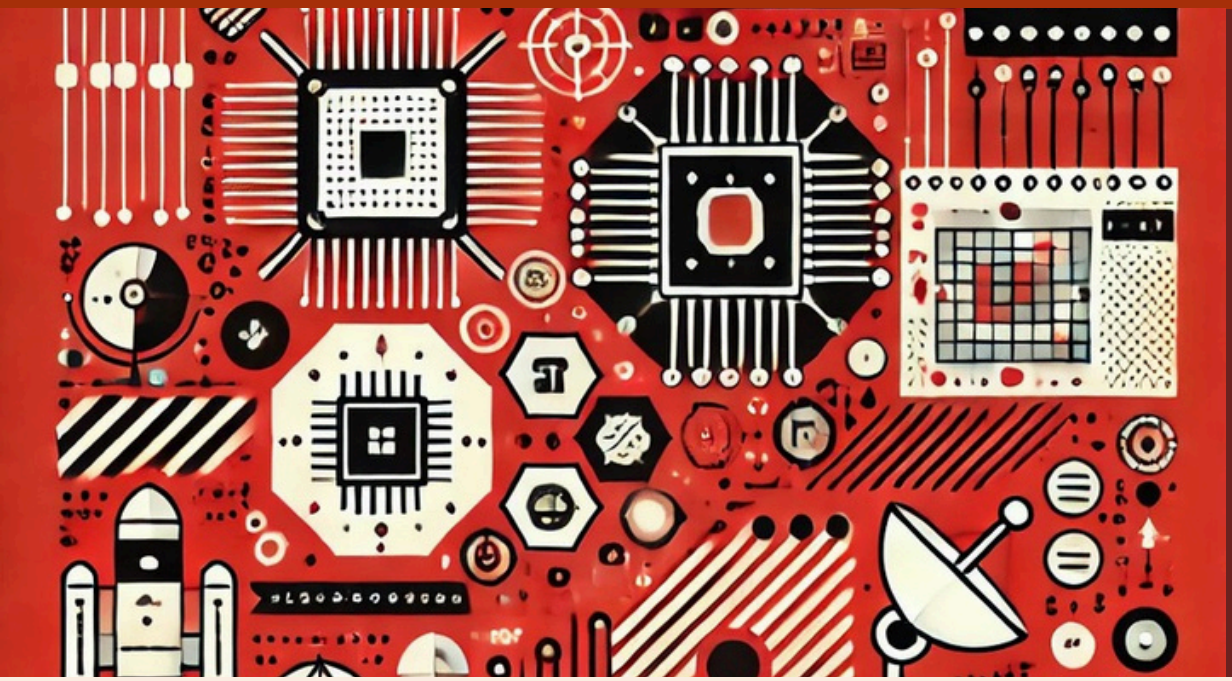
JANUARY TO DECEMBER 2024 | ISSUE 6



IN THIS ISSUE:

CURRENT

ANNUAL NEWSLETTER OF

DEPARTMENT OF ELECTRONICS ENGINEERING

SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY SURAT,GUJARAT,INDIA

MESSAGE FROM HOD

The Department of Electronics Engineering was established in the year 1982. The department offers B. Tech. program with an intake of 170, M. Tech (Communication Systems and VLSI & Embedded System) with an intake of 15 in CS and 30 in VLSI & ES and Ph. D. with a current strength of 70 research scholars. The research is carried out in various fields of Electronics and Communication Engineering such as artificial intelligence, machine learning, signal processing, wireless communication, microwave and optical communication, sensors, micronano devices, etc. Currently we have 28 skilled and experienced faculty members of various domains of Electronics Engineering.

The department has advanced research labs like VLSI design and TCAD lab, communication research lab, sensor research lab, machine learning & computer vision lab, Nanoscale Device and Circuit Research lab, 5G and Beyond lab useful to our PG students. Department is growing in all dimensions in terms of research facility, student strength, infrastructure, advanced teaching/learning methodologies, and industrial collaboration. The department has enthusiastic UG and PG students. Their aspiring minds has been helpful in taking the department to new heights. Their placement record has been improving year by year, most of our M.Tech. students are associated with renowned industries for their internship in the second year of their curriculum. Not only the research scholars and PG students are involved in the research activities but B.Tech. students also participate in various competitions and achieve appreciable results. We are rigorously putting our efforts to establish a bright culture and space for research and startups. This newsletter presents the various activities and achievements by the DoECE family. We, as a team are working meticulously to achieve the set standards for the overall growth of the department and its stakeholders committed to achieve the Mission and Vision of our department.

