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# ETSA-Connect

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Issue 7 | Vol 1

November 2024



# Our Inspirations



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Pimpri Chinchwad Education Trust



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# ADVISOR'S MESSAGE



**Prof. Kishor Kinage (HoD ENTC)**  
Managing Editor

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Professional development is an essential but often neglected aspect of career growth. Professional development refers to the process of enhancing one's professional skills, knowledge, and competence in order to meet the demands and expectations of one's field. It involves the development of practical theories and the construction of a professional identity, as well as the ability to take on various professional roles and uphold the professional status of one's field.

Professional development is important because it has the potential to open opportunities for career advancement. Apart from technical knowledge, professional development means, Improving communication skills, taking on a leadership role and building a strong professional network to furthering your career.

For this purpose, we encourage our students to participate in ETSA-IETE-IEEE SPS activities. I wish all the best to Team ETSA-IETE-IEEE SPS for their future endeavours.

# ADVISOR'S MESSAGE

## **Mrs. Ashwini Shinde**

Managing Editor



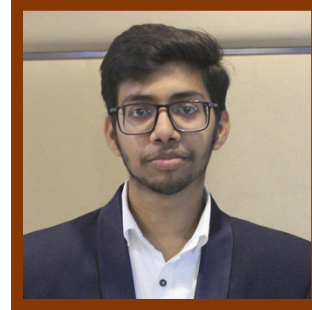
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ETSA is the Electronics and Telecommunication Student Association , a platform created by the students for the students. Primary commitment of the ETSA is to provide responsible and equitable student leadership and to mirror the opinions and concerns of all segments of the department. All the events and activities organized attempts to motivate students in campus life and form a close-knit interdisciplinary, multinational student community at the E&TC Department. I wish all the best for Team ETSA for their bright future and dreams.

# EDITOR'S MESSAGE



**Harish Patil**  
Senior Editor



**Vishveshwar Jadhav**  
Senior Editor

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Welcome to ETSA Connect, the official magazine of the Electronics and Telecommunication Students' Association (ETSA) at PCCOE. This magazine serves as a vibrant chronicle of the events, seminars, and activities conducted under ETSA, the IEEE SPS PCCOE Student Chapter, and the IETE Students Forum PCCOE.

Through ETSA Connect, we aim to celebrate the achievements and creativity of our students and faculty while providing a platform for knowledge sharing and collaboration. The magazine showcases a rich collection of event highlights, technical articles, innovative projects, and inspiring success stories. It reflects the spirit of innovation, learning, and community that defines our association.

We hope this magazine ignites curiosity, inspires ideas, and fosters a sense of belonging among our readers. Happy reading!

# EDITOR'S MESSAGE

## **Isha Despande**

President, ETSA PCCOE



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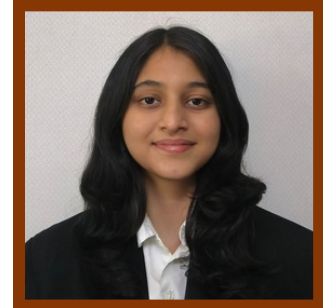
As the President of the Electronics and Telecommunication Students Association, I've embraced the opportunity to lead with purpose and passion. My mission is to empower members, fostering creativity and promoting innovative ideas. I have organized a range of events, from technical workshops on advanced topics like machine learning model deployment to non-technical celebrations such as Teacher's Day, as a token of love and appreciation. By inviting experienced industrialists for insightful sessions, I've ensured a balance that caters to diverse interests. I strive to uplift my peers, encouraging their growth and collaboration in all endeavors.

By leveraging social media and networking, I've built lasting connections that add immense value to our community. Every day, I learn something new, reinforcing the importance of adaptability and vision. Leadership is challenging yet rewarding, offering lessons in resilience and teamwork that shape not only our association but also my personal growth journey.

