurring Items**	
1	Recurring - A : (Manpower) Recurring - B : (Consumables, Travel, Contingencies)	360000 330000
2	Recurring - C : (Overhead Charges)	192634
B'	*Total (Recurring)*	***882634***
C	**Total cost of the project (A' + B')**	**2118978**

2. Once the first installment corresponding to industry share i,e. **(Euro Process Automatik)** is received by PI, the PI will initiate the project work after information to SERB, subsequently the first installment corresponding to SERB share will be released from SERB.
3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Industry Relevant R&D. (PAC Electrical Electronics & Computer Engineering)

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **06 February, 2018** and vide Diary No. **null** dated

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. The date of start of the project will be within one month from the date of issue of this sanction order and the industry contribution received by the institute.

8. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

9. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

10.The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in- aid General) & Non-Recurring

(Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

11. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

12.The project File no. IRR/2016/000015 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

13.The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

14.As this is the first grant being released for the project, no previous U/C is required.

15. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

16. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

17. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.

(Dr. Rajwant SERB)
Scientist E
rajwant@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -
tr>

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. V Kamaraj** **Electrical and Electronics Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: kamarajv@ssn.edu.in** **Mobile: 919841220416** **Dr. M Balaji** **Electrical And Electronics Engineering** **SSN College Of Engineering** **Mr. Nagarajan VS** **Electrical And Electronics Engineering** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)
6.	**Mr.Periyandavar** **Euro Process Automatik** **250C,NP, 10th Street ,Sector 2,SIDCO Industrial Estate,Ambattur,Chennai-600098 Tel:044-42040491,Mobile:9444045277** **Email: sales@epachennai.com** **Mobile: 9003045277**

(Dr. Rajwant SERB)
Scientist E
rajwant@serb.gov.in

தமிழ்நாடு அறிவியல் தொழில்நுட்ப மாநில மன்றம்
TAMIL NADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
(Established by Government of Tamilnadu)
Directorate of Technical Education Campus, Chennai - 600 025
Phone : 044 - 2230 1428
Telefax : 044 - 2230 1552
Web : www.tanscst.nic.in
E-mail : ms.tanscst@nic.in/enquiry.tanscst@nic.in

DR. R. SRINIVASAN, M.Sc., Ph.D., F.I.C.S., M.A.C.S. (USA).
Member Secretary

C. No.TNSCST/STP-PRG/AR/2018-2019 1364 04.11.2019

To
Dr.S.Radha
Professor & HOD, Dept. of ECE
SSN College of Engineering
Kalavakkam, Chennai – 603 110

Sir/Madam,

Sub: TNSCST – S&T Project on "Development of Ultrasonic sensors for monitoring heavy mineral accumulation in the littoral zone of Mahabalipuram Coast" –Approval intimation – Reg.

Ref: Your proposal dated 13.02.2019

*****

I am happy to inform you that State Council has approved your above cited research proposal for funding. A copy of the terms and conditions governing the grant is enclosed herewith for your reference. You may kindly reply **within a week time** as to whether it is agreeable to take up the research project with our terms and conditions and the approved budget is Rs.4,80,000/- for **Two** years. First year approved grant will be Rs.3,15,000/-(Rupees Three lakh and fifteen thousand only).

You have to submit a declaration stating that the above cited "project has not receiving any funds from any other funding agency".

All communication should be sent through the proper channel.

With best wishes,

Yours faithfully,

Member Secretary

Encl: as above

Copy to:
The Principal
SSN College of Engineering
Kalavakkam, Chennai – 603 110

தமிழ்நாடு அறிவியல் தொழில்நுட்ப மாநில மன்றம்
TAMIL NADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
(Established by Government of Tamilnadu)
Directorate of Technical Education Campus, Chennai - 600 025
Phone : 044 - 2230 1428 Web : www.tanscst.nic.in
Telefax : 044 - 2230 1552 E-mail : ms.tanscst@nic.in/enquiry.tanscst@nic.in

DR. R. SRINIVASAN, M.Sc., Ph.D., F.I.C.S., M.A.C.S. (USA).
Member Secretary

C. No.TNSCST/STP-PRG/AR/2018-2019 1364 04.11.2019

To
Dr.S.Radha
Professor & HOD, Dept. of ECE
SSN College of Engineering
Kalavakkam, Chennai – 603 110

Sir/Madam,

Sub: TNSCST – S&T Project on "Development of Ultrasonic sensors for monitoring heavy mineral accumulation in the littoral zone of Mahabalipuram Coast" –Approval intimation – Reg.

Ref: Your proposal dated 13.02.2019

*****

I am happy to inform you that State Council has approved your above cited research proposal for funding. A copy of the terms and conditions governing the grant is enclosed herewith for your reference. You may kindly reply **within a week time** as to whether it is agreeable to take up the research project with our terms and conditions and the approved budget is Rs.4,80,000/- for **Two** years. First year approved grant will be Rs.3,15,000/-(Rupees Three lakh and fifteen thousand only).

You have to submit a declaration stating that the above cited "project has not receiving any funds from any other funding agency".

All communication should be sent through the proper channel.

With best wishes,

Yours faithfully,

4/11/19
Member Secretary

Encl: as above

Copy to:
The Principal
SSN College of Engineering
Kalavakkam, Chennai – 603 110

BUDGET DETAILS

1.Title of the project:

Development of ultrasonic sensors for monitoring heavy mineral accumulation in the littoral zone of Mahabalipuram coast

Name and address of the principal investigator :

Dr S Radha
Dept. of ECE
SSN college of Engineering
Kalavakkam-603110

Amount & Duration: **Rs.4,80,000/- for TWO years**

Approved Budget

Sl.no	Description of the item	Amount (Rs.)		
		First year	Second year	Total
1	Research fellow@10000/-/per month	1,20,000.00	1,20,000.00	2,40,000.00
2	Equipment	1,50,000.00	nil	1,50,000.00
3	Consumables, Testing, etc	25,000.00	25,000.00	50,000.00
4	Travel	5,000.00	5,000.00	10,000.00
5	Miscellaneous	5,000.00	5,000.00	10,000.00
6	Overhead charges	10,000.00	10,000.00	20,000.00
Total		**3,15,000.00**	**1,65,000.00**	**4,80,000.00**

4/11/19

MEMBER SECRETARY

No. TDP/BDTD/23/2019(General)
Government of India
(Technology Development Programme)

Technology Bhawan
New Delhi-110 016.
Dated, 04.07.2019

ORDER

Sub: - Financial assistance for the project entitled "Development of Cost Effective Wearable Semi-Automatic Insulin Delivery Smart Micro System" **Dr. Sreeja B S, Associate Professor, ECE, Sri Siva, Subramaniya Nadar College Of Engg, Kalavakkam, Chennai 603110** - - Release of the first installment regarding.

1. Sanction of the President is conveyed for the sanction of Rs. 35,03,500/- (Rupees Thirty five lakh three thousand five hundred only) i.e. Rs. 30,03,500/- (Rupees Thirty lakh three thousand five hundred only) would be under the 'General Component' and Rs. 5,00,000/- (Rupees Five lakh Only) would be under the head (Capital Component) for a period of 3 years. The detailed breakup of the grant:

   General: Rs. 30,03,500/-
   Capital: Rs. 5,00,000/-

Non-Recurring Items [Capital Component/Equipment]:

S. No	Item	Budget (In lakhs)			
		Year-I	Year-II	Year-III	Total
1	Complete air plasma system for PDMS chip fabrication	5,00,000	-	-	5,00,000
Total		**5,00,000**	**-**	**-**	**5,00,000**

Recurring Items [General Component]:

S. No	Item	Budget (In Lakhs)			
		Year-I	Year-II	Year-III	Total
1	Salaries/wages 1 SRF @ Rs.35,000/-	4,20,000	4,20,000	4,20,000	12,60,000
2	Consumables	4,00,000	1,60,000	1,60,000	7,20,000
3	Travel	50,000	50,000	50,000	1,50,000
4	Contingencies	50,000	50,000	50,000	1,50,000
5	Other Cost	2,00,000	2,05,000	-	4,05,000
6	Institutional Overheads (10%)	**1,62,000**	**88,500**	**68,000**	**3,18,500**
TOTAL		**12,82,000**	**9,73,500**	**7,48,000**	**30,03,500**

Amita
4/7/19

2. The sanction of the President is also accorded to the release **of Rs.12,82,000/- (Rupees Twelve lakh eighty two thousand only)** to the **Principal, Sri Siva, Subramaniya Nadar College Of Engg, Kalavakkam, Chennai 603110** being the first instalment of grant under "General Component" for implementation of the above mentioned project..

3. This sanction is subject to the condition that the grantee organization will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year duly reflecting the interest earned / accrued on the grant received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

4. The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final instalment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

5. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

6. The grant-in-aid being released is subject to the condition that

a) A transparent procurement procedure in line with Provisions of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant.

b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to be ensuring submission of supporting documentary evidences with regard of the purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. All interests or other earnings against grants in aid released to any grantee institution should be mandatorily remitted to the consolidated fund of India immediately after finalization of the accounts. Such advances should not be allowed to be adjusted against future release.

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable of condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017

10. Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publication /

Amita
4/7/19

Media release as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

11. In accordance of GFR-230 (17) {i}, the release of Grant-in-Aid is subject to condition the Grantee institute Name or organization etc. Agrees to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts of services under its control on the lines indicated by GoI.

12. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

13. The expenditure involved is debitable to Demand No.84, Department of Science & Technology for the year 2019-20.

3425	:	Other Scientific Research (Major Head)
60	:	Others
60.200	:	Assistance to Other Scientific Bodes (Minor Head)
70	:	Innovation, Technology Development and Deployment
70.00.31	:	Grants-in-aid General for the year 2019-20(Plan) **(Previous: TDP- -3425.60.200.26.01.31)**

14. The amount of **Rs.12,82,000/- (Rupees Twelve lakh eighty two thousand only)** under general head will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to the **Principal, Sri Siva, Subramaniya Nadar College Of Engg, Kalavakkam, Chennai 603110,** for general component through their bank account as account as per following details:

Name of the Account Holder	The Principal, SSN College of Engineering
Bank A/C No	158100050070022
Name of the Bank & branch	TAMILNAD MERCANTILE Bank LTD, THIRUVANMIYUR Branch Chennai-600 041.
RTGS/IFSC code	TMBL0000158
MIRC Code	600060010

15. As per Rule 234 of GFR 2017, the sanction has been entered at S. No. 117 in the register of grants maintained in the Division for the scheme Bio-medical Device Technology Development [BDTD] programme of TDT Division under the Innovation, Technology Development and Deployment.

16. The goods (consumables/equipment available in GeM portal are to be procured mandatorily online through Gem only)

17. This issues with the concurrence of IFD vide their Concurring **Dy.No 1583** Dated the **02.07.2019**

18. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to consolidated fund of India (through Non-Tax Receipt Portal (NTRP) i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts.

Anita 4/7/19

(ANITA AGGARWAL)
SCIENTIST –E

To

The Pay and Accounts Officer
Department of Science and Technology
New Delhi.
Copy for information and necessary order to:

1. Cash Section (2 copies) for preparing the bill & remitting the amount to the above grantee.
2. Account Section, DST, New Delhi
3. The Director of Audit (CW&M-II), AGCR Building, IP Estate, New Delhi – 110 002.
4. IFD, DST, New Delhi
5. Head (TDT)
6. Office Copy
7. Dr. Sreeja B S, Associate Professor, ECE, Sri Siva, Subramaniya Nadar College Of Engg, Kalavakkam, Chennai 603110
8. Principal, Sri Siva, Subramaniya Nadar College Of Engg, Kalavakkam, Chennai 603110
9. M/s HCL Corporations Pvt Ltd, Corporate Towers, HCL Technology Hub Plot No-3A, Sector-126. Noida-201 304, UP.

Anita 4/2/19

(ANITA AGGARWAL)
SCIENTIST –E

भारतीय अन्तरिक्ष अनुसंधान संगठन
अन्तरिक्ष विभाग
भारत सरकार
अन्तरिक्ष भवन
न्यू बी ई एल रोड, बेंगलूरु - 560 231, भारत
दूरभाष : +91 80 2341 5474
फैक्स :

Indian Space Research Organisation
Department of Space
Government of India
Antariksh Bhavan
New BEL Road, Bengaluru - 560 231, INDIA
Tel (Off) : +91 80 2341 5474
Fax :

Dr. M.A. Paul
Associate Director, RESPOND & AI
CBPO

☎: 080-23415269/22172269
FAX-080-23412471
email: respond@isro.gov.in

No. ISRO/RES/3/815/19-20 **July 02, 2019**

Dear Dr. Venkateswaran,

Subject: RESPOND Project - "Development of fusion algorithms for remotely sensed satellite images in cartographic applications"-reg.

This has reference to your submission of the above mentioned research proposal for funding under RESPOND Programme. The domain experts in Department of Space have reviewed the proposal. I wish to inform you that Chairman, ISRO / Secretary, DOS has approved the following:

1. Funding of the project under RESPOND Programme for a **period of Two Years** with a total outlay of **₹14.29 Lakhs (Rupees Fourteen Lakh and Twenty Nine Thousand only)** towards meeting the expenditure of the project (budget details enclosed).

2. Release of grant of **₹8.27 Lakhs (Rupees Eight Lakh and Twenty Seven Thousand only)** towards meeting the expenditure of the project during first year .

The approval is subject to fulfillment of the following:

(a) You will have to submit Annual Progress Report (APR), at the end of the year, indicating the progress of the work accomplished during the first year (to enable renewal of the project for second year). However, on conclusion of the project, you will have to send a comprehensive report covering total project activities. The copies of reports should be sent to **Director, SAC, Ahmedabad (Attn: Dr.(Smt) Parul Patel, Respond Coordinator, SAC, Ahmedabad)** and two copies to the undersigned.

(b) You will have to submit two copies of the Fund Utilization Certificate (FUC) and Audited Accounts Statement (AAS) on completion of the first year of the project (to enable renewal of the project for second year). On completion of the project, you have to send the final FUC and Audited Account Statement for the total expenditure incurred in the project.

The FUC and AAS should be submit to the Pay & Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru 560094 and Dr. (Smt) Parul Patel, Respond Coordinator, SAC, Ahmedabad with a copy to the undersigned.

The Department of Space has already issued Financial sanction order for the approved grant (copy enclosed).

As per the revised fellowship norms, for the appointment of JRF, the person should have PG Degree in Basic Science OR Graduate/Post Graduate Degree in Professional Course selected through a process described through any one of the following: (a) Scholars who are selected through **National Eligibility Test** – CSIR-UGC NET including lectureship (Assistant Professorship) and **GATE** (b) The selection process through National level examinations conducted by Central Government Departments and their Agencies and institutions such as DST, DBT, DAE, DOS, DRDO, MHRD, ICAR, ICMR, IIT, IISc, IISER etc. You may kindly intimate us and send the details of JRFs after appointment.

You are requested to send the enclosed Grant-in-Aid bill and Electronic Transfer Mandate Form duly filled and signed in original to the Pay and Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru 560 094 with a copy to the undersigned for releasing the grants (to The Principal, Sri Sivsubramaniya Nadar (SSN) College of Engineering, Chennai, TN) at the earliest

With Best Regards,

Yours sincerely,

(M.A. Paul)

Dr. N. Venkateswaran
Professor
Department of ECE
Sri Sivasubramaniya Nadar (SSN) College of Engineering
Rajiv Gandhi Salai (OMR)
Kalavakkam : 603 110
Chennai
Tamil Nadu.

CC: Director, CBPO, ISRO HQ
Director, SAC, Ahmedabad
Principal, Sri Sivsubramaniya Nadar (SSN) College of Engineering, Chennai, TN
Shri Ujjwal Kumar Gupta, (EPSA-VRG-CGDD), SAC, Ahmedabad
Shri Ankur Garg (SIPG-ODPD), SAC, Ahmedabad
Dr. Sanid C (EPSA-AMHTDG-MTDD), SAC, Ahmedabad
Dr. (Smt) Parul Patel, Respond Coordinator, SAC, Ahmedabad

Sl. No	Item of Expenditure	IstYr	IIndYr	Total
1	**Manpower:1 JRF** @ (₹31000 pm+HRA 8%) pm for Ist and 2ndYr	4.02	4.02	8.04
2	**Equipment** a) High end computer workstation b) Satellite PAN and MS images	 1.00 1.00	 0.00 0.00	 1.00 1.00
3	Consumables and Supplies	0.50	0.50	1.00
4	Travel	0.50	0.50	1.00
	Sub Total	**7.02**	**5.02**	**12.04**
5	Overheads @20%	1.25	1.00	2.25
	Total	**8.27**	**6.02**	**14.29**

No.DS-2B-13012(2)/17/2019-Sec.II
भारत सरकार/GOVERNMENT OF INDIA
अंतरिक्ष विभाग/DEPARTMENT OF SPACE
* * *

Antariksh Bhavan,
New BEL Road,
Bengaluru - 560 094.

June 28, 2019

Principal,
Sri Sivasubramaniya Nadar (SSN) College of Engineering,
Rajiv Gandhi Salai (OMR),
Kalavakkam – 603 110,
Chennai,
Tamil Nadu.

Sir,

Sub: Grant-in-aid - RESPOND- Release of grant for the new project entitled **"Development of fusion algorithms for remotely sensed satellite images in cartographic applications"** - reg.

***

I am directed to convey the sanction of the President to a grant of ₹8,27,000/- (Rupees Eight lakh twenty seven thousand only) to meet the expenditure towards the new project entitled **"Development of fusion algorithms for remotely sensed satellite images in cartographic applications"** (total project cost is ₹14.29 lakh for a period of two years) by Sri Sivasubramaniya Nadar (SSN) College of Engineering during first year of the project.

2. The amount of ₹8,27,000/- (Rupees Eight lakh twenty seven thousand only) will be paid to you by the Pay & Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru - 560 094 on receipt of the bill.

3. The grant-in-aid sanctioned shall be subject to the terms and conditions mentioned in the Annexure enclosed.

4. A separate account for the grant-in-aid sanctioned will have to be maintained which are subject to the scrutiny by the Indian Audit and Accounts Department who will also have the right of access to the Book of Accounts.

5. Accounts of expenses incurred out of grant should be prepared, maintained and authenticated by approved auditors. The final accounts statement in duplicate duly audited should be sent to the Pay & Accounts Officer, Department of Space, Bengaluru-560 094 at the end of each financial year of support

....2/-

6. The expenditure involved is debitable to the Head "3402.00.103.09.00.31- Space Research- Space Sciences-Respond- GIA-General" - under 'Grant No.91 - Department of Space' for the financial year 2019-2020.

Yours faithfully,

(पूर्णिमा मनोज/Poornima Manoj)
(वरिष्ठ लेखा अधिकारी/Sr.Accounts Officer)

Copy for information and necessary action to:

1. The Director, CBPO, ISRO Hq., Bengaluru
2. Associate Director, RESPOND & AI, ISRO Hq., Bengaluru (Ref No.ISRO/RES/3/815/19-20 dated 30.05.2019)
3. The Director General of Audit, Scientific Departments, DGACR Building, IP Estate, New Delhi – 110 001.
4. The Director, O/o the Director General of Audit, Scientific Departments, Antariksh Bhavan, New BEL Road, Bengaluru - 560 094
5. Chief Controller of Accounts, DOS
6. Senior Accounts Officer, ISRO Hq., Bengaluru
7. The Pay & Accounts Officer, Department of Space, Bengaluru - With a request to make the payment of ₹8,27,000/- (Rupees Eight lakh twenty seven thousand only) in favour of **"The Principal, Sri Sivasubramaniya Nadar (SSN) College of Engineering, Chennai"** on receipt of the Bill.
8. The Senior Head (Internal Audit), DOS, Bengaluru
9. Dr. N Venkateswaran, Professor, Department of ECE, Sri Sivasubramaniya Nadar (SSN) College of Engineering, Old Mahabalipuram Road, Chennai – 603 110, Tamil Nadu.

(पूर्णिमा मनोज/Poornima Manoj)
(वरिष्ठ लेखा अधिकारी/Sr.Accounts Officer)

Er. Ravinder Gaur,
Scientist & Member Secretary
(State Science & Technology Programme)
TDT Divn., Room No.13, Hall-A,
Tel: 011-2659 0373, Email: rgaur@nic.in

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
टेक्नोलॉजी भवन, नया महरौली मार्ग
नई दिल्ली-110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI-110 016

D.O. No. **F. No. DST/SSTP/2018/310**

Dated **05.03.2019**

Subject: Financial support for the project entitled "Development of an Efficient IOT Enabled Plant Disease Pest Detection System" by Dr. S. Radha, Professor & Head, Dept. of ECE, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu & Dr. R. Selvarajan, Principal Scientist, Department of Plant Pathology, Virology, ICAR-National Research Centre for Banana (NRCB), Thogamalai Road, Thayanur Post, Thiruchirapalli-620102- Release of the first instalment regarding

Dear **Dr. Radha,**

I am happy to inform your good self that above mentioned project proposal has been sanctioned by the DST for the implementation which is based on the 'Development of an Efficient IOT Enabled Plant Disease Pest Detection System. Please note that whenever any important activity organized by yourself may kindly to informed this Department so that persons may be nominated for the participation. We have also enclosed the terms and condition of the grants, GFR-2017 (attached along with this letter) please follow them while implementing the project. Please also inform the DST about following as they become applicable:

1. Date of receipt of funds
2. Project commencement date
3. Recruitment of manpower as per DST norms
4. Actual work plan for implementing the project indicating various milestones
5. Quarterly progress report of the project as per the format enclosed
6. Statement of Expenditure (SE) and Utilization Certificate (UC) as per the format attached for General and Capital Grant separately.
7. As per the new instructions of the Ministry, the PI is requested to deposit the whole project grant in an interest earning account and be remitted to the Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts while sending the SE/UC of each financial year for any further release from this Department.
8. The PI is requested to upload the UC in the PFMS website (https://pfms.nic.in/Users/LoginDetails/Login.aspx) and submit the UC number of General and Capital Head.
9. A formal acceptance letter from the competent authority of your institute for agreeing to the terms and conditions of the sanction order (within 15 days of receipt of this letter)

Cont..2

The sanction order contains various annexure which gives the various formats required to be submitted by the PI while implementing the project. We will be happy to provide further any information if needed. You are kindly requested to submit the various documents to this Department through to the undersigned for any further grants from this Department.

Looking forward your soon reply.

Thanking you with kind regards,

Your Sincerely,

(Ravinder Gaur)

Dr. S. Radha
Professor & Head
Dept. of ECE
SSN College of Engineering
Old Mahabalipuram Road (OMR),
Rajiv Gandhi Salai, Kalavakkam,
Chennai, PIN: 603110, Tamilnadu

CC:
Dr. R. Selvarajan, Principal Scientist, Department of Plant Pathology, Virology, ICAR-National Research Centre for Banana (NRCB), Thogamalai Road, Thayanur Post, Thiruchirapalli-620102

F. No.: DST/SSTP/2018/310 (G)
Government of India
Ministry of Science and Technology
Department of Science and Technology

Technology Bhavan
New Mehrauli Road
New Delhi- 110 016
Dated: 21/03/2019

ORDER

Subject: **Financial support for the Project entitled "Development of an Efficient IOT Enabled Plant Disease Pest Detection System" by Dr. S. Radha, Professor & Head, Dept. of ECE, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu& Dr. R. Selvarajan, Principal Scientist, Department of Plant Pathology, Virology, ICAR-National Research Centre for Banana (NRCB), Thogamalai Road, Thayanur Post, Thiruchirapalli-620102- Release of the first instalment regarding**

Sanction of the President is hereby accorded for the approval of the above mentioned project at a total cost of **Rs. 62,26,260/-** (Rupees Sixty-Two Lakh Twenty Six Thousand Two Hundred Sixty Only) with bifurcations as **Rs. 34,92,710/-** (Rupees Thirty-Four Lakhs Ninety Two Thousands Seven Hundred Ten Only) to **SSN College of Engineering, Chennai and Rs. 27,33,550/-** (Rupees Twenty-Seven Lakhs Thirty Three Thousands Five Hundred Fifty Only) to **ICAR-National Research Centre for Banana (NRCB), Thiruchirapallifor** a duration of 36 months to the **Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu and part of grant of NRCB Rs. 27,33,550/- for onward disbursement to The Director, ICAR-National Research Centre for Banana (NRCB), Thogamalai Road, Thayanur Post, Thiruchirapalli-620102 as per the budget mentioned below financial year wise**. The detailed breakup of the DST contribution is given below with the following bifurcations:

- General Component: **Rs. 52,50,400/-** (Rupees Fifty-Two Lakhs Fifty Thousands Four Hundred Only)
- Capital Component: **Rs. 9,75,860/-** (Rupees Nine Lakh Seventy-Five Thousand Eight Hundred Sixty Only)

Budget Outlay

Sl. No.	Items	1st year		2nd year		3rd year		Total		
		SSN	NRCB	SSN	NRCB	SSN	NRCB	SSN	NRCB	Grand Total
	Recurring expenses									
1	Salaries	561600	360000	561600	360000	561600	403200	1684800	1123200	2808000
2	Consumables	121229	56241	77451	37479	25000	15000	223680	108720	332400
3	Contingencies	25000	25000	25000	25000	25000	25000	75000	75000	150000
4	Travel	180000	180000	180000	180000	180000	180000	540000	540000	1080000
5	Other cost	80000	80000	80000	80000	80000	80000	240000	240000	480000
6	Overhead expenses	100000	100000	50000	50000	50000	50000	200000	200000	400000
	Subtotal (1)	1067829	801241	974051	732479	921600	753200	2963480	2286920	5250400
	Non-Recurring expenses									
7	Permanent equipment	529230	446630	0	0	0	0	529230	446630	975860
	Grand total	1597059	1247871	974051	732479	921600	753200	3492710	2733550	6226260

* Salary:

SSN College, Chennai:

a) **One Research Associate-I @36,000/- PM fixed + 30% HRA for 3 years** (Candidates should be Ph.D/MD/MS/MDS or equivalent degree or having 3 years of research, teaching and design and development experience after MVSc/M.Pharm/ME/M.Tech with at least one research paper in Science Citation Indexed (SCI) journals.

NRCB, Trichy:

a) **One JRF @25,000/- PM fixed + 20% HRA for 24 months & @28,000/- PM fixed + 20% HRA for 3rd year** (Candidates should be with Pg Degree in Basic Science with NET qualification or graduate degree in Professional course with NET qualification or post graduate degree in

01/03/2019

74302/2019/TDT

Other Costs Head: involves the cost for Agricultural consultancy for getting assistance for Plant health monitoring, plant disease, pest detection and database generation (collecting images of diseased plants at various stages of infection)

2. The sanction of the president is also conveyed for the Initial release of **Rs. 18,69,070/-** (Rupees Eighteen Lakh Sixty-Nine Thousand Seventy Only) under 'General Component' with bifurcations as Rs. **10,67,829/- to SSN College of Engineering, Chennai & Rs. 8,01,241/- to ICAR-National Research Centre for Banana (NRCB), Thiruchirapalli**.

3. This sanction is subject to the condition that the grantee organization will furnish to the Department of Science & Technology, financial year wise utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date of progress report at the end of each financial year duly reflecting the interest earned/accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

4. The grantee organization will have to enter and upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

5. If the grant has been released under the capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

6. The grant –in-aid being released is subject to the condition that:

(a) A transparent procurement procedure in line with the Provision of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of the grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant

(b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts.

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. In case the scheme provides for payment of honorarium/remuneration/fellowship/scholarship to the Principal Investigator, a para may be suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/salary/fellowship from any other project either supported by DST or by any other funding agency".

10. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236 (1) of General Financial Rules 2017.

11. Due acknowledgment of technical support/financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publications/media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

01/03/2019

13. The expenditure involved is debitableto:-
Demand No. 84, Department of Science & Technology

3425	Other Scientific Research (Major Head)
60	Other (sub-major Head)
60.200	Assistance to other Scientific Bodies (Minor Head)
68	Science & Technology Institutional and Human Capacity Building
68.00.31	Grant –in-aid general for the year 2018-19(Plan Expenditure)
Previous budget head	3425.60.200.27.00.31 (State Science & Technology Programme Grant –in-aid general)

14. The amount of **Rs. 18,69,070/-** (Rupees Eighteen Lakh Sixty-Nine Thousand Seventy Only)will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to the **Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu out of which Rs. 8,01,241/- he will made onward disbursement to The Director, ICAR-National Research Centre for Banana (NRCB), Thogamalai Road, Thayanur Post, Thiruchirapalli-620102 and rest Rs. 10,67,829/- will kept with him for his financial grant as per the budget mentioned above.** The bank details for electronic transfer of funds through RTGS are given below:

Name of the agency	Principal, SSN College of Engineering
Account no.	158100050070022
Bank name	Tamilnadu Mercantile Bank Ltd.
IFSC code	TMBL0000158

15. As per the Rule 234 of GFR 2017, this sanction has been entered at S. No 75 in the register of grants maintained in the Division for the scheme State S&T programme.

16. This issues with the concurrence of IFD vide their Concurrence **Diary No.**5684, **dated** . 01/03/2019

(Er. Ravinder Gaur)
Scientist – D
011-26590373

To
The Pay and Accounts Officer
Department of Science and Technology
New Delhi- 110 016
Copy for information and necessary action to:

1. Cash Section (3 copies) for preparing the bill and remitting the amount to the above grantee.
2. Accounts Section, DST, New Delhi.
3. IFD, Department of Science & Technology, New Delhi.
4. Director of Audit (CW& M-II), AGCR Building, IP Estate, New Delhi.
5. The Principal, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu.
6. Dr. S. Radha, Professor & Head, Dept. of ECE, SSN College of Engineering, Old Mahabalipuram Road (OMR), Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu. (with a request to intimate the undersigned on receipt of the funds in the bank account)
7. The Director, ICAR-National Research Centre for Banana (NRCB), Thogamalai Road, Thayanur Post, Thiruchirapalli-620102.
8. Dr. R. Selvarajan, Principal Scientist, Department of Plant Pathology, Virology, ICAR-National Research Centre for Banana (NRCB), Thogamalai Road, Thayanur Post, Thiruchirapalli-620102. (with a request to intimate the undersigned on receipt of the funds in the bank account)
9. Office Copy
10. Sanction Folder
11. Head (TDT)

01/03/2019
(Er. Ravinder Gaur)
Scientist –D
011-2659037

Er. Ravinder Gaur,
Scientist & Member Secretary
(State Science & Technology Programme)
TDT Divn., Room No.13, Hall-A.
Tel: 011-2659 0373, Email: rgaur@nic.in

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
टेक्नोलॉजी भवन, नया महरौली मार्ग
नई दिल्ली 110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI-110 016

D.O. No. **F. No. DST/SSTP/2018-19/10**

Dated **05.03.2019**

Subject: Financial support for the project entitled "Design of game-based communication platform for children with cerebral palsy" by Dr. R. Amutha, Professor, SSN College of Engineering, Rajiv Gandhi Salai, Kalavakkam, Chennai, PIN: 603110, Tamilnadu - Release of the first instalment regarding

Dear **Dr. Amutha**,

I am happy to inform your good self that above mentioned project proposal has been sanctioned by the DST for the implementation which is based on the 'Design of game-based communication platform for children with cerebral palsy. Please note that whenever any important activity organized by yourself may kindly to informed this Department so that persons may be nominated for the participation. We have also enclosed the terms and condition of the grants, GFR-2017 (attached along with this letter) please follow them while implementing the project. Please also inform the DST about following as they become applicable:

1. Date of receipt of funds
2. Project commencement date
3. Recruitment of manpower as per DST norms
4. Actual work plan for implementing the project indicating various milestones
5. Quarterly progress report of the project as per the format enclosed
6. Statement of Expenditure (SE) and Utilization Certificate (UC) as per the format attached for General and Capital Grant separately.
7. As per the new instructions of the Ministry, the PI is requested to deposit the whole project grant in an interest earning account and be remitted to the Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts while sending the SE/UC of each financial year for any further release from this Department.
8. The PI is requested to upload the UC in the PFMS website (https://pfms.nic.in/Users/LoginDetails/Login.aspx) and submit the UC number of General and Capital Head.
9. A formal acceptance letter from the competent authority of your institute for agreeing to the terms and conditions of the sanction order (within 15 days of receipt of this letter)

Cont..2

The sanction order contains various annexure which gives the various formats required to be submitted by the PI while implementing the project. We will be happy to provide further any information if needed. You are kindly requested to submit the various documents to this Department through to the undersigned for any further grants from this Department.

Looking forward your soon reply.

Thanking you with kind regards,

Your Sincerely,



(Ravinder Gaur)

Dr. R. Amutha
Professor
SSN College of Engineering
Rajiv Gandhi Salai, Kalavakkam
Chennai, PIN: 603110

DST/SSTP/2018-19/10(G)
Government of India
Ministry of Science and Technology
Department of Science and Technology

Technology Bhavan
New Mehrauli Road
New Delhi- 110 016
Dated the 26.02.2019

ORDER

Subject: Financial support for the project entitled "Design of game-based communication platform for children with cerebral palsy" by Dr. R Amutha, Professor, SSN College of Engineering, Rajiv Gandhi Salai, Kalavakkam, Chennai, Tamilnadu - Release of the first instalment regarding

Sanction of the President is hereby accorded for the approval of the above mentioned project at a total cost of **Rs. 17,00,959/-** (Rupees Seventeen Lakh Nine Hundred Fifty Nine Only) for a duration of 36 months to the **Principal, SSN College of Engineering, Rajiv Gandhi Salai, Kalavakkam, Chennai, Tamilnadu.**

- **General Component: Rs. 16,15,229/- (Rupees Sixteen Lakh Fifteen Thousand Two Hundred Twenty Nine Only)**
- **Capital Component: Rs. 85,730/- (Rupees Eighty Five Thousand Seven Hundred Thirty only)**

Budget Outlay:

Sl. No.	Items	1st Year	2nd Year	3rd Year	Total
	Recurring expenses				
1	Salaries	390000	390000	436800	1216800
2	Consumables	11510	3010	3010	17530
4	Travel	40000	40000	40000	120000
5	Other Costs	38020	38020	38020	114060
	Sub Total (1)	479530	471030	517830	1468390
6	Overhead expenses	47953	47103	51783	146839
	Total	527483	518133	569613	1615229
7	Non Recurring expenses	85730	0	0	85730
	Grand Total	**613213**	**518133**	**569613**	**1700959**

*** Salary:**
Full time:

a. **One JRF** @ Rs. 25,000/- 30% HRA for first two years (Candidate should be with PG Degree in Basic Science with NET qualification or graduate degree in Professional course with NET qualification or post graduate degree in professional course) and **One SRF** @ Rs. 28,000/- PM fixed + 30% HRA for third year (Candidate should be with PG Degree in Basic Science with NET qualification or graduate degree in Professional course with NET qualification or post graduate degree in professional course with 2 years' experience)

2. The sanction of the president is also conveyed for the Initial release of **Rs. 5,27,483/-** (Rupees Five Lakh Twenty Seven Thousand Four Hundred Eighty Three Only) under 'General Component'.

3. This sanction is subject to the condition that the grantee organization will furnish to the Department of Science & Technology, financial year wise utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date of progress report at the end of each financial year duly reflecting the interest earned/accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

Cont...2

4. The grantee organization will have to enter and upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

5. If the grant has been released under the capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

6. The grant –in-aid being released is subject to the condition that:

(a) A transparent procurement procedure in line with the Provision of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of the grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant

(b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For grants released during FY 2017-18 and onwards, all interests and other earning against released grant shall be remitted to Consolidated fund of India (trough Non-Tax Receipt Portal, NTRP i.e www.bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure / Utilization Certificate for considering subsequent release of Grant/ Closure of project accounts".

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

9. In case the scheme provides for payment of honorarium/remuneration/fellowship/scholarship to the Principal Investigator, a para may be suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/salary/fellowship from any other project either supported by DST or by any other funding agency".

10. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236 (1) of General Financial Rules 2017.

11. Due acknowledgment of technical support/financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publications/media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

12. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

13. The expenditure involved is debitableto:-
Demand No. **84,** Department of Science & Technology:

Cont...3

3425	Other Scientific Research (Major Head)
60	Other (sub-major Head)
60.200	Assistance to other Scientific Bodies (Minor Head)
68	Science & Technology Institutional and Human Capacity Building
68.00.31	Grant –in-aid general for the year 2018-19 (Plan Expenditure)
Budget head of F. Y 2016-17	3425.60.200.27.00.31 (State Science & Technology Programme Grant in Aid General)

14. The amount of **Rs. 5,27,483/-** (Rupees Five Lakh Twenty Seven Thousand Four Hundred Eighty Three Only) will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to the Principal, SSN College of Engineering, Rajiv Gandhi Salai, Kalavakkam, Chennai, Tamilnadu. The bank details for electronic transfer of funds through RTGS are given below:

Name of the Agency	**SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING**
Account No.	**151800050070022**
Bank Name	**TAMLINAD MERCANTILE BANK LTD.**
IFSC Code	**TMBL0000158**

15. As per the Rule 234 of GFR 2017, this sanction has been entered at S. No. 69 in the register of grants maintained in the Division for the scheme State S&T programme.

16. This issues with the concurrence of IFD vide their Concurrence **Dy. No. 5046 dated the 02.02.2019.**

17. The PI of the aforementioned project is requested to obtain consumables from Government e-Marketplace (GeM) or from the lowest vendors as per Rule 149 of GFR 2017.

(Er. Ravinder Gaur)
Scientist – D
011-26590373

To
The Pay and Accounts Officer
Department of Science and Technology
New Delhi- 110 016

Copy for information and necessary action to:

1. Cash Section (3 copies) for preparing the bill and remitting the amount to the above grantee.
2. Accounts Section, DST, New Delhi.
3. IFD, Department of Science & Technology, New Delhi.
4. Director of Audit (CW& M-II), AGCR Building, IP Estate, New Delhi.
5. The Principal, SSN College of Engineering, Rajiv Gandhi Salai, Kalavakkam, Chennai, Tamilnadu.
6. Dr. R Amutha, Professor, SSN College of Engineering, Rajiv Gandhi Salai, Kalavakkam, Chennai, Tamilnadu (with a request to intimate the undersigned on receipt of the funds in the bank account)
7. Office Copy
8. Sanction Folder
9. Head (TDT)

(Er. Ravinder Gaur)
Scientist –D
011-26590373

AdhocReports
SchemeWiseContactDetails
Home
CAM Reports
Masters
Users
Agency
Sanctions
PreSanction
Sanction Custom Fields
Printing Templates
Sanction Templates
Employee Info. System
Reports
Masters
My Schemes
Agencies
Scheme Allocation
Register/ Track Issue
Utilisation Certificate
OLD UC

Payee Details

Controller:	037-SCIENCE AND TECHNOLOGY	**Sanction Status:**	**Approved**
Sanction Number:	DST/SSTP/2018-19/10(G)	**Sanction Date:**	26/02/2019
Sanction Type:	Transfer (DDO Bill)	**Sanction Amount:**	527483
IFD Number:	5046	**IFD Date:**	02/02/2019
Scheme:	1817-Science and Technology Institutional and Human Capacity Building	**PAO:**	058296-PAO(DST), New Delhi
DDO:	258297-DEPARTMENT OF SCIENCE & TECHNOLOGY (INCLUDING,NCST)	**Remarks:**	Release of the first installment regarding

Account Details:

Grant	Department (For UT Grants Only)	Function Head	Object Head	Category	Amount	External PAO	Available Budget
084 - Department of Science and Technology		3425602006800 - SCIENCE & TECHNOLOGY INSTITUTIONAL AND HUMAN CAPACITY BUILDING	31 - GRANTS-IN-AID GENERAL	5 - VOTED	527483		538169544

Agency	Bank Account No	Amount	Instrument Type
SSN COLLEGE OF ENGINEERING	158100050070022 - SSN College of En ▼	527,483.00	RTGS

ePayment Details

Accredited Bank : * UNION BANK OF INDIA ▼ **Amount :** 527483 **Not Payable Before : *** Required

Party Name	IFSC Code	Party Account No	Amount	Payee Remarks
SSN COLLEGE O	TMBL0000158	158100050070022	527483	first instalment

Note: If the IFSC Code is not automatically shown it means bank A/C is not validated.If payment process is urgent please key in the IFSC Code and process payment.Please ensure IFSC Code is correct.

Back

 ©2009 CENTRAL PLAN SCHEME MONITORING SYSTEM. All Rights Reserved.