Prof. J. N. Sarvaiya
Prof. & Head, DoECE
SVNIT, Surat

MISSION

The mission of the Electronics Engineering Department is to contribute to society and industry through excellence in education, research, innovations and ethics by stakeholders

VISION

The vision of the Electronics Engineering Department is to Aim to achieve quality in education and research to create leading Electronics engineers, researchers and entrepreneurs

DEPARTMENT CORNER

- A Walk to Remember
- Swachhata Pakhwada
- Vigilance Awareness Week
- Constitution day
- Farewell

A WALK TO REMEMBER

I have been associated with SVNIT Surat from 1998. I joined as an Adhoc lecturer after acquiring one year experience in PUNWIRE a company well-known for manufacturing wireless handsets for defense in those days. During my tenure with industry for an year and then as an Adhoc lecture for around one half year, I learnt so many technical and administrative skills. I have completed B.E (Electronics) from Birla Vishvakarma Mahavidyalaya (BVM) Engineering College situated in Vallabh Vidyanagar, Gujarat in July,1997. The institute has very interesting past. It was established in 1948 from donations made by the Birla Education Trust on the behest of Sardar Vallabhbhai Patel, the first Home Minister of independent India. The college was inaugurated by Lord Mountbatten, the Governor General of India on 14 June 1948, and rose to prominence under the stewardship of Prof. Junnarkar and Prof. K. M. Dholakia. It was one of the first few colleges in India that adopted the progressive credit system of relative grading in India

I got regular appointment as a lecture post in August, 2000. I was mentored by Dr. H. K. Patel, a very learned person and the only Ph.D. degree holder in the Department who secured Ph.D. from IIT Kanpur under the guidance of Dr. G. K. Dubey, a scholar in Electrical Drive in those days. I am fortunate enough to learn SMPS design, buck-boost converter, Digital Signal Processing, Numerical Analysis, Linear Electronics many more things from Dr Patel. He is the one who taught me how to orient engineering for product development. I have not enough word to express my gratitude

I completed M.Tech. in Electronics System and Ph.D. in Microelectronic both from IIT Bombay in July 2006 and April 2014, respectively. Study in IIT Bombay is a memorable experience. I learnt many new courses but above all I learnt what is a meaning of teacher and teaching. Recorded classes, open book exams, efficient administration, state of the art lab facilities, neat and clean hostels, lecture theater, very good sport facilities, rich library, efficient and friendly staff, uninterrupted power supply and internet many more things and above all highly ethical professors who do not compromise even slightly while teaching.....today I am missing all these. During M.Tech. I worked under the supervision of Dr. H. K. Pillai and Dr. Sachin Patwardhan. The thesis work was on Implementation of Zigbee based Wireless sensor network for control application in collaboration with Honeywell Technology Solution Limited, Bengaluru. Dr. J. N. Sarviya was my roommate. Apart from technical discussion we have lots of memory of discussions on Srimad Bhagvad Gita.

My Ph.D. thesis was on design and implementation of Discrete wavelet transform architecture using FPGA/ASIC platform. I could get opportunity to carry Ph.D. research work under the guidance of Prof. A.N. Chandorkar and Prof. S. N. Merchant.

I was hesitant to choose academic field and aspirant to work in industry. Then I realized there is much more freedom to design and implement ideas in academic field as compared to industry. I am fortunate to get association of good colleagues in the Department of Electronics Engineering. I realized very late that the challenges of life are much more complex than engineering. My message to the readers is **“Remain patient, work hard, wait for the right opportunity to come and do not get disturbed due to failure. Failures are to teach how to succeed. Get away from bad habits and bad friends in life to achieve the goal. Remain contented and satisfied, do not lament for the material enjoyment in the life and have a faith in God”**

Prof. Anand D. Darji
Professor, DoECE
SVNIT, Surat

SWACHHATA PAKHWADA

Swachhata Pledge was taken on 2nd September 2024 in the foyer of the Department in presence of the students, teaching and non-teaching members.

VIGILANCE AWARENESS WEEK

As a part of Vigilance Awareness Week, 2024, an Integrity Pledge was taken on 28th October 2024 with the students and staff members of the department.

CONSTITUTION DAY

The institute celebrated Constitution Day on 26th November 2024. The Preamble of the Indian Constitution was read by all the staff members of the department.

FAREWELL

The farewell of Dr. Rasika Dhavse was arranged by the DoECE on 26th February 2024. Dr. Rasika served the department and the institute for 18 years. Her dedication to teaching, exceptional organizational skills, and professional approach to every task have left a lasting impact.

FACULTY CORNER

- Paper Publications
- Book- Chapters Published
- Sponsored Research Projects
- Workshops organized
- Expert Lectures & Talks Delivered
- Other Achievements

JOURNAL PUBLICATIONS

1. Shilpi Gupta, Mitesh Solanki, “Low-complexity detector performance evaluation for cell-free massive MIMO systems”, International Journal of Wireless and Mobile Computing, 2024.

2. Shilpi Gupta, Hardik Joshi, “Evaluating the effectiveness of various diversity and combining techniques on an RF-FSO link”, Journal of Optical Communication, 2024.

3. Prajakta More, Zuber Patel, “Throughput and BER Analysis in LoRa Technology”, Journal of Wireless and Mobile Computing, 2024.

4. Prajakta More, Zuber Patel, “Low power decentralized differentially private multi-armed bandit algorithm based performance improvement on long-range radio network”, Journal of Wireless Networks, 2024.

