NIRMA UNIVERSITY
INSTITUTE OF TECHNOLOGY
NAAC ACCREDITED 'A+' GRADE

तरंग

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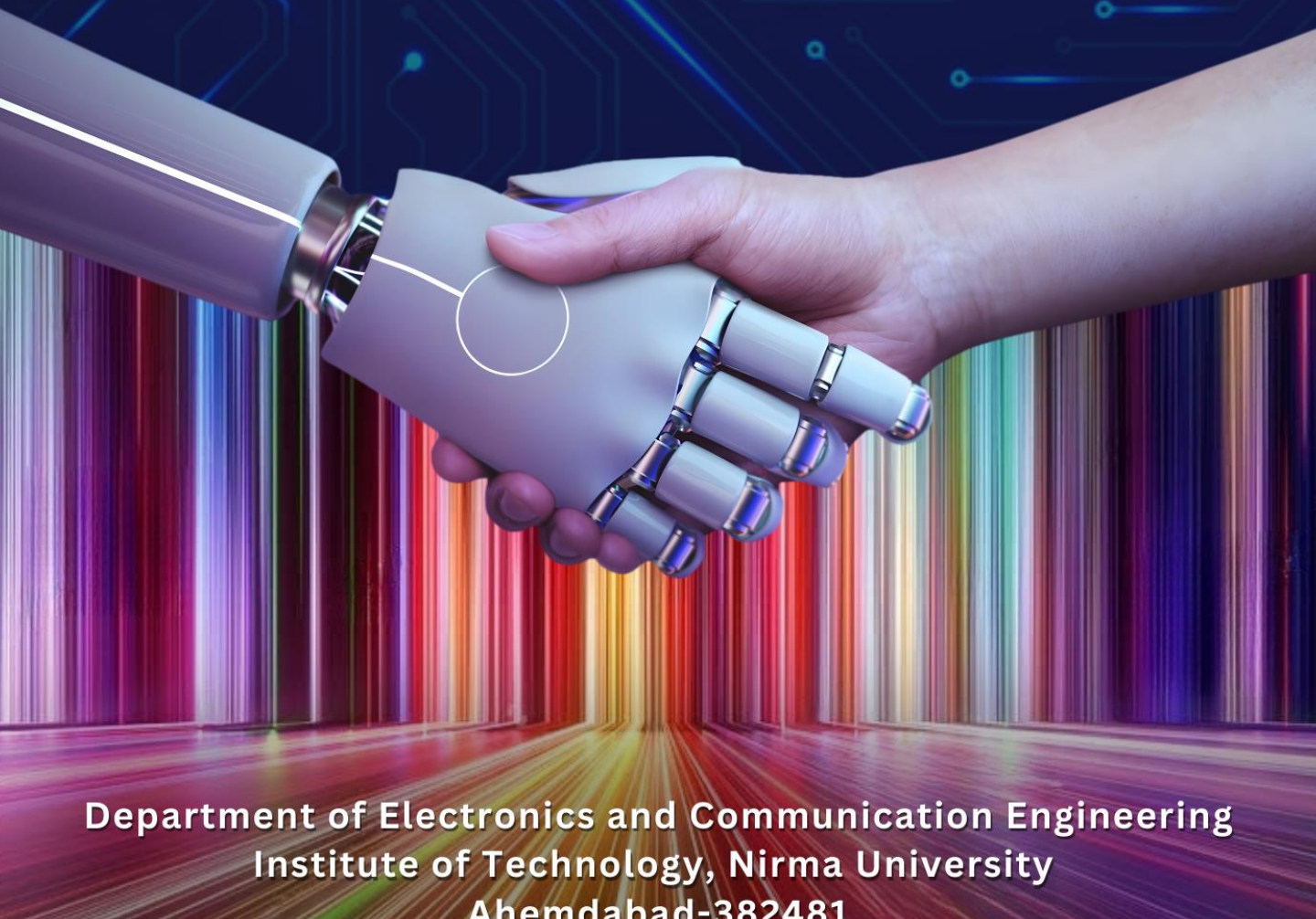

Department of Electronics and Communication Engineering
Institute of Technology, Nirma University
Ahemdabad-382481

Vision of the Department

To lead in developing cutting-edge knowledge & technology and producing globally competent professionals in Electronics and Communication Engineering

Mission of the Department

To shape technically competent, analytical, creative and problem solving Electronics and Communication Engineers capable of meeting industry challenges and social needs

To foster a conducive environment for multidisciplinary research and innovation

To encourage faculty and students to achieve excellence in the profession and to grow as ethical and socially responsible leaders

Preface

We are delighted to present the fourth volume and second issue of "Tarang" the captivating magazine of the Department of Electronics and Communication Engineering at the Institute of Technology, Nirma University. With immense pleasure and excitement, we present to you a comprehensive collection of the department's accomplishments, activities, and endeavors over the past six months.

"Tarang" serves as a chronicle of our department's vibrant journey, showcasing the remarkable achievements, scholarly pursuits, and initiatives that have shaped the landscape of Electronics and Communication Engineering. It is worth noting that our magazine was previously known as "Spectrum," and we have transitioned to the name "Tarang" from this issue. This change reflects our commitment to maintaining a fresh and dynamic identity while continuing to celebrate our department's excellence.

This issue stands as a testament to the dedication and innovation that our students, faculty members, and staff consistently exhibit.

In this issue, we delve into the dynamic growth of our department, exemplified by the expansion of our undergraduate program, which now accommodates 180 aspiring engineers, up from 120. Additionally, we take immense pride in the augmentation of our PG VLSI Design program, now facilitating the education of 24 postgraduate scholars, an increase from 18. Such growth not only signifies our commitment to excellence but also our drive to provide top-tier education in the field of electronics.

One of the highlights of this issue is the collaborative hackathon organized alongside Infineon Technologies. This engaging event not only showcased the prowess of our students but also paved the way for invaluable internship opportunities for those specializing in PG VLSI and PG Embedded Systems. This collaboration exemplifies our commitment to fostering industry-academic partnerships that provide students real-world exposure and career prospects.

We take immense pleasure in recounting our successful outreach program, which aimed to inspire and guide engineering aspirants. Our department's unwavering dedication to community engagement is reflected in these initiatives that extend beyond our campus, inspiring the next generation of engineers.

In the pages that follow, you'll also find a compilation of publications by both students and faculty members in renowned journals and conferences. These contributions underline our department's academic vitality and commitment to advancing knowledge in the field of Electronics and Communication Engineering. This issue wouldn't be complete without highlighting the numerous achievements and accolades earned by our students and faculty members. These accolades serve as a testament to our collective pursuit of excellence, and we couldn't be prouder of their accomplishments.

As we pen down this preface, we express our heartfelt gratitude to every contributor, faculty member, student, and supporter who made this issue of "Tarang" possible. We invite you to immerse yourself in the journey of our department as we continue to push boundaries, inspire minds, and engineer a better future.

With enthusiasm and anticipation,
Dr. Akash Mecwan and Dr. Manish Patel,
Department of Electronics and Communication Engineering, Institute of Technology,
Nirma University

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Milestone unlocked - On to the next one

Hello everyone,
Here is a snapshot of what is going to be there, within these lines:
1. Placement Preparation
2. Temperament during the placement season
3. Mindset during interview
In the below sections, I will not just share my story and strategy, but also the mistakes I made, so that the ones reading this, do not repeat the same mistakes

1. Placement Preparation
Just before the 5th semester, I got clarity that I wouldn't be opting for higher studies, and will fully focus on placements. Starting then, all my questions, in general conversations with my seniors, would be about placements and salary packages only. Out of those conversations, I concluded that software companies pay more compared to EC domain companies, and they come more in number as well. Although this conclusion, brought the urge inside me to start competitive coding, at all times of my college life, I never compromised on academics and CGPA. My being good at academics, built a basic foundation of EC-related knowledge, especially in subjects like MM, Embedded Systems, and Computer Architecture. All my good projects were related to microcontrollers or some kind of utility using any programming language.

At the end of the 6th semester, when the placements were nearing, I started freaking out, because I didn't know the answers, to the most important questions like, "Which stream of companies should I focus on?", "Where should I start my revision?", "How to do study in particular for placements?". Despite my not knowing the answers to these questions, I made sure of one thing, I must be good enough to answer aptitude questions of the test.

Along with academics, related to interested job profile, be prepared for aptitude tests as well. Also, make sure that you have worked on some really good projects related to interested fields. Half of the interviews are about discussion of the projects, the reason being, that companies prefer candidates with practical knowledge rather than just theoretical knowledge. Also, I realized how important it is, to focus on lab sessions of every subject, during the semesters. I didn't have much practical experience due to COVID, and I feel the difference in the quality and the depth of knowledge between me and my seniors.

2.Temperament during the placement season
Without knowing the answers to many questions, the placement season started and the companies started coming. As I didn't realize my real potential, and the market at that time, I sat in all companies giving decent salaries (A & A+). Very early in the placement season, I got a job as a software profile in the A category. My being "Jack of all trades, master of none", helped me achieve this. Later on, I got into an A+ company.

My general advice to all would be, to understand your real potential, but that doesn't mean that one should be overconfident. I have seen my classmates who aimed for very high-paying jobs and landed on none. Also, make sure to follow all rules and guidelines given by the placement cell and department. One might feel that the system doesn't support, the ones who work hard in their entire college life, rather is a model that focuses on overall placement results. But have trust in the people running the system, they will make sure, that one gets what he/she deserves.

