

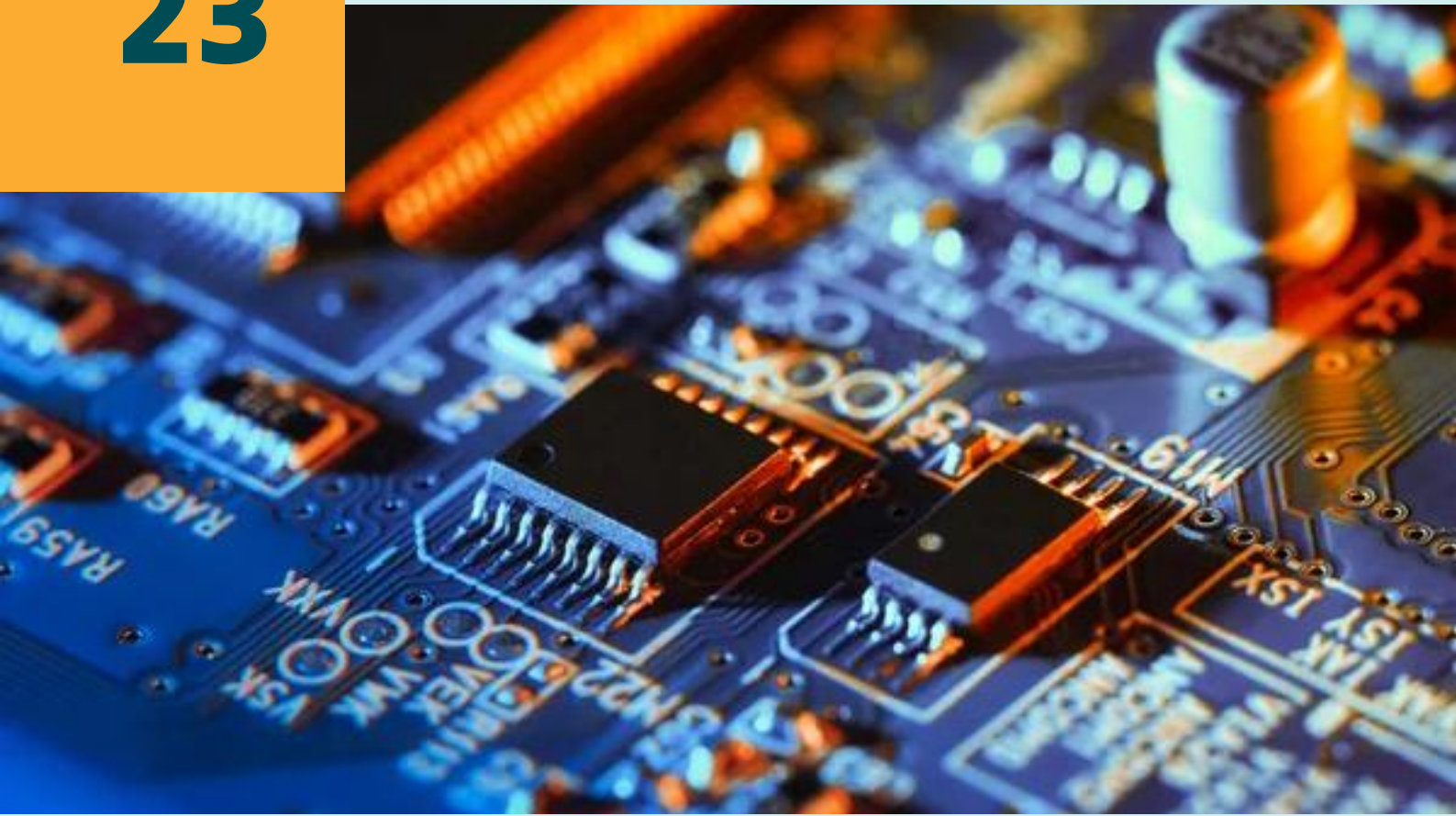
20
23



VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

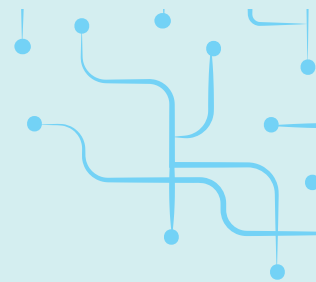


SCHOOL OF ELECTRONICS ENGINEERING



Tech-Tronics

TRIBUNE



E-NEWSLETTER:

Volume 4 Issue 1

Jan - Mar ' 23

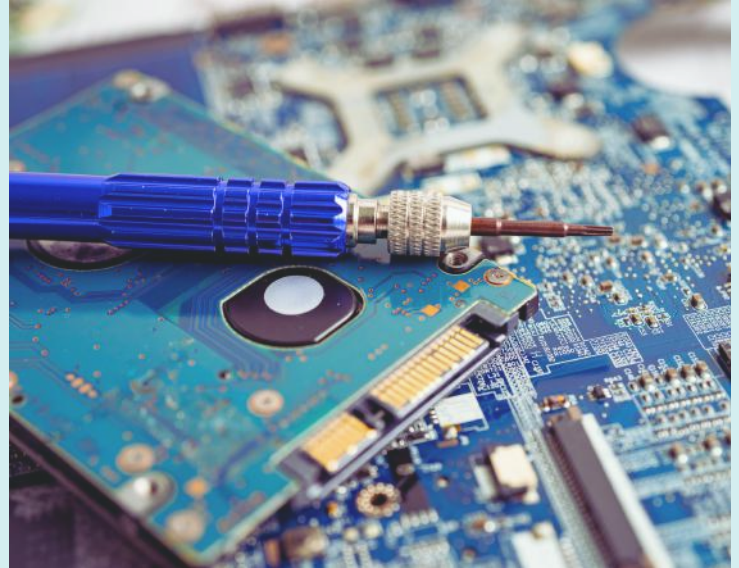


VISION

To be a leader in impacting in-depth and futuristic knowledge of electronics engineering that would cater to the need of industry, research and society.

HIGHLIGHTS

- **Vision & Mission**
- **Dean's Message**
- **Student Achievements**
- **Faculty Achievements**
- **Industry Academia Conclave**
- **Events Organised**
- **Alumni Engagements**
- **PG Alumni Meet**
- **Selected Publications**
- **Editorial Committee**



MISSION

- To create and maintain an environment of excellence in teaching, learning and applied research in the fields of electronics and communication engineering and allied disciplines which pioneer sustainable growth.
- To instill in graduates the necessary professionalism, ethics, knowledge and skills which would enable them to be lifelong learners who are able to solve current and future problems and improve the quality of human life.

DEAN'S MESSAGE

Message from SENSE Dean

Dear VITians,

I hope this message finds you all in good health and high spirits. Today, I am writing to share some significant updates and announcements regarding the School of Electronics Engineering at our esteemed institution.

In line with the rapidly evolving landscape of electronics engineering, we have initiated a comprehensive review of our curriculum. Our aim is to ensure that our programs remain at the forefront of technological advancements and equip our students with the skills and knowledge required in the industry. Expect to see exciting changes in course offerings, updated lab facilities, and enhanced project-based learning opportunities.

To foster innovation and promote groundbreaking research, we have actively sought collaborations with industry partners and secured additional funding for research projects. These efforts will provide our faculty and students with expanded opportunities to explore cutting-edge technologies, participate in multidisciplinary research endeavors, and contribute to solving real-world challenges.

To bridge the gap between academia and industry, we are actively establishing partnerships and collaborations with leading technology companies. These partnerships will enable our students to gain practical insights through internships, industrial training programs, and guest lectures from industry experts. We believe that these interactions will enhance your professional growth and help you build valuable connections.

It is with immense pleasure that I present to you the 4th Volume 1st Issue of ENewsletter "Tech-Tronics Tribune" by the School of Electronics Engineering (SENSE) for the first quarter of 2023. It highlights the well-deserved honours and recognitions awarded to faculty and students alike of the SENSE family during the period of January to March of 2023. I would like to thank all members of the SENSE family for their support and efforts that have made this newsletter possible. Thank you for your continued support and we look forward to being able to truly execute the mission and vision of the institute.



