

#### Vol. 1, No. 01

#### January 2023

# **EDITOR'S NOTE**

Greetings from Team IMPULSE Pulse of ECE!

The editorial board is glad to release the first issue of "IMPULSE - Pulse of ECE", E-Newsletter of the Department of Electronics and Communication Engineering.

It is a technical platform to bring out the hidden talents of students and faculties of our department.

This inaugural issue is a brief account of the activities and accomplishments of the department. In addition, it informs readers about recent departmental events, such as student and staff accomplishments, as well as the latest departmental news. The editorial board accepts suggestions and comments to improve the quality of the newsletter. This is just a small step towards a long journey.

We would like to extend our sincere thanks to Dr T D Subash, Head of the Department of Electronics and Communication Engineering for his constant support and guidance that he has rendered in making this newsletter a reality. He pushed us to improve the content of the newsletter. We extend our thanks to the management and faculty members of VISAT for their kind and continued support in the progress of the department.

We hope you enjoy this edition as much as we enjoyed creating it !!!

Editors

Asst. Prof. Hima K

Asst. Prof. Reshma VP

Asst. Prof. Arya Krishnan

"A good editor is someone who cares a little less about the author's needs than the reader's"

# **DEPARTMENT VISION**

To be a front-runner in preparing technically competent and ethically responsible electronics professionals capable to meet the needs of society.

## **DEPARTMENT MISSION**

We are committed to

- 1. Provide value-based education incorporating hands-on training and industry interactions.
- 2. Establish state-of-the-art resources to enhance research in Electronics Engineering and allied fields.
- 3. Inculcate moral and ethical values among staff members and students.

## **MEET THE TEAM**

## FACULTY COORDINATOR

Dr. TD Subash, Prof. & HOD ECE

## **FACULTY IN CHARGE**

Asst. Prof. Hima.K, ECE Department

## **EDITORS**

Asst. Prof. Reshma VP, ECE Department

Asst. Prof. Arya Krishnan, ECE Department

## **DESIGN COORDINATOR**

Sonu Sunil (Student S7 ECE)

Coming together is a beginning; keeping together is progress; working together is success. - Edward Everett Hale

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"Don't take rest after your first victory because if you fail in second, more lips are waiting to say that your first victory was just luck." - Dr APJ Abdul Kalam

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## **TECHNICAL NEWS**

#### SEA LI-ION PROJECT AIMS TO ELECTRIFY MARITIME TRANSPORTATION

Sea Li-ion, a project co-financed by the Connecting Europe Facility of the European Union, analyses and maps novel concepts and environmentally friendly answers to advance the electrification of the maritime industry. The project's main goal is to use energy storage to supplement existing shore power installations in order to address the shore power shortage and bottlenecks.

The project's goal is to increase the environmental friendliness, energy efficiency, adaptability, and competitiveness of maritime transportation while maintaining the highest levels of safety. These actions are an essential stage in bringing the project to fruition since they will enable all project participants to evaluate the advantages and disadvantages of a new technology.

Many ship owners, today, are thinking in using batteries for propulsion. However, the availability of shore-side electricity, the slow charging rate, and the capacity for it are what are preventing them. The partners in the Sea Li-ion project took on the issue of filling knowledge gaps that still exist about the use of batteries for ship propulsion because they were driven by the need to drastically reduce the environmental effect on a critical route.

Together, the participants have fulfilled four activities:

- 1. Designing the energy storage system (ESS) to be used in ports
- 2. Determining how easily lithium-ion batteries can be recycled
- 3. Evaluating how the ESSs will affect the electrical grid
- 4. Business case for ESS in ports.
- 5. In addition to the above-mentioned activities, a number of workshops have been held, some of which dealt with the assessment of the safety and dangers associated with energy storage in diverse port contexts. Collaboration has been crucial, with the Rescue Service and RISE being two examples.
- 6. On the Port of Gothenburg, a commercial case study for electric ferries and ESS was done. The outcomes demonstrated that there is now enough power. However, installing an ESS in the port offers chances to release power for alternative uses. The ESS might be utilized to support the grid or other services because it would only be required for a few hours each day to charge the ferry. 5% of all the electricity used in Gothenburg is utilized to charge one ship.