3. Mindset during an interview
This is one of the most important aspects of getting into a job. It is important to revise the basics, prepare a decent two-minute introduction, know the job profile well, and go through the important subjects related to the job profile. But this won't be enough, one has to be well dressed, well groomed, and have two or three sets of resumes at the time of the interview. Even if it is an online interview, one has to be well dressed. Many interviewers would ask you to change your seating and switch on some extra lights, just to check how well-dressed you are, at the time of the interview. Most important of all, be calm and composed, do not panic in case you don’t know the answer, to a question or two, just say that "you don’t know" or "you don’t recall now". Also, prepare one or two questions for the interviewer, this is almost very common in today's interviews.

I would suggest you be confident of your skills and potential, not give much credit to luck, and believe that “Things will fall in the right place, at the right time”.

Adtya R
Hardware Engineer, Cisco
BTech 2023 Batch

ઇ બસ

તો, ઈ બસ એક ગામ જ હતું, પણ
મારા સપનાનું નામ હતું..
હાં હસે તારા પણ સપનાનું એક ગામ,
ગોતને તું એ તારા સપનાનું એય નામ....
હાં, તો હતું એ મારા સપનાનું નામ, એ ગામ
હાં મને ખબર છે ત્યાં કોન રે છે,
સ તને ખબર છે તારા સપના માં કોન રે છે?
ના ના, ગામ ને સપના નું ગામ ના કેતા તમે,
એતો મારા જીવ ગયેલા શ્વાસ ની જગ્યા છે...
હું જો ભીંજાઈશ તો મારા માટેની હવાની એ ગોઠવણ છે.
મારા સુવા માટેનો ખાટલો ત્યાં જ છે હજુ સુધી,
તો મારા વરસોના સંસ્કાર ની બેઠક છે ત્યાં.
શું તમારા સુંસ્કાર ની બેઠક તમને થી ખબર?

ના ના, મુળ હું એ ગામની નથી, એના નામની છું..
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પણ તમે નઈ જણતા કે આ બસ મા કેટલું બધ સમાયેલું છે,
મારા પોતાનાં, મારો ગુંસ્સો મારી યાદો કે પછી હું પોતે જ,
આ બધુય હજુ ત્યા જ છે હોંને, હાં હું પોતે પણ હોં..
શુ? તમે તો આયા જ છો? મારા હાજરા હજુર?
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શું કીધું, તમે ભુલી ગયા તમારુ સાવ?
શુ કીધું? ભોળપણ કોઈ યાદ નઈ હોઈ?

શું, હુ ખલી મારા મનમાં જ બોલતો હતો અત્યાર સુધી

Keyuri Kariya
19BEC051

રાજ

શંકાનું આ એક તાંતણું મળ્યું..
રાખી લવ પાસે કે જવા દવ?
એક દોરો તો છે મારો પ્રેમ નો
સાથે ગુંથી દઉ કે કરું શું હું?

કરું શું આ એ એક બીજનું પણ હું?
સચવાતું નથી ને નખાતું પણ નથી...
ક્યાંક તો કામ આવશે જે ને એ?
જો, તાંતણાની પાસે રાખેલુ જ છે!

અરે રે, હવે રેવા દેવુ જોઇએ ક્યાંક તો,
આતો બોવ જ થઈ ગયું વધારે હેનેં?
કદાચ આ એ જુંનું પરિણામ હશે...
એક મન ને એક માનસિક્તા નું રાજ!!

Keyuri Kariya
19BEC051

Technical Expert Sessions

Ranjan Yash presented on "Smart Navigator," highlighting the integration of GPS, machine learning, and augmented reality to create an intelligent navigation system. His speech emphasized real-time data, personalized recommendations, and user-centric design, offering a vision of a seamless and immersive navigation experience. This session was on February 03, 2023 for the students of B.Tech. semester-IV &VI and M.Tech. semester-II.

On February 04, 2023, Nayak Prakash discussed "AES 128 Cryptanalysis", exploring vulnerabilities and attacks on the widely used encryption algorithm , for the students of B.Tech. semester-IV &VI and M.Tech. semester-II. The speech emphasized the importance of understanding and mitigating these weaknesses while highlighting the need for ongoing research and countermeasures to ensure the robustness of AES 128.

Pandey Ashutosh delivered a speech on "Voice Control on PSoC™ 6 Using Machine Learning" He explored the implementation of voice control on PSoC™6 microcontrollers, emphasizing its applications, technical components, and challenges, while showcasing practical examples of its usage. Overall, the speech highlighted the potential of voice control technology and its integration with PSoC™ 6 for enhanced user experience and accessibility. This session was for the students of B.Tech semester-IV &VI and M.Tech. semester-II and was conducted on February 02, 2023.

Technical Expert Sessions

The Founder and Chief Marketing Communication Advisor of ESSKSEE, Mr Sanjay Chakroborthy delivered a motivational speech on the topic of "Half Glass is Full" for the students of B.Tech. semester-IV & VI on January 19, 2023. The speaker shared inspiring anecdotes and perspectives, encouraging attendees to adopt an optimistic outlook and view challenges as opportunities for growth of the students.

Consultant Psychiatrist and Dedication Expert, Dr. Parth Vaishnav, addressing the theme "Mental Health: From Illness to Weakness." Dr. Parth Vaishnav shed light on the importance of mental well-being and highlighted the journey from perceiving mental health issues as illnesses to understanding them as areas of vulnerability that can be addressed and strengthened to the students of B.Tech. semester-IV & VI. The session was conducted on January 19, 2023.

Author and Columnist Mr. Abhimanyu Modi delivered a speech on "Unimaginable Future Is (Not) Waiting for You" for the students of B.Tech. semester-IV &VI on January 19, 2023. Through thought-provoking anecdotes and insights, Mr. Modi challenged conventional notions of destiny and urged individuals to take control of their lives, seize opportunities, and create their own future.

Dr. Umang Ratani is an experienced entrepreneur and business leader. Dr. Ratani discussed various aspects of start-ups in India, including the current state of the start-up ecosystem, the opportunities available, the challenges faced by entrepreneurs, and the policy initiatives taken by the government to support start-ups. He also shared his own experiences as an entrepreneur and provided valuable insights into the key success factors for start-ups.

Technical Expert Sessions

Mr. Jaisheel Chhatrawala's speech on "Self Branding and Monetization using LinkedIn" emphasized the importance of building a personal brand on LinkedIn for professional success. He provided practical insights on optimizing profiles, creating compelling content, and leveraging LinkedIn's features for networking and revenue generation, empowering the audience to establish their brand and monetize their presence on the platform. This session was for the students of B.Tech. semester-VI and M.Tech. semester-II and conducted on February 24, 2023.

Mr. Manoj Parmar delivered sessions on "Real-time Operating Systems (RTOS)," for the students of B.Tech semester-VI and M.Tech. semester-II from February 27 to March 03, 2023, emphasizing their significance in industries requiring precise and timely responses. He discussed the characteristics, challenges, and practical applications of RTOS, equipping the audience with a comprehensive understanding of the principles and considerations for effective implementation in real-time systems.

Dr. Dipak Mishra's speech on "Information Coding Theory" explored the principles and applications of encoding, transmitting, and decoding information reliably in communication systems. He discussed key concepts like entropy, channel capacity, and various coding techniques, highlighting their significance in modern technologies and equipping the audience with a deeper understanding of information coding theory. This session was for the students of B.Tech. EC semester-VI and conducted on March 23, 2023.

Glimpse of Events Organised at the Department

B. Tech. Orientation Programme

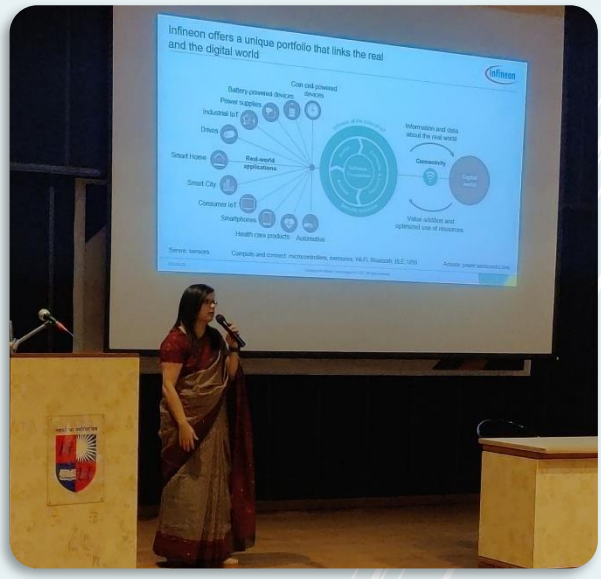
The Institute's Director and the Head of the Department kicked off the event by releasing the department's newsletter, highlighting the achievements and developments within the department. The newsletter serves as a comprehensive update for students, faculty, and staff. Following the newsletter release, Dr. Sachin Gujjar took the stage to discuss the newly launched "Career Care Portal" Dr. Gujjar provided insights into the portal's features, emphasizing its significance in guiding students towards successful career paths and offering valuable resources. Next, the Founder and Chief Marketing Communication Advisor of ESSKSEE delivered a motivational speech on the topic of "Half Glass is Full." The speaker shared inspiring anecdotes and perspectives, encouraging attendees to adopt an optimistic outlook and view challenges as opportunities for growth. The event continued with a speech by Consultant Psychiatrist and Dedication Expert, Dr. Parth Vaishnav, addressing the theme "Mental Health: From Illness to Weakness." Dr. Parth Vaishnav shed light on the importance of mental well-being and highlighted the journey from perceiving mental health issues as illnesses to understanding them as areas of vulnerability that can be addressed and strengthened. Author and Columnist Mr. Abhimanyu Modi took the stage next, captivating the audience with his speech on "Unimaginable Future Is (Not) Waiting for You." Through thought-provoking anecdotes and insights, Mr. Modi challenged conventional notions of destiny and urged individuals to take control of their lives, seize opportunities, and create their own futures. The event concluded with the Orientation Program, which provided attendees with crucial information about the Institute's resources, facilities, and academic programs. This segment aimed to familiarize new students with the institute's structure and support systems, ensuring a smooth transition into their educational journey. Overall, Event provided diverse speakers, enriching environment, mental health insights.