Final list of BIG 16 Awardees*

S.No	Proposal Code	Applicant
1	BIRAC/IKP01210/BIG-16/20	30M Genomics Private Limited
2	BIRAC/FITT0777/BIG-16/20	Amandeep Kaur
3	BIRAC/IKP01120/BIG-16/20	AMITKUMAR VERNEKAR
4	BIRAC/NAARM0056/BIG-16/20	AMVICUBE PVT LTD
5	BIRAC/CCAMP01225/BIG-16/20	Anupam Dutta
6	BIRAC/IKP01192/BIG-16/20	Arcapsis Technosolutions Pvt. Ltd.
7	BIRAC/FITT0781/BIG-16/20	Ashutosh Patra
8	BIRAC/CCAMP01238/BIG-16/20	Bauplechain Technologies Private Limited
9	BIRAC/FITT0736/BIG-16/20	Big Bang Boom Solutions Private Limited
10	BIRAC/IKP01125/BIG-16/20	Cellagility Biomed Pvt Ltd
11	BIRAC/SIIC0278/BIG-16/20	Chaitanya Dubey
12	BIRAC/IKP01198/BIG-16/20	CONSYTEL LIFE SCIENCES PVT LTD
13	BIRAC/FITT0779/BIG-16/20	CURIOUZ TECHLAB PRIVATE LIMITED
14	BIRAC/IKP01189/BIG-16/20	Curneu MedTech Innovations
15	BIRAC/CCAMP01165/BIG-16/20	Deval Karia
16	BIRAC/SINE0065/BIG-16/20	Dinoj Joseph
17	BIRAC/CCAMP01148/BIG-16/20	Dr Abrar Rizvi
18	BIRAC/IKP01134/BIG-16/20	Dr. Mrs.V.S.FELIX ENIGO
19	BIRAC/VENTURE0581/BIG-16/20	Dr. Nikhil Mamoria
20	BIRAC/KIIT0938/BIG-16/20	Dr. Shubhankar Kumar Singh
21	BIRAC/IKP01216/BIG-16/20	Dr. Vinod Malshe
22	BIRAC/KIIT0950/BIG-16/20	Elvikon India Pvt Ltd
23	BIRAC/FITT0765/BIG-16/20	GenElek Technologies Pvt. Ltd.
24	BIRAC/SIIC0296/BIG-16/20	Glorios Phyto Labs Private Limited
25	BIRAC/FITT0751/BIG-16/20	HempStreet Medicare Pvt. Ltd.
26	BIRAC/SIIC0363/BIG-16/20	Inhof Technologies

S.No	Proposal Code	Applicant
27	BIRAC/CCAMP01183/BIG-16/20	JESHRON BIOTECH SOLUTION PRIVATE LIMITED
28	BIRAC/SINE0092/BIG-16/20	Kapindra Precision Engineering Ptv. Ltd.
29	BIRAC/IKP01214/BIG-16/20	Kidambi Sneha
30	BIRAC/IKP01199/BIG-16/20	LOOPWORM PRIVATE LIMITED
31	BIRAC/NAARM0071/BIG-16/20	Mallikarjun Sajjan
32	BIRAC/FITT0799/BIG-16/20	NatureDots Private Limited
33	BIRAC/IKP01136/BIG-16/20	Nex Fitzap Private Limited
34	BIRAC/IKP01164/BIG-16/20	Nithyakalyani
35	BIRAC/VENTURE0571/BIG-16/20	PadCare Labs Pvt. Ltd.
36	BIRAC/VENTURE0574/BIG-16/20	Pramod Priya Ranjan
37	BIRAC/SIIC0273/BIG-16/20	Prof. Sourabh Ghosh
38	BIRAC/IKP01130/BIG-16/20	PRUDENTBIO RESEARCH PRIVATE LIMITED
39	BIRAC/CCAMP01241/BIG-16/20	Qzense Labs Private Limited
40	BIRAC/IKP01207/BIG-16/20	Rajasekaran Subramanian
41	BIRAC/IKP01218/BIG-16/20	Rekha Godbole
42	BIRAC/KIIT01029/BIG-16/20	Rigel Bioenviron Solutions Private Limited
43	BIRAC/SINE0060/BIG-16/20	Roshan Udhaorao Sakharkar
44	BIRAC/SINE0096/BIG-16/20	Sal Agrotech Private Limited
45	BIRAC/CCAMP01211/BIG-16/20	Shiva Prakash
46	BIRAC/SIIC0271/BIG-16/20	Siddhant Shrivastava
47	BIRAC/NAARM0032/BIG-16/20	Soniya .H
48	BIRAC/KIIT01036/BIG-16/20	Sumit Healthtech Pvt Ltd
49	BIRAC/IKP01174/BIG-16/20	Tardigrade Private Limited
50	BIRAC/FITT0755/BIG-16/20	Vaishnavi G V S
51	BIRAC/CCAMP01155/BIG-16/20	Wide Mobility Mechatronics Pvt Ltd

* Subject to qualification through further due diligence

From: **Ravindra /IKP/HYD** <ravi@ikpknowledgepark.com>
Date: Tue, Aug 25, 2020 at 10:43 PM
Subject: Congratulations for being selected for BIG 16 award
To: <felixvs@ssn.edu.in>
Cc: Dr. Viswanadham D <viswanadham@ikpknowledgepark.com>, Varma MVP /IKP/HYD <varma@ikpknowledgepark.com>, Bhujanga Rao Kilari <bhujangarao@ikpknowledgepark.com>

Dear Innovator,

Greetings from IKP. We are very glad that you were able to make use of IKP mentorship and your team efforts to win a very prestigious BIG award.

We are pleased to inform you that the committee has recommended your BIG proposal for funding.

Please find the observations from ESC Panel, these need to be attached along with the filled-in due diligence (DD) forms to BIRAC.

The project aims to develop AI based 'Screening Tool' to predict future Osteoporotic Hip Fracture Risk in Post-menopausal women and Elderly population using X-ray Image. Business plan needs strengthening. PI Needs support with IP. Faculty Application. Start up formation to be built in as part of milestones.

Kindly see the below list of documents (company and Individual) to be submitted along with the filled DD forms shortly.
We will be conducting site visit at a date suitable to you at the earliest
It is essential that you prepare the required documents to proceed further. (Please create a dropbox and share where we can update and suggest)

List of documents required for a company:
Link for the templates for the company:
https://www.dropbox.com/sh/9z88792iz5u42hl/AAC-7lteAc6eo15lAxceogxJa?dl=0

1) Completed Due Diligence form
2) Budget Justification for each head with quotations
3) MoU with the Incubator (please kindly let us know if you would like to utilize IKP knowledge Park - or IKP Eden Bangalore)
We will go through the project and suggest the best possible incubator for you)
4) NOC from the employer, if applicable (Technology licensing document etc.)
5) Indian nationality proof of shareholders
6) CA certified 51% shareholding pattern
7) Certificate of incorporation along with MOA and AOA

8) If company is more than 1yr old, then audited financial statements
9) Copy of PAN card of company
10) Responses to ESC recommended documents, if any
11) Individual to Company declaration letter
12) Internal Review report (Financial)

List of documents required for an individual:

Link for the templates for the individual:
https://www.dropbox.com/sh/2p9pahnkorp2ulw/AACwPHMd8QyTpzpk4eMGt6xDa?dl=0

1) Completed Due Diligence form
2) Budget Justification for each head with quotations
3) MoU with the Incubator (please kindly let us know if you would like to utilize IKP knowledge Park - or IKP Eden Bangalore)
We will go through the project and suggest the best possible incubator for you)
4) NOC from the employer, if applicable
5) Indian nationality proof
6) Copy of PAN card
7) ESC recommended documents if any
8) Internal Review report (Financial)

Requesting you to submit the same before 07th of Sept.

We can have a session on zoom about any queries.

Once again congratulations and **our team is looking forward to hearing the feedback** regarding the support received from IKP which helped you succeed. This would help us improve the support process.

Thanks,
Ravindra Y
IKP Knowledge Park

FILE NO. TAR/2018/000052

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(a statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 30-Jan-2020

ORDER

Subject: Research project entitled **"Development of anti-spoofing method for Automatic Speaker Verification System"** under the guidance of Dr. Bharathi B, Computer Science and Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 , under the mentorship of **Dr. Hema A Murthy (Indian Institute of Technology Chennai I.I.T. Post Office Chennai - 600036)** - Release of 2nd grant.

1. This is in continuation of SERB's sanction order No. "TAR/2018/000052" dated "25 February, 2019 " of **Science and Engineering Research Board (SERB)**.

2. Sanction of the competent authority is hereby accorded to the payment of a sum of **Rs. 2,74,332/-** (Rupees Two Lakh Seventy Four Thousand Three Hundred and Thirty Two only) to **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the 2nd grant for the financial year 2019-2020 for implementation of the above said project.

3. Sanction of the competent authority is also accorded to the carry forward of unspent balance of **Rs. 310000/-** (Rupees Three Lakh Ten Thousand only) to Indian Institute of Technology Chennai, I.I.T. Post Office Chennai and **Rs. 42939/-** (Rupees Forty Two Thousand Nine Hundred and Thirty Nine only) (Recurring Rs. 310000 and Non-Recurring Rs. 0) to SSN College of Engineering, Sri Sivasubramaniya Nadar College of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam from FY 2018-2019 to FY 2019-2020 for the same purpose for which it was sanctioned.

4. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in).

5. It is certified that provision of GFR 212 relating to Utilization Certificates (Ucs) for the funds released under the grant have been satisfied and the UC/s is/are enclosed herewith.

6. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Teachers Associateship For Research Excellence (TARE). (Tare Expert Committee) .

7. The Sanction has been issued to with the approval of the competent authority vide Diary No. **SERB/F/9364/2019-2020** dated **30 January, 2020**

8. The release amount of **Rs. 2,74,332/-** (Rupees Two Lakh Seventy Four Thousand Three Hundred and Thirty Two only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 (Parent Institute) :

PFMS Unique Code	**SSNCE**
Account Name	**THE PRINCIPAL, SRI SIVA SUBRAMANIA NADAR COLLEGE OF ENGINEERING**
Account Number	**158100710400509**
Bank Name & Branch	**TAMILNAD MERCANTILE BANK LTD., NO.3, THRIUVALLUVAR SALAI, THRIUVANMIYUR, CHENNAI-600041**
IFSC/RTGS Code	**TMBL0000158**
Email address of PI	**bharathib@ssn.edu.in**
Email id of A/C Holder	**principal@ssn.edu.in**
Email address of concerned officer	**ms_tare@serbonline.in**

The release amount of **Rs. 3,35,000/-** (Rupees Three Lakh Thirty Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Indian Institute of Technology Chennai I.I.T. Post Office Chennai - 600036 (Host Institute) :

PFMS Unique Code	**IITM**
Account Name	**REGISTRAR, INDIAN INSTITUTE OF TECHNOLOGY-MADRAS**
Account Number	**2722101016150**

Bank Name & Branch	CANARA BANK IIT MADRAS BRANCH, IIT CAMPUS, CHENNAI - 600036
IFSC/RTGS Code	CNRB0002722
Email address of PI	bharathib@ssn.edu.in
Email id of A/C Holder	deanicsr@iitm.ac.in
Email address of concerned officer	ms_tare@serbonline.in

9. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

10. As per rule 211 of GFR the accounts of Grantee Institution shall be open to inspection by the sanctioning authority / audit whenever the institute is called upon to do so.

11. The institute will furnish to the SERB, Utilization certificate(separate for Recurring & Non-Recurring) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

12. After completion of the project unspent balance if any should be returned as Demand Draft drawn in favour of "Fund for Science and Engineering Research" payable at New Delhi.

13. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

14. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.

(Dr. T Thangaradjou)
Scientist E
ms_tare@serbonline.in

To,
Under Secretary
SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Bharathi B** **Computer Science and Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: bharathib@ssn.edu.in** **Mobile: 919840014807**
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

(Dr. T Thangaradjou)
Scientist E
ms_tare@serbonline.in

FILE NO. TAR/2018/000052

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 25-Feb-2019

ORDER

Subject: Financial Sanction under Teachers Associateship for Research Excellence (TARE) to **Dr. Bharathi B, SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110**- under the mentorship of **Dr. Hema A Murthy**, at **Indian Institute of Technology Chennai I.I.T. Post Office Chennai - 600036**- Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned grant at a total cost of **Rs. 18,30,000/- (Rs.** Eighteen Lakh Thirty Thousand **Only)** for a duration of 36 months.
The date of start of the project will be 19 November, 2018 .The items of expenditure for which the total allocation of **Rs. 18,30,000/-** has been approved are given below:
The following budget is proposed for

SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110 (Parent)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 0 (@0/- per month (consolidated))
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

Indian Institute of Technology Chennai I.I.T. Post Office Chennai - 600036 (Host)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 60,000 (on completion of 90 days mandatory attendance in the host institute every year)
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 2,75,000/-** (Rupees Two Lakh Seventy Five Thousand only) to **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam , Rs. 3,35,000/-** (Rupees Three Lakh Thirty Five Thousand only) to **Indian Institute of Technology Chennai I.I.T. Post Office Chennai - 600036** being the first installment of the grant for the year 2018-2019 for implementation of the said research project.

3. The expenditure involved is debitable to

Fund for Science & Engineering Research (FSER)

This release is being made under Teachers Associateship For Research Excellence (TARE). (Electrical Electronics & Computer Engineering)

4. The Sanction has been issued to with the approval of the competent authority vide Diary No. **SERB/F/11160/2018-2019** dated **13 February, 2019**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

8. The release amount of **Rs. 2,75,000/-** (Rupees Two Lakh Seventy Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**THE PRINCIPAL, SSN COLLEGE OF ENGINEERING**
Account Number	**158100050070022**
Bank Name & Branch	**TAMILNAD MERCANTILE BANK LTD., NO.3, THRIUVALLUVAR SALAI, THRIUVANMIYUR, CHENNAI-600041**
IFSC/RTGS Code	**TMBL0000158**
Email address of PI	**bharathib@ssn.edu.in**
Email id of A/C Holder	**info@ssn.edu.in**
Email address of concerned officer	**ms_tare@serbonline.in**

The release amount of **Rs. 3,35,000/-** (Rupees Three Lakh Thirty Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**REGISTRAR, IIT-MADRAS**
Account Number	**2722101001741**
Bank Name & Branch	**CANARA BANK IIT MADRAS BRANCH, IIT CAMPUS, CHENNAI - 600036**
IFSC/RTGS Code	**CNRB0002722**
Email address of PI	**bharathib@ssn.edu.in**
Email id of A/C Holder	**deanicsr@iitm.ac.in**
Email address of concerned officer	**ms_tare@serbonline.in**

9.Both the institutes will furnish Utilization certificate(UCs) financial year wise to the SERB and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

10. The institute will maintain separate audited accounts for the fellowship. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

11. The File no. **TAR/2018/000052** may also be mentioned in all research communications arising from the above project with due acknowledgement of **SERB**.

12. As this is the first grant for the fellowship, no previous U/C is required.

13. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "**FUND FOR SCIENCE AND ENGINEERING RESEARCH**" payable at New Delhi.

14. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

15. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.

(Dr. T Thangaradjou)
Scientist E
ms_tare@serbonline.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**(i) Dr. Bharathi B** **Computer Science and Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: bharathib@ssn.edu.in** **Mobile: 919840014807** **(ii) Dr. Hema A Murthy** **Indian Institute of Technology Chennai I.I.T. Post Office Chennai - 600036** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**(i) PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** **(ii)REGISTRAR** **Indian Institute of Technology Chennai I.I.T. Post Office Chennai - 600036** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. T Thangaradjou)
Scientist E
ms_tare@serbonline.in

Bharathi B. <bharathib@ssn.edu.in>

SERB-Notification

3 messages

SERB_Administrator@serbonline.in <SERB_Administrator@serbonline.in> Sat, Nov 3, 2018 at 4:14 PM

To: "info@serbonline.in"@imsva02.cdacnoida.in

Science and Engineering Research Board

(Statutory Body Established Through an Act of Parliament : SERB Act 2008)
Department of Science and Technology, Government of India

SCIENCE & ENGINEERING RESEARCH BOARD (SERB)

(Statutory Body Established Through an Act of Parliament : SERB Act 2008)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Sector-B, Pocket-5
Vasant Kunj
New Delhi - 110 070

File Number: TAR/2018/000052

Dated: 03-Nov-2018

Subject: Project titled "Development of anti-spoofing method for Automatic Speaker Verification System"

Dear Dr. Bharathi B,

We are happy to inform you that your application cited above has been approved by the Science and Engineering Research Board for funding under **Teachers Associateship for Research Excellence (TARE)**. The following are the approved items for a period of three years.

Research Grant – As per SERB-TARE norms

Fellowship – As per SERB-TARE norms

Overhead Charges – As per SERB-TARE norms

1. 1. This approval letter is valid subject to the fulfilment of all the eligibility criteria for the TARE and submission of required documents.
2. 2. You are requested to submit the joining report in the host institute and submit relevant documents within one month from the date of receipt of this letter. Projects requires ethical

/ biosafety / stem cell / wildlife clearances etc.candidate will be allowed to join the host institute only after acquiring such clearances.

3. 3. The grant will be effective from the date of joining in the host institution.
4. 4. Follow the norms of host and parent institutions while implementing the project. Please visit our website www.serbonline.in for the terms & conditions of the grant.

Kindly quote the reference number in all future correspondence. The reference no. **TAR/2018 /000052** should be mentioned in all research outputs(publications/patent etc.) arising from the TARE grant.

Kindly follow the below steps only then you will be able to acknowledge the approval letter:

1. 1. Go to www.serbonline.in through your credentials
2. 2. Go to Menu --> Proposal submission --> View submitted proposals

A certificate stating that any visit abroad for a period more than eight weeks would be undertaken after due permission from SERB, may also be submitted.

Kindly upload RTGS details of the parent as well as host institute to facilitate transfer of the fund as per the template

Yours sincerely,

(Dr. T Thangaradjou)

Scientist E

Dr. Bharathi B

Computer Science And Engineering

SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110

********** LEGAL DISCLAIMER **********

Please do not reply to this mail !!

[SERB is now on Social-Media. Kindly follow us on Twitter: @serbonline https://www.twitter.com/serbonline]

This is a system generated information and does not require any signature.This E-Mail may contain Confidential and/or legally privileged Information and is meant for the intendedrecipient(s) only. If you have received this e-mail in error and are not the intended recipient/s, kindly notify us at info@serbonline.in and then delete this e-mail immediately from your system. Any unauthorized review, use, disclosure, dissemination, forwarding, printing or copying of this email or any action taken in reliance on this e-mail is strictly prohibited and may be unlawful. Internet communications cannot be guaranteed to be timely,secure, error or virus-free. The sender does not accept any liability for any errors, omissions, viruses or computer problems experienced by any recipient as a result of this e-mail.

****

'SAVE PAPER - THINK BEFORE YOU PRINT!'

Thenmozhi D <theni_d@ssn.edu.in>

Sanction Order : EEQ/2018/000262

SERB_Administrator@serbonline.in <SERB_Administrator@serbonline.in> Mon, Feb 25, 2019 at 12:31 PM
To: info@serbonline.in

Science and Engineering Research Board

(Statutory Body Established Through an Act of Parliament : SERB Act 2008)
Department of Science and Technology, Government of India

Dear Dr. Thenmozhi Doraiaj,

The below details for **Science & Engineering Research Board (SERB)** Sanction Order (*attached to this mail)*

Sanction Order No	EEQ/2018/000262
Sanction Date	15 February, 2019
PI Name	Dr. Thenmozhi Doraiaj
Institute/University	SSN College Of Engineering , Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (omr), Kalavakkam , Kanchipuram, Tamil Nadu-603110
PI Account Number	158100050070022
Bank & Branch Name	TAMILNAD MERCANTILE BANK LTD., THIRUVANMIYUR BRANCH NO.3, THIRUVALLUVAR SALAI, THIRUVANMIYUR CHENNAI 600 041. TAMILNADU
Amount	INR 1630000/-
In Rupees	Sixteen Lakh Thirty Thousand
UTR No	UBINH19053154261 / SAA432945681
Transaction Date	22 February, 2019

SERB Reference Number:

Bill No: GIA/9992
Diary No / Finance No SERB/F/11199/2018-2019

Confirmation of receipt of funds may be sent by **email** only.

IMPORTANT:

1. **SEPARATE Utilization Certificates (UCs)** for **Recurring and Non Recurring (even if DISBURSED BY SERB THROUGH ONE SANCTION ORDER** for your project) should be **sent directly** to the grant Sanctioning Authority by name (signatory of the sanction order) **within twelve months of the closure of the financial year in which the grants were released irrespecrive of whether the subsequent instalment of grant is due for release or not**.

2. However, if any unspent balance is to be **refunded**, kindly ensure that the unutilized amount may be refunded immediately by way of an **a/c payee cheque/DD** drawn in favour of "**Fund for Science & Engineering Research**", **payable at New Delhi** and **forwarded to the undersigned at the address given below:**

--

Under Secretary

Science & Engineering Research Board (SERB)

(A statutory body under the Government of India's Department of Science & Technology)

5 & 5A, Lower Ground Floor, Vasant Square Mall

Vasant Kunj, New Delhi 110070

INDIA

+91-11-40000328/9

+91-11-40000319/49/52

+91-9818223293

+91-9818223294

********** LEGAL DISCLAIMER **********

Please do not reply to this mail !!

[SERB is now on Social-Media. Kindly follow us on Twitter: @serbonline https://www.twitter.com/serbonline]

This is a system generated information and does not require any signature.This E-Mail may contain Confidential and/or legally privileged Information and is meant for the intendedrecipient(s) only. If you have received this e-mail in error and are not the intended recipient/s, kindly notify us at info@serbonline.in and then delete this e-mail immediately from your system. Any unauthorized review, use, disclosure, dissemination, forwarding, printing or copying of this email or any action taken in reliance on this e-mail is strictly prohibited and may be unlawful. Internet communications cannot be guaranteed to be timely,secure, error or virus-free. The sender does not accept any liability for any errors, omissions, viruses or computer problems experienced by any recipient as a result of this e-mail.

****

'SAVE PAPER - THINK BEFORE YOU PRINT!'

* Don’t want to receive such notification anymore?Click here to send a mail to unsubscribe

Sanction order for EEQ/2018/000262.pdf
1549K

FILE NO. EEQ/2018/000262

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(a statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 15-Feb-2019

ORDER

Subject: Financial Sanction of the research project titled **"An Automated Tool for Early Detection of Depression from Social Media Text for Mental Health using Deep Learning Approach to Assist Student Counsellors and Psychiatrists of Hospitals in India"** under the guidance of Dr. Thenmozhi Doraiaj, Computer Science and Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB**) is hereby accorded to the above mentioned project at a total cost of **Rs. 2814000/- (Rs.** Twenty Eight Lakh Fourteen Thousand **Only)** with break-up of **Rs.** ***1000000*****/- under Capital (Non-recurring) head** and **Rs.*1814000*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 2814000/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Workstation	1000000
A'	*Total (Non-Recurring)*	***1000000***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1164000 360000 35000
2	Recurring - IV : (Overhead Charges)	255000
B'	*Total (Recurring)*	***1814000***
C	**Total cost of the project (A' + B')**	**2814000**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 1000000/-** (Rupees Ten Lakh only) under 'Grants for creation of capital assets' and **Rs. 630000/-** (Rupees Six Lakh Thirty Thousand only) under 'Grants-in-aid General' to **PRINCIPAL, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of the grant for the year 2018-2019 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Empowerment and Equity Opportunities for Excellence in Science. (Task force Committee) (SC)

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **08 February, 2019** and vide Diary No. **SERB/F/11199/2018-2019** dated **15 February, 2019**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. Budget sanctioned under SSR is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

9. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

10. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

11. The release amount of **Rs. 1630000/-** (Rupees Sixteen Lakh Thirty Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**THE PRINCIPAL, SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING**

Account Number	**158100050070022**
Bank Name & Branch	**TAMILNAD MERCANTILE BANK LTD., THIRUVANMIYUR BRANCHNO.3, THIRUVALLUVAR SALAI, THIRUVANMIYURCHENNAI 600 041. TAMILNADU**
IFSC/RTGS Code	**TMBL0000158**
Email id of A/C Holder	**info@ssn.edu.in**
Email id of PI	**theni_d@ssn.edu.in**

12.The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

13. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

14. The project File no. EEQ/2018/000262 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

15. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

16. As this is the first grant being released for the project, no previous U/C is required.

17. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

18. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

19. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.

(Dr. Pramod Kumar Prasad)
Scientist C
pk.prasad@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Thenmozhi Doraiaj** **Computer Science and Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: theni_d@ssn.edu.in** **Mobile: 919884054239** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**PRINCIPAL,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Pramod Kumar Prasad)
Scientist C
pk.prasad@serb.gov.in

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi and Affiliated to Anna University)

Rajiv Gandhi Salai (OMR), Kalavakkam – 603 110, TN, India.
Tel : +91 44 27469700
Fax : +91 44 27469772
www.ssn.edu.in

Administrative Office: 211/95, V.M. Street, Mylapore, Chennai - 600 004.
Telefax : +91 44 24982656, 24986474

Annexure - A

Project Proposal For

An efficient algorithm for fast processing of Message Quadruples

Submitted to Caterpillar on 03-01-2019

1. **Statement of work:**

The Caterpillar assets such as loaders, dozers, excavators, trucks etc are connected to Caterpillar IoT through an onboard computer called network manager device. These assets may get connected to the devices using either Cellular Radio or Satellite or both or without any one of them. A message quadruple consisting of Asset-Id, Device-Id, CellularRadio-Id and SatelliteRadio-Id indicates the present status of the connectivity between that specific asset and that device. The status indicated by each message has to be updated in the backend database within certain time period (2 seconds) that has been agreed in the Service Level Agreement (SLA).

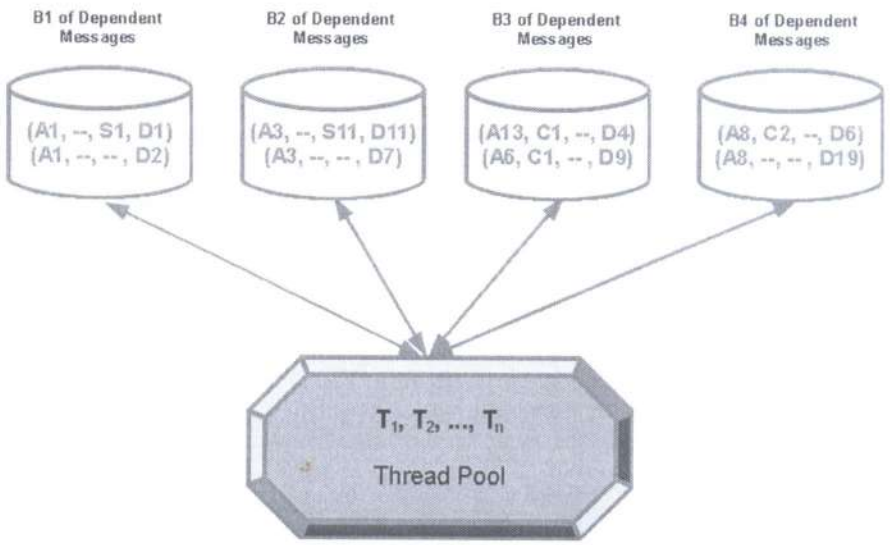


Figure1: Design of SSN-QuadProcess

The message quadruples cannot be processed in parallel whenever one or more of their component values coincide (Asset-Id, Device-Id, CellularRadio-Id or SatelliteRadio). Hence, at present, these messages are entirely sequentially processed and updated by CAT. Hereafter, this methodology is named as **CAT-QuadProcess.** This incurs more time in processing the messages which in turn leads to the violation of SLA. Hence, CAT has suggested coming up with a strategy that will appropriately group the dependent messages in multiple independent bins.

Once this grouping is performed, the different bins can be processed in parallel while the entries within each bin have to be processed sequentially so that the overall processing is efficient and meets the agreed SLA. This algorithm will be named as **SSN-QuadProcess.** This has been illustrated in Figure1.

In order to implement SSN-QuadPorcess, at first the JSON sample data file provided by CAT has to be parsed to retrieve the set of Quadruple messages by using Algorithm 1.

Algorithm 1 JSON Data Parsing

Input: *JSON Data File*

Output: Quadruple messages stored in MySQL table *Quads*

```
1 Parse the JSON file to covert into JSON object
  Convert the JSON object into JSON array
  for i in JSON array do
2   Retrieve Body as JSON object and retrieve the Serial number as Asset-Id
    Retrieve AttachedDevices as JSON object
    Retrieve Devices as JSON array to retrieve Serial Number as Device-Id
    Retrieve AttachedRadio as JSON object
    Retrieve Radio as JSON array to retrieve Radio Serial Number as Radio-Id and Satellite Serial
    Number as Satellite-Id
    Asset-Id, Device-Id, Radio-Id and Satellite-Id are stored in MySQL table Quads
```

Algorithm 2 BUCKETIZATION OF QUADRUPLE MESSAGES

Input: Quadruple messages stored in MySQL table *Quads*

Output: D: Disjoint sets containing dependent Quadruple messages

```
3 Struct Quadruple { string Asset-Id, Device-Id, Cellular Radio-Id, Satellite-Id } Q;
  Struct Record { int To, From } R[10];
  M: Two dimensional integer array to record the status of dependency of Quadruple messages
  K=0
  D ={{1},{2},{3}, ....,{N}} //Initialized with Quadruple numbers as single element sets

4 Retrieve the fields Asset-Id, Device-Id, Cellular Radio-Id and Satellite-Id from Quadsto the re-
  spective fields in structure Q
  for i = 1 to N do
5   for j = i+1 to N do
6     if (Q[i].Asset-Id == Q[j].Asset-Id or Q[i].Device-Id == Q[j].Device-Id or Q[i].Radio-Id
      == Q[j].Radio-Id or Q[i].Satellite-Id == Q[j].Satellite-Id then
7       M[i][j] is set to 1 // To set the connectivity between the Quadruples
        R[k].To is set to i
        R[k].From is set to j
        K++
8   for j = i+1 to N do
9     Find R[i].To in set S1 of D
      Find R[j].From in set S2 of D
      Union (S1, S2)
```

a thread pool will be created to process the messages in buckets. Subsequently, the execution time for processing the messages is recorded by varying the number of threads to find the optimal number of threads.

2. **Principal Investigators:**

1. Dr. Chitra Babu

Professor and Head,

Department of Computer Science and Engineering

Email-id: chitra@ssn.edu.in

Contact no. : 9444046101

2. Dr. B. Prabavathy

Associate Professor

Department of Computer Science and Engineering

Email-id: prabavathyb@ssn.edu.in

Contact no. : 9443884479

3. **Time/Period of Project:** 6 Months

4. **Amount of Research Support:**

MileStone	Deliverables	TimePeriod	Cost (in Rupees)
Implementation of SSN-QuadProcess (CAT-Sample Data)	Code, Test Cases, Detailed Result Analysis	3 Months	1,08,000/-
Implementation of SSN-QuadProcess (Simulation of CAT Data for whole day)	Code, Test Cases, Detailed Result Analysis	3 Months	79,200/-
		Total	**1,87,200/-**

5. **Specified Deliverables:** New efficient algorithm, Code, Report, Presentation
6. **Institute Pre-Existing Intellectual Property and open source works of authorship:** Nil
7. **Caterpillar Equipment Loans or Gifts (if any):** Nil
8. **Proposed Caterpillar visitors (if any), Duration of visit:** Nil
9. **Caterpillar Liason/Contact responsible for the project:** Dinesh, Moorthy and Ramesh

Signature of Principal Investigator

Dr. CHITRA BABU
Head of the Department
Department of Computer Science
and Engineering
SSN College of Engineering
Kalavakkam - 603 110.

CATERPILLAR

Caterpillar India Private Ltd – Engineering Design Centre
RMZ Millenia Business Park, Phase 2, Building 3B,
5th Floor - Dr. MGR Road, North Veeranam Salai, Kandanchavady,
Chennai, 600 096, Tamil Nadu, India
Phone : 91-44-33403001, Fax : 91-44-33403003

August 07, 2019

Dear Ms. Snigdha Viswanathan,

Subject: Letter Of Appreciation

We congratulate you, for your active contribution as a Team member for the successful completion of project "An Efficient Algorithm for Fast Processing of Message Quadruples".

This is a significant accomplishment and we personally believe your initiative has helped in the successful implimentation of data logger functionality with improved response time.

We are sure that your creativity, talent and dedication are noticed and recognised.

Thank you for your commitment and wish you all the best.

A. Bhuvaneswaran

CAT ENGINEERING DESIGN CENTRE - INDIA
RMZ CHENNAI

Bhuvaneswaran Anandakrishnan
Director
Electrical, Electronics & Software Technologies
ITDD - Engineering

CATERPILLAR

Caterpillar India Private Ltd – Engineering Design Centre
RMZ Millenia Business Park, Phase 2, Building 3B,
5th Floor - Dr. MGR Road, North Veeranam Salai, Kandanchavady,
Chennai, 600 096, Tamil Nadu, India
Phone : 91-44-33403001, Fax : 91-44-33403003

August 07, 2019

Dear Ms. Sarah Mathew,

Subject: Letter Of Appreciation

We congratulate you, for your active contribution as a Team member for the successful completion of project "An Efficient Algorithm for Fast Processing of Message Quadruples".

This is a significant accomplishment and we personally believe your initiative has helped in the successful implimentation of data logger functionality with improved response time.

We are sure that your creativity, talent and dedication are noticed and recognised.

Thank you for your commitment and wish you all the best.



Bhuvaneswaran Anandakrishnan
Director
Electrical, Electronics & Software Technologies
ITDD - Engineering

CATERPILLAR

Caterpillar India Private Ltd – Engineering Design Centre
RMZ Millenia Business Park, Phase 2, Building 3B,
5th Floor - Dr. MGR Road, North Veeranam Salai, Kandanchavady,
Chennai, 600 096, Tamil Nadu, India
Phone : 91-44-33403001, Fax : 91-44-33403003

August 07, 2019

Dear Ms. Samantika Sivakumar,

Subject: Letter Of Appreciation

We congratulate you, for your active contribution as a Team member for the successful completion of project "An Efficient Algorithm for Fast Processing of Message Quadruples".

This is a significant accomplishment and we personally believe your initiative has helped in the successful implimentation of data logger functionality with improved response time.

We are sure that your creativity, talent and dedication are noticed and recognised.

Thank you for your commitment and wish you all the best.

CAT ENGINEERING DESIGN CENTRE RMZ CHENNAI INDIA

Bhuvaneswaran Anandakrishnan
Director
Electrical, Electronics & Software Technologies
ITDD - Engineering

Caterpillar: Confidential Green

CATERPILLAR

Caterpillar India Private Ltd – Engineering Design Centre
RMZ Millenia Business Park, Phase 2, Building 3B,
5th Floor - Dr. MGR Road, North Veeranam Salai, Kandanchavady,
Chennai, 600 096, Tamil Nadu, India
Phone : 91-44-33403001, Fax : 91-44-33403003

August 07, 2019

Dear Mr. Priya Anna Christall,

Subject: Letter Of Appreciation

We congratulate you, for your active contribution as a Team member for the successful completion of project "An Efficient Algorithm for Fast Processing of Message Quadruples".

This is a significant accomplishment and we personally believe your initiative has helped in the successful implimentation of data logger functionality with improved response time.

We are sure that your creativity, talent and dedication are noticed and recognised.

Thank you for your commitment and wish you all the best.

CATERPILLAR ENGINEERING DESIGN CENTRE RMZ CHENNAI INDIA

Bhuvaneswaran Anandakrishnan
Director
Electrical, Electronics & Software Technologies
ITDD - Engineering

Caterpillar: Confidential Green

Exhibit 1
PROJECT DESCRIPTION

Upon execution by the Parties below, the Research Project specified herein shall be awarded and performed in accordance with the Master Sponsored Research Agreement ("Agreement"), effective_20th of December, 2018 (which is incorporated herein in its entirety), between SSN College of Engineering (hereinafter, "Institute") and Caterpillar India Private Limited (hereinafter, "Caterpillar").

1. Research Project Title: An Efficient Algorithm for Fast Processing of Message Quadruples
2. Statement of Work: See attached Annexure-A (Proposal # CAT-SSN-2019-005)
3. Principal Investigator: Dr. Chitra Babu, Dr. B. Prabavathy
4. Term/Period of Performance: 6 Months
5. Amount of Research Support (Direct Costs and Indirect Costs), Payment Provisions: 1,87,200/-
6. Specified Deliverable Items (if any): Refer attached Annexure-A
7. Institute Pre-Existing Intellectual Property and open-source works of authorship: None
8. Caterpillar Equipment Loans or Gifts (if any): None
9. Proposed Caterpillar Visitor(s) (if any), Duration of Visit: To be decided later
10. Caterpillar Liaison / Contact Responsible for the Project: Mr. T. Dinesh Vincent

Research Project Authorization:

CATERPILLAR INDIA PRIVATE LIMITED	SSN COLLEGE OF ENGINEERING
_____	_____
Authorized Signature	Authorized Signature
_____	_____
Name & Title	Name & Title
_____	_____
Date	Date

REVIEWED AND ACCEPTED:

_____
Principal Investigator

Caterpillar: Confidential Green

Exhibit 2

CATERPILLAR'S STANDARD SETTLEMENT SCHEDULE
(As per Proposal# CAT-SSN-2019-005)

Caterpillar will pay SSN the below disclosed amount upon completion of each milestone specified in the table below.

Milestones	Deliverables	Time Period	Cost (Rs)
Implementation of SSN-Quadprocess (Caterpillar sample data)	Code, Test Cases, Detailed Result Analysis	3 months	1,08,000/-
Implementation of SSN-Quadprocess (Simulation of Caterpillar data for whole day)	Code, Test Cases, Detailed Result Analysis	3 months	79,200
		TBD based on M1	-
Total Cost			1,87,200/-

Caterpillar: Confidential Green

CAT REPORT 12

Project Title: An efficient algorithm for fast processing of Message Quadruples

Faculty involved: Dr. Chitra Babu, Dr. B. Prabavathy

Students involved: Sarah Mathew, Snigdha, Samantika, Priya

Persons from CAT: Dinesh, Moorthy and Ramesh

Date of Meeting: 04.07.2019 @ 11.45 a.m

Venue: In SSNCE, over phone

Caterpillar Electronics Ltd. has provided the test data which consists of around 7000 quadruple messages. Example Quadruple message would be as follows

Asset	Device	Satellite Cellular	Radio Device
99999997	1703070090120000M	18072400H00D003F	

The messages in JSON format were parsed using Algorithm 1. The parsed data is stored in MySQL database. At first, the dependency between each pair of quadruple messages is found and is recorded in an in-memory ***Dependency Table***. If there exists a dependency between the quadruple messages Q1 & Q2, the corresponding cell is set to 1, otherwise, it is set to 0. Since the dependency table cannot be accommodated for the entire 7000 messages in the main memory, they are processed in batches of 300 messages. Once the dependency table is constructed, disjoint set algorithm is used to find disjoint sets of messages and they are placed in separate sets (called as buckets) using Algorithm 2. The algorithms 1 & 2 were implemented using java programs. A thread has been dedicated for processing the incoming messages and placing them in respective buckets. A pool of 5 threads is dedicated to process the messages which are in the buckets. The execution process of SSN-QuadProcess has been illustrated in Figure 1.

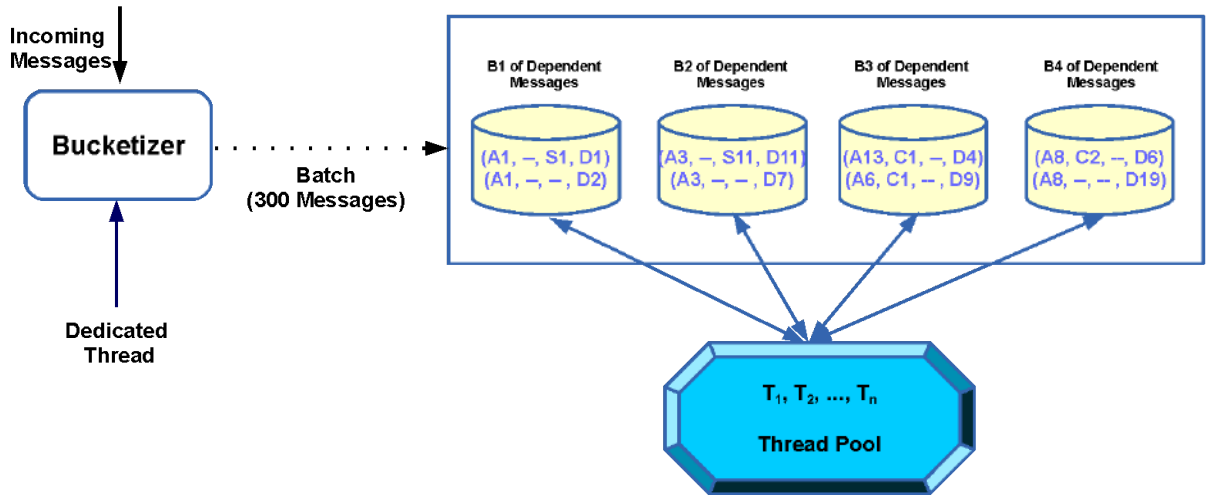


Figure 1: Design of SSN-QuadProcess using Pipelined Fashion

Algorithm 1 JSON Data Parsing

Input: *JSON Data File*

Output: Quadruple messages stored in MySQL table *Quads*

1 Parse the JSON file to convert into JSON object
Convert the JSON object into JSON array
for *i in JSON array* **do**
2 Retrieve Body as JSON object and retrieve the Serial number as Asset-Id
Retrieve AttachedDevices as JSON object
Retrieve Devices as JSON array to retrieve Serial Number as Device-Id
Retrieve AttachedRadio as JSON object
Retrieve Radio as JSON array to retrieve Radio Serial Number as Radio-Id and Satellite Serial Number as Satellite-Id
Asset-Id, Device-Id, Radio-Id and Satellite-Id are stored in MySQL table *Quads*

Algorithm 2 BUCKETIZATION OF QUADRUPLE MESSAGES

Input: Quadruple messages stored in MySQL table *Quads*

Output: D: Disjoint sets containing dependent Quadruple messages

3 struct Quadruple { string Asset-Id, Device-Id, Cellular Radio-Id, Satellite-Id } Q;
struct Record {int From, To } R[10];
k=0
S ={{1},{2},{3}, ...,{N}} //Initialized with Quadruple numbers as single element sets

4 Retrieve the fields Asset-Id, Device-Id, Cellular Radio-Id and Satellite-Id from *Quads* to the respective fields in structure Q
for *i = 1 to N* **do**
5 **for** *j = i+1 to N* **do**
6 **if** *(Q[i].Asset-Id == Q[j].Asset-Id or Q[i].Device-Id == Q[j].Device-Id or Q[i].Radio-Id == Q[j].Radio-Id or Q[i].Satellite-Id == Q[j].Satellite-Id* **then**
7 R[k].From is set to i //To set the connectivity (from) between Quadruples
R[k].To is set to j //To set the connectivity (to) between Quadruples
k++

8 **for** *j =0 to k* **do**
9 s1=Find (R[j].From) // Returns the set number s1 if R[j].From is present
s2=Find (R[j].To) // Returns the set number s2 if R[j].To is present
if *(s1!=s2)* **then**
10 Union(A,B)

Methodology adopted in SSN-QuadProcessV1

In this **SSN-QuadProcessV1**, each Quadruple message is compared with every other message, to see whether the considered pair of quadruple messages is having any common field. If this is the case, the messages are considered to be dependent messages. Any pair of quadruple messages, in which none of the fields are matching, is independent. Considering the following Quadruple messages

Q1 [A1, D1, S1, --]
Q2 [A2, D1, --, --]
Q3 [A3, D4, S2, --]
Q4 [A5, D5, S2, --]
Q5 [A5, D6, S2, --]
Q6 [A6, D7, S3, --]
Q7 [A1, D3, S4, --]

- The messages Q1, Q2 and Q7 are dependent. Q1 & Q2 are dependent because D1 is common, Q1 & Q7 are dependent because A1 is common between them
- The messages Q3, Q4 and Q5 are dependent because S2 is common among them
- The message Q6 is independent of every other message

Whenever the messages are found to be dependent, they are updated in the adjacency matrix as follows:

	From	To
1	1	2
2	1	7
3	3	4
4	3	5
5	4	5

Table 1. Matrix with dependent messages

Disjoint set algorithm is applied with adjacency matrix for bucketization of the messages. The Disjoint algorithm works as follows:

Each Quadruple message is considered to be a singleton set

{Q1} {Q2} {Q3} {Q4} {Q5} {Q6} {Q7}

Once {1,2} is read from the matrix, find(Q1) and find(Q2) are applied and found that both are in different set, hence they are unified using union operator

{Q1,Q2} {Q3} {Q4} {Q5} {Q6} {Q7}

When {1,7} is read from the matrix, find(Q1) and find(Q7) are applied and found that both are in different set, hence they are unified using union operator

{Q1,Q2,Q7} {Q3} {Q4} {Q5} {Q6}

When {3,4} is read from the matrix, find(Q3) and find(Q4) are applied and found that both are in different set, hence they are unified using union operator

{Q1,Q2,Q7} {Q3,Q4} {Q5} {Q6}

When {3,5} is read from the matrix, find(Q3) and find(Q5) are applied and found that both are in different set, hence they are unified using union operator

{Q1,Q2,Q7} {Q3,Q4,Q5} {Q6}

When {4,5} is read from the matrix, find(Q4) and find(Q5) are applied and found that both are in same set, and hence, no change will be made.