"Education is the passport to the future, for tomorrow belongs to those who prepare for it today." - Malcolm X



# **TECHNICAL EVENTS ORGANIZED**

#### 1. WORKSHOP ON ROBOTICS

A two-day workshop on "Robotics" was conducted by Robotics Club under Electronics and Communication Engineering Department in association with IEDC on 27<sup>th</sup>, 28<sup>th</sup> June 2022 at Robotics and Automation Lab at VISAT Engineering College. The workshop was inaugurated by Retd. Wing Commander Pramod Nair, Director,



2. TRY ENGINEERING AND STEM OUTREACH PROGRAMME

IEEE Photonics Society hosted Try Engineering and STEM Outreach Programme@ VISAT Engineering College, Ernakulam, Kerala, India on 23rd July 2022. Dr TD Subash, Global Strategy Representative for India, IEEE Photonics Society, USA inaugurated the program and emphasise the importance of Try Engineering and IEEE membership benefits to the higher Secondary school Teachers and students. The workshop session started by the welcome speech from Shyama M,

VISAT Group of Institutions. Ajith Prasad and Arun Prasad, Directors of Techsoul Systems were the resource persons. Dr. Anoop K J, Principal, VISAT Engineering College, Prof P S Subin, Registrar, Mrs. Shyama M Former HoD of ECE, Asst. Prof. Arya Krishnan, Robotics Club VISAT and Sonu Sunil, Student Coordinator of Robotics Club VISAT were lightened the ceremony.



former HOD Department of ECE. These programs are aimed at creating interests among higher secondary school children in STEM education. Teachers and students from nearby schools participated in the programme. Sessions on Robotics, Coding procedures in electronic devices were taught on Arduino Boards. Interactive Ouestion & answers Session was held followed by "Robo Car Making Competition" from the Robo Kit provided. The sessions ended with vote of thanks.



# **FUND SANCTIONED**

- AICTE Sanctioned INR 4 Lakhs for 2023 IEEE International Conference on Nanoelectronics, Nanophotonics, Nanomaterials, Nanobioscience & Nanotechnology" (5NANO2023) technically co-sponsored by IEEE Photonics Society, USA scheduled on 27<sup>th</sup> & 28<sup>th</sup> April, 2023.
- SERB DST Sanctioned INR 3 Lakhs for 2023 IEEE International Conference on Nanoelectronics, Nanophotonics, Nanomaterials, Nanobioscience & Nanotechnology" (5NANO2023) technically co-sponsored by IEEE Photonics Society, USA scheduled on 27<sup>th</sup> & 28<sup>th</sup> April, 2023.



## Success is the sum of small efforts, repeated day-in and day-out. -Robert Collier

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## **INVITED TALKS**



 Dr Subash has delivered a talk on "Design of Solar System for your Home: Beginners" hosted by IEEE Madras Section, Tamilnadu, India held on 15<sup>th</sup> December, 2022.



- Dr Subash has delivered a talk on "Past and Future of Micro/Nano Electronic Devices" hosted by Mangalore University, Karnataka, India held on 8<sup>th</sup> December, 2022.
- Dr Subash has delivered a talk on "Past and Future of Micro/Nano Electronic Devices" in the Webinar Series hosted by IEEE Photonics Society Bangladesh Chapter & amp; Bangladesh University held on 4<sup>th</sup> November, 2022
- Dr Subash has delivered a talk on "Career Opportunities in Photonics" on 12<sup>th</sup> October, 2022 at Sahrdaya College of Engineering & Technology, Thrissur, Kerala, India.





# RESEARCH CONTRIBUTIONS INTERNATIONAL JOURNAL PUBLICATION

 T D Subha, C Arunachala Perumal, T D Subash & K J Jeepa, 2022, "A hybrid technique employed for efficiency improvement of tandem perovskite solar cell", Journal of Progress in Photovoltaics: Research and Applications (Wiley), vol.1, no.20, pp.1-8, ISSN: 1099 – 159X, Impact Factor: 8.490 (SCI Indexed).

# NATIONAL/INTERN ATIONALCONFERE NCE/WORKSHOP/ SEMINAR PARTICIPATION

 Dr Subash has successfully completed the designated training and become Energy Swaraj Warrior of the Energy Swaraj Foundation on 18<sup>th</sup> August 2022.