# EDITOR'S MESSAGE

## **Rasika Wakte**

Chair, IEEE SPS PCCOE



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At the IEEE SPS Student chapter, we work to bring innovation, collaboration, and learning opportunities to students like us at PCCOE.

Over the past year, our chapter has worked hard to provide a platform for students to gain practical knowledge by coordinating various hands-on workshops, technical sessions and interactive events.

These efforts are aimed to bridge the gap between theoretical knowledge and practical applications for our fellow batchmates. Our achievements would not have been possible without the constant support and mentorship provided by our faculty members. Their efforts helped us overcome challenges and execute our ideas flawlessly. I would also like to extend my gratitude towards our team, for all the efforts and hardwork they have put up for the success of events conducted.

As we move forward, we remain focused on our goal, that is, to provide more learning opportunities for students to grow and with that make ourselves professionally sound. Finally, I would like to thank the Electronics and Telecommunication department for providing us with this wonderful opportunity.

# TEAM ETSA

## MEET THE TEAM

### ETSA - ISF OFFICE BEARERS 2024-25



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**Vice - President**  
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**Joint Secretary**  
Srushti Tinkhede



**Joint Secretary**  
Arpita Sutar

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Shradha Samant



**Head**  
Risha Chopra



**Member**  
Shreeya Molke

#### DESIGN TEAM



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Aniket Nanaware



**Head**  
Harish Patil



**Member**  
Harshal Lohokare

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Arya Gavasane



**Documentation**  
Rowa Kulkarni



**Finance**  
Hiral Bihani



**Member**  
Sujal Jadhao



**Member**  
tejas Kumavat



**Member**  
Riya Deshmukh



**Member**  
Bhakti Kulkarni



**Member**  
Nimisha Halabe



**Website**  
Sai Mehar



**Website**  
Shantanu Neve



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Arya Wazalwar



**Photography Head**  
Harsh Pandharpate



**Marketing Head**  
Harsh Gumdol



**PRO (SY A)**  
Arpit Yeotikar



**Technical Member**  
Arpit Ukey



**Technical Member**  
Sameer Bhokare



**Social Media Head**  
Shruti Badgujar



**Social Media Member**  
Indrayani Shingne



**PRO (SY B)**  
Shravani Pajgade



**PRO (SY C)**  
Eshal Shaikh

# TEAM IEEE SPS

<p><b>CHAIRPERSON</b></p> <p>RASIKA WAKTE RASIKA WAKTE RASIKA WAKTE RASIKA WAKTE RASIKA WAKTE RASIKA WAKTE RASIKA WAKTE RASIKA WAKTE RASIKA WAKTE RASIKA WAKTE</p> 	<p><b>CO-CHAIRPERSON</b></p> <p>RISHIKESH NIPUNGE RISHIKESH NIPUNGE RISHIKESH NIPUNGE RISHIKESH NIPUNGE RISHIKESH NIPUNGE RISHIKESH NIPUNGE RISHIKESH NIPUNGE RISHIKESH NIPUNGE RISHIKESH NIPUNGE RISHIKESH NIPUNGE</p> 	<p><b>SECRETARY</b></p> <p>JANHAVI DESHPANDE JANHAVI DESHPANDE JANHAVI DESHPANDE JANHAVI DESHPANDE JANHAVI DESHPANDE JANHAVI DESHPANDE JANHAVI DESHPANDE JANHAVI DESHPANDE JANHAVI DESHPANDE JANHAVI DESHPANDE</p> 
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# ALUMNI CORNER

## Mr. Omkar Potdar

2018-19 Batch



My experience with E-Yantra was amazing, while transitioning from the first year of engineering to the second year we were introduced to core electronics and telecommunication subjects. In the early period of my third year I was introduced to the E-Yantra club, initially learning about subjects microcontroller applications has given me some idea about embedded systems and programming. Knowledge of Microcontroller applications has played a vital role for me in the journey of E-Yantra. Right from the third year under the guidance of Prof. Sangita A Patil and prof.Ajay B Patil, we have started our journey.