5. A. Mandloi, Vasundhara, “Routing and dynamic core allocation with fragmentation optimization in EOM SDN, Optical Fiber Technology, vol. 83, Elsevier, 2024.

6. Abhilash Mandloi, Shilpi Gupta, Abhishek Tripathi, Performance of orthogonal frequency division multiplexing based 60-GHz transmission over turbulent free-space optical link, Journal of Optical Communications, vol.44, 2024.

7. Abhilash Mandloi, Shilpi Gupta, Abhishek Tripathi, Comparative analysis of SISO and wavelength diversity-based FSO systems at different transmitter power levels, Journal of Optical Communications, vol.44, 2024.

8. Shweta Shah, Krupali Umaria, “Spectral efficiency of hybrid precoding and combining design for mm-Wave multi-user massive MIMO systems”, Analog Integrated Circuits and Signal Processing, 2024.

9. Rasila R Hirani, Abhishek Sinha, Ajay K Pandey, Surya K Pathak, Shweta N Shah, Numerical Design and Experimental Characterization of Reconfigurable Leaky Wave Plasma Antenna, IEEE Access, vol no. 12, 152347 - 152357

10. KS Shinde, SN Shah, PN Patel, “Design and simulation of planar microwave sensor for food Industry”, Journal of the Korean Physical Society, 2024.

11. Kalindi S. Shinde , Shweta N. Shah, “Development and Performance Evaluation of Novel Microwave Planar Sensors for the Precise Quality Assessment of Apples and Bananas”, Journal of Sensor Research and Technologies, issue no. 03, Vol no: 6, pg: 1-28

12. Kalindi S. Shinde, Shweta N. Shah, Piyush N. Patel, “Development of a novel microwave planar sensor for the fruit quality detection using free space transmission method”, Analog Integrated Circuits and Signal Processing,122:12, 2025

13. S. Dahiya, R. Pal, B. K. Singh, “Antenna Configuration in Massive MIMO System to Minimize Unfavorable Propagation in wireless Communication”, e-Prime - Advances in Electrical Engineering, Electronics and Energy, 2772-6711, 2024.

14. Kamal Captain, Ashok Parmar, Ankit Chouhan, Jignesh Patel Deep, “ Multilevel Architecture for Automatic Modulation Classification”, Physical Communication, 2024.

15. Kamal Captain, A. Parmar, K. Shah, M. López-Benítez and J. R. Patel, “Gaussian Mixture Model-Based Anomaly Detection for Defense Against Byzantine Attack in Cooperative Spectrum Sensing”, IEEE Transactions on Cognitive Communications and Networking, 2024.

JOURNAL PUBLICATIONS

16. Kamal Captain, A. Chouhan, A. Parmar, and M. López-Benítez, “Defending Against Byzantine Attacks in CRNs: PCA-Based Malicious User Detection and Weighted Cooperative Spectrum Sensing”, IEEE Wireless Communications Letters, 2024.

17. Vivek Garg et.al., “Unveiling the Potential of Cs3Sb2ClxI9-x-based Solar Cells For Efficient Indoor Light Harvesting: Numerical Simulation”, Advanced Theory and Simulations, 2024.

18. Vivek Garg, Deepak Joshi, H. N. Patel, R. K. Sharma, “Bandgap engineering of earth-abundant Cu2BaSn (S1-xSex) 4 for photovoltaic application: A systematic approach to double grading”, Solar Energy Materials and Solar Cells, 2024.

19. Vivek garg et.al., “DFT calculations for temperature-stable quantum capacitance of VS2-based electrodes for supercapacitors”, IEEE Transactions on Nanotechnology, 2024.

20. Dhruv Thakur, V. Garg, Shivendra Yadav, et.al., “Investigating ASnI2Br Wide Bandgap Tin Perovskite for Bifacial Solar Cells: Modeling of Bifacial Efficiency with Comparative Analysis”, Solar Energy, 2024.

21. Vivek Garg, Deepak Joshi, H. N. Patel, R. K. Sharma, “Elucidating the potential strategies for performance improvement of CBTSSe-based solar cells: A pathway towards 20% efficiency”, Energy Technology, 2024.

22. Hitarth N. Patel, Vivek Garg, Shivendra Yadav, Rajesh K. Sharma, Unraveling the Potential Pathways for Improved Performance of EDA0.01(GA0.06(FA0.8Cs0.2)0.94)0.98SnI2Br-based Solar Cells, Energy Technology, 2024.

23. V. Mishra, A. K. Sharma, G. Siddharth, Vivek Garg, B. S. Sengar, Exploring multi-level ETL and HTL Configurations for High-Efficiency lead-free Cs2AgBiBr6 Double Perovskite Solar Cells: A Design and Simulation Study, Energy Technology, 2024.

24. Vivek Garg, V. Vinturaj, Ashish Yadav, R. Singh, R. Bharadwaj, S. K. Pandey, “A DFT Study of the Adsorption Behavior and Sensing Properties of CO gas on Monolayer MoSe2 in CO2-rich environment”, Journal of Molecular Modelling, 2024.

