



**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

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

Sl. No.	Name of the PI/ Co-PI/Name of the person holding the Chair	Title of the research project, endowments, Research Chairs	Name of the funding agency	Duration	Year of award or sanction	Amount in INR. (in Lakh)
2022-23						
1	Dr. Kamaraj V (PI) Dr. Rengaraj R (Co-PI) Dr. Prahlad Vadakkepat (Co-PI) (NUS, Singapore) Dr. Rajesh Chandrasekhara Panicker (Co-PI) (NUS, Singapore)	Artificial Intelligence Techniques to Design and Development of Power Quality Monitoring System	SPARC	2 Years	2023	50.54
2	Dr.C.Vaithilingam, VIT Chennai (PI) Dr.R.Deepalaxmi (CO- PI)	Design and Development of Replicable and Scalable Cyper Physical Micro Grid System	DST, International Bilateral Co-operation Division (India-Serbia, Bilateral Scientific and Technological Cooperation)	3 Years	2023	12.15
3	Dr Mrunal Deshpande (PI) Dr Govindaraj R, SSNRC (Co-PI)	Development of black phase Formamidinium lead triiodide-based hybrid perovskite light absorber with improve thermal stability for solar cell applications	UGC DAE CSR	1 Year	2023	0.45
4	Dr. B. Bhararathi (PI) Dr. P.Vijayalakshmi (Co-PI) Dr. T. Nagarajan (Co-PI)	Real time multi dialect automatic speect recognition system for Tamil	Tamil Virtual University	1 Year	2023	13.77
5	Dr Shahina A (PI) Dr. T T Mirnalinee (Co-PI) Dr. Nayeemulla Khan (Co-PI) Dr. Devaprasad Markandeyan (Co-PI)	Dhi-Vach: A Brain-Computer Interface System Converting thoughts to Speech for Speech-Impaired Patients with neurodegenerative Diseases	Science & Engineering Research Board (SERB)	3 Years	2023	19.67
6	Dr. S. R. Koteswara Rao (PI) Dr. A. K. Lakshminarayanan (Co-PI)	Wire arc additive manufacturing of Inconel718 to Stainless steel functionally graded materials using dual filler TIG Welding	DRDO	3 Years	2023	24.20
7	Dr.Satheesh Kumar Gopal (PI) Dr. Vijayalakshmi P (Co-PI) Dr.Dhanalakshmi M (Co-PI) Dr.Rajini Kumar Palaniyappan (TPESU) (Co-PI)	A powered EMG-based embedded system controlled transfemoral prosthesis	DST-SERB	3 Years	2023	34.82
8	Dr.M.Senthil Pandian (PI)	Development of large size and high quality Piperazinederivative single crystal: Unidirectional RSR and ISR Methods	SERB-CRG	3 Years	2023	19.98

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9	Dr.K.Aravinth (PI)	Growth of salt-inclusion chalcogenides and different-composition chalcogenides single crystals and Raman spectroscopic studies on these crystals	SERB	3 Years	2023	33.00
10	Dr.M.Srinivasan (PI)	Development of High-Quality Novel Half Heusler Single Crystal (TaFeSb) for Waste Energy Recovery: Theoretical and Experimental Approach	UGC-DAE-CSR	3 Years	2023	1.35
11	Dr.M.Srinivasan (PI)	Synthesis and Characterizations of Novel Heusler Alloys for Thermoelectric Applications	GIMRT,Japan	1 Year	2023	2.80
12	Dr.M.Srinivasan (PI)	In-Situ Observations of Silicon Based Crystalline Materials with Various Dopants for PV Applications	GIMRT,Japan	1 Year	2023	2.80
13	Dr.M.Srinivasan (PI)	Development and Growth of Industry Scale DS and CCz Silicon Ingots for PV Applications	DST-MOST	3 Years	2022	11.91
14	Dr.P.Karuppusamy (PI)	Growth Of High Quality Alkali Metal halide Perovskite Single crystals for High Energy Radiation Detector Applicatons	UGC-DAE	3 Years	2023	1.30
15	Dr.R.Jayaparvathy (PI) Dr.S.Pravin Kumar (Co-PI)	Human Reliability Assessment and in-situ health monitoring for manned submersible crew	Ministry of Earth sciences	2 Years	2023	46.18
16	Dr. S. Pravin Kumar (PI) Dr. A. Kavitha (Co-PI) Dr. S. Saranya (Co-PI) Dr.S.Kanagaraj (IIT-G) (Co-PI) Dr. G. Sudhir (SRMC) (Co-PI)	A personalized visual guidance system for musculoskeletal therapeutic interventions	SERB- CRG	3 Years	2023	27.81
17	Dr. D. Thenmozhi (PI)	BARF - Blind Abled Reading Frame	DST – TDP scheme	3 Years	2023	24.00
18	Dr. R. Seyezhai (PI) Dr. D. Umarani (Co-PI)	Eco-Friendly Solar Photovoltaic Pole for Multi-utility	ANIHEES (AU-NLCIL Innovation Hub for Energy, Environment & Sustainability – ‘ANIHEES, Chennai)	1 Year	2023	Nil

