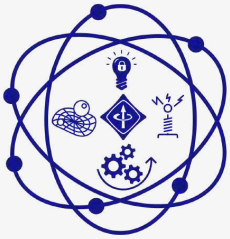
GOVERNMENT COLLEGE OF TECHNOLOGY,
COIMBATORE-13

GCT IEEE SB 81571

2023-2024

IEEE

IEEE



About

The GCT IEEE Student Chapter (STB81571) is committed to fostering a dynamic research environment within GCT by engaging in various technical activities with global industry experts, researchers, and scientists worldwide. This dedication extends to supporting students in their academic publications and facilitating the registration of Intellectual Property (IP). Additionally, the IEEE plays a pivotal role in assisting students by endorsing and supporting cutting-edge global conferences across various technological domains within GCT, providing valuable opportunities for networking and knowledge exchange.

Vision

IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. IEEE envisions global recognition for the transformative contributions of technology and technical professionals, fostering a collaborative ecosystem that transcends boundaries. The organization aspires to be indispensable to the world's technical community, driving positive change through cutting-edge research, education, and standards development.

Mission

GCT IEEE's core purpose is to foster technological innovation, research culture and excellence for the benefit of the students in the Government College of Technology and encourage them to pursue their innate enthusiasm for technology in the study area and publish a paper to IEEE. Our Student Branch should value the following things:

People Innovation Collaboration

GOVERNMENT COLLEGE OF TECHNOLOGY - COIMBATORE

Patron's Desk

Dr.K.Manonmani ME.,PhD.,

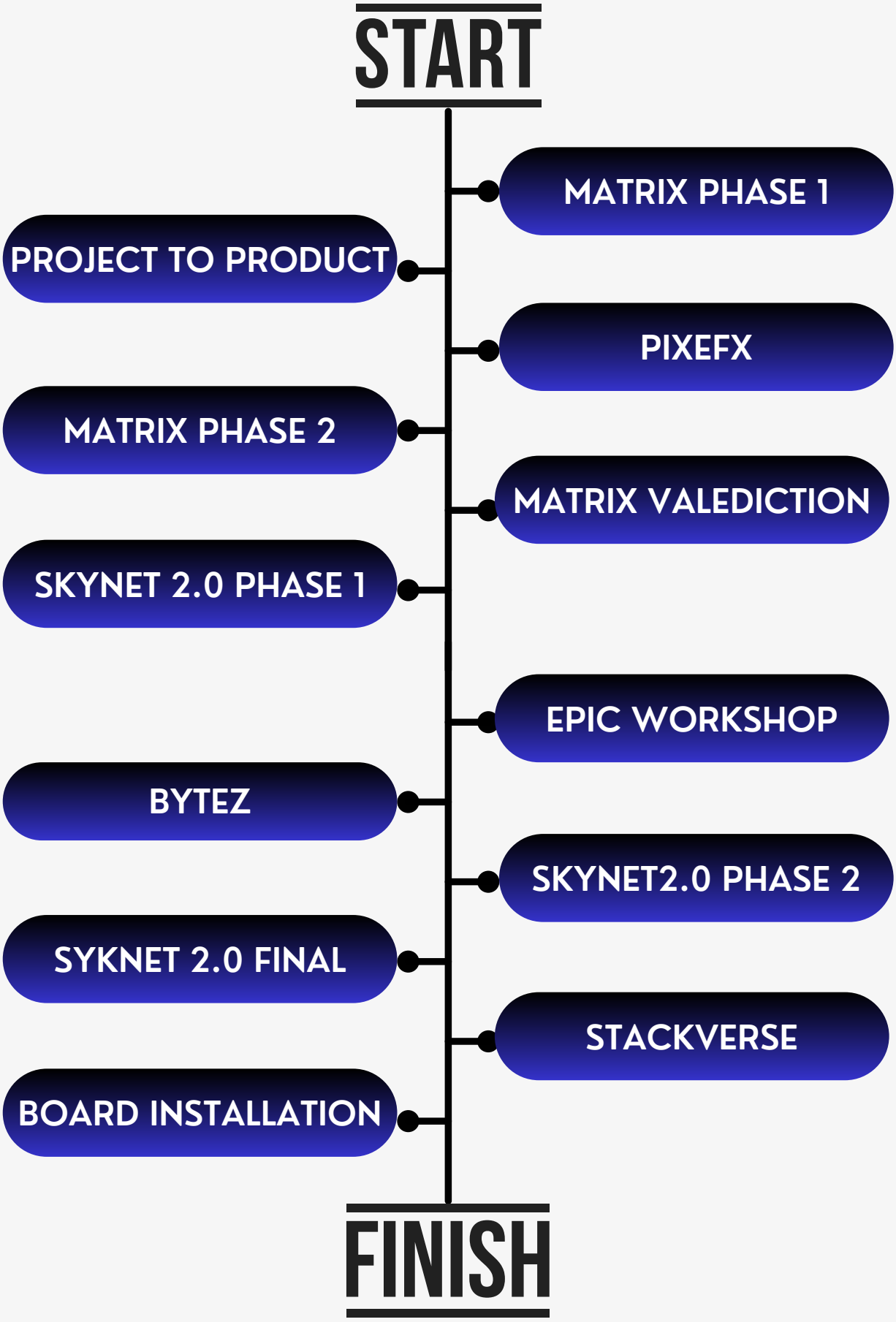
It is my pleasure to commend the GCT IEEE Student Branch for its commitment to fostering innovation and collaboration among students. Through diverse activities and projects, the branch provides a dynamic platform for learning and growth. I applaud the dedication of its members, mentors, and supporters in shaping the future of technology. Together, let us continue to inspire and empower the next generation of engineers and innovators.

Branch Councelor's Desk

Dr.R.Rajeswari ME.,PhD.,MISTE

As the branch counsellor of the GCT IEEE Student Branch, I am continually inspired by the enthusiasm and dedication of our student members. Together, we have fostered a vibrant community that thrives on innovation, collaboration, and excellence in technology. Through various initiatives and events, our student branch has not only enriched the academic experience but has also provided invaluable opportunities for personal and professional growth. I am proud to witness the impactful contributions our members make to the field of engineering and beyond, shaping the future with their passion and commitments.

TIMELINE OF EVENTS



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SANJAY KUMAR M
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SOLAR TEAM LEAD
VISHNU PRIYAN S
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CSE -2024

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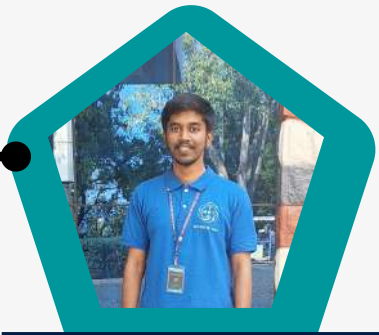

CONTENT WRITER
RAJESH A
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DIRECTOR OF EVENTS
SHAM VENKAT J
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SUBHAAKAR K R
EIE -2024

SOCIAL MEDIA INGHARGE
VARSHINI P
EEE -2026

CO-LEAD PUBLICITY TEAM
LOGASHANKAR R
MECH - 2024

TESTIMONIALS OF BOARD MEMBERS

SUNTRAKANESH SU – Chairman – Batch 2023, EIE

There are no words adequate to convey the profound sense of fulfillment one experiences upon witnessing the growth of a great tree from a seed sown, yielding sweet fruits. In a similar vein, as Chairperson of GCT IEEE SB, I am profoundly moved to witness the flourishing of IEEE within our community. It is a privilege to serve the GCT community, facilitating the pursuit of their passions. Surrounding oneself with like-minded individuals is indeed a blessing, and I am fortunate to have such individuals within the GCT IEEE community. While providing aid to those in need is commendable, empowering them with the skills to sustainably address their challenges is the ultimate solution. With this ethos in mind, I envision GCT IEEE as a platform where technical expertise is shared generously, nurturing the growth of aspiring students in the GCT Community. GCT IEEE - Igniting a perpetual flame of passion."

