Aspire Annexure

A writeup on National Virtual Conference

Automation, Robotics, Artificial Intelligence and Mechatronics (ARAM-2021)

16th-19th March 2021

Highlights

- ❖ 8 International speakers
- ❖ 1 Indian Entrepreneur on Robotics
- ❖ 1 Indian keynote from DRDO
- ❖ 1 IOT workshop Hands-on
- ❖ 7 speakers for Kindle Minds
- ❖ Alumni speakers as Young Turks
- ❖ Distinguished SSN Alumni as Guest of Honour
- ❖ Online competition 'Aadu Kalam' for students
- ❖ 5 parallel tracks Paper presentation
- ❖ Book of abstracts: English+Tamil
- ❖ 9 awards for best paper, safety for women and Aadu Kalam categories
- ❖ Attendees from schools

Stats

- ▪ 450+ workshop registrations
- ▪ 400+ attendees for 4 days
- ▪ 100+ abstracts
- ▪ 100+ registration for Kindle Minds
- ▪ 3 video promotions

PRE-CONFERENCE WORKSHOPS (16.03.2021-18.03.2021)

The first edition of ARAM 2021 featured three preconference workshops themed on the interdisciplinary domain of the conference. The participants of the conference were given an opportunity to participate in these workshops in order to up skill themselves towards Industry 4.0. The Workshop featured eminent personalities in this field of research from India and abroad. The Preconference workshop commenced on 16th March 2021 introducing the participants to the building elements of Industry 4.0.

DAY 1

Workshop on Day 1 was conducted on the topic "IOT & Machine Vision". The workshop was structured and tailor made to meet the need of the participants helping them discover the potential of Industry 4.0. The first session was delivered by Dr. Huub K Bakker of Massey University of New Zealand who threw light on significance of Machine Vision in today's industrial world. The session was followed by Mr.V.S Ramesh who started the morning session by explaining the audiences the fundamentals of IOT and a brief over on Machine Learning. The afternoon session was focussed for hands on training where the participants were given exposure tool like MQTT and Thing View. The speaker shared with the participants the links for the software and guided them to install and made them use it during the session which was well received by the participants. The session was engaging and interactive throughout the day where the participants clarified their questions in their area of thought.

Day 1 – Workshop on IoT and Machine Vision
Dr. Huub Bakker Senior Lecturer, Dean Mechatronics Major Advisor Department of Mechanical and Electrical Engineering Massey University, New Zealand.
Mr. V.S. Ramesh Director STEPS Knowledge Services Pvt. Ltd. Coimbatore.

DAY 2

The Second Preconference workshop was conducted on the Topic "A Day with MACE and Industrial stalwart on 17th March – 2021. MACE commonly referred as Malaysian Society of Automation Control Engineers is an association of engineers from Malayasia working on the area of Automation and Control System. The president of the Association Dr. Mohd. Rizal Arshad who is the Deputy vice chancellor of Universiti Malaysia Perlis delivered the talk on the title of 'Bio inspired system' highlighting the thrust in the direction of need for building automation systems by understanding and observing nature. He also emphasized on the fact that how sensors and actuator serve as a driver in this area. The session was followed by a talk by Dr.Hazlina Selamat who is the director for Centre for Artificial Intelligence & Robotics, Universiti Teknologi Malaysia. In her talk she briefed her research area of how she developed a software using open-source tools for crowd evacuation which simulates the movement of a crowd on the event of a disaster.

She also highlighted her journey from a concept to a product and currently she is holding the Intellectual property rights of the product. She indicated the know how required to a develop a simulation product which was well appreciated by the audience and stressed upon the importance incorporating AI tools into a product like this to make it more efficient. The afternoon session was given by Dr Mohd Khair Hassan of Universiti Putra Malaysia. He delivered the lecture on the topic "AI for power management in Automotive Sector". In his talk he mentioned the significant demand for the need for technology in the area of Power management in electric vehicles to make the common man relish the dream of having one. He spoke about the architecture and membership functions required to develop a power management for an electric vehicle. During his talk he gave an idea of AI tools that can be used effectively for this purpose and gave audience an opportunity to clarify their questions in the area of Electric vehicles. The final session of the day was given by Mr. Sanjeev Sharma, CEO of Swaayatt robotics. His session kindled the entrepreneurship spirit in many participants as he unrevealed his journey from being a student to becoming a CEO of a company. He pioneers in the area of autonomous vehicles where he is focusing on developing the system for Indian conditions. Day 2 concluded with audience giving feedback and exploring themselves by taking the speculation survey shared with them with an intent to identify the factors that stop a student from developing products towards a social cause which was taken by almost all the participants who attended the session.