25. Vivek Garg, V. Vinturaj, Ashish Yadav, R. Singh, R. Bharadwaj, S. K. Pandey, Jaisil T K, Comprehensive modeling of high-performance all-inorganic Cs2TiBr6-based perovskite solar cells, Physica Status Solidi B: Basic Solid State Physics, 2024.

26. Sandeep Mishra, S. W. Hussain, T. V. Mahendra, and A. Dandapat, “Content-Addressable Memory using Selective-Charging and Adaptive-Discharging Scheme for Low-Power Hardware Search Engine”, Integration-The VLSI Journal, Elsevier, 2024.

27. Partha Das, “High-κ Oxide Charge Engineering on GaN for Normally Off HEMTs”, Journal of Electronic Materials, Springer, 2024.

28. Partha Das, et. Al., “Accurate band alignment of sputtered Sc2O3 on GaN for high electron mobility transistor applications”, Semiconductor Science and Technology & IOP Science, 2024.

29. A. Srivastava, R. Pal, A. Prakash, R. Tripathi, N. Gupta and A. Alkhayyat, "Optimal Channel Selection and Switching Using Q-Learning in Cognitive Radio Ad Hoc Networks," in IEEE Transactions on Consumer Electronics, vol. 70, no. 3, pp. 6314-6326, Aug. 2024

30. A. Srivastava, R. Pal, A. Prakash, R. Tripathi, N. Gupta, and A. Alkhayyat, "Energy-efficient channel selection algorithm with reduced collision probability in cognitive radio networks," Internet Technology Letters, vol. 7, no. 1, p. e581, 2024.

CONFERENCE PUBLICATIONS

1.Kirti Inamdar, Mahesh B. Hasani, “Effect of Thickness and Conductivity on Electromagnetic Interference Shielding Effectiveness of Bio Composite Shields”, Second International Conference on Microwave, Antenna and Communication (MAC 2024), October 04-06, 2024.

2. A. Kumar, N. Gupta, M. Derawi and R. Pal, "Hardware implementation of A Reinforcement learning based energy efficient protocol for wireless sensor network," 2024 Second International Conference on Microwave, Antenna and Communication (MAC), Dehradun, India, 2024, pp. 1-5.

3. R. K. Vishwakarma and R. Pal, "Advancements in Solar Cell Materials: A Survey," 2024 IEEE Students Conference on Engineering and Systems (SCES), Prayagraj, India, 2024, pp. 1-6

4. P. Maurya, Kamal Captain, A. Parmar and P. K. Shah, "Modulation Classification for OTFS-NOMA in Heterogeneous User Mobility Profile," 2024 International Conference on Signal Processing and Communications (SPCOM), Bangalore, India, 2024, pp. 1-5.

5. A. Chouhan, A. Parmar, Kamal Captain, P. Maurya and J. Patel, "Enhancing Cooperative Spectrum Sensing in Cognitive Radio Systems: Mitigating Byzantine Attacks with a Weighted Algorithm," 2024 16th International Conference on COMmunication Systems & NETworkS (COMSNETS), Bengaluru, India, 2024, pp. 465-469.

6. S. Riddhi, A. Parmar, Kamal Captain, D. K A, A. Chouhan and J. Patel, "A Dual-Stream Convolution-GRU-Attention Network for Automatic Modulation Classification," 2024 16th International Conference on COMmunication Systems & NETworkS (COMSNETS), Bengaluru, India, 2024, pp. 720-724.

7. D Desai, R Gupta, S Shah, “An Effective Wireless Communication Architecture Using Ultra Lightweight Automatic Modulation Classification Model Over Cortex M4 Based Edge Device”, 4th IEEE International Conference on Electrical, Computer, Communications and Mechatronics Engineering (ICECCME), pg: 1-6, 2024.

BOOK-CHAPTERS PUBLISHED

1. **Shilpi Gupta, Rachit Garg, Vandana Thakre, Pramod Singhal, Ramya R, “Advancing the frontiers of connectivity: A comprehensive overview of 5G communication Networks”, ISBN 978103256398, CRC Press, 2024.**
2. **Zuber M. Patel, Kirti Inamdar, & Deergha Agarwal “Design of Ka-Band Power Amplifier and Low-Noise Amplifier for 5G Communication Systems”, Next Generation Wireless Communication, Springer, 2024.**
3. **Amit Kumar, Krishnan Iyengar, Raghavendra Pal, and Upena Dalal, "Orthogonal time frequency space modulation and its application to VANETs," in Wireless Ad-hoc and Sensor Networks, Pawan Singh, Sudesh Kumar, Sachin Kumar Gupta, Abhay Kumar Rai, and Abdu Saif, Eds. Boca Raton: CRC Press, 2024, pp. 25.**

SPONSORED RESEARCH PROJECTS

1.Prof. A. D. Darji, Dr. Z. M. Patel & Dr. A. Acharya were awarded a research project of Rs. 98 Lakhs entitled “Chip to System (C2S) design”, funded by MeitY.