Seniors were already doing well with their projects, every year IIT Bombay arranges various competitions in the tech fest in which ROBOVR competitions were commendable. Every year theme of the competition changes and we need to build our bot differently. When I entered E-Yantra, Dancing Dolls, archery bot, and basketball robots were developed by our seniors, which fascinated me to know more about robots and overall robotics. Various workshops were arranged for us by our seniors to understand their projects. Getting inspired from that we have organized a PCB designing workshop in which 50+ participants have marked their attendance. The workshop included theoretical as well as hands-on practice for PCB design and manufacturing. As we were progressing in the year we have participated in IIT Bombay's robot design competition in the teams. Right From analysis to model designing and completion of product E-Yantra lab and teachers have provided support and guidance.

# ALUMNI CORNER

## Mr. Omkar Potdar

2018-19 Batch



My third-year mini- project was inspired by the previous E-Yantra competition theme. Multiple exhibitions and competitions were arranged in association with the E- Yantra team. Due to the knowledge of embedded programming and E-Yantra workshops, I was able to grab a sponsored project in my final year of engineering.

We as a team have participated in tech fest 2018 and were runner-ups. The highlight of that competition was that PCCOE won 2 first prizes for cheirotoxin and interactive assistance robot. Cheirotoxin project had two dolls that used to dance in sync with the beats of music. It was a complicated project which was accomplished by the team of Ms. Prachi Patil and was manufactured in PCCOE's E-Yantra lab. The assistant robot used to follow the voice command, replicate your voice, and was able to walk, team on Aniket Deshpande grabbed the first prize for the same.

Overall, I can say E-Yantra has crafted my mentality which was beneficial for me at the time of placements and while working as well I can apply my knowledge of programming and hardware. I would like to urge every E&TC student who is out there beginning their journey in the department of E&TC to go and check out our E-Yantra. Recently in the ROBOVR competition events like boxing robot, golf, football robot, and many more topics have been added which will benefit you if you will participate."

 [Omkar Potdar](#)

# EVENTS

# INDUCTION PROGRAM OVERVIEW

**Date :** 31 August 2024    **Time :** 3:00 to 05:00 PM    **Venue :** LRDC Hall, PCCOE



An induction program for student chapters like ETSA (Electronics and Telecommunication Students' Association), IETE (Institution of Electronics and Telecommunication Engineers), and IEEE SPS (IEEE Signal Processing Society) was held on August 31, 2024. It was a pivotal event and aimed at welcoming and integrating new members into these professional and academic societies.

The Chief Guest for the program, Mr. Yogiraj Deokar (an expert in Entrepreneurship Development, and having over 25 years of experience, holding multiple degrees, including two MBAs) was welcomed and felicitated by the Deputy Director, Mr. Nilkanth Chopade. Significance of these societies was highlighted by a short video of glimpses including the activities conducted by these Student Chapters.



Chief Guest, Mr. Deokar presented the badges to the Advisors (Students of B.tech), followed by the presentation of badges to all newly appointed office bearers by expert guide of IEEE Family, Dr. Varsha Harpale, Chair of IEEE SPS Pune Section and ETSA-IETE-IEEE SPS faculty coordinator, Mrs. Ashwini Shinde, Dr. Deepti Khurge, Dr. Rajani P.K. and Dr. Varsha Bendre.

# INDUCTION PROGRAM OVERVIEW

The felicitation of Team Automaton, the robotics research and development team from Pimpri Chinchwad College of Engineering (PCCOE), Pune was done at the event for achieving All India Rank 2 in DD ROBOCON 2024 and also involving in space robotics through the ISRO Robotics Challenge-URSC 2024

The program then proceeded with the oath-taking ceremony by the President and vice presidents of ETSA-IETE and the Chairman of the IEEE SPS Student Chapter. The event concluded with an acknowledgment of the efforts of organizing teams and a motivational speech by the President of ETSA-IETE, Isha Deshpande, and the Chairman of IEEE SPS, Rasika Wakte.