PRIYADHARSHINI V - Secretary – Batch 2025, EEE

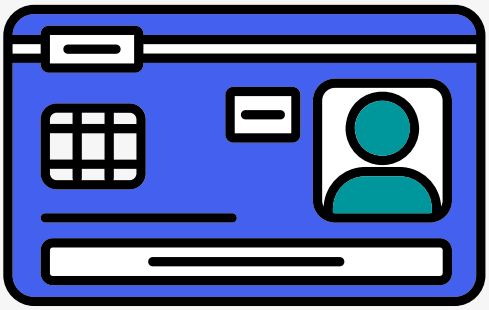
As Secretary of GCT IEEE SB 81571, I am proud to have contributed to a year of innovation and growth. From organizing impactful events to nurturing collaboration, it's been a privilege to serve our vibrant community. Wishing the upcoming board the best, urging them to adhere to the vision and mission of IEEE. Here's to another year of excellence.

VARSHINI P - Media handler – Batch 2026, EEE

I attribute my growth and accomplishments to the influential circle I find myself in, particularly the exceptional individuals within IEEE and our outstanding team. My journey with GCT IEEE SB 81571, evolving from a team member to a social media handler, has been nothing short of remarkable. The club's collaborative and innovative ethos motivated me to become an integral part of it. Over the years, my involvement as an IEEE member has been transformative, shaping me from an ordinary person to a skilled engineering student. I express my gratitude to GCT IEEE and all the people who placed their trust in me, providing this incredible opportunity. Working with you all has been a rewarding experience.

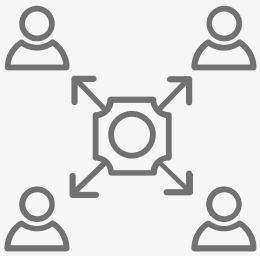
MEMBERSHIP

- IEEE is an international organization with members from around the world. Being part of it as GCT IEEE SB-81571 provides an opportunity for our students and professionals to connect with a diverse community, gain a global perspective, and collaborate on projects with colleagues from different cultures and backgrounds.
- Membership offers a range of benefits to its members, like networking opportunities, access to research and resources, professional development, leadership and volunteer opportunities, and career opportunities. Membership retention is a crucial aspect, as it helps to maintain a strong and active membership base, fosters a sense of community, and sustains our organization's mission of advancing technology and knowledge.
- A quarter of IEEE members of GCT IEEE SB-81571 have actively embraced their memberships, tapping into a vast array of advantages. They benefit significantly by gaining access to a diverse range of publications and research papers within the IEEE network. This access fosters an enriched understanding of current advancements and findings in their respective fields, fostering an environment conducive to continuous learning and professional growth.
- The breadth of resources available through IEEE membership contributes substantially to the members ability to stay abreast of the latest developments, facilitating their engagement in cutting-edge research and knowledge dissemination within the global scientific and technological community.



MEMBERSHIP BENEFITS

- Access to extensive technical articles, journals, and research papers.
- Global networking and developing with professionals, researchers, experts.
- Discounts on publications cost-effective access to technological advancements.
- Resources like conferences, workshops, and webinars for continuous professional development and skill enhancement.
- Membership in specialized technical communities and societies, facilitating focused discussions and collaboration with like-minded peers.
- Contribution to the advancement of knowledge, standards, and technological progress within the broader scientific and technical community.



SEMINARS

EXPLORING AR / VR

January 31, 2023

PRESENTERS

Athigengamuthu S
Sandhiya C V

The presentation delved into the intricate world of **Augmented Reality (AR) and Virtual Reality (VR)**. Attendees were captivated by insights into the technology, its functionalities, future roles, applications, and the soaring market demand. The session aimed to ignite curiosity and awareness amongst the participants, given the current trends in these rapidly evolving fields

In a world where change is the only constant, refreshing our knowledge and acquiring new tools and skills becomes paramount. The seminar not only imparted knowledge but also encouraged a mindset of continuous learning to keep pace with the rapidly expanding technological landscape.

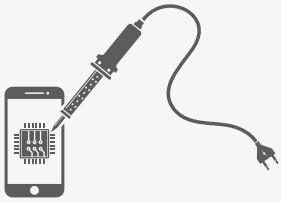
"As life is a constant source of education, we should never stop learning."

- Phil Collins

SEMINARS

GET YOUR HANDS DIRTY

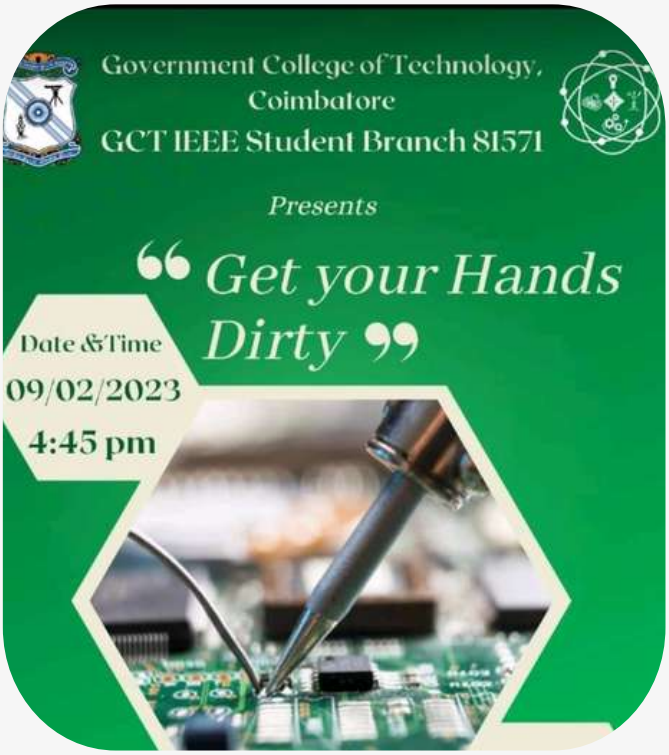
Febraury 09, 2023



PRESENTER

Suntrakanesh Subramanian

The session focused on imparting essential **soldering skills** required in electronics, covering soldering basics, components and **soldering on PCB**s, and hands-on instructions with safety considerations. Soldering is crucial in electronics, and the seminar aimed to provide practical understanding and experience to students.



Attendees had the opportunity to gain valuable soldering experience, which is indispensable in various fields. The session emphasized the importance of practical learning in **mastering electronics, fostering a hands-on approach** for future endeavors in the field. It was a collaborative effort to equip students with practical skills essential for their academic and professional journey. .

“Effort is not growing and wearing out but growing up.”

SEMINARS

GCT TO CANADA

February 14, 2023

PRESENTER

Pavithran
MITACS global internship

Pavithran CIVIL-2023, who, had secured a **MITACS global internship**, shared invaluable insights into the process of securing international internships. His wealth of experience included a prior research internship at **Concordia University in Canada.** The seminar saw active participation from over **40 students,** creating an enriching environment for knowledge exchange.

As a research intern at Concordia University, he provided guidance on obtaining fully financed research internships abroad. The seminar was a comprehensive guide, covering untapped possibilities, **step-by-step instructions for the application process, selection strategies, and the diverse fields** and internships offered by various universities.

Attendees gained valuable knowledge on application procedures, preparation strategies, and even tips on acing interviews

The event not only encouraged participants to explore numerous fields and opportunities but also fostered a vibrant atmosphere of curiosity and shared learning. As organizers, we take immense pride in the enthusiastic participation from the students.

"The wise learn from the experience of others."

SEMINARS

UNLEASING POWER OF ARDUINO

February 16, 2023

PRESENTERS

Sandheep
Niranjan
Vishal

The session covered fundamental aspects of **Arduino**, delving into its components and structural functions. These knowledgeable presenters provided attendees with a solid understanding of the versatile **open-source electronics platform.**

The session not only ensured engagement but also imparted valuable information to the participants. As proud organizers, we facilitated a platform for individuals to learn, connect, and explore the vast possibilities that Arduino offers. Encouraging participants to continue their exploration, we emphasized the **application of gained knowledge** to their projects and endeavors, fostering a community of continuous learning and innovation.

"It's not about ideas it's about making ideas happen do it "

IOT TEAM

The IoT team at GCT IEEE Student Branch has embarked on a transformative journey, fostering a culture of continuous learning and collaborative exploration

Skill Enhancement

Our initial focus was mutual skill enhancement, ensuring each team member delved deeper into their areas of interest. Learning became a **perpetual process**, not confined to the boundaries of a single occasion. The journey extended beyond theoretical concepts as members actively participated in **hands-on projects and coding exercises** aimed at understanding IoT components. This practical approach increased both theoretical knowledge and the application of learned concepts.