- Dr Subash has participated in the IP Awareness / Training Program under NATIONAL INTELLECTUAL PROPERTY AWARENESS MISSION organized by Intellectual Property Office, India held on 5<sup>th</sup> August 2022.
- Mrs. Anjana G and Ms. Reshma VP attended Faculty Development Programme on "CST Antenna Simulation Software" organized by Department of Electronics and Communication Engineering of Mar Baselious Christian College of Engineering and Technology Peermade on 3<sup>rd</sup> November 2022.
- 4. Mrs Shyama M, Ms Indhu Chandran, Mrs. Anjana G, Ms. Reshma V P and Mrs Arya Krishnan has participated in the one day National workshop on" Research Methodology Writing Effecting Research Articles and Funding Proposals" organized by IQAC VISAT Engineering College on 10<sup>th</sup> October 2022.
- 5. Sonu Sunil, S6 ECE, attended two days workshop on "Robotic Process Automation" at St. Joseph's College of Engineering and Technology, Pala.
- 6. Sonu Sunil, S6 ECE attended one week Internship Training in "Cloud Computing" at Soften Technologies.

We don't have to engage in grand, heroic actions to participate in the process of change. Small acts, when multiplied by millions of people, can transform the world.

Howard Zinn

IEEE



# ACHIEVEMENTS

- Ms. Anjana G and Ms. Reshma V P completed training on Internal Audit of Management Systems as per ISO 21001:2018 standard and qualified as an Internal Auditor.
- 2. Christy Baby, Sivapriya S & T D Subash, "Study of Various Methods for the Preparation of Perovskite Light Absorbing Layer" in the National Conference on Recent Trends in Materials Science and Technology (NCMST -2022) scheduled on  $28^{\text{th}} - 30^{\text{th}}$  December 2022 in collaboration with Materials Research Society India (MRSI), Thiruvananthapuram Chapter and The Society of Polymer Science India (SPSI), Thiruvananthapuram Chapter hosted by Indian Institute of Space Science & Technology (IIST), Thiruvananthapuram, Kerala, India.
- 3. Krishnapriya M U, Faseena Shameer & T D Subash, "Study of Structure of Working principle of Perovskite Solar Cell" the National in Conference on Recent Trends in Materials Science and Technology (NCMST - 2022) scheduled on 28<sup>th</sup> -30<sup>th</sup> December 2022 in collaboration with Materials Research Society India (MRSI), Thiruvananthapuram Chapter and The Society of Polymer Science India (SPSI), Thiruvananthapuram Chapter hosted by Indian Institute of Space Science

& Technology (IIST), Thiruvananthapuram, Kerala, India

- 4. Nandhana Das & T D Subash. "Utilizing Mesoporous Materials in Perovskite Solar Cell" in the National Conference on Recent Trends in Materials Science and Technology (NCMST - 2022) scheduled on  $28^{\text{th}}$  – 30<sup>th</sup> December 2022 in collaboration with Materials Research Society India (MRSI), Thiruvananthapuram Chapter and The Society of Polymer Science India (SPSI), Thiruvananthapuram Chapter hosted by Indian Institute of Space Science & Technology (IIST). Thiruvananthapuram, Kerala, India
- 5. Karthik K P, Joel Mathew, Sreehari K & T D Subash, "Impact of Triple Halide Mixed MaPb in Perovskite Cells" the National Solar in Conference on Recent Trends in Materials Science and Technology (NCMST - 2022) scheduled on 28<sup>th</sup> -30<sup>th</sup> December 2022 in collaboration with Materials Research Society India (MRSI), Thiruvananthapuram Chapter and The Society of Polymer Science India (SPSI), Thiruvananthapuram Chapter hosted by Indian Institute of Space Science & Technology (IIST). Thiruvananthapuram, Kerala, India

#### Education is not the filling of a pot but the lighting of a fire. - W.B. Yeats

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dvancing Technology for Humanity



# Indian Institute of Space Science and Technology

Declared as Deemed to be University under Section 3 of the UGC Act, 1956 An autonomous institute under Department of Space, Govt. of India

Students presenting their research findings at Indian Institute of Space Science & Technology (IIST) Trivandrum on 28<sup>th</sup> December – 30<sup>th</sup> December 2022











# **STUDY CORNER** The 75th Anniversary of the Invention of the Transistor

The year 1905 is well known as the "Miracle Year" because Albert Einstein published four papers that changed the laws of physics and were significant contributions to the foundation of modern physics. Similarly, November 1947 - January 1948 were the three magical months that paved the way for modern-day electronics. This was done by three brilliant scientists who were members of the Mervin Kelly's Solid State Physics Group and Semiconductor Sub-Group at Bell Labs, which were given the challenging task of creating a solid-state semiconductor switch that could replace the vacuum tube.