Day 2 – Workshop on Robotics and Intelligent Systems	
	Prof. Mohd Rizal Arshad Deputy Vice Chancellor (Academic and International) Universiti Malaysia Perlis (UniMAP).

	Dr. HAZLINA SELAMAT Associate Professor Director Centre for Artificial Intelligence & Robotics Universiti Teknologi Malaysia
	Assoc. Prof. Ir. Dr Mohd Khair Hassan Head Department of Electrical and Electronic Engineering, Faculty of Engineering Universiti Putra, Malaysia
	Mr. Sanjeev Sharma Founder, Director and CEO Swaayatt Robots Pvt. Ltd. India

DAY 3

The third day of the conference witnessed the final workshop of the conference themed around the area of Artificial Intelligence, Mechatronics and Analytics. The speakers of the session exposed us to how analytics is used in conjunction with Industry 4.0 to improve the overall operability and efficacy of operations and on the possible career options in analytics. The first session of Day three was delivered by Dr. Carol Hargreaves, Director, Data consulting centre of National University of Singapore. She made participant understand how Industry 4.0 and analytics are working hand in hand to drive modern day industries. The speaker also shared her research experience in applying AI and analytics to the field of health care. The session enriched the participants on the potential of Analytics for career and research progress. The session was followed by Dr. S. Karunanidhi, Associate director, Research Centre Imarat, DRDO whose talk was an eye opener for many which helped the participant to understand the Mechatronics application in defence space. The concepts showcased throughout the presentation impressed everyone who were part of it. The third session for the day was handled by Dr. Doriana Marilena D'Addona of University of Naples Fedrico – II

where she spoke about the Cognitive Challenges in implementing Industry 4.0. The session covered the various aspects of Cognitive challenges to be addressed during implementation of Industry 4.0 and how to develop the framework of Industry 4.0 with man in the loop. The final session was handled by Mr. Umesh Ramesh Krishnan who leads the data team in Traveloke pte, Singapore. He narrated his journey of his transformation from being a Mechanical engineer to a Data Scientist. He pointed out the key skill sets that are to be embarked by an engineer in order to be an effective data scientist. He also concluded by explaining the participants about job description that they will be engaged in when they are boarded as a Data Scientist. The day concluded by thanking the participants for their journey with us for the past three days where each one of the participants grooved themselves to the virtual platform on all three days making things easy for the organizer. The participants also made all the session interactive by actively participating in the session by asking questions and getting benefitted.

Day 3 – Workshop on Artificial Intelligence, Analytics & Mechatronics	
	Dr. Carol Hargreaves Director Data Consulting Center-NUS
	Dr. S. Karunanidhi, Outstanding Scientist/ Sc "H" Associate Director Research Centre Imarat Hyderabad
	Dr. Doriana Marilena D'Addona University of Naples Italy

	Ms. Jennifer David Research Associate Bristol Robotics Lab England
	Mr. Umesh Data Scientist Traveloke PTE Ltd. Singapore

The conference also witnessed a signature event floated on the title 'Young Turks' which was designed to show case the strength of our alumni in the theme of the conference. The session was carried out in Hybrid mode were some Young turks coming live and other sharing us the recorded video which was premiered in the conference. The objective of the session is to build confidence among emerging researchers and participants to progress in the path laid by our own alumni students. Details of the session and recorded video are available in the link @ (607) Prepare With Arun - YouTube.

Mr. .Rakesh – Alumni SSN

Mr. Akhil Ramesh – Alumni SSN

Mr. Deep shah – Alumni SSN

Mr. Aditya – Alumni SSN

Mr. Arjun Shyam Sundar – Alumni SSN

DAY OF CONFERENCE (19.03.2021)

DAY 4

Inauguration (8.30 am-9.00 am)

Destined to be a humble event but it was graced by stalwarts like SNU Chennai, Vice Chancellor Dr. Sriman Kumar Bhattacharyya, Mr. M. MalaiKannan, President Saama Technologies, USA a distinguished alumnus of SSN and our beloved Principal, Dr. V.E. Annamalai. The meeting was presided over by our Head of the Department, Dr. S.R. Koteswara Rao. Both the guests were laying new directions for the participants and shared their experiences and the knack of overcoming the impediments. To add a feather to the cap Dr. Huub K. Bakker, the first keynote speaker of ARAM 2021, waved the flag launching **ARAM^2** right from New Zealand. The launch video could be found at: [(607) Launch of ARAM 2022 | Huub Bakker | SSN College of Engineering - YouTube](#)