Knowledge Dissemination

Our commitment to knowledge dissemination was evident in workshops conducted on **GitHub and Database management**. These sessions aimed not only at enhancing technical skills but also at nurturing an understanding of collaborative tools and data structuring.

Recruitment and Integration

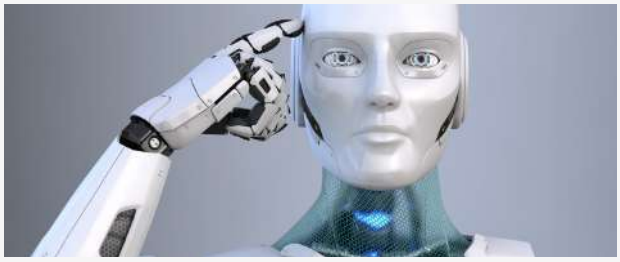
Recruitment became a pivotal phase, with candidates displaying remarkable enthusiasm. Out of **60 applicants, 20 were selected** after rigorous evaluations. The newly recruited members seamlessly integrated into the team, reflecting a synergy promising for future endeavors. The team actively participated in various events, hackathons, and workshops orchestrated by GCT IEEE SB 81571. This involvement broadened exposure and allowed application of IoT skills to real-world scenarios.

ROBOTICS TEAM

The Robotics squad is a team of inquisitive students who are passionate about developing suitable solutions for various domains using robotics and **automation technologies**. Our aim is to foster a culture of creativity, collaboration and excellence among the members and partners of multidisciplinary fields. At the forefront of this revolution stands the **Robotics and Automation Squad of GCT IEEE**, a dedicated team committed to pushing the boundaries of what's possible in the realm of robotics.

Skill Enhancement

Our team members are continuously participating in **e-yantra,** which is conducted by **IIT Bombay** every year. This time one of our teams were listed in **top 50 among hardware based solutions** and in **top 20 among software based solutions.** The participation in events and hackathon provides exposure to various new technologies.



Knowledge Dissemination

Our first session was about **OpenCV**, a computer vision library. A task in colour detection was implemented using OpenCV. The consecutive sessions were based on **Gazebo and 3D dynamic simulator.**

Recruitment and Integration

The recruitment process of Robotics Squad 2023 composed of a technical MCQ test which is based on Physics and Basics of Electrical and Electronics Engineering. The candidates who scored exceptional were shortlisted for the next round. The personal interview was based on technical knowledge and also interpersonal skills of the participants. Finally, 7 candidates were selected in the team

SOLAR TEAM

Welcome to the Solar Squad, a dynamic team of passionate students united by a common vision – to illuminate the path to a sustainable future. Our squad is not just a group; it's a powerhouse of minds dedicated to enhancing knowledge in the renewable energy sector and making a lasting impact on our environment.

Session Discussion

Our sessions begin with senior members leading discussions on **approaching projects**. Emphasizing thorough project study and research, they lay a solid foundation for effective solution development. As the sessions progress, **practical learning** takes centre stage. Team members engage in hands-on experimentation with solar energy technologies, gaining valuable insights into solution implementation. Inevitably, errors arise during the learning process. However, our sessions focus on embracing mistakes as opportunities for growth. Through collaborative **problem-solving and troubleshooting,** we identify and rectify errors, refining our solutions iteratively.

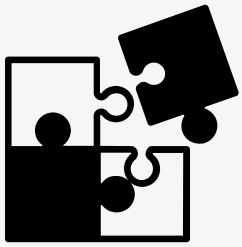
Recruitment and Integration

In an extraordinary display of talent and enthusiasm, over 70 aspiring minds participated .It was about curating a team of bright minds committed to shaping the **future of renewable energy**. The journey began with a selection of participants from a written test , Following this, there were topic presentations. Finally they selected a group of 13 brilliant minds. These powerful minds together ensure to illuminate the path towards a **sustainable and radiant future**

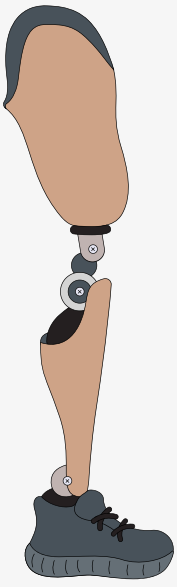
PROJECTS

ORTHOTICS LEG | FOOTPRINT TRACKING | GAMES

Encouraging hands-on projects in the **IoT** domain became a focal point. The newly recruited students, guided by experienced team members, embarked on projects ranging from home automation to environmental monitoring.



One of our main projects focused on orthotic legs, analyzing the gait of a patient using a device equipped with **IMU sensors** which is used to collect the gait details and send them to a remote cloud. This data is processed and a report is provided to the physician. Our new team involved **Memory and Snake games**, incorporating a cloud-based leaderboard, **water footprint tracking**, a smart street light dimming module, and motor speed control using BLE and cloud.



ORTHOTICS LEG

PROJECTS

PHARMA BOT | HOLOGLYPH BOT

PHARMA BOT

The objective of this project is to design a prototype of the robot with autonomous navigation to deliver the medicine to the appropriate destination. Ultimately the members of robotics were able to design prototype of a robot navigating autonomously through the city to deliver the medicine to the specified address fed to the robot by an aruco maker. The simulation of the robot delivering the medication was done through the Coppeliasim simulator. The path planning was implemented using Dijkstra algorithm.

HOLOGLYPH BOT

This is a robotics fleet system developed to draw larger Geoglyphs on the earth using Holonomic drivebased robots. The robots were programmed using ROS2 Humble, which is based on python language. This also included the inverse kinematic calculations for the holonomic drive control. The robots are designed as URDF files. Furthermore, this includes an overhead camera and Aruco based mapping system to know the precise position of the robot to be published using OpenCV. Simulations were done using the Gazebo Simulator and used RQT for Debugging.

IIT Bombay e-Yantra Engineering a better tomorrow

PROJECTS

AUTONOMOUS BALL FEEDER | SENTINAL DRONE

Autonomous Hockey Ball Feeder

The objective of this project is to develop a low-cost autonomous ball feeder robot (BFR) designed specifically to enhance the muscle memory of hockey players. The BFR will serve as a valuable training tool, allowing players to repetitively practice specific drills essential for skill development. Equipped with a ball storage area, the BFR will have the capability to navigate freely across the hockey field and pass the ball to the player under training at any desired angle and speed. Through continuous sensing of the player's position, the BFR will be able to precisely deliver passes tailored to the player's training needs. Additionally, the BFR will feature an intuitive user interface that allows players to program specific drills, ensuring efficient and effective training sessions. By utilising advancements in sensor technologies and robotics, this project aims to democratize access to advanced training methods in hockey, particularly at the grassroots level in schools and colleges, ultimately contributing to the development of skilled and competitive players.

SENTINAL DRONE

The Sentinel Drone is revolutionizing the way we monitor and protect critical assets and territories. This process included the technique "Block detection data" which refers to the information generated during the process of detecting and recognizing blocks or obstacles within a given environment. The location coordinates were determined using a visual marker-based localization system 'whycon'. The development and testing of the drone was done in the Gazebo environment with ROS (Robot Operating System).

The Determination the specific requirements for the simulation, including the types of robots, the complexity of the environment, and the tasks the robots is done by 'Stand As First'.The desired performance in a control system was achieved adjusting the parameter PID- the controller, known as PID tuning.

PROJECTS

SOLAR POWERED WATER PURIFIER

Inspired by our collective focus on leveraging solar energy for sustainable solutions, team members began brainstorming ways to address the pressing issue of access to **clean drinking water in remote areas**. Through collaborative ideation and exploration, the concept of a solar-powered water purifier took shape. Team members drew upon their knowledge of solar energy technologies and water purification methods to refine the idea, considering factors such as **portability, efficiency, and affordability.**

Starting from scratch on the **Solar-Powered Water Purifier** project was both a daunting and exhilarating experience. Initially, our team gathered with a shared vision of making a tangible difference in addressing **water scarcity and pollution issues**. With determination and a thirst for innovation, we embarked on extensive research to understand the intricacies of water purification technologies and renewable energy sources. **Countless hours** were spent poring over literature, analyzing existing solutions, and brainstorming ideas.