Dr. Sivanantham S.

Professor & Dean

School of Electronics Engineering

Vellore Institute of Technology, Vellore

dean.sense@vit.ac.in

FACULTY ACHIEVEMENTS

Guest Lectures Delivered

- Dr. Konguvel E**
 - Delivered an invited talk on “5G IoT: Revolutionizing Connectivity and Communication” on 23.03.2023 at Sri Krishna College of Technology, Coimbatore, India
- Dr. Sujatha R**
 - Delivered a talk on “Internet of Medical sensors with Cloud Approach for Secure Health Monitoring” on 09.01.2023 at Loyola Institute of Technology, Chennai, India
- Dr. Poongundran Selvaprabhu**
 - Delivered a talk on “Advanced Cloud Computing and novel Applications by Mr. Hariraman” on 24.03.2023 at Tata Consultancy Services, Chennai, India
 - Delivered a talk on “Essential Advanced concepts in Object oriented programming by Mr. Hariraman” on 24.03.2023 at Tata Consultancy Services, Chennai, India
 - Delivered a lecture on "Massive MIMO 5G Wireless Communication" on 24.01.2023 at Saveetha Engineering College Chennai, Chennai, India
- Dr. Kannadassan D**
 - Delivered a talk on “Know How: Ideation to Publication” on 03.03.2023 at Synopsys , Online, India
 - Delivered a talk on “The UNs Sustainable Development Goals - Quality Education, Industry, Innovation and Infrastructure” on 01.03.2023 at Velammal Engineering College, Madurai, Iceland
- Dr. Vijay Kumar**
 - Delivered a talk on “Shared aperture micro strip Antennas for UAV SAR applications” on 13.03.2023 at IIT Patna, Patna, India
- Dr. Suresh Kumar T R**
 - Delivered a talk on “EMC and EMI in Application to Biomedical Engineering” on 25.03.2023 at Kongunadu College of Engineering and Technology, Trichy, India



FACULTY

ACHIEVEMENTS

Guest Lectures Delivered

- **Dr. Arunkumar Chandrasekar**

- Delivered a talk on “Recycled Polymer Materials for Scavenging Biomechanical Energy” on 17.03.2023 at CIPET, Bangalore, India
- Delivered a special lecture in the Forthcoming “KARYASHALA High-end Workshop on Introduction to Design, Analysis and Additive Manufacturing Techniques” on 01.02.2023 at CIPET SARP, Chennai, India
- Delivered a lecture on "Faculty Development Programme: Fundamentals of Nanogenerators and Self-powered Systems" on 19.01.2023 at Christ University, Bangalore, India

- **Dr. Idrasen Singh**

- Delivered a talk on “Communications for Wearable Devices” on 13.03.2023 at Vellore Institute of Technology, Chennai, India

- **Dr. Karthikeyan B**

- Delivered a talk on “IoT- An Eye Opener” on 16.03.2023 at Arasu Engineering College, Kumbakonam, India

- **Dr. Shanmugasundaram M**

- Delivered a talk on “Embedded C Programming using 8 Bit Microcontrollers” on 25.03.2023 at Vellore Institute of Technology, Vellore, India

- **Dr. Vikas Vijayvargiya**

- Delivered a talk "Essentials of Impactful Research and Writing” on 25.02.2023 at IPS ACADEMY Institute of Engineering and Science , Indore, India

- **Dr. Shelja**

- Delivered a talk on “Role of newly adopted NCFET for low-power applications in A Short Term Course on Hands-on Training for VLSI and Communication Modelling” on 06.03.2023 at Dr B R Ambedkar National Institute of Technology, Jalandhar, Jalandhar, India

- **Dr. Vaegae Naveen Kumar**

- Delivered a talk on “Intelligent Sensor on IOT” on 21.01.2023 at Godavari Institute of Engineering and Technology, Rajahmundry Andhra Pradesh, India.