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19	Dr. Selvaraj Palanisamy, TNVASU, Chennai (PI) Prof. Sanjay Kumar Singh, IIT, BHU, Varanasi (Co-PI) Dr. Sameer Shrivastava, ICAR-IVRI, Izatnagar (Co-PI) Dr. Pandiyarasan Veluswamy, IIIT, Design & Manufacturing, Chennai (Co-PI) Dr. A. Kavitha (Co-PI)	Artificial Intelligence & IoT based Smart Vet Ecosystem for Animal Health, Patient Care & Precision Livestock Farming	ICAR NASF	3 Years	2022	215.39
20	Dr. R. Sundareswaran (PI)	Analyzing diabetic neuropathy -A graph theoretic approach	TNSCST	1 Year	2023	0.08
2021-22						
21	Dr. K. Usha (PI)	Experimental Analysis And Optimization of Electric Field Distribution Around Polymeric Insulators In Extra High Voltage Transmission Lines	DST-SERB	3 Years	2022	29.74
22	Dr.P.Vijayalakshmi (PI) Dr.T.Nagarajan, SNU (Co-PI)	Speech Assistive technologies	MeiTY	3 Years	2022	87.62
23	Dr.T.Nagarajan, SNU Chennai (PI) Dr.P.Vijayalakshmi (Co-PI)	Prosody Modelling	MeiTY	3 Years	2022	99.00
24	Dr. ValliDevi (PI) Dr. T.Thiruvankadam (Co-PI) Dr. Hariharanath K (Co-PI)	Creating Seller Data warehouse	Whitechilly Trading and Services Pvt. Ltd	6 Months	2021	1.60
25	Dr. J. Suresh (PI) Dr.D.Venkatavara Prasad (Co-PI)	Designing a lightweight Consensus Mechanism in Blockchain for IoT based Asset Management	AICTE – RPS Scheme	3 Years	2022	9.59
26	Dr. J Vijay (PI) Dr. K. Nirmala (Co-PI)	An Integrated Framework to aid Non-Contact Measurement of vital parameters for mass infection Screening	AICTE - RPS	3 Years	2022	4.13
27	Dr. N. Lakshmi Narasimhan (PI)	Design and Development of a Thermal Chamber	Srushty Global solution Pvt. Ltd.	2 Months	2022	1.50
28	Dr. S. Rajkumar (PI)	Upgradation of Municipal Solid Wastes into Commercial Grade Fuel using Co-Liquefaction and study of its Performance and Emission characteristics on Dual Fuel Compression Ignition Engine	AICTE	3 Years	2022	14.54