Armed with newfound **knowledge and inspiration**, we began the arduous task of conceptualizing our solar-powered water purifier from the ground up. We started with basic design of our idea in Autodesk Fusion 360 Software and analysing with different configurations and components to achieve optimal efficiency and effectiveness. This iterative process involved **numerous trial and error phases,** where setbacks and challenges were met with resilience and creativity.

PROJECTS

SOLAR POWERED WATER PURIFIER

Assembling the right team was crucial. We sought out individuals with diverse backgrounds and skill sets. With the guidance of our mentors and advisors, we refined our ideas and honed in on a promising design concept. From **sourcing materials to building and testing prototypes**, every step of the journey was a learning experience. Through unwavering dedication and teamwork, we gradually transformed our vision into reality. From humble beginnings to the final product, our journey was marked by **perseverance, ingenuity, and a shared commitment** to making a positive impact. And as we look back on how far we've come, we're reminded that every great achievement starts with a **single step, taken with passion and purpose**

Additionally, we actively participated in numerous paper presentations, showcasing our concepts and progress at events such as the **Global Alumni Reunion, Student Research Foundation Club, and Product Design Development Club**. These presentations not only provided valuable opportunities to learn from peers and experts in the field but also allowed us to continuously refine our ideas and identify **potential errors** in our approach.

This continuous **learning and exchange of ideas** have been instrumental in our journey towards creating impactful solar-powered solutions for water purification. Furthermore, our efforts were recognized when we won third prize in the **Skynet 2.0 competition** in 2024, reaffirming the significance and innovative nature of our project.

PROJECTS

ZERO CYCLE

The concept of **"Zero Cycle"** was inspired by the straight forward idea of what it would be like if we commuted to work every day in a **zero-budget vehicle,** hence lowering the need for gasoline while still achieving the necessary efficiency with a **renewable energy source.**

The team was first assembled with **potential and enquisitive members** whose vision is to make a change for the good of the people and the environment in order to carry out the plan in real time. To grasp and comprehend the fundamentals, months were spent in **research and study**. The job of assembling and testing was finished once all the gadgets were put up. Eventually, the team made zero cycles with their harmony and endurance, learning new lessons from their errors. This prompted the portal to **upgrade the cycle with new features**. Finally, we established ourselves as proof that, with hard effort and the greatest team on our side, **nothing is impossible.**

The journey of the Zero Cycle project culminated in an exhilarating achievement at the **national level e-vehicle competition**, **ELITZ-22**, hosted by the **Karpagam Institute of Technology, Coimbatore**. The team clinched the **second place trophy** for Zero Cycle design. This recognition not only validated our hard work but also propelled us towards greater heights in the realm of sustainable transportation solutions.

On **November 11th, 2022** the team's remarkable journey and achievements with the Zero Cycle project were spotlighted in an article published by the esteemed newspaper, **Dinamalar**. The publication not only celebrated the team's ingenuity and perseverance but also served as a **beacon of inspiration** for readers, showcasing the power of collective effort and determination in **driving positive change for both society and the environment.**

ACHIEVEMENTS

MECAS - MEDIAN COLLISION AVOIDANCE SYSTEM

Narendran Srinivasan	EIE BATCH 2023
Athigengamuthu S	ECE BATCH 2024
Dheesha Geetha	EIE BATCH 2024
Subasri Sudhakar	EIE BATCH 2024

The team took part in the **IEEE MAS STUDENT PROJECT FUNDING'23** organized by IEEE Madras Section on May 20,2023, at the B M Birla Planetarium in Chennai, under the guidance of Dr. Sujatha Balaraman , Professor of EEE DEPT and with the support of our branch counselor Dr. R. Rajeswari, Professor of EEE DEPT, Government College of Technology, Coimbatore. With 500+ proposals submitted across the Tamilnadu, their project titled "**MECAS - Median Collision Avoidance System**" was selected for the final and has secured the second prize. And it's important to mention the students who worked on this project behind the scenes

- Sanjay Kumar M EEE BATCH 2024
- Anitha K EEE BATCH 2024
- Rajavishnu S MECH BATCH 2024
- Sivaraj M EEE BATCH 2024

Bagged 2nd prize in IEEE MAS Student Project Funding 2023

"Success is a time to celebrate not only the accomplishment itself, but also the long road of hard work and dedication."

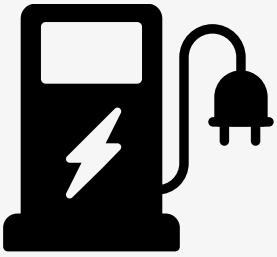
ACHIEVEMENTS

OUR IEEESB

Our GCT IEEE SB 81571 is happy to share about the approval for our two projects, EV Charging station and Orthotic leg. We would like to extend our gratitude to the Board of Governors (BOG) of IEEE SA for their support and their belief in our capabilities and dedication to fostering innovation.

CHARGING STATION

With increasing adoption of electric vehicles (EVs), establishing an accessible charging station infrastructure is essential. Our EV Charging Station Project aims to address this need, implementing a state-of-the-art charging network which is also environment friendly. This project is a significant step towards promoting sustainable transportation and we are thrilled to contribute to this initiative.



SMART ORTHOTICS LEG

Smart Orthotics leg, is an adaptive technology which is a life changing solution for individuals with mobility impairments. Our team has developed a leg that is equipped with sensors and IOT technology that enables physicians to monitor the patient's gait (the way of walking or moving on foot). This project is also equipped with an intuitive user interface that helps to monitor their leg's performance and adjust it to suit their needs and its has a significant breakthrough is assistive technology.

GOAL

As we move forward, we remain committed to pushing boundaries and driving positive changes through technology. The support of BOG and the continued encouragement fuel our determination to excel further and make a lasting impact.

We extend our congratulations to the Solar and IoT team for securing project approval. We encourage you to further develop this project, bring it to the market, and create a revolutionary impact.

ACHIEVEMENTS

Achieving New Heights at N Space Tech

We are delighted to share some remarkable news that our past member **Shakthipriya M [ECE BATCH 2023]**, reached new heights in her career as an engineer at **N Space Tech** in Tenali, Andhra Pradesh. We extend our heartfelt congratulations for her exceptional contribution as a core team member in the successful launch of **CubeSat BWSAT** into the Stratosphere from Space on **October 4, 2023**. Her dedication and expertise in the field propelled her to this significant achievement, underscoring her commitment to excellence. Let's take a moment to applaud her outstanding career milestone!

Ambassador for IEEEXtreme 17.0

"Growth and transformation occur not by changing who we are but as we summon the courage to be who we are." On **June 2023**, **Niranjan G [EIE BATCH 2025],** a member of our club, had been selected as an ambassador for **IEEEXtreme 17.0**. IEEEXtreme is an annual programming competition organized by the **Institute of Electrical and Electronics Engineers (IEEE)** for students worldwide. This significant achievement marked a memorable moment for us. We extend our sincere congratulations, acknowledging the exceptional opportunity for him to serve as an ambassador for IEEEXtreme, actively contributing to the promotion of its programs and events with genuine enthusiasm and authenticity within our college.

INTERNSHIP THROUGH SIH WINNING

"Success is where preparation and opportunity meet." **Sanjay Kumar M [EEE BATCH 2024]**, a student from our club, had won **Smart India Hackathon 2022** and have got an internship in the Department of Post for their team's proposed model in **August 2023**. His prowess has been further validated by his resounding victory with his team named **'Team Loading'** in the prestigious Smart India Hackathon'22, a feat that has not only brought him recognition but also paved the way for a special internship within the government sector. His victory in addressing real-world challenges through **cutting-edge technology highlights his exceptional abilities and deep understanding of complex issues.** This internship not only acknowledges his achievements but also provides a platform for him to contribute his expertise to initiatives aligned with the **nation's progress**. Congratulations to Sanjay and his outstanding team for their commendable dedication to pushing the boundaries of technology. Here's to a future filled with even greater accomplishments!