Overall, the induction program was designed to inspire new members with the knowledge and enthusiasm needed to actively participate in the activities and opportunities offered by ETSA, IETE, and IEEE SPS.



# TEACHERS DAY CELEBRATION

**Date :** 5 September 2024

**Time :** 2:00 to 03:00 PM

**Venue :** Room 6310



Under the guidance of Signal Processing Society Chapter Chair Dr. Varsha Harpale, the IEEE SPS PCCoE Student Chapter, in collaboration with the EnTC Art Circle, organized a Teacher's Day Celebration on September 5, 2024, at PCCoE, Pune. The event honored educators' contributions, beginning with Saraswati Vandana and an inspiring quote: "Teaching is the profession that creates all the other professions."

The program was a vibrant and heartfelt tribute to teachers, featuring a variety of performances and activities that celebrated their invaluable contributions. Saniya Khade, a second-year student, recited a touching and thought-provoking poem, beautifully expressing gratitude and appreciation for educators. Aditya Bora, a third-year student, captivated the audience with a soulful flute performance, creating a serene and reflective ambiance that resonated deeply with all attendees. The EnTC Art Circle presented a skillfully crafted skit that vividly depicted the enduring influence of teachers on their students' lives, emphasizing the values they impart and the memories they create.

In addition to the cultural performances, the event included a significant open-stage session where faculty members shared their thoughts and reflections. Dr. S.L. Tade, Faculty Advisor of ISF, delivered a heartfelt speech, sharing personal anecdotes about the joys and challenges of teaching.



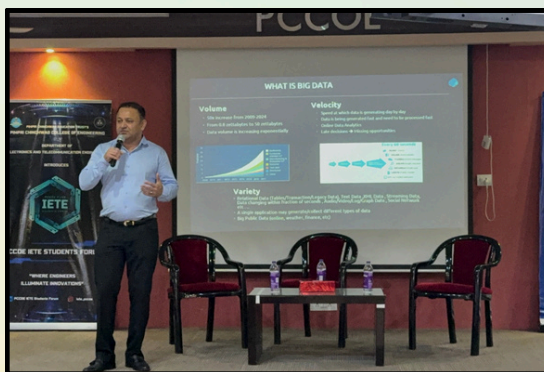
# BIG DATA & GEN AI-POWERED INNOVATION: A NEW ERA OF POSSIBILITIES

**Date :** 18 October 2024

**Mode of Conduction:** Offline



Under the guidance of Society Chapter Chair Dr. Varsha Harpale, the IEEE Signal Processing Society (SPS) PCCoE Student Chapter and ETSA-ISF organized the event "Big Data & Gen AI-Powered Innovation: A New Era of Possibilities." This event aimed to explore the revolutionary advancements in Big Data and Generative AI, fostering innovation and understanding among participants. Targeting professionals and students in the field of AI and data sciences, the event took place on 18th October 2024, from 3:00 PM to 5:00 PM at LRDC Hall, 4th Floor, Mechanical Building, PCCOE, Pune. Esteemed speaker Mr. Abhishek Mittal, Senior Director at Capgemini, shared his expertise on Generative AI and its transformative applications across industries, offering valuable insights into the future of AI-driven innovation.



Mr. Abhishek Mittal delivered an engaging session that began with an introduction to Generative AI, covering fundamental concepts like deep learning, neural networks, and their application in AI systems. Real-world examples demonstrated the impact of AI in healthcare, finance, retail and entertainment showcasing tools



## BIG DATA & GEN AI-POWERED INNOVATION: A NEW ERA OF POSSIBILITIES

**Date :** 22 October 2024

**Mode of Conduction:** Online

for personalized experiences, automated content creation, and predictive analytics.

Discussions on AI in autonomous systems, creative industries, and the evolution of ethical frameworks.