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29	Dr. S. Suresh Kumar (PI) Dr. S. R. Koteswara Rao (Co-PI) Dr. Ajay Krishnan, DMRL Lab (Co-PI) Dr. Atul Kumar, Sc 'F' DMRL (Co-PI)	Understanding the influence of corrosion on the shock response of DMR 249A steel plates and welded joints	Naval Research Board	3 Years	2021	42.05
30	Dr. Srinivas Gumparthi (PI) Dr.K.Sampath Kumar (Co-PI) Dr.T.Girija (Co- Project Director)	A Project on Identifying Social Entrepreneurial Opportunities for Women in New Area of Urbanisation	Indian Council of Social Science Research (ICSSR)	1 Year	2022	4.00
31	Dr. R. Sundareswaran (PI)	Valnability parameter graphs and their application in biomedical engineering	Mount carmel college	1 Year	2022	1.20
32	Dr.M.Srinivasan (PI)	Computational and Experimental Investigations of Novel Heusler ThermoelectricMaterials for Waste Heat Recovery	GIMRT,Japan	1 Year	2022	2.80
33	Dr.Nafis Ahmed (PI)	Investigations on Ag/Au nanoparticles decorated Au assisted PECVD grown Si nanowires for highly sensitive SERS substrate	UGC-DAE-CSR	3 Years	2022	1.35
34	Dr. Tanusree Sengupta (PI)	Characterization of Novel Mutants of Human Protein Z- dependent Protease Inhibitor(ZPI): "Potential Therapeutics for Hemophilia"	DST-SERB	3 Years	2022	60.46
35	Dr. Malathi Kanagasabai (PI) (CEG, Guindy) Dr.Gulam Nabi Alsath (Co-PI) Dr.Y.Ramana Rao (Co-PI) (CEG, Guindy)	Design, Development and Experimental Evaluation of Highly Integrated Multi-Standard Antennas for Mimo Implementation in Automobiles as a Part of Intelligent Transport System	DST	2 Years	2021	20.88
36	Dr.K.T.Selvan (PI)	Design of metesurface based shared aperture phased array antenna operating in S and X bands	LRDE, Ministry of Defence, DRDO	18 Months	2021	9.71
37	Dr.Chitra Babu (PI) Mrs S. Rajalakshmi (Co-PI) Mrs. S. Angel (Co-PI)	Scalable Mobile Application for performing Full Text Search(FTS) in SQLite Database	Caterpillar India Pvt. Ltd, Chennai, India	7 Months	2021	1.87
38	Dr. R. Subashini (PI) Dr.N.P. Rajesh (PI)	Dose Assessment of Partial Body Exposure using Premature Chromosome Condensation Assay for Mass Casualty Accidents	IGCAR	2 Years	2021	24.34
39	Dr. B. Geethanjali (PI) Dr. V. Mahesh (Co-PI) Dr. Bikesh Kumar Singh ,NIT,Raipur (Co-PI)	Enhancing Brain Cognition through Neuro Feedback model in Indian Children with Learning Disability	SERB- CRG	3 Years	2021	44.03