Glimpse of Events Organised at the Department

Hackathon Contest by Infineon Technologies

Infineon Technologies provided a platform to students of the Electronics and Communication Engineering, Computer Science Engineering, Electronics and Instrumentation Engineering, and Electrical Engineering departments of Nirma University, Ahmedabad to showcase their technical problem-solving skills by organizing a hackathon contest.

The event started with a series of expert lectures in the domain of hackathon problem statements by experts from Infineon Technologies. This was followed by Workshops and boot camps where the students were introduced to the hardware, software tools and technologies to be used for solving the problem statements. On the final day of the event, students used the skills that they gained by expert lectures, workshops and boot camps to provide solutions to the hackathon problem statements. There was a lot of learnings for everyone in cutting-edge technologies during the event.

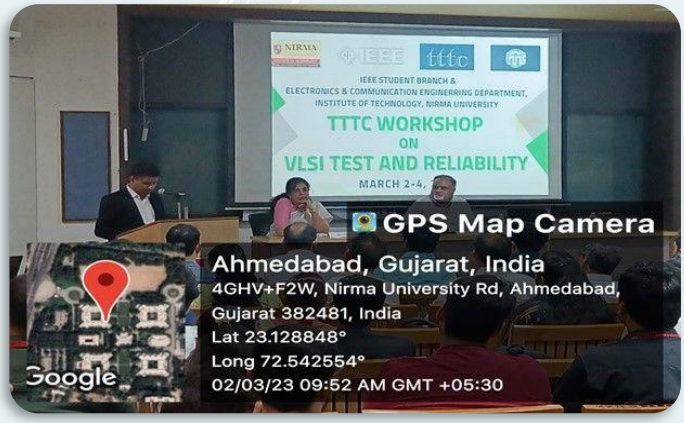


Glimpse of Events Organised at the Department

Workshop on VLSI Test and Reliability

Department of Electronics and Communication Engineering of Institute of Technology, Nirma University has organized a three-day TTTC (Test Technology Technical Council) workshop on VLSI Test and Reliability for the students as well as the professionals during 2-4 March 2023. The Workshop was coordinated by Dr. Usha Mehta, Head of Electronics and Communication Engineering Department & PG Coordinator (VLSI Design) and Dr. Vaishali Dhare, Assistant Professor, Electronics and Communication Engineering Department. Total 109 participants including ISRO professionals, PhD scholars, faculty members, PG students and UG students were participated.

The inaugural function take placed on 2nd March 2023 in the presence of chief guest Dr R. N. Patel, Director, Institute of Technology, Nirma University. The VLSI test industry veterans namely Mr. Prasad Mantri (Chief Technology Officer, AISemicon), Mr. Bharath Nandkumar (Principal Software Engineer, Cadence), Mr. Rajit Karmakar (DFT CAD Engineer, Intel), Mr. Vishal Diwan (Digital Design Manager, Texas Instruments) and Mr. Malav Shah (SoC Design Manager at Texas Instruments) were the experts of the workshop.

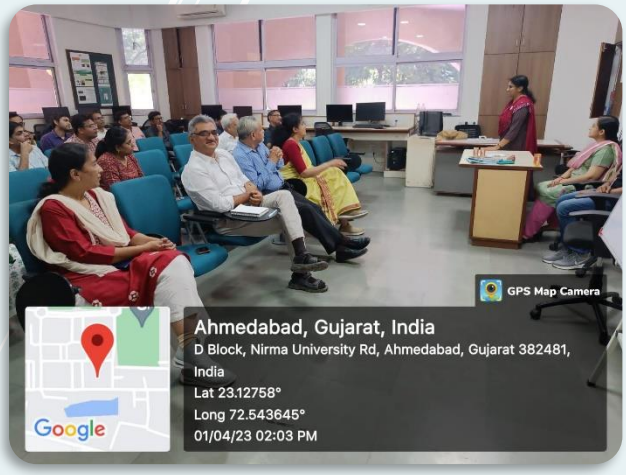


Workshop on VEGA Processor in Collaboration with C-DAC, Trivandrum

A two-day workshop on VEGA Processor was conducted by the EC Department Institute of Technology Nirma University on March 31 – April 1, 2023, in collaboration with C-DAC, Thiruvananthapuram.

C-DAC, Trivandrum, is executing the Digital India RISC-V program (DIR-V) under the Microprocessor Development Programme, funded by MeitY. The project has developed VEGA series of microprocessors in soft IP form, including 32-bit single-core, 64-bit single-core, 64-bit dual-core, and 64-bit quad-core. A workshop was organized to showcase the initiative to students, involving experts from C-DAC, EC, and 90 students from UG and PG programs. The workshop focused on interfacing 20+ sensors to ARIES family boards, programming, and IoT application development.

Students and Director, Institute of Technology, Nirma University, Dr R N Patel have appreciated the efforts of the EC department. The workshop was coordinated by Dr Dilip Kothari, Dr Dhaval Shah and Prof Jayesh Patel.



Glimpse of Events Organised at the Department

Workshop on VLSI Chip Design using Cadence

The VLSI Design Workshop successfully conducted on 5th May, providing participants with an immersive learning experience in the field of Very Large Scale Integration (VLSI) design. With a focus on utilizing state-of-the-art Electronic Design Automation (EDA) tools, the workshop aimed to impart knowledge and practical skills required for digital, analog, and RF VLSI circuit design, which play a crucial role in the modern era of electronics.

Throughout the workshop, participants engaged in hands-on experimental work, gaining valuable insights into simulations and layout designs of digital, analog, and RF VLSI circuits. The program catered to the latest trends in VLSI design and was specifically designed for faculty members and researchers from technical institutes, as well as engineers from the industry seeking to explore the EDA design flow. Research scholars and postgraduate students aiming to specialize in VLSI also actively participated.

The workshop fostered a collaborative environment, allowing participants to network with experts in the field, share knowledge, and gain practical experience. By utilizing cutting-edge EDA tools, attendees were equipped with the skills to tackle the challenges of VLSI design in the modern era.

The target audience for the workshop included final and pre-final year B.E./B.Tech students, M.E./M.Tech and Ph.D. students, faculty members from engineering colleges, and industry personnel. The diverse group of participants contributed to rich discussions and meaningful interactions, enhancing the overall learning experience.

The successful completion of the VLSI Design Workshop marks a significant milestone in empowering participants with the knowledge and expertise required to excel in VLSI design. By providing a platform for hands-on experimentation and exposure to industry-standard tools, the workshop has effectively prepared participants for the dynamic field of integrated circuit design.

Glimpse of Events Organised at the Department

Visit to Matrix

On 11th January 2023, Dr. Sachin Gajjar from Electronics and Communication Engineering Department, Dr. Jaiprakash Verma from Computer Science and Engineering Department, Mr. Sunil Pandi and Mr. Nilang Vaidya from Industry Institute Interaction Cell visited the R & D center of Matrix Comsec Pvt. Ltd., Baroda. The team had a meeting with Mr. Sumer Mehra, Vice President, Production Engineering, Mr. Ravi Rupela, Manager, Software Division, Ms. Helly Jagtap, Senior Executive - Organization Development & Talent Acquisition from Matrix Comsec Pvt. Ltd. There was a discussion on exploring the possibilities of Nirma University and Matrix Comsec collaborations for internship for MTech EC and CSE students, industrial visits of Nirma University students to Matrix Production site, laboratory set up at Nirma University by Matrix, organizing hackathon and workshops for students and faculty members, organizing training programs by Nirma University for engineers at Matrix, collaborative teaching for students, joint projects etc.

Glimpse of Events Organised at the Department

A Visit to SCL Chandigarh

The postgraduate (PG) students from the Electronics and Communication Department at Nirma University, along with Professors Nagendra Gajjar and Piyush Bhatasna embarked on a 6-day trip to the Semiconductor Laboratory (SCL) in Chandigarh.

The trip commenced on DATE from Sabarmati station at 9 a.m. The students arrived in Chandigarh the following day after a long and tiring journey. They were permitted to take the rest of the day off so they could rest and prepare for their visit the following day.

The students went to the Semiconductor Laboratory (SCL) on the third day. They received information on a few of the goods that the company has worked on throughout the years. They then went on a tour of the fabrication plant, where they were put into six-person groups and led around. They had the opportunity to observe the processes for 8-inch and 6-inch wafers and also visited the testing and packaging station. After the tour, the students explored the Rock Garden and Sukhna Lake.

The subsequent day began with a 3-hour journey to Shimla. Upon reaching Shimla, the students visited 'The Ridge,' a popular evening spot in Shimla. They had the rest of the day off for shopping and relaxation before their journey the following day.

The following day, the students ventured to Kufri, another picturesque hill station, following a 2-hour drive from their hotel. The day concluded with a light snowfall as they returned to the hotel at 6 PM.

On the sixth day, all the students visited The Potato Research Institute and Naldhera Golf Course.