Attendees posed questions about AI applications, career opportunities, and technical challenges. At the end of the event, Winners of the IEEE Day Poster Design Competition, including Harish Patil (1st Prize) and Shreyash Desai (Runner-up), were recognized for their exceptional designs.

Over 90 attendees participated enthusiastically, engaging in insightful discussions on the possibilities of Generative AI. Mr. Abhishek Mittal's expertise in AI and digital transformation provided attendees with a deeper understanding of the role of AI in revolutionizing various sectors. The interactive Q&A session fostered knowledge sharing and sparked curiosity, inspiring participants to delve further into AI-driven innovations.

The event was a major success, providing participants with a thorough understanding of Big Data and

Generative AI. Mr. Abhishek Mittal's in-depth knowledge and engaging delivery inspired attendees to explore AI-driven innovation further. As the session came to a close, it was clear that this event marked a significant contribution to the educational and professional growth of the participants.

In conclusion, the event "Big Data & Gen AI-Powered Innovation: A New Era of Possibilities" organized by the IEEE SPS PCCoE Student Chapter and ETSA-ISF, served as a significant step toward advancing education and professional development in AI and data sciences. The session provided attendees with a clear roadmap to navigate the evolving landscape of AI, reinforcing the commitment to innovation and excellence within the community.



## HANDS ON ENGINEERING WORKSHOP FOR HIGHSCHOOL STUDENTS

**Date :** 16 October 2024

**Modde of Conduction:** Offline



The IEEE SPS Student Chapter PCCOE organised the Workshop titled "Hands on Engineering: The Tech Around Us – Science Behind Everyday Devices" for high-school students aimed to spark interest in STEM fields among high school students. Targeting students in the 8th grade, the event took place on 16th October 2024 at JSPM's Blossom

Public School, Tathawade. The students of the society engaged in addressing topics such as "Mechanisms behind fitness trackers and step counting", "Technology enabling voice assistants to understand human speech" etc. provided an engaging platform for students to explore engineering concepts and their applications in daily life.



The event, with a main aim of letting the students see how engineering and innovation can be used in day-to-day activities, wanted students to get involved with engineering ideas as part of what to do next while finding the real cause for a problem and thereby encourage their minds toward jobs in the STEM fields.



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## HANDS ON ENGINEERING WORKSHOP FOR HIGHSCHOOL STUDENTS

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**Date :** 16 October 2024

**Modde of Conduction:** Offline

Over 40 students of the school participated in these discussions with college students. The workshop addressed topics including the mechanism behind how fitness trackers work and how steps are counted, technology enabling voice assistants to understand human speech, principles allowing robots to learn and make decisions etc. Students in the workshop were really enthusiastic, showing much interest and curiosity. The interactive sessions of the students revealed the advancements in technology, which are significant to today's world. The workshop was a success because it achieved its goal of creating interest in engineering and innovation among high school students. It let them see how science is important in life and encouraged them to look more into the field. In conclusion, the workshop served as a platform for inspiring high school students to explore STEM fields, igniting their interest in engineering and science. This initiative underlines the commitment to nurturing young minds and fostering a passion for innovation and technology.



# ML MODEL DEPLOYMENT ON RASPBERRY PI

**Date :** 22 October 2024

**Mode of Conduction:** Online

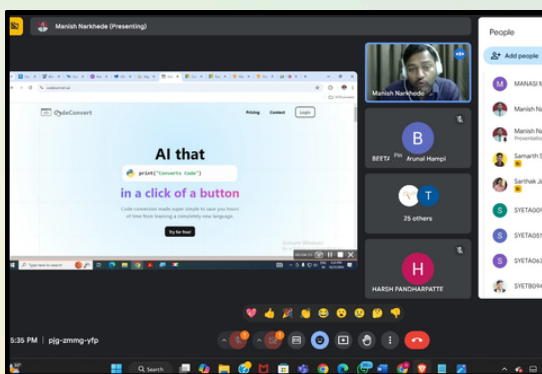


Under the guidance of Dr. Varsha Harpale, Chair of the Signal Processing Society Chapter, the IEEE SPS PCCOE Student Chapter organized an online session on Machine Learning Model Deployment on Raspberry Pi on 22nd October 2024. The session, aimed at ML and IoT enthusiasts, was conducted by Dr. Manish Narkhede, who shared insights into deploying ML models using platforms like Teachable Machine, Ultralytics, and Edge Impulse.