Kindle Minds (9.00 am-1.00 pm)

Kindle minds started with Ms. Kalki Subramaniam, Activist, Artist, Actress, Writer, Inspirational speaker and Entrepreneur throwing light upon the tumultuous life of a transgender while sharing food for thoughts of a unique flavour astounding all the attendees. She chose to take all the questions with humility that only "noble people" like her could exhibit. All these, despite the disadvantage position she started her life with is something that could inspire a stone.

It was very unfortunate for us to miss Mr. Samas, Editor & Journalist, The Hindu Newspaper (Tamil Edition) for his personal reason. Team ARAM wishes him luck and good health.

Padmashri Dr. G. Bakthavathsalam, Chairman & Managing Trustee, KG Hospitals, Coimbatore, being 78, was too young for his age with his level of enthusiasm and the diligence he put on display. His half-an hour video showcasing all the equipment in his hospital, to highlight the role of engineers (80%) in a hospital, was an eye-opener even for the engineers themselves. He had cancelled a meeting with Gujarat CM to make this happen. He had a

follow-up Q&A session for nearly an hour. His enthusiasm is infectious. It is an age defying deed indeed!
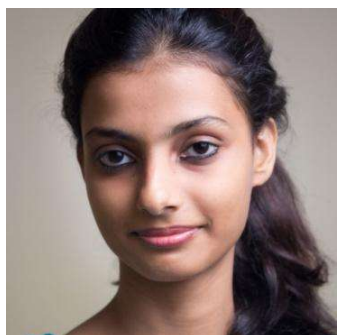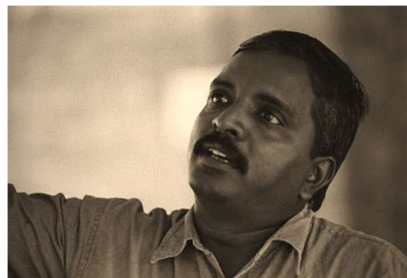
Another beautiful thing about our speakers is the serendipity that surrounds them. They are already connected on their own, which the organizers were originally unaware of, until the day of the Kindle minds. Ms. Kalki and Ms. Swarnalatha have received their awards from Dr. G. Bakthavathsalam on some earlier occasions. Mr. Elango and Mr. Praveen are known to each other.

Ms. Swarnalatha J, Founder & Managing Trustee of Swarga Foundation was so sweet in narrating her life trials & tribulations, experiments, and her success stories. The support offered by her husband, children and her support staff were well documented. We hold her in high regards for the courage she showed to bring up the ever covered-up topic of sexual harassment. For the kinda of efforts that she makes, and the quantum of tasks executed in improving the lives of other physically challenged people, she sure is a woman of 1000 limbs.

Mr. Elango, twice Ex-Panchayat President, Kuthambakkam, Tiruvallur district did his B.Tech from Anna University, then working as a scientist in CSIR quit his job to contest in Panchayat elections. In his quest for implementing Gandhian empowerment, he has ridden his village of illicit liquor, implemented 'samathuvapuram' for the first time in the country (later adopted by TN government) and made his village a model village in the country. He spoke about Sustainable development goals that he is implementing in his workshops for other panchayat leaders and was very keen in interacting with our teachers to take SDGs as a part of living. We would be initiating next level **discussions from next month**. Anyone else interested is welcome to join the bandwagon.

Ms. Aishwarya Balasubramanian, Program Officer at Centre for Environment Education, Chennai deftly handled the session on SDGs in daily life with many queries to address. The acumen that she showed in her area of research was too amazing for her age, being a budding environmentalist with 7 years of field experience. As an offshoot we would be submitting a proposal in taking up a **1 credit course** offered by CEE to our SSN students. The course would be offered by none other than Padma Shri Kartikeya Sarabhai, son of Padma Vibhushan Vikram Sarabhai. For more information on the course: https://www.ceeindia.org/sdg-handprint-lab

Finally, it was Mr. Praveen Kumar Sayyaparaju, Deputy CEO & Head – Education, SVYM, Mysore, Karnataka, after one hour of delayed time slot. He was super cool as he always is, taking everything in his stride sporting a big smile. Quoting many case studies from his experience he was reiterating the need to get on the ground when it comes to serving the society. His solar cooker anecdote was an icebreaker and a critical puzzle for many. His answer to his naysayers, that you do the job, give me the money and I will keep doing the good work is a thought, which only a noble mind could afford to earn.