FACULTY

ACHIEVEMENTS

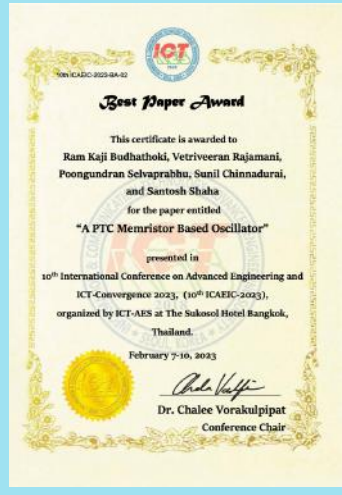
Guest Lectures Delivered

- **Dr. Debashish Dash**
 - Delivered a talk on “National Education Policy-2020” on 11.03.2023 at Oxford College of Engineering, Bomannahalli, Bangalore, India
- **Dr. Jaffino**
 - Delivered a talk on “Generative Adversarial Networks (GANs)” on 25.01.2022 at Vidya Academy of Science and Technology Technical campus, Thiruvananthapuram, India
- **Dr. Vetriveeran Rajamani**
 - Delivered a talk on “Memristor and its applications in Engineering” on 20.01.2022 at Presidency University, Bangalore, Bangalore, India
- **Dr. Christina Josephine Malathi A**
 - Delivered a talk on “Technical Content Writing” on 07.01.2022 at Kingston Engineering college, Vellore, India
- **Dr. Sriharipriya K C**
 - Delivered a talk on “Future scope of 5G Communications - 5G Key concepts and terminologies” on 18.01.2023 at Ahalia School of Engineering and Technology, Palakkad, India
- **Dr. Christopher Clement J**
 - Delivered a talk on “Machine Learning Techniques for 5G” on 18.01.2023 at Ahalia School of Engineering and Technology, Palakad, India
 - Cognitive Radio for 5G” on 18.01.2023 at Ahalia School of Engineering and Technology, Palakad, India
- **Dr. Venkata Ravi Kumar C**
 - Delivered a talk on “Cyber security for communication Networks” on 01.02.2023 at Bluecrest University, Liberia
 - Delivered a talk on “Routing Protocols for corporate networks” on 19.01.2023 at Bluecrest University, Liberia

FACULTY ACHIEVEMENTS

Honours and Awards

- Dr. R. Sujatha served as a KEYNOTE SPEAKER in Three days National Level Seminar on "**Adopting IoT for Manufacturing Sector: Its Impact and Applications**", Organized by St. Joseph's College of Engineering, Chennai.



- Dr. Ram Kaji Budhathoki, Dr. Vetriveeran Rajamani, Dr. Poongundran Selvaprabhu, Dr. Sunil Chinnadurai and Dr. Santhosh Shaha are awarded for "**Best Paper Award**" for the paper entitled "**A PTC Memristor Based Oscillator**" presented in International Conference on Advanced Engineering and ICT - Convergence, organized by ICT-AES in Bangkok, Thailand on February 7-10, 2023.

- Dr. Kathirvelan J. has successfully completed the "**Training in Advanced Capabilities in Electronics Design & Manufacturing (TRIAC-EDM)**" Course. The program consisted of both theoretical and practical components and had a duration of 60 hours, theory sessions are from January 2021 to February 2021, and practical sessions are from 13th February 2023 to 17th February 2023. The training programme was sponsored jointly by Industrial Development Bureau (Ministry of Economic Affairs), Ministry of Electronics & IT, Govt. of India, and implemented by Institute for Information Industry, National Institute of Electronics & Information Technology (NIELIT) and YEN-TJING LING Industrial Research Institute of National Taiwan University.



FACULTY ACHIEVEMENTS

Analysis of breakdown and problem rectification of the automatic book return machines installed in VIT Periyar EVR central library

VIT Periyar EVR Central Library had three automatic book return machines that were not working for a couple of months, causing chaos for the library officials. Dr. Kathirvelan J and his team from SENSE were called in to troubleshoot the machines. They managed to fix two of them based on their analysis and previous experience, but the third machine required further investigation. The team formed included Dr. Sivanantham S, Dr. Kathirvelan J, Dr. Karthikeyan B, and technical staff members Mr. Sridhar and Mr. Sudharson P K. They identified and rectified several issues with

the machine, including problems with the PLC controller, a digital timer, shorting of AC and DC lines, and a faulty input sensor. The machine resumed normal operation on May 4, 2023, and was made available for student usage. The library officials were pleased with the successful resolution of the problems after two years of non-functionality. The SENSE team thanked the Director of Periyar EVR Central Library and the VIT management for their support and encouragement in tackling challenging tasks.