{Q1,Q2,Q7} {Q3,Q4,Q5} {Q6}

Once the messages are pushed into different buckets, they are to be processed by the thread pool. The messages from different independent buckets are merged into a single bucket.

Implementation and Results

The above-mentioned SSN-QuadProcess has been implemented using the multithreading concepts of Java. Oracle SQL is used to store the quadruple messages which are retrieved from JSON data. It is incorporated with suitable statements to measure the time for bucketizing a single batch as well as the whole test data. Dependency in the data set has been increased by replicating some of the messages. Around 3000 messages were duplicated thrice to create a dataset which contains 14,336 messages. The time for bucketization depends upon the usage of the matrix and disjoint set algorithm for merging the messages. Hence, the time for bucketization is expected to increase if the number of dependent messages increases.

# of messages	Dataset (7, 336)	Dataset (10, 836)	Dataset (14, 336)
# of dependent messages	4, 495	9, 150	12, 848
Time for bucketization	114 ms	163 ms	202 ms
Time for processing (Processing - Printing)	3261 ms	4090 ms	5113 ms
Time for processing (Processing – Delayed for 200 to 2000 ms)	409, 032 ms	442, 919 ms	460, 421 ms

In order to process the messages, ‘n’ threads would be spawned to process the dependent buckets first. Further, the same ‘n’ threads are used to process the messages available in independent buckets. Buckets are created for the batches of 300 messages. During the bucketization process for first batch, a set of buckets will be created. For further batches, the same set will be reused.

Results

	Original data (7336)							**Synthetic data (14336)**						
Distribution of messages	**Independent**			**Dependent**				**Independent**			**Dependent**			
	2841			4495				1488			12848			
# of buckets	1			671				1			2089			
Time for bucketization	114ms							202ms						
Time for processing	3238ms							5113ms						
# of threads (Thread optimization)	**2**	**3**	**4**	**5**	**6**	**7**	**8**	2	3	4	**5**	6	7	8
Time in ms	4826	4112	4059	**3238**	3261	3369	3419	6663	6291	6007	**5113**	5215	5311	5581

Suggestion by CAT (5th Feb) and the Result of the implementation

- Simulation of streaming of quadruple messages for an entire day to find out how frequently the bucketization algorithm needs to be applied
- Implementation of visualization of messages of every bucket
- Ordering the messages based on timestamp

Simulation of bucketization for single day data

Towards the simulation of streaming of quadruple messages for an entire day, *zookeeper server and kafka broker* have been installed. Kafka producer has been written to read the csv file (Single day data given by CAT) to retrieve the quadruples. In order to mimic real time streaming of messages, messages have to be streamed to the *kafka consumer* in certain random time. In this context, this random time has been kept between ***0 and 800 msec***. This means, after streaming a message, a random number in this range will be generated and the thread is made to sleep for that random time before streaming the next message.

Further, *Linked blocking queue* is used to retrieve the streaming data from the *kafka producer* in order for processing. Hence, a separate producer and consumer part will be present in the blocking queue. The consumer part of the Kafka streaming is now the producer part of the blocking queue that provides the necessary data for bucketization process. The consumer part of the blocking queue will actually performs the bucketization process. Figure 2 shows the *kafka producer* streaming the quadruple messages from the entire day data. Figure 3 shows the number and the actual quadruple messages in each bucket.

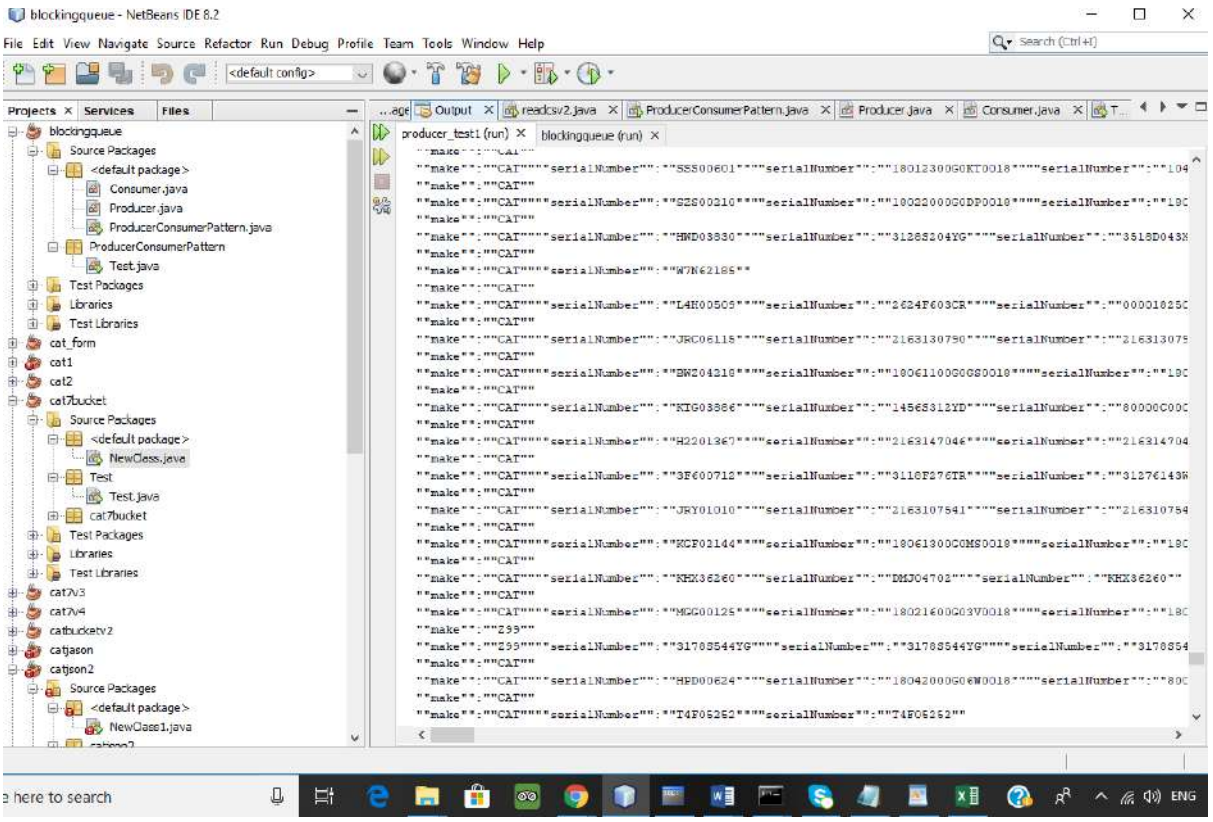


Figure 2: Streaming of entire day data by kafka producer

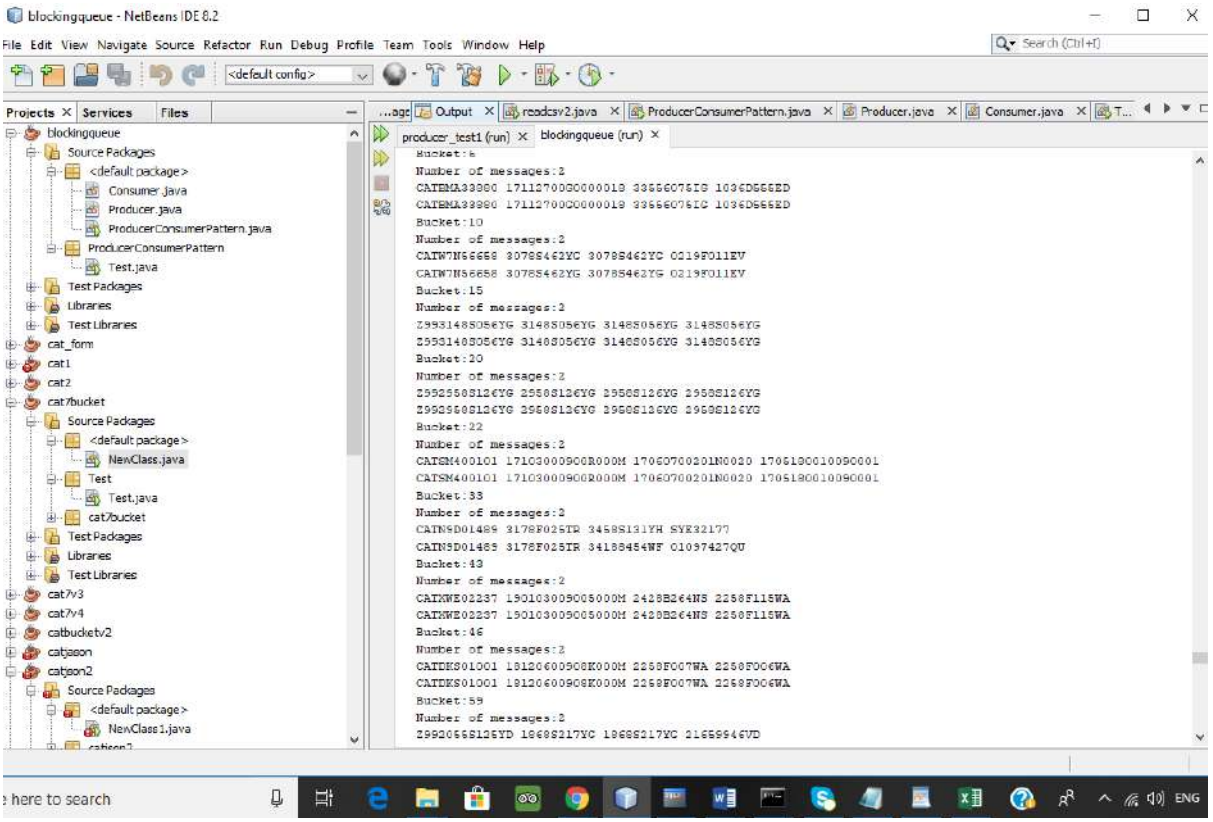


Figure 3: Quadruples messages in buckets

Bucketization process has to be triggered whenever a threshold time has been reached or number of messages becomes 300. Hence, the ***parameters, random streaming time and the threshold time have been tuned*** in order to exercise both the cases. By simulating this way, all the 15,451 quadruple messages were streamed for around 5 hours. In total, for this entire day data, bucketization process has been triggered 95 times. The number of messages when the bucketization was triggered, time for bucketization and the number of dependent buckets were recorded as shown below:

S.No	Number of messages	Time for bucketization (in msec)	Number of dependent buckets
1.	28	0	4
2.	13	0	2
3.	300	5	25
4.	20	0	2
5.	300	6	21
6.	16	0	2
7.	300	5	19
8.	36	0	1
9.	300	12	11
10.	15	0	1
11.	300	11	2
12.	25	0	1
13.	21	0	1
14.	300	10	12
15.	300	7	15
16.	49	0	3
17.	300	6	22
18.	30	0	5
19.	300	5	30

20.	20	0	2
21.	300	6	25
22.	25	0	2
23.	300	5	25
24.	300	6	25
25.	25	0	2
26.	300	5	26
27.	46	1	5
28.	300	5	33
29.	19	0	2
30.	300	8	19
31.	33	0	1
32.	300	9	12
33.	33	0	1
34.	300	9	15
35.	22	0	1
36.	300	8	13
37.	27	0	1
38.	300	6	12
39.	39	0	2
40.	300	5	24
41.	25	0	2
42.	300	5	8
43.	40	0	1
44.	300	9	19
45.	21	0	1
46.	300	6	20
47.	22	0	2
48.	300	9	9
49.	19	0	1
50.	300	5	25
51.	16	0	3
52.	300	5	31
53.	20	0	3
54.	300	5	18
55.	37	0	6
56.	300	5	22
57.	24	0	4
58.	300	9	19
59.	33	0	3
60.	300	7	18
61.	41	0	7
62.	300	5	23
63.	37	0	5
64.	300	6	24
65.	35	0	2
66.	300	4	22
67.	27	0	5
68.	300	11	14
69.	35	0	1
70.	300	8	9
71.	37	0	1
72.	300	5	25
73.	20	0	2

74.	300	8	14
75.	25	0	1
76.	300	10	7
77.	25	0	1
78.	300	11	4
79.	27	0	1
80.	300	10	4
81.	27	0	1
82.	300	9	1
83.	300	9	14
84.	24	0	1
85.	300	10	9
86.	44	0	1
87.	300	5	24
88.	40	0	9
89.	300	6	23
90.	28	0	1
91.	300	5	19
92.	26	0	4
93.	300	7	11
94.	28	0	3
95.	300	6	26

From the above-mentioned table***, it is found that the bucketization time is <12 msec***. The following figures 4 & 5 show the bucketization processes triggered for 300 messages and for reaching the threshold respectively.

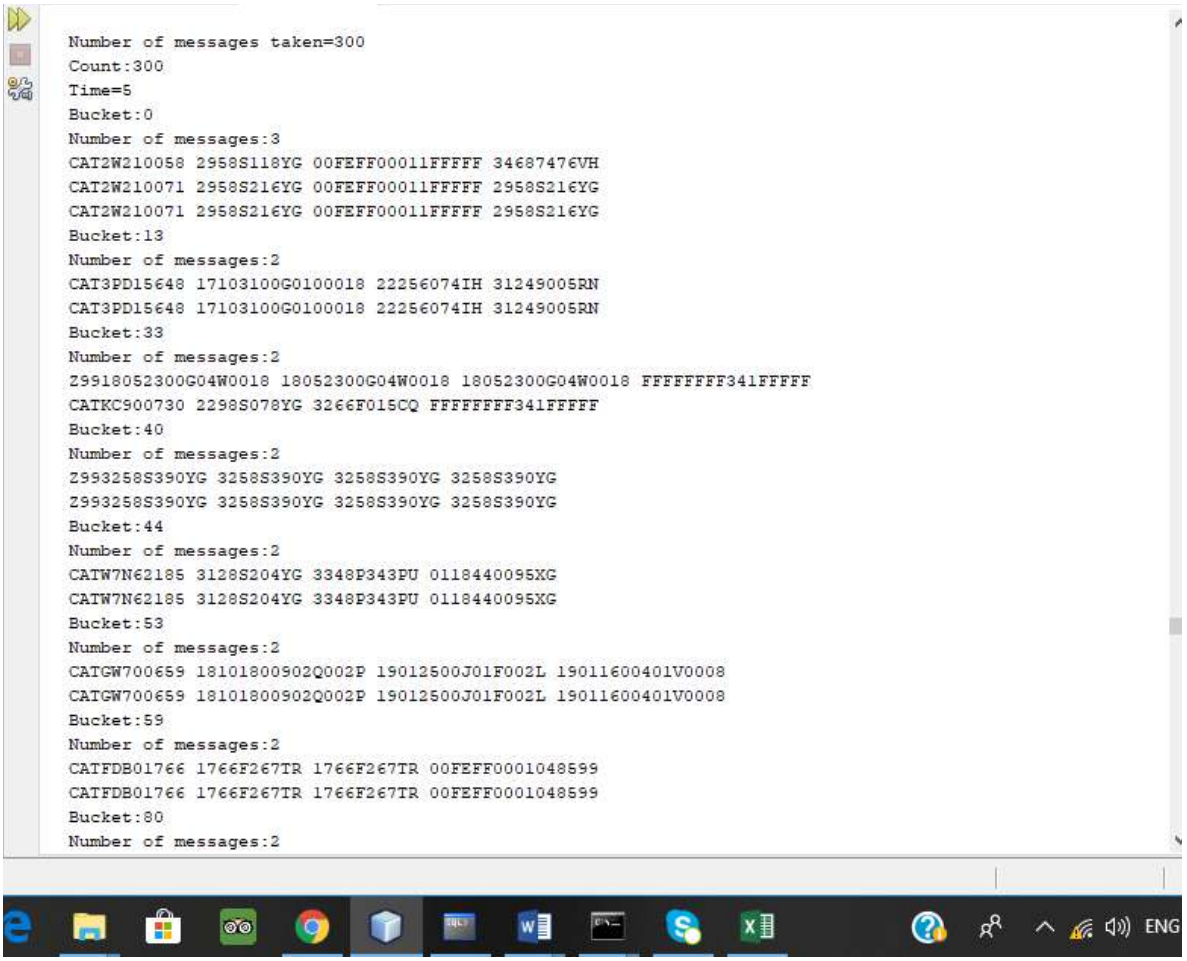


Figure 4: Output of Bucketization process (for 300 messages)

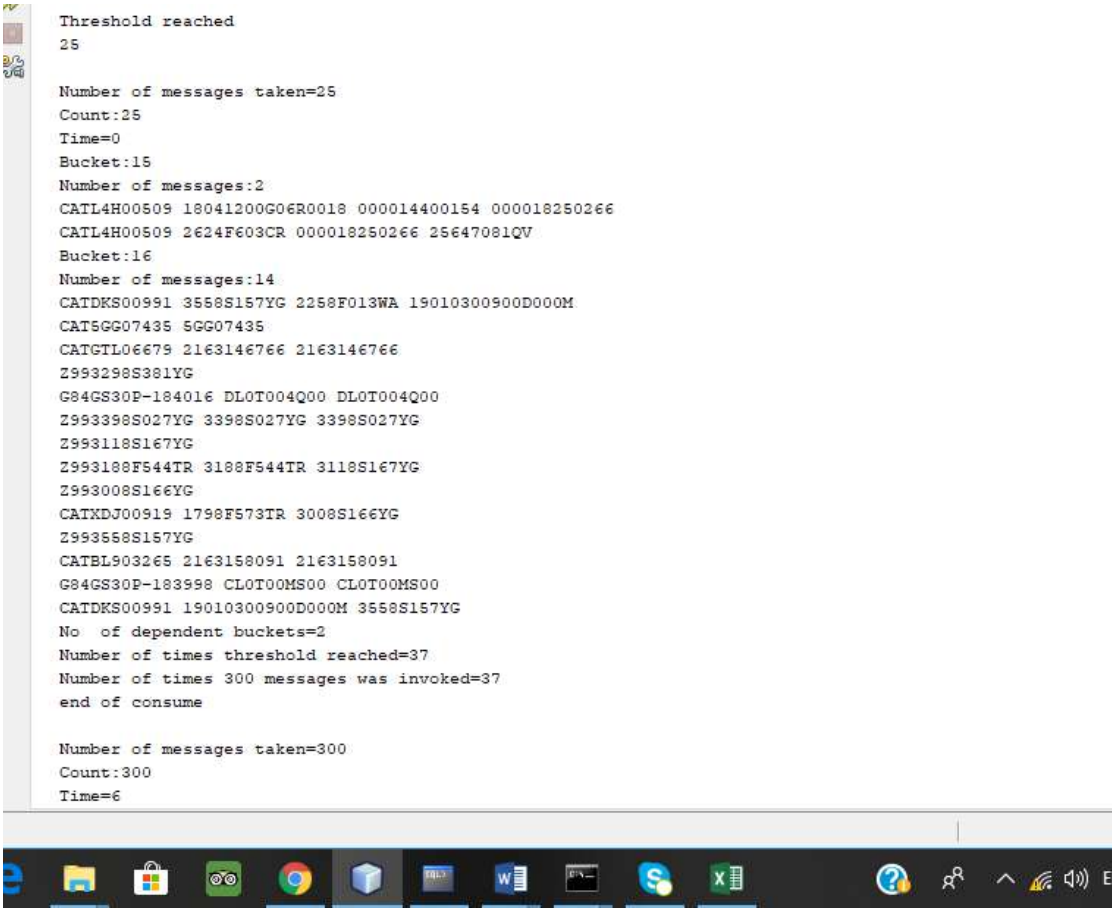


Figure 5: Output of Bucketization process (for threshold reaching condition)

Visualization of messages

At present, an interface has been created as shown in Figure 6, where the ***number of messages and the actual quadruples will be listed*** when the bucket number is given.



Figure 6: Query Interface

Further, code has been written to display the buckets indicating the number of messages using pie chart, for any given range of buckets (i.e from 5 to 25) as shown in Figures 7 & 8. This enables to view any range of buckets to see the number of messages. Further, when the mouse is kept over a partition of pie chart, the number of independent and dependent messages has been displayed.

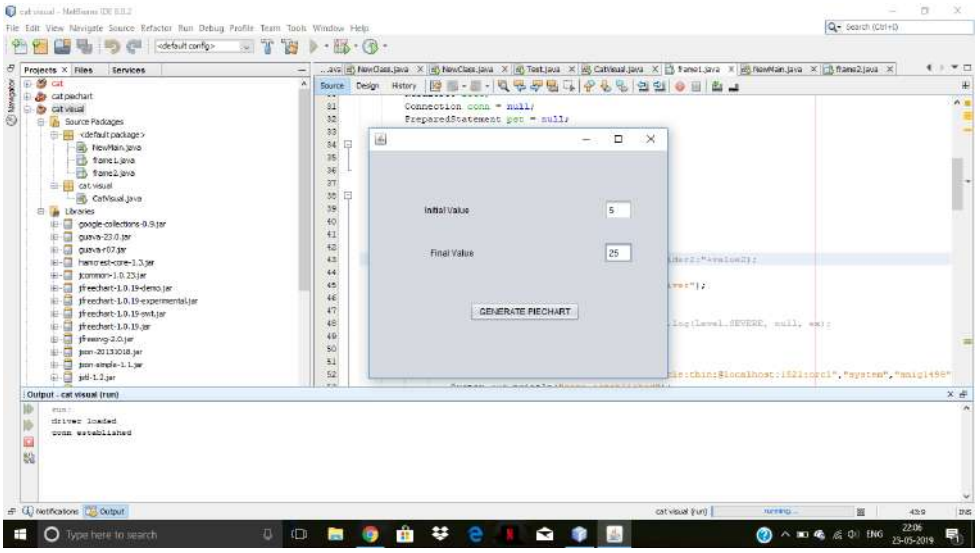


Figure 7: Input for Pie chart

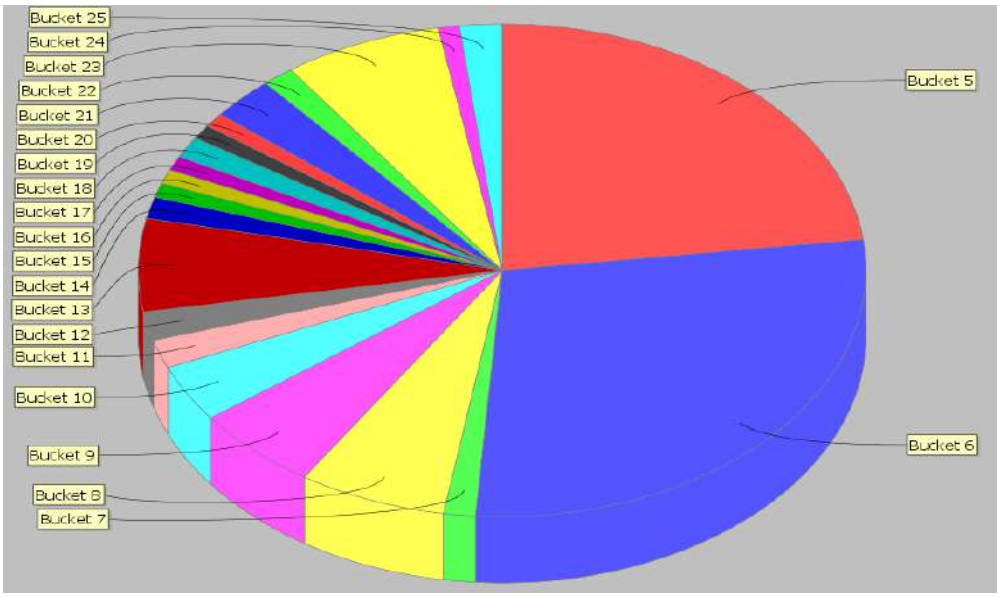


Figure 8: Pie chart visualization for range of buckets

Order the messages based on timestamp

Timestamp of the messages have also been included in the bucket along with the quadruple messages. These messages are placed in an Array List. The ***Compare method*** of the Array List was overloaded to sort the messages based on the timestamp. The code snippet of the ***Compare method*** and the resulting ordering of messages are shown in figures 9 & 10.

```
class compare_time implements Comparator<Integer>
{
  public int compare(Integer i,Integer j)
  {
        if(NewClass.timestamps.get(i).before(NewClass.timestamps.get(j)))  return -1;
        else return 1;
     }
}
```

Figure 9: Code snippet of Compare method

Unordered messages in Sample Bucket 0

```
SQL> select * from buckets where bucket_no=0;

 BUCKET_NO MAKE                                 DEVICE_NO                                RADIO_NO
---------- ---------------------------------------- ---------------------------------------- ----------------------------
-------------
SATELLITE_NO                           TIMESTAMP
---------------------------------------- ---------------------------------------------------------------
         0 CAT-99999997                           170307009012000M                         18072400H00D003F
                                        2018-8-3.11.38. 27. 227934000

         0 CAT-99999997                           170307009012000M                         18072400H00D003F
                                        2018-8-3.10.8. 3. 491493000

         0 CAT-99999997                           170307009012000M                         18072400H00D003F
                                        2018-8-3.10.23. 31. 461115000
```

Ordered messages in Sample Bucket 0

```
SQL> select * from buckets where bucket_no=0;

 BUCKET_NO MAKE                                 DEVICE_NO                                RADIO_NO
---------- ---------------------------------------- ---------------------------------------- ----------------------------
-------------
SATELLITE_NO                           TIMESTAMP
---------------------------------------- ---------------------------------------------------------------
         0 CAT-99999997                           170307009012000M                         18072400H00D003F
                                        2018-8-3.10.8. 3. 491493000

         0 CAT-99999997                           170307009012000M                         18072400H00D003F
                                        2018-8-3.10.23. 31. 461115000

         0 CAT-99999997                           170307009012000M                         18072400H00D003F
                                        2018-8-3.11.38. 27. 227934000

SQL> s_
```

Figure 10: Ordering of messages

Conclusion

In the proposal, it has been mentioned to complete *SSN-QuadProcess for CAT sample data* and *simulation of SSN-QuadProcess for CAT single day data*. SSN-QuadProcess utilizes the proposed bucketization algorithm and consumes *114msec* for bucketizing the batch data of 7,336 quadruple messages. Further, CAT single day data of 15,451 messages has been streamed for 5 hours with random time interval between 0 to 800msec using Apache kafka broker. Bucketization process has been invoked whenever the threshold time (2 min) or 300 messages are reached. It is found that bucketization process has been invoked 75 times for the single day data, with the above-mentioned tuned parameters, namely streaming and threshold time. However, the average bucketization time is around *12msec* only for the stream data. Hence, it is observed that both the specified milestones in the proposal have been completed.

PURCHASE ORDER

Correspondence Address	**PO NO: 8001001840**
ESK India Commerce and Trade Private Limted	**PO Date: 02-09-2019**
Near Gate 3, Caterpillar,	
Melnallathur,Thiruvallur - 602004,Tamil Nadu.	**Payment Terms: 15 Working Days**
GSTIN REG NO: 33AACCE2411Q1ZR	**Delivery Terms : As per Terms**
Supplier Name & Address	**Shipping Address**
SSN COLLEGE OF ENGINEERING	Caterpillar India Private Limited
RAJIV GANDHI SALAI (OMR)	Power Systems Division
KALAVAKKAM, Chennai - 603110	Mathagondapalli, Hosur - 635114.
Supplier Contact : 4600570258	**Port of Destination :**

Part Number	Description	QTY	Unit	Unit Price in INR	Value
	Message Quadruples project SSN	1	AU	187200.00	INR 187,200.00
	SAC Code:998399				
	Total				INR 187,200.00
	CGST	9%			INR 16,848.00
	SGST	9%			INR 16,848.00
					INR 220,896.00
				Rounding off	
				Grand total	INR 220,896.00

Prepared By: Ganapat **Approved By: Anil Sharma**

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
(Approved by AICTE, New Delhi and Affiliated to Anna University)
Rajiv Gandhi Salai (OMR), Kalavakkam – 603 110, TN, India.
Tel : +91 44 27469700
Fax : +91 44 27469772
www.ssn.edu.in
Administrative Office: 211/95, V.M. Street, Mylapore, Chennai - 600 004.
Telefax : +91 44 24982656, 24986474

Annexure – A

Project Proposal For

Dynamic Reporting Framework

Submitted to Caterpillar on 03-01-2019

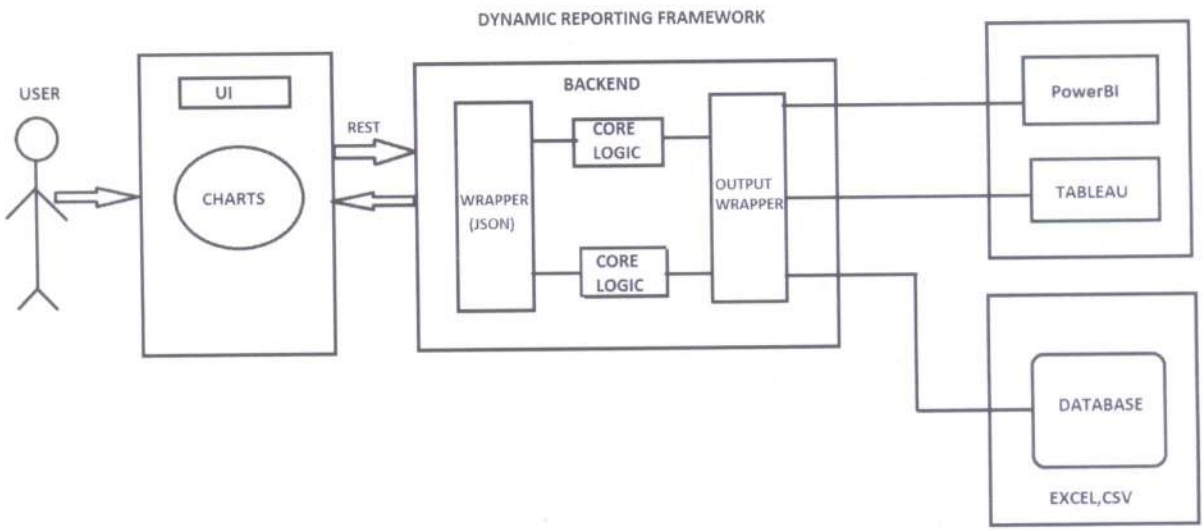
1. Statement of Work:

Caterpillar monitors the assets of its customers such as trucks, excavators, wheel loaders which are equipped with telemetry capable of communicating the parameters monitored by the sensors attached to the assets. This information is sent to the remote database servers of caterpillar where it is stored for future reference and further investigation. Various analyses of the data are performed to track the performance of the assets and it is provided to the customer through reports and visual charts. Hence reporting plays a vital role in providing services to caterpillar customers.

Reporting in web application is a data analysis process and serves to present data in a visual and interactive way for further data discovery or data analysis. The levels of interactivity vary from report to report and from platform to platform. Common types of interactions web reporting tools provide are the ability to sort and filter data, drill through different semantic layers of data and export data to other systems for further analysis. All of the interactive options culminate in providing users with the ability to dig deeper into data.

The objective of this project is to embed different reporting models in AngularJS Web Application. The mandatory reporting tool to be embedded is PowerBI and Tableau. The reports should have drill-down options to display data dynamically. Also, the web application should adapt gracefully among different reporting models without the user knowledge.

2. Framework:



3. Steps to be taken:

i. Study and select the appropriate tech stack that can satisfy all the needs of the project.
ii. Start with designing a basic wrapper framework.
iii. Use the necessary tools to develop an API Server for our requests.
iv. Develop an input wrapper that returns some pre-existing data as JSON.
v. Make an API request to the server and retrieve the pre-existing data and display it in the console log.
vi. Develop an output wrapper that connects to and retrieves values from a Database.
vii. Use the chosen tech stack to connect to front end and display the retrieved values.
viii. Design charts based on the data retrieved and display that in the front end.
ix. Accommodate the ability for the output wrapper to read from an Excel file and connect to front end to display retrieved values.
x. Get familiarized with the PowerBI environment and then integrate it with our application framework.
xi. Work on creating and displaying reports using Tableau and integrate that functionality with our framework.

xii. Write core logic such that change in core logic is sufficient to switch between PowerBI reports and Tableau reports without the user intervention.

4. Proposed Milestones:

- **Milestone1:**
  - Tech stack selection
  - Proof of concept
  - Basic wrapper framework.
- **Milestone2:**
  - Basic UI
  - Backend (Wrapper, Core Logic, API) – DB
- **Milestone3:**
  - Connect with external tools (PowerBI,Tableau)
  - Connect with Dynamic UI.

5. Principal Investigator:

Dr. V.S. Felix Enigo,
Associate Professor,
Dept. of Computer Science & Engineering,
SSN College of Engineering.
Email ID : felixvs@ssn.edu.in
Mobile No.: 9444662464

6. Term / Period of Project: 6 Months

7. Amount of Research Support:

Milestones	Process	Estimated Man-hours	Deliverables	Amount (INR)
M1	Selection of tech stack	10	Proof of Concept for Tech Selection and Design of Basic Wrapper Framework	45 x 350 = 15,750
	Design of basic wrapper framework	20		
	Simulating an API Server	15		
Total for M1		45		15,750
	Development of input wrapper	40		
	Retrieving data from	25		

M2	the API Server and displaying in front end.		A common Input Wrapper and Output Wrappers for DB and Excel to retrieve data from API Server to front-end	185 x 350 = 64,750
	Development of output wrapper for relational Database.	60		
	Development of output wrapper for Excel.	60		
Total for M2		185		64,750
M3	Study of PowerBI and development of an output wrapper.	45	Output Wrappers for PowerBI and Tableau and a Core logic that dynamically selects PowerBI or/and Tableau using minimal configuration to generate reports	150 x 350 = 52,500
	Study of Tableau and development of an output wrapper.	45		
	Implementation of core logic.	60		
Total for M3		150		52,500
Grand Total		380		1,33,000

8. Specified Deliverables: A Generalized Wrapper Framework that generates reports using various Reporting Models.

10. Institute Pre-Existing Intellectual Property and Open-Source works of authorship: -

11. Caterpillar Equipment Loans or Gifts (if any): -

12. Proposed Caterpillar Visitors(s)(if any), Duration of Visit:

13. Caterpillar Liason / Contact responsible for the project:
Mr. Sudhakar S. and Mr. Dinesh T.

V. S. Felix Enigo

Dr. V.S. FELIX ENIGO
ASSOCIATE PROFESSOR
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SSN COLLEGE OF ENGINEERING
KALAVAKKAM-603 110.

18-19

Exhibit 1
PROJECT DESCRIPTION

Upon execution by the Parties below, the Research Project specified herein shall be awarded and performed in accordance with the Master Sponsored Research Agreement ("Agreement"), effective 20th of December, 2018 (which is incorporated herein in its entirety), between SSN College of Engineering (hereinafter, "Institute") and Caterpillar India Private Limited (hereinafter, "Caterpillar").

1. Research Project Title: Dynamic Reporting Framework (CAT-SSN-2019-002)
2. Statement of Work: See attached Annexure-A
3. Principal Investigator: Dr. V.S. Felix Enigo
4. Term/Period of Performance: 6 Months
5. Amount of Research Support (Direct Costs and Indirect Costs), Payment Provisions: 1,33,000/-
6. Specified Deliverable Items (if any): A generalized wrapper framework that generates reports using various reporting models. (Refer Annexure-A for details)
7. Institute Pre-Existing Intellectual Property and open-source works of authorship: None
8. Caterpillar Equipment Loans or Gifts (if any): None
9. Proposed Caterpillar Visitor(s) (if any), Duration of Visit: To be decided later
10. Caterpillar Liaison / Contact Responsible for the Project: Mr. Sudhakar S. , Mr. Dinesh T.

Research Project Authorization:

CATERPILLAR INDIA PRIVATE LIMITED

Authorized Signature

Bansidhar Phansalkar, Managing Director – ITDD India

Name & Title

12-6-2019

Date

SSN COLLEGE OF ENGINEERING

Authorized Signature

Mrs. Kala Vijayakumar, President

Name & Title

(KALA VIJAYAKUMAR)
President
Sri Sivasubramaniya Nadar
College of Engineering
Chennai - 600020

Date

REVIEWED AND ACCEPTED:

V. S. Felix Enigo

Principal Investigator

CAT ENGINEERING DESIGN CENTRE - INDIA * TARAMANI CHENNAI 600 113

llar Confidential Green

Exhibit 3

RESEARCHER'S AGREEMENT

The SSN College of Engineering has entered into a Master Sponsored Research Agreement ("Agreement") with Caterpillar India Private Limited (Company) dated 20th of December, 2018, to collaborate or research projects of mutual interest.

Company is funding a Research Project (Proposal No.: CAT-SSN 2019-012) under the Agreement, to be performed under the direction of Dr. V.S. Felix Enigo (who will serve as Principal Investigator) for the project entitled "Dynamic Reporting Framework".

The Agreement contains certain obligations regarding protection of Company's Confidential Information which must be undertaken by each Researcher with a "need to know" who is participating in the collaborative Research Project, and additional obligations which are the personal responsibility of Institute Employees performing the work. As a Institute Researcher, your signature on this document ("Researcher's Agreement") indicates your understanding and acceptance of the terms described below.

1. During the term of the Research Project funded under the Agreement, Company and Researcher may determine and agree that the work of the Research Project requires access to certain proprietary or confidential information of Company which is related to the Project. The terms of this Researcher's Agreement shall apply solely to such Project-related information disclosed by Company to Researcher.

2. "Confidential Information" is defined as any device, graphics, written information or information in other tangible forms that is disclosed, for evaluation and/or research purposes, to Researcher by Company that is marked at the time of disclosure as being "Confidential". Information disclosed orally or visually and identified at that time as confidential shall be considered as Confidential Information only if it is summarized in tangible form, marked "Confidential", and transmitted to Researcher within thirty (30) days after the oral or visual disclosure.

3. Unless otherwise expressly authorized by Company, Researcher agrees to retain the Confidential Information in confidence for the "Confidential Period" defined below, during which Period Researcher shall not disclose the Confidential Information to any third party, and shall not use the Confidential Information for any purpose other than the aforesaid evaluation and consulting purposes.

4. The "Confidential Period" shall mean five (5) years from the end date set forth in the applicable Project Description under the Agreement or until such time as the information no longer qualifies as Confidential Information pursuant to Paragraph 5 below.

5. Company acknowledges Researcher shall not have any obligation of confidentiality with respect to information that:

   (a) was already in Researcher's possession on a non-confidential basis prior to receipt from Company; and/or

   (b) is in the public domain by public use, general knowledge of the like, or after disclosure hereunder, becomes general or public knowledge through no fault of Researcher; and/or

llar: Confidential Green

SAMPLE ONLY DO NOT FILL THE BLANKS

(c) is properly obtained by Researcher from a third party not under a confidentiality obligation to company; and/or

(d) is explicitly approved for release by written authorization of Company.

6. Researcher agrees to return to Company, upon request, the devices, graphics, writings and information in other tangible forms containing any of the Confidential Information referred to in Paragraph 2 above, and any copies of such Confidential Information (or alternatively, at Company's direction, to destroy such Confidential Information and verify its destruction in writing).

7. No license, express or implied, in the Confidential Information is granted to Researcher other than to use the information in the manner and to the extent authorized by this Researcher's Agreement and the Agreement.

Pre-Publication Review

Researcher agrees to submit all publications to Company for pre-publication review in accordance with Article 10 of the Agreement. Further, Researcher agrees to waive and hereby waives all moral rights in Company material.

Inventions and Patents

In accordance with Article 11 of the Agreement, Researcher agrees to promptly and fully disclose all potentially patentable inventions to Institute. Researcher hereby assigns all right, title and interest in the Institute-Caterpillar Project Intellectual Property to Company.

If Researcher has any questions regarding the terms of the Agreement or this Researcher's Agreement, Researcher should contact the Office of the Vice Chancellor for Research of the Institute for assistance.

By your signature below, you acknowledge that you have read and understand the terms of the Agreement and this Researcher's Agreement, and agree to abide by them.

RESEARCHER

By: V. S. Felix Enigo

Name: Dr. V. S. FELIX ENIGO

Title: ASSOCIATE PROFESSOR

Date: _____

ar: Confidential Green

18-19

Exhibit 1
PROJECT DESCRIPTION

Upon execution by the Parties below, the Research Project specified herein shall be awarded and performed in accordance with the Master Sponsored Research Agreement ("Agreement"), effective_20th of December, 2018 (which is incorporated herein in its entirety), between SSN College of Engineering (hereinafter, "Institute") and Caterpillar India Private Limited (hereinafter, "Caterpillar").