To summarize: The Mind-chefs were very cooperative in sliding the timeslot and were highly accommodative of others. The willingness to learn from the others were the non-obvious examples that they were setting on stage for everyone to emulate. Overall, this concept of 'Kindle minds' as a thought cafe was a gamble that paid off hefty academic outcomes. 'More for Less'! More returns for lesser investment of time and efforts.

PAPER PRESENTATION SESSIONS (1.00 pm – 4.30 pm)

Though the abstracts submission crossed 100 we restricted the number of presentations to 70. The sessions happened in 5 tracks with eminent members from other institutions and departments chairing each session. They were ably supported by distinguished internal chairs. The sessions went on till 4.30 pm and

Track	External Chairs	Internal Chairs
1	Dr. Arockia Selva Kumar, VIT Chennai	Dr. C. Arun Prakash
2	Dr. Kuppan Chetty, HIET, Chennai	Dr. Satheesh Kumar G
3	Dr. Jansi Rani S. V, SSNCE, Chennai	Dr. K. S. Jayakumar
4	Mr. S. Puroshothaman, SRM Easwari, Chennai	Dr. R. Vimal Samsingh
5	Dr. P. Sandeep Kumar, SRMIST, Chennai	Dr. S. Esther Florence

some of the ideas were selected for 8 different awards under the categories like best paper and safety for women. Thanks to all the authors and special thanks to all the authors who contributed to Women's Safety @ FAQ | ARAM21.COM (aram2021.com).

We also floated a special category online competition called 'Aadu Kalam' for students, on the theme "Game Kalam" commemorating our favourite Engineer Dr. APJ Abdul Kalam. The students must make a one-two minutes video defining a problem statement on any social problem (family, friends or anyone or anything in real life) that deserves to be solved by science and technology. We love all those videos @ (607) Prepare With Arun - YouTube. The winner of this event is Mr. Mudit Chaudhary, 2nd year Mech student, SSNCE for his video on stubble burning. **Congratulations Mudit!**
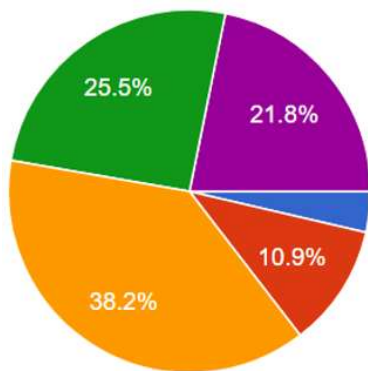
And Mr. Sai Sethuraman M, student from Department of Mechatronics Engineering, Kamaraj College of Engineering and Technology, Madurai is chosen as the winner of **"Student of Integrity"** award. This award is instituted to encourage participants who have been proactive during sessions with engaging questions & answers, 100% attendance and participation in the "Aadu Kalam" competition. There is no prize money associated with this award, but his registration fee for workshops/publication in **ARAM^2** would be fully waived. **Way to go Sai!**

The list of winners and their affiliations are presented here:

Winners and Winners!

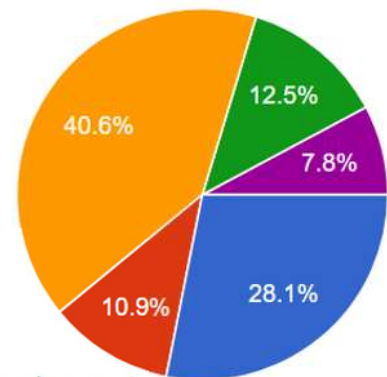| S. No	Paper Title	Name
1	Physiotherapy Robotic Arm	Goutham KR, Kongu Engg.
2	A Statistical Study On Customer Satisfaction On Yamaha At Jai Motors	Harini Paramasivam, SRM Easwari
3	Design And Analysis Of Quad-Port Wristband Antenna For Diversity Applications	Adithya Vamsi, SRMIST
4	Deep Reinforcement Learning based Autonomous System for Dynamic Traffic Management	Aakash Murugan, SSNCE
5	Statistical Evaluation Of Talent Management System - A Case Study On Shriram City Union Firm	Gokul. S, SRM Easwari
6	Robot For Detecting And Eradicating The Agents Of Malaria, Dengue And Zika Virus	Aditya Bucha, SSNCE
7	Renewable Hybrid Energy System	Ramasamy AL, SRM Easwari
Special Call - Technology for Woman		
8	Handheld Device For Women Safety	Naga Lakshmi B, SSNCE