STUDENT ACHIEVEMENTS

Students of SENSE that are a part of various Teams and Clubs of VIT have garnered numerous awards by their talent and hard work. Students learn to collaborate with diverse groups, overcome challenges, and take on responsibilities, which helps them grow as individuals.



FACULTY

ACHIEVEMENTS

Industry Academia Conclave

School of Electronics Engineering, VIT signed an MoU with **Microchip Technology**, Bangalore, **Enthu Technology**, Coimbatore and **Object Automation System Solutions**, in collaboration with **IBM**, Chennai on March 23, 2023.

MoU agreement was executed for faculty development programs, research & development program, to get industrial knowledge, industrial visits & research and design industry relevant curriculum and courses. All three industries agreed to join hands with VIT to shape the brains of the next generation. The signing of this agreement is yet another expression of enhancing the affinity between VIT and the industry fraternity.

Mr. Srikanth Bhyrappa Settikere, Vice-President, signed the MoU agreement on behalf of Microchip Technology, Bangalore. The objectives of the MoU are to enhance the technical skills of the students, organize various workshops on skill development, conduct practical training on industrial skill development, and explore Microchip's ability to provide internship and employment opportunities.

Mr. Moorthy Kanakaraj, Director, represented Enthi Technology, Coimbatore in signing the agreement. The purpose of the collaboration is to set up a center of Excellence in Intelligent Industrial IoT, support for Industry-led one-credit courses, Research and Development, consultancy opportunities for domain experts, start-up support to students, on-campus internship, faculty training and enrichment program.

Mrs. Sri Kamini, Technical Manager, signed the MoU on behalf of Object Automation Solutions in collaboration with IBM, Chennai. The outcome of the MoU will be technical solution development, faculty training on a particular technology on demand, internship and placement opportunities in the field of computer applications.

FACULTY
ACHIEVEMENTS

Industry Academia Conclave



IAC - VLSID 2023

VLSID 2023 is an international conference on VLSI Design. It is a prestigious global gathering that brings together researchers, engineers, industry professionals, and academicians from around the world to exchange knowledge and insights in the field of Very Large-Scale Integration (VLSI) design. The conference serves as a platform for the dissemination of cutting-edge research, technological advancements, and emerging trends in the domain of semiconductor technology. With a focus on innovation and collaboration, ICVD plays a pivotal role in shaping the future of VLSI design.

Prof. Sivanantham S, Dean of SENSE, along with other faculty and students had the privilege to attend the 36th international conference on VLSI design at Novotel Hyderabad from January 10th to 12th, 2023. Along with attending the conference, they also visited IIT Hyderabad.