2. Dr. Suresh Dahiya has been awarded a research project of Rs. 5.5 lakh entitled “Development of GMSK-based streaming transceiver using FPGA and ARM programming” funded by Kepler Aerospace Pvt. Ltd.

3. Dr. Suresh Dahiya & Dr. Kamal Captain were awarded a research project of Rs 32 lakh entitled “Development of Anti-jamming and Anti-Spoofing baseband signal processing algorithms for GNSS receiver provisioned UAVs” funded by AR&DB.

4. Dr. Sandeep Mishra was awarded a research project of Rs. 96.5 Lakh entitled “Secure and Energy Efficient Mixed Domain Computer in Memory-based AI Accelerator Chip for Edge Applications” funded by MeitY.

5. Dr. Shweta Shah and Prof. Upena Dalal were awarded a research grant of Rs. 30 Lakh entitled ”NAVIC UAVAJ: NavIC-ENABLED UAV with Anti Jamming” funded by SAC-ISRO

WORKSHOPS ORGANIZED

2-week Summer School on Semiconductor Technology was organized by DoECE in collaboration with Suchi Semiconductor, IETE, and IEEE student chapter during 8th to 19th July 2024. The organizers were Dr. Deepak Joshi, Dr. Vivek Garg, Dr. Partha Das.

BOOT CAMPS @DRONE TECHNOLOGY:

Seven boot camps based on drone technology and its applications were organized by the department at SVNIT, SCET, and other technical colleges in Surat. The coordinators were Prof. A.D. Darji, and Dr. Suresh Dahiya, from DoECE and Dr. Dipti Rana, from DoCSE. The participants gained first-hand technical knowledge from the experts and developed hands-on experience through the given project assignments.

EXPERT LECTURES

1.Dr. S. N. Shah delivered an expert lecture on “Various Trajectory Analysis for Spoofing Scenario in Navigation” at the 3rd European Computing Conference during May 7-9, 2024, at Ierapetra, Crete, Greece.

2. An expert talk on “Imapct of Interferenceon GNSS based system”, Organised by Airort Authority of India, Bengaluru on 14-02-2024.

3. An expert talk on " Drone Navigation and Application" in the bootcamp 6.0 " being organised from 22-26 April 2024 at DoECE, SVNIT.

4. An expert talk on “Classifying GNSS Signals in Terrestrial Environments using Deep Learning”, United Nations/Finland Workshop on the Applications of Global Navigation Satellite Systems, 23 – 26 October 2023, Helsinki, Finland

OTHER ACHIEVEMENTS

1.Prof. P. N. Patel and Paresh Sagar were granted a patent on “Metamaterial Integrated Radio Frequency Waveguide for Soil Characterization”. Patent No.: 202121040099.

2. Dr. S. N. Shah, Dr. Darshna Jagiwala, Dr, Mehul Desai were granted patent on “Portable device and method for location mapping”. Patent No.: 202121040099.

3. Dr. Nithin Chaterjee was granted a patent on “Gated solar cell for managing back-surface passivation and method for fabrication thereof”. Patent No.: 201921021442.

4. Mr. Sonu, Technician, secured the first position in the Yoga competition held on 20th June 2024. The Physical Health Education department organized the competition as a part of the International Yoga Day celebration on 21st June 2024.

STUDENT CORNER

- Ph. D. Completion
- Activities under Student Chapters
- Placements Details
- Student Achievements
- Alumni Interview
- Creative Corner

PH.D. COMPLETION

Sr. No.	Name	Roll No.	Title	Date of Completion	Photo
1.	Ms. Swati Vinodkumar Sakhare	D14EC006	Reduction of Computational Complexity Using PSO and DTCWT in HEVC Intra Prediction with Better PSNR.	14th February 2024	
2.	Mr. Prajapati Kalpeshbhai Jagdishbhai	DS18EC001	Unsupervised Single Image Super-resolution Approaches Using Generative Adversarial Network	2nd May 2024	
3.	Mr. Golak Santra	D20EC011	Design and Analysis of Single and Dual-band Horizontally Polarised Omnidirectional Antenna Using Slotted Patch and Ground for ISM Band	9th August 2024	
4.	Mr. Pankaj Warule		Speech Biomarkers in Common Cold and Parkinson's Disease: An Investigative Study	11th November 2024	
5.	Mr. Sudhanshu Title of thesis: Date:		Vedic Mathematics-based Programmable Digital Low Pass Filter for Portable Biomedical Signal Acquisition	9th December 2024	

STUDENT CHAPTER EVENTS

IETE Student Forum Activities

The IETE Student Day was celebrated by the faculty members of IETE and the student members on 16th March 2024. Prof. Chug graced the occasion.

An event was organized on 09th August 2024 to make the students aware about Space developments and the celebration of the maiden National Space Day The objective was to engage and inspire the youth of the nation towards space technology and its applications with the theme of "Touching Lives While Touching the Moon: India's Space Saga".

A poster/painting competition was organized for the students of nearby school with the theme of 'Indian Space Mission' on 22nd Aug 2024.