1. Research Project Title: An Efficient Algorithm for Fast Processing of Message Quadruples
2. Statement of Work: See attached Annexure-A (Proposal # CAT-SSN-2019-005)
3. Principal Investigator: Dr. Chitra Babu, Dr. B. Prabavathy
4. Term/Period of Performance: 6 Months
5. Amount of Research Support (Direct Costs and Indirect Costs), Payment Provisions: 1,87,200/-
6. Specified Deliverable Items (if any): Refer attached Annexure-A
7. Institute Pre-Existing Intellectual Property and open-source works of authorship: None
8. Caterpillar Equipment Loans or Gifts (if any): None
9. Proposed Caterpillar Visitor(s) (if any), Duration of Visit: To be decided later
10. Caterpillar Liaison / Contact Responsible for the Project: Mr. T. Dinesh Vincent

Research Project Authorization:

CATERPILLAR INDIA PRIVATE LIMITED

Authorized Signature

Bansidhar Phansalkar, Managing Director – ITDD India

Name & Title

12-6-2019

Date

CAT ENGINEERING DESIGN CENTRE - INDIA
TARAMANI
CHENNAI
600 113

SSN COLLEGE OF ENGINEERING

Authorized Signature

Mrs. Kala Vijayakumar, President

Name & Title

(KALA VIJAYAKUMAR)
President
Sri Sivasubramaniya Nadar
College of Engineering
Chennai - 600020

Date

REVIEWED AND ACCEPTED:

Principal Investigator

pillar: Confidential Green

Exhibit 3

RESEARCHER'S AGREEMENT

The SSN College of Engineering has entered into a Master Sponsored Research Agreement ("Agreement") with Caterpillar India Private Limited (Company) dated 20th of December, 2018, to collaborate or research projects of mutual interest.

Company is funding a Research Project (Proposal No.: CAT-SSN 2019-005) under the Agreement, to be performed under the direction of Dr. Chitra Babu (who will serve as Principal Investigator) for the project entitled "An efficient algorithm for fast processing of Message Quadruples".

The Agreement contains certain obligations regarding protection of Company's Confidential Information which must be undertaken by each Researcher with a "need to know" who is participating in the collaborative Research Project, and additional obligations which are the personal responsibility of Institute Employees performing the work. As a Institute Researcher, your signature on this document ("Researcher's Agreement") indicates your understanding and acceptance of the terms described below.

1. During the term of the Research Project funded under the Agreement, Company and Researcher may determine and agree that the work of the Research Project requires access to certain proprietary or confidential information of Company which is related to the Project. The terms of this Researcher's Agreement shall apply solely to such Project-related information disclosed by Company to Researcher.

2. "Confidential Information" is defined as any device, graphics, written information or information in other tangible forms that is disclosed, for evaluation and/or research purposes, to Researcher by Company that is marked at the time of disclosure as being "Confidential". Information disclosed orally or visually and identified at that time as confidential shall be considered as Confidential Information only if it is summarized in tangible form, marked "Confidential", and transmitted to Researcher within thirty (30) days after the oral or visual disclosure.

3. Unless otherwise expressly authorized by Company, Researcher agrees to retain the Confidential Information in confidence for the "Confidential Period" defined below, during which Period Researcher shall not disclose the Confidential Information to any third party, and shall not use the Confidential Information for any purpose other than the aforesaid evaluation and consulting purposes.

4. The "Confidential Period" shall mean five (5) years from the end date set forth in the applicable Project Description under the Agreement or until such time as the information no longer qualifies as Confidential Information pursuant to Paragraph 5 below.

5. Company acknowledges Researcher shall not have any obligation of confidentiality with respect to information that:

   (a) was already in Researcher's possession on a non-confidential basis prior to receipt from Company; and/or

   (b) is in the public domain by public use, general knowledge of the like, or after disclosure hereunder, becomes general or public knowledge through no fault of Researcher; and/or

Caterpillar: Confidential Green

Original for Recipient

INVOICE SSN/TL/1920/017

Date November 11, 2019

SSN TRUST

SSN COLLEGE OF ENGINEERING
NO.211/95, V.M. STREET,
MYLAPORE,
Chennai*, Tamil Nadu (TN - 33),
PIN Code 600004, India
044-24416474/24412676
trust.finance@ssn.edu.in
www.ssn.edu.in
GSTIN: 33AAATS2240Q1ZD
PAN: AAATS2240Q

Bill to:

SONEPAR INDIA PRIVATE LTD.,
(Formerly ESK India Commerce & Trade Pvt. Ltd.)
Near Gate - 3, Caterpillar,
Melnallathur,
Thiruvallur, Tamil Nadu (TN - 33),
PIN Code 602004, India
(91-044) 27641121| Mobile: +91 7358070035
Place of Supply: TN (33)
PAN no AACCE2411Q, GSTIN: 33AACCE2411Q1ZR

Ship to:

SONEPAR INDIA PRIVATE LTD.,
(Formerly ESK India Commerce & Trade Pvt. Ltd.)
Near Gate - 3, Caterpillar,
Melnallathur,
Thiruvallur, Tamil Nadu (TN - 33),
PIN Code 602004, India
(91-044) 27641121| Mobile: +91 7358070035
Ganapathi C - Assistant Manager – Purchase

NO	PRODUCT / SERVICE NAME	HSN/SAC	QTY	UNIT PRICE	CGST	SGST	AMOUNT
1	**CONSULTANCY CHARGES** Towards Dynamic reporting frame work by SSN	998399	1.00	1,33,000.00	11,970.00 9.00%	11,970.00 9.00%	1,56,940.00
	TOTAL		1.00	133000.00	11970.00	11970.00	156940.00

Total: ₹ One Lakh Fifty Six Thousand Nine Hundred Forty Only

AUTHORIZED SIGNATORY

TOTAL BEFORE TAX	₹ 1,33,000.00
TOTAL TAX AMOUNT	23,940.00
ROUNDED OFF	0.00
TOTAL AMOUNT	₹ 1,56,940

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
KALAVAKKAM
603 110.

Note:
Subject to Chennai Jurisdiction only

PURCHASE ORDER

Correspondence Address	**PO NO: 8001001902**
Sonepar India Pvt. Ltd.	**PO Date: 10-11-2019**
Near Gate 3, Caterpillar,	
Melnallathur,Thiruvallur - 602004,Tamil Nadu.	**Payment Terms: 15 Working Days**
GSTIN REG NO: 33AACCE2411Q1ZR	**Delivery Terms : As per Terms**
Supplier Name & Address	**Shipping Address**
SSN COLLEGE OF ENGINEERING	Sonepar India Pvt. Ltd.
RAJIV GANDHI SALAI (OMR)	Near Gate 3, Caterpillar,
KALAVAKKAM, Chennai - 603110	Melnallathur,Thiruvallur - 602004,Tamil Nadu.
Supplier Contact : 4600582708	**Port of Destination :**

Part Number	Description	QTY	Unit	Unit Price in INR	Value
	Dynamic Reporting Framework - SSN	1	AU	133000.00	INR 133,000.00
	SAC Code:998399				
	Total				INR 133,000.00
	CGST	9%			INR 11,970.00
	SGST	9%			INR 11,970.00
					INR 156,940.00

Rounding off

Grand total INR 156,940.00

Prepared By: Ganapat **Approved By: Anil Sharma**

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
(Approved by AICTE, New Delhi and Affiliated to Anna University)
Rajiv Gandhi Salai (OMR), Kalavakkam – 603 110, TN, India.
Tel : +91 44 27469700
Fax : +91 44 27469772
www.ssn.edu.in

Administrative Office: 211/95, V.M. Street, Mylapore, Chennai - 600 004.
Telefax : +91 44 24982656, 24986474

Annexure - A

Project Proposal For

Generating Machine Productivity using Video Analytics

Submitted to Caterpillar on 03-01-2019

1. Statement of Work

1.1 Introduction:

Today's machines are equipped with onboard electronics to sense data. Mechanical devices from earlier days do not have this facility. There are a significant number of these older machines still in deployment, and the option of replacing all these machines for newer models capable of sensing operational data would incur high costs. This considered, there exists a need to analyse the video to extract the status of the machines including its operations such as state of operation, duration, Timestamps, GPS coordinate of said machines, which could be done by capturing the machine's operations in a video.

1.2 Technology Employed:

Phase 1:

We propose a deep model that uses Convolutional Neural Networks (CNN) and Faster R-CNN to classify and detect the state of the bucket of the machine. Deeper layers of the Convolutional Networks extract highly abstract and complex shapes and patterns, while the first few layers extract simple features like edges and colors. These features are used by the dense layers of CNN for classification of the state of the bucket. Faster R-CNN is used to detect the bucket from the whole machine. The detected bucket will be fed to CNN for classification of states (empty, filled and half-filled).

Phase 2:

We propose a deep model that combines two successful architectures, namely Convolutional Neural Networks and Recurrent Neural Network to learn joint dependencies of a sequence of frames and the corresponding sequence of words. A sequence of frames are fed into a Convolutional Neural Network that extracts patterns from them hierarchically. Deeper layers of the Convolutional Networks extract highly abstract and complex shapes and patterns, while the first few layers extract simple features like edges and colors. Deep abstract features learned by this Convolutional Network are given to a deep Recurrent Neural Network that models dependencies between frames that occur at different times. This consolidated feature vector is then given to a second Recurrent Neural Network that conditions the words it generates over previous context and the learned video features.

Milestone	Deliverable
Module 1 : Capturing images of the different states of the bucket(full,empty,half-filled) and model-building and evaluation for the same.	
1. Data collection of state of bucket	Dataset of the states of the bucket
2. Model-building and evaluation	CNN model
Module 2 : Capturing images of the full machine and detection of bucket.	
1. Data collection of whole machine	Dataset of the whole machine
2. Bucket-detection from the machine	Faster R-CNN model
3. Applying deliverable of Module 1 to identify the state of the bucket	CNN model

2. Principal Investigator:

Dr. T. T. Mirnalinee,
Professor
Department of CSE
SSN College of Engineering
mirnalineett@ssn.edu.in

Dr. J. Bhuvana
Associate Professor
Department of CSE
SSN College of Engineering
bhuvanaj@ssn.edu.in

3. Term/Period of Performance:

Phase 1: Image Analysis – 12 weeks
Phase 2: Video Analytics - This phase will be executed after completing phase 1 with consent from Caterpillar Team

4. Amount of Research Support (Direct Costs and Indirect Costs), Payment Provisions: Specify Payment Breakup with Milestones e.g Parameter standardization can have two milestones.

Work flow for Phase 1

Milestone	Deliverable	Man-Hours	Cost in Rupees
Module 1 : Capturing images of the different states of the bucket(full,empty,half-filled) and model-building and evaluation for the same.			
1. Data collection of state of bucket	Dataset of the states of the bucket	1 week	8750
2. Model-building and evaluation	CNN model	4 weeks	35000
Module 2 : Capturing images of the full machine and detection of bucket			
1. Data collection of whole machine	Dataset of the whole machine	1 week	8750
2. Bucket-detection from the machine	Faster R-CNN model	4 weeks	35000
3. Applying deliverable of Module 1 to identify the state of the bucket	CNN model	2 weeks	17500
Total man-hours:		**12 weeks**	**1, 05,000**

No of hours Per week : 5 hours per Member
Members involved : 5
Total effort per week in man hours: 25 hours
Cost per hour : Rs.350
Cost per week : 8,750
Total man hours : 300 hrs

Total cost of Project: **Rs. 1,05,000**

5. Specified Deliverable Items (if any):
   - Dataset of bucket and whole machine
   - CNN model capable of identifying bucket from whole machine

6. Institute Pre-Existing Intellectual Property and open-source works of authorship: Not applicable

7. Caterpillar Equipment Loans or Gifts (if any): Not applicable

8. Proposed Caterpillar Visitor(s) (if any), Duration of Visit:

9. Caterpillar Liason/Contact responsible for the project: Mr. Vishnu and Mr. Merlin

Dr.T.T.MIRNALINEE M.E., Ph.D.,
Professor
Department of Computer Science and Engineering
S.S.N. College of Engineering
Old Mahabalipuram Road
SSN Nagar - 603 110

19-20

Exhibit 1
PROJECT DESCRIPTION

Upon execution by the Parties below, the Research Project specified herein shall be awarded and performed in accordance with the Master Sponsored Research Agreement ("Agreement"), effective 20th of December, 2018 (which is incorporated herein in its entirety), between SSN College of Engineering (hereinafter, "Institute") and Caterpillar India Private Limited (hereinafter, "Caterpillar").

1. Research Project Title: Generating Machine Productivity using Video Analytics
2. Statement of Work: See attached Annexure-A (Proposal No: CAT-SSN-2019-004)
3. Principal Investigator: Dr. T.T. Mirnalinee, Dr. J. Bhuvana
4. Term/Period of Performance: 12 Weeks
5. Amount of Research Support (Direct Costs and Indirect Costs), Payment Provisions: 1,05,000/-
6. Specified Deliverable Items (if any): as per Annexure-A (Proposal No: CAT-SSN-2019-004)
7. Institute Pre-Existing Intellectual Property and open-source works of authorship: None
8. Caterpillar Equipment Loans or Gifts (if any): None
9. Proposed Caterpillar Visitor(s) (if any), Duration of Visit: To be decided later
10. Caterpillar Liaison / Contact Responsible for the Project: Merlin Singh, Vishnu Selvaraj

Research Project Authorization:

CATERPILLAR INDIA PRIVATE LIMITED

Authorized Signature

Bansidhar Phansalkar, Managing Director – ITDD India
Name & Title

12-6-2019
Date

CAT ENGINEERING DESIGN CENTRE INDIA TARAMANI CHENNAI 600 113

SSN COLLEGE OF ENGINEERING

Authorized Signature

Mrs Kala Vijayakumar, Preside
Name & Title

(KALA VIJAYAKUMAR)
President
Sri Sivasubramaniya Nad
College of Engineerin
Chennai - 600020

Date

REVIEWED AND ACCEPTED:

Principal Investigator

Original for Recipient

INVOICE SSN/TL/1920/031

Date March 17, 2020
P.O. Number I000387989
P.O. Date March 17, 2020

SSN COLLEGE OF ENGINEERING

SSN COLLEGE OF ENGINEERING
NO.211/95, V.M. STREET,
MYLAPORE,
Chennai*, Tamil Nadu (TN - 33),
PIN Code 600004, India
044-24416474/24412676
trust.finance@ssn.edu.in
www.ssn.edu.in
GSTIN: 33AAATS2240Q1ZD
PAN: AAATS2240Q

Bill to:

SONEPAR INDIA PRIVATE LTD.,
(Formerly ESK India Commerce & Trade Pvt. Ltd.)
Near Gate - 3, Caterpillar,
Melnallathur,
Thiruvallur, Tamil Nadu (TN - 33),
PIN Code 602004, India
(91-044) 27641121| Mobile: +91 7358070035
Place of Supply: TN (33)
PAN no AACCE2411Q, GSTIN: 33AACCE2411Q1ZR

Ship to:

SONEPAR INDIA PRIVATE LTD.,
(Formerly ESK India Commerce & Trade Pvt. Ltd.)
Near Gate - 3, Caterpillar,
Melnallathur,
Thiruvallur, Tamil Nadu (TN - 33),
PIN Code 602004, India
(91-044) 27641121| Mobile: +91 7358070035
Ganapathi C - Assistant Manager – Purchase

NO	PRODUCT / SERVICE NAME	HSN/SAC	QTY	UNIT PRICE	CGST	SGST	AMOUNT
1	**CONSULTANCY CHARGES** Towards Generating Machine Productivity using Video Analytics Project by SSN	**998399**	**1.00**	**1,05,000.00**	**9,450.00** 9.00%	**9,450.00** 9.00%	**1,23,900.00**
	TOTAL		1.00	105000.00	9450.00	9450.00	123900.00

Total: ₹ One Lakh Twenty Three Thousand Nine Hundred Only

TOTAL BEFORE TAX	₹ 1,05,000.00
TOTAL TAX AMOUNT	₹ 18,900.00
ROUNDED OFF	0.00
TOTAL AMOUNT	₹ 1,23,900

AUTHORIZED SIGNATORY

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
KALAVAKKAM
603 110.

Note:
Subject to Chennai Jurisdiction only

PURCHASE ORDER

BILLING Address	**PO NO: I000387989**
Sonepar India Private Limited (Formerly known as ESK India Commerce and Trade Pvt. Ltd.)	**PO Date: 17.03.2020**
Near Gate 3, Caterpillar India Pvt Ltd, Melnallathur,Thiruvallur	
Chennai 602004 Tamil Nadu India	**Payment Terms: 15DAYS**
GST No -33AACCE2411Q1ZR	**Delivery Terms :DDP**
Supplier Name & Address	**Shipping Address**
SSN COLLEGE OF ENGINEERING	Sonepar India Private Limited (Formerly known as E
RAJIV GANDHI SALAI (OMR)	Near Gate 3, Caterpillar India Pvt Ltd, Melnallathur,Thiruvallur
KALAVAKKAM, Chennai - 603110	Chennai 602004 Tamil Nadu India
	GST No -33AACCE2411Q1ZR
Supplier Contact :	**Port of Destination :**

PART NO	Description	SAC	QTY	Unit	Unit Price in INR	Value
	Generating Machine Productivity using Video Analytics	998399	**1**	**AU**	105000	**105000**
	Total					INR 1,05,000.0
				CGST	9.00%	INR 9,450.00
				SGST	9.00%	INR 9,450.00
					Rounding off	**INR 1,23,900.00**
					Grand total	INR 1,23,900.00

Prepared By **Approved By**

தமிழ்நாடு அறிவியல் தொழில்நுட்ப மாநில மன்றம்
TAMIL NADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
(Established by Government of Tamilnadu)
Directorate of Technical Education Campus, Chennai - 600 025
Phone : 044 - 2230 1428 Web : www.tanscst.nic.in
Telefax : 044 - 2230 1552 E-mail : ms.tanscst@nic.in/enquiry.tanscst@nic.in

DR. R. SRINIVASAN, M.Sc., Ph.D., F.I.C.S., M.A.C.S. (USA).
Member Secretary

C. No.TNSCST/STP/AR/2018-2019 9290 04.11.2019

To
Dr.S.Chitra
Associate Professor
Dept. of Information Technology
SSN College of Engineering
Kalavakkam, Chennai – 603 110

Sir/Madam,

Sub: TNSCST – S&T Project on "Assistive Technology for Parkinson and Alzheimer Disease (PAD) affected people" –Approval intimation – Reg.

Ref: Your proposal dated 18.02.2019

*****

I am happy to inform you that State Council has approved your above cited research proposal for funding. A copy of the terms and conditions governing the grant is enclosed herewith for your reference. You may kindly reply **within a week time** as to whether it is agreeable to take up the research project with our terms and conditions and the approved budget is Rs.4,10,000/- for **Two** years. First year approved grant will be Rs.2,05,000 /-(Rupees Two lakh and five thousand thousand only).

You have to submit a declaration stating that the above cited "project has not receiving any funds from any other funding agency".

All communication should be sent through the proper channel.

With best wishes,

Yours faithfully,

4/11/19

Member Secretary

4/11/19

Encl: as above

Copy to:
The Principal
SSN College of Engineering
Kalavakkam, Chennai – 603 110

BUDGET DETAILS

4.Title of the project:

Assistive technology for parkinson and alzheimer disease (PAD) affected people

Name and address of the principal investigator

Dr S Chithra
Associate Professor
Dept. of IT
SSN College of Engineering
Chennai-603110

Amount & Duration: **Rs.4, 10,000/- for TWO years**

Approved Budget

Sl.no	Description of the item	Amount (Rs.)		
		First year	Second year	Total
1	Permanent Equipment	1,20,000.00	1,20,000.00	2,40,000.00
2	Equipment	50,000.00	50,000.00	1,00,000.00
3	Consumables	10,000.00	10,000.00	20,000.00
4	Travel	10,000.00	10,000.00	20,000.00
5	Overhead charges	15000.00	15000.00	30000.00
Total		**2,05,000.00**	**2,05,000.00**	**4,10,000.00**

4/11/19

MEMBER SECRETARY

The Institution of Engineers (India)

AN ISO 9001 : 2015 CERTIFIED ORGANISATION
(ESTABLISHED 1920, INCORPORATED BY ROYAL CHARTER 1935)
8 GOKHALE ROAD, KOLKATA - 700 020

"99 Years of Relentless Journey towards Engineering Advancement for Nation-building"

Ref: R 6/2/DR/2019-20/DR2020010 Date: 23 September 2019

The Principal
Sri Sivasubramaniya Nadar College of Engineering
Old Mahabalipuram Road, Kalavakkam
Chennai 603110

Dear Sir/Madam,

Sub: Intimation of Approval for R&D Project entitled: *"Development of Sustainable Magnetic Carbon Based Nanocomposite Films from Agro Waste and Evaluate Its Application in Removal of Antibiotics from Water"*

This has reference to your subject project proposal submitted to The Institution of Engineers (India) for funding under IEI R&D Grant-in-Aid Scheme.

We are pleased to inform that the same has been approved by the competent authority as per the details mentioned below:

Project ID:	DR2020010	Category:	PhD	Financial Year:	2019-20
Guide(s):	Dr P Senthil Kumar	Applicant(s):	G Prasannamedha		
College / Institute / University:	Sri Sivasubramaniya Nadar College of Engineering	Total Grant Sanctioned:	₹70,000/-	Number of Instalment(s):	2

Kindly quote your project ID all your future correspondence.

Please note that the Terms & Conditions of the Grant (Copy enclosed) should be strictly followed. On successful completion of the project, the following documents are to be furnished: (1) hard and soft copy of the Project Report, (2) hard/soft copy of the Project Completion Report, (3) hardcopies of the Utilization Certificates in duplicate, (4) soft copy of the filled-in R&D Compendium pro-forma (in .doc/.docx format) and (5) an Audio/Visual Demonstration of the Prototype/Model/Process in CD or Google Drive File Link. The submission will be treated as successful and complete only on receipt of the above documents.

Kindly acknowledge receipt through email id **research@ieindia.org**.

Thanking you.

Yours faithfully,

(Dr N Sengupta)
Director (Technical)
For Secretary & Director General

Encl: as stated.

cc: Guide(s) – Dr P Senthil Kumar

Minutes of 22nd PERC (Project Evaluation & Review Committee) meeting held under the Chairmanship of Shri Upendra C. Joshi, Joint Secretary, Ministry of Mines during 03rd – 05th Aug 2022 through VC. The list of participants is enclosed in Annexure-A.

1. The project proposals under the Science & Technology Programme Scheme of Ministry of Mines were invited online on SATYABHAMA portal (research.mines.gov.in). The last date of receipt of proposals was 13th May 2022.

2. A total number of 319 project proposals were received online on the portal. A two-stage review process was adopted to evaluate the proposals for recommendation to Standing Scientific Advisory Group (SSAG). The first stage comprised of preliminary screening of the proposals done by a team of experts constituted by Ministry of Mines. Based on the guidelines as adopted in 14thPERC, the experts conducted pre-screening of the proposals. After screening, 82 proposals covering five areas, namely (i) Geosciences and Exploration (ii) Mining(iii) Mineral Processing & recovery from waste (iv) Metal Extraction (Metallurgical processes) and (v) Alloys, specialty materials and product; were short listed for further review in the second stage. Three virtual meeting rooms were arranged by JNARDDC, Nagpur for (a) Mining–*(i& ii)* (b) Mineral Processing *(iii)* and (c) Metallurgy*(iv & v)*. All the members and PIs attended the meeting through Video Conferencing mode. In addition to the new proposals the committee re-considered 9 proposals which were recommended for resubmission by the last PERC / SSAG with certain changes. Thus (82+9) = 91 project proposals were presented by the respective Principal Investigators (PIs) and evaluated by the committee during the VC meeting held on 03-05 Aug 2022. Furthermore, 4 completed and 35 ongoing projects were also reviewed by the committee. As per the terms of reference of PERC, the concerned members recused themselves, to avoid conflict of interest, from the proceedings from that part of the meeting when project(s) related to their institute(s) was/were under consideration.

3. The following criteria were given to all the experts for detailed evaluation.

(i) Is the problem well defined?

(ii) Does the proposal adequately cover prior work both in the institution and elsewhere\ Is it similar to any earlier work already sanctioned; has the PI done prior work to prove proof of concept before submitting the project or is the project in the early stage itself ?

(iii) Does it address a critical gap in our country's needs and requirements?

(iv) Is the methodology of work well laid out and doable?

(v) Are the deliverables well defined?

(vi) Is there a translational potential for application / user interface; Can it move to higher TRL?

(vii) Does the PI and institution have adequate competence to do the proposed research?
(viii) Is there collaboration with another Lab or institution or industry to enhance the quality and quantum and application potential?
(ix) Budget: Is the budget correctly done; Is there deficiency or excess?
(x) Time duration:
(xi) Any other comments.

The 3 panels met together at the end and selected the projects for recommendation to the next level SSAG, or asked the PIs to revise and attempt a resubmission to the next PERC or not recommended at all. The details are given in the succeeding paragraphs.

Final recommendation

(i) Recommended with or without changes to SSAG: **29 Project Proposals**
(ii) To be revised and resubmitted in next PERC: **5 project Proposals**
(iii) NOT recommended: **57 Project Proposals**
(iv) Review of report of completed **(4)** and ongoing projects **(35)**

4. Based on the detailed review and evaluation, the following new project proposals are being recommended to SSAG. ***The details of recommended projectsand specific recommendations are given hereunder:***

RECOMMENDED- 29 nos.

1	
Project No.	SNTMOM/684/2022
Project Title	Potentiometric low-cost sensing of rare earth and other heavy metals with high specificity in prospecting for minerals
Institution	Indian Institute of Technology Delhi
Principal Investigator	Madhusudan Singh (7503608075, msingh@ee.iitd.ac.in)
Project Cost & Duration	Rs. 67,80,450.00 3years
Objectives of the project	A. Develop non-specific rare earth atom / heavy metal sensing devices, based on our existing work on Cu and Cd sensing ISEs and ISFETs, for rapid in-field testing of minerals. B. Develop a library of metal-organic framework (MOF) based functionalized with a range of chelating ligands for highly specific coordination of rare earth ions, and integration of these layers into one-time use sensors. C. Develop artificial intelligence (AI) / machine learning (ML) based models to use sensor data from non-specific sensors (a) to predict presence of specific rare earth ions in presence of confounding data. Training of models will employ sensors (b) along with currently standard analytical methods like ICP-MS/XPS/EDX, etc.

REMARKS/SUGGESTION:
RECOMMENDED WITH MODIFICATIONS

1. Project idea is good
2. Seed money of Rs. 10 Lakhs is recommended for a period of one year to establish validity for at least 4 rare earth elements.
3. PI should contact NFTDC to get the mixed RE solutions

2	
Project No.	SNTMOM/700/2022
Project Title	Estimation and Fingerprinting of Chromite, Ni, PGE Resources in Selected Geological tracts of Singhbhum (Sukinda) and Western Dharwar Craton (Nuggihalli chromite belt). Geosciences and Exploration
Institution	CSIR National Geophysical Research Institute
Principal Investigator	P V SUNDER RAJU (9490748152, pvsraju@ngri.res.in)
Project Cost & Duration	Rs. 15,12,000.00 1yrs
Objectives of the project	To collate the published Reports from GSI etc.., available in public domain Integrated Geological, Geochemical and Geophysical studies for the delineation of Chromitite extensions in Nuggihalli Schist Belt and implications for Ni-Cu+-PGE mineralization. 2. Develop a database 3. Controls on platinum group element variation in mafic-ultramafic-magmatic systems 4. Prospectivity indicators for magmatic Ni-Cu sulfides. 5. Apply the Fingerprinting for chromite in virgin potential geological tracts

REMARKS/SUGGESTION:

RECOMMENDED

1. The project idea is good and presently targeting Chromium, Nickel and PGE of different chromite mines.
2. The process of estimation would be useful to evaluate the elements
3. Approach is innovative and would help the industries

3	
Project No.	SNTMOM/718/2022
Project Title	Development of supercapacitor devices for grid-level energy storage application based on natural mineral Chalcopyrite and bauxite residue. Mining (includes rock mechanics, design, equipments, energy, environment, safety)
Institution	Indian Institute of Technology Bhubaneswar
Principal	Saroj Kumar Nayak

Investigator	(9438290179, nayaks@iitbbs.ac.in)
Project Cost & Duration	Rs. 31,42,600.00 3yrs
Objectives of the project	We present a research proposal explaining the significant role of nanostructured CuFeS2 along with the waste, bauxite residue (red mud), in playing a major role towards electrochemical charge storage. ? The proposal highlights the importance, current progress and futuristic prospects of supercapacitor based on nanostructured materials based CuFeS2 and red mud. ? One of the core objectives of this proposal is to develop CuFeS2 and red mud-based supercapacitors which can provide long term and cost-effective solution in the field of electric energy storage. The surge in energy demand is inevitable considering the fact that the electronic industry and transportation sector are expanding rapidly to meet the public demand. ? The purpose of taking red mud is to introduce the novel concept of "waste to energy". As the red mud contains maximum amount of Fe2O3, so after purification of red mud, Fe2O3 can be used as electrode material of supercapacitor. ? Apart from the experimental development, first principles based theoretical investigations will be carried out for the understanding the atomic/electronic level mechanism of CuFeS2 based supercapacitor devices ? Synthesis, characterization, and performance evaluation of the supercapacitor devices.

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. Project idea is good and has novelty.
2. The PI should establish the proof of concept with the developed material.
3. Seed money of Rs. 20 lakh is recommended for a period of 1½ years.
4. Based on these findings the next phase of the project may be decided in developing prototype validation etc.

4	
Project No.	SNTMOM/723/2022
Project Title	Synthesis of precipitated silica from waste beach sand tailings and its value addition in glass making industries Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	SOCIETY RAMAN EDUCATION
Principal Investigator	SUNITA ROUTRAY (7327847963, sroutray1@cvrce.edu.in)
Project Cost	Rs. 26,90,700.00

& Duration	2yrs
Objectives of the project	1. Value addition of waste beach sand tailings 2. To generate wealth from waste 3. To produce precipitated silica 4. Utilization of precipitated silica for industrial applications especially in glass making industries.

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. The project idea is good.
2. PI should focus on achieving purity of silica (+99%) for its utilization in glass and other industries.
3. As beach sand tailing is associated and under the control of IREL, PI needs to submit a letter form IREL for providing samples for the research work.
4. Project is recommended with a revised budget of 15 Lakhs for a duration of 1½ year.

5	
Project No.	SNTMOM/726/2022
Project Title	Development of low-cost heterogeneous catalyst using Red mud for Biodiesel Production. Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Jawaharlal Nehru Aluminium Research Development and Design Centre
Principal Investigator	PRACHIPRAVA PRADHAN (9438760367, prachi@jnarddc.gov.in)
Project Cost & Duration	Rs. 29,35,800.00 2yrs
Objectives of the project	(i) Conversion of red mud as low-cost heterogeneous catalyst for biodiesel synthesis from waste cooking oil in Oscillatory Baffle Reactor. (ii) To assess engine performance of biodiesel produced from transesterification of waste cooking oil using red mud as a catalyst and its blends with petro diesel.

REMARKS/SUGGESTION:

RECOMMENDED

1. Project proposal is good with application potential.
2. Project targets to develop low-cost catalyst in biodiesel production
3. The value of catalyst could be attractive based on the quantum of uses
4. Based on outcome the scale up avenues could also be worked out

6	
Project No.	SNTMOM/744/2022
Project Title	Dissolution of chalcopyrite and other sulphide ores using extractive deep eutectic solvents
Institution	K.C college, HSNC University, Mumbai (Hyderabad Sind National Collegiate Board)
Principal Investigator	Hemlata K. Bagla (9821420698, hemlata.bagla @kccollege.edu. in)
Project Cost & Duration	Rs. 50,00,000.00 3 years
Objectives of the project	1. Very limited water consumption 2. Reduced energy consumption 3. Process intensification 4. Reduced consumption of acids 5. Higher selectivity for leaching 6. Suitable for the treatment of low-grade ores, mine tailings, and industrial process residues 7. Useful for the treatment of urban waste 8. New separation processes with low generation of toxic gases and waste
REMARKS/SUGGESTION: **RECOMMENDED WITH MODIFICATIONS** 1. Idea is novel and aims for zero waste. 2. PI should approach NFTDC for facility utilization and project guidance specific to removal of copper from solutions obtained from recycled LiB. 3. Emphasis on cost-effective solvents. 4. Recommended for seed money of Rs. 10 Lakhs for 1 Year to perform prefeasibility studies with emphasis on Cu recovery from Li-Fe batteries and establish POC.	

7	
Project No.	SNTMOM/745/2022
Project Title	Techno Economic survey of copper recycling industry in India Metal Extraction (Metallurgical processes)
Institution	Jawaharlal Nehru Aluminium Research Development and Design Centre
Principal Investigator	KOLA IMMANUEL RAJU (9980574024, immanuelkola@jnarddc.gov.in)
Project Cost & Duration	Rs. 57,33,000.00 1 year
Objectives of the project	1. To establish techno-economic scenario of copper scrap recycling industry in the country. 2. To corroborate facilities, current and best practices for collection, processing and value addition in entire copper scrap recycling.
REMARKS/SUGGESTION: **RECOMMENDED** 1. Panel noted that JNARDDC has been nominated as MRA for undertaking the	

functions stipulated in National Non-Ferrous Metal Scrap Recycling Framework, 2020. 2. The proposed work of data collection of copper is crucial. 3. PI should collaborate with International bodies like ICA, ICSZG.

8	
Project No.	SNTMOM/747/2022
Project Title	Recovery of Li, Ni, Mn and Co from spent Li-ion Battery using facile and ecofriendly recovery process Metal Extraction (Metallurgical processes)
Institution	Banaras Hindu University
Principal Investigator	Rajendra Kumar Singh (9451000681, rajendrasingh.bhu@gmail.com)
Project Cost & Duration	Rs. 28,46,655.00 3 Yrs
Objectives of the project	Electric vehicle (EV) battery market of India has targeted to achieve $300 billion by 2030. The National Electric Mobility Mission (NEMM) Project 2020 of India has aimed to bring ~7 million EVs with clean energy aim of 175 GW by 2022. Owing to high cost associated with batteries (40–50 % of EV cost), the spent batteries without recycling can be turned into severe environmental hazard. Rapid expansion of LIB market has resulted significant battery waste. The recycling rate is only at sporadic level worldwide, while no significant project has started yet in our country. Most of these spent LIBs are ending up in landfills. Present project is aimed at developing spent LIB derived precious Li, Ni, Co and Mn metals for fabricating Li nickel manganese cobalt oxide (NMC) cathodes for LIBs for EVs and HEVs. Specific objectives are: To dismantle and discharge spent lithium ion batteries (LIBs) to recover Li and other costly metals Ni, Co and Mn using hydrometallurgical and leaching processes. To recover about 95% of Li, and about 90% of Ni, Co, Mn from spent LIBs using ecofriendly and energy efficient routes using ionic liquid (IL). To reuse the recovered metals Li, Ni, Co and Mn from spent LIBs for fabricating LIBs and test the performance of LIBs fabricated.
REMARKS/SUGGESTION: **RECOMMENDED WITH MODIFICATIONS** 1. Project idea is novel. 2. Recommended with seed money of Rs. 10 lakhs for one year to do POC for demonstrating the selective binding of Li/Ni/Co/Mn in ionic liquids. 3. PI should contact NFTDC for getting the solutions from recycled LiB from its pilot plant	

9	
Project No.	SNTMOM/749/2022
Project Title	Processing of Bauxite Residue Dressing, Mineral Processing & Recovery from waste by Innovative Pyro-Hydrometallurgical Process for Exploring Value Added Bulk Waste Utilization Beneficiation, Ore

Institution	CSIR Institute of Minerals and Materials Technology)
Principal Investigator	Chinmaya Kumar Sarangi (8895198482, cksarangi@immt.res.in)
Project Cost & Duration	Rs. 91,31,390.00 2yrs
Objectives of the project	(1) Establishment of the process for extraction of alumina, iron and titania from Bauxite residue through an innovative process of gaseous reduction followed by hydrometallurgical routes. (2) Utilization of final residue generated after recovery of metal and material values from Bauxite residue. (3) Process parameters optimization for each unit operation involved in the extraction of metal and material values from Bauxite residue. (4) Scale-up testing of the flowsheet at 5-10 kg Bauxite residue processing scale for its validation. (5) Material balance and cost economics of the process. (6) Feasibility, way forward (pilot plant scope) and project report preparation.

REMARKS/SUGGESTION:

RECOMMENDED

1. Project is good and process for recovery of iron, alumina and titania along with use of final residue from red mud presented and is well appreciated by all members
2. The process is innovative and different from various other processes targeted.
3. The recovery and efficiencies presented based on lab work is quite significant with likely viability.
4. PI should assess rare earth elements mix while working out on metals recoveries

10	
Project No.	SNTMOM/752/2022
Project Title	Studies on ilmenite mineral using synthesis gas generated from gasification of carbonaceous materials Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	CSIR Institute of Minerals and Materials Technology)
Principal Investigator	Rakesh Saini (09680842254, rakeshsaini@immt.res.in) CSIR Institute of Minerals and Materials Technology
Project Cost & Duration	Rs. 48,57,000.00 3yrs
Objectives of the project	Recovery of titanium and iron metal from ilmenite ore fines using synthesis (syn) gas, Hydrogen, and natural gas is gaining popularity due to the simultaneous availability of heat and reductant sources with

	the utilization of biomass or coal. This novel process majorly utilizes ilmenite ore fines of less than 100-micron size. It applies reducing gases such as Hydrogen, syngas, methane etc., at high temperatures to recover valuable metals such as Ti and Fe from ilmenite ore fines. Compared to the conventional technologies, which are highly energy and resource-intensive, the ilmenite ore-reduction process using the reducing gas has environmental benefits and is considered a sustainable approach. In this process, biomass, coal, lignite, or petcoke supply high-temperature reducing gas by applying the gasification process. This process can eliminate the energy-intensive and complex steps and thus improves the overall energy consumption in a sustainable way. As per the literature, Ti and Fe metal production from ilmenite ore fines could be improved by 35% to 40% in terms of overall energy consumption if a technology independent of complex processes is developed. The reduction process will be carried out in a fluidized bed gasification reactor with a limited residence time of a few seconds. Here, the fluidized bed gasification reactor design and syn-gas composition are critical to the process performance; therefore, a software-based optimization and scale-up study will be carried out along with the lab-scale experimental work. The major objectives of the proposed project could be categorized as – (a)Studies on ilmenite to recover valuable titanium and titanium-based compounds for industrial applications using synthesis gas generated from gasification.(b)Development of a fluidized gasification reactor based ilmenite conversion process from the cost-effective carbonaceous materials.(c)Energy optimization of the aforementioned process by applying and developing the model.

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. Project idea is good but needs focussed objectives with differentiation from other similar work
2. Project recommended with a seed money of Rs. 15 Lakhs for 2 years to establish the proof of concept. PI may get the balance fund from his parent organization.
3. Association of industry (IREL) is essential in such type of work to access its potential. PI should submit consent letter of IREL.

11	
Project No.	SNTMOM/755/2022
Project Title	Graphitic Ore Derived Fluorographenes for Energy Storage Applications
Institution	University of Calicut
Principal Investigator	Renuka N. K. (9447647790, nkrenu@gmail.com)
Project Cost & Duration	Rs. 86,97,700.00 3 years

Objectives of the project	The specific objectives of the proposed project are: a) Value addition of graphene derived from locally mined graphite ore by converting it to fluorographene having multifaceted applications. b) Synthesis of fluorographene from the graphene-organic dye dispersion via displacing the noncovalently bound dyes on graphene with fluorine, using suitable alkali fluorides and optimization of fluorine and oxygen contents in fluorographenes by altering the reaction parameters like the reaction time, the concentration of fluorine source, etc. c) To prepare fluorographene-based aerogel, hydrogel, and mixed metal-oxide nanocomposites and evaluation of electrochemical characteristics in terms of voltage limit, specific capacitance, energy density, power density and lifetime using cyclic voltammetry (CV), galvanostatic charging/discharging (GCD), and electrochemical impedance spectra (EIS). d) Fabrication and testing of efficient, low-cost, easy-to-process fluorographene based supercapacitor devices.

REMARKS/SUGGESTION:
RECOMMENDED WITH MODIFICATIONS

1. Project idea is novel.
2. The testing charges may be included in PI's institutional budget.
3. Total Budget revised to Rs. 40 lakhs for 2 years.
4. The emphasis should be on super capacitor device development using Fluorographenes materials developed in the project.

12	
Project No.	SNTMOM/760/2022
Project Title	Process for Recovering Zinc from Secondary Resources (Zinc Tailing and Jarosite) and Utilization of Process Wastes into Lightweight Building Materials Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Jawaharlal Nehru Aluminium Research Development and Design Centre
Principal Investigator	ANAS N S (7382105254, anas@jnarddc.gov.in)
Project Cost & Duration	Rs. 48,86,216.00 2yrs
Objectives of the project	The objectives of the proposal are as below: • Develop a sustainable process for utilizing secondary zinc resources. • Achieve selective recovery of available zinc (Zn) for mineral augmentation • Attain resource efficiency (to fulfil zero-waste concept) by utilizing leftover rejects as lightweight building materials

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. Project idea is good
2. PI should first target on recovery efficiency of zinc mineral value based on characteristics of mineral phases in jarosite and zinc mine tailings

3. Seed money of Rs. 20 lakh is recommended for a period of 1½ year. 4. Based on these findings, the next phase of the project may be decided

13	
Project No.	SNTMOM/764/2022
Project Title	Designing lightweight and highly formable Mg-Li-Zn-Ca-RE based alloys using the CALPHAD method
Institution	Indian Institute of Technology Jodhpur
Principal Investigator	Jaiveer Singh (9022080900, jaiveer@iitj.ac.in)
Project Cost & Duration	Rs. 46,88,200.00 3 years
Objectives of the project	The major objectives of the proposed work are as follows: 1. Design of binary (Mg-Li/Zn/RE) and complex (Mg-Zn-Ca, Mg-Zn-RE, Mg-Zn-Ca-RE, Mg-Li-Zn-RE) Mg alloy systems by thermodynamic modeling based on the CALPHAD approach for getting optimized compositions. 2. Successful fabrication of the newly designed alloys using the induction melting furnace by controlling the cooling rates and the casting atmosphere. 3. Optimization of thermo-mechanical processing parameters for obtaining the weaker basal texture using the Gleeble thermo-mechanical simulator. 4. Detailed microstructural characterization (OM, SEM, EBSD, t-EBSD (TKD), and X-ray diffraction) and evaluation of room temperature mechanical properties to establish the microstructure-property relationships for the developed Mg alloys. 5. Experimental investigation of crystallographic texture and change in c/a ratio of h.c.p. unit cell in the developed Mg alloys will be performed to understand the active deformation mechanisms at room temperature. 6. Detail investigation of corrosion behavior for selected processing conditions of optimized alloys in various corrosive media will be carried out and a microstructure-corrosivity relationship will be established.
REMARKS/SUGGESTION: **RECOMMENDED WITH MODIFICATIONS** 1. Project idea is good. 2. Revised cost of Rs. 25 lakhs for 2 years is recommended. 3. PI should engage with NFTDC for assistance in melting and rolling facilities.	