EVENTS ORGANIZED

01

02-03-2023

INTEGRATING WORK &
LIFE: A MINDFUL &
PURPOSEFUL APPROACH

KONGUVEL ELANGO
VIDHYA S
BOOPALAN G



03

23-01-2023

THREE DAY FACULTY
DEVELOPMENT PROGRAMME
ON EMERGING TECHNOLOGIES
FOR 5G/6G WIRELESS
COMMUNICATION

VINOTH BABU K,
HARIHARAN S,
POONGUNDRAN SELVAPRABHU



19-01-2023

THREE-DAY WORKSHOP
ON EMC/EMI TECHNIQUES
AND STANDARDS

ZACHARIAH C ALEX
SHAMBAVI K
SURESH KUMAR T R

02

23-01-2023

ADVANCEMENTS IN MICROWAVE
AND PHOTONICS FOR NEXT
GENERATION COMMUNICATION
SYSTEMS

RAJKISHOR KUMAR
AVINASH CHANDRA

04

05

20-02-2023

SENSE INTERNATIONAL CONNECT
(SI-CONNECT) SEMINAR SERIES
EMERGING ARTIFICIAL
INTELLIGENCE USE CASES

POONGUNDRAN S
RAJESHKUMAR V
VINOTH BABU K



06

03-03-2023

ELEVATING EXCELLENCE
IN RESEARCH &
TECHNICAL WRITING
KONGUVEL ELANGO
VIDHYA S
BOOPALAN G



01-03-2023

CULTURAL SHOW TITLED
"MU INDEX (STAGE PLAY)
AND CHI INDEX (SONG)"

DHANABAL R

07



08

21-02-2023

EVOLUTION OF
INTEGRATED ELECTRONIC
APPROACHES FOR
GENOME SEQUENCING

RAJESHKUMAR V
DEBASHIS MAJI



21-02-2023

INTERNATIONAL CONNECT (I-
CONNECT) SEMINAR SERIES
ON EMERGING ARTIFICIAL
INTELLIGENCE USE CASES

HARIHARAN S
NANDAKUMAR S

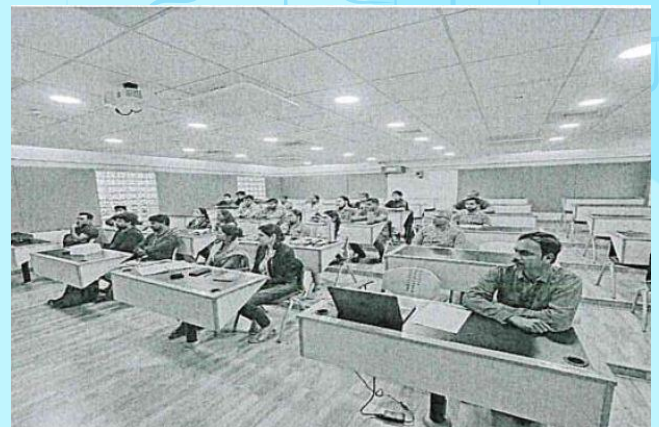
09

10

22-02-2023

BEYOND 5G
COMMUNICATIONS FOR
HEALTHCARE SYSTEMS

SANGEETHA A
VETRIVEERAN RAJAMANI



11

16-03-2023

FIBER OPTIC
SIMULATION TOOL

SANGEETHA A
VETRIVEERAN RAJAMANI



25-03-2023

INTRODUCTION TO
BUILDING MANAGEMENT
SYSTEMS

SUMIT KUMAR JINDAL
VENUGOPAL P

12

ALUMNI ENGAGEMENTS

Dr. Ritabrata Bhattacharya

Dr. Ritabrata Bhattacharya is currently a Senior Principal Engineer working on the cross platform enablement of 56 mm-wave solutions at Cadence Design Systems. He has also held a brief stint at Peregrine semiconductors UK as a 5G mm-wave designer working on vector modulators. He is an alumnus of VIT, Vellore, and receiver of a gold medal for his outstanding performance in B. Tech ECE in the year 2009. He holds a doctorate from the Indian Institute of Technology, Delhi in the area of reconfigurable and broadband RFICs in the sub 6 GHz regime. His key areas of interest are architectures for mm-wave low noise amplifiers and power amplifiers.

POSTGRADUATE ALUMNI MEET

School of Electronics Engineering organized "PG ALUMNI MEET" at the Aloft Hotel, Bengaluru. 115 alumni members of PG Programmes viz. M. Tech Communication Engineering, M. Tech. Biomedical Engineering, M. Tech Sensor Systems Technology, M. Tech Nanotechnology, M. Tech Embedded System & M. Tech VLSI Design working in Bengaluru have participated in the meet.

The objective of the meet was to involve the alumni on how to improve the curriculum, teaching learning process, industry readiness, design summer and winter training programmes and to improve the placements.