NOTABLE MOMENTS

Welcoming Our new Principal Mam

The souvenir featuring club members was given to **Dr. MANONMANI KRISHNASWAMY**, the Principal of GCT Coimbatore, by our past branch counsellor Dr. Ranjith Kumar K. We were thrilled to extend our best wishes when she took charge as our principal and ecstatic to celebrate the momentous occasion by organizing a memento-filled welcome in **March 2023.** This joyous event took place a year ago, and we are delighted to look back on the warm welcome extended for our Principal mam on that special day

Team Visit IISc – Bangalore

During the **IISc Bangalore Open Day**, attendees had the unique opportunity to gain insights into the groundbreaking studies conducted by some of the world's top minds. Exploring various departments, having access to **state-of-the-art** labs, and engaging with cutting-edge research added valuable dimensions to our understanding. We appreciate IISc for graciously opening its doors, allowing us to delve into the wealth of knowledge and expertise within, during the **memorable Open Day on March 2023** event held a year ago. It was an enriching experience, providing us with firsthand exposure to the collaborative and innovative spirit that defines IISc.

'Tell me and I forget, teach me and I may remember, involve me and I learn,"

IEEE HUB CONGRESS conducted by IEEE Madras Section

The members of our club had the privilege of attending the **IEEE HUB CONGRESS** organized by the IEEE Madras Section at Sri Krishna College of Engineering and Technology, Coimbatore on **March 18, 2023**. Highlight of the event was meeting our distinguished alumnus, **Prof. Dr. S. N. Sivanandam**, who served as the chief guest. His insights into the wide spectrum of IEEE and the experience shared by **Dr. Porkumaran Karantharaj, Chairman of the IEEE Madras Section**, were truly enlightening. The virtual sessions featured prominent speakers such as **Dr.Thomas Coughlin** [President, Coughlin Associates], **Dr. Lance Chun Che Fung** [2023-2024 IEEE Asia Pacific Region (R10) Director], and **Dr. Takako Hashimoto** [Vice President, and Director, International Center at Chiba University of Commerce, and IEEE R10 Director-elect]. Topics included blended learning, member retention strategies, IEEE student branch interactions, and discussions on industry interactions, work-life balance, professional journey harmony, and diversity inclusions.

"Technology is best when it brings people together."

NOTABLE MOMENTS

Expressing Gratitude to Our Past Advisor on His Departure

It was the opportunity to extend our deepest appreciation and gratitude to our advisor **Dr.K. Ranjith Kumar** of GCT IEEE SB – 81571 on **May 2023,** for his support, guidance and dedication to the success and growth of our club. Our club had the honor of presenting a special token of appreciation to our **incredible advisor**. The memento we presented to our advisor symbolizes our deep gratitude and admiration for his tireless efforts. It serves as a reminder of the lasting mark he left on our club's journey.

"Gratitude is not only the greatest of virtues but the parent of all others."
- Marcus Tullius Cicero

Welcoming New Branch Counsellor

On behalf of our institution and GCT IEEE SB - 81571, it was with great pleasure that we extended a warm welcome to our esteemed new branch counselor, **Dr. R. Rajeshwari**, Professor of the EEE department at Government College of Technology, Coimbatore, in **June 2023.**

"A mentor is someone who sees more talent and ability within you than you see in yourself and helps bring it out of you." -Bob Proctor

Global Alumni Reunion Meet & Tech Expo

The TECH EXPO was a platform like no other, bringing together brilliant minds from all around the world to celebrate technology, innovation, and progress. Our **IEEE Club** took center stage, presenting a range of cutting-edge projects that demonstrated our commitment to pushing the boundaries of science and engineering on **29 July 2023**

Proud moment with Scientist Dr.Mylswamy Annadurai [ISRO]

What made the event truly unforgettable was the presence of none other than the Moon Man of India!. Our club's projects left an indelible mark, as he was captivated by the **depth of creativity** and ingenuity showcased. His encouraging words of praise have motivated us to strive for even greater heights in our pursuit of **technological excellence.**

Proud moment with Mr.M.Prathap I.A.S.

TECHNICAL HACKATHON

MATRIX

The MATRIX hackathon, organized by the GCT IEEE Student Branch 81571 in collaboration with the **Computer Science and Engineering Association (CSEA)** at GCT Coimbatore, was successfully conducted in two phases. The validation ceremony for these events was also held in association with CSEA.

PHASE 1

23.02.2023

Drawing enthusiastic participation from students eager to showcase their problem statements and their solving abilities. Participants engaged in tackling **advanced challenges within their respective domains, fostering a spirit of innovation and collaboration.**

PHASE 2

02.04.2023

Building upon the success of the initial phase. This stage saw qualifying teams from Phase 1 further **refining their innovative ideas and solutions.** The event continued to provide a platform for students to learn, network, and hone their skills

VALIDATION CEREMONY

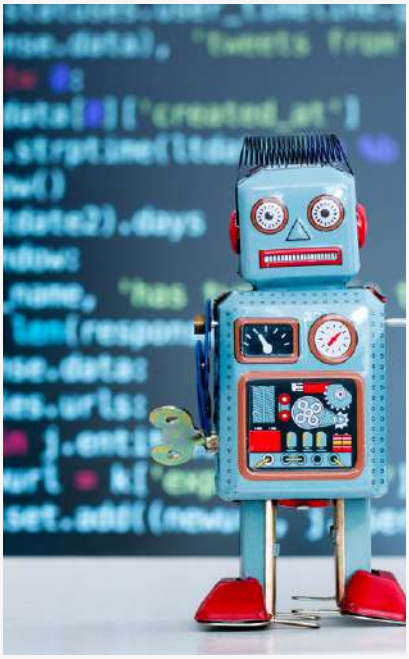
12.04.2023, Marking the culmination of both phases. It was an occasion to recognize and celebrate the achievements of participating teams, acknowledging their dedication, creativity, and contributions to the hackathon. In the words of Henry Ford, **"Coming together is a beginning; keeping together is progress; working together is success."** MATRIX exemplified the power of collaboration and determination, inspiring participants to push boundaries and realize their potential in the ever evolving landscape of technology.

MATRIX

SPONSORSHIP

Industry 4.0 is built on various technological pillars. These innovations bridge the physical and digital worlds, making smart and autonomous systems possible. Our students have worked on technologies, including AI/ML, compiler design, networking, image processing, and voice recognition. The rise of digital industrial technology and its transformations allows us to work alongside machines in new, highly productive ways. We are privileged to inform you that our students have been dedicated to working towards future technology, as the best way to predict the future is to invent it

C1X
CLASS ONE EXCHANGE



We express our gratitude to C1X for sponsoring our hackathon and thereby encouraging the students to work on their projects and take them to the next level. We thank them for taking the time to invest in our event and understanding our purpose, as this partnership certainly bore the fruits of success. The successful conclusion of the hackathon stands as a testament to the valuable support provided by C1X, and we sincerely appreciate their instrumental role in achieving this accomplishment. Their invaluable support played a pivotal role in the successful completion of the hackathon, for which we are deeply appreciative!

PROJECT TO PRODUCT

As part of the Matrix Hackathon, our club, in collaboration with **Mics-On-Gct,** organized a seminar on Project to Product on **06.03.2023.**

SPEAKERS

Shreya Sreenath CSE – BATCH 2024
Mari Muthu CIVIL – BATCH 2024

Initially, the plan involved making a presentation and giving a talk. However, Shreya suggested the idea of teaching the **art of building a product** through practical experience rather than just verbal instruction, aligning with our **club's philosophy of learning** through experimentation and experience over the past two years

SESSION OUTCOME

The plan was well-defined, arrangements were made, the session was initiated, activities were **conducted, questions were posed, and ultimately, while the product itself wasn't physically built,** the effective conveyance of the process to build a product was achieved. Collaboration successfully achieved, thanks to their invaluable contribution.

PIXEFX

As part of the Matrix Hackathon, our GCT IEEE SB 81571 in partnership with the **Rotaract Club of GCT Coimbatore,** organized Pixefx, a practical graphic design workshop held on **March 28, 2023**. The event, attended by over 100 students, featured sessions on Adobe Illustrator and Photoshop, led by three self-taught designers:

Anurag Sachin V [MECH – BATCH 2024]
Srijeyalakshmi T [EEE – BATCH 2024]
Thoufik Abdullah M [MECH – BATCH 2024].

Participants engaged in hands-on learning, gaining valuable insights and skills to enhance their proficiency in graphic design tools and principles..