14	
Project No.	SNTMOM/783/2022
Project Title	Enhancement of Mechanical and Electrical properties of Iron (Fe) by incorporation of Graphene (Gr) for advance applications Alloys, Rare Earths, Specialty materials and product
Institution	Balaram Panda Trust
Principal Investigator	Priyambada Nayak (7873008101, dr.priyambada@gift.edu.in)

Project Cost & Duration	Rs. 24,41,800.00 3yrs
Objectives of the project	The present proposal is the enhancement of composites by following specially developed process. (i) The aimed to develop Iron based special composites with the incorporation of graphene, and workout the cost effectiveness vis-à-vis advanced properties for engineering applications. (ii) To improve the mechanical and electrical properties of the develop Iron-graphene metal matrix composite with improved properties. (iii) To work out the cost economics compared with the existing composites for different applications. (iv)Explore development of prototype and validation of the newly prepared composites in association with industry partner.
REMARKS/SUGGESTION: **RECOMMENDED WITH MODIFICATIONS** 1. The project idea is good. 2. PI should use normal iron instead of low-grade iron to develop the target material for its validation in phase-1 3. Prototype preparation could be taken up in next phase. 4. A seed money of Rs. 15 Lakh for a period of two years is recommended.	

15	
Project No.	SNTMOM/795/2022
Project Title	Agglomeration of spent garnet for possible reuse as abrasives in water jet applications Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste (Duration: 2 Yrs, 0 Mth) Submitted
Institution	SSN TRUST
Principal Investigator	V.E.Annamalai (9840359093, annamalaive@ssn.edu.in)
Project Cost & Duration	Rs. 27,47,000.00 2yrs
Objectives of the project	i) The background: Garnet is an environmental friendly material with specific applications. Large quantities are used in waterjet application as abrasives. The usable size is around grit 80. After use, the material gets too fine and becomes unusable. At this stage it is a waste that needs to be handled only by landfilling. Objectives: The objective is to reconstruct the spent garnet into required bigger / usable size by material processing techniques. From larger agglomerates of spent garnet, required usable size can be generated by size reduction methods. This may enable reusing the material again, in waterjet applications.
REMARKS/SUGGESTION:	

RECOMMENDED WITH MODIFICATIONS

1. Project idea is good
2. The PI needs to establish the agglomeration process for its abrasive application in phase-1
3. A seed money of Rs 15 lakh for 1½ years is recommended for taking up the work and establishing commercial avenues for possible MSME.

16	
Project No.	SNTMOM/796/2022
Project Title	Techno-economic Survey of Lead recycling Industry Metal Extraction (Metallurgical processes)
Institution	Jawaharlal Nehru Aluminium Research Development and Design Centre
Principal Investigator	V N S U VISWANATH AMMU (7798546794, viswanatha@jnarddc.gov.in)
Project Cost & Duration	Rs. 58,38,000.00 1 year
Objectives of the project	To establish a techno-economic scenario of lead scrap recycling industry in the country • To provide support in promoting sustainable recycling of lead and circular economy for lead recycling

REMARKS/SUGGESTION:
RECOMMENDED

1. Panel noted that JNARDDC has been nominated as MRA for undertaking the functions stipulated in National Non-Ferrous Metal Scrap Recycling Framework, 2020.
2. The proposed work of data collection of lead is crucial.
3. PI should collaborate with International bodies.

17	
Project No.	SNTMOM/814/2022
Project Title	Setting up of pilot cum demonstration plant for recovery of alumina and value-added products from fly ash Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	KALI SANJAY (9338291970, ksanjay@immt.res.in)
Project Cost & Duration	Rs. 3,92,16,000.00 3yrs
Objectives of the project	• Validation of Proof of Concept, Generation of engineering data and preparation of Basic Engineering Package (BEP) for setting up of pilot plant (50 kg/day fly ash) at NALCO • Preparation of Detailed

	Engineering data sheet for bought out equipment and installation of pilot cum demonstration plant (50 kg/day fly ash) and commissioning at NALCO • Pilot plant campaigns including fine-tuning of process parameters for generating data and products • Product evaluation/testing/developing sub-processes for utilizing by-products including recovery of REEs in lab-scale • Technical Feasibility report with viability for processing of fly ash to extract alumina and other valuables.

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. The project proposal is very good with elaborate proof of concept with global importance.
2. PI informed that two stages of work already carried out earlier on this project with NALCO support. PI has also submitted the 3rd stage of scale-up proposal to NALCO which is under review. Confirmation from NALCO is awaited. Parallelly, they have submitted the current proposal for pilot plant to PERC with partial industry support.
3. The pilot plant will be set up in NALCO.
4. In view of its national significance, the proposal is recommended with 50% support by MoM and 50% funding by NALCO.
5. PI should intimate about the decision of NALCO before the SSAG meeting to avoid duplicate funding.

18	
Project No.	SNTMOM/832/2022
Project Title	Development of a sustainable material using chromite mine overburden and other industrial wastes for stowing or backfilling of underground mines in Sukinda Valley, Odisha Mining (includes rock mechanics, design, equipments, energy, environment, safety)
Institution	National Institute of Technology Rourkela)
Principal Investigator	Himanshu Bhushan Sahu (9437245625, hbsahu@nitrkl.ac.in)
Project Cost & Duration	Rs. 38,88,600.00 3yrs
Objectives of the project	The main objective of the research work is to develop a sustainable material using chromite mine overburden and other industrial wastes for stowing/backfilling of underground mines in Sukinda Valley, Odisha. Keeping the aforementioned problem in mind, the work has been planned with the following objectives: 1. Characterization of OB material collected from Sukinda valley 2. Determination of strength and water drainage characteristics for different size fractions of OB 3. Determination of strength and water drainage characteristics for

	different size fractions of OB-fly ash and/or tailing mixture 4. Study of leachates using chemical analysis 5. Numerical simulation for stability and material flow modeling. 6. Development of a suitable material based on the laboratory investigation and simulation results.

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. The project is innovative.
2. Committee recommends a seed money of Rs.15 lakh for a period of 1½ year to undertake characterization of over burden from Sukinda chromite mines for the proposed work and exclude the simulation and modelling part at present in phase-1
3. Industry support from OMC and TATA were shown by PI with regards to providing required samples.

19	
Project No.	SNTMOM/834/2022
Project Title	SiAlON based Novel Composites for Rock Drilling-A plausible Alternative of Hard WC-Co composite
Institution	CSIR Central Glass and Ceramic Research Institute
Principal Investigator	Soupitak Pal (8777541388, soupitak@cgcri.res.in)
Project Cost & Duration	Rs. 48,04,674.00 3 Yrs
Objectives of the project	The broad objective of the proposed research is to design and develop potential candidate material for the replacement of the WC as a drilling tool material used in mining industries. However, in the milieu of the present proposal, the specific objectives are given below: 1) Processing of SiAlON and SiAlON-Co composite (less than 5 wt.% of Co)with microstructure tailoring to produce a tougher (KIC ˜ 10 MPavm) and hard (hardness ˜20 GPa) ceramics-metal composite. 2) Qualify the as-fabricated composite in terms of strength, hardness, and toughness as a replacement for WC-Co composite. 3) Characterization of tribological behavior of the as-fabricated composite at room temperature and development of wear mechanism map against EN31 tool steel. 4) Near net shape components fabrication of simple geometries and evaluation of cutting performance of the as-processed composite for mild steel and Ni-base superalloy machining.

REMARKS/SUGGESTION:
RECOMMENDED WITH MODIFICATIONS

1. Product Manufacturing and Benchmarking should be done.
2. Industry collaboration with tool / ceramic industry is necessary
3. Budget to be revised to Rs 18 Lakhs for 1½ years subject to the condition that PI should submit letter of financial support of at least Five Lakhs of Co-funding from relevant industry /CSIR.

20	
Project No.	SNTMOM/845/2022
Project Title	Development and scale up -TRL 5 – of cost effective Copper Graphene materials using in-situ synthesis and coating in Fluidized Bed Process systems
Institution	CSIR Advanced Materials and Processes Research Institute AMPRI
Principal Investigator	TILAK (7906445435, tilak@ampri.res.in)
Project Cost & Duration	Rs. 91,71,500.00 2 Yrs
Objectives of the project	(This is resubmission of SNTMOM/503/2021. Since NFTDC was added as another collaborator after last PERC so freshly submitted again) o Design and development of fluidized bed apparatus for in-situ synthesis of Cu-graphene composite powders and synthesis. o Synthesis of Cu-graphene composite powders using fluid-bed coating o Themo-mechanical processing of Cu-Gr composites from above routes to obtain PM compacts and mill forms. o Characterization of Cu-graphene composites developed using powders obtained through above routes

REMARKS/SUGGESTION:
RECOMMENDED WITH MODIFICATIONS

1. Project idea is novel
2. It addresses the emerging copper / carbon materials for high strength and conductivity.
3. The research is of contemporary international calibre in this category of materials.
4. Recommended with revised budget of Rs. 60 Lakhs for 2 years.

21	
Project No.	SNTMOM/847/2022
Project Title	Techno-economic Survey of Zinc recycling Industry in India Metal Extraction (Metallurgical processes)
Institution	Jawaharlal Nehru Aluminium Research Development and Design Centre
Principal Investigator	RAMAVAJJALA ANIL KUMAR (9491318525, anilkumar@jnarddc.gov.in)
Project Cost & Duration	Rs. 54,09,600.00 1 year
Objectives of the project	To establish techno-economic scenario of zinc scrap recycling in the country

REMARKS/SUGGESTION:
RECOMMENDED

1. Panel noted that JNARDDC has been nominated as MRA for undertaking the functions stipulated in National Non-Ferrous Metal Scrap Recycling

Framework, 2020.
2. The proposed work of data collection of zinc is crucial.
3. PI should collaborate with International bodies.

22	
Project No.	SNTMOM/863/2022
Project Title	Process for the preparation of iron oxide nanoparticles and zeolite nanoparticles from iron and bauxite mine rejects and evaluation of products for the environmental applications Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	SUJANA M G (9438399955, sujana@immt.res.in)
Project Cost & Duration	Rs. 57,46,244.00 3yrs
Objectives of the project	Sampling and complete physical and mineralogical characterization of the selected iron and bauxite mine rejects for phase and elemental analysis through XRD, XRF, SEM EDS, TG/DTA and wet chemical analysis, using ICP-OES. Analysis of minor elements such as rare earth elements by ICP-MS. ? To investigate the optimization of the technical parameters for effective recovery of metal oxides by hydro/biometallurgical reaction processes using mine rejects as starting materials. ? Separation, and Preparation of iron oxide nanoparticles /zeolite materials ? Mapping of minor elements distribution in the flow sheet for identification of possible points at which the sub-processes can be made in future. Sink-float studies will be carried out using heavy organic liquids such as bromoform (CHBr3; specific gravity, 2.89), as a medium for separation of heavier fractions from the lighter one. Methylene iodide (di-iodo methane, 3.3 specific gravity) heavy medium will be used to determine the very heavy minerals and light heavy minerals from the total heavy minerals (sinks) obtained by using the bromoform as heavy medium. ? Characterization of the developed materials by systematic structure characterizations with X-ray diffraction (XRD), Fourier-transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), transmittance electron microscope (TEM), X-ray fluorescence spectroscopy (XRF), X-ray photoelectron spectroscopy (XPS) and DRS UV visible spectra and particle size analysis,BET Surface area and RAMAN spectroscopy. ? To explore the possible utilization of developed materials through modification or as such for the environmental applications by conducting feasibility studies on contaminants (As(III)/(V), Selenium/dye degradation).

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. The project idea is good
2. Panel recommends a seed money of 15 lakhs for a period of 1½ years for

undertaking the preliminary studies.
3. The work should focus on PLK.

23	
Project No.	SNTMOM/865/2022
Project Title	Design and development of an instrument for unmanned noise mapping of mines using a drone-mounted acoustic camera Mining (includes rock mechanics, design, equipments, energy, environment, safety)
Institution	National Institute of Technology Rourkela
Principal Investigator	Dibya Prakash Jena 9938084602, jenad@nitrkl.ac.in
Project Cost & Duration	Duration: 2 Yrs, 0 Mth Cost:1,32,65,500.00
Objectives of the project	The acoustic camera is an advanced instrument that is used for noise source localization and at the National level the competencies don't exist. The said acoustic camera is a general instrument that has been used by researchers for traffic noise localization in complex environments like ports, however, never been attempted for mines. The additional complexity of the mine is geospatial discontinuities. Currently, the noise map of a mine is generated with a sound level meter where the measurements of a few set points is used to estimate the noise map which in principle is not much accurate. So, the present research aims at design and development of an instrument for unmanned noise mapping of mines using a drone-mounted acoustic camera.

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. Project idea is good and is a move towards digitalization in mining
2. PI submitted consent letter of NALCO for 25% funding.
3. Panel noted that similar work on noise mapping carried out by NIMH in the past was limited to manual data collection followed by modelling in lab for validation.
4. The present proposal aims to develop a drone based mine mapping system which can be handed over to NALCO followed by training to NALCO personnel.
5. The total budget should be pruned down by reducing the number of microphones and data acquisition system accordingly.
6. The panel recommended for a revised budget of Rs. 110 Lakhs with 40% funding by MoM (Rs. 44 Lakhs) and balance 60% by NALCO (Rs. 66 Lakhs)
7. PI advised to submit revised funding letter from NALCO.

24	
Project No.	SNTMOM/885/2022
Project Title	Development of Nanostructure Chalcopyrite Materials as Sustainable Thermoelectric and Supercapacitor Applications
Institution	Hindustan Institute of Technology and Science
Principal Investigator	Indrajit Shown (7596917050, shownindrajit@gmail.com)
Project Cost & Duration	Rs. 50,27,700.00 3 Yrs
Objectives of the project	1. To evaluate the thermoelectric (TE) and supercapacitor (SC) behavior of hierarchically nanostructured chalcopyrite doped heavily by p-type silver. 2. To explore the feasibility of producing a novel thermoelectric and supercapacitor material by using Cd or Se as a ternary addition to form nanostructured chalcopyrite. Attractive TE properties of Zn added chalcopyrite make it appear that the study may discover a high ZT stable thermoelectric material. 3. To develop optimized synthesis techniques by microwave assisted hydrothermal means so as to produce nanostructures (nanowires or nanoplates) by bottom up approaches. Moreover, suitable thermomechanical treatment will be evolved for creating nonuniformity in distribution of nanoprecipitates/ doping elements within nanostructured matrix that helps in modulation doping. Both Mechanical alloying and liquid metallurgy and routes will be tried. 4. To study the effect of fullerene C70 addition on the stability and thermoelectric behavior of TE and SC behavior of chalcopyrite-C70 nanocomposites with or without silver doping. 5. To explore the feasibility of He ion implantation followed by annealing to create homogeneously distributed pores and to study its effect on thermoelectric and supercapacitor properties. Abstract Herein we propose to develop nanostructure chalcopyrite with dopant as universal materials that can be used to generate electrical energy from thermal energy as a thermoelectric generator and store the energy as a structural supercapacitor. It is expected that this material can be used in the structural body of electric vehicles or heat generators with ion-exchanging rechargeable supercapacitors and form a hybrid energy storage system. The use of thermoelectric material to harvest waste heat energy is not new, but if the same material can store that energy, it will be a gamechanger in the field of sustainable energy application.

REMARKS/SUGGESTION:
RECOMMENDED WITH MODIFICATIONS

1. Project idea is good.
2. Panel recommends a seed money of Rs 10 Lakhs for one year to work on Supercapacitors to establish PoC and compare the performance with competitive materials in Phase-1
3. No funding for capital equipment.

4. Target should cross 40 Wh/kg for energy density

25	
Project No.	SNTMOM/886/2022
Project Title	Recovery of Molybdenum, Nickel and Alumina values from spent hydrotreating catalyst of HPCL and Demonstration at Pilot plant (TRL-7) and techno-economic feasibility studies Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Non Ferrous Materials Technology Development Centre
Principal Investigator	D Lokeswara Rao (9849604852, lokesh@nftdc.res.in)
Project Cost & Duration	Rs. 99,77,000.00 1 yrs 6 Mth
Objectives of the project	Approximately 220 Tons (110 Tons – CoMo/Al2O3, 110 Ton-NiMo/Al2O3)/ year from HPCL Mumbai refinery and 230 tons (110tons- CoMo/Al2O3, 120 tons – NiMo/Al2O3) /year spent hydro treating catalyst wastes are generated. The typical Mo and Ni content of the spent hydro treating catalyst after usein the refining by HPCL contains 5-15% Mo and 1-5% Nion Al2O3 substrate. This spent catalyst was taken for prior work. 1. Development of process flow sheet for recovery of Molybdenum, Nickel/ Cobalt and pure alumina from the spent HDS catalyst. 2. Process intensification techniques of Microwave and sonication to be incorporated in the leaching circuit. 3. Development of a closed loop, zero discharge process without effluent. 4. Achievement of 90% leaching efficiencies with an overall 80% material recovery. 5. Pilot plant at 25 kg level (TRL-7) for demonstration up to 1-ton operations. (Six months) 6. Techno-economic study at DPR for 400 TPY spent catalyst plant (yielding approx. 40 TPY Mo values and 10 TPY of Ni values and 300 TPY of alumina values at HPCL-NFTDC site.

REMARKS/SUGGESTION:

RECOMMENDED

1. The project idea is good and will validate the product quality.
2. Prior work is well done on actual materials from HPCL.
3. The deliverables include pilot plant for demonstration up to 1-ton operations for Recovery of Molybdenum, Nickel and Alumina values.
4. HPCL (Industry partner) and NFTDC shall cover 67% of the budget (HPCL – Rs 49 lakhs and NFTDC – Rs. 17.6 lakhs) and PI has sought the balance 33% budget from MoM (Rs. 33.165 Lakhs).
5. HPCL and NFTDC will further scale up to 400 TPY input catalyst plant on successful completion of the pilot plant on this project.

26	
Project No.	SNTMOM/900/2022
Project Title	Development of Eco-friendly molten salt extraction process for Nd and Pr and Establishment of 25- 50 TPY Nd and Pr Metal Extraction Demonstration Plant (TRL7-8) for Rare Earth Magnet Production
Institution	Non Ferrous Materials Technology Development Centre
Principal Investigator	Nirmal Panda (9985509736, nirmalpanda@nftdc.res.in) (Non Ferrous Materials Technology Development Centre)
Project Cost & Duration	Rs. 19,52,87,000 2 Yrs
Objectives of the project	WP-1: Design and fabrication of 25-50TPY demonstration Nd/Pr Extraction Plant of 8KA Molten Salt Electrolytic Cell WP-2: Innovative process development in terms of eco-friendliness using coated carbon or non-carbon electrodes. WP-3: Nd/(Nd-Pr) FeB alloy powder using rapid solidification process and process equipment development WP-4: Establishment of demonstration plant: 25-50 TPY entry level plants (TRL 7/8) and demonstration up to 6 tons of metal production.

REMARKS/SUGGESTION:
RECOMMENDED

1. Project Idea is novel and is at higher TRL-7/8 level
2. Industry support is appreciated by panel members
3. PI is seeking only around 15% of total budget from MoM (Rs. 295.35 Lakhs). Balance budget is funded by Midwest Rare Earth – Rs. 13.0284 crores and NFTDC – Rs. 3.5468 crores.
4. The PI informed that an entire team of around 10 members of multi-disciplinary scientists and engineers will execute the pilot plant in 18 months followed by 6 months of operation for validation.
5. The proposal is of national importance.

27	
Project No.	SNTMOM/923/2022
Project Title	Pre-feasibility Studies on Biological Extraction of RE (Nd, Pr, Sm, Dy, Gd) ions from leached solutions
Institution	CSIR Institute of Microbial Technology
Principal Investigator	Srinivasan Krishnamurthi (7837306552, kmurthi@imtech.res.in)
Project Cost & Duration	Rs. 20,39,730.00 1 year

Objectives of the project	1)Screening for siderophore producing bacteria from wealth of marine bacterial cultures available with PI research group. Concurrent selection and screening of bacterial cultures in NFTDC suitable for REE biosorption. 2)Establishment of enrichment cultures and/or assays for determining mobilization of REE from mineral ores/wastes. 3)Deposition of selected biomass on Silica spheres to created sorption columns and desorption of immobolized REEs (NFTDC)

REMARKS/SUGGESTION:
RECOMMENDED WITH MODIFICATIONS

1. Project idea for biological extraction of RE is good.
2. The findings will help in determining mobilization of REE from mineral ores/wastes.
3. Recommended with a revised budget of Rs. 15 Lakhs for 1 year

28	
Project No.	SNTMOM/557/2021
Project Title	Conversion of natural mineral based tetrahedrite compounds into high performance thermoelectric devices used in the conversion of waste heat into electricity
Institution	Indian Institute of Technology Bhubaneswar
Principal Investigator	SIVAIAHBATHULA (9958923766, sivaiahb@iitbbs.ac.in)
Project Cost & Duration	Rs.42,06,750.00 3 Yrs
Objectives of the project	• To develop novel material designing strategies for making the naturally available tetrahedrite minerals as potential thermoelectric materials in clean energy generation applications. • To tune the thermoelectric transport properties (band structure engineering and nanostructuring) of naturally available tetrahedrite (Cu12Sb4S13) as well as synthetic tetrahedrite minerals. • To perform systematic microstructural, and thermoelectric characterization to optimize the base composition of tetrahedrite. • To scale up the indigenously developed tetrahedrite materials into the thermo-element devices (dimensions, 8 x 8 mm) with ohmic contact engineering (low specific contact resistance). • To fabricate uni-couple thermoelectric devices using natural metal tetrahedrite based un-couple TE device (p-type tetrahedrite with matchable n-type) and to demonstrate reasonable power density (~0.5 W/cm2) with improved mechanical properties (Fracture toughness, thermal shock resistance).

REMARKS/SUGGESTION:

RECOMMENDED

1. The PI complied with suggestion of previous PERC
2. PI should start Synthetic compound along with natural ones.

29	
Project No.	SNTMOM/607/2021
Project Title	Nano Ion-Chromatograph in Action - Sustainable and Scalable Quantum Dots Paves a Facile Route for Rare-Earth Ions Separation Through Advanced Hydrometallurgy.
Institution	Banaras Hindu University
Principal Investigator	SomenathGarai (8400098731, sgarai@bhu.ac.in)
Project Cost & Duration	Rs.1,61,58,500.00 3 Yrs
Objectives of the project	• The tunable nature of the concave surface of the Keplerate is truly unique and provides a powerful tool in the design and development of novel nanocontainer molecules. Therefore, the specific objectives to be achieved by this project include: • The use of the Nano-Keplerates as highly efficient rare-earth metal absorber under confinement. • Facile separation of the rare earth metals selectively from the other naturally occurring trivalent cations in the corresponding ores through Nano-Ion Chromatograph behavior of the voltage gated {Mo9O9}-pores of the Quantum Containers. • The evaluation of corresponding Dissociation Constants KD(s) of rare earth metals as compared to the different cations to enable Nano-engineering of the Quantum Containers towards optimization. • The high throughput recyclability of the Novel Quantum Containers will be tested for the bulk real-life Nanotechnology application to finally, set-up of a pilot hydrometallurgical demo unit for upscaling of a minimum of 100 L/Day of raw digested ore solution.

REMARKS/SUGGESTION:

RECOMMENDED WITH MODIFICATIONS

1. PI complied with the recommendations of previous PERC
2. Recommended for a revised cost of Rs. 65 Lakhs for 2 years.
3. No capital equipment except for one essential item.
4. For support, NFTDC may be approached for scale up facilities and concurrent engineering

5. The following projects were recommended for resubmission to next PERC.

RESUBMISSION TO NEXT PERC – 5 nos.

1	
Project No.	SNTMOM/634/2022
Project Title	Czochralski growth of Silicon single crystals to produce up to 3-inch wafers with potential for import substitution
Institution	CSIR Institute of Minerals and Materials Technology, IMMT
Principal Investigator	NIRMAL KUMAR VELU (9600973603, nirmalvelu@immt.res.in)
Project Cost & Duration	Rs. 2,25,64,752.00 2yrs
	Czochralski growth process of Silicon single crystals along (111) and (100) planes to produce wafers up to 3-inch size and economic feasibility study for import substitution. The scope of this work are; • Growth Si single crystals along (111) and (100) planes by Czochralski method • Varying crystal diameter from 25 to 80 mm by controlling growth parameters • Process to produce wafers of sizes 1", 2" and 3" by cutting and polishing of Si single crystals • Production of Si wafers with global standards • Economic feasibility study: calculating the production cost/wafer and comparison with commercial products
REMARKS/SUGGESTION: **RESUBMISSION TO NEXT PERC** **1.** The project idea is good **2.** PI should include strategy for development of equipment **3.** Proposal should be resubmitted with co-funding of beneficiary industry partner	

2	
Project No.	SNTMOM/693/2022
Project Title	Development of a V2X-based low-cost fleet management system for opencast mines Mining (includes rock mechanics, design, equipments, energy, environment, safety
Institution	CSIR Central Institute of Mining and Fuel Research
Principal Investigator	Swadeskumarchaulya 0947119138, chaulyask@gmail.com

Project Cost & Duration	1,15,27,600.00 Duration: 3 Yrs, 0 Mth
Objectives of the project	The objectives of the proposed project: i) Development of an integrated V2X and GPS device; ii) Development of an application software for HEMM tracking, navigation, proximity warning, production monitoring, and fleet management; iii) Field trial of the developed system in an opencast mine; and iv) Patent and copyright filing of the developed system and software

REMARKS/SUGGESTION:

RESUBMISSION TO NEXT PERC

1. The project idea is good.
2. Members observed that more than 40% budget is being expended for the outsourced work viz computer engineer etc.
3. Proposal should be resubmitted with co-funding of beneficiary industry partner.

3	
Project No.	SNTMOM/705/2022
Project Title	COLLABORATIVE AUTONOMOUS MULTI ROBOT SYSTEM BASED GEOSPATIAL DATA COLLECTION, MAPPING AND INSPECTION FOR MINING OPERATIONS
Institution	Indian Institute of Science Bengaluru
Principal Investigator	ABHRA ROY CHOWDHURY (7376469472, ABHRA@IISC.AC.IN)
Project Cost & Duration	Rs. 37,70,800.00 3yrs
Objectives of the project	Design of an Human Collaborative Multi Autonomous (AMS) Team of Land based and Drone robots for Mapping, Navigation and Exploration in Mining Operations (Surface and Underground)

REMARKS/SUGGESTION:

RESUBMISSION TO NEXT PERC

1. Project idea is good and is aimed towards digitalization in mining.
2. However, similar robotic work is being done by CSIR-CMERI Durgapur, IIT Kanpur, IIT(ISM) Dhanbad and other organizations, which PI should take into consideration.
3. Panel suggested PI to visit similar mining projects to know the mining

environment and constraints 4. Proposal should be resubmitted with co-funding of beneficiary industry partner.

4	
Project No.	SNTMOM/830/2022
Project Title	Investigation of structurally bound invisible gold incorporation process into sulfide minerals and its extraction potential through hydrothermal experimental studies and reactive transport modeling Geosciences and Exploration (Duration: 3 Yrs, 0 Mth) Submitted
Institution	Indian Institute of Technology ISM Dhanbad
Principal Investigator	ALIK SUNDAR MAJUMDAR (7045800260, asmajumdar@iitism.ac.in)
Project Cost & Duration	Rs. 69,19,752.00 3yrs
Objectives of the project	iThe major objectives of the proposed project are as follows: 1) To carry out a series of hydrothermal experiments between natural sulfides (pyrite, arsenian pyrite, arsenopyrite, and löllingite) and Gold chloride solution with variable AuCl: AuCl3 ratios, temperature, pressure, solution pH to understand the control of gold valence state (Au+1 vs Au+3) on the pattern and mechanism of Au substitution into major gold-bearing sulfide minerals. 2) To compare experimental results with natural samples to interpret the valence state and site preference of gold during incorporation into pyrite, arsenian pyrite, arsenopyrite, and löllingite crystal structures.
REMARKS/SUGGESTION: **RESUBMISSION TO NEXT PERC** 1. Project idea is good. 2. PI was suggested to involve mineral beneficiation and metallurgy expert to execute project with revised budget. 3. Project should be recast with reduced capital budget.	

5	
Project No.	SNTMOM/554/2021
Project Title	Micron to Nano Scale Investigation of Platinum group of Minerals in Chromitite of the Indo-Burma-Andaman Ophiolite
Institution	Indian Institute of Science Bengaluru Pondicherry University
Principal	SAJEEV KRISHNAN

Investigator	9448427463, E-mail: sajeev@iisc.ac.in PM Mohan
Project Cost & Duration	Rs. 8909108.00 3 Yrs
Objectives of the project	• To explore and locate platinum group of elements (PGEs) texturally in Chromititeand associated ultramafic rocks from Indo-Burma-Andaman ophiolite belt. • To investigate the presence of PGEs and their forms using atomic resolution advanced techniques such as transmission electron microscopy and atom probe tomography. • To investigate the atomic-scale chemistry and structure of the PGEs and their form. • To rationalize the genesis of PGEs in the chromitite sample based on the location and time.
REMARKS/SUGGESTION: **RESUBMISSION TO NEXT PERC** PI could not present the project due to unforeseen emergency.	

6. The list of new projects NOT RECOMMENDED is as below:-

These proposals were not recommended as the (i) objectives are very sketchy and methodology not clear or doable; (ii) proposals not directly in the thrust areas, (iii) outcomes are not relevant or impactful, (iv) there is no visible translational potential; (v) similar projects have already been funded, (vi) it could be directly done as a consultancy project with the industry; (vii) preliminary proof of concept is not done; (viii) the proposed work can be done by PI within the facilities available with them and it does not really need a project proposal;(ix) in a few cases PI has not adequate domain knowledge in mining or minerals or lacking a partner with domain knowledge, (x) casual approach to problem definition and a loose connection made between mining, minerals and waste.

NOT RECOMMENDED –57 nos.

1	
Project No.	SNTMOM/253/2020
Project Title	Development of India specific scientific framework to promote the beneficial reuse, rehabilitation or remediation of landscape affected by abandoned mines or flyash ponds or slags
Institution	Indian Institute of Technology BHU Varanasi and other institutes

	Industry Partner - MOIL, Hindalco and Triveni Earth Movers
Principal Investigator	Amit Verma 0778101240 amitvermaism@gmail.com
Project Cost & Duration	Rs. 49,98,000.00 2 Years
Objectives of the project	1. To develop a framework to facilitate a successful transition to mine closure 2. To delineate potential uses of abandoned/inactive mines/fly ash ponds across India 3. To study the impact of rehabilitation on alleviating social, economic and environmental wellbeing of communities living in and around major mining centers in various parts of India.
Remarks **NOT RECOMMENDED** 1. The objectives are very generic 2. Lacks innovation and novelty	

2	
Project No.	SNTMOM/483/2021
Project Title	Development Of An Integrated Bioprocess For The Enrichment And Separation Of Precious Rare Earths From Phosphogypsum Industrial Wastes
Institution	CSIR National Institute for Interdisciplinary Science and Technology
Principal Investigator	PRATHISH K P 9447798707, prathishkp@niist.res.in
Project Cost & Duration	Rs. 74,73,000.00 3 yrs
Objectives of the project	Rare earth elements (REEs) are of growing interest and their applications cover many fields such as permanent magnets, wind turbines, hybrid cars and mobile phone speakers. The recovery of REEs from both bulk PG waste, as well as leachate is targeted through two entirely different approaches in this project. 1. Bench scale bioprocess development for producing organic acid cocktail for extracting (bio-leaching) REEs from waste phosphogypsum. 2. Exploring the application of a sulphidogenic microbial system for recovering REE from leachates. 3. Biomimetic polymeric resins for the selective separation of REEs from the reaction mixtures 4. Development of Process Flow sheet with material balance and techno-economic feasibility evaluation
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. The proposal is not economically feasible based on the preliminary studies presented by PI. 2. The RE content is very low and hence not viable.	

3	
Project No.	SNTMOM/507/2021
Project Title	A Real-time Ground Vibration Monitoring and Alert System Integrated with Mobile App for Mining Area
Institution	Bannari Amman Institute of Technology
Principal Investigator	SANJOY DEB E Mail- sanjoydeb@bitsathy.ac.in
Project Cost & Duration	Duration: 2 Yrs, 0 Mth Rs.1617600.00
Objectives of the project	• The fundamental objective of the proposed project is to design, develop and field trial of real-time 'Ground Vibration Monitoring and Alert System (GVMAS)' prototype for predicting hazards in mining area. The real-time GVMAS will be a highly advanced system which will be technologically derived from basic 'Ground Vibration Detection and Processing Technology (GVDPT)'

	available with us. Under this fundamental objective the sub-objectives are; • To design the system hardware, an algorithm for GVMAS prototype * To test the prototype performance at the original 'Field-site'* • Design modifications for performance optimization based on test results • To develop a user-friendly dedicated 'Software User Interface' (or App) for creating 'Real-time Vibration Map (RVM)' along with data table on system server (or on mobile) (Our part) * To scale-up the GVMAS prototype by 5 units Implement those for a short phase of field trial

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. The objective is not reaching blast vibration monitoring system measurement
2. The measurement does not fit into the required standard range of blast induced ground vibration frequency encountered at mines

4	
Project No.	SNTMOM/595/2021
Project Title	Rare-Earth Element potentiality of carbonatite breccia or agglomerate from Ambadungar-Saidivasan alkaline-carbonatite complex, India-Phase Two
Institution	Banaras Hindu University
Principal Investigator	Amiya Kumar Samal 09580270209 E-mail: amiyasamal007@gmail.com)
Project Cost & Duration	Rs. 5173308.00 3 Yrs
Objectives of the project	• Recommendations of the 19th Meeting of Project Evaluation and Review Committee (PERC): "to carry out the first phase with seed money of Rs.15 Lakhs for one year for desk studies, collection of field samples, identifying mineral phases and chemical analysis. • If encouraging results are obtained, the 2nd phase project may be considered based on review." Based on the highly encouraging results (finding of several REE phases) from the first phase of the project (results attached in document file), the following objectives are proposed for the second phase. • Characterization of different rock units of the Ambadungar-Saidivasan alkaline carbonatite complex (ASACC) by detailed petrography and mineral chemistry. • Identification of different

	phases (by XRD, SEM and EPMA) to assess the presence of REE, Nb-Ta and U-Th bearing phases. Further, the REE phases will be characterized through LA-ICPMS to evaluate the LREE/HREE ratio and genesis. • To establish a genetic relationship between the different rock units of the complexes, whether they are derived from similar mantle melts or has different genetic histories. This would be done with the help of whole-rock major, trace and rare-earth element compositions of selected samples from different litho-units

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. PI has not followed the recommendation of last PERC for 1st phase work.
2. There was no clarity in the presentation.
3. Chemical analysis/ characterization is not done systematically
4. Quantitative analysis and corresponding information are missing
5. PI needs to complete the phase-1 work as suggested by Committee

5	
Project No.	SNTMOM/599/2021
Project Title	Overburden, sand and industrial waste as mine fills and their impact on soil morpho-dynamicity and sustainable developments
Institution	Kalinga Institute of Industrial Technology **(**KIIT) University, Bhubaneshwar
Principal Investigator	BiswabanditaKar Mail-drbbkar@gmail.com
Project Cost & Duration	Rs. 9,61,54,500.00 Duration: 3 Yrs, 0 Mth
Objectives of the project	• Physical, Chemical, Mechanical and Engineering property estimation of the soil and soil impregnated by overburden, sand and other industrial waste. • Process simulation and optimization. • Estimation of soil morpho-dynamicity before and after mixing of overburden, sand and other industrial waste. • Remedial measures to cease the impact of overburden, sand and other industrial waste on soil property changes. • Establishment of soil properties in the landfill sites. • Addition of industrial waste as a landfill material.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project lacks Novelty
2. Similar work already done
3. Panel noted that Industrial Partner agreed to contribute 20% of the project cost
4. The cost of the project is not justified.

6	
Project No.	SNTMOM/615/2021
Project Title	Assessment of the impact of mining on the accumulation of potentially toxic and economically important elements in coastal marine sediments
Institution	CSIR National Institute of Oceanography CSIR Central Institute of Mining and Fuel Research
Principal Investigator	KrushnaVudamala 8806640609 E-mail: krushna@nio.org Vikram Singh
Project Cost & Duration	Rs. 3,07,69,532.00 3 Yrs
Objectives of the project	• To assess the dispersion of potentially toxic and economically important elements from different mining sites towards the eastern coast of India. • To explore economically important elements (potassium, lithium, strontium zircon, RREs, etc) and potentially toxic elements (lead, mercury, cadmium, etc) in the coastal marine sediments near mining sites of the east coast of India. • Source identification of economically important and potentially toxic elements in the coastal ecosystems near mining sites using geochemical and Isotopic (Stable – C, N, O, Hg, Pb, Radiogenic - Sr, Nd& Radioactive – 210Pb, 226Ra) studies.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. The work is more of mineral exploration rather than contamination detection
2. PI has not done proper background work.
3. Budget is not justified.

7	
Project No.	SNTMOM/626/2022
Project Title	Development of a self-healing, electromagnetic interference (EMI) shielding concrete composite utilizing iron tailing and manganese ore

	tailing Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	National Institute of Technology Calicut
Principal Investigator	BlessenSkariah Thomas 9946857587, blessen@nitc.ac.in
Project Cost & Duration	Rs. 4908300.00 3 Yrs
Objectives of the project	This research aims to develop a novel self-healing concrete (ordinary, standard and high strength as per IS 456:2019) solid building block utilizing iron tailing, manganese ore tailing and discarded tire rubber ash (carbon black), which can provide an electromagnetic (EM) shielding of minimum 30 decibels (dB) over a frequency range of 0.1 to 10 gigahertz (GHz). To achieve this aim, the research is outlined into the following objectives: 1) Develop mix designs for the M20 (ordinary concrete), M40 (standard concrete) and M60 (high strength concrete) as per IS 456:2019. Manganese ore tailing (2.5% to 10% of the cement/binder by mass), iron tailings (10-50% of fine aggregate by mass), and discarded tire rubber ash (1% to 5% of the binder/as filler material) will be incorporated to these concretes, and the best combination to be selected by trial mixes. 2) Develop a single or a combination of bacillus (CaCO3 precipitating) bacteria selected from the mining yards, cement plants, marine and acidic atmosphere to provide self-healing mechanism to the concrete. Investigate the influence of self-healing mechanism on the normal and high strength sustainable concrete blocks. This phase consists of various trial mixes with different bacterial combinations and selecting the best performers. 3) Investigate the properties of the concrete for strength, durability and microstructure. The following properties will be studied: Mechanical properties, Durability properties, Microstructural studies. 4) The shielding potency against electromagnetic frequencies will be tested with an intention to provide an electromagnetic (EM) shielding of minimum 30 decibels (dB) over a frequency range of 0.1 to 10 gigahertz (GHz). The concrete composite exhibiting the higher effectiveness against EM frequencies will be recommended towards IPR and product development.

REMARKS/SUGGESTIONS:

NOT RECOMMENDED

1. Project lacks preliminary work data.
2. There is no focused application and processing cost of wastes although not worked out, but would be high to compete.

8	
Project No.	SNTMOM/630/2022
Project Title	Newly developed P rich Organo-Mineral Fertilizer from phosphatic rock for sustainable agricultural application, Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste 2 Yrs
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	NABIN KUMAR DHAL (7978253276, dhalnk@yahoo.com)
Project Cost & Duration	Rs. 4161744.00 2 Yrs
Objectives of the project	Development of P-rich Organo mineral fertilizer an alternative for conventional phosphate fertilizer through use of organic Rock Phosphate amended fertilizer in a sustainable agricultural production system.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Analysis of source material and its mineral composition not done
2. Preliminary work not carried out.
3. Phosphate resources are mainly limited to the state of Rajasthan and to be judiciously used.

9	
Project No.	SNTMOM/648/2022
Project Title	USE OF RED MUD AS SORBENT MATERIALS FOR REMOVING ACIDIC GREEN HOUSE GASES Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Indian Institute of Technology Kharagpur
Principal Investigator	Tapas Kumar Bandyopadhyay (9475658924, tapas@rgsoipl.iitkgp.ernet.in)
Project Cost & Duration	Rs. 8105600.00 3yrs
Objectives of the project	The aim of this research will be to develop methodologies for abating the acid/greenhouse gases, that are effective, inexpensive, indigenous, easy to manufacture and deploy, do not produce any hazardous or toxic byproducts and easy to sustain. Hence, the objective may be listed as follows; • To design and develop optimum method to use red mud for

	removal of acid gases • To regenerate the oxide from by-product

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Chemical composition of red mud presented by PI is not proper.
2. The project does not focus on alkaline content of red mud and its impact
3. Red mud contains +25% alkaline water, the processing cost would be high for such limited application.
4. Cost of transportation involved would be very high due to which process will not be viable.

10	
Project No.	SNTMOM/651/2022
Project Title	Development of an economically viable process the remediation of Cu mining waste, Recovery of heavy metals and low concentration high value metals Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	NATIONAL EDUCATION FOUNDATION
Principal Investigator	Remya P Narayanan (9902083537, remyapn@gat.ac.in)
Project Cost & Duration	Rs. 4482200.00 3Yrs
Objectives of the project	The main objective of the project is to develop and demonstrate an economically viable process for the recovery of heavy metals from Cu mining waste. To achieve this goal the following methodologies will be followed: ? Collection of mining waste from various plants in India ? Analysis of the collected sample ? Environmental risk analysis of the waste ? A survey of literature on the available processes ? Economic analysis of these processes to evaluate the economic feasibility ? Detailed analysis of current disposal methods in India: the environmental and economic aspects ? Based on the cost calculations design the most promising feasible process to recover heavy metals ? Lab scale optimization of proposed process ? Feasibility of Large scale application

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. The PI has based his proposal with copper tailing from outside India.
2. The study must focus on raw materials of Indian origin.
3. Preliminary studies need to be carried out to understand the gap area.