The event explored Raspberry Pi's potential as a mini-computer for innovative projects, the use of Raspberry Pico in IoT devices, and practical applications of tools such as YOLO for real-time object detection, Roboflow for dataset management, and Edge Impulse for edge ML models. Techniques like image classification and computer vision applications were also demonstrated.

With 35 attendees, the session featured interactive discussions and hands-on activities, providing practical knowledge and fostering innovation. The success of the event was made possible through Dr. Narkhede's expertise and the efforts of the organizing committee.

This initiative showcased the IEEE SPS PCCOE Student Chapter's commitment to advancing innovation and practical learning in machine learning and IoT.



# CEP PROJECT COMETITION

**Date :** 13 November 2024

**Time :** 1:00 to 3:00 PM

**Venue :** PCCOE

The CEP Project Competition was successfully organized on 13th November 2024 for second-year Electronics and Telecommunication (ENTC) students. The competition aimed to provide students with a platform to showcase their innovative projects, fostering creativity, technical skills, and practical problem-solving abilities.



The event also served as an

opportunity for participants to enhance their presentation skills and gain valuable insights from expert feedback.

Targeting young innovators and technical enthusiasts, . Esteemed judges Mrs. Gayatri Londhe (DY Patil College of Engineering, Pimpri), Dr. Archana Kanwade (MMCOE, Karvenagar), and internal judges Ms. Pallavi Dhade and Ms. Sushma Vispute evaluated the projects based on innovation, technical feasibility, presentation, and real-world impact



The competition saw enthusiastic participation from students, who gained valuable insights from expert feedback. Judges provided constructive reviews, helping participants identify strengths and areas for improvement in their projects. This guidance will enable students to refine their technical skills, strengthen their concepts, and prepare for future challenges in academics and professional careers.

# CEP PROJECT COMETITION



The winners of the competition received the following cash prizes as recognition for their outstanding efforts:

- 1<sup>st</sup> Prize: Waste Management**
- 2<sup>nd</sup> Prize: Aqua Alert Water Level Detector**
- 3<sup>rd</sup> Prize: Smart Library Management**

The success of the event was made possible through the dedicated efforts of IEEE SPS Student Coordinators Vishveshwar Jadhav and Rasika Wakte and the active engagement of the judging panel. Special thanks to the organizing committee and volunteers for their meticulous planning and execution, ensuring a seamless experience for all participants and attendees.