SESSION OUTCOME

The collaborative effort between our club and the Rotaract club facilitated an enriching experience for students, empowering them to explore their **creativity and develop practical skills in graphic design**. Through interactive sessions and expert guidance, attendees left the workshop equipped with the knowledge and confidence to pursue their passion for design in their **academic and professional pursuits**

In conclusion, we extend our heartfelt gratitude to the Rotaract Club of GCT Coimbatore for their pivotal role in the successful collaboration that brought **Pixefx to fruition.** This joint effort not only enriched the learning experience for over 100 students but also empowered them to embrace design as a way of life. Thank you for contributing to the success of Pixefx and for making a lasting impact on the **creative journey of our participants.**

SKYNET 2.0

A heartfelt congratulations to all participants of Skynet 2.0! The hackathon has concluded, and it's time to reflect on the incredible journey of **innovation, collaboration, and technical brilliance**. Let's revisit the three phases that defined **Skynet 2.0.**

PHASE 1

ABSTRACT SUBMISSION

At the onset of the hackathon, participants delved into the challenge by submitting detailed abstracts of their chosen problem statements along with innovative solutions. The diversity of problem statements and the ingenuity displayed in the abstracts set a high standard for the competition on

PHASE 2

ABSTRACT PRESENTATION

A select group of participants, having demonstrated exceptional creativity in Phase I, advanced to Phase II. In this stage, they presented their abstracts to a panel of experienced judges. The presentations were a showcase of in-depth understanding, unique approaches, and the potential impact of each project. The competition was fierce, and the quality of presentations was truly impressive

PHASE 3

PROTOTYPE SUBMISSION

At the onset of the hackathon, participants delved into the challenge by submitting detailed abstracts of their chosen problem statements along with innovative solutions. The diversity of problem statements and the ingenuity displayed in the abstracts set a high standard for the competition

SKYNET 2.0

BRAIN STORMERS – FIRST PLACE

Arun Prasath **(MECH BATCH 2025)**
Vignesh S **(IT BATCH 2025)**

We embarked on a mission to address the issue of water stagnation in agricultural fields resulting from abrupt weather changes. Through phases 1 and 2 of Skynet2.0, we formulated a comprehensive approach to provide farmers with effective solutions. With guidance from our assigned mentor, we crafted a prototype reflecting our vision. In summary, the Skynet2.0 journey has been a **delightful experience, enriched with valuable insights.** In our prototype we had four major parts.

1. A moist sensor that takes data from the field and sends it to http client
2. Collecting data from weather forecast **API** using express JS.
3. The integration part that performs logic in the backend and predicts the water requirements of the field.
4.A frontend webpage as user interface. • In overall we integrated sensor data and **API data** to give an **UI to assist farmers** in predicting and monitoring the water requirements of the field to use the water resources effectively

PHOENIX SPARTANS – SECOND PLACE

Vengat Prasad D **(IBT BATCH 2024)**
Naveenkumar S **(IBT BATCH 2024)**

• The current global statistics show that there are **463 million individuals with diabetes and 374 million individuals with impaired glucose tolerance (IGT),** a prediabetic condition. Diabetes is a chronic disease occurs due to insufficient amount of insulin or doesn't not produce insulin for the metabolism of blood sugar.

• The conventional hypodermic needle treatment is often facing lot of problems like

- **Poor patient Compliance**
- **Needle phobia**
- **Risk of infection**
- **Hypoglycemic conditions** in multiple doses

• We have come up with a solution for Transdermal Delivery. We formulated our polymers solution using **HPMC and PVP**. Then we incorporated insulin into the solution. Then film was formed using film former. Then our final product was completed by backing layer and release liner.

• Delivering medications through intact skin and into Bloodstream providing continuous drug infusion. The skin offers several advantages as a site for Drug delivery, including avoidance of issues Gastric Irritation , pH , Emptying rate effects , Hepatic first pass metabolism.

SKYNET 2.0

SUN STRIKERS – THIRD PLACE

Thejasi Dhanesh (PROD BATCH 2025)
Vishal Rajasekaran (EEE BATCH 2025)
Sridhar S (EEE BATCH 2025)

- In remote areas lacking electricity, **clean drinking water** is a luxury. Traditional purification systems are impractical without power grids, leaving communities vulnerable to health risks.
- We had devised a solar-powered **water purification system,** making clean water accessible and sustainable. By harnessing **solar energy**, we provide potable water without reliance on traditional power sources.
- Our prototype is a Solar Powered Water Purifier, consisting of components such as a solar panel, charge controller, battery, RO purifier, and a setup that includes a series of filters: **spun filter, pre-carbon filter, RO membrane, post filter, UV filter, alkaline filter, and water pump**. We are currently in the process of developing a frame to accommodate these components, and aside from that, we have completed all other aspects of the project.
- We believe clean water is a right, not a privilege. Our solution: a solar-powered water purifier, independent of the grid, ensuring access even in the **most remote areas**.

VALEDICTORY

We extend our gratitude to all participants for their dedication, hard work, and enthusiasm throughout **Skynet 2.0**. Your passion for innovation has undoubtedly elevated the hackathon to new heights. As promised, a **total prize pool of ₹10,000** was distributed among the outstanding projects. The winners were selected based on criteria such as creativity, innovation, and practicality. Congratulations to all the prize recipients! Skynet 2.0 has not only been a **platform for technical process** but a celebration of creativity and collaborative spirit. We hope the experiences gained during this hackathon will propel you toward even greater heights in your **future endeavours.** Thank you for being part of Skynet 2.0, and we look forward to witnessing your continued success in the world of innovation and technology. Until next time, keep coding and dreaming big!

SKYNET 2.0

"Gratitude is the bridge that connects yesterday's blessings with today's joy and tomorrow's hope."

We extend our heartfelt appreciation to the **esteemed alumni of GCT IEEE SB 81571** for their invaluable contributions towards the success of Skynet 2.0, our intra-college hackathon. The generous support from our alumni community played a pivotal role in providing the participants selected for the final round with the necessary components and materials to develop their **innovative prototypes**. This support not only facilitated the practical application of their ideas but also nurtured their creativity and problem-solving skills. Through their contributions, our alumni have empowered the next generation of innovators and problem-solvers at GCT. Their commitment to nurturing talent and driving positive change is commendable, and we are immensely grateful for their dedication to our cause. The impact of **alumni support** extends far beyond the confines of our hackathon event, inspiring students to **explore new frontiers in technology and entrepreneurship**. By investing in their alma mater, our alumni are actively shaping the future of technology and empowering the leaders of tomorrow. We express our sincere thanks to all our alumni for their unwavering dedication to fostering innovation and collaboration within our community. Your support is instrumental in creating a vibrant ecosystem where ideas thrive, and dreams take flight. Special thanks to **Ketto platform, Fund contributors, Mentors and judge, Faculty members, GCTAA Executives.** Heartfelt thanks to **Ketto, the pivotal platform**, for having permitted us to conduct a fundraising campaign. This campaign played a crucial role in securing **substantial funding** for our program, significantly amplifying its impact and reach. Together, we celebrate the spirit of innovation and entrepreneurship that defines our community. Thank you for your continued support and belief in the potential of our students. With your guidance and encouragement, we are confident in our ability to achieve great things

WORKSHOP P2P

EPIC

EPIC, the Hands-On **Inter College Project Development Workshop**, successfully took place on **September 22, 2023,** as part of the SKYNET 2.0 hackathon. Organised by our club, the event attracted over 200 students from **10+ colleges in and around Coimbatore.**

MORNING SESSION

Mr. Ansar Ali Khan
Deputy Manager - VRV Business ROTN,
Daikin Air-conditioning India Pvt Ltd,
GCE Salem Alumni Mech - 2014 Batch shared insights on **"Product Development"**.

Mr. Mohanraj Kittusamy
Co-founder & COO - Fiche Photography Services Pvt Ltd
Entrepreneur
GCT EIE BATCH 2023 focused on
"Unleashing Youthful Entrepreneurial Potential."

AFTERNOON SESSION

Harshavarthan Maran
Spotknack – Founder & Community Enabler,
Anna University CSE - 2018
Batch discussing "**Campus to Company: Navigating the Project to Product Journey"**

Mr. Vivek Poovalingam
Thought Works – Principal Consultant, Software Defined Vehicles,
GCT Alumni Council - Executive Committee, GCT Alumni EIE – 2008
Batch covering **"Commencing a Startup."**

VALIDATION CEREMONY

In conclusion, EPIC provided a platform for collaborative learning and innovation, leaving participants inspired and enriched. As we reflect on the success of EPIC, let us remember the words of
Benjamin Franklin: "An investment in knowledge pays the best interest."