Prof. S. Sivanantham, Dean SENSE, welcomed the alumni participants. Prof. K. Sivasankaran highlighted the objective of PG alumni meet. Prof. Kanish T. C. Assistant Director, Alumni Affairs addressed the gathering on VITAA. Mr. Bharathidasan S., Vice-President, VVDN Technologies, President Bengaluru Chapter, presented the annual report of the chapter. Presidential address was thrown by Mr. Sankar Viswanathan, Vice-President, VIT. Prof. Jagannadha Naidu K. solicited the Chief Guest Shri. Shivraj B. Thakre, Engineering Director, IP Group, Intel India. Prof. Noor Mohammed delivered the vote of thanks, followed by photo session. Prof. S. Vidhya and Prof. B. Karthikeyan hosted the alumni meet.



FACULTY

INDUSTRY VISIT

intel®

AMD

cādence®

Qualcomm

• APTIV •

NXP

ALSTOM

infineon



SELECTED PUBLICATIONS

Out of 78 research articles published in reputed scopus indexed journals, publications with impact factor > 4.0 are listed:

- Blockchain-based trust mechanism for digital twin empowered Industrial Internet of Things, Sasikumar A., Vairavasundaram S., Kotecha K., Indragandhi V., Ravi L., Selvachandran G., **Abraham A.**, Future Generation Computer Systems, Vol:141, Pg.No: 16-27, IF = 7.307.
- COVID-19 clinical waste reuse: A triboelectric touch sensor for IoT-cloud supported smart hand sanitizer dispenser, Basith S.A., **Chandrasekhar A.**, Nano Energy, Vol:108, IF = 19.069.
- Numerical study of temperature and pressure effect on one dimensional random photonic crystal used as biosensors in the detection of breast cancer cells, Lakshmi Thara R., Aruna Priya P., **Nayak C.**, Physica Scripta, Vol:98, Issue: 2, IF = 3.081.
- Developing novel channel estimation and hybrid precoding in millimeter-wave communication system using heuristic-based deep learning, G N.R., **Ravikumar C.V.**, Energy, Vol:268, IF = 8.857.
- Sucrose assisted chemical-free synthesis of rGO for triboelectric nanogenerator: Green energy source for smart-water dispenser, Muktar Ahmed R.F.S., Mohan S.B., Ankanathappa S.M., Shivanna M., Basith S.A., Chandrashekara Shastry M.H., **Chandrasekhar A.**, Sannathammegowda K., Nano Energy, Vol:106, IF = 19.069.
- Smart microgrid with the internet of things for adequate energy management and analysis, Sitharthan R., Vimal S., Verma A., **Karthikeyan M.**, Dhanabalan S.S., Prabakaran N., **Rajesh M.**, Eswaran T., Computers and Electrical Engineering, Vol:106, IF = 4.152.
- L-shaped geometry-based pattern descriptor serving shape retrieval, Priyanka S., Oliva D., Mallikarjuna K., **Sudhakar M.S.**, Expert Systems with Applications, Vol:213, IF = 8.665.

SELECTED PUBLICATIONS

- Formulation analysis and follow up study of differential MEMS touch mode sensor utilizing capacitive vacuum gauge framework for low pressure measurements, Sreekanth P.K., Jindal S.K., IEEE Sensors Journal, IF = 4.325.
- Adaptive Bezier Curve-based Membership Function formulation scheme for Interpretable Edge Detection, Madhu C., Sudhakar M.S., Applied Soft Computing, Vol:133, IF = 8.263.
- Development of high-performance broadband optical detector for cryogenic to elevated operating temperature, Talib M., Manzoor S., Sharma P., Tripathi N., Platonov V., Pavelyev V., Volkov V.S., Arsenin A.V., Syuy A.V., Hasan P.M.Z., Melaibari A.A., Mishra P., Materials Science in Semiconductor Processing, Vol:158, IF = 4.644.
- Distinctive analysis of power and frequency allocation for Device to Device (D2D) communication, Turaga H., Bommisetty S.H., Vanukuru C., S N., Preetha K.S., Velmurugan T., Computers and Electrical Engineering, Vol:106, IF = 4.152.
- A deformable CNN architecture for predicting clinical acceptability of ECG signal, Allam J.P., Samantray S., Sahoo S.P., Ari S., Biocybernetics and Biomedical Engineering, Vol:43, Issue: 1, Pg.No:335-351, IF = 5.687.
- Carbon-Protected BiVO₄/Cu₂O Thin Film Tandem Cell for Solar Water Splitting Applications, Raghavan S.S.R., Andrews N.G., Sellappan R., Catalysts, Vol:13, Issue: 1, IF = 4.501.
- Highly Selective and Rapid Detection of Ethanol Using Ni Functionalized ZnO Nanoflakes Coated Fiber Optic sensor, Narasimman S., Balakrishnan L., Alex Z., IEEE Sensors Journal, IF = 4.325.
- Opportunities and Challenges in Power Management Systems for Triboelectric Nanogenerators, Begum S.R., Chandrasekhar A., ACS Applied Electronic Materials, IF = 4.494.
- MRI brain tumor segmentation using residual Spatial Pyramid Pooling-powered 3D U-Net, Vijay S., Guhan T., Srinivasan K., Vincent P.M.D.R., Chang C.-Y., Frontiers in Public Health, Vol:11, IF = 6.461.