PARTICIPANTS' RESPONSE FOR SOME QUERIES

Should the social problems faced by women like acid attack, domestic violence and sexual harassment be treated as technological problem and solved by Engineers?
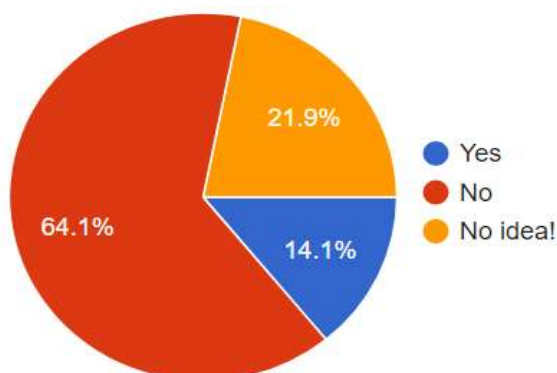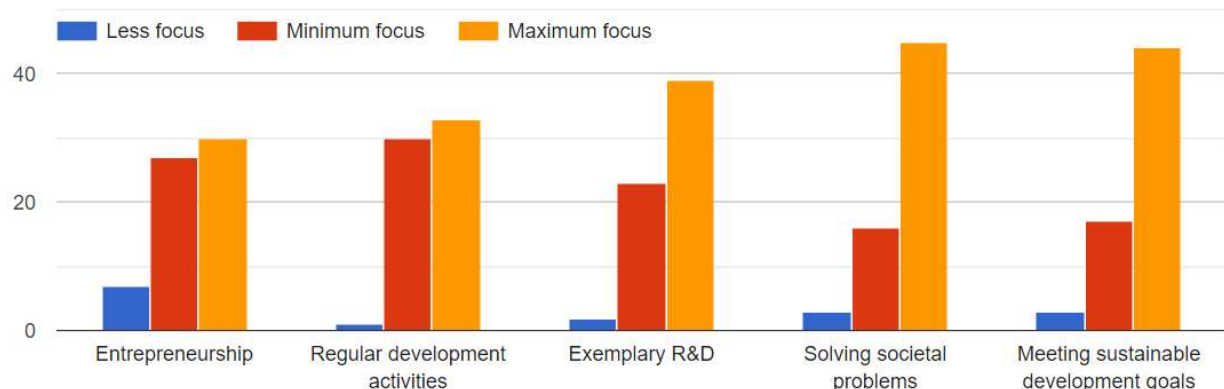
- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

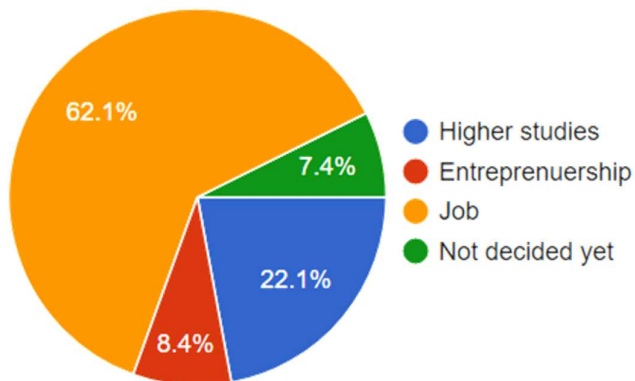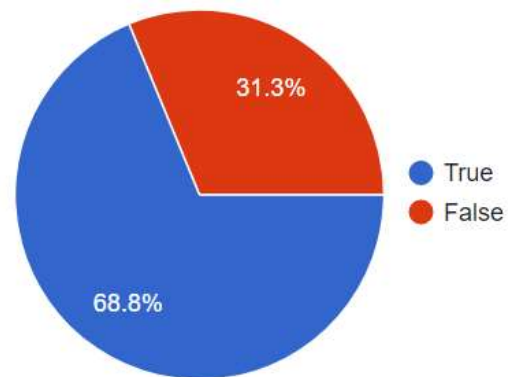Where does the focus lie among the current generation of Engineers?

- Societal problems
- Work for the sake of work
- It is all about survival
- Exemplary research and development
- Regular development activities

Where should we focus primarily as Engineers?

- Less focus
- Minimum focus
- Maximum focus

Entrepreneurship | Regular development activities | Exemplary R&D | Solving societal problems | Meeting sustainable development goals

- Yes
- No
- No idea!