EVENT QUIZ

BYTE2

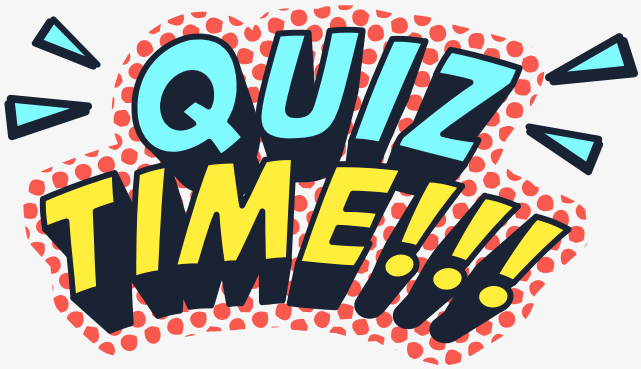
On behalf of **IEEE day** our GCT IEEE Student Branch successfully organized the BYTEZ quiz contest (online) on **October 11th, 2023**, focusing on emerging technologies.

EVENT DETAILS

The event provided an opportunity for participants to showcase their **knowledge** and **passion for AI, blockchain, quantum computing, and more,** with cash prizes up for grabs. It was a day filled with excitement, competition, and inspiration, bringing together tech enthusiasts, engineers, and curious minds alike

Winners of BYTEZ

Hari Preeth D M (ECE Batch 2026), who secured the **first prize of Rs. 300,**
followed by Priyanga S (EEE Batch 2025) with the **second prize of Rs. 200, and**
Rohith T M (EEE Batch 2025), clinching the **third prize of Rs. 100.**



"Success is not just about winning, but the journey of determination, perseverance, and learning that leads to victory."

EVENT WORKSHOP

STACK VERSE

With immense joy and as our **final event** of the tenure, we celebrate the successful culmination of the **StackVerse** held on **February 5,2024**. This event marked not only an exploration of data engineering but a **triumphant celebration of knowledge and growth**

Event

Participants delved into the **wealth of data as engineering** refined its potential. StackVerse served as their guiding compass in navigating this dynamic landscape, offering **hands-on sessions that equipped attendees** with the latest tools and skills defining the future of data engineering, from **ETL pipelines to cloud integration.**

The quest for mastery in Data Engineering proved successful, revealing the **melody of innovation** within its intricate patterns. Attendees joined a **vibrant community of professionals, networked with leaders**, and positioned themselves at the forefront of technological advancements.

Speaker

Mr. D. Anandakumar
(GCT Alumni –MECH BATCH 2021), Product Manager at 5C Network. Participants explored **cutting-edge data techniques**, elevated their skills, and unraveled **the secrets of efficient data management** through engaging hands-on experiences.

"With each successful event, we not only expand our knowledge but also our capacity for innovation."

BOARD INSTALLATION

The transition within the IEEE board marked a **momentous shift** as experienced members passed the torch to a fresh cohort of leaders. This changing of the guard heralded a new era filled with potential and opportunity, as the organization prepared to navigate the complexities of the future.

With the conclusion of the interview process, the outgoing board members were **applauded for their professionalism and dedication in ensuring a thorough and thoughtful selection process for their successors**. The positions for the upcoming tenure were successfully filled, and the installation of the **new board members took place on February 5,2024.**

This pivotal event symbolized not only the official commencement of their roles but also the beginning of a journey characterized by **innovation and collaboration**. As the community eagerly anticipated the contributions of the incoming board, there was a palpable sense of excitement and optimism for the future of the IEEE.

Warm regards were extended from IEEE SB 81571, **reflecting the collective support and encouragement for the new board members** as they embarked on their leadership journey. With their wealth of experience and enthusiasm, these individuals were poised to make a significant impact, **steering the organization** towards continued growth and success

"Inauguration remind us that change is constant "

APPLICATION OF IOT

In recent years, the Internet of Things(IoT) has emerged as a game-changer in various industries, and transportation is no exception. By integrating IoT technology like sensors, connectivity, and analytics into transportation systems, we are witnessing a shift in how we perceive, manage, and optimize the movement of people and goods. From smart vehicles to intelligent infrastructure, the application of IoT in transportation holds the promise of safer, more efficient, and sustainable mobility solutions.

V2X Technology

IoT technology enables vehicles to communicate with each other**(V2V) and with infrastructure(V2I) and vehicle-to-everything(V2X)** is a communication technology that enables vehicles to exchange data with various elements in their environment. This allows for advanced safety features such as collision avoidance, lane departure warnings, and **emergency braking**. IoT-enabled vehicles are equipped with sensors and connectivity features that enable them to communicate with each other and with surrounding infrastructure in real-time. This connectivity facilitates **advanced driver assistance systems(ADAS),** which enhance safety by providing warnings and assistance to drivers in various situations.

IoT Devices in Automobiles

IoT devices present in the vehicles, can monitor real-time data such as location, speed, fuel consumption, and even **diagnose mechanical issues.** This allows for optimized route planning, proactive maintenance scheduling, **leading to cost savings and reduced environmental impact.** IoT sensors used in vehicles give the real time data on road conditions, traffic flow and weather. This enables us to track and immobilize stolen vehicles, enhancing vehicle security and reducing the theft rates.

APPLICATION OF IOT

Supply chain management

IoT plays a crucial role in optimizing supply chain logistics by providing **end-to-end visibility and transparency.** From warehouses to distribution centers to delivery vehicles, IoT sensors track the movement and conditions of goods throughout the supply chain. Constant monitoring and management of delivery is a difficult task for the staff of transportation companies. By using the Iot technology, deliveries can be tracked remotely, enabling seamless collaboration between drivers and dispatchers. This enables companies to **identify inefficiencies, streamline operations**, and respond quickly to disruptions such as delays or damage to goods.

Self driving cars

Self driving cars or autonomous vehicles are the coolest things that have been introduced in the transportation industry. The concept of **self-driving cars** has been turned into an innovative reality with the support of IoT technologies. The self-driving cars use acoustic sensors, ultrasonic sensors, radar, **LiDAR(Light detection and ranging), camera and GPS sensors** to have information about the surroundings and take the data-driven decision about mobility. This indicates that the functioning of self-driving cars is dependent on **IoT sensors.**

IoT in toll management

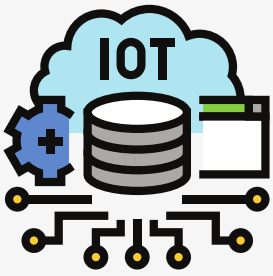
Traditional **toll systems** are prone to manual errors and have become inefficient at tackling the recent increases in vehicles on busy highways. Automated tools are equipped with IoT connectivity **to detect vehicles from a distance and lift the barriers**. However, the old vehicles do not have IoT connectivity, but the smartphones of the car owners can serve the same purpose as well, that is, taking automatic payments through phones linked to the **digital wallet**. This indicates that IoT in transportation is much more flexible and is compatible with new vehicles and demonstrates easy integration with older vehicles as well, for automated toll and ticketing procedures.

IMAGE PROCESSING FOR IOT APPLICATIONS

Image processing ?

Image processing in IoT refers to the application of **image analysis techniques** on images captured by IoT devices such as cameras. It involves extracting meaningful information from images to enable **decision-making or trigger action**s in an IoT system. This can include tasks such as object detection, recognition, classification, tracking, and more. **Image processing in IoT** can be used in various domains including surveillance, healthcare, agriculture, manufacturing, and smart cities to enhance automation, security, and efficiency.

Significance



- **Segmentation and Feature Extraction:**

Segmentation divides an image into meaningful regions, facilitating object detection, and analysis. Various features such as color, texture, shape, and size can be extracted from images to characterize objects and scenes.

- **Classification and Recognition:**

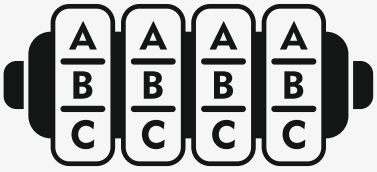
Machine learning algorithms are used to classify objects or recognize patterns in images.