The famous physicists - Walter Brattain and John Bardeen managed to make the first working transistor, now known as the point-contact transistor. The invention was made on December 16, 1947. A week after that, the device was officially demonstrated to Bell Labs executives as a "magnificent Christmas present." In January 1948, William Shockley demonstrated the junction transistor. All three received The Nobel Prize in Physics (1956) and as per Nobel Prize Committee - "In 1947 John Bardeen Walter Brattain produced and а semiconductor amplifier, which was further developed by William Shockley. The component was named a "transistor."

Prior to the transistor's invention, racks and in some cases rooms full of

hardware components were required to power thermionic tube-based communication and computing devices. The advent of the tiny, solid-state transistor meant that these devices could eventually be shrunk to the pocket-sized and smaller form factors we currently enjoy. The semiconductor chips housed in today's lightweight and portable electronic devices can contain transistors numbering into the billions.

Functionally, the transistor is designed for two uses. A transistor can regulate and amplify the flow of an electrical signal leveraging the property of gain to achieve higher output power. Or it can function as a switch, turning current on or off within a circuit (another feature later embraced by Bell Labs after years of reliance on human switchboard operators to establish telephone connections).

Today, the MOSFET (metaloxide-semiconductor field-effect transistor) is the most widely utilized type of transistor. To provide a sense of the scale and pervasiveness of transistor technology today - and its impact on society, from global connectivity to commerce to space travel - it's estimated that MOSFETs are the most numerously produced artificial objects ever in recorded human history, with more than 13 sextillion manufactured as of 2018.





We can't solve problems by using the same kind of thinking we used when we created them. - Albert Einstein



# **Student's Corner**

#### A BEAUTIFUL NIGHTMARE

Life is beautiful for those, Life is resplendent only for those, Life is a exquisite dream just only for them The" them", the "those" are who being loved by someone Those who have a hand to hold, Have a hand to wipe their tears... Then what is life? For them who don't have any hands to hold, For those whose sadness don't even recognize by anyone, To those who don't even care by anyone, To those who not even noticed by anyone even they disappear, Life is a nightmare, A horrifying dream haunting them every night. Can't get through it... It's heavy to hold... Running hard...far away... To get rid of everything... "Everything will be alright". Who says? It's only possible for "them". Whom? For those have that hand.... Hand to hold... To hold you tight. One day everything will be over No more sadness No more worries

No more loneliness An end of all nightmares Just silence... Just a deep silence Cold but peaceful Would anyone will notice that silence Maybe That day, maybe you have many hands to hold you Many to cry for you, maybe What is life for me? Is that a beautiful nightmare? Have many hands to hold But are those being just illusions?

Why you just make me feel special to you?

And then why you leave me? To the world, to the beautiful nightmare, You can't just let anyone feel special and just leave Please don't... You see me smiling But you'll never know me until you walk in my shoes... I wish you let me to hold your hands At least for once...

> Christy Baby S1, ECE

#### Education is the kindling of a flame, not the filling of a vessel. - Socrates



## **FORTHCOMING EVENTS**

- 1. Two days National workshop on "Public Financial Management System (PFMS)' in collaboration with Ministry of Finance, Govt. of India on 23<sup>rd</sup> & 24<sup>th</sup> February, 2023 hosted by VISAT Engineering College, Ernakulam, Kerala, India. (Resource Person: Mr. S. Francis, Senior Accounts Officer (Training & Capacity Building) PFMS Division, Ministry of Finance, Government of India, Public Financial Management System (PFMS), New Delhi).
  - VISAT ENGINEERING COLLEGE ULAM - KERALA TWO DAYS WORKSHOP ON PUBLIC FINANCIAL MANAGEMENT SYSTEM (Training & Capac PFMS Division, Ministry of Fi learning @ Cruise hosted by VISAT Engineering College In Collaboration with PFMS, Ministry of Finance Government of India - Public Fin Government of India, New Delhi 23rd & 24th FEBRUARY 2023 Dr. T. D. Suba TOPICS TO BE COVERED Research & Develop VISAT Engineering Col Ernakulam, Kerala, I PFMS Hands on Training Fund Management, User Management, Vendor Management, Expenditure Filing (EAT Module), Payment Module & Report Contact No: +9194868813 Email id: deanresearch@visat. EAT, TSA, CNA, SNA Case Study & Discussion specific to Colleges and Universities Registration link ----> Day 1: VISAT Engineering College, Last Date for Registration: 20th January 2023 Ernakulam, Kerala **Day 2:** House Boat (Alleppey) Registration Fee - Rs. 5000/- per staff s://www.alleppeyt Certificate and Working Lunch will be provided
- 2. AICTE Sponsored 2023 IEEE International Conference on Nanoelectronics, Nanophotonics, Nanomaterials, Nanobioscience & (5NANO2023) Nanotechnology" technically co-sponsored by IEEE Photonics Society, USA organized by IEEE Photonics Society Student Chapter VISAT Engineering College, Ernakulam, Kerala, India held on 27th & 28<sup>th</sup> April, 2023.