11	
Project No.	SNTMOM/653/2022
Project Title	Sustainable Biotransformation of Industrial byproduct Phosphogypsum to industrially Important calcium carbonate Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Goa University
Principal Investigator	Meghanath Shambhu Prabhu (8007390016, mprabhu@unigoa.ac.in)
Project Cost & Duration	Rs. 4884035.37 3yrs
Objectives of the project	Collection and characterization of phosphogypsum waste and characterization of bacterial strain Lysinibacillussphaericus involved in biotransformation of phosphogypsum. 2. Characterization of phophogypsum biotransformation products (calcite and ammonium sulphate). 3. Process optimization and study of mechanisms of phosphogypsum biotransformation of phosphogypsum biotransformation using the potential isolate. 4. Lab-scale pilot studies for phosphogypsum biotransformation using Lysinibacillussphaericus

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. There is no clarity about the process.
2. Phospho-gypsum which has certain utility as a fertilizer is converted to Calcium carbonate for use in cement industry.
3. Cement industry uses natural Calcium carbonate material available at reasonable price
4. Processing cost to make synthetic Calcium carbonate would not be a viable option.

12	
Project No.	SNTMOM/670/2022
Project Title	Development of a low-cost process for removal of Cr(VI) from waste water of chromite mines-Lab scale study Mining (includes rock mechanics, design, equipment's, energy, environment, safety)
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	Dr. PravatManjari Mishra pravatmanjari@immt.res.in, 9861544056
Project Cost & Duration	Cost 4837200 Duration: 2 Yrs

Objectives of the project	i. Studies on efficacy of bio-based nanomaterials towards removal of Cr (VI) from wastewater generated in chromite mines. ii. ii. Process development for the treatment chromite mines wastewater.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. The project lacks novelty
2. The objectives of the project are not clear
3. The existing method and proposed method are not defined properly.

13	
Project No.	SNTMOM/676/2022
Project Title	Development of Cu-Based ternary alloy for fin-tube resistance welding electrode
Institution	All India Shri Shivaji Memorial Society)
Principal Investigator	BhanudasDattatrayaBachchhav (0985017262, bdbachchhav@aissmscoe.com)
Project Cost & Duration	48.2 Lakhs 3 years
Objectives of the project	a) Development of a novel Cu-based ternary alloy for fin-tube resistance welding electrode by casting process followed by suitable forming operation with improved grain flow to increase life of an electode. b) Evaluation of Mechanical and Tribological Properties of newly developed alloy. c) Comparative analysis with other welding electrode materials for its longevity. d) Performance evaluation and life expectancy on Profile welding machine (In collaboration with Thermax Ltd., Pune) e) Evaluation of cost benefit to industry

REMARKS/SUGGESTION:
NOT RECOMMENDED

1. Project lacks novelty
2. No prior work done to establish proof of concept
3. The composition is not identified and process flow sheet may not be feasible
4. PI may contact NFTDC for getting familiarized with similar work.

14	
Project No.	SNTMOM/677/2022
Project Title	A novel approach for precious metal recovery from low-grade ores using a combination of Bioleaching-Enhanced Electrokinetic Remediation (BEER) Technology Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Thiruvalluvar University

Principal Investigator	Rajasekar Aruliah (7639186598, rajasekargood@gmail.com)
Project Cost & Duration	Rs. 4489700.00 3yrs
Objectives of the project	The main objectives of the proposed project are to develop an effective bioleaching-enhanced electrokinetic remediation (BEER) technology and to demonstrate its technical advantages by achieving the following targets in a laboratory setting: 1. The Isolation and identification of acidophilic bacteria and cyanogenic bacteria from low- grade ores using molecular technique viz 16S rDNA gene analysis. 2. Evaluation of both oxidative and reductive mineral bioprocessing options for extracting metals from waste materials, using defined consortia of acidophilic bacteria and archaea; 3 To evaluate the optimization of bio-oxidation and bioleaching of low-grate ores using microorganism. 4. Development of bioleaching-enhanced electrokinetic remediation (BEER) technology for metal recovery from low-grade ores.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. The PI could not define which raw material is to be used and its composition. 2. Proof of concept needs to be established before any such work. 3. There was no clarity on which mine and which low grade to be focused.	

15	
Project No.	SNTMOM/683/2022
Project Title	Characterization of Jointed Rock Mass using 3D-Printing Technology and Its Application to Stability Analysis of Mines Mining (includes rock mechanics, design, equipment's, energy, environment, safety)
Institution	Indian Institute of Technology Delhi
Principal Investigator	R. Ayothiraman 9868182877, araman@civil.iitd.ac.in
Project Cost & Duration	17925599.510.00 3 Years
Objectives of the project	The following are the objectives of the proposed research project: 1. Simulation of complex joint conditions of rock mass using 3D printing technology. 2. Characterization of 3D printed rock mass with complex joint

	conditions using element testing and large-scale testing. 3. Development of criterion describing strength behavior of jointed rock mass. 4. Analysis of failure of Goaf edge area in Bord and pillar mining in jointed rock roof/pillar conditions. 5. Development of guidelines for safety in the golf edge area.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. The objectives and deliverables are not well defined 2. Similar studies already in process. 3. Project lacks validation of parameters	

16	
Project No.	SNTMOM/685/2022
Project Title	GENERATION OF DESTRUCTIVE WAVE INTERFERENCE TO CONTROL STRUCTURAL DAMAGES DUE TO ROCK BLASTING Mining (includes rock mechanics, design, equipment's, energy, environment, safety)
Institution	Indian Institute of Technology ISM Dhanbad
Principal Investigator	Bhanwar Singh Choudhary 9471191374, bhanwarschoudhary@iitism.ac.in
Project Cost & Duration	5816600.00 Duration: 2 Yrs,
Objectives of the project	1. Investigations into the directional effect of blast induced wave propagation in rock mass. 2. Development of Destructive wave Interference techniques for controlling ground vibration for safety of the structures. 3. Numerically simulate the shock wave propagation in rock medium 4. Optimization of blast design to maximize useful energy and overcome the seismic energy
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. The objectives and deliverables are not well defined 2. Similar studies already in process and work is generic in nature.	

17	
Project No.	SNTMOM/687/2022
Project Title	AlxCoCrFeNi based high entropy alloys and studying their high temperature dynamic mechanical behavior.
Institution	CSIR Central Glass and Ceramic Research Institute
Principal Investigator	Saikat Deb Acharya (9433580935, saikat@cgcri.res.in)
Project Cost & Duration	66.1 Lakhs 3 years
Objectives of the project	Objectives: 1. Synthesis of single and dual phase AlxCoCrFeNi high entropy alloys. 2. Study of dynamic behaviour of the alloy under high temperature and strain rate conditions. 3. Optimization of processing parameters through microstructural property correlations. Scope of work: (1) Synthesis of specimens (induction melting) and Records of SHPB tests for optimizing the process parameter. (2) Synthesis of specimens (milling and hot pressed) and Records of SHPB tests for optimizing the process parameter. (3) AlxCoCrFeNi based HEA system with optimized processing parameters based on experimental data from SHPB.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. Project lacks clarity and problem definition is vague. 2. Applications of the project are not identified. 3. It's more of academic nature	

18	
Project No.	SNTMOM/690/2022
Project Title	Application of flakes from mine tailings for carbon capture Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	CSIR National Institute of Oceanography pas Kumar Bandyopadhyay
Principal Investigator	Ta SIBY KURIAN (9423889319, siby@nio.org)
Project Cost & Duration	Rs. 7669264.00 3yrs
Objectives of the project	The major objective of the project is to prepare buoyant flakes for oceanographic application, especially for carbon capture. The specific objectives are listed below: • Analysis of the composition of mine tailings before preparation of flakes • Preparation of flakes under different coating and baking conditions to study the rate of release of micro- and macro-nutrients • Phytoplankton response to flakes' addition based on incubation experiments
REMARKS/SUGGESTION:	

NOT RECOMMENDED

1. Even through project concept is good, the process would not be effective
2. The objectives are qualitative and does not focus on a target mine waste of particular composition.
3. PI needs to carry out laboratory work internally to find its prospects for a proposal with focus objectives and benefits.

19	
Project No.	SNTMOM /692/2022
Project Title	Development of components for mining applications using powder injection moulding (PIM) or powder metallurgy process
Institution	CSIR Central Mechanical Engineering Research Institute
Principal Investigator	SHRIKANT MADHUKAR DESHMUKH (8147184478, sm.deshmukh@cmeri.res.in)
Project Cost & Duration	82.46 Lakhs 3years
Objectives of the project	a) Development of bimetallic two-colour powder injection moulding process for manufacturing of button bits for usage in mining applications. b) Optimization of Tungsten Carbide (WC-Co) alloy composition for button bits using Powder Metallurgy process and bimetallic powder injection moulding process for mining applications. Brief Outline of the Project with specific technology fall-outs 1. Development of bimetallic two-colour powder injection moulding process which can be used for making button bits. 2. Data generation with respect to the composition of button bits raw material used for mining usages. 3. An alternative process (i.e 2 colour powder metal injection moulding process) along with the existing Powder Metallurgy process to develop bimetallic button bits 4. Skill development and awareness of manufacturing button bits in India by Powder Metallurgy process and bimetallic powder injection moulding process.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. Feasibility of the product is not established. 2. PI should have attempted for advanced technologies. 3. No proof of concept.	

20	
Project No.	SNTMOM/694/2022
Project Title	Engineering Intermetallic phase fraction and spatial location for producing utilization enhanced degradation resistance alloy coatings
Institution	Indian Institute of Science Bengaluru
Principal Investigator	Chandan Srivastava (9900626327, csrivastava@iisc.ac.in)

Project Cost & Duration	25.43 Lakhs 2 years
Objectives of the project	To significantly enhance the corrosion resistance of Zn based electrodeposited alloy coatings (Zn-Ni and Zn-Cr) by engineering volume fraction and spatial distribution of the intermetallic phases (in the matrix phase) in the coating microstructure.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. Proposal is more of fundamental in nature. 2. Applied work and evaluation on components is lacking.	

21	
Project No.	SNTMOM/697/2022
Project Title	Enhancing the Erosion-Corrosion resistance of Mining Pump Components using High-Velocity Oxy-Fuel(HVOF) Sprayed Nickel Chromium-Yttrium Oxide Coating Mining (includes rock mechanics, design, equipment's, energy, environment, safety)
Institution	Annamalai University
Principal Investigator	P. Sivaraj 9865032026, cemajorsiva@gmail.com
Project Cost & Duration	Duration: 2 Yrs, 0 Mth Cost 3385000rs
Objectives of the project	(i) To Develop high-velocity oxy-fuel sprayed Ni-20Cr2O3/Y2O3 coatings (with appropriate stoichiometric ratio) on mining pump components to enhance erosion-corrosion resistance. (ii) To Develop processing windows to identify feasible working limits of HVOF spray process parameters to attain high-quality coatings. (iii) To Optimize HVOF spray process parameters to attain maximum bonding strength and hardness on the coatings
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. The work is generic in nature and lacks proof of concept 2. Similar technology is already available in market 3. There is no clarity on the beneficiary of project	

22	
Project No.	SNTMOM/703/2022
Project Title	Fabrication of closure caps by recycling of waste 8011 Al alloy chips using powder metallurgy

Institution	NIT Rourkela
Principal Investigator	DebasisChaira (9438370956, chaira.debasis@gmail.com)
Project Cost & Duration	26.12 Lakhs 3 years
Objectives of the project	Solid state recycling of 8011 Al alloy saw chips using powder metallurgy. • Reduction in green house gas emission and machining cost by producing near net shape closure cap, more energy conservation and higher yield. • Synthesis of powder by planetary milling of 8011 saw chips. • Preparation of powder metallurgy compact and conversion into thin sheet. • Direct conversion of waste 8011 Al saw chips into value added product like closure caps.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. Scaling up of project is not possible. 2. High energy process w.r.t other processes making it not viable	

23	
Project No.	SNTMOM/712/2022
Project Title	Studies on the Pozzolanic properties ceramic oxy hydroxides modified Ca rich Fullers earth deposits of Telangana state for low carbon cement applications Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	CSIR National Institute for Interdisciplinary Sciecne and Technology
Principal Investigator	S. ANANTHAKUMAR (9497271547, ananthakumars@niist.res.in)
Project Cost & Duration	Rs. 2761508.08 2yrs
Objectives of the project	1. A concerted study of a rare class of "Fuller's earth" (calcium bentonite) deposits in the Vikarabad, Tandur and Sangareddy districts of Telangana state involving determination of the physical and compositional (bulk chemistry and mineralogy) characteristics of samples at key mine sites. 2. Chemical modifications of the Calcite rich Fuller's earth mineral deposits by providing mixed hydroxy-hydrate phases, mainly using Boehmite (AlOOH)/MgO-OH and produce reactive, cementitious products. 3. Thermal activation of chemically modified Fuller's earth mineral deposits at <350oC to obtain hydrated clays and formulate low-carbon cement by blending into hemi hydrated gypsum 4. Study the material for curing, mechanical strength, water absorption, wet-strength and density properties and validate for eco-friendly green cement and concrete technology applications 5. Amine activation of Fuller's Earth deposits to utilize as Industrial sorbents for CO2 adsorption and demonstrate Honeycomb CO2 sorbents module.
REMARKS/SUGGESTION:	

NOT RECOMMENDED

3. Project lacks novelty.
4. Not clarity about raw material

24	
Project No.	SNTMOM/713/2022
Project Title	Extraction of metals from bauxite waste economically and utilization of the material after extraction Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Vidya Bharati Educational Trust
Principal Investigator	Manoj Kumar Sahu (9439843878, manojsahu.pdm@gmail.com)
Project Cost & Duration	Rs. 3446950.00 3yrs
Objectives of the project	Extraction of iron and titanium by a cost effective method ? Characterization of extracted iron and titanium and the waste residue ? To evaluate the mechanism of the process ? To develop an engineering prototype incorporating the results of the experiment ? Utilization of waste for value added product left after extraction of metals

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. The objective is not focused.
2. Raw material has not been properly studied with regard to its composition
3. Addressing of alkali could not be clarified as no preliminary work done.

25	
Project No.	SNTMOM/715/2022
Project Title	Developing an integrative approach of geophysical exploration with simultaneous application of polarization sensitive hyper spectral imaging and HVSR method assisted by machine learning Geosciences and Exploration
Institution	Tezpur University
Principal Investigator	Rajib Biswas (9954313970, rajib@tezu.ernet.in)

Project Cost & Duration	Rs. 6705250.00 3yrs
Objectives of the project	a) Development of an automated prototype assisting polarization sensitive hyperspectral imaging device to capture a large field of view b) Exploring the mineral content or deposits in test field through the developed system c) Ambient noise recordings with analysis via horizontal to vertical spectral ratio technique on sites determined by hyperspectral imaging and its subsequent correlation using machine learning based analysis

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Objectives and deliverables are not well defined
2. Similar technology is available in market
3. The project is more of theoretical research rather than of practical use
4. PI is not aware about end user

26	
Project No.	SNTMOM/728/2022
Project Title	Development of Eco-friendly Delivery system for utilizing Gold Ore Tailings of KGF as Micronutrients Source in Agriculture
Institution	Hindustan Institute of Technology and Science
Principal Investigator	Prakash S S
Project Cost & Duration	78.1 Lakhs 3 years
Objectives of the project	Gold ore tailings (GOT-crushed rock with water) are the wastes generated after gold ore mining, mineral processing and extraction activities. During the process of gold nearly 99 per cent of the extracted ore go as waste to the environment and is stored near the mining area. These tailings are rich source of plant micronutrients viz., zinc, iron, manganese, copper, cobalt, nickel that plays essential and beneficial role in plant metabolism. However, they are also loaded with heavy metals viz., arsenic, cadmium, lead, mercury and cyanide that pave the way for their release to the ecosystem leading to widespread contamination of water, soil and atmosphere, if not treated scientifically. The abandoned site of Kolar Gold Mine, which has around 33 million tons of tailings, is posing threat to the environment. Hence, the present project is proposed to develop scientific protocol for utilizing this solid waste as micronutrients source by detoxifying or inactivating heavy metals. The physical, chemical and biological processes either individually or in combinations will be used for developing eco-friendly GOT products for delivering it as micronutrients source to agriculture. The objectives intended to achieve are 1. Characterization of GOT for their distribution and quantification of micronutrients and heavy metals for understanding their bioavailability 2. Development of techniques for

	granulation and bio-encapsulation using organic molecules for controlled availability of micronutrients from GOT 3. To develop protocol for stabilization of heavy metals using in GOT 3a. Chemical modification of heavy metals in GOT to less soluble form 3b. Heavy metal sequestration using effective microbial strains 4. Validation of GOT products under field condition, bio-encapsulated and physico-chemically stabilized GOT granules with effective microbial consortia, for its eco-friendly delivery to soil and crop system as micronutrients source

REMARKS/SUGGESTION:
NOT RECOMMENDED

1. No clear POC.
2. PI may approach NFTDC to study micronutrients in tailings solution to establish POC.
3. PI should undertake extensive prior work.

27	
Project No.	SNTMOM/731/2022
Project Title	DEVELOPMENT OF MULTIFUNCTIONAL ARTIFICAL COARSE AGGREGATE BY UTILIZING ZINC AND ALUMINIUM WASTE MATERIALS. Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste (Duration: 3 Yrs, 0 Mth) Submitted
Institution	VELLORE INSTITUTE OF TECHNOLOGY
Principal Investigator	S.ELAVENIL (9840237492, elavenil.s@vit.ac.in)
Project Cost & Duration	Rs. 2261700.00 3yrs
Objectives of the project	1. By the process of cast moulding and pelletization the aluminum and zinc industry mine waste by-products initially in powder form will be transformed to the size of the coarse aggregate. Further by conducting various curing processes, the artificial aggregate will gain strength and durability properties. 2. Though the coarse aggregate state is achieved by the above process, in an attempt to further develop its physical and chemical properties, The artificial aggregate in the amorphous state will be transformed into crystalline nature. 3. The main purpose of a conventional coarse aggregate is to provide strength and durability to concrete, but with these artificial aggregates additional properties like thermal resistance and electrical resistivity will be incorporated with the help of various additional minerals present in the selected mine waste materials, various treatment will be conducted to improve these additional parameters in the artificial aggregate making it a multi-functional aggregate. 4. The developed aggregate will undergo extensive

	microstructural analysis using a Scanning electron microscope, and X-ray diffraction. by which the bonding strength and pattern of the minerals in the developed artificial aggregate will be studied. 5. As the aggregate has electrical and thermal properties the aggregate incorporated concrete will be tested for the high voltage withstanding capability and thermal behavior so that the aggregate limitation can be exploited. 6. The artificial aggregate incorporated concrete will undergo various laboratory experiments such as rapid chloride penetration, freeze and thawing cycles, chloride ion infusion, compressive and tensile strength tests to identify the strength and durability limit of the artificial aggregate incorporated concrete.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project lacks novelty
2. Similar studies are already reported
3. Jarosite is already used for building material.

28	
Project No.	SNTMOM/734/2022
Project Title	Green extraction of iron – multiscale analysis of Hydrogen based direct reduction (HyDR) of hematite and wustite Metal Extraction (Metallurgical processes)
Institution	Indian Institute of Technology Delhi
Principal Investigator	Prateek Gupta (9289188977, prgupta@am.iitd.ac.in)
Project Cost & Duration	100.36 Lakhs 3 years
Objectives of the project	1. Develop a framework for diffusion and phase-transformation and use it to implement molecular simulations to study the adsorption of hydrogen on the surface of iron-ore pellets, diffusion of hydrogen and oxygen radicals into the iron-ore, and phase-transformation of hematite to w ¨ustite to a-Fe. 2. Upscale the information obtained from molecular simulations into pellet-scale phase field simulations of redox kinetics. 3. Predict the ideal operating conditions in terms of ore size, temperature, and hydrogen gas pressure under which the process is most efficient.

REMARKS/SUGGESTION:
NOT RECOMMENDED

1. Proposal is more of fundamental in nature.
2. PI may explore funding agencies such as DST / Ministry of Steel.

29	
Project No.	SNTMOM/737/2022
Project Title	Exploitation of Mine Wastes from Tamil Nadu Magnesite Limited in Connection with Biorecovery of Mg, Fe and Mn as Growth Promoting

	Plant Minerals through Redox and Adsorption Process Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Periyar University
Principal Investigator	P.M. AYYASAMY (9486327103, pmayyasamy@gmail.com)
Project Cost & Duration	Rs. 4123150.00 3yrs
Objectives of the project	Determine available minerals Mg, Fe and Mn in the mine wastes from the Tamilnadu Magnesite Limited, Salem District by appropriate Methods. To find out Microbial consortium developed earlier in the Bioremediation Laboratory, Periyar University capable of Mg, Fe and Mn mineralization using Mineral Salts Medium enriched with respective elements To study a batch process on the mineralization of Mg, Fe and Mn from synthetic mineral oxide with suitable carbon source, nitrogen source, temperature and pH. To study biomineralization and the extraction of Mg, Fe and Mn from synthetic mineral oxide and magnesite mine wastes through a fixed bed column and field approach. To confirm biomineralization of Mg, Fe and Mn by the microbes with SEM, EDX and FTIR analysis To study the application of Mg, Fe and Mn as growth endorsing minerals for the plant growth and their root molecules..
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. Project lacks novelty 2. Chemical composition of raw material is not clear and lacks economic assessment. 3. PI is not clear about the process steps and operation	

30	
Project No.	SNTMOM/753/2022
Project Title	Bioleaching of manganese from a low-grade ore. Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Birla Institute of Technology and Science Pilani
Principal Investigator	Srikanth Mutnuri (9421243443, srikanth@goa.bits-pilani.ac.in)
Project Cost & Duration	Rs. 4847744.12 2yrs
Objectives of the project	Physical survey for site selection and chemical analysis of ore from selected site. 2) Isolation of chemolithotrophic microorganisms 3) Lab scale bioleaching experiments: batch and column and analyzing manganese before and after bioleaching process 4) Scale up and Pilot Scale demonstration
REMARKS/SUGGESTION: **NOT RECOMMENDED**	

1. Project lacks novelty
2. The process is not established in India and it requires large space for operation
3. Industry partner for such proposal is essential for consideration.

31	
Project No.	SNTMOM/765/2022
Project Title	Development of New Functional Cement Composites using Graphene synthesized from used Graphites for Special Applications
Institution	CSIR National Institute for Interdisciplinary Sciecne and Technology
Principal Investigator	JAYASANKAR K (9778060563, jayasankar@niist.res.in)
Project Cost & Duration	57.16 Lakhs 2 years
Objectives of the project	The broad objective of this project is to develop an effective and scale up process for the mass production of graphene kg/batch from used graphites (battery and crucibles) and its application for making graphene based low cost conductive concrete and acid resistance of construction materials. The characteristics of used graphite's will be evaluated which would enable to adopt suitable physico-chemical separation technique to reduce the silica and iron and other impurities as an enrichment step, prior to the subsequent exfoliation processes. Based on the lab scale exfoliation process developed by NIIST, the next level of scale up of the process in kg/batch will be developed in this project and optimize the parameters for the used graphites for graphene production. Development of graphene incorporated cementitious composite and assessment of electrical , mechanical properties and • Investigation of efficiency of graphene incorporated cementitious composite for special functions like electrical conductivity and chemical resistance. . The proof of concept of the proposed work is attached as Annexure. (Pg No: 8-11)

REMARKS/SUGGESTION:
NOT RECOMMENDED

1. Projects of similar nature have been adequately funded earlier to the same institute
2. No Scalability has been done with earlier projects funded by MoM.

32	
Project No.	SNTMOM/767/2022
Project Title	Synthesis of new collectors for the beneficiation of oxide and sulfide ores of base metals Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste (Duration: 3 Yrs, 0 Mth)

	Submitted
Institution	SARANATHAN ACADEMY OF HIGHER EDUCATION
Principal Investigator	NATARAJAN, R. (9790912713, natarajan-rd@saranathan.ac.in)
Project Cost & Duration	Rs. 5129200.00 3yrs
Objectives of the project	• Synthesis of a new series of chelating collectors namely, aminothiols that float both oxide and sulphide ores of base metals. • The new collector has more selectivity for valuable minerals than gangue minerals such as pyrite, clay, silica etc. • The new collector floats zinc without activation using copper sulphate. In case of zinc supressed during flotation of lead in the case of Pb-Zn ores, floats zinc with reduced copper sulphate. • Copper sulphate being corrosive and expensive its elimination or reduced usage will increase the environmental compliance of the process and reduce corrosion of machinery. • Recovery of low amount of silver present in some of the Pb-Zn ore will also be tested. • A scientific method of selection and synthesis of flotation collectors will be developed to avoid any trial-and-error method.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. Project lacks novelty with no preliminary work. 2. Proof of concept is not established.	

33	
Project No.	SNTMOM/774/2022
Project Title	Development of novel sacrificial electrode based on Al-Mg alloys for the application of Aluminum Air Batteries
Institution	Indian Institute of Technology BHU Varanasi
Principal Investigator	Nikhil Kumar (8433149991, nikhil.mst@iitbhu.ac.in)
Project Cost & Duration	25.95 Lakhs 2 years
Objectives of the project	(1) The electrode (better discharge efficiency and negligible self-corrosion rate) based on Al-Mg based alloys will be developed for the Al-air batteries for the electric vehicles application. (2) The new production process route will be identified for further improving the discharge performance of the Al-Mg based alloy electrode. (3) The effect of metallurgical factors (such as grain size, dislocations, etc) on the discharge performance of the Al alloy anode will be investigated. (4) The optimized thermo-mechanical process will be identified for further improving the discharge performance of the Al alloy-anode. (5) The improvement in the discharge efficiency and hinder in the self-corrosion rate of the anode will be obtained through introducing the nano-scale precipitates. The optimized size and volume fraction of the

	precipitates required for improving the anode discharge efficiency will be identified through experimentally and theoretically. (6) The relationship between the corrosion product and texture, and influence of the discharge product and texture on the discharge performance of anode will be investigated. (7) The green corrosion inhibitors for the brine and alkaline electrolytes will be investigated for suppressing the self-corrosion of the aluminum anode. (8) Understanding of the active sites on the surface of the Al alloy anode during application will be investigated through the detail microstructural investigation.

REMARKS/SUGGESTION:
NOT RECOMMENDED

1. Objectives are vague
2. No Clarity in terms of final product.
3. No proof of concept.

34	
Project No.	SNTMOM/780/2022
Project Title	Operative utilization of Granite powder generated from mines and mining industries Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	B M SREENIVASIAH EDUCATIONAL TRUST
Principal Investigator	P Velumani (9842760260, vels.velumani@gmail.com)
Project Cost & Duration	Rs. 3141491.00 3yrs
Objectives of the project	Well-prepared granite waste can be used as coarse aggregate and fine aggregate and as a constituent in building materials. ? The morphological parameters of the aggregates were determined. ? Economic analysis of the disposal of granite waste was carried out. ? The type of the aggregate had an influence on the properties of the concrete. ? The new SCM induces no changes in C-S-H gel product morphology. ? Low concentrations of the waste can be regarded as feasible new SCM.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project lacks novelty
2. Granite powder is targeted to use with fly ash for construction material.
3. Fly ash is already used as a potential construction material
4. Preliminary work needed to find product application potential.

35	
Project No.	SNTMOM/782/2022

Project Title	Development of Anti-Corrosion Aluminium Alloy Based Metal Matrix Composite Reinforced With Industrial Waste Material for Naval Application Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Vidya Bharati Educational Trust
Principal Investigator	AJIT KUMAR SENAPATI (9437783220, ajits@giet.edu)
Project Cost & Duration	Rs. 6067000.00 3yrs
Objectives of the project	1. Production of Aluminium alloy based MMC reinforced with ferrochrome slag by stir casting method. 2. Evaluation of the properties such as physical, mechanical, tribological and corrosion of developed MMC. 3. Prototype development of naval components by using indigenously developed MMCs 4. Comparative analyses of the properties of the newly developed prototype with the existing naval components.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. PI will be using red mud with aluminium to make composite whereas aluminium has a good market 2. No preliminary work established or validated 3. Industry support both financially and technically required to consider such project.	

36	
Project No.	SNTMOM/785/2022
Project Title	Smart Mineral Exploration to Locate and Exploit New Mineral Resources Geosciences and Exploration
Institution	Anna University
Principal Investigator	Roselin (9488515751, roselin.js@auttvl.ac.in)
Project Cost & Duration	Rs. 5232000 3 yrs
Objectives of the project	India has a high geological potential for minerals. Most of the minerals on or just below the surface have been located and there is a need to look deeper for concealed mineral deposits. This means conducting mineral exploration on a continuous basis through the latest technologies. Thus a clear need was seen in the mineral exploration to introduce three dimensional (3D) imaging of the sub-surface, which meant developing methods of both acquiring data and visualizing it.
REMARKS/SUGGESTION:	

NOT RECOMMENDED

1) Objectives and deliverables are not clear
2) The procedure is not aligned with the objectives.
3) No proof of concept and work methodology was not well defined

37	
Project No.	SNTMOM/791/2022
Project Title	Remediation of chromite mine overburden and wastewater of Sukinda Valley, Odisha using nanoparticle assisted biochar obtained from thermo-chemical conversion of agro-industrial wastes
Institution	Tezpur University
Principal Investigator	RUPAM KATAKI 9435380921, rupam@tezu.ernet.in
Project Cost & Duration	6245520.00 Duration: 3 Yrs, 0 Mth
Objectives of the project	1. To produce biochar utilizing low-value biowastes arising from agri-food Industries followed by chemical activation of the produced biochar and their detailed characterization: Morpho-physiological properties of both the pristine and activated biochar will be studied by FTIR spectroscopy, XRD analysis, BET (Brunauer–Emmett–Teller) surface area analysis, SEM analysis etc. 2. To evaluate the adsorption potential of hexavalent chromium [Cr(VI)] by the biochar and its reusability: The Cr(VI) adsorption potential of the biochar at different parameters like biochar dose, initial Cr(VI) concentration, initial pH, particle size of biochar, temperature, and contact time will be tested. The biochar will be reused for multiple cycles to check the adsorption potential. 3. To analyseCr(VI) adsorption potential of biochar from the chromite mine overburden and wastewater of Sukinda Valley, Odisha. According to the Indian Bureau of Mines, 96% of total chromite ore in the country is present in Sukinda in Jajpur district of Odisha..

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project lacks novelty and deliverables are not convincing
2. Similar work already done
3. Project proposed was of fundamental material science research rather than translational R&D

38	
Project No.	SNTMOM/788/2022
Project Title	PROCESS INTENSIFICATION OF BENEFICIATION OF FINE METAL OXIDES BY REDUCING BACKMIXING IN A MICROSTRUCTURED

	FLOTATION COLUMN Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	Indian Institute of Technology Guwahati
Principal Investigator	Subrata Kumar Majumder (9954864735, skmaju@iitg.ac.in)
Project Cost & Duration	Rs. 2126350.00 3yrs
Objectives of the project	i) Development of plant prototype for fine particle separation, (ii) Stability of bubble and its size distribution in microstructured flotation column (iii) Studies on particle–particle interactions with different collectors and at pH by measuring the zeta potential changes, (iv) Degree of reduction of backmixing and its effect of particle-bubble interaction to find out the degree of separation of fine particle (v) Study the performance of microstructured flotation column for the separation of a selective binary fine metal (Ni, Cu (II), Zn and Al (III)) oxide (vi) Study the kinetics of fine particle flotation in microstructured flotation column.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. The proposal is design of a flotation column 2. PI should undertake preliminary work to establish proof of concept using some target mineral 3. PI may approach DST for such design concept project	

39	
Project No.	SNTMOM/794/2022
Project Title	Design, Development and Simulation of Material Feeding System for transportation of large particles through pipeline Mining (includes rock mechanics, design, equipment's, energy, environment, safety)
Institution	Kalinga institute of industrial technology
Principal Investigator	AKSHAYA KUMAR ROUT 09437756207, akroutfme@kiit.ac.in
Project Cost & Duration	Duration: 3 Yrs, 0 Mth 4980000.00
Objectives of the project	Comprehensive scientific study and modelling of material feeding system for the transportation of large particles through pipelines (a)To design and develop material feeding systems based upon their mechanical integrity and stress pattern through modelling & simulations and by proctographic, micrograph and metallographic study to assess their life in service with a view to increasing its life

	span. (b) To minimize the capital investment in the procurement of mine material feeding system attachments and in the rework (c)To avoid unexpected component failure and premature replacement of components prior to the end of their useful life (d)To make the Bharat AATMANIRBHAR

Remarks
NOT RECOMMENDED

1. Project work is of academic interest
2. No novelty and research innovation
3. Objectives and deliverables not clear

40	
Project No.	SNTMOM/806/2022
Project Title	Studies on transportation of mineral-ore particles (up to 20 mm) from open cast mines through slurry pipeline Mining (includes rock mechanics, design, equipment's, energy, environment, safety)
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	JAYANTA KUMAR POTHAL
Project Cost & Duration	Duration: 2 Yrs, 0 Mth 6430000.00
Objectives of the project	Design and installation of an appropriate hydraulic transport system for transportation of minerals/ore particles (up to 20 mm) through slurry pipeline. - CFD modelling to simulate flow conditions in the pipeline with pressure drop modeling & empirical modeling of the system. - Analysis of degradation rate of ore/mineral samples influenced by flow velocity, interfacial slip

Remarks
NOT RECOMMENDED

1. Project aims at generic studies and lacks novelty
2. PI should have visited open cast mines while drafting the proposal
3. PI is not aware of materials which is to be transported

41	
Project No.	SNTMOM/815/2022
Project Title	Design and Development of an unmanned electric shovel system for excavation trajectory planning in open pit mines Mining (includes rock mechanics, design, equipment's, energy, environment, safety)
Institution	National Institute of Technology Rourkela

Principal Investigator	J SRINIVAS 9556713217, SRINIVASJ@NITRKL.AC.IN
Project Cost & Duration	Duration: 3 Yrs, 0 Mth 2506700.00
Objectives of the project	1. Dynamic modeling of electric shovel with respect to ore location 2. Optimization studies of trajectory to minimize the time and power requirements 3. Fabrication and testing of scaled model and real time implementation in open and underground mining)

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. It is a fundamental research proposal
2. Objectives and deliverables are not clear
3. This is not a translational work.

42	
Project No.	SNTMOM/827/2022
Project Title	Development of an automated mineral detection system using underwater hyperspectral imaging for deep-sea mining Geosciences and Exploration
Institution	Indian Maritime University Navi Mumbai Campus
Principal Investigator	G. VEERA SENTHIL KUMAR (9789554775, veerasenthilkumar@imu.ac.in)
Project Cost & Duration	Rs. 2436965.69 2yrs
Objectives of the project	To develop the Underwater Hyper spectral Unfixing algorithm and design a prototype for mineral detection. To pre-process the images using a suitable Dimensionality Reduction technique for subsequent analysis To extract the end members' signatures and estimate the abundance fraction using deep convolutional neural networks. To validate the results obtained using the proposed method with ground truth data. To implement the developed algorithm in FPGA-based reconfigurable computing.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Objectives and deliverables are not clear
2. No proof of concept
3. Lack of novelty and its more of a conceptual work
4. There is no clarity about adopted methodology and deliverables
5. NIOT Chennai has already done similar work.

43	
Project No.	SNTMOM/838/2022
Project Title	Development of Extraction process for Neodymium andNeodymiumIron alloy by molten salt electrolysis of oxides.
Institution	International Advanced Research Centre for powder Metallurgy and New Materials
Principal Investigator	B. V. Sarada (9963978039, sarada@arci.res.in)
Project Cost & Duration	49.6 Lakhs 3 Yrs
Objectives of the project	A rapidly expanding market for Nd-Fe-B permanent magnets has created intense interest in development of an efficient process for producing Nd metal and NdFe alloy. However, presently, Nd metal is not being produced in India. The present proposal involves development of Neodymium and Neodymium-Iron alloy by an efficient and environmental friendly molten salt electrolysis of oxide. Although there are many processes, oxide molten salt electrolysis is more suitable for the economic mass production of metals of higher quality, with lower oxygen content and fewer impurities The main objectives are as follows: 1. Development of Neodymium (Nd) from its oxides using fluoride/chloride electrolytic bath by a sustainable molten salt electrolysis (MSE) process. 2. Design and development of the electrolytic cell for the molten salt electrolysis of Nd and NdFe with high efficiencies. 3. Investigation of the electroreduction processes taking place at the cathode and to elucidate the reduction mechanism of neodymium. 4. Use a reactive Iron anode in order to eliminate the evolution of Carbon monoxide (CO), carbon dioxide (CO2) and PFCs (polyfluorocarbons) during the electrolysis thus reduce the greenhouse gases and simultaneously form NdFe alloy. 5. Optimization of process parameters, temperature of the molten salt and the composition of electrolytes (fluoride/chloride) and electrolyte additives during the MSE process. 6. Study of microstructural, morphological and chemical properties of the alloy formed. 7. Evaluation of the alloy and conversion to NdFeB master alloy by vacuum induction melting process..
REMARKS/SUGGESTION: 1. The proposed methodology with Fe as Anode will not work and it has been abandoned at industrial scale. 2. Nd, Pr extraction by molten salt electrolysis already being done by other research groups at high TRL levels.	

44	
Project No.	SNTMOM/851/2022
Project Title	Direct upcycling of iron ore tailing slurry for reducing the disposal into tailing ponds, through a novel geopolymeric material Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste

Institution	Indian Institute of Technology Indore
Principal Investigator	Sandeep Chaudhary (9549654195, schaudhary@iiti.ac.in)
Project Cost & Duration	Rs. 2984100.00 3yrs
Objectives of the project	The project aims to directly upcycle the iron ore tailing slurry and reduce its disposal into tailing ponds. The slurry will be upcycled into a novel Fe-rich geopolymer, which will utilize all major components of iron ore tailings, i.e., iron-rich minerals, alumino-silicates and water. Through wholistic utilization of iron ore tailing slurry and slurry-based transport, the project aims to develop a commercially beneficial industrial process, as an alternative to tailing ponds. The overall aim of the project can be broken down as the following objectives: 1. Complete physical, chemical, mineralogical and rheological characterization of iron ore tailing slurry from different iron mining sites. 2. Development of a novel Fe-based geopolymer, using iron ore tailings slurry. 3. Evaluation of iron ore tailing slurry based geopolymer for rheological, hardening, strength, and durability properties as per relevant standards. 4. Optimization of iron ore tailing slurry based geopolymer to produce a ready to use construction material (inspired from ready mix concrete and self-compacting concrete) 5. Identification of an economically viable slurry transportation mechanism, for direct upcycling of iron ore tailing waste before its disposal into tailing ponds 6. Simulation-based sustainability assessment of proposed slurry management as compared to the ongoing practice of tailing ponds, to demonstrate the economic and environmental advantages 7. Development of an industry-oriented guideline for setting up new economic ventures based on the direct upcycling of iron ore tailings The target mine for the study will be selected from Agariya Iron Ore Mine (Jabalpur), Dubiyara Iron Ore Mine (Jabalpur) or Pindrai Iron Ore mine (Katni), due to its proximity to the investigating institute.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. No novelty as similar work being done.
2. Comparative study of various tailings not done, so no proof of concept.
3. PI was informed to interact with NMDC / TATA / other Mining companies for preliminary work.

45	
Project No.	SNTMOM/859/2022
Project Title	PARADIGM SHIFT IN DESIGN OF LEACHING IN MINERAL PROCESSING- AN IMMENSE SOURCE OF ELECTRICAL ENERGY Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	National Institute of Technology Trichy

Principal Investigator	Sarat Chandra Babu Jakka (9486771039, sarat@nitt.edu)
Project Cost & Duration	Rs. 3961802.00 3yrs
Objectives of the project	1) Evaluation of primary parameters using electrochemical impedance spectrometry studies on electrical energy production in a laboratory cell. 2) Screening of suitable electrode material with acceptable performance characteristics Preparation of electrode materials sourcing from low cost biomass, available locally and evaluation of physical and functional characteristics 3) Design of flow cell membrane electrode assembly (MEA) with instrumentation to monitor and regulate the process parameters 4) Evaluate the sensitivity of process parameters on leaching efficiency and electrical energy generation 5) Optimize the process conditions for maximizing the leaching efficiency and electrical energy to acceptable levels. 6) Evaluate the sensitivity and safety parameters and scaling parameters fulfilling the criteria of Lab-to-Business concept. 7) Design a demonstration unit of suitable capacity in consultation with any agency showing interest for testing the performance at plant level.

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project lacks novelty.
2. There is no schematic diagram to understand the process, it has no clarity
3. At present maximum copper is recovered from ore by HCL and if such leaching process proposed to be taken up, then PI needs to get associated with an industry partner

46	
Project No.	SNTMOM/862/2022
Project Title	Development of process for making high pure silicon from low grade quartz Metal Extraction (Metallurgical processes)
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	ALOK TRIPATHY (9437066723, atripathy@immt.res.in)
Project Cost & Duration	47.7 Lakhs 2 Yrs
Objectives of the project	The following is the objective of the study proposed ? Preparation of high pure silicon from low grade quartz

REMARKS/SUGGESTION:
NOT RECOMMENDED

1. Project lacks clarity and detailing of process steps for silica to silicon
2. Silica to silicon process flow sheet is very well established at commercial production scales and hence basic R&D is not required.

47	
Project No.	SNTMOM/868/2022
Project Title	Development of cost-effective 3D high-resolution ambient seismic noise imaging technique using fiber-optic interrogator for mineral exploration Geosciences and Exploration (Duration: 3 Yrs, 0 Mth)
Institution	Indian Institute of Technology Bombay
Principal Investigator	Satish Maurya (9372011131, smaurya@iitb.ac.in)
Project Cost & Duration	Rs. 17920547.92 3yrs
Objectives of the project	1. Development 3D high-resolution ambient noise tomography tool which includes following steps: Measurement of Green Function's and dispersions curves for all receivers pair; Development of regionalization technique for exploration scale and preparation of tomographic maps at different frequencies; Obtained the shear wave velocity model using Bayesian trans-dimensional approach. 2. Make a realistic 3D synthetic test modelling for validation 3. Delineation of mineralized zone from 3D shear wave velocity model and k-mean cluster analysis approach.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. There is no innovation in this project 2. PI has not identified the targeted exploration area 3. Overall budget of project is very high, as equipment itself cost around 1.45 crores; some of the required instruments might be available in the institute	

48	
Project No.	SNTMOM/888/2022
Project Title	Dry beneficiation process using tribo-electrostatic method for removal of unwanted silica from low grade limestone, design and development of tribo-electrostatic separator. Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste (Duration: 3 Yrs, 0 Mth) Submitted
Institution	Indian Institute of Technology Jodhpur
Principal Investigator	Vikky Anand (7409935252, vikky@iitj.ac.in)
Project Cost & Duration	Rs. 11334106.40 3yrs
Objectives of	Removal of silica (SiO2) from the limestone or raw mix to the maximum

the project	extent possible, so that consumption of high grade limestone is eliminated/reduced to the possible extent. I. Developing a fundamental knowledge about the course to understand the dependence of the individual parameters on tribo-electrostatic separator. II. Optimization of both operating and separator design parameters. III. Design of lab scale separator: the different design configurations will be tested such as horizontal setups, vertical, or any possible integrated model. IV. Design and development of semi-pilot scale plant. V. Reporting the data of the experimental separation efficiency of the lab scale setup. VI. Training undergraduate, and postgraduate students in the area of electrostatic application of solid-solid separation process

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project objectives are not focused and lacks proof of concept.
2. PI has not undertaken the work of analysis and liberation of characteristics of limestone.
3. PI should initially try in similar system available in NML /IMMT before investing on the equipment and to get familiar with the R&D / equipment available.