STUDENT CHAPTER EVENTS

On 23rd August 2024, a live telecast of events organized at Bharat Mandapam was live telecasted for the students.

Other events included a Quiz competition with the theme of past, present, and future missions of the Indian Space Programme, a guest lecture on Indian Astronomy and its relevance with modern space calculations by Mr. C. Vyas, and a guest lecture by a space technology startup "STAR LABS, Surat" on the opportunities and challenges in the space tech startups.

A guest lecture on 24th Aug 2024 on Indian Space Technology Development was held at the institute for undergraduate, post-graduate, and doctoral students. The lecture was delivered by Prof. Radhakant Padhi from IISc Bengaluru.

IEEE Student Chapter Activities

A two-week 'Summer School on Semiconductor Technology' from 08/07/2024 to 19/07/2024 was organized by IEEE in collaboration with ISF and Suchi Semiconductor. The workshop covered the various important aspects of Semiconductor Technology: Fabrication, Characterization, Packaging, and Simulation. Prof. Anil Kottantharayil, Department of Electrical Engineering IIT Bombay inaugurated the event. The sessions were conducted by faculties on diverse topics of Semiconductor Technology with hands-on session. The participants were exposed to various Fabrication systems and characterization techniques used in Semiconductor Technology. Session on Semiconductor Packaging were conducted by industrial experts with vast experience from Suchi Semiconductors and Micron Technology. The participants were introduced to the advanced TCAD tools used in the industry. The last day of the summer school was graced by Prof. B. M. Arora, Adjunct Faculty in the Physics Department of Mumbai University, Kalina (TIFR, Mumbai (1972-2008), IIT Bombay (2008-2020) with a session on Introduction to Silicon Solar Cells, followed by hands-on sessions and quiz.

PLACEMENTS

Name	Company Name & Nature of work
Jadhav Vaibhav Shrikrishna	NSE
Gupta Anandkumar Shree Siyaram	AMNS Electronics
Barla Bhuvana Sree	John Deere
Purva Dixit	John Deere
Drishey Singh	Wells Fargo,
Vishvakarma Richa Manojkumar	Pwc, Risk Consultant
Deval Patel	Exfo Associate Engineer
Shah Dhruvil Premal	Deloitte
Shantanu Banerjee	Natwest Group, Software Engineer
Dongre Himang Sandeep	Glide Techniques, Embedded Software
Potlapinjara Subhash Chandra Bose	EDIGLOBE,Business Development Trainee
Jani Harshil Akshaybhai	Angel One, Backend Engineer
Purnjay Parmar	UNFPA, Design Consultant
Pankaj Keshav Borade	Fuji Electric, Embedded Firmware Engineer In R&D Department
Parikh Priyansh Gautambhai	Aarti Industries, Instrumentation Engineer
Tanishka Kailas Sonavane	Jp Morgan&Chase, Software Engineer
Zeal Shah	Barclays, Software Development Engineer
Meniya Ajitbhai Parshotambhai	Fuji Electric, R & D
Thorrivemula Chaithanya Pavan	Jpmorganchase & Co, Software Developer
Parmar Dev Dipakbhai	Dar Al-Handasah Consultants (Shair & Partners) India Private Limited
Mudaliar Shivam Mathivanan	Mastercard
Patel Muhammed Inamulhaq	Meesho, Software System Designs
Sonali S Biswal	John Deere
Yenuga Sri Manasa	Mahindra And Mahindra
Korra Ganesh	Amazon, Transportation Representative
Muhammed Ashraf Bhura	Visa Inc.
Nimisha Dixit	PWC
Gavli Narendrabhai Sureshbhai	Arati Industry
Raj Gavadiya	Oracle, Application Developer
Manish Kumar Lalwani	Piramal Capital And Housing Finance Limited
Malladi Sai Prerana	Natwest, Software Developer
Ratnadeep Patra	Mastercard, Software Engineer
Kamidi Vinitha	Talentserve, Management Trainee
Yanala Likitha	Ge Healthcare
Prashant Lalwani	GE Healthcare
Kachchhi Sidhant Kalubhai	Invesco, Software Developer
Jadav Rahulbhai Dilipbhai	JP Morgan Chase & Co, Software Engineer
Athani Abdul Rehman Usman	Deloitte USI, Consulting Analyst
Ghanistha Singhal	TVS Credit, Data Scientist (AI Developer)
Prakash	Azista Industries Pvt.S Ltd., Embedded Engineer

PLACEMENTS

Krusha Pareshkumar Parmar	Micron Semiconductor Technology, Associate Engineer, Assembly & Test Engineering)
Savaliya Bhavay	TCS
Aarjav Nirajkumar Desai	Exfo, R&D
Vasikarla Nikhil Kumar	Micron, Assembly and Testing
Sumit Jaiswal	NSE
Sathwika C	JP Morgan Chase &Co.
Aishwary Mehta	Natwest, Software Developer
Aditi Pandey	JP Morgan Chase, Software Developer
Gaurav	Wells Fargo, Software Engineer
Singh Saurav Mahavir Sharan	JP Morgan Chase & Co., Software Engineer
Vanam Ruchitha	John Deere
Pratham Naresh Bapna	Oracle, Application Developer
Aditya Joshi	Oracle, Application Developer
Tushar Dilip Padiye	Oracle, Application Engineer
Soni Preksha Dharmendrakumar	Micron Semiconductor Technology, Associate Engineer, Assembly & Test Engineering
Sourabh Jain	Meesho, Software Developer
Aniket Motwani	Ge Healthcare
Gaurav Kumar Mukesh Gupta	Natwest , Software Developer