Publications at the Department

- **Nandini Deshpande (20MECREX01), Manisha Upadhyay, "**Optimization Of Nano Fillers Content To Fabricate Electrically Conductive Carbon Fiber Reinforced Polymer For Space Use", Composites: Mechanics, Computations, Applications: An International Journal (2023) : 79-88.
- **Vaishali Dhare, Usha Mehta,** "Analytical Method for Cell Displacement Defect Analysis of Quantum-dot Cellular Automata Primitive", Journal of Electronic Science and Technology (2023).
- **Rachna Sharma, Yogesh N. Trivedi, Kamal K. Garg, Vimal Bhatia, Mohammed Abdel-Hafez,** "On Performance Analysis of Cooperative Horizontal and Vertical Underwater VLC Systems with Best Relay Selection", Photonics (2023).
- **Abhishek Gor , Mrunali Jani, Anup Sanchela, , N.M. Devashrayee, Rajshree Jotania and Chetna Chauhan,** "Structural, Optical, Magnetic and Dielectric Properties of CoFe12O19 Synthesized in the Presence of Moringa oleifera Flower Extract", Asian Journal of Chemistry (2023) : 1257-1263.
- **Laukikkumar K. Patel, Manish I. Patel,** "Feature Based Image Registration Using CNN Features For Satellite Images Having Varying Illumination Level", International Journal of Advanced Technology and Engineering Exploration (2023) : 440-457.
- **Manav Chotaliya (21MECE05), Vijay Savani,** "An Autonomous System for Knee Osteoarthritis Disease Diagnosis using Machine Learning and Standalone Controller", International Journal of Computing And Digital Systems (2023) : 1053-1063.
- **Sachin Gajjar,** "Advances in VLSI and Embedded Systems", Springer, Book Chapter-Design and Implementation of Fault Tolerance and Diagnosis Technique for Arithmetic Logic Unit (ALU) in Soft-Core Processor (2023).
- **Viraj Mankad (18BEC052), Virag Shah (18BEC123) , Sachin Gajjar , and Dhaval Shah,** "Soft Computing and its Engineering Applications", Springerlink, Book Chapter-Performance Analysis of Cache Memory in CPU (2023).
- **Usha Mehta, Jayesh Popat,** "Frontiers of Quality Electronic Design", Springer, Book Chapter-Defense against Security Threats with Regard to SoC Life Cycle (2023).
- **Hetal Panchal, Sachin Gajjar,** "Cognitive Science and Technology", Springer, Book Chapter-Cluster Head Selection Based on Type-II Fuzzy Logic System in Wireless Sensor Networks: A Review (2023).
- **Sachin Gajjar, Akshat Bahiti (19BEC008), Dev Patwa (19BEC024),** "Gesture Based Computer Control System" 9th International Conference On Advanced Computing And Communication Systems, ICACCS 2023, Sri Eshwar Collage Of Engineering, Coimbatore, India (2023).

Publication at the Department

- **Siddharth Barbhaya (21MECV12), Usha Mehta,** "An Open Source Static Timing Analysis EDA Tool for Digital System Design", IEEE Third International Conference on "Technology, Engineering, Management for Societal Impact using Marketing, Entrepreneurship and Talent (TEMSMET 2023), Vidya Vikas Institute of Engineering and Technology Mysuru, India, (2023).
- **Palak Jain (19BEC081), Taneesha Chaudhary (19BEC131, Sachin Gajjar,** "Design and Development of Smart Waste Management System", 4th International Conference on Communication Systems, Computing and IT Applications, St. Francis Institute of Technology, India, (2023).
- **Manav Chotalia (21MECE05), Sachin Gajjar,** "Performance Comparison of IEEE 802.11ax, 802.11ac and 802.11n using Network Simulator NS3", 4th International Conference on Computing Science, Communication and Security, Ganpat University, Mehsana, India, (2023).
- **Henil Gajjar (19BEC032), Dev Diwan (19BEC030), Ruchi Gajjar, Manish I. Patel,** "Comparative analysis of CNN models for self- driving cars in a simulated environment", 3rd IEEE International Conference on Range Technology (ICORT) 2023, Integrated Test Range (ITR) , DRDO, Chandipur, India, (2023).
- **Taneesha Chaudhary (19BEC131), Palak Jain(19BEC081), Sachin Gajjar** "Design and Development of Smart Waste Management System", International Conference on Communication Systems, Computing and IT Applications 2023, St. Francis Institute of Technology, Mumbai Maharashtra, India, (2023).
- **Manav Chotalia (21MECE05), Sachin Gajjar,** "Performance Comparison of IEEE 802.11ax, 802.11ac and 802.11n using Network Simulator NS3", 4th International Conference on Computing Science, Communication and Security (COMS2), Ganpat University, Gujarat, India, (2023).
- **Aatman Patel (19BEC091), Mann Raval (19BEC109), Sachin Gajjar,** "Cohesive Intelligent System for Smart Cradle", 3rd International Conference On Advance Computing And Innovative Technologies In Engineering, Galgotias College of Engineering & Technology (GCET),Gujarat , India, (2023).
- **Akshat Baheti (19BEC008), Dev Patwa (19BEC024), Sachin Gajjar,** "Gesture Based Computer Control System", IEEE 2023 9th International Conference on Advanced Computing and Communication Systems (ICACCS), Sri Eshwar College of Engineering (Autonomous), Coimbatore, Tamil Nadu, India, (2023).
- **Heet Shukla (21MECE11), Sachin Gajjar,** "Design and Development of Embedded System for Loom Data Monitoring System", Twelth International Conference on Control System and Power Electronics – CSPE 2023, Mumbai, India, (2023).

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- **Parin Shah (21MECE10), Gayatri Rathod (21MECE17), Ruchi Gajjar, Nagendra Gajjar, Manish I Patel,** "Plant Leaf Disease Classification Using Convolutional Neural Network On FPGA", International Conference on Device Intelligence, Computing and Communication Technologies (DICCT-2023), Dehradun, India, (2023).
- **Devarsh Jani (21MECE03), Manish I. Patel, Ruchi Gajjar, Nagendra Gajjar,** "Comparative Analysis of Machine Learning Models for Pest Detection on Raspberry Pi", 7th International Conference on Trends in Electronics and Informatics ICOEI 2023, Tirunelveli, India, (2023).
- **Gayatri Rathod (21MECE17), Parin Shah (21MECE10), Ruchi Gajjar, Manish I. Patel, Nagendra Gajjar,** "Implementation of Real-Time Object Detection on FPGA", 7th International Conference on Trends in Electronics and Informatics ICOEI 2023, Tirunelveli, India, (2023).
- **Shruti Kumari Shrivastava (20BEC116), Ruchi Gajjar,** "Image Processing based Image to Cartoon Generation: Reducing complexity of large computation arising from Deep Learning", IEEE Second International Conference on Computational Intelligence and Sustainable Engineering (CISES-2023), Greater Noida, India, (2023).
- **Priyanshi Jain (21MECV08),** "Quantum Cost Effective Reversible 1-bit Comparator using Quantum-dot Cellular Automata", 2023 IEEE International Conference on Nanoelectronics, and Nanotechnology (5NANO 2023), VISAT Engineering College, Elanji, Kerala, India, (2023).
- **Sachin Gajjar, Hasit Trivedi (18BEC037), Sanjay Parmar (18BEC069),** "Smart Door System To Prevent Covid-19 Transmission", 6 Th International Conference On Inventive Computation Technologies, ICICT 2023, Tribhuvan University, Lalit Pur ,Nepal, (2023).
- **Vishwaraj Mahan (21MECV06) , Manish I. Patel, "**Implementation of Retiming Technique for Clock Period Optimization by Brute-Force Approach", International Conference Devices For Integrated Circuit (DEVIC) 2023, Kalyani, West Bengal, India, (2023).
- **Vraj Patel (19BEC100), Urvil Gohil (19BEC145), Vijay Savani,** "Machine Learning based Self Driving Car Simulator along with Graphic User Interface (GUI)", International Conference on Computational Intelligence and Sustainable Engineering Solutions (CISES2023), Greater Noida, India, (2023).

ECO Events

Annual General Meeting of ECO

The Annual General Meeting (AGM) of the ECO was organized on the 25th of January, 2023. The meeting was held in the presence of the faculty advisors as well as the retiring board members. More than 65 students in the second and third year of ECE attended the meeting. The meeting started with a warm welcome speech by the faculty advisor of the club, Dr. Akash Mecwan stating the motto of the club Beyond the Bandwidth. The meeting commenced with a briefing on the year 2022 and dissolving of 2022 board team. The formation of a new board team of the year 2023 has commenced. The old retired from their post and new took place honouring them and their contribution to the club.

Kalakshetra - ePostermaking Competition

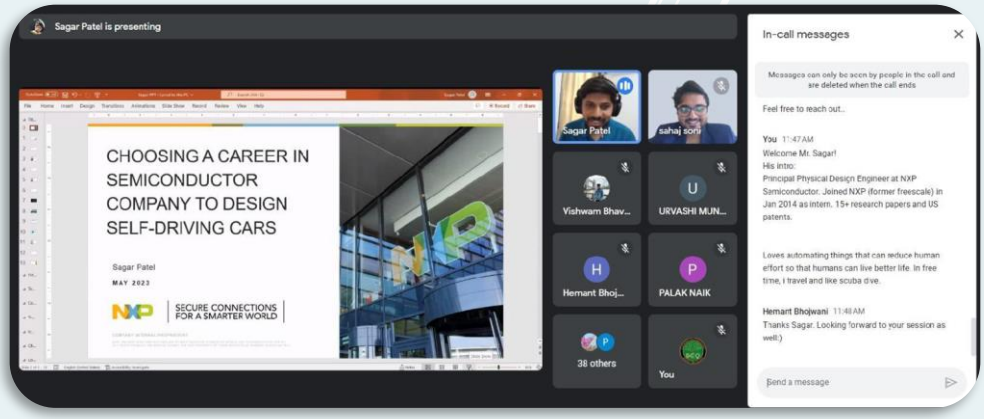
The Electronics and Communication Students' Organisation organised a poster making competition named "Kalakshetra – E poster making competition". Being a part of the host nation of the *G20 Summit*, it was conducted as a part of it. The competition was in online mode. The aim of the competition was to nurture the academic and personal development of the students. The event was launched on February 18th of the year 2023. The themes for the poster making competition were ***"Vasudhaiva Kutumbakam", "URJA-Electronics Technology"*** and ***"India – 2023"***. Participants from various departments registered for the event and designed some outstanding posters. The results were announced by the end of 4th of March, 2023 and the winners were awarded with certificate and literatures of notable authors.