49	
Project No.	SNTMOM/890/2022
Project Title	Utilization of Khetri Copper Mine Tailings for Fabrication of Sulfide Functionalized Fe3O4 Nanocomposites and its application for Selective Recovery of Copper from Low-Grade Ore Tailings Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste (Duration: 3 Yrs, 0 Mth) Submitted
Institution	Central University of Rajsthan
Principal Investigator	Ritu Singh (9602127352, ritu_ens@curaj.ac.in)
Project Cost & Duration	Rs. 6963530.00 3yrs
Objectives of the project	i) Pre-concentration of ferric ions from copper mine tailing ponds. ii) Synthesis of Fe3O4 nanoparticles and functionalization with sulfide polymers for selective adsorption of Cu2+ ions iii) Fabrication of a fixed bed reactor grafted with functionalized nanocomposites for efficient recovery of Cu2+ from low-grade ore tailings

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project lacks novelty and concept is not clear.
2. No preliminary work has been carried out
3. Such type of project should carry industry support including part finance by them.

50	
Project No.	SNTMOM/892/2022
Project Title	Mineral industry waste processing for development of efficient adsorbents and extraction of residual metals Metal Extraction (Metallurgical processes)
Institution	Malaviya National Institute of Technology Jaipur
Principal Investigator	Madhu Agarwal (9549654166, magarwal.chem@mnit.ac.in)
Project Cost & Duration	57.0 Lakhs 3 Yrs
Objectives of the project	Development of efficient adsorbent for the removal of dye waste and emerging pollutants • Recovery of valuable metals from the waste of the mineral industry using novel solvent. • Immobilization of hazardous waste for better disposal.
REMARKS/SUGGESTION: **NOT RECOMMENDED** **1.** Proposal is very generic. **2.** Industry partnership and co-funding is required. **3.** POC should be first established at the level of 100g-1kg	

51	
Project No.	SNTMOM/894/2022
Project Title	Recovery of Rhenium from Copper Concentration Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	LN INDTECH SERVICES PVT LTD
Principal Investigator	Subash Chandra Mallick (9922498715, lnindtech@gmail.com)
Project Cost & Duration	Rs. 3804200.00 2 yrs
Objectives of the project	The objective of the proposed project is to recycling of wastes of copper industries to produce some valuable materials which have wide applications and uses.To recover Rhenium material from copper Concentration . i. To recover purified Rhenium material from the copper concentrate . ii. To produce purified Molybdenum during the process iii. To optimize the process parameters for commercially viable extraction process technology
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. Project lacks proof of concept and no flowsheet of proposed process could be explained 2. The raw material is copper concentrate for smelting, containing minute	

percentage of Rhenium 3. Rhenium recovery from wet copper concentrate is difficult 4. PI may get the support of an industry for such project.

52	
Project No.	SNTMOM/902/2022
Project Title	Extraction of Lithium Oxide from Partially LaterisedKhondalite Rocks - a bauxite mining waste and its application in Lithium battery Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	SOCIETY RAMAN EDUCATION
Principal Investigator	Ranjita Swain (9556779520, ranjitaswain@cvrce.edu.in)
Project Cost & Duration	Rs. 5287660.00 3yrs
Objectives of the project	? PLK- a bauxite mining waste can be a potential resource for the production of valuable minerals. ? Extraction of Lithium oxide (LiO2) using different acids/alkalis. ?Optimisation of leaching reaction and its process parameters. ? Kinetic study on leaching reaction. ? Simulation using MATLAB/DOE. ? Lithium Oxide extracted in liquor. ? The residue part can be utilised after a suitable treatment. ? This is a zero waste technology. ? Waste to wealth.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. PI has not presented proper analysis of raw material. 2. After preliminary studies, PI may approach NALCO for support and raw material 3. PI can co-ordinate with MECL / JNARDDC w.r.t detail characterization of PLK rocks already done by them. 4. It is essential to get the analysis verified with number of samples collected in a scientific manner to conclude presence of Li.	

53	
Project No.	SNTMOM/910/2022
Project Title	DEVELOPMENT OF A NOVEL LOW-COST AMBIENT RECONNAISSANCE TECHNIQUE FOR THE EXPLORATION OF MINERAL DEPOSITS Geosciences and Exploration
Institution	Indian Institute of Technology Madras
Principal Investigator	TarunNaskar (8861541569, tarunnaskar@civil.iitm.ac.in)
Project Cost	Rs. 4975200.00

& Duration	3yrs
Objectives of the project	The main objective of this proposed study is: 1) To develop a new passive low-frequency surface wave field test methodology. 2) To develop a new wave field transformation technique to generate high resolution images of the subsurface from a passive surface wave test. 3) To develop a fast and accurate numerical algorithm to model the subsurface earth. 4) To develop an analytical Jacobian based Inverse model 5) To develop a convolutional neural network-based algorithm to predict mineral deposit

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project is of theoretical nature rather than of practical use
2. Methodology of using sensors is not clear
3. Objectives are not clear and the proposed work is not suitable for mineral exploration.

54	
Project No.	SNTMOM/915/2022
Project Title	Integrated hairy root phytoremediation with biochar application for the in-situ transformation of mine tailings from Sukinda Valley Beneficiation, Ore Dressing, Mineral Processing & Recovery from waste
Institution	National Institute of Technology Rourkela
Principal Investigator	Balasubramanian P (8280282807, biobala@nitrkl.ac.in)
Project Cost & Duration	Rs. 3744600.00 3yrs
Objectives of the project	The proposed research work has been planned with the following specific objectives: 1. Production of hairy roots by infecting the selected plant species with A. rhizogenes through transformation. 2. Phytoremediation of chromite overburden by using hairy root cultures and biochar. 3. Application of paper-based electrochemical Biosensor for assessment of heavy metals in soil. 4. To elucidate the mechanism by hairy root cultures with biochar on abandoned overburden sites. 5. Demonstration of the developed treatment techniques with real-time reclamation of Sukinda Chromite valley (Odisha, India)

REMARKS/SUGGESTION:

NOT RECOMMENDED

1. Project does not have clarity as to what would happen to Cr+6 ultimately
2. No preliminary studies done
3. If there is rain the hexavalent chromium concertation at roots will spread

thereby causing damage to living beings
4. Phytoremediation is done by others and yet to be proved for application in Cr+6

55	
Project No.	SNTMOM/928/2022
Project Title	Exploring the Rare Earth Elements from mines of Kachchh Gujarat Developing a prospective technology for REE extraction through Microbial Mobilization for industrial applications
Institution	GUJARAT INSTITUTE OF DESERT ECOLOGY
Principal Investigator	K KARTHIKEYAN (8141276926, karthikmicrobio@gmail.com)
Project Cost & Duration	24 Lakhs 3 years
Objectives of the project	The intended work-plan consists of a methodical investigation comprising the following: • Reconnaissance survey in the mines of Kachchh and conduct sampling at different types of mines and mine tailings (GUIDE and KSKVKU). • Characterizing the samples for mineralogical characteristics and quantification of REE's from the samples using ICP-AES, XRF and SEM (KSKVKU and Shree Ram Minerals). • To further study the microbial community structure via metagenome of mine soil and mine tailings (CSIR-NEERI). • To isolate Organic acid producing microbial strains (fungi) from the samples and their application in the extraction of REE's (GUIDE). • To evaluate the bioleaching and biosorption potential of the strains for REE's under varying bioprocess variables (GSFCU). • Further to develop Novel application of REE's for o In-vitro studies on Mammalian Cell culture for potential use of REEs in healthcare and diagnostic sector (GSFCU). o Photocatalytic treatment of wastewater employing REE's doped with Metal oxides (GUIDE and M/s Shree Ram Minerals). • To create a database on potential mines for exploration of rare earth elements from Kachchh (GUIDE and KSKVKU). • To understand the economic evaluation of the technology in bioleaching and its applications (All the participating Institutes).

REMARKS/SUGGESTION:
NOT RECOMMENDED

1. Proposal is Techno-economically not feasible.
2. No possibility for scalability.
3. Should perform prefeasibility studies in gpl or mgpl level REE solutions and establish the POC.

56	
Project No.	SNTMOM/930/2022
Project Title	Graphene based conducting ink for energy storage and microwave application

Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	mamatamohapatra (9437260688, mamata@immt.res.in)
Project Cost & Duration	57.45 Lakhs 2 Yrs
Objectives of the project	Synthesis of hybrid graphene conductive inks with use of metal particles and polymer materials • Investigation on different polymer host matrix assisted creation of graphene inks • Optimizing the liquid media assisted synthesize route to generate graphene inks with variable solvents • To develop a scalable, cost-effective and facile method for the preparation of flexible graphene ink substrates • Study of electrochemical properties of developed ink • Evaluation of Microwave properties of as-prepared graphene inks with various experimental conditions • Scale up the generation of graphene inks to bench scale • Testing of graphene ink based screen type radar absorbing material for Microwave anechoic Chamber or Testing of Graphene ink based resistive sheet design for wideband flat, thin absorbing screen towards microwave absorption • Cost analysis with process flow sheet development
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. Proposal is not relevant to the purview of MOM. 2. PI may approach DRDO / MEITY	

57	
Project No.	SNTMOM/946/2022
Project Title	Reclamation of abandoned mining sites using cattle dung derived biochar Mining (includes rock mechanics, design, equipments, energy, environment,safety)
Institution	Indian Institute of Technology Roorkee
Principal Investigator	Sonal K. Thengane 7977507193, sonalt@hre.iitr.ac.in
Project Cost & Duration	Duration: 3 Yrs, 0 Mth Cost 7190000
Objectives of the project	The objective of this study is to find out the potential of biochar in the reclamation of abandoned mining sites in India. The main objectives of this integrated experimental and theoretical research are as follows: • To produce biochar using slow pyrolysis of cattle dung using an auger reactor. • To evaluate the impact of biochar on soil samples collected from different abandoned mining sites in India and find the optimum

	percentage for mixing • To evaluate the effect of soil amended with cattle dung biochar on plant growth parameters and the yield • To evaluate the environmental and economic performance of the proposed intervention for selected abandoned mining sites as case studies.
REMARKS/SUGGESTION: **NOT RECOMMENDED** 1. The objective of the project is not aligning with the MoM goals and thrust areas 2. PI may explore other funding agency	

7. REVIEW OF COMPLETED / ONGOING PROJECTS

The following projects were reviewed by the PERC and recommendations are as below:-

COMPLETED – 4 nos.

1	
Project No.	14/12/2017-Metal-IV
Project Title	Critical Mineral (non-fuel) Resources Index of India-for effective policy decisions on mineral and manufacturing sector of India
Institution	Council of Energy Environment and Water (CEEW), Thapar House, Janpath, New Delhi
Principal Investigator	Vaibhav Gupta vaibhav.gupta@ceew.in
Project Cost & Duration	Duration: 3 years Rs.36.29115 lakh
Remarks **COMPLETED** 1) The PI has left the organization. 2) The final findings presented by the Co-PI were reviewed and accepted. 3) PI was advised to include the latest available data in the updated/final report. 4) PI was advised to submit the utilization certificates and statement of expenditure 5) Based on the final findings the PERC recommended for acceptance of the final report and closure by SSAG.	

2	
Project No.	14/26/2018-Met4
Project Title	Improving fracture resistance of rocks through adhesive bonding for underground mining application
Institution	India Institute of Technology (ISM) Dhanbad
Principal Investigator	Dr.Rashmi Ranjan Das : 08895556016
Project Cost & Duration	Rs. 14.73467 lakh

Remarks

COMPLETED

1. PI informed that project has been completed and report is already submitted
2. The final findings were reviewed and report was accepted.
3. Based on request of the PI, the project is recommended for time extension upto July 2022
4. A one page write up on the outcome of this project along with the potential scope for commercialization should be submitted to Ministry of Mines
5. Recommended to release balance funds subject to submission of utilization certificates and statement of expenditure.
6. PERC recommended for acceptance of the final report and closure by SSAG.

3	
Project No.	F.No. 14/14/2019-Metal-IV
Project Title	Identification and Investigation of efficacy of potential biochemical molecules for extraction of gold and other noble metals from tailings and waste sources.
Institution	Indian Institute of Technology Madras
Principal Investigator	Prof. T. Pradeep pradeep@iitm.ac.in : 09445560767
Project Cost & Duration	Rs. 34.64 Lakh Duration : 2 Years

Remarks

COMPLETED

1. The final report has been submitted by the PI
2. The findings presented by the PI were reviewed and accepted.
3. The work was highly appreciated.
4. A one page write up on the outcome of this project should be submitted to Ministry of Mines
5. Recommended to release balance funds subject to submission of utilization certificates and statement of expenditure.

6. PERC recommended for acceptance of the final report and closure by SSAG

4	
Project No.	14/9/2019-Metal-IV
Project Title	Utilization of aluminium dross to achieve zero waste – A bench scale study
Institution	Jawaharlal Nehru Aluminium Research Development and Design Centre, Wadi, Nagpur and CSIR-National Environmental Engineering Research Institute, Nagpur,
Principal Investigator	Upendra Singh Principal Scientist, Bauxite Division E-mail:Upendra1970@gmail.com
Project Cost & Duration	Rs.74.34 Lakh Duration: 2 Years

PERC REMARKS/SUGGESTION:
COMPLETED

1. The final findings were reviewed and final report was accepted.
2. A one-page write-up on the outcome of this project should be submitted to Ministry of Mines highlighting the process economics of the technology for possible commercialization.
3. Recommended to release balance funds subject to submission of utilization certificates and statement of expenditure.
4. PERC recommended for acceptance of the final report and closure by SSAG.

ONGOING – 35 nos.

1	
Project No.	Met4-14/9/2021
Project Title	Studying, modelling and evolving a new blasting technique for open cast mine excavations near the proximity of structures (beyond 50 m) using the structural response analysis and dynamic FEM
Institution	CSIR Central Institute of Mining and Fuel Research
Principal Investigator	ADITIYA RANA adityarana.nitjaipur@gmail.com9694641232
Project Cost & Duration	Rs. 38.19 lakhs 3 years

Remarks
ONGOING

1. The progress was satisfactory
2. PI was advised to conduct more blasts at the earliest for validation
3. Recommended to release balance fund /next installment subject to submission of utilization certificate and statement of expenditure

2	
Project No.	Met4-14/1/2021
Project Title	Recovery of copper from water bodies nearby copper mines using microbial electrochemical systems
Institution	Indian Institute of Technology ISM Dhanbad **Industry Partner** Hindustan Copper Limited
Principal Investigator	VIPIN KUMAR E-mail:- vipinmicro1@iitism.ac.in 9471191352
Project Cost & Duration	Rs. 25 Lakhs 18 month

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was slow and recovery of copper % is not appreciated by members
2) Sampling for copper recovery need to be done more systematically.
3) The project is recommended for time extension upto Dec 2022 as per request of PI for completing the pending work.

3	
Project No.	Met4-14/24/2021
Project Title	Corrosion and wear resistant advanced coatings based on high entropy alloys for mining equipments
Institution	Indian Institute of Technology Delhi
Principal Investigator	JAYANT JAIN E-mail:- jayantj@iitd.ac.in 9582513867
Project Cost & Duration	24 Lakhs 2 Years

REMARKS/SUGGESTIONS:

ONGOING

1) Progress of work is satisfactory
2) PI has done one preliminary coating trails
3) Recommended to release balance fund /next installment subject to submission of utilization certificate and statement of expenditure

4	
Project No.	Met4-14/17/2021
Project Title	Design, analysis and development of Rheo gravity die cast Al-15Mg2Si-4.5Si composite based light weight Bucket links for Mining Excavators
Institution	CSIR Central Mechanical Engineering Research Institute
Principal Investigator	PROSENJIT DAS E-mail:-prosenjit@cmeri.res.in, 9531590074
Project Cost & Duration	Rs. 55 Lakhs 2 Years

REMARKS/SUGGESTION:

ONGOING

1) Progress of work till now was reviewed
2) Since there is a change of Institute of the PI, the project is recommended for time extension by one year
3) Director CMRI should release the equipment and consumables to the PIs current location
4) Recommended to release balance fund /next installment subject to submission of utilization certificate and statement of expenditure

5	
Project No.	Met4-14/2/2021
Project Title	Development of Empirical Methodology for Design of Crown Pillar during transition from opencast to underground mining for Indian Mines
Institution	CSIR Central Institute of Mining and Fuel Research
Principal Investigator	CHANDRANI PRASAD E-mail:-chandrani@cimfr.nic.in 9422477144
Project Cost & Duration	Duration 3 years Rs. 37.89850 lakhs

Remarks
ONGOING

1) Progress was satisfactory.
2) Panel suggested PI to carry out field visit and complete the project work.
3) Recommended to release next installment / balance funds subject to submission of utilization certificates and statement of expenditure

6	
Project No.	Met4-14/18/2021
Project Title	Determination of optimum safe distance of toe of dump from crest of open pit for stability of pit slope under different geo-mining conditions
Institution	CSIR Central Institute of Mining and Fuel Research **Industry Partner** Hindustan Zinc Limited, Tata Steel and SAIL
Principal Investigator	SANJAY KUMAR ROY E-mail:-sanjaykroy.cmri@gmail.com 9471192140
Project Cost & Duration	Rs. 52 Lakhs **2 years**

Remarks
ONGOING

1) Progress was satisfactory.
2) Work done was appreciated.
3) PI was advised to procure the equipment at the earliest and validate data with case studies
4) Recommended to release next installment / balance funds subject to submission of utilization certificates and statement of expenditure

7	
Project No.	Met4-14/3/2021
Project Title	Development of Ready-To-Use assorted sand for construction activities from Zinc Refining Wastes and Marbel Powder.(Phase 2
Institution	Manipal University Jaipur
Principal Investigator	Bhavna Tripathi bhavna.tripathi@jaipur.manipal.edu, 9460383678
Project Cost & Duration	Rs. 30 lakh

Remarks
ONGOING

1. Progress was satisfactory
2. Proposed objectives are being duly met.
3. PI should work on cost calculations
4. Recommended to release next instalment/balance funds subject to submission of utilization certificates and statement of expenditure.

8	
Project No.	Met4-14/26/2021
Project Title	Preparation of synthetic zircon from zircon minerals of beach sand, its characterization and value addition as thermal and electrical insulator
Institution	C.V. Raman Global University, Bhubaneswar (NGO - Society Raman Education)
Principal Investigator	SUNITA ROUTRAY E-mail:- sroutray1@cvrce.edu.in 7327847963
Project Cost & Duration	Rs. 10 Lakhs (seed money) Duration: 1 years

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress is satisfactory
2) Work is appreciated by the committee and scope of large-scale studies in collaboration with IREL is identified
3) Material balance showing in-flow and out-flow of material and recovery of zirconium should be incorporated in final findings.

9	
Project No.	Met4-14/19/2021
Project Title	Design, Synthesis and Fabrication of Donor-Acceptor Based Fluorescent Sensing Organic-Nanomaterials and Devices for Detection and Quantification of Rare Earth Elements in Minerals
Institution	University of Calcutta
Principal Investigator	DILIP KUMAR MAITI E-mail:- maitidk@yahoo.com 0798061767
Project Cost & Duration	Rs. 54.935 Lakhs 2 Yrs

REMARKS/SUGGESTION:

ONGOING

1) Demonstration of the sensing is to be done in 6 months
2) PI has to speed up the procurement of equipment.
3) The progress is behind schedule.

10	
Project No.	Met4-14/8/2021
Project Title	Extraction and isolation of Al, K, Li, Rb and Cs from Mica
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	BARSA DAS E-mail:- barsha.dash@gmail.com 9439018460
Project Cost & Duration	Rs. 9.975Lakhs 1 Year

REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) PI has complied to the suggestions
3) Need to increase the GPL to get quantity of material at least 100 kg
4) Recommended to release next installment / balance funds subject to submission of utilization certificates and statement of expenditure

11	
Project No.	Met4-14/7/2021
Project Title	Development of Process for Making High Pure Quartz or Silica and Metallic Silicon from Low Grade Naturally Occurring Quartz
Institution	CSIR Institute of Minerals and Materials Technology

Principal Investigator	ALOK TRIPATHY E-mail:- atripathy@immt.res.in 9437066723
Project Cost & Duration	Rs 15 lakh (seed money) 1yr

PERC REMARKS/SUGGESTION:

ONGOING

1) Purity of silica achieved is 99.9% and Silicon recovery achieved close to 95%.
2) Silicon could be prepared using the technology developed
3) The findings on silica and iron content based on floatation were presented.
4) PI was advised to close the project and submit his findings.

12	
Project No.	Met4-14/4/2021
Project Title	Employing metallurgical silicon to develop new class of silicon composites for structural applications
Institution	Indian Institute of Technology Bhubaneswar
Principal Investigator	SRIKANT GOLLAPUDI E-mail:- srikantg@iitbbs.ac.in 9566288703
Project Cost & Duration	Rs 37.997 Lakhs 2 years

REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) Recommended to release next installment / balance funds subject to submission of utilization certificates and statement of expenditure

13	
Project No.	Met4-14/16/2021
Project Title	Bioleaching of Lithium from minerals and low grade ores of Indian origin
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	NILOTPALA PRADHAN

	E-mail:- npradhan@immt.res.in 0943754083
Project Cost & Duration	Rs. 12.936 Lakhs (seed money) 1yr

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory till date
2) Proposed objectives are being duly met.
3) Work done was appreciated and the project is recommended for time extension up to March 2023.

14	
Project No.	Met4-14/15/2021
Project Title	Production of high pure manganese metal organic frameworks (Mn-MOFs) and their derivatives from low grade manganese ores for supercapacitor applications
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	BANKIM CHANDRA TRIPATHY E-mail:- bankim@immt.res.in 7978521730
Project Cost & Duration	Rs. 10 lakhs (seed money) 1ys

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) PI should undertake mass balance and characterization work
3) The final report should be submitted by PI with above suggestions to close the project.

15	
Project No.	Met4-14/27/2021
Project Title	Development of Alternative flux Material from Red Mud for Steel

	Dephosphorization
Institution	CSIR Central Electrochemical Research Institute
Principal Investigator	ANAND BABU G E-mail:- anandbabu@cecri.res.in 9486339240
Project Cost & Duration	Rs. 10 lakhs (seed money) 1yr

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) PI should undertake physical separation with hematite
3) PI should get characterization data from Aluminium Industry/JNARDDC on red mud.

16	
Project No.	Met4-14/5/2021
Project Title	Sustainable ion exchange resin-based technology for rare earth extraction
Institution	Indian Institute of Technology Madras
Principal Investigator	THALAPPIL PRADEEP E-mail:- pradeep@iitm.ac.in 9445560767
Project Cost & Duration	Rs. 52.51 lakhs 2 Yrs

REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) Work done was appreciated by members
3) Recommended to release next installment / balance funds subject to submission of utilization certificates and statement of expenditure

17	
Project No.	Met4-14/28/2021
Project Title	Bio-electrochemical reclamation of titanium and other rare earth metals

	from red mud waste using a modified microbial fuel cell approach
Institution	PSG Institute of Advanced Studies (NGO - PSG and Sons Charities)
Principal Investigator	R.SELVAKUMAR E-mail:- rsk@psgias.ac.in 9944920032
Project Cost &Duration	Rs. 9.99 lakhs (seed money) **1yr**

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) PI should come up with process flow sheet and mass balance along with percentage of yield with time and economics of the process.
3) Focus should be on recovery of titanium & other elements

18	
Project No.	Met4-14/29/2021
Project Title	Exploring the Practicability of Extracting Platinum and Palladium from the Mineral Beds of Sittampudi Village in Salem District of Tamil Nadu An Experimental and Molecular Dynamics Approach
Institution	National Institute of Technology Trichy
Principal Investigator	KARTHIK.V E-mail:- kartik@cimfr.nic.in 9589442278
Project Cost & Duration	Rs. 15 lakhs (seed money) 1 Year

REMARKS/SUGGESTION:

ONGOING

1) PI yet to start hydro metallurgical operations
2) Progress is behind schedule

19	
Project No.	Met4-14/20/2021
Project Title	Development of perovskite based materials using inexpensive RE mixed oxides precursors derived from Indian beach sands for room temperature magnetic refrigeration applications

Institution	CSIR- Indian Institute of Chemical Technology
Principal Investigator	Vasundhara Mutta E-mail:-mvas@iict.res.in 9496445333
Project Cost & Duration	Rs. 51 lakh (MoM-31 lakh, CSIR- 20 lakh) 1 year

REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) Based on request of PI, the project is recommended for time extension upto March 2023
3) Recommended to release next installment / balance funds subject to submission of utilization certificates and statement of expenditure

20	
Project S No.	Met4-14/30/2021
Project Title	Recovery of galena, sphalerite from lead zinc tailings by integrated energy efficient ultrafine comminution and novel shear floc-flotation and its impact on downstream Paste fill
Institution	Indian Institute of Technology Hyderabad and CSIR Institute of Minerals and Materials Technology **Industry Partner** Hindustan Zinc Limited
Principal Investigator	NARSIMA MANGADODDY E-mail:- narasimha@che.iith.ac.in 9505754134
Project Cost & Duration	Rs. 25 lakhs (Rs. 10 Lakh (seed money)(MoM) + Rs. 15 lakhs (HZL)) **1 year**

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory but recoveries are less as of now which needs to improve.
2) Proposed objectives were duly met.
3) PI was advised to prepare process flow sheet and mass balance chart and focus on unit operations involved.

21	
Project No.	Met4-14/31/2021

Project Title	Innovative approach to recover chromite value from low-grade chromite ore, fines and slimes by dry and wet beneficiation technique
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	PRASANTA KUMAR BASKEY E-mail:- pkbaskey@immt.res.in 9470393508
Project Cost & Duration	Rs. 10 Lakh (seed money) 1yr
PERC REMARKS/SUGGESTION: **ONGOING** **PI was absent due to COVID.**	

22	
Project No.	Met4-14/32/2021
Project Title	Process development for the recovery of tungsten values from lean grade Indian resources
Institution	CSIR Institute of Minerals and Materials Technology
Principal Investigator	SHIV KUMAR ANGADI E-mail:- shivakumar@immt.res.in 8763866142
Project Cost & Duration	Rs. 10 Lakh (seed money) 1yr
PERC REMARKS/SUGGESTION: **ONGOING** 1) Progress was satisfactory. 2) Work done was in line with the proposal. 3) The project is recommended for time extension up to march 2023 as per request of PI 4) PI should come up with flow chart of the process	

23	

Project No.	F No. 14/3/2017-Metal IV
Project Title	Development of a novel underground mining method for exploitation of Chromite deposits from friable ore body and host rocks of Sukinda Valley, Odisha,
Institution	Department of Mining Engineering, IIT, Kharagpur
Principal Investigator	akverma@mining.iitkgp.ac.in : 09547859609
Project Cost & Duration	Duration: 3 years, Rs. 68.46 lakh

Remarks

ONGOING

1) Project is delayed.
2) PI was suggested to develop the mining method which is the main activity of project
3) The project is recommended for time extension upto March 2023 as requested by the PI

24	
Project No.	14/8/2018-Met4
Project Title	Use of Overburden Clay as alternate for aggregate
Institution	Indian Institute of Technology Madras Chennai-600 036, India &Neyveli Lignite Corporation Ltd. (NLC Ltd)
Principal Investigator	Dr. K. Ramamurthy, E-mail:-vivek@iitm.ac.in: 09445391265
Project Cost & Duration	Rs. 173 Lakhs (MoM's contribution-Rs. 70 lakhs &NLC's contribution - Rs.103 lakh) 3 years

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) Work done was satisfactory and in line with the objectives.
3) The project is recommended for time extension up to Dec 2022 as per PI request
4) Recommended to release next instalment / balance funds subject to submission of utilization certificates and statement of expenditure

25	

Project No.	14/18/2018-Met4
Project Title	Investigation of the dynamics & mechanism of flocculation by polymers and biopolymers for separation of solid particles of high rate thickeners in mineral processing industries.
Institution	CSIR-National Institute for Interdisciplinary Science and Technology (NIIST) Industrial Estate P.O, Thiruvananthapuram - 695 019
Principal Investigator	Dr. Lakshmi Rakesh Kumar Yasarla E-mail:yasarla.rakesh@gmail.com : 09032450550
Project Cost & Duration	Rs. 42.61 lakhs 2 years

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) Work done was appreciated.
3) the project is recommended for time extension up to Dec 2022 as per PI request
4) Recommended to release next instalment / balance funds subject to submission of utilization certificates and statement of expenditure

26	
Project No.	14/23/2018-Met4
Project Title	Bench scale study on extraction of pure Silica and smelter grade Aluminium Fluride from Coal Fly Ash (CFA)
Institution	JNARDDC, Nagpur
Principal Investigator	Shri Manoj T. Nimje E-mail:mantukni@gmail.com
Project Cost & Duration	Rs.63.026 lakh 18 Month
Objectives of the project	Based on in-house laboratory scale (10 g CFA) studies, it is confirmed that extraction of pure silica and aluminium fluoride from coal fly ash is technically possible. Major objective of the project is to study process on bench scale (0.5-1 kg CFA) and to understand various parameters of process, such as Pressure, Temperature

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) Work done was appreciated.
3) The project is recommended for time extension up to Dec 2022 as per PI request

for submission of final report
4) Recommended to release next instalment / balance funds subject to submission of utilization certificates and statement of expenditure

27	
Project No.	14/27/2018-Met4
Project Title	Integrated Geological, Geochemical and Geophysical studies for the delineation of Chromitite extensions in Nuggihalli Schist Belt and implications for Ni-Cu+-PGE mineralization.
Institution	CSIR-NATIONAL GEOPHYSICAL RESEARCH INSTITUTE and Indian Institute of Science, Bangalore
Principal Investigator	Dr P.V. Sunder Raju; Principal Scientist Email: perumala.raju@gmail.com; : 09490748152 Dr Sajeev Krishnan Associate Professor Centre for Earth Sciences (CEaS), Indian Institute of Science, Bangalore 560 012, India E-mail: sajeev@iisc.ac.inkrishnansajeev@gmail.com09448427463/8281309847
Project Cost &Duration	Rs. 60.00 lakh (NGRI- Rs.30 lakh, IISc-Rs. 30 lakh, 2 years

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) A summary table of all elements present with weight percentage range along with minerals associated to be provided for better understanding.
3) The project is recommended for time extension up to Oct 2022 for submission of final project report.
4) Recommended to release next instalment / balance funds subject to submission of utilization certificates and statement of expenditure

28	
Project No.	14/28/2018-Met4
Project Title	Development of graphene based membranes from graphite ore for desalination.
Institution	CSIR -National Institute for Interdisciplinary Science and Technology
Principal Investigator	Dr SreejaKumari S.S. E-mail:-sreejakumari@niist.res.in**:** 09442217259
Project Cost & Duration	Rs 60 Lakhs 2 Yrs,

REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) Recommended to release next installment / balance funds subject to submission of utilization certificates and statement of expenditure

29	
Project No.	14/30/2018-Met4
Project Title	Treatment of Acid Mine Drainage for Heavy Metal Removal,
Institution	Indian Institute of Technology Mandi, Kamand Campus, VPO Kamand,
Principal Investigator	Dr.SumitSinha Ray \ E-mail:-sumitsinha@iitmandi.ac.in : 09748159620
Project Cost & Duration	Rs. 19.8397 Lakh 1 years

PERC REMARKS/SUGGESTION:

ONGOING

1) PI and Co-PI both have left the institute.
2) No person was authorized to present the status of the project.
3) Ministry is requested to take up the matter with Director, IIT Mandi to get the final report

30	
Project No.	14/31/2018-Met4
Project Title	Recovery of scandium metal from acid leach liquor from titanium mineral industries.
Institution	CSIR-National Institute for Interdisciplinary Science and Technology (NIIST) Industrial Estate P.O, Thiruvananthapuram -695
Principal Investigator	Dr. M. Sundararajan E-mail:rajanmsundar77@yahoo.com : 08129075511
Project Cost & Duration	Rs. 32.92 lakh 2 years

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory and well presented.
2) The project is recommended for time extension up to March 2023

3) Recommended to release next instalment / balance funds subject to submission of utilization certificates and statement of expenditure

31	
Project No.	14/6/2019-Metal-IV
Project Title	Processing of spent and natural graphite for energy and aerospace application.
Institution	CSIR-Institute of Minerals & Materials Technology (Formerly Regional Research Laboratory), Bhubaneswar PIN: 751013
Principal Investigator	Mamata Mohapatra (Sr. Scientist) CSIR-IMMT, Mail- mamata@immt.res.in: 09437260688
Project Cost & Duration	Rs. 23.10 Lakh Duration:2 Years

PERC REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) Work done was as per the objectives.
3) The project is recommended for time extension up to April 2023
4) PI should present the performance of battery and after validation give a comparison with other similar device with regard to cost and performance.
5) Recommended to release next instalment / balance funds subject to submission of utilization certificates and statement of expenditure

32	
Project No.	14/7/2019-Metal-IV
Project Title	Production and certification of certified reference materials (CRMs) for the analysis of aluminium alloy.
Institution	Jawaharlal Nehru Aluminium Research Development and Design Centre
Principal Investigator	R. N. Chouhan, Principal Scientist Emailid: rnchouhan@jnarddc.gov.in**:** 09422124941
Project Cost & Duration	Rs 76.40 Lakhs 2 Yrs,

REMARKS/SUGGESTION:

ONGOING

1) Progress was satisfactory.
2) PI presented the status of CRMs developed by the Lab

3) Recommended to release next installment / balance funds subject to submission of utilization certificates and statement of expenditure

33	
Project No.	14/12/2019-Metal-IV
Project Title	Development of Novel Nano porous hollow Fiber membrane basedunit for the effective treatment of Mine wastewater
Institution	National Institute of Technology Karnataka, Surathkal
Principal Investigator	Prof. ArunM.Isloor Membrane Technology Laboratory, Prof & Head of Department, Department of Chemistry, NationalInstituteofTechnology Karnataka, Surathkal, Mangalore E-mail:isloor@yahoo.com**:** 09448523990
Project Cost & Duration	Rs 5 lakh(seed money), 18 months
REMARKS/SUGGESTION: **ONGOING** 1) Progress of work carried out with seed money is satisfactory 2) After submission of the final report of this initial work, the PI should rework the original proposal 3) PI should concentrate on filtration and absorption and interact with NFDTC for reclaiming process waste water	

34	
Project No.	14/13/2019-Metal-IV
Project Title	Direct production of Fe-Cr- Ni-Mn stainless alloy from mine waste by thermal plasma process
Institution	CSIR-InstituteofMinerals&Materials TechnologyBhubaneswar
Principal Investigator	Dr.A.K.Chaubey Principal Scientist E-mail: akchaubey@immt.res.in 094380890232 anil.immt@gmail.com
Project Cost & Duration	Rs 38.31 Lakhs 2 Yrs,
REMARKS/SUGGESTION: **ONGOING** 1) Progress is behind the schedule 2) PI needs to accelerate the work to complete before Dec 2022	

35	
Project S No.	14/11/2019-Metal-IV
Project Title	Mineral chemistry, isotope geochemistry, geochronology, and metallogeny of rare and rare-earth metals present in the alkaline-carbonatite complexes associated to the Narmada-Son rift zone, western India
Institution	Banaras Hindu University, Varanasi
Principal Investigator	Dr.Amiya Kumar Samal; Department of Geology, Institute of Science E-mail: amiyasamal007@gmail.com: 9580270209
Project Cost & Duration	Rs. 14.99 Lakh Duration: 9 months (1st Phase)

PERC REMARKS/SUGGESTION:

ONGOING

1) PI should undertake characterization, quantitative analysis & chemical analysis and present the data in table form.
2) Associated minerals may also be summarized for different elements in the final report.
3) The project is recommended for time extension up to March 2023

8) The members suggested to hold a brainstorming session of PERC with a view to review the existing guidelines, thrust areas for making the S&T (Mines) scheme more effective.

9) PERC suggested that the Ministry should pay suitable honorarium to non-official members for the meeting.

The PERC meeting concluded with thanks to the chair, members and the experts.

ANNEXURE-A

LIST OF PARTICIPANTS OF 22nd PERC MEETING HELD THROUGH VC

DURING 03-05 August 2022

Sr no	Name	Portfolio
1.	Shri U C Joshi Joint Secretary (Mines), Delhi	Chairman
2.	Dr. Pradeep Singh Director Technical (Mines), Delhi	Member
3.	Shri A. R. Sengupta Dy Secretary, IFD (Mines), Delhi	Member
4.	Shri Dheeraj Kumar Dy Secretary (Mines), Delhi	Member
5.	Prof. T.C. Rao Ex. Director, RRL Bhopal	Member
6.	Prof S.P. Mehrotra IIT, Gandhinagar	Member
7.	Shri B.K. Satpathy Ex E.D, NALCO, Bhubaneshwar	Member
8.	Dr. K. Balasubramanian Director, NFTDC Hyderabad	Member
9.	Dr. A. Agnihotri Director, JNARDDC	Member
10.	Prof. Suddhasawa Basu, Director, CSIR-IMMT	Member
11.	Dr. H.S. Venkatesh Director, NIRM, Bangalore	Member
12.	Shri Subrata Kar GM (R&D), NALCO, Bhubaneswar	Representative Member
13.	Prof. A K Mishra Head, Department of Mining Engineering, IIT (ISM), Dhanbad	Representative Member
14.	Dr P K Mandal, Chief Scientist & Head, Mining Methods & Geomechanics Group, CIMFR, Dhanbad	Representative Member
15.	Shri Sanjay Panjiyar Director (Operations) HCL, Kolkata	Member
16.	Shri Pradeep Kulkarni, Dy General Manager (Exploration), MECL, Nagpur	Representative Member
17.	Dr P C Jha Head (Engineering Geophysics) NIRM Bangalore	Representative Member
18.	Shri Sarang Dhatrak Scientist-D, NIOH, Ahmedabad	Representative Member

Leave of absence granted to other members.

FILE NO. CRG/2018/001006

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 20-Mar-2019

ORDER

Subject: Financial Sanction of the research project titled **"Hybrid casting approach for manufacturing magnesium nanocomposites"** under the guidance of Dr. Lakshmanan Poovazhagan, Mechanical Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Dr. K Rajkumar, Associate Professor, Mechanical Engineering, SSN College Of Engineering - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 2494166/-** (Rs. Twenty Four Lakh Ninety Four Thousand One Hundred and Sixty Six **Only)** with break-up of **Rs.** ***633424/-*** **under Capital (Non-recurring) head** and **Rs.*1860742/-* under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 2494166/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> INDFURR MAGNESIUM MELTING FURNACE -> Ultrasonic Liquid Processor	633424
A'	*Total (Non-Recurring)*	***633424***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1164000 400000 70000
2	Recurring - IV : (Overhead Charges)	226742
B'	*Total (Recurring)*	***1860742***
C	**Total cost of the project (A' + B')**	**2494166**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 633424/-** (Rupees Six Lakh Thirty Three Thousand Four Hundred and Twenty Four only) under 'Grants for creation of capital assets' and **Rs. 666913/-** (Rupees Six Lakh Sixty Six Thousand Nine Hundred and Thirteen only) under 'Grants-in-aid General' to **Principal, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of the grant for the year 2018-2019 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**

This release is being made under Core Research Grant. (PAC Civil and Mechanical Engineering)

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **20 March, 2019** and vide Diary No. **SERB/F/12573/2018-2019** dated **20 March, 2019**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

9. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

10. The release amount of **Rs. 1300337/-** (Rupees Thirteen Lakh Three Hundred and Thirty Seven only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**The Principal, SSN College of Engineering**
Account Number	**158100050070022**
Bank Name & Branch	**Tamilnad Mercantile Bank LTD No: 3, Thiruvalluvar salai, Thiruvanmiyur, Chennai-600041**
IFSC/RTGS Code	**TMBL0000158**
Email id of A/C Holder	**trust.fm@ssn.edu.in**
Email id of PI	**poo7876@gmail.com**

20.03.19

11.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

12. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

13. The project File no. CRG/2018/001006 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

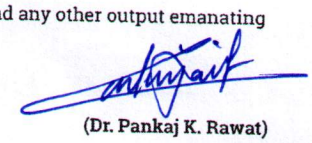
14. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

15. As this is the first grant being released for the project, no previous U/C is required.

16. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

17. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

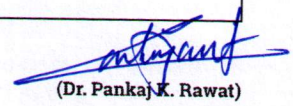
18. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board.