# ARTICLES

# Wireless Racing Console: Precision Steering with ESP32 and Encoder

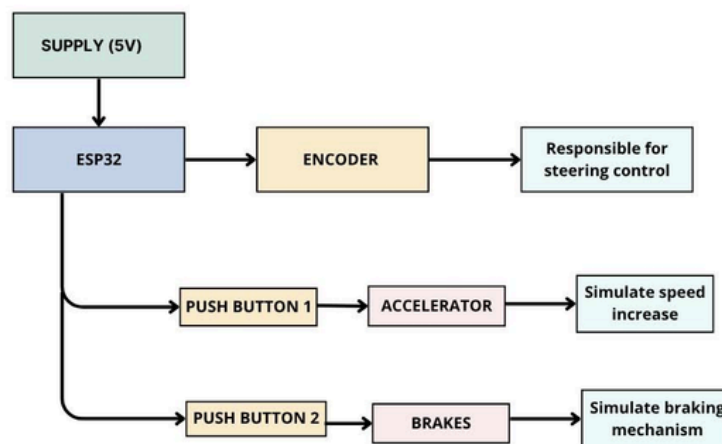
**Eshal Shaikh**

Second Year, ENTC



The rotary encoder plays a pivotal role in steering, converting rotational motion into accurate digital signals. Unlike potentiometers, encoders are highly durable, immune to noise, and provide exceptional precision, making them the preferred choice for applications where reliability is critical. The encoder is mapped to the left and right arrow keys, ensuring smooth and precise vehicle control in racing games. The ESP32 is the heart of the project, known for its wireless connectivity and processing power. Its built-in Bluetooth handles the console-to-PC communication, while its Wi-Fi capabilities open avenues for additional features like real-time telemetry streaming or integration with online gaming platforms. The buttons for acceleration and braking are mapped to the up and down arrow keys, ensuring an intuitive user experience.

## DIY GAMING CONSOLE



For more information visit my github profile- @eshalshaikh07

## Wireless Racing Console: Precision Steering with ESP32 and Encoder

**Eshal Shaikh**

Second Year, ENTC



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### Applications:

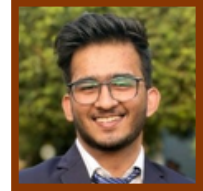
- **Industrial Automation:** Used in joystick-based systems for precise and reliable control in machinery and robotic applications.
- **Simulation and Gaming Systems:** Provides high-accuracy input for racing simulators and professional-grade gaming setups.

This project not only delivers a high-quality gaming experience but also highlights the potential of the ESP32 in diverse applications. By integrating Bluetooth for seamless PC connection and Wi-Fi for future scalability, this console bridges the gap between gaming and IoT. Visit my GitHub (@eshalshaikh07) for the complete code and step-by-step guide to building this exciting console.

## Building a Seismic Future: Insights from Our Einfochips Collaboration

### Arin Jain

Final Year, ENTC



Our group collaborated with einfochips, Ahmedabad, under the guidance of Dr. Deepti Khurge, to develop a prototype earthquake detection system. We extend our sincere thanks to Mr. Nilesh Ranpura, Director of Engineering, ASIC, for his invaluable support and guidance throughout the project. During our visit to einfochips, we gained onsite work experience and were introduced to various VLSI design and verification practices employed in the industry. We also explored open-source EDA tools like Yosys and OpenSTA and gained hands-on skills in RTL to GDSII flow, Linux, and Raspberry Pi for embedded systems.

The project also focused on implementing noise reduction techniques, including Kalman filtering, to improve sensor performance. This prototype represents the first step in a multi-year effort to develop a seismic detection sensor system, with future plans to transition the design into an ASIC.

I would like to thank my teammates from Final Year and also acknowledge the efforts of the Third-Year members who contributed significantly to the project.

Team Lead - Arin Jain

Final year Members:

Rajat Katepallewar, Suraj Narnoliya, Anurag Biradar, Ryan Rego

 [Arin Jain](#)

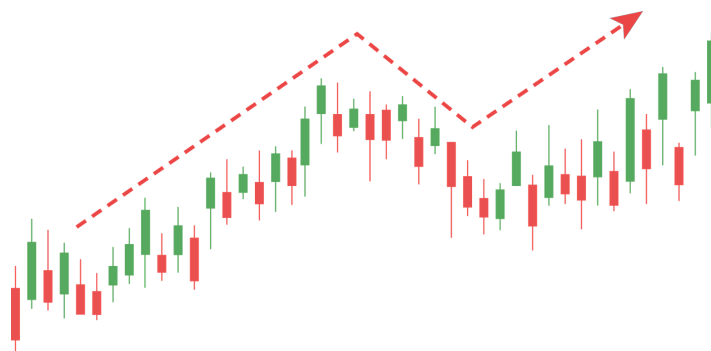
## Decoding Market Trends: MATLAB Powered Analysis with E&TC Insights

**Bhakti Vinay Kulkarni**  
Second Year, ENTCT



This project utilizes key MATLAB functions for data processing and analysis. `readtable` imports CSV data, while `datetime` handles date formatting. Moving averages and rolling volatility are calculated using `movmean` and `movstd`, respectively. Statistical functions like `std` measure volatility, and `diff` computes daily returns. Visualizations are created with `plot` and `histogram`, providing clear insights. These functions streamline data handling, analysis, and visualization efficiently.