The King's Landing : Where the tresure lies...

"The King's Landing – Where the treasure lies" is the ultimate tech treasure hunt organised by the members of Electronics & Communication Students' Organisation on 10th and 11th March. The full treasure hunt was based on the Game Of Thrones theme. There were more than 200 participants. There was a prize pool of Rs.6000 given to the top 3 winning teams. The event was conducted in 3 rounds. The round 1 was a quiz. Round 2 consisted of offline treasure hunt with technical theme integrated in it. And the final round was a relay race which took place at Cricket Ground. There were 27 teams which consisted of 3-4 participants each. The final score of the winners were calculated based on first two rounds of the event. Then in third round the top scorers were promoted and the winners were finalised at the end of final round.

Placement Mantra - 2023

An online event named "Placement Mantra" was held the Electronics and Communication Students' Organisation organised via online platform - Google Meet. Over 70 students from the department of Sem 4 and Sem 6 were present in the event. There were eight speakers who are currently 8th-semester students or Alumni working at well-known companies/research organisations in the field of Tech and Non-Tech. Placement guidance and insights were provided to the students by the speakers. It was an interactive Speaker session that guided the juniors about the placement process, interview experience, and the skills required for the same.



ECOGNIZANCE

EC Department Institute of Technology Nirma University, Ahmedabad organized an outreach programme "ECOGNIZANCE" for the students of standard 11 and 12 on April 15, 2023. More than 350 students participated in the event accompanied by their parents. The programme was organized in three sessions. In the first session, Dr R N Patel, Director, Institute of Technology, Nirma University talked about the facilities for the students at the Nirma campus. The teaching, learning and research facilities at EC Department Institute of Technology Nirma University was also discussed in the session by Dr. Usha Mehta, HOD-EC. Alumni members like Minal Rohit, Rahul Sanghvi and Drupad Gupta presented their views on their journey at EC Department Institute of Technology Nirma University when they were students. Industry experts like Dr. Satya Gupta, President, of VLSI Society of India, and Mr. Chetan Shingala, Director, Software, Cadence, Ahmedabad presented their views on the future of EC engineering in the next decade. Mrs. Deepa Jain, a parent of a current student presented their experience with the EC Department Institute of Technology Nirma University. All the experts laid emphasis on the selection of EC engineering as a branch for study in the near future looking to the demand of industries and Government Policy.


Q&A

ARTICLES

The Roommate

Bhavsar Devam
(Roll No.: 22BEC013)

It was the year 2010, when a decade full of opportunities and new beginnings, began. Technology now influenced the lives of people like never before. And understanding the intensity of this influence of technology; Vikram Srinivasan, a 17 year old student from Mangalore, opted for engineering and got admitted into the Institute of Technology, Hyderabad. It was his first day on the campus and was pretty impressed with the infrastructure. He congratulated himself on securing a seat in this prestigious institute. It was evening already when Vikram had finished exploring the campus so, he decided to go to his hostel. He went to his room, Room 207 of H2 hostel, a small room shared by two, had just enough space to fit his luggage.

Vikram adjusted his luggage and tried to acclimatize himself with his new home for the next four years. Just then, a guy of short stature and almond shaped eyes with specs on them entered the room and greeted Vikram saying," Hello, my roommate for today!!". He introduced himself as Norzing Deo, a graduate who stayed for just one day to collect some important papers. He went on to talk about his experience at the Institute with Vikram and Vikram heard patiently, making him even more curious. Vikram asked Norzing all the doubts that he had in mind with special concern about the food of the mess. To this Norzing replied with a smile," These four years of your life are really special and everything that you do in these four years is going to be an unforgettable experience, even the food from our mess. So, if I am not wrong, your orientation begins from tomorrow, isn't it?" Vikram replied," Yes! The Director Sir is going to explain us the curriculum." "Aah, the opening speech by Shantanu Sir!! Let me warn you, some of his jokes are pretty lame!!" Both shared a bout of laughter and Norzing went on to share his work during his four years of engineering.

He started sharing about the machine that he had made during his major project. He went on to explain," You see, I am from Meghalaya, one of the seven sisters in the North East. It rains pretty heavily there. In fact, data shows that Meghalaya is the only state that receives the highest amount of rainfall. The infrastructure in the north east is not as good as other cities in India. Even the roads are not as good as the city roads. And electricity!! Electricity hardly reaches any house. So, I tried to make a machine that could generate electricity from the raindrops that fall. I used small and light turbines so that the raindrops would fall on them and could rotate, thus generate electricity. But unfortunately, I could not complete the prototype and test it. Oh! Look now it's time for dinner. May you have the courage to survive your first dinner in the mess, my boy!" Vikram wanted to ask more about his machine but also felt his stomach yelling for food.

He marched his way towards the mess mustering up all the courage to face the food of the mess. While walking back to the hostel he found room 206 was locked. He thought of enquiring about it with Norzing and opened the door of his room only to find him asleep. Next morning Vikram woke up and found himself alone in the room. He then remembered about Norzing mentioning about leaving early in the morning to catch the train to his hometown. Vikram then got ready for the exciting orientation that Norzing had told him about. He went to the auditorium where the Director Sir was ready to give his speech. The Director Sir explained the curriculum and now it was the Alumni's achievements that were being displayed. A big machine with lots of small turbines on it was brought on the stage. The Director Sir said, "This machine here was made by an extraordinary student from the North east to generate electricity from the raindrops! An excellent piece of work and an extraordinary application of knowledge." The screen then showed a picture of Norzing and below it was written: "Norzing Deo. 16th July 1988- 28th June 2010." Vikram couldn't believe his eyes! The Director continued, "But unfortunately this brilliant student who came up with this idea died just five days ago in a land slide near his hometown in Meghalaya."

The Power of Imagination

Niharika Thakar
(Roll No.: 20BEC128)

Over the years, the power to imagine is what has fuelled innovation and evolved us from unresourceful cavemen into advanced civilians. People often relate the word 'imagination' with artistic creativity or scientific innovation. But it is needed in day-to-day activities as well. The power to visualize our next move can also enhance our performance in simple things like dancing or driving. Every wonderful creation starts with a thought. Things first need to exist in your mind before they can turn into reality. Decades ago, a dynamic man named Alexander Graham Bell dared to imagine people conversing without actually meeting; blessing this world with the innovation of a telephone. Imagination is what helps us find innovative solutions to sever problems.

Without imagination, the world of arts and entertainment would have never existed. It enables musicians to compose, poets to write, choreographers to structure beautiful performances, and artists to create. Books are proof of how powerful our imagination can be. Even a movie holds much more value when viewers can relate to the characters. Visualizing a better version of ourselves will help us progress. Imagination enables us to understand what we have not experienced. This develops qualities like empathy and kindness. It is what makes us human. Imagination is why visionaries make excellent leaders, who give rise to a better nation and hence, a better world. But chronic imagination without any action leads to daydreaming. It has negative impacts such as wastage of time, poor efficiency, and absence of mind.

Imagining the worst scenarios leads to negative thinking. Intense daydreaming makes your subconscious believe that your reality is not beautiful; leading to a dissatisfying and ungrateful life.

Here are some ways by which you can use imagination to your advantage and prevent the negative impacts of daydreaming.

- Turn your daydreams into goals; and goals into plans. For example, you may have dreamt about this ideal version of yourself. Incorporate daily habits in your life which will turn you into that person.
- Work on your ideas. If you think of a new device, research and determine if the innovation is technically possible. What if you make a new breakthrough?
- Meditate. It will help you control your thoughts.
- Find creative outlets for your daydreams through sketching, writing, or storytelling. Besides excellent writing skills, imagination is what makes fiction writers so successful.
- Use your imagination to develop empathy. Try to visualize yourself in others' positions. This will make you a compassionate person. The ability to understand others will also strengthen your relationships.

The effect of your imagination depends on how you use it. Your imagination can become your mightiest weapon. If followed by right actions, it may lead to excellence. Otherwise, it may lead to your own downfall.

Artificial Intelligence of Things (AIoT)

AIoT basically represents the integration of AI technology and IoT devices to enable smarter and more efficient systems. The integration of both technologies is vital because IoT devices have the ability to gather big data and AI techniques have the ability to predict and improve decision-making processes. AIoT is a rapidly developing field, some of the applications we can see in smart homes and autonomous vehicles. In smart home security systems, IoT devices can take the data of family members, AI can predict whether you are home or not, and it can automatically arm and disarm itself. We can consider Tesla for autonomous vehicles, the car uses 8 cameras and IoT devices to gather information about the car's surroundings, and then AI techniques produce the 3d output which identifies the obstacle, their motion, and ways/decisions to dodge it.

Jainam Jain
(Roll No.: 20BEC043)

As the data collected by IoT devices is traditionally sent to the cloud for processing, it increases data privacy issues and data breach problems. Here Edge computing comes to solve the problem. Basically, edge computing is processing the data through AI techniques near to the generation of data. (basically not sending data to the cloud). With advancements of IoT devices and AI techniques, edge computing is now possible. Some of the main techniques and algorithms used in AIoT are natural language processing, computer vision, deep learning, and machine learning models. If we talk about some of these technologies then computer vision is used to identify objects and people in images and videos, implement facial recognition and object detection. Deep learning powers more complex AIoT applications, such as self-driving cars and medical diagnosis. In the field of Smart Agriculture AIoT plays a big role to improve agriculture processes in a variety of ways, including monitoring crops, managing water usage and predicting pests and diseases. Therefore many of this main functions can be done efficiently without the need of human involvement. The future of AIoT is very promising, as with advancements of technology we will witness more affordable and its wide variety of applications. Also some of the trends which are likely to shape the future of AIoT are growth of 5G, development of edge computing and increasing availability of data.