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40	Dr.M.Srinivasan (PI)	Development of mc-Si growth process by Modeling, Experiments and ML	DST-JSPS	2 Years	2021	5.40
2020-21						
41	Dr.M.Gulam Nabi Alsath (PI) Dr.S.Radha (Co-PI)	Optimum Design of C and X Band Reflectarray Antennas	Big Cat Wireless	6 Months	2021	200.00
42	Dr.Chitra Babu (PI) Dr. K. Vallidevi (Co-PI)	Automated Tool for the Extraction of Custom Metrics from Azure DevOps and Generation of Reports.	Caterpillar India Pvt. Ltd, Chennai, India	6 Months	2021	1.50
43	Dr. S. Arun Karthick (PI) Dr. Sachin (Co-PI) Dr. S. Pravin Kumar (Co-PI)	Design and development of 16 channel functional Near Infrared Spectroscopy system for measuring hemodynamics in Brain PrefrontalCortex	DST-BDTD	2 Years	2021	25.34
44	Dr. J. Vijay (Co-PI)	Development of Multispectral (Thermal/Visible) Imaging System for Fever Screening in Crowded Places for Detection of Infectious Diseases	SERB	2 Years	2021	11.61
45	Dr. A. Kavitha (PI) Dr. S. Pravin Kumar (Co-PI)	Augmented Reality Based Surgical Support System	SERB-POWER	3 Years	2021	25.94
46	Dr.S.Radha (PI) Dr.B.S.Sreeja (Co-PI) Dr.K.Muthumeenakshi (Co-PI)	High Performance Integrated Two-stage Electrochemical Technology for Recovery of Water from Electroplating Effluent with Realtime Monitoring and Control System	DST - TMD	3 Years	2020	34.46
47	Dr. R. Srinivasan (PI) Dr. Premanand V. Chandramani (Co-PI) Dr.K. K. Nagarajan (Co-PI)	Radiation Resilient RF Receiver Front End Components Through SiGe BiCMOS: Design and Validation	Department of Atomic Energy, Board of Research in Nuclear Sciences	3 Years	2020	32.50
48	Dr.P.Senthil Kumar (PI) Dr.B.S.Sreeja (Co-PI)	Electrochemical Sensing of Sulfamethoxazole Antibiotic in Water at GO/ZnO Nanocomposites - Modified Electrodes, Optimization and Real Time Measurement	Department of Science and Technology Technology Mission Division	3 Years	2020	63.29
49	Dr. P. Rajesh (PI)	Fabrication of homogeneous plastic scintillators by thermal polymerization reaction for fast neutron detection applications	SERB	3 Years	2020	43.00
50	Dr. P. Rajesh (PI)	Growth of CdMnTe single crystals by Bridgman Technique for application in Gamma ray Detectors	BRNS	3 Years	2020	33.00

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51	Dr.Balaji Bhargav (PI)	Silver nanowires and MoS2 microsphere based filtration system for efficient bacterial removal from potable water	SERB	3 Years	2020	23.67
52	Dr.R.Govindaraj (PI)	Synthesis of lead-free silver bismuth iodide light absorbers for mesoscopic solar cells	BRNS	3 Years	2020	44.60
2019-20						
53	Dr.R.JayaParvathy (PI)	Assesment and Monitoring of Invasive Alien Plant species in India and formulation of strategies for the management of Key Invasive Alien Plant Species in different regions of the country	Ministry of Environment Frest & Climate Change , ICFRE	5 Years	2020	31.15
54	Dr. B. Ambedkar (PI)	Bench-Scale Design and Development: Investigation of High-Frequency, High-Intensity Ultrasonics for Carbon-Rich Solvent Regeneration in Solvent-Based Post-Combustion CO2 Capture Process (PCCC) for Reducing CO2 Capture Energy Demand	DST (Mission Innovation Challenge)	3 Years	2020	208.00
55	Dr. A. S. Ramana (PI)	Experimental analysis of an Energy Recovery Ventilator (ERV) combined with UVGI and air filtration system for enhancing IAQ (Indoor Air Quality) in non- ventilated spaces	ISHRAE Student Research Project Grant	1 Year	2020	0.50
56	Dr.G.Anandha babu (PI)	Development of high - Curie temperature piezoceramics for aviation applications	DRDO	3 Years	2019	12.30
57	Dr.M.Srinivasan (PI)	Renewable Energy Dynamics (Silicon Crystal Growth)	RIAM, Japan	1 Year	2020	1.12
58	Dr.L.Suganthi BME (Mentor)	Noninvasive Measurement of Blood Glucose and Hemoglobin	AICTE	2 Years	2019	10.00
59	Dr.V.Kamaraj (PI) Dr.R.Seyezhai (Co-PI)	Modernization of Renewable Energy Conversion Laboratory	AICTE	2 Years	2019	11.00
60	Dr.S.Radha (PI) Dr.B.S.Sreeja (Co-PI)	Development of ultrasonic sensors for monitoring heavy mineral accumulation in the littoral zone of Mahabalipuram coast	TNSCST	2 Years	2019	4.80