The scope of this work goes beyond analyzing the stock market to broader applications relevant to electronics and telecommunication (E&TC) engineering. MATLAB may be used for signal processing, system modeling, and designing control systems; such analysis can be merged with machine learning techniques for predictive analytics and optimization. Real-time data handling and automation, which are critical for applications such as IoT, 5G networks, and sensor data analytics, can also be addressed using MATLAB.

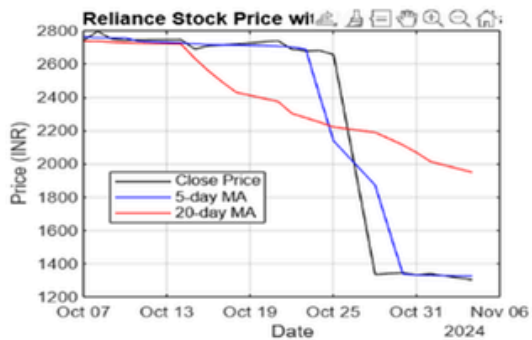
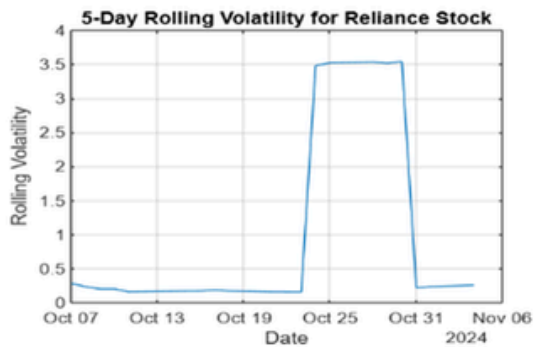


# Decoding Market Trends: MATLAB Powered Analysis with E&TC Insights



**Bhakti Vinay Kulkarni**  
Second Year, ENTCT

In conclusion, this work highlights the computational strength of MATLAB in analyzing data and future advancements in predictive analytics, automation, and cross-disciplinary applications in engineering and technology.



## From Classroom to Industry: Real-World Learning at Einfochips

**Aniket Munde, Srushti Tinkhede, Bhumika Shekhavat**

Third Year, ENTC

As third-year students, we had the privilege of working onsite at Einfochips, an Arrow company, as part of our earthquake detection system project. Our focus was on system integration, where we combined various modules and ensured their seamless operation through rigorous testing and debugging.

The visit offered an invaluable opportunity to understand VLSI design flows and explore industrial practices firsthand. We gained exposure to professional documentation standards, presentation techniques, and collaborative workflows critical for large-scale projects. Engaging in real-world problem-solving enhanced our ability to bridge theoretical concepts with practical implementations effectively.

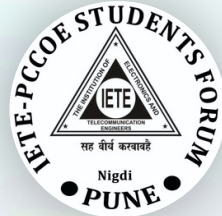
We extend our heartfelt gratitude to our mentor, Dr. Deepti Khurge, and the Einfochips team for their constant support and guidance. We also express our sincere thanks to our seniors for their mentorship and encouragement throughout the project. Their expertise and cooperation were instrumental in making this experience enriching and successful.



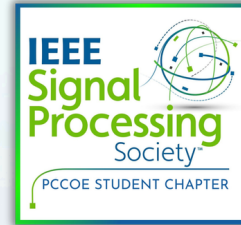
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