Embracing AI: Unleashing Human Creativity and Emancipating from Repetitive Tasks

Introduction:

The advent of artificial intelligence (AI) has sparked widespread debate about its potential to replace humans in various job roles. Undoubtedly, AI has made significant strides in automation, resulting in the displacement of workers in certain industries. However, upon closer examination, it becomes clear that rather than replacing humans entirely, AI has the potential to revolutionize the workforce and unlock unprecedented levels of human creativity. By alleviating individuals from mundane, dangerous, and repetitive tasks, AI can serve as a powerful tool to enhance productivity, efficiency, and innovation across various domains.

Dharmik Shingala
(Roll No.: 22BEC032)

AI as an Ally, not an Adversary:

While news headlines often focus on the job displacement caused by AI, it is important to recognize that the technology can also be seen as a valuable ally in empowering humans rather than replacing them. By leveraging AI to handle routine and monotonous tasks, individuals can redirect their focus towards more strategic and creative endeavors.

This shift enables workers to harness their unique cognitive abilities, problem-solving skills, and emotional intelligence, leading to a surge in innovation and productivity.

Transforming Dangerous and Repetitive Jobs:

AI has the potential to revolutionize hazardous and repetitive occupations that pose risks to human safety and well-being. Industries such as manufacturing, construction, and mining have historically witnessed high rates of accidents and injuries due to physically demanding and dangerous tasks. Through the deployment of AI-powered robotics, these industries can mitigate these risks by automating hazardous operations, thus safeguarding human lives and well-being. For instance, in manufacturing facilities, collaborative robots, or cobots, can work alongside humans, handling physically strenuous tasks such as lifting heavy objects or operating machinery in hazardous environments. This partnership ensures the well-being of human workers while also increasing overall productivity and efficiency. By eliminating the need for humans to engage in such dangerous activities, AI allows them to explore alternative roles that require critical thinking, problem-solving, and creativity.

Enhancing Human Creativity:

One of the most exciting prospects of AI is its ability to augment human creativity. By automating repetitive and time-consuming tasks, such as data analysis, information retrieval, and administrative duties, AI allows individuals to dedicate their time and energy to more imaginative and strategic pursuits. With AI handling the mundane aspects of work, humans can engage in activities that require critical thinking, complex decision-making, and artistic expression. For example, in the field of graphic design, AI-powered tools can automate the process of generating drafts and prototypes, allowing designers to spend more time refining their ideas and creating unique and captivating visuals. Similarly, in the realm of content creation, AI algorithms can assist writers by suggesting ideas, enhancing grammar, and streamlining the editing process, ultimately enabling them to focus on crafting compelling narratives and engaging with readers on a deeper level.

Conclusion:

While concerns about job displacement due to AI are valid, it is essential to approach the topic from a holistic perspective. Instead of fearing the rise of AI, society should embrace its potential to free humans from repetitive, dangerous, and mundane tasks. By doing so, AI can unlock the untapped reservoirs of human creativity, facilitating innovation and enabling individuals to engage in meaningful work that truly leverages their unique skills and capabilities. Embracing AI as a tool to enhance human potential will not only revolutionize industries but also pave the way for a future where collaboration between humans and AI leads to unparalleled achievements.

Why are pointers used extensively in embedded C.?

Deep Lad
Roll No.: (21BEC023)

Let me give you a brief introduction to embedded C, Embedded C is an extension of C language which is used to program microcontrollers that are application specific and have limited resources (memory, processing speed, etc.). Embedded C helps us access the hardware addresses of different peripherals, in fixed- point arithmetic, and utilizes the resources efficiently. Pointers in C language are the datatypes that have the capability to store the memory address (Generally it is RAM) and by dereferencing them we can manipulate the value stored at that memory location. A small example is demonstrated in Fig. 1.

```
********** Source Code **********
#include <stdio.h>
#include <stdint.h>
#define ADDRESS (uint32_t*)0x61FF1B
//Initializing a pointer variable.
uint32_t* pointer = ADDRESS;
int main(void){
   printf("Random value stored at location 0x61FF1B - %x\n",*pointer);
   //Dereferencing the pointer variable.
   *pointer=0x1234;
   printf("Value after dereferencing the pointer - %x\n",*pointer);
}
********** Output **********
Random value stored at location 0x61FF1B - 2e300000
Value after dereferencing the pointer - 1234
```

Fig 1. Demonstration of Pointers

Pointers play a crucial role in Embedded C. While programming a microcontroller or developing an embedded device, we basically use different peripherals and control units of a microcontroller. If we want to enable/disable any of them or read the status of those peripherals, we need to have knowledge about the Special Function Registers (Commonly called SFRs) of the microcontroller.

SFRs are the set of registers that contains the information for controlling (control registers) and getting the status (status registers) of each independent peripheral. Now, we need to access those registers while making any embedded applications. The vendors of the microcontrollers provide datasheets and reference manual which contains the addresses of these SFRs which are located in the RAM. Pointers in C are a great technique to write and read from a memory with a specified memory address. If you just have a memory address and want to read or write data to the memory we can easily do with the help of pointers. So, using Pointers, we are able to access the hardware addresses. Hence, pointers are extensively used by developers in developing embedded devices. Also, an embedded device is filled with constraints and restrictions on memory. They usually have small memory sizes. So, the developer needs to use this space very efficiently. Pointers again help here. Majorly there are three types of memory allocation in C language.

Firstly, Compile time allocation or static memory allocation. Secondly, Dynamic memory allocation, and lastly, Automatic memory allocation or non-static memory allocation. When we declare a variable in the local environment, automatic type of memory allocation happens in the stack segment, and once the compilation of the local environment is done, deallocation of the memory happens for all local variables (except for static variables as they are allocated in the main data segment of the memory). Now, for a very small program with simple computation, it doesn't matter to use pointers for saving stack memory but while working on complex data structures and using recursion methods, we actually end up calling multiple stack frames (frames can be treated as a simple C functions) one above another which leads to full consumption of our stack memory and our stack memory overflows if any other frame is called (Stack Overflow). Finally, it leads to a crash of the system. To avoid this problem and efficiently use the memory, we can use pointers. We can save the stack memory by declaring the variables globally and giving their reference while calling the function. This could help significantly in saving the stack memory and avoiding the crashing of the programs. Hence, pointers are very helpful and crucial for embedded application developers, using pointers they can access the hardware, use resources efficiently, and many more.

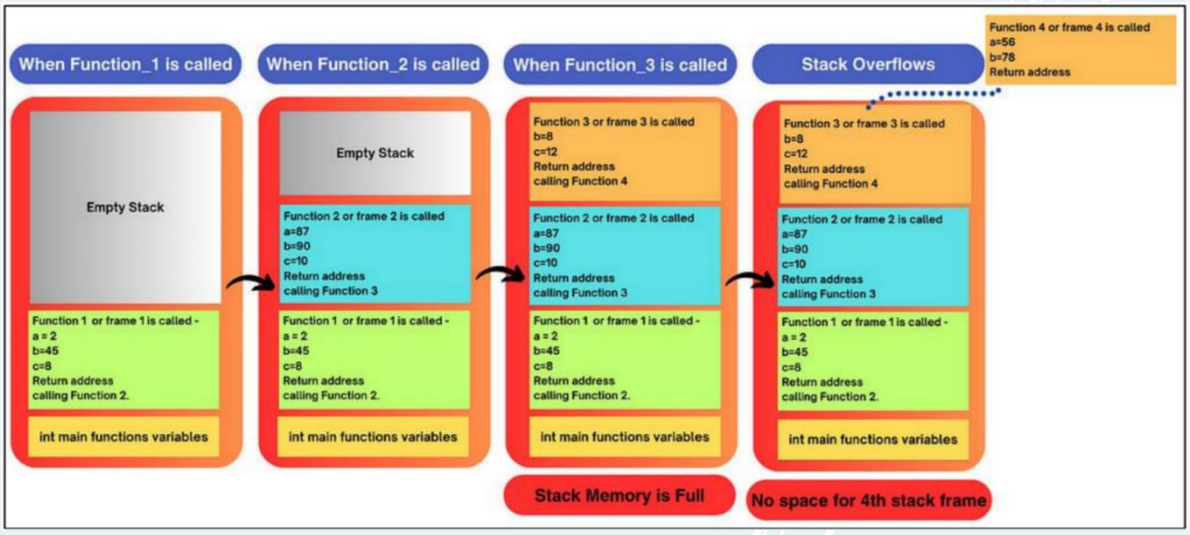


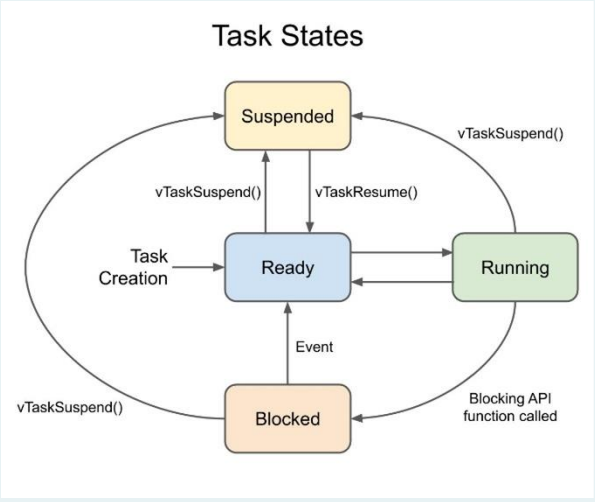
Fig 2. Demonstration of Pointers

Fundamentals of Real-Time Operating Systems (RTOS) for Efficient Task Management

Introduction:

An operating system is a software program that manages hardware resources and is responsible for coordinating various tasks according to their execution deadlines while efficiently utilizing the available hardware resources. In the context of real-time applications, these applications run on a real-time operating system (RTOS). A real-time application is characterized by strict timing constraints, where the correct operation of the system depends not only on the output it produces but also on meeting specific time constraints and execution deadlines. A real-time operating system is specifically designed to fulfill the requirements of real-time applications. It provides deterministic and predictable behavior, ensuring that critical tasks meet their timing constraints and deadlines reliably. The RTOS manages task scheduling, resource allocation, and interrupt handling in a manner that guarantees timely execution of critical operations.