SELECTED PUBLICATIONS

FUNDED PROJECTS AND CONSULTANCY

TOPIC: Shape Memory Self-healable Hydrogel For Self-powered triboelectric Nanogenerator-based E-skin

AMOUNT SANCTIONED: Rs. 29,00,280

FUNDING AGENCY: SERB- SURE

PI: Dr. Arunkumar Chandrasekhar

TITLE OF THE CONSULTANCY PROJECT: Technical Investigations for TWCOE

NAME OF THE CONSULTANT: Dr. Kathirvelan J

NAME OF THE INDUSTRY: M/s SKF India Ltd. Bangalore

AMOUNT SANCTIONED: Rs. 6,00,000

DATE OF P.O: 3rd April, 2023

DURATION: 6 months

PUBLICATIONS WITH HIGH IMPACT FACTOR

Title: COVID-19 clinical waste reuse: A triboelectric touch sensor for IoT-cloud supported smart hand sanitizer dispenser

Published in Nano Energy, January, 2023 (IF: 19.069)

DOI: 10.1016/j.nanoen.2023.108183



Proposed Cover page

Indian Patent Published

(1) PAPER/ APPLICATION/PUBLICATION	(2) INDIAN PATENT APPLICATION	(3) APPLICATION NO.	(4) PUBLICATION NO.
(1) INDIAN PATENT APPLICATION	(2) INDIAN PATENT APPLICATION	(3) INDIAN PATENT APPLICATION	(4) INDIAN PATENT APPLICATION
(1) INDIAN PATENT APPLICATION	(2) INDIAN PATENT APPLICATION	(3) INDIAN PATENT APPLICATION	(4) INDIAN PATENT APPLICATION

Application Number: 202341017263

Publication Date: 24.03.2023

https://patentscope.wipo.int/search/en/detail.jsf?docId=IN394376121&_cid=P21-LGC3CU-42064-1

Title: Synergistic effect of dual surface modified Ecoflex polymer for dynamic triboelectric nanogenerator towards sustainable battery-free tally counter

Accepted in Journal: Advanced Materials Technologies, June, 2023 (IF: 8.856)

DOI: 10.1002/admt.202300495



Proposed TOC

EDITORIAL BOARD

Faculty Team

- Prof. Sivanantham S., Dean, SENSE
- Prof. Vidhya S., HOD, Department of Sensor & Biomedical Technology
- Prof. Karthikeyan B., HOD, Department of Embedded Technology
- Prof. Noor Mohammed V., HOD, Department of Communication Engineering
- Prof. Jagannadha Naidu K., HOD, Department of Micro & Nanoelectronics
- Prof. Konguvel E., IQAC Coordinator, SENSE

Student Team

- Arish P., 21BEC2348
- Hamrita H., 22BML0031
- Celina Sen Mathew, 22BML0033
- Spoorthinanda Sadananda, 22BML0050
- Tanuj George D'Souza, 22BML0084

For Suggestions & Feedback:
sense.outreach@vit.ac.in