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61	Dr.B.S.Sreeja (PI) Dr.S.Radha (Co-PI)	Developement of low cost wearable semi automatic insulin delivery smart system	DST DBT	3 Years	2019	35.04
62	Dr.N.Venkateswaran (PI) Dr.K.Madheswari (Co-PI)	Development of Fusion algorithms for Multispectral and PAN images in cartographic applications	ISRO	2 Years	2019	14.29
63	Dr. B. Bharathi (PI) Hema A Murthy (IIT, Madras) (Co-PI)	Development of anti-spoofing method for Automatic Speaker Verification System	DST TARE scheme	3 Years	2019	18.30 lakhs, (IITM-8.25 lakhs, SSN-8.25 lakhs, Research grant for PI-1.80 lakhs)
64	Dr. S. Chithra (PI) Dr. N. Bhalaji (Co-PI) Dr. S. Karthika (Co-PI)	Assistive Technology for Parkinson and Alzheimer Disease (PAD) affected people	Tamilnadu State council for Science and Technology	2 Years	2019	4.10
65	Dr.P.Senthil Kumar (PI)	Development of Sustainable Magnetic Carbon Based Nanocomposite Films from Agro Waste and Evaluate its Application in Removal of Antibiotics from Water	The Institution of Engineers (India)	1 Year	2019	0.70
2018-19						
66	Dr. N.P. Rajesh (PI) Dr.ChitraBabu (Co-PI)	Development of GPS based Comprehensive Mobile App for Water Quality Assessment Monitoring for promoting Water Security, Farm Security, Urban Development and Civic Improvement	DST – SSTP scheme	2 Years	2019	47.57
67	Dr.V.Kamaraj (PI) Dr.M.Balaji (Co-PI) V S Nagaraj (Co-PI)	Design and Development of Energy Efficient Permanent Magnet Assisted Reluctance Motor Drives for Pump Application	SERB	3 Years	2018	21.18
68	Dr.S.Radha (PI) Dr.R.Hemalatha (Co-PI)	Development of an efficient IoT enabled plant disease pest detection system	DST SSTP	3 Years	2019	62.26
69	Dr.R.Amutha (PI) Dr.R.Rajavel (Co-PI)	Design of game based communication platform for children with cerebral palsy	DST SSTP	3 Years	2019	17.01

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70	Dr.V.S.Felix Enigo (PI) Dr.B.Prabavathy (Co PI) Dr.K.Nirmala (Co PI) & Dr.Sachin Gaurishankar Sarate (Co PI)	Artificial Intelligence (AI) based 'Screening Tool' to predict future Osteoporotic Hip Fracture Risk in Post-menopausal women and Elderly population using X-ray Image	BIRAC-BIG Scheme	18 Months	2019	50.00
71	Dr.D.Thenmozhi (PI)	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	DST – EEQ scheme	3 Years	2019	28.14
72	Dr. Chitra Babu (PI) Dr. B. Prabavathy (Co-PI)	An efficient algorithm for fast processing of message quadruples	Caterpillar India Pvt. Ltd, Chennai, India	6 Months	2019	1.87
73	Dr. V.S. Felix Enigo	Dynamic Reporting Framework	Caterpillar India Pvt. Ltd, Chennai, India	6 Months	2019	1.33
74	Dr. T.T. Mirnalinee (PI) Dr. J.Bhuvana (Co-PI)	Generating machine productivity using video analytics	Caterpillar India Pvt. Ltd, Chennai, India	12 weeks	2019	1.05
75	Dr. V. E. Annamalai (PI) Dr. K. Rajkumar (Co-PI)	Value addition of calcined bauxite for possible use as abrasives in waterjet cutting applications	Dept of Mining	2 Years	2019	27.47
76	Dr. L. Poovazhagan (PI)	Hybrid casting approach for manufacturing magnesium nanocomposites	DST-SERB	3 Years	2019	24.94
77	Dr.G.Anandha babu (PI)	Development of Bismuth-based complex perovskites piezoelectric single crystals for strategic applications	SERB	3 Years	2019	28.78
78	Dr. M.Senthil Pandian (PI)	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	SERB-EMEQ	3 Years	2019	40.70
79	Dr Mrunal Deshpande (PI)	A Robustly Optimal Energy Management System for High PVpenetrated Smart Cities with A Case Study: Implementation of PVs for Smart Street Light Poles”	UNSW Sydney	1 Year	2018	5.85
80	Dr. P.Saravanan (PI)	Design and Development of Axial Flux Switched Reluctance Motor based Battery operated Vehicle	DST-SERB	3 Years	2018	55.00