Vedant Rokad
(Roll No.: 21BEC106)

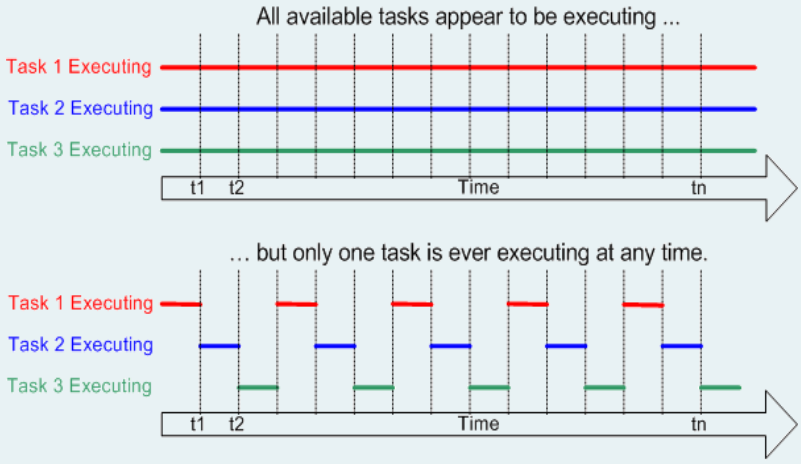


Task States and State Transitions:

Tasks in an RTOS can exist in four different states: ready, running, blocked, and suspended. The ready state signifies that a task is capable of execution, while the running state indicates the currently executing task. When a task requests a resource that is unavailable, it becomes blocked, waiting for the resource to become available. A suspended task is temporarily removed from the scheduler's active tasks, preserving system resources. Tasks can transition between these states based on their execution status and resource availability.

Task Scheduling and Illusion of Multitasking:

In the realm of microcontrollers, a task is defined as a C function that encapsulates a specific functionality. It consists of an initialization code followed by an infinite loop where a mini application is executed. Each task is associated with a priority that determines its urgency and execution order. Higher priority tasks r executed before lower



priority tasks, ensuring critical tasks receive immediate attention. Due to the limitation of executing multiple tasks simultaneously on a single-core microcontroller, an RTOS employs task scheduling methods. These methods allocate specific time slots to different tasks, creating an illusion of parallel task execution. With rapid switching between tasks at high microcontroller processing speeds, typically in the order of tens of megahertz, the RTOS effectively utilizes the microcontroller's capabilities while maintaining real-time responsiveness.

Exploring Task Scheduling in Real-Time Operating Systems:

The scheduler, often considered the heart of an RTOS, is responsible for determining the state of each task and making decisions regarding task execution. The scheduler operates based on specific algorithms to determine which task should be executed at any given time.

It ensures that the highest priority task is executed, considering factors such as task deadlines and priorities. RTOS schedulers can be categorized as preemptive or cooperative. A preemptive scheduler allows tasks to be preempted during execution if a higher priority task becomes ready. On the other hand, a cooperative scheduler relies on tasks voluntarily yielding control to other tasks without preemption. Each type of scheduler has its own advantages and considerations in terms of responsiveness and efficiency. In scenarios where tasks have different priorities, deadlines, or execution times, the scheduler's behavior varies. Scheduling policies and algorithms, such as Earliest Deadline First (EDF) or Round Robin, are used to prioritize tasks based on their deadlines or to allocate time slices to tasks. These approaches ensure timely execution and completion of tasks within their specified constraints.

Improving System Performance with an RTOS:

The impact of introducing an RTOS on system performance depends on the existing utilization of the microcontroller's CPU. If the CPU is already fully utilized, the overhead of the RTOS scheduler's task switching may not provide significant performance benefits. However, an RTOS can simplify application development by breaking it down into manageable tasks and facilitating task communication and synchronization.

POETRY

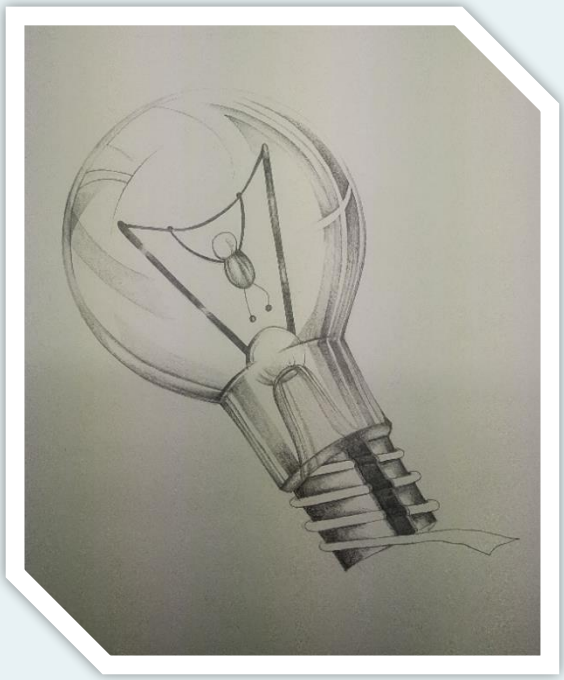
एक ऐसी सुबह की आरजू करता हु,
जो प्रकाश नहीं आग बरसाए ||
और हर उस कागज को राख बनादे,
जो गवाह है मेरे जिंदा होने का ||
जिनपे उन तारिखो पर नमी के निशान है,
कुछ उसी तरह जैसे,
खोलते पत्थर पर थपेडो के निशान
ये चिल्ला रहे होते हैं.. कि वो भी कभी समंदर थे ||

जज्बातों की बेबसी और माशुको की मैकशी,
अभी उत्तनी ही नाकरा लगती है,

जितनी यह सुबह,
और वो समंदर ||

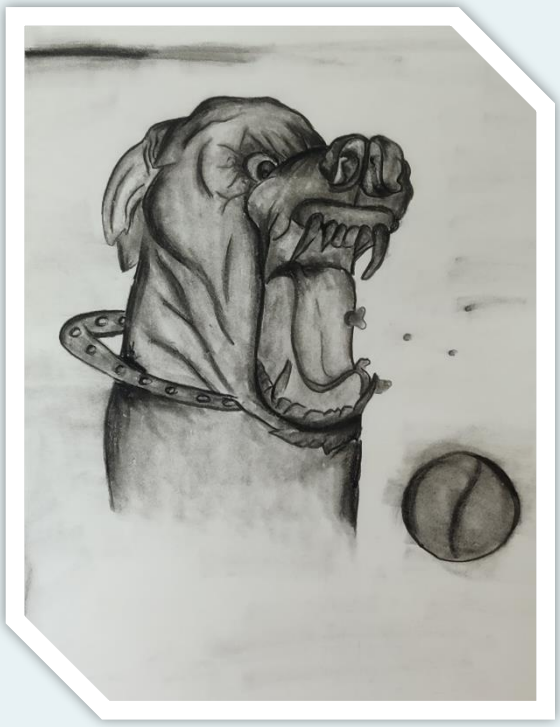
Devangkumar Bathwar
(20BEC016)

DRAWINGS



Vidhi Ruparelia
(22BEC143)

Yash Viradiya
(20BEC135)



Krish Desai
(21BEC026)

Palak Naik
(20BEC077)

PICTURE GALLERY

Vidhi Ruparelia
(22BEC143)

Vedant Rokad
(21BEC106)

Prasham Doshi
(22BEC097)

Sneh Shah
(22BEC121)

Rajat Sharma
(21BEC100)

Students' Achievements

Students of EC Department participated in ROBOFEST 3.0 conducted by GUJCOST. The students were required to submit a document in which they had to propose the design and description of their proposed robot in the specific category. Selected designs were then approved to advance to the round 2 for developing the proof of concept. Each team got Rs. 50000 for developing the prototype. Also the groups are invited to Science City, Ahmedabad to present their ideas before a panel of 10-12 experts from various fields. Deep Lad(21BEC023), Vedant Rokad(21BEC106), Harsh Panara(19BEC083) participated in the hexapod category. Patel Vedanti(21BEC095), Kapadia Nilkanth(20BEC050), Sabuwala Burhanuddin(21BEC108), Rahul Patil(21BME103), Ashutosh Tiwari(21BEC127) worked on the design of a maze solving robot. Yash Purohit(20BEC137) and Devesh Pareek(20BEC023) along with their team made a 6-Wheeled Rover.

- Dhruvil Prajapati(22MECE08) secured 1st position and a prize of 20,000 rupees in the Infineon hackathon organized by Infineon Technologies.
- Modi Divy Bhavesh(22MECE03) secured 2nd position and a prize of 10,000 rupees in the Infineon hackathon organized by Infineon Technologies.
- Devangkumar Bathwar(20BEC016) secured 2nd position and prize of 5,000 rupees in Chaos(a storytelling event) organized by Indian Institute of Management, Ahmedabad
- Nitanshu Shah(20BEC112) secured 1st position and a prize of 5,000 rupees in the Infineon hackathon organized by Infineon Technologies.
- Tanisha Dhingra(20BEC125) participated in a Solo dance event in Elysian5.0 organized by Institute of Commerce, Nirma University.