There are at least 10 lakh (1 million) engineering students that graduate every year in India. Are there 10 lakh engineering jobs to absorb them?

Is competitive living the only scope for human civilization to sustain?

31.3%

68.8%

● True
● False

62.1%

7.4%

22.1%

8.4%

● Higher studies
● Entreprenuership
● Job
● Not decided yet

After your graduation what is your choice of career option?

Who has impressed you the most as an Engineer?

APJ Abdul Kalam - 10   MING KAI TSAI - 1

Elon Musk - 7   Andrej Karpathy - 1

Sundar Pichai - 7   Dr. Swathi mohan - 1

Nikola Tesla - 5   Andrew NG - 1

Visveshraya - 3   Ratan Tata - 1

K Sivan - 1   John Pennyquick - 1

Mark Rober - 1   Tony Stark!! - 1

VOTE OF THANKS

Since there was no formal valediction, we wish to utilize this avenue to thank all the beloved souls!

On behalf of the ARAM 2021 we would like to thank the Chief Guest, Guest of Honour and Principal Dr. V. E. Annamalai for their benevolence to grace the occasion of inauguration at the first occurrence and for their concise delivery of their expertise and experience.

We would like to thank our HOD, Dr. S.R. Koteswara Rao & our past HOD Dr. N. Nallusamy, who are the inspiration behind this conference and has been significantly involved at various stages.

Team ARAM wishes to thank all the Keynote speakers, for excellent delivery, proactive follow ups and would-make-it-easy-for-you attitude that everyone practised. Special thanks to Dr. Hubb Bakker for readily aggreging to launch **ARAM^2** from New Zealand, half way across the globe.

A forum usually involves speakers' interaction and stage sharing and point of view exchange with live involvement from audience. On the contrary, a perspectives discussion was new to the speakers and every Kindle mind speaker readily agreed to experiment with us. A special thanks to all the kind souls who made it happen.

We are very thankful to Mr. Ramesh, STEPS, IOT workshop coordinator for deftly handling the sessions to completion. Our ever-ready Alumni were a source of constant inspiration and they deserve our deepest thanks for their positive reinforcing role in the conference.

Our heartfelt thanks are due to the Session chairs and Co-chairs for leading the sessions and providing directions for each student participants.

We also wish to express our sincere gratitude to the HOD, IT department and Dr. Vasuki for helping us fix the Guest of Honour.
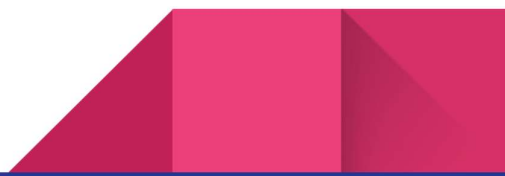
We submit my sincere thanks to Dr. Jansi, Computer Science department, Mr. Alphin & Dr. Vijayan, Mech for sharing the mail ids in order to share the conference brochure.

We would like to profusely thank Dr. K.S. Vijaysekar for initiating us towards the logo. His timely suggestions and support are highly appreciated.

Thanks are due to Mr. Vikram Bhaiyya, Mr. Sabapathy, Mr. Raghuveer and Ms. Anupama for helping us identify speakers and reaching out to schools for participation.

ARAM was an abode of experiments. We would like to submit our deepest gratitude to the Management for bestowing us with this freedom to experiment. The entire scope of this conference was defined by the financial support from the institute.

Heartfelt thanks to all the faculty members and non-teaching staff members who have directly and indirectly contributed to make this event a grand success.

Thanks are due to all the research scholars (Mr. Arun David) and student volunteers who have tirelessly slogged on for the past few weeks in keeping everything up and ready when needed.

Delegates & participants who are the protagonists of the day deserve our deepest gratitude for trusting in us and delivering their content in full as called for. Our sincere thanks for all the authors who dutifully submitted the abstracts in the prescribed format.

We would like to thank from the bottom of the heart each and every staff personnel from security section, administrative office, finance, hostel, estate, electrical maintenance, transportation unit, external agencies. Our sincere thanks are for our family members without whose support, these things were not possible.

And finally, as the convenor of ARAM 2021, I thank the 'Singa Kutties' co-convenors for their innovative ideas and never-say-no attitude, maintained throughout the conference.

Drop a mail if you feel like: aram@ssn.edu.in

See you all @ ARAM^2 on March 17 & 18 2022!