(Dr. Pankaj K. Rawat)
Scientist C
ms_cmer@serbonline.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Lakshmanan Poovazhagan** **Mechanical Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: poo7876@gmail.com** **Mobile: 919962521304** **Dr. K Rajkumar** **Mechanical Engineering** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)



(Dr. Pankaj K. Rawat)
Scientist C
ms_cmer@serbonline.in

FILE NO. CRG/2018/000382

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 18-Mar-2019

ORDER

Subject: Financial Sanction of the research project titled **"Development of Bismuth-based complex perovskites piezoelectric single crystals for strategic applications"** under the guidance of Dr. Anandhababu Govindan, Physics, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 2878700/- (Rs.** Twenty Eight Lakh Seventy Eight Thousand Seven Hundred **Only)** with break-up of **Rs.** ***1272000/-*** **under Capital (Non-recurring) head** and **Rs.*1606700/-* under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 2878700/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> UPS -> Top seeded solution growth System -> MoSi2 heating Module	1272000
A'	*Total (Non-Recurring)*	***1272000***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	585000 700000 60000
2	Recurring - IV : (Overhead Charges)	261700
B'	*Total (Recurring)*	***1606700***
C	**Total cost of the project (A' + B')**	**2878700**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 1272000/-** (Rupees Twelve Lakh Seventy Two Thousand only) under 'Grants for creation of capital assets' and **Rs. 575500/-** (Rupees Five Lakh Seventy Five Thousand Five Hundred only) under 'Grants-in-aid General' to **Principal, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of the grant for the year 2018-2019 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER) This release is being made under Core Research Grant. (PAC Condensed Matter Physics and Material Sciences)**

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **14 March, 2019** and vide Diary No. **SERB/F/12325/2018-2019** dated **14 March, 2019**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

9. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

10. The release amount of **Rs. 1847500/-** (Rupees Eighteen Lakh Forty Seven Thousand Five Hundred only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**The Principal, SSN College of Engineering**
Account Number	**158100050070022**
Bank Name & Branch	**Tamilnad Mercantile Bank Limited 3, Thiruvalluvar Nagar,Thiruvanmiyur, Chennai, Tamil Nadu600041**
IFSC/RTGS Code	**TMBL0000158**
Email id of A/C Holder	**info@ssn.edu.in**
Email id of PI	**anandcgc@gmail.com**

11.The institute will furnish to the SERB, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

12. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

13. The project File no. CRG/2018/000382 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

14. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

15. As this is the first grant being released for the project, no previous U/C is required.

16. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

17. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

18. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board.

Nilotpal Ghosh

(Dr. Nilotpal Ghosh)
MS
nilotpal@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy

4.	**Dr. Anandhababu Govindan** **Physics** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: anandcgc@gmail.com** **Mobile: 919791137823** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Nilotpal Ghosh)
MS
nilotpal@serb.gov.in

FILE NO. EEQ/2018/000745

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(a statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 26-Feb-2019

ORDER

Subject: Financial Sanction of the research project titled "**Device quality and bulk size high performance thermoelectric silver bismuth sulfide ($AgBiS_2$) and silver bismuth selenide ($AgBiSe_2$) single crystals for thermoelectric (TE) applications**" under the guidance of Dr. SenthilPandian M, SSN Research Centre and Department of Physics, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 4059000/-** (Rs. Forty Lakh Fifty Nine Thousand **Only)** with break-up of **Rs. *1500000*/- under Capital (Non-recurring) head** and **Rs.*2559000*/- under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 4059000/-** has been approved are given below:

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Crystal Cutting Machine -> Crystal Growth Setup	1500000
A'	*Total (Non-Recurring)*	***1500000***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies) Recurring - III : Scientific Social Responsibility	1164000 1000000 35000
2	Recurring - IV : (Overhead Charges)	360000
B'	*Total (Recurring)*	***2559000***
C	**Total cost of the project (A' + B')**	**4059000**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 1500000/-** (Rupees Fifteen Lakh only) under 'Grants for creation of capital assets' and **Rs. 875000/-** (Rupees Eight Lakh Seventy Five Thousand only) under 'Grants-in-aid General' to **The Principal, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of the grant for the year 2018-2019 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Empowerment and Equity Opportunities for Excellence in Science. (Task force Committee) (SC)

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **25 February, 2019** and vide Diary No. **SERB/F/11556/2018-2019** dated **25 February, 2019**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. Budget sanctioned under SSR is meant only for activites enlisted under SSR norms and under no circumstances it can be reappropriated.

9. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

10. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

11. The release amount of **Rs. 2375000/-** (Rupees Twenty Three Lakh Seventy Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	THE PRINCIPAL, SSN COLLEGE OF ENGINEERING
Account Number	158100050070022
Bank Name & Branch	TAMILNAD MERCANTILE BANK LTD Thiruvanmiyur Brach, No.3, Thiruvalluvar Salai, Thiruvanmiyur, Chennai-600041, Tamilnadu
IFSC/RTGS Code	TMBL0000158
Email id of A/C Holder	info@ssn.edu.in
Email id of PI	msenthil.cgc@gmail.com

12.The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

13. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

14. The project File no. EEQ/2018/000745 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

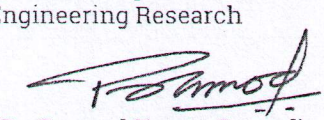
15. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

16. As this is the first grant being released for the project, no previous U/C is required.

17. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

18. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

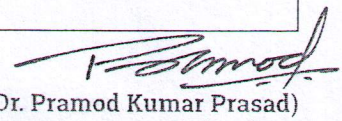
19. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.



(Dr. Pramod Kumar Prasad)
Scientist C
pk.prasad@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. SenthilPandian M** **SSN Research Centre and Department of Physics** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: msenthil.cgc@gmail.com** **Mobile: 919944294169** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**The Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)



(Dr. Pramod Kumar Prasad)
Scientist C
pk.prasad@serb.gov.in

Jayashri Ravishankar

From: GMO Operations
Sent: Wednesday, 20 June 2018 4:09 PM
To: Jayashri Ravishankar
Cc: Julie Ward; Eliathamby Ambikairajah
Subject: UNSW-India Seed Grant Outcome Notification
Attachments: RG181558_AOG_Acceptance of Grant form.pdf

20-Jun-18
Our Ref: RG181558

Dr Ravishankar, Jayashri
Faculty of Engineering

Dear Dr Ravishankar,

Re: UNSW-India Collaborative Research Seed Fund
A Robustly Optimal Energy Management System for High PV-Penetrated Smart Cities with A Case Study: Implementation of PVs for Smart Street Light Poles

I am very pleased to advise that you have been awarded a UNSW-India Collaborative Research seed grant.

Your grant has been awarded $10,000.

The Conditions of Award of the grant are below. If you wish to accept the grant, please sign the attached acceptance form, including the signature of the Head of School/Centre/Institute and return it to UNSW Research Grants and Contracts (mygrants.gmo@unsw.edu.au) as soon as possible.

Please direct any enquiries to the Grants Officer responsible for your Faculty, or email mygrants.gmo@unsw.edu.au for assistance.

Congratulations on your success.

Yours sincerely

Debbie Docherty
Director
UNSW Research Grants and Contracts

Conditions for Award of Grant

1. Eligible items for funding: international travel costs for researchers and/or research students associated with the project for the purposes of exchange *(note: domestic travel costs may be eligible but must relate **directly** to the seed grant project);* living and hosting costs of visiting researchers from UNSW and the partner research institution; workshop or meeting costs; Minor research costs associated with the project (**not to exceed 25% of**

the grant) *(Note: Research Assistant personnel salary costs are eligible to be included within the 25% minor research costs, however salaries for CIs or other salaried academics are not eligible items for funding.)*

2. Salaries (for professional or academic staff) and scholarship/top-ups are not eligible funding items.
3. The seed grants are provided for a period of 12 months. A final report is to be submitted at the close-out of the grant providing information regarding outcomes to date.
4. All funds must be expended by **01 July 2019**.

FILE NO. EEQ/2017/000457

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(a statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 16-Mar-2018

ORDER

Subject: Financial Sanction of the research project titled **"Design & Development of Axial Flux Switched Reluctance Motor based battery operated vehicle"** under the guidance of Dr. Saravanan Palani, EEE, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 3626000/- (Rs.** Thirty Six Lakh Twenty Six Thousand **Only)** with break-up of **Rs. *2000000/-* under Capital (Non-recurring) head** and **Rs.*1626000/-* under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 3626000/-** has been approved are given below:
The following budget may be considered for **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Battery -> Vehicle set-up -> Desk top computer -> Processor and its accessories -> Axial Flux Switched Reluctance Motor -> Power Converter	2000000
A'	*Total (Non-Recurring)*	***2000000***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies)	936000 360000
2	Recurring - III : (Overhead Charges)	330000
B'	*Total (Recurring)*	***1626000***
C	**Total cost of the project (A' + B')**	**3626000**

2. Sanction of the **SERB** is also accorded to the payment of

- **Rs. 2000000/-** (Rupees Twenty Lakh only) under 'Grants for creation of capital assets' and **Rs. 545000/-** (Rupees Five Lakh Forty Five Thousand only) under 'Grants-in-aid General' to **Principal, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

being the first installment of the grant for the year 2017-2018 for implementation of the said research project.
3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Empowerment and Equity Opportunities for Excellence in Science. (Task force Committee) (SC)

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **15 March, 2018** and vide Diary No. **SERB/F/10692/2017-2018** dated **16 March, 2018**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

9. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

10. The release amount of **Rs. 2545000/-** (Rupees Twenty Five Lakh Forty Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**SSN College of Engineering**
Account Number	**158100050070022**
Bank Name & Branch	**Tamilnad Mercantile Bank N0.3, Thirulalluvar salai,Thiruvanmiyur Chennai- 600041**
IFSC/RTGS Code	**TMBL0000158**
Email id of A/C Holder	**salivahanans@ssn.edu.in**
Email id of PI	**saravananp@ssn.edu.in**

11.The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

12. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

13. The project File no. EEQ/2017/000457 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

14. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

15. As this is the first grant being released for the project, no previous U/C is required.

16. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

17. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

18. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.

(Dr. Pramod Kumar Prasad)
Scientist C
pk.prasad@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Saravanan Palani** **EEE** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: saravananp@ssn.edu.in** **Mobile: 919962034516** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Pramod Kumar Prasad)
Scientist C
pk.prasad@serb.gov.in

FILE NO. EMR/2017/001521

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(a statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 16-Jul-2018

ORDER

Subject: Financial Sanction of the research project titled **"THEORETICAL AND EXPERIMENTAL ANALYSIS ON THE DESIGN OF COMPOUND RECONFIGURABLE REFLECTARRAY ANTENNA WITH AN INTEGRATED ELECTRONIC CONTROL SYSTEM"** under the guidance of Dr. Gulam Nabi Alsath, Electronics and Communication Engineering, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 and by Ms. Kirubaveni Savarimuthu, Associate Professor, Electronics And Communication Engineering, SSN College Of Engineering and by Dr. Ramprabhu Sivasamy, ASSOCIATE PROFESSOR, ELECTRONICS AND COMMUNICATION ENGINEERING, SSN College Of Engineering - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 3673602/- (Rs.** Thirty Six Lakh Seventy Three Thousand Six Hundred and Two **Only)** with break-up of **Rs. *1515102/-* under Capital (Non-recurring) head** and **Rs.*2158500/-* under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 3673602/-** has been approved are given below:

The following budget may be considered for **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Dell Precision Tower Workstation -> RF Shielded Anechoic Chamber	1515102
A'	*Total (Non-Recurring)*	***1515102***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies, Other Cost)	1029600 795000
2	Recurring - III : (Overhead Charges)	333900
B'	*Total (Recurring)*	***2158500***
C	**Total cost of the project (A' + B')**	**3673602**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 1515102/-** (Rupees Fifteen Lakh Fifteen Thousand One Hundred and Two only) under 'Grants for creation of capital assets' and **Rs. 695000/-** (Rupees Six Lakh Ninety Five Thousand only) under 'Grants-in-aid General' to **Principal, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of the grant for the year 2018-2019 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Core Research Grant. (PAC Electrical Electronics & Computer Engineering)

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on **09 July, 2018** and vide Diary No. **SERB/F/4227/2018-2019** dated **14 July, 2018**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

9. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

10. The release amount of **Rs. 2210102/-** (Rupees Twenty Two Lakh Ten Thousand One Hundred and Two only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**The Principal, SSN College of Engineering**
Account Number	**158100050070022**
Bank Name & Branch	**Tamilnad Mercantile Bank Thiruvanmiyur BrachNo. 3, Thiruvalluvar Salai, Thiruvanmiyur, Chennai 600041**

IFSC/RTGS Code	**TMBL0000158**
Email id of A/C Holder	**salivahanans@ssn.edu.in**
Email id of PI	**alsath@live.com**

11.The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

12. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

13. The project File no. EMR/2017/001521 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

14. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

15. As this is the first grant being released for the project, no previous U/C is required.

16. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

17. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

18. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.

(Dr. Rajwant SERB)
Scientist E
rajwant@serb.gov.in

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Gulam Nabi Alsath** **Electronics and Communication Engineering** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: alsath@live.com** **Mobile: 919551145246** **Ms. Kirubaveni Savarimuthu** **Electronics And Communication Engineering** **SSN College Of Engineering** **Dr. Ramprabhu Sivasamy** **ELECTRONICS AND COMMUNICATION ENGINEERING** **SSN College Of Engineering** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Rajwant SERB)
Scientist E
rajwant@serb.gov.in

Biotechnology Industry Research Assistance Council

(A Government of India Enterprise)

Ref: BT/IDIA0158/04/17 **Dated: 22nd November 2018**

Sanction Order

Subject: Sanction of support for project entitled "Nagarik Rog Pratirakshak: Unified Smart Immunization Coverage Monitoring And Analysis Unisicma " to be implemented by Indian Institute of Information Technology, Una (IIIT Una) New Delhi under Grand Challenges India (GCI) – "Immunization Data: Innovating for Action (IDIA)"

Sanction of the Competent Authority of BIRAC is hereby accorded for the implementation of project entitled "Nagarik Rog Pratirakshak: Unified Smart Immunization Coverage Monitoring And Analysis Unisicma" at the estimated cost of **Rs. 106.00 Lakhs (Rupees One Crore Six Lakhs Only inclusive of all applicable taxes)** under Grand Challenges India.

Cost Recipient:
The following are the Cost Recipient:
Indian Institute of Information Technology, Una (IIIT Una)
NIT Campus,
Hamirpur-177005

Collaborator:
Dr. R. Kanchana
Associate Professor
Dept. of CSE
SSN College of Engineering
Rajiv Gandhi Road,
Kalavakkam, Chennai - 603 110

Designated Principal Investigator from the Organization: Dr. S.Selvakumar, Director, Indian Institute of Information Technology, Una

Collaborator: Dr, R. Kanchana, Associate Professor, Dept. of CSE, SSN College of Engineering

1. Aims and Objectives:-

The following aims and the objectives that are to be executed by the aforesaid entity for the Project are as per the detailed Project document, submitted by them including revisions / modifications incorporated therein:

1. *Data warehouse construction from data sources*
2. *Development of mobile app for tracking migrant immunization data and integration of data streams into validated data warehouse*
3. *Module testing and development of analytics platform*

2. Duration of the Project: **18 Months**

3. Project Implementation Site: **Indian Institute of Information Technology, Una (IIIT Una)**

4. Total Cost sanctioned for the project: **Rs. 106.00 Lakhs (Rupees One Crore Six Lakhs Only) inclusive of applicable taxes**

5. Periodic Payment Arrangements of the Project Cost Based On Milestone
Organization: Indian Institute of Information Technology, Una (IIIT Una)

Milestone Name	Month of End of Activity	Activities and deliverables		Outcomes	Amount (INR in Lakhs)
		IIIT, Una	SSNCE, Chennai		
Signing of Agreement (35.0% Release of funds)	0	Execution of contract by all the parties and fulfillment of pre-release conditions		Release of funds	37.10
Technical Milestone 1 (15.0% Release of funds) *Data warehouse construction from data sources*	6	→ Setting up IIIT-Una-UniSIMCA net → Setting up private cloud → Database schema collection, preprocessing and standardization of columns for first data source → Warehouse construction from first data source	→ Setting up SSN-UniSIMCA net → Setting up private cloud → Database schema collection, preprocessing and standardization of columns for second data source → Warehouse construction from second data source	1. Warehouse construction completed and ready for validation 2. Signed MOU with relevant stakeholder	15.9
		Database schema collection, preprocessing and standardization of columns Final warehouse constructed Signing MoUs with the relevant stakeholders (NIC/ UNDP/ Logistimo / State Govt etc.) for			

		necessary data and code sharing Submission of Utilization certificate (UC) and statement of Invoice (SOI) and technical report on the specific milestone		
Technical Milestone 2 (20.0% Release of funds) *Development of mobile app for tracking migrant immunization data and integration of data streams into validated data warehouse*	12	→ Validation of data warehouse → Development of App with natural language interfaces → Tracking immunization data of migrant population	→ Validation of data warehouse → Integration of private sector data into the warehouse → Warehouse integrated with new streams of data → Online querying of data warehouse	1. Warehouse validation complete 2. Warehouse integrated with new streams of data 3. App developed with natural language interfaces 21.2
		→ Validation of data warehouse → Integration of new streams of data from private sector and migrants into the warehouse → Development of app for tracking immunization data of migrant population → Submission of Utilization certificate (UC) and statement of Invoice (SOI) and technical report on the specific milestone		
Technical milestone 3 (20.0% Release of funds) *Module testing and development of analytics platform*	18	1. Testing module of app and web server → Dynamic visualization of data in different contexts and format	2. Statistical report generation 3. Data analytics 4. Deploying web services for analytics	1. Statistical report 2. Analytics and Visualizations 3. Validated app and warehouse developed 21.2

		→ Testing module of app and web server → Statistical reports and analytics service deployed as a web server → Dynamic visualization of data in different contexts and format → Submission of Utilization certificate (UC) and statement of Invoice (SOI) and technical report on the specific milestone		
Reporting (10.0% Release of funds)	18	Submission of technical project completion report and other related manuscripts and consolidated utilization certificate	Submission of Report	10.6
		Total		106.00

6. Breakup of sanctioned cost:

Sl.No.	Details	Overall Budget Split Up		
		IIITU (Cost recipient)	**SSNCE (Collaborating Institute)**	**Total**
1	Equipment	8,75,000.00	8,10,000.00	16,85,000.00
2	Accessories	2,50,000.00	2,65,000.00	5,15,000.00
	Non-Recurring Total (A)	**11,25,000.00**	**10,75,000.00**	**22,00,000.00**
3	Manpower	28,74,000.00	24,26,000.00	53,00,000.00
4	Contingency Consumables	6,00,000.00	5,00,000.00	11,00,000.00
5	Travel	4,00,000.00	4,00,000.00	8,00,000.00
6	Research Contingency Overhead	6,00,000.00	6,00,000.00	12,00,000.00
	Recurring Total (B)	44,74,000.00	39,26,000.00	84,00,000.00
	Total A+B)	**55,99,000.00**	**50,01,000.00**	**1,06,00,000.00***

***The entire sanctioned cost of the project will be disbursed to the Cost-recipient – IIIT, Una. The cost associated with the collaborator, SSNCE will be disbursed by IIIT, Una.**

Stage and Head wise Budget Split Up among Institutions

Stage	Details	IIITU (Cost recipient)	SSNCE (Collaborator)	Total
1	Equipment/Accessories	7,75,000.00	7,10,000.00	14,85,000.00
	Manpower	9,43,200.00	8,03,400.00	17,46,600.00
35%	Contingency	1,89,200.00	1,50,000.00	3,39,200.00
	Travel	89,200.00	50,000.00	1,39,200.00
	Total	**19,96,600.00**	**17,13,400.00**	**37,10,000.00**
2	Equipment/Accessories	1,00,000.00	1,15,000.00	2,15,000.00
	Manpower	6,59,000.00	6,57,600.00	13,16,600.00
15%	Travel	31,000.00	27,400.00	58,400.00
	Total	**7,90,000.00**	**8,00,000.00**	**15,90,000.00**
3	Equipment/Accessories	1,00,000.00	1,00,000.00	2,00,000.00
	Manpower	9,43,200.00	8,03,400.00	17,46,600.00
20%	Contingency	50,000.00	50,000.00	1,00,000.00
	Travel	37,400.00	36,000.00	73,400.00
	Total	**11,30,600.00**	**9,89,400.00**	**21,20,000.00**
4	Equipment (UPS)	1,50,000.00	1,50,000.00	3,00,000.00
	Manpower	3,28,600.00	1,61,600.00	4,90,200.00
20%	Contingency	3,60,800.00	3,00,000.00	6,60,800.00
	Travel	2,42,400.00	2,86,600.00	5,29,000.00
	Institution Overhead	1,40,000.00	0.00	1,40,000.00
	Total	**12,21,800.00**	**8,98,200.00**	**21,20,000.00**
5 **10%**	Institution Overhead	**4,60,000.00**	**6,00,000.00**	**10,60,000.00**
	Total	**55,99,000.00**	**50,01,000.00**	**1,06,00,000.00**

7. First installment will be released on signing of the Contract by all the parties. Release of further installments to the Cost Recipients will be subject to the review of the progress in the project AND acceptance of invoices raised separately by the Project Cost Recipients. Separate release order(s) will be issued in this regard.

8. The Cost Recipients (For Profit Entity) in India will maintain separate no-lien account for the project. The Cost Recipients (Not for Profit Entity) in India will house the cost in an interest bearing account for the project. Interest if any, earned should be reported to

Project by the Cost Recipients for each projected milestone shall be determined based on the specific cases and the contractual arrangement.

10. Cost towards the collaborators shall be released through the corresponding Cost Recipients against whom the specific activity is projected will be subject to applicable tax. It shall be the responsibility of such Cost Recipients to meet the relevant Cost and report the performance thereunder.

11. The Cost Recipient under the Project will submit consolidated Utilization Certificate (UC) and Statement of Invoice (SOI) duly audited and/or certified for the expenditure incurred towards the Project for every half year period, ending 30th September and 31st March, to BIRAC, within a month of closure of the accounts for the respective half year, in the format provided by BIRAC; It is also clarified that the financial year begins from 1st April and ends on coming 31st March.

12. Carry forward of unspent funds or re-appropriation of BIRAC funds from one budget head to another shall not be affected without the specific written approval of BIRAC. Fund release will be consider on due recipient of activities based invoice.

13. The present order confirming the sanction of support to the project is not legally binding on BIRAC or the Cost Recipients in any way unless the relevant contracts / agreement is duly executed by the Parties and the terms and conditions stated therein shall be legally binding on the Parties.

14. The Indian Cost Recipients shall enter into a Collaborative Research MOU (Memorandum of Understanding) with the Non- Indian Cost Recipients/Collaborators if applicable on the Project activities.

15. The relevant template of the Cost Plus Fixed Term Contract that should be entered into between BIRAC and the Indian Cost Recipients are appended herein as Annexure I. The undertaking with regard to attainment of Project Milestones by the Cost Recipients/Collaborators if applicable will be executed on case to case basis.

16. The Expenditure is debitable to "GCI" scheme under BIRAC, PMU - Head of Accounts (**C.03.05.002**) for the financial year 2018-19.

17. This issue with the approval of competent authority vides BFD No. AO/C03:05:002/055/18-19 dated 28/11/2018

18. The Sanction order has been noted at Serial No. 1.on.Pg.40 in the Register of Grant/Cost.

26/11/18

Dr. Shirshendu Mukherjee
Mission Director, PMU-BIRAC

To,
Dr. S. Selvakumar
Director
Indian Institute of Information Technology, Una (HP)
NIT Campus,
Hamirpur-177005

Copy for information to:
1. BIRAC Finance folder
2. Sanction Folder (GCI)

26/11/13

Dr. Shirshendu Mukherjee
Mission Director, PMU-BIRAC

जैव विज्ञान अनुसंधान बोर्ड
रक्षा अनुसंधान एवं विकास संगठन मुख्यालय
तृतीय तल, डी आर डी ओ भवन
कमरा न 399/04 नई दिल्ली 110011
टेली फैक्स - 011-23012652
टेलीफोन 011-23007894
Email : lsrb@hqr.drdo.in

Life Sciences Research Board
Defence Res. & Dev. Organisation HQ
3rd Floor, DRDO Bhawan
Room No. 399/04, New Delhi – 110011
Tele Fax : 011-23012652
Tele : 011-23007894
Email : lsrb@hqr.drdo.in

No. O/o DG (TM)/81/48222/LSRB-331/LS&BD/2018 **Date: 11.09.2018**

To,

The Principal
Department of Biomedical Engineering
SSN College of Engineering
Kalavakkam - 603110

Sub : **GRANTS IN AID SCHEME OF LIFE SCIENCES RESEARCH BOARD**

In exercise of powers vested in the Life Sciences Research Board vide Govt. of India, Ministry of Defence letters No. DBAS/48222/RD-81/784/D(R&D) dt 06 Mar 1998, as amended from time to time in terms of SL No 3.1, and GoI, MoD letter No DRDO/DFMM/PL/83226/M/01/1174/D (R&D) dt 28.06.2018. I hereby convey the sanction of the Board for the following project at the cost of **Rs 23,70,206/- (Rupees Twenty three lakh seventy thousand two hundred and six only)**

Project Title and No:

Title : **"DESIGN AND DEVELOPMENT OF BIOSIGNAL CONTROLLED HAND EXOSKELETON"**

No : **LSRB-331/LS&BD/2018**

PI : **Dr A Kavitha**
Professor & Head
Department of Biomedical Engineering
SSN College of Engineering
Rajiv Gandhi Salai (OMR)
Kalavakkam - 603110
Mob: 09677057669, Ph: 044-27469700
Email: kavithaa@ssn.edu.in

Co-PI 1: **Dr S Bagyaraj**
Associate Professor
Department of Biomedical Engineering
SSN College of Engineering
Rajiv Gandhi Salai (OMR)
Kalavakkam - 603110
Mob: 09841982250, Ph: 044-27469700
Email: bagyarajs@ssn.edu.in

Co-PI 2 : **Ms R Nithya**
Assistant Professor
Department of Biomedical Engineering
SSN College of Engineering
Rajiv Gandhi Salai (OMR)
Kalavakkam - 603110
Mob: 09443635470
Email: nithyar@ssn.edu.in

PDC : **02 Years**

Cost : **Rs 23,70,206/- (Rupees Twenty three lakh seventy thousand two hundred and six only)**

Break-up of the cost:

Grants	1st Yr IC	2nd Yr IC	Line total
(a). Research Staff (JRF- 01)	3,72,000	3,72,000	7,44,000
(b).Non-expandable equipment and stores (i) Schematic design and development for hardware prototype (ii) Digital modeling and fabrication – 5 prototype (iii) Procurement of electro and mechanical components (iv) Development of embedded firmware for atmel SAM3X8E ARM cotem – M3 – DEV BOARD for current control and impedance measurements (v) Development of system software for user interface and embedded device control from Intel Edison processor based control unit. (vi) Design and fabrication of power amplifier hardware for deriving the control signals from biosignals (vii) Acquiring the bio signals for analysis (viii) To acquire and analysis EEG and EMG signals	6,60,000	2,55,000	9,15,000
(c) Expendable stores, Chemicals etc (i) Structure and fabrication composite materials, liquid photopolymer cured with UV light 3 layers per 1mm (ii) Electrodes & Accessories .	1,65,000	1,40,000	3,05,000
(d). Contingencies	40,000	23,460	63,460
(e). TA/DA (including TA/DA of specialist/ monitors for the project)	50,000	50,000	1,00,000
(f). Overhead charges	1,47,200	95,546	2,42,746
Total	14,34,200	9,36,006	23,70,206

Grant Total = Rs 23,70,206/- (Rupees Twenty three lakh seventy thousand two hundred and six only)

2. The research staff is only for the duration of the project. DRDO holds no responsibility for further employment/absorption of the staff. The staff will be recruited as per rules & procedure of the grantee institution.

3. Statements of account duly certified by the executive financial authority of the institution are also required to be submitted along with the annual reports. **Excess expenditure, beyond the yearly sanction, unless authorised by LSRB in writing, shall be the responsibility of the grantee institution.**

4. The annual statement of Expenditure & utilization certificate should be in accordance with the **General Financial Rule-19 (GFR-19).**

5. The duration of the project is **02 Years.** The date of issue of this letter would be reckoned as the commencement date of the project.

6. PI to ensure that the laboratory guidelines for genetic engineering, animal experimentation and medical ethics issued by DBT, Animal Welfare Division (CPCSEA) and Ministry of Health & Family Welfare, Govt. of India, respectively and any other statutory issues related to the experiments are adhered to.

7. A separate saving bank account for the grant would be maintained and interest earned thereon would be accrued in the project account by the Institute. **Interest earned to be refunded to LSRB in the form of DD / Cheque addressed to PCDA (R&D) New Delhi** along with contingent bill for the release of next year grant. On completion of the project, the grantee institute should send the unspent money to Member Secretary, LSRB through DD / Cheque in favour of PCDA (R&D), New Delhi.

8. A list of inventory of equipment purchased out of LSRB grant shall be intimated along with annual report/closure report, giving item-wise cost, date of purchase and source of procurement to LSRB Sectt. The equipment should be stamped LSRB Project number and each item should be serially numbered. The photocopy of the stock registers maintained by the institute/university for the non-expendable and expendable stores may be submitted duly audited with a **certificate** from the audit authorities that **"the necessary check has been made and the inventory is found to be in order".** For further details, kindly refer the website of DRDO/LSRB i.e. http://www.drdo.gov.in/drdo/English/indexCorpDir.jsp?pg=home.jsp&dir=LSRB

9. **On completion of the project, the grantee institution would forward the consolidated audited list of equipments and expendable items, if any, with request for retention of equipment for another project or in house R&D, with due recommendations of their executive authority.**

10. **Shri K Mohanavelu, Sc 'E', DEBEL, Bangalore,** will be the facilitator. He will be visiting the Institute for periodical monitoring of the project.

11. Following **policy on the Intellectual Properties** generated under the scheme will be taken care of:-

i) All Foreground Information and Foreground Intellectual Property, created during the performance of the Project, whether or not legally protected, shall be owned jointly by DRDO and Grantee Institution. DRDO and Grantee Institution shall be deemed to have a royalty-free license to use such joint Foreground Information and Foreground Intellectual Property Rights for their own R&D purposes.

j) Grantee Institution shall not publish any research paper covering Foreground Information generated during the performance of the Project before seeking written consent from DRDO to assure that no proprietary information is released and no legal rights covering Foreground Information are jeopardized. Normally, such decision for publication shall be provided by DRDO within 30 days of receipt of such request from Grantee Institution.

k) Grantee Institute shall promptly report to DRDO about any Intellectual Property generated during the performance of the Project. DRDO and Grantee Institution shall confer and consult each other regarding preparation, filing, prosecution, maintenance of Intellectual Property Rights applications including patent applications covering Foreground Information, generated during the performance of the project. DRDO shall be responsible for filing, prosecution, grant and maintenance of such Intellectual Property Applications including patent applications and Grantee Institute shall render all possible help to DRDO regarding the same. DRDO shall also bear all expenses related to filing, prosecution, grant and maintenance of such Intellectual Property Applications including patent applications.

l) Grantee Institution may commercially exploit any Foreground Information and Foreground Intellectual Property Rights, generated during the performance of the Project, whether or not legally protected, for purposes other than Government Applications upon conclusion of the separate agreements to be negotiated between Grantee Institution and DRDO. Grantee Institution shall maintain an account of its incomes arising out of such commercial use and any royalty income shall be shared equally between DRDO and Grantee Institution.

m) Notwithstanding any provisions mentioned above or any future licensing agreements, DRDO shall be deemed to have all rights including a nonexclusive, irrevocable, royalty-free, world-wide perpetual license for the unlimited commercial development, series production, continuing engineering support, product improvement, or have developed, any Foreground Information and Foreground Intellectual Property, generated during the performance of the Project, whether or not legally protected, for the purposes of Government Applications including armed forces and paramilitary forces.

n) Whenever DRDO informs Grantee Institution that the interest of national security requires Grantee Institution to refrain from commercially supplying product/process based upon any Foreground Information and Foreground Intellectual Property, generated during the performance of project, whether
or not legally protected, to any particular third parties, or stipulate conditions in such commercial sale, Grantee Institution shall abide by DRDO requirements.

o) DRDO shall not be responsible and shall not accept any liability for infringement, innocent or otherwise, by PI or the Grantee Institute of the Intellectual Property Rights of third parties.

p) The term of the above provisions shall survive the term of the Project.

12. If there is any legal issue/dispute, it shall be redressed within the jurisdiction of Delhi.

13. PCDA (R&D), DRDO Cell, West Block-V, RK Puram, New Delhi-110066 will make disbursement of money as sanctioned. Payment shall be released through e-payment system and physical cheques will not be issued. A mandate form is enclosed for filling up the required information and forwarding alongwith a blank cancelled cheque bearing account number.

14. In case of premature termination/closure of the project, the grantee institute is liable to refund the entire budget released to them alongwith interest.

15. **Closure report** – On completion / closure / termination of the project, three copies of the consolidated closure report (soft & hard copy) as per **ANNEXURE III** (refer website) should be submitted alongwith a certificate that objectives of the project have been achieved. The Executive Summary & unspent amount if any will also be submitted through DD/ Cheque in favour of PCDA (R&D) by PI within **3 months** of completion of the project.

16. Ensure about providing of reservation for Scheduled Castes and Scheduled Tribes or OBC in posts and services.

17. The expenditure will be debited to Major Head - 2080 (Defence Services) R&D Minor Head-004 Research & Development, Code Head 852/05 of the Defence Services Estimates.

18. Contingent bill (in triplicate) for the release of grant for first year i.e. **Rs. 14,34,200/- (Rupees Fourteen lakh thirty four thousand and two hundred only)** duly completed and signed on revenue stamp with official seal by the competent financial authority of the institute alongwith ECS mandate form may please be forwarded to us immediately for onward submission to PCDA for payment.

19. This issues with the concurrence of IFA (R&D), New Delhi vide their UO No 1940/0682 dt 07.09.2018

20. The sanction code is DG TM/TM/LSRB/GIA/18-19/0177 dt 11.09.2018

21. Kindly acknowledge receipt.

Yours faithfully

(Dr. Rajio Singh)
Member Secretary
Life Science Research Board
O/o DG (TM)

Ink Signed Copy :

(i) PCDA (R&D), DRDO Cell, West Block-V, R K Puram, New Delhi-110066
(ii) IFA (R&D), DRDO Bhawan, New Delhi-110011
(iii) DGADS, 'L-1' Block, Church Road, New Delhi-110011
(iv) OS & DG (TM), DRDO Bhawan, New Delhi-110011
(v) DS & DG (LS), DRDO Bhawan, New Delhi-110011
(vi) **Dr A Kavitha**
Professor and Head
Department of Biomedical Engineering
SSN College of Engineering
Rajiv Gandhi Salai (OMR)
Kalavakkam - 603110

Copy to:

(vii) Chairman Spl Panel LS&BD & OS and Director, DEBEL, Bangalore - 560093
(viii) Member Secretary, ARMREB, DRDO Bhawan, New Delhi-110011
(ix) Member Secretary, AR&DB, DRDO Bhawan, New Delhi-110011
(x) Member Secretary, NRB, DRDO Bhawan, New Delhi-110011
(xi) DER&IPR, DRDO Bhawan, New Delhi-110011

Tel : 2300 7307
Fax: 2379 4562

ARMREB/MAA/2018/200
Defence R&D Organization (HQ)
Armament Research Board
DRDO Bhawan, Rajaji Marg,
New Delhi – 110 011
01 May 2018

To

The Principal
SSN College of Engineering
Rajiv Gandhi Salai (OMR)
Kalavakkam, Chennai - 603110

SANCTION OF PROJCET UNDER GRANT-IN-AID SCHEME OF ARMREB

Under the power vested in the ARMREB vide Government of India, Ministry of Defence letter No. ARM (RD-17)/2035/1008/D (R&D) dated 18/21 Mar 1997 & in terms of power delegated vide Sl. No. 3.1 of DRDO DBFA/FA/83226/M/01/2031/D(R&D) dated 30 July 2010, I am directed to convey the sanction of the CFA i.e. OS & DG (TM) for the following project:-

Project Number	:	**ARMREB/MAA/2018/200**
Title of the Project	:	Optimizing the Ballistic Performance of AA7075 Thick Plate Friction Stir Welds
Name of the PI	:	Dr. S.R. Koteswara Rao, Professor, SSN College of Engg, Chennai
Name of the Co-PI	:	Dr. R. Damodaram, Assoc Prof, SSN College of Engg, Chennai
Name of the Co-ordinating DRDO Scientist	:	Dr. G Madhusudan Reddy, Sc 'H', DMRL, Hyderabad

2. **COST:** - The total cost of the project is **Rs. 18.78604 lakhs**. However, the same is subject to revision based on performance of review committee/panel. Break-up of the project cost is given under: (Rs in Lakhs)

Heads	1st Year	2nd Year	3rd Year	Total
(a) Research Staff (01 Project Associate/ Project Technician)	1.8	1.8	1.8	5.4
(b) Special Equipment • Box Furnace	2.478	-	-	2.478
(c) Consumable stores, chemicals etc.,	2.0	1.0	1.0	4.0
(d) TA/DA	0.50	0.50	0.50	1.5
(e) Contingencies	0.20334	0.099	0.099	0.40134
(f) Special Testing Charges	1.0	1.0	1.0	3.0
(g) Institute Overheads	1.01670	0.495	0.495	2.00670
Grand Total	**8.99804**	**4.89400**	**4.89400**	**18.78604**

REGISTERED

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

EXTRAMURAL RESEARCH DIVISION

CSIR COMPLEX, PUSA, NEW DELHI - 110 012

No. 03(1445)/18/EMR-II Dated : 05/06/2018

From : Head, Human Resources Development Group

To

DR G ANANDHA BABU
DEPT OF PHYSICS
SSN COLLEGE OF ENGG
KALAVAKKAM 603110 T N

Subject : Grants-in-aid for your scheme entitled :DEVELOPMENT OF HIGH-PERFORMANCE TERNARY PIEZOELECTRIC CERAMICS FOR TRANSDUCER APPLICATIONS

Sir,

I am directed to refer to your proposal for sanction of CSIR Scheme titled above and to convey the approval of DG CSIR as per the details given below.

I	Duration of the Scheme (from the date of Commencement)	**36 Months**		
II	Staff	1-RA / SRF / JRF		
III	Contingency (per annum in ₹)	1st Year : 1,50,000	2nd Year : 1,50,000	3rd Year :1,50,000
IV	Equipment (lumpsum in ₹)	5,00,000 (LS)		

2. The above sanction is subject to review of periodical progress of the project by expert committee.

3. DG CSIR has also approved the release of the following grants for the period 01/05/2018 to 31/03/2019

No	Grants	Amount (in ₹)
I	Staff	3,96,000
II	Contingency	1,37,500
III	Equipment	5,00,000
	Total :	**10,33,500**

4. Sanction of grants is subject to strict compliance of the terms and conditions enclosed or as may be modified from time to time. Please go through the instructions carefully with regard to subsequent release of grants and your obligations under this sanction. **The grant for the Ist installment will be sent through EFT (Electronic Funds Transfer), to the concerned authority of your institution on receipt of undertaking (form-A), non-funding certificate and EFT Transaction Request Form.**

The expenditure is debitable to budget head P81102.

Yours faithfully,

SECTION OFFICER (EMR-II)

Encl : As above

Copy to :-

1. Registrar/Principal/Director _____. The utilisation of grant is subject to compliance of para-1 of the terms and conditions stated overleaf.
2. Sr F&AO(EMR) alongwith FVC for first year's grant.

FILE NO. ECR/2017/000447

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(a statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 05-Jun-2018

ORDER

Subject: Financial Sanction of the research project titled **"Understanding the Structure Function Relationship of the Natural Anticoagulant ZPI, a Member of Serpin Superfamily"** under the guidance of Dr. Tanusree Sengupta, Chemistry, SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110 - Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned project at a total cost of **Rs. 3462800/-** (**Rs.** Thirty Four Lakh Sixty Two Thousand Eight Hundred **Only)** with break-up of Rs. *1000000/-* **under Capital (Non-recurring) head** and **Rs.*2462800/-* under General (Recurring) head** for a duration of 36 months. The items of expenditure for which the total allocation of **Rs. 3462800/-** has been approved are given below.

The following budget may be considered for **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam**

S. No	Head	Total (in Rs.)
A	**Non-recurring**	
1	Equipment -> Vortex mixer -> Four degree cabinet -> Laminar flow hood -> -80 degree freezer -> Table top centrifuge -> Shaker incubator -> Plate reader	1000000
A'	*Total (Non-Recurring)*	***1000000***
B	**Recurring Items**	
1	Recurring - I : (Manpower) Recurring - II : (Consumables, Travel, Contingencies)	648000 1500000
2	Recurring - III : (Overhead Charges)	314800
B'	*Total (Recurring)*	***2462800***
C	**Total cost of the project (A' + B')**	**3462800**

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 1000000/-** (Rupees Ten Lakh only) under 'Grants for creation of capital assets' and **Rs. 820900/-** (Rupees Eight Lakh Twenty Thousand Nine Hundred only) under 'Grants-in-aid General' to **Principal, SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** being the first installment of the grant for the year 2018-2019 for implementation of the said research project.

3. The expenditure involved is debitable to **Fund for Science & Engineering Research (FSER)**
This release is being made under Early Career Research Award. (EC Life Sciences)

4. The Sanction has been issued to SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam with the approval of the competent authority under delegated powers on 18 May, 2018 and vide Diary No. SERB/F/1748/2018-2019 dated 04 June, 2018

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not more than Rs. 1.5 lakh each should be spent for travel and contingency.

8. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

9. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior approval of SERB.

10. The release amount of **Rs. 1820900/-** (Rupees Eighteen Lakh Twenty Thousand Nine Hundred only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**THE PRINCIPAL SSN COLLEGE OF ENGINEERING**
Account Number	**158100050070022**
Bank Name & Branch	**Tamilnad Mercantile Bank Ltd ThiruvanmiyurNo 3, Thiruvalluvar Salai. Chennai 600041**
IFSC/RTGS Code	**TMBL0000158**
Email id of A/C Holder	**trust.finance@ssn.edu.in**
Email id of PI	**tanusrees@ssn.edu.in**

11.The institute will furnish to the SERB, New Delhi, separate Utilization certificate(UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

12. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

13. The project File no. ECR/2017/000447 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

14. The manpower sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any. beyond the duration of the project

15. As this is the first grant being released for the project, no previous U/C is required.

16. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

17. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

18. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.

(Dr. Thangaradjou T)
Scientist E
msls@serb.gov.in

To,
Under Secretary
SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3.	File Copy
4.	**Dr. Tanusree Sengupta** **Chemistry** **SSN College of Engineering , Sri sivasubramaniya nadar college of engineering rajiv gandhi salai (omr), kalavakkam , Kanchipuram, Tamil nadu-603110** **Email: tanusrees@ssn.edu.in** **Mobile: 919940401250** (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	**Principal,** **SSN College Of Engineering, Sri Sivasubramaniya Nadar College Of Engineering Rajiv Gandhi Salai (OMR), Kalavakkam** (Receipt of Grant may be intimated by name to the undersigned)

(Dr. Thangaradjou T)
Scientist E

V E ANNAMALAI

Digitally signed by V E ANNAMALAI
Date: 2024.02.21 13:40:39 +05'30'