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81	Dr.N.Gulam Nabi Alsath (PI) Dr.S.Ramprabhu (Co-PI) Dr.S.Kirubaveni (Co-PI)	Theoretical and Experimental Analysis on the design of Compound Reconfigurable Reflectarray Antenna with an Integrated Electronic Control System	DST SERB CRG	3 Years	2018	34.04
82	Dr. R. Kanchana (PI) Dr.S.Selvakumar (PI: IIIT, Una, HP)	Nagarik Rog Pratirakshak: Unified Smart Immunization Coverage Monitoring and Analysis (UniSICMA)	BIRAC scheme	18 Months	2018	106 lakhs - (IIITU - 55.99 lakh, SSNCE- 50.01lakh)
83	Dr. A. Kavitha (PI) Dr. S. Bagyaraj (Co-PI) Ms. R. Nithya (Co-PI)	Design and development of biosignal controlled hand exoskeleton	LSRB	2 Years	2018	23.70
84	Dr. S.R. Koteswara Rao (PI) Dr. R. Damodaram (Co-PI)	Optimization of Ballistic performance of AA7075 thick plate friction stir welds	DRDO - ARMREB	3 Years	2018	18.78
85	Dr.G.Anandha babu (PI)	Development of high-performance ternary piezoelectric ceramics for transducer applications	CSIR	3 Years	2018	24.47
86	Dr. Tanusree Sengupta (PI)	Understanding the Sturcture Function Relationship of the Natural Anticoagulant ZPI, a Member of Serpin Superfamily	DST-SERB	3 Years	2018	34.63



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.

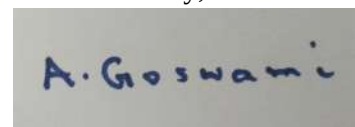
As per rule 211 of GFR, the accounts of project shall be open for inspection by sanctioning authority/audit whenever the institute is called upon to do so.

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

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,

A rectangular box containing a handwritten signature in blue ink that reads "A. Goswami".

For National Coordinator
IIT, Kharagpur

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 the SpO2 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
<i>*Emoluments as per DoE/DST/MoES norms</i>				

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

U Daniel
13/10/2023
Page 2 of 7

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.

M Daniel
Page 3 of 7
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.

Manjula 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

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 signed 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 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 MoES), whenever the organisation is called upon 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.



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/-

Items	Budget Summary (in Rs.)			
	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	1 st Year INR	2 nd Year INR	3 rd 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	4,05,000	4,05,000	4,05,000	12,15,000
7.	Grand total	4,05,000	4,05,000	4,05,000	12,15,000

Justi Damer

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>
Reply-To: support@csruserportal.com
To: mrunald@ssn.edu.in

Wed, Mar 22, 2023 at 11:52 PM



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>
To: Govindaraj R <govindarajr@ssn.edu.in>

Thu, Mar 23, 2023 at 8:50 AM

----- 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>
To: Ashutosh Deshpande <ashutosh.deshpande@avcontechnics.com>

Thu, Mar 23, 2023 at 8:51 AM

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

Thu, Mar 23, 2023 at 8:53 AM

Madam,
great. Congrats

[Quoted text hidden]

[Quoted text hidden]

::DISCLAIMER::

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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@avconttechnics.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. Jayaseelan, I.A.S.
இயக்குநர் (மு.கூ.பொ.) / Director (FAC)

Lr.NO.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//

A. B. Saini
5/1/23
For Director



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

Fwd: SERB-Notification

Mirnalinee T T <MirnalineeTT@ssn.edu.in>
To: "Kavitha S." <kavithas@ssn.edu.in>

Tue, May 23, 2023 at 9:24 AM

----- 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 LetterFile 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

-> Nvidia 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 below 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. SHAHINAA

Information Technology

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

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Please do not reply to this mail !!

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