STUDENT ACHEIVEMENTS

Team 'SillyCon' from the Electronics Engineering department of Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, secured the second runner-up position at the highly competitive Design Contest at DVCon India 2024 held at Radisson Blu, Marathahalli, Bangalore during September 18-19, 2024.

The contest brought together some of the brightest minds in the field of hardware design and verification. Team 'SillyCon', comprising Aditya Mathuriya, Samhita Patil, and Sohan Pagar, represented SVNIT with an innovative project on a hardware accelerator for Vision Transformers. This remarkable achievement was made possible with the support of SVNIT's Embedded Systems Lab and under the guidance of Dr. Pinalkumar J. Engineer.

ALUMNI INTERVIEW

Mr. Viren Umrigar

Mr. Viren Umrigar holds a B.E. in Electronics & Communication Engineering in 1999 from S.V. NIT Surat. He has 18+ years of experience in software engineering with strong analytical and problem-solving skills. He has experience in designing and developing software for embedded systems for wireless communication devices (WiFi) & industrial automation. Presently, he is Director of Engineering at Qualcomm Wireless in San Jose, California, United States. He has been awarded a Multiple Basic Service Set Identifier (BSSID) Beacon Broadcast patent. Here is an exclusive interview with him for our readers:

1. What are the things you fondly remember about our department?

SVNIT introduced me to the world of computers and the internet. As technology was just beginning to take off, the labs at the college provided essential access that was crucial in jumpstarting my career.

2. What is something at SVNIT that you absolutely loved being a part of?

The welcoming environment, access to a well-stocked library with excellent textbook references, and the opportunity to meet friends from different parts of the country made my time at SVNIT truly special.

3. If you were now in your first year of college what are the things that you would like to explore?

If I were in my first year again, I'd appreciate an updated syllabus, as some subjects seemed irrelevant. The absence of ragging and the presence of a better teaching staff would enhance the learning experience which is crucial for 1st year.

4. How did your experience at SVNIT help you find your first position after graduation?

My first employment was at SVNIT itself. The experience I gained as a student in the EC department greatly assisted me in my teaching role. I always aimed to ensure that students did not endure the same challenges that we faced.

5. Do you admire any famous personality? What is it about them that you look up to?

I admire Elon Musk. I'm constantly amazed by his visionary approach and groundbreaking innovations in green energy. His hard work and perseverance are truly inspiring.

6. Now a days there are many online certifications courses for AI, IoT and sustainability. In your opinion, how these courses would help the students in terms of their technical upgradation?

Bridge courses are incredibly valuable for preparing students to meet the demands of the latest technology, allowing the regular college curriculum to focus on foundational topics.

7. What other things does a fresher need to keep in mind in order to last long and thrive in the industry?

Focusing on core subjects and gaining a deep understanding of them is crucial.

8. Next decade is being called the decade of semiconductor electronics, what do you think freshers in the domain need to learn to thrive in the field?

Concentrate on mastering the basics while gaining exposure to Verilog design.

9. How important is it to network? Are you able to find time from your busy schedule to keep in touch with your friends from college?

Building partnerships is incredibly important, though finding time can always be a challenge.

10. Data science, machine learning, deep learning, AI have become buzz words every company is using these days. Due to this, there is a very high interest about these topics among students. What according to you are the relevant skills required in an ideal portfolio in any of these fields?

Exposure to statistics is crucial for building a strong foundation for AI/ML.

11. In the end, any advice to our readers out there from our college or beyond who want to have their own startup?

My advice would be not to rush through. Gaining some experience in a relevant area can be highly beneficial and help lay a strong foundation.

CREATIVE CORNER

“DIY Drone Adventure: Building a Custom Quadcopter with Ardupilot”

I've always been fascinated by drones and wanted to understand how they work. That curiosity led me to take on the challenge of building my own from scratch! Through this text, I’ll take you through my exciting journey of creating a DIY drone using ArduPilot and a collection of carefully selected components.

The build process started by securely mounting the motors onto the Q450 frame, ensuring balanced weight distribution. At first, I struggled with aligning the motor mounts properly—one of them kept tilting slightly, which made me worried about stability. After some trial and error, I realized I needed to use spacers to get them level, and that small adjustment made a huge difference! I connected the ESCs to each motor, routing the wiring neatly to the central power distribution board. The APM2.8 flight controller was mounted in the center to minimize vibrations using silicone standoffs, and the FlySky receiver was installed for seamless control.