- **Distributed Processing :**

In scenarios where large-scale image data is generated across multiple IoT devices or sensors, distributed processing frameworks can be employed to parallelize image processing tasks and scale performance. These methods are often adapted based on the requirements, constraints, and objectives of the IoT application, whether it's surveillance, industrial automation, healthcare monitoring, or environmental sensing.

IMAGE PROCESSING FOR IOT APPLICATIONS

Vital industrial applications across various sectors:



Machine Vision in Agriculture:

Image processing plays a crucial role in modern agriculture for crop monitoring, yield estimation, and pest detection. Drones equipped with cameras capture aerial images of farmlands, which are then analyzed to assess crop health, identify areas requiring irrigation or treatment, and optimize farming practices.

Healthcare and Medical Imaging:

In healthcare, image processing facilitates medical diagnosis, treatment planning, and patient monitoring. Medical imaging modalities such as MRI, CT, and ultrasound generate vast amounts of visual data, which are analyzed using image processing algorithms to detect abnormalities, localize tumors, and assist in surgical procedures. Integrating IoT technology would help patients to get suggestions from physicians at their comfort.

Security and Surveillance:

Image processing is instrumental in security and surveillance systems for monitoring and protecting industrial facilities, public spaces, and critical infrastructure. Video analytics technologies analyze live camera feeds to detect intruders, track suspicious activities, and alert security personnel in real-time, enhancing overall safety and security.

Mining and Mineral Exploration:

Image processing is used in the mining industry for geological mapping, mineral exploration, and resource estimation. Satellite imagery, LiDAR data, and hyperspectral imaging are processed to identify mineral deposits, plan extraction operations, and monitor environmental impacts. Image processing in the context of the Internet of Things (IoT) is a fascinating intersection that holds immense potential for various applications.

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SMART ORTHOTICS LEG

Advancements in technology have transformed various aspects of our lives, and the field of healthcare is no exception. One remarkable innovation in this domain is the development of smart orthotics legs, which leverage the **power of the Internet of Things (IoT).** These devices are revolutionizing mobility for individuals with lower limb impairments, providing improved functionality, real-time data monitoring, and enhanced user experience.

The Power of IoT

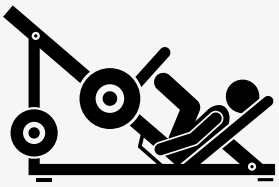
Smart orthotics legs are integrated with IoT technology, enabling them to connect to the internet and interact with other devices, systems, or networks. This connectivity opens up possibilities for **remote monitoring, data collection, and analysis.** The IoT aspect of these devices allows for seamless communication between the smart orthotics leg and healthcare professionals, facilitating personalized care, remote adjustments, and timely interventions. **IMU sensors**, on the other hand, are at the core of the smart orthotics leg's functionality. These sensors, consisting of **accelerometers, gyroscopes, and magnetometers,** work together to measure and monitor the leg's orientation, movement, and velocity in real time. By accurately capturing the **leg's kinematic data**, the IMU sensors provide essential information that is utilized for gait (the walking manner of a person) analysis, biomechanical assessment, and adjustment of the orthotic device to the user's specific needs.

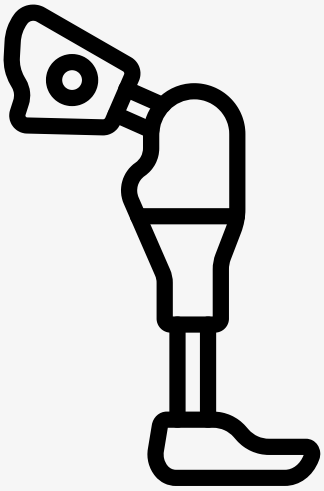
SMART ORTHOTICS LEG

Functionality & Enhanced Mobility

Smart orthotics legs offer a range of benefits that significantly improve the mobility and functionality of individuals with lower limb impairments. By utilizing IoT technology, these devices allow for dynamic control and adjustment of the **orthotic support**, adapting to the user's changing needs and activities. The real-time data provided by **IMU sensors** enables precise and responsive adjustments, enhancing stability, balance, and overall gait performance. Moreover, smart orthotics legs can incorporate features such as **powered actuators and artificial intelligence algorithms**. These additions enable the leg to provide assistance during walking, augmenting the user's strength and endurance.

User experience





Smart orthotics legs not only provide enhanced mobility and data insights but also offer an improved user experience. These devices are **designed with comfort**, aesthetics, and ease of use in mind. The integration of IoT technology allows for **intuitive control interfaces, such as smartphone apps or voice commands,** which enable users to customize settings, receive feedback, and access relevant information with minimal effort. Additionally, the ability to remotely communicate with **healthcare professionals eliminates the need for frequent in-person visits**, reducing travel time and expenses for individuals who may have limited mobility or l**ive in remote areas**. The personalized care and continuous support provided by smart orthotics legs contribute to a sense of empowerment, independence, and improved quality of life for the users.

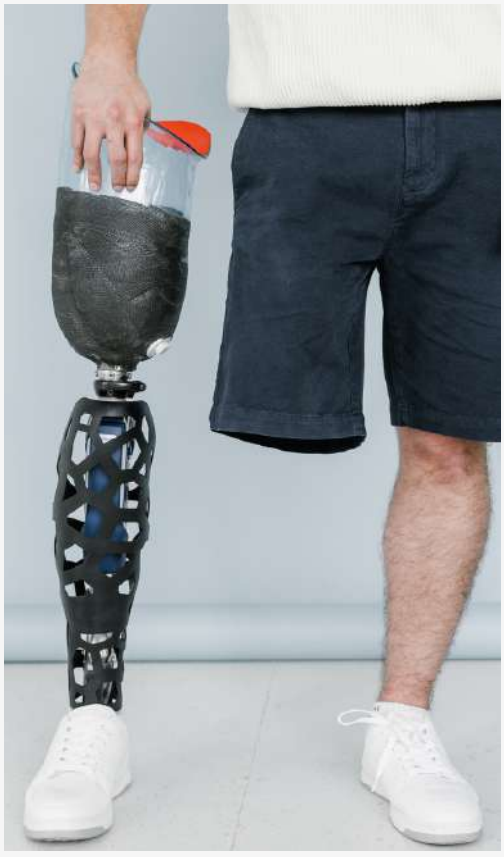
SMART ORTHOTICS LEG

Data Monitoring and Analysis

The integration of IoT technology empowers both users and healthcare professionals with valuable insights. The **real-time data** collected by the sensors can be wirelessly transmitted to a cloud-based platform or a smartphone application. This data includes metrics such as **step count**, **stride length, walking speed, and gait parameters**. Healthcare professionals can access this information remotely, allowing for proactive monitoring, analysis, and **personalized interventions.**

Conclusion

Smart orthotics legs powered by IoT are transforming the field of assistive technology and revolutionizing mobility for individuals with **lower limb impairments**. These devices provide enhanced functionality, real-time data monitoring, and improved user experience. By leveraging the power of IoT connectivity, **smart orthotics legs** offer personalized care, remote adjustments, and seamless communication with healthcare professionals. As these technologies continue to evolve, we can anticipate further advancements that will have a profound impact on the **lives of countless individuals**, promoting greater mobility, independence, and overall well-being.



BROCHURE TEAM

DESIGNING TEAM

1. Ragul E – EIE'25 [DESIGNING LEAD]
2. Vijayavarshini M – EEE'26
3. Siva Ramakrishnan S – ECE'26

CONTENT TEAM

1) Varshini. P – EEE'26 [EDITORIAL LEAD]
2) Rajesh A – EIE'25 [CONTENT LEAD]
3) Thejasi D – PROD'25 [CONTENT LEAD]
4) Prathipa L – ECE'26
5) Akshaya S – ECE'26
7) Saranya J – ECE'26
8) Manikandan J – ECE'26
9) Haripreeth D M – ECE'26
10) Gayathiri N - PROD'26
11) Nancy Infancia M – ECE'26
12) Karthika M – ECE'26
13) Nandhini G – EIE'26
14) Miraleni S R – EIE'26
15) Minusri B – EIE'26
15) Elakkiya R - IT'26
16) Jenet Stacey P – EIE'26
17) Gnanashree R – EEE'26
18) Thirisha K V - EEE'26

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