Students' Achievements

- Dhruv Prajapati(20BEC093) secured 3rd position and a prize of 5,000 rupees in the Infineon hackathon organized by Infineon Technologies.
- Thayyil Ameena first year student of EC Dept. Institute of Technology Nirma University was selected in WE (Women Engineers) a 24 months program offered by TalentSprint and supported by Google.
- Shreay Upadhyay student of EC Dept. Institute of Technology Nirma University got All India Rank-263 in GATE-2023 examination.
- Ms Aastha Laheru (22BEC001), a first-year BTech student at the Institute of Technology and a cadet in the NCC Girls Unit at Nirma University, becomes the first female NCC cadet from Gujarat to join the National Defence Academy (NDA), an institute training officers for the Indian Armed Forces, in Pune. She received an AIR of 59 out of 538.

- Khush Shah secured 1st position in Innovatia 2023 hosted by Crest Data Systems.

- Sidharth Mandaliya (20BIC048), Aditya Gupta (20BME003), Devansh Talati (20BME029), Rushil Daruwala (20BME024), Jatin Vanjara (21BEE524), Vraj Modi (21BEC069), Utkarsh Maheshwari (21BEC129), Priyanshi Shah (21BME123) from Team Arrow a part SAE Nirma Collegiate Club secured overall 5th position amongst 71 International teams participated in AUVSI SUAS 2023 competition held at Maryland, in USA. Team won a cash prize of 500 USD and a plaque.

Upcoming Events by the ECO

The Electronics and Communication Students' Organisation (ECO) has been actively working for the development of the student community. The organization has worked throughout the year for the betterment of the students. In the past, ECO had organized various technical and non-technical events, webinars, and interactive sessions with the student community for the overall growth of the students and to bring out the most from them. To continue the tradition of learning and development the team ECO wishes to put forward some tentative Upcoming Events for the students.

Code Cook

Code Cook will be an online Coding Event for all the freshers and sophomores of the Institute of Technology. It will be composed of one round only with five to seven questions of different difficulty levels. This will be a great opportunity for all the coding experts of the college to perform their best, use their logic and skills to solve the questions as early as possible. The participants completing all the questions first will be declared as the winner and cash prizes will be awarded to all the winners.

Sweet Distribution

Electronics and Communication Students' organization distributes the sweets to support staff of Nirma University every year on the auspicious occasion Diwali. Even during pandemic situation ECO celebrated Diwali by distributing the sweets to support staff on the campus. Faculty of EC department, enthusiastically takes part in this event along with ECO board members, and the students to distribute sweets and warm greetings to non-staff members from across departments including hostels, garden labour as well as the security personnel.

EC at Vaudeville

On a captivating evening, the enchanting world of Harry Potter came to life at the grand 3 days event called Vaudeville. The entire venue was transformed into a magical setting, resonating with the essence of J.K. Rowling's beloved series. From instrumental performances to skits and competitions, every aspect of Vaudeville celebrated the magical universe of Harry Potter.

On the first day, the event contained a mesmerizing instrumental performances, where talented musicians showcased their skills iconic songs.

In keeping with the theme, a unique chess event was organized, where participants embodied different chess pieces and collaboratively strategized to achieve victory. This imaginative twist added an element of teamwork and challenged the players to think creatively as they guided their pieces towards triumph, just like Harry Potter and his friends did in their daring adventures.

A captivating skit unfolded on stage, featuring Harry Potter and his friends facing their fears to win the prestigious Vaudeville Cup. Through brilliant acting and storytelling, the performers showcased the themes of courage, friendship, and overcoming challenges. The skit served as a reminder that, even in the face of adversity, strength and determination can lead to victory.

The artistic talents of the participants were showcased through a painting exhibition, where cloth canvases were adorned with vibrant scenes from the Harry Potter series. Each artwork displayed the unique interpretation and creativity of the artists, capturing the magical essence and captivating the viewers with their intricate details.

The event also featured a poster-making competition centered around the exhilarating Quidditch matches. Participants displayed their design talents, capturing the energy and excitement of the sport in their vibrant and eye-catching posters.

EC at Vaudeville

Adding an element of physicality, the Quidditch Cup, inspired by the sport played in Harry Potter, became a thrilling team competition. Teams from different departments of ITNU competed passionately, showcasing their skills and camaraderie. The victorious Team EC claimed the first prize, exemplifying the spirit of teamwork and sportsmanship that Harry Potter and his friends embodied in their Quidditch matches.

With a focus on drama and performance, a team-based event challenged participants to engage in acting, mimicry, and dramatics. They created memorable moments by bringing to life iconic Harry Potter scenes and characters through their talent and creativity.

For those with a knack for humor, a meme-making contest added a touch of laughter to the event. Participants used their wit and creativity to blend Harry Potter references with relatable and funny memes, creating a delightful experience for everyone.

Furthermore, the event featured poetry recitals, where participants shared their enchanting verses inspired by the magical world of Harry Potter. The poetic expressions captivated the audience, weaving a tapestry of emotions and imagination.

To conclude the event on a high note, a mesmerizing group dance performance took place, combining elements of magic, rhythm, and coordination. The dancers enchanted the audience with their graceful moves, synchronized choreography, and captivating costumes, leaving everyone spellbound.

EC at Vaudeville

Students from 2nd year from the department participated in dance competition as a group. The audience was enthralled as the hit songs like "Kamariya," "Dola re Dola," "Dum Dum," "Tumse milke dil ka hai jo haal kya kahe," and "Natu Natu" filled the air, transporting everyone into the realm of Bollywood with their energetic dances.

Vaudeville proved to be an extraordinary event that successfully blended the world of Harry Potter with music, drama, art, sports, and creativity. It allowed participants and attendees to immerse themselves in the enchanting universe created by J.K. Rowling, fostering a sense of camaraderie and igniting the magic within each person's heart.

Team Eco 2023

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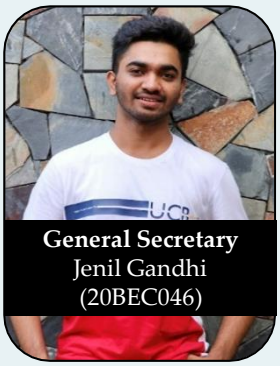
Vice President
Urvashi Mundra
(20BEC133)



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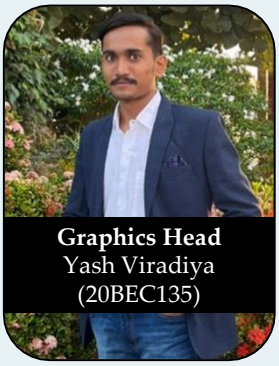

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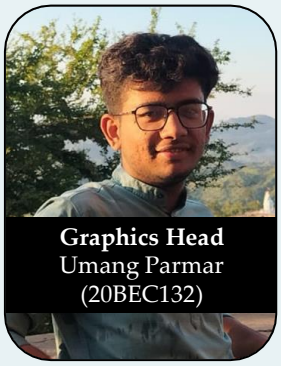

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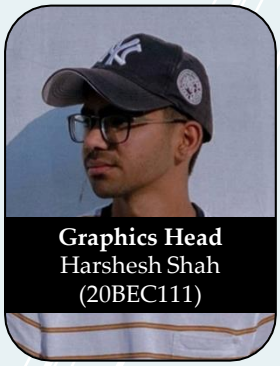

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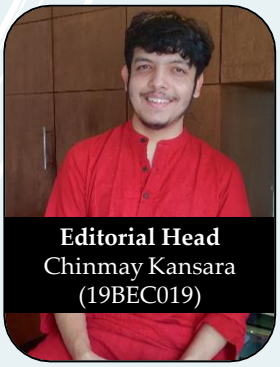

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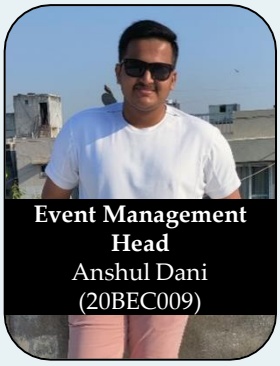

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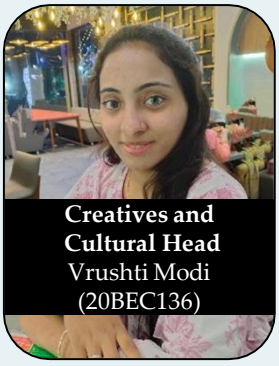

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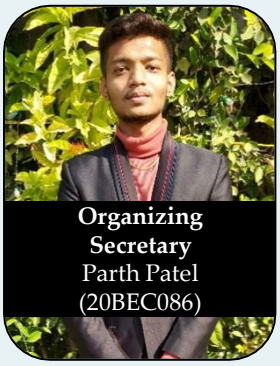

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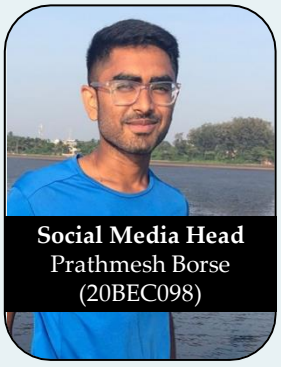

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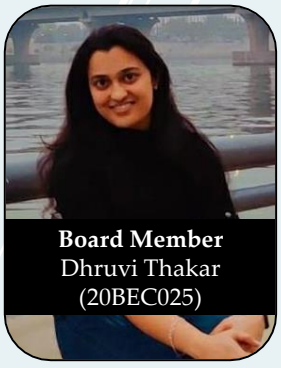

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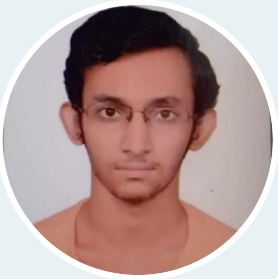

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