- platform for researchers







International Conference on Nanoelectronics, Nanophotonics, Nanomaterials, Nanobioscience & Nanotechnology (5NANO 2023)

> Technically Cosponsored by IEEE Photonics Society, USA

Hosted by IEEE Photonics Society Student Chapter VISAT Engineering College Elanji, Ernakulam, Kerala, India - 686 665.

27<sup>th</sup> & 28<sup>th</sup> April, 2023



#### **WEEKLY WEBINAR SERIES**

"The great aim of education is not knowledge but action." - Herbert Spencer Every Week Department is hosting Webinars in association with IEEE

Niketa Dedhia is with LtdrSubash TD. ••• 3 minutes ago · 3

Giving back your best to the society is the essence of life for me.

Interaction with 85 VISAT Engineering students of the IEEE chapter on the NEW AGE CAREERS and the route they can use to funnel their growth towards their success.... See more

















Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning. - Albert Einstein





#### **IEEE Student Chapters**

IEEE Student Chapters under the IEEE Student Branch of VISAT Engineering College

- 1. IEEE Photonics Society Student Chapter SBC 60208150
- 2. IEEE SIGHT Student Chapter SBA 60208150S
- 3. IEEE Biometrics Council Student Chapter Chair SBC 60208150C
- 4. IEEE Nanotechnology Council Student Chapter Chair SBC 60208150A
- 5. IEEE Sensors Council Student Chapter Chair SBC 60208150B
- 6. IEEE Systems Council Student Chapter Chair- SBC 60208150D
- 7. IEEE Solid-State Circuits Society Student Branch Chapter SBC 60208150G
- 8. IEEE Council on Electronic Design Automation Student Chapter Chair SBC 60208150F
- 9. IEEE Council on Superconductivity Student Chapter Chair SBC 60208150E
- 10. IEEE Vehicular Technology Student Chapter SBC 60208150H



Success is to be measured not so much by the position that one has reached in life as by the obstacles which he has overcome. - Booker T. Washington

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## **MEMORANDUM OF UNDERSTANDING SIGNED**



MSME-Technology Development Centre (PPDC Agra, Ministry of Micro, Small and Medium Enterprises (MSME), Government of India inked Memorandum of Understanding (MoU) on Education, training and research collaborations on 18<sup>th</sup> July 2022

# **INTERNATIONAL COLLABORATIONS**

## **Research Collaborations**

- ✤ Geneva Modeling Center, Switzerland
- \* Cairo University, Egypt
- Universiti Brunei Darussalam, Brunei
- \* MAHSA University, Malaysia

# **Sponsored Projects**

Project Title: Characterizing and Forecasting the performance of floating Solar systems with different PV technologies under Bruneian Environment
Grant No. UBD/RSCH/1.3/FICBF(b)/2022/016 (External Collaborator from India)
Funding Agency / Schemes: UNIVERSITI BRUNEI DARUSSALAM - FIT Research
Grant (2022)
Fund Sanctioned: B\$ 29, 500, INR. 16,50, 000 lakhs

### Change is the end result of all true learning. - Leo Buscaglia





"If you want to shine like a sun. First, burn like a sun." – Dr. APJ Abdul Kalam



Do You Like What You're Reading? Your Feedback is important... Let us know – send the editor an email! asst-prof-hima@visat.ac.in

Don't aim for success if you want it; just do what you love and believe in, and it will come naturally. - David Frost