After assembling the drone, I proceeded to configure and calibrate it using Mission Planner, ensuring all systems were optimized for flight. The calibration process began with the ESCs, aligning and synchronizing the motors for smooth and efficient operation. I then set up the radio transmitter to guarantee accurate and responsive control inputs from the pilot, followed by configuring various flight modes to accommodate manual control, assisted flight for easier handling, and fully autonomous operation for advanced missions. Additionally, sensor calibration was performed, fine-tuning elements like the accelerometer, gyroscope, and compass to enhance overall flight stability and responsiveness, ensuring the drone would perform optimally in different flight conditions. This thorough configuration allowed for precise and reliable operation, whether in manual, assisted, or autonomous modes.

With everything set, I performed a final round of safety checks—ensuring all connections were secure, calibrating the sensors once more, and verifying the failsafe settings. Once I was confident everything was in order, it was time for the first test flight. I started with short hover tests to fine-tune the PID settings and ensure stability. After a few adjustments, the drone was flying smoothly! Using Mission Planner, I even programmed an autonomous flight path, which the drone executed flawlessly.

Nakshatra Salunke
DOECE (1ST YEAR)

Building this drone was an incredible experience! The most rewarding part was seeing it lift off for the first time after all the effort that went into assembling and calibrating it. It was a mix of excitement and relief knowing that everything was working as expected. One surprising moment was realizing how much of a difference small adjustments, like PID tuning, could make in the drone's stability and performance. It provided valuable insights into flight mechanics, electronics, and software integration.

If you’re passionate about UAVs, I highly encourage you to take on this DIY challenge! This was a basic experience in drone building, but the knowledge gained can be further utilized to incorporate AI, advanced sensors, and other features to transform the drone from a DIY hobby project into a functional and practical product.

CREATIVE CORNER

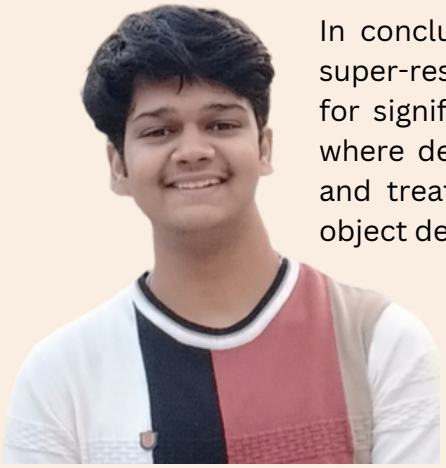
"Exploring the Impact of Super-Resolution in Computer Vision Applications"

As a student researcher in the AI team at Sillycon Club, I've had the opportunity to explore one of the rapidly advancing domains in computer vision: image super-resolution (SR). Super-resolution is the process of enhancing the resolution of an image by generating a higher-resolution image from a low-resolution input. This technique is becoming critical in applications such as medical imaging, satellite imaging, video streaming, and autonomous vehicles where image clarity plays a vital role in decision-making.

A significant part of my research focuses on Super-Resolution Generative Adversarial Networks (SRGANs), a model that improves image quality beyond the traditional interpolation methods. Unlike classical algorithms like bilinear or bicubic interpolation, SRGANs use deep learning to synthesize realistic, high-resolution textures from low-resolution images. This generative approach allows the model to produce sharper details while preserving structural integrity, which is vital for applications like facial recognition, where fine details matter. Working with models like SRGAN has given me insights into the limitations and strengths of AI in image enhancement.

One of the most exciting challenges we face is improving the Peak Signal-to-Noise Ratio (PSNR) and Structural Similarity Index (SSIM), which are essential metrics for evaluating the quality of the super-resolved images. While high PSNR is often a target, there's a trade-off between perceptual quality and pixel-wise accuracy. My research aims to optimize this balance by exploring the use of perceptual losses—a concept where the generated images are compared to high-resolution images based on visual perception rather than just pixel differences. This enables the SRGAN to focus on producing more natural and visually appealing images.

Moreover, I have been exploring the integration of thermal super-resolution techniques, particularly in autonomous vehicles and surveillance. In low-visibility conditions such as fog or darkness, thermal cameras play a crucial role. Enhancing thermal image quality using SR techniques can significantly improve object detection and recognition in these scenarios.



In conclusion, my research not only deepens the theoretical understanding of super-resolution within the realm of computer vision but also lays the groundwork for significant practical applications across various industries. From healthcare, where detailed and high-resolution medical images can assist in early diagnosis and treatment, to security and surveillance, where image clarity is critical for object detection and identification, the potential impact of this technology is vast.

Super-resolution also holds immense promise in enhancing satellite imagery for environmental monitoring, improving the quality of video streaming services, and contributing to autonomous systems, where every pixel counts in making real-time, life-critical decisions.

DIVYAVARDHAN SINGH
DOECE (2ND YEAR)

COMMITTEE MEMBERS

Prof. J. N Sarvaiya
Chairperson

Dr. P. K. Shah
Co-Chairperson

Dr. Kirti Inamdar
Member

Divyavardhan Singh
Magazine Designer