

TECH-TIDE



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DEPARTMENT OF
ELECTRONICS AND COMMUNICATION
ENGINEERING

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Message from HoD



Warm greetings to all students, faculty members, alumni and esteemed readers,

It is with great pride and joy that I present this issue of the ECE department newsletter — a vibrant showcase of the academic and co-curricular milestones achieved during the period from July to December 2023.

In an era where electronics and communication technologies are driving global transformation, our department remains steadfast in its mission to nurture innovation, critical thinking, and technical excellence. With the rapid advancements in areas such as VLSI design, embedded systems, machine learning applications, and 5G communication, it becomes essential for us to prepare our students for a future that demands adaptability and interdisciplinary expertise.

A Semester of Progress and Impact

The past semester has been rich with accomplishments. From successful student projects, hackathon wins, and technical symposiums to impactful faculty research and development programs, the collective efforts of our department have been commendable. These initiatives not only enhance academic learning but also cultivate a culture of collaboration, problem-solving, and continuous improvement.

Looking ahead, we aim to further strengthen our ties with industry, promote cutting-edge research, and enhance student engagement through practical exposure and innovation-driven learning environments.

I extend my sincere appreciation to all contributors of this newsletter and encourage every member of our ECE family to keep pushing boundaries and setting new benchmarks.

With warm regards,
Dr. V. Balamurugan
Head of the Department
Electronics and Communication Engineering



Institution Vision & Mission



Vision

Grow as a center of learning and research, transforming students to professionals with knowledge, skill, competence, commitment, confidence and ethics to serve the society.



Mission

Mission 1

To impart value-based education and promote curricular, co-curricular and extracurricular activities amongst students through extensive theoretical and practical training by qualified and experienced personnel using state-of the-art facilities.

Mission 2

To promote research and consultancy for institution development and contribution to the society.

About ECE Department

The Department of Electronics and Communication Engineering (ECE) at Ahalia School of Engineering and Technology stands as a vibrant hub of learning, research, and innovation. With a strong emphasis on academic rigor and industry relevance, the department is dedicated to shaping students into capable, ethical, and future-ready engineers who can contribute meaningfully to the evolving technological landscape.

Our comprehensive curriculum encompasses key domains such as analog and digital electronics, communication theory, signal processing, embedded systems, VLSI design, Internet of Things (IoT), and artificial intelligence applications. The academic framework is reinforced with hands-on training in well-equipped laboratories, project-based learning, and access to industry-grade simulation tools — enabling students to translate theoretical knowledge into real-world applications.

The department is enriched by a team of accomplished faculty members with expertise across diverse specializations. Their guidance fosters an environment where students are motivated to engage in research, innovation, and continuous skill development. Regular participation in workshops, technical fests, paper presentations, hackathons, and industry interactions strengthens the academic ecosystem and promotes holistic growth.

From July to December 2023, the department has seen active involvement in various academic and co-curricular events, including expert lectures, industrial visits, skill enhancement programs, and technical exhibitions. These initiatives reflect our commitment to providing a dynamic and experiential learning environment.

Our alumni have made their mark across premier industries, research institutions, and higher education globally — contributing to fields like wireless communication, semiconductor design, automation, AI, and more. The ECE department remains steadfast in its pursuit of excellence, collaboration, and impactful engineering education.

Department Vision & Mission

Vision

The Department of Electronics and Communication Engineering aims to achieve excellence in academics and research and develop globally competent professionals with social commitment.

Mission

- **Mission 1**

To empower the students with the right attitude, knowledge and leadership skills through value based education using modern technologies and innovative teaching pedagogies.

- **Mission 2**

To develop students' personality through participation in extra and co-curricular activities.

Program Educational Objectives (PEOs)

1. Apply the concepts of Electronics and Communication Engineering to provide solutions to the emerging problems in the society.
2. To solve problems of social relevance applying the knowledge of ECE and pursue higher education.
3. Work effectively as individuals and as team members in multidisciplinary projects.
4. Engage in lifelong learning, career enhancement and adapt to changing professional and societal needs.

Program Specific Outcomes (PSOs)

PSO1: Develop electronics-based solutions for real-life challenges integrating entrepreneurship and sustainability.

PSO2: Uphold ethics and values in designing sustainable technologies while embracing lifelong learning for professional growth.

Program Outcomes (POs)

PO 1.Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2. Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3.Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4. Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5. Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6. The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Program Outcomes (POs)

PO 7. Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8.Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9. Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11. Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12. Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Department of ECE

Faculty Members

The ECE Department is proud of its dedicated and experienced faculty, whose guidance and subject expertise are instrumental in shaping the academic and professional growth of our students.



Dr. Krishna Kumar Kishor
Vice Principal



Dr. Balamurugan V
HoD



Dr. Aneesh K
Assistant Professor



Divya Mohan
Assistant Professor



Vijitha Khan
Assistant Professor



Swetha C
Assistant Professor



Asha Aravind
Assistant Professor



Gayathri P S
Assistant Professor



Abhijith V
Assistant Professor



Sathyan P
*Senior Lab
Instructor*



Sindhu V. R
*Senior Lab
Instructor*

Congratulations to 2022-26 S1 Academic Topper

The Department of Electronics and Communication Engineering proudly congratulates Pooja P Menon of the 2022–2026 batch for securing the highest SGPA of 9.53 in Semester 1.

Her outstanding academic performance reflects her dedication, consistency, and commitment to excellence.



We applaud her achievement and wish her continued success in all future endeavors.

Keep shining, Pooja!

Placement Training Orientation Program

07th August 2023

The Centre for Career Development, Ahalia School of Engineering and Technology, organized a Placement Training Orientation Program for the B.Tech pre-final year students. The session was led by Mr. Abhijit V., Training and Placement Officer and Assistant Professor, Department of ECE.

The program aimed to create awareness about the campus placement process and emphasized the importance of structured training in achieving students' career aspirations. The session covered key aspects such as resume building, aptitude preparation, interview handling, and understanding recruiter expectations.

What made the session especially impactful was its interactive nature, allowing students to voice their queries and gain clarity on various placement-related topics. Notably, students from the ECE department showed enthusiastic participation, reflecting their keen interest in preparing early for placement opportunities. Their involvement highlighted a proactive mindset and a strong commitment to career readiness—qualities that are essential for success in today's competitive job market.

The session concluded with a strong message: with the right preparation and mindset, students can confidently step into the professional world and shape their own success stories.



Graduation Day 2023

15th August 2023

The Ahalia School of Engineering and Technology celebrated its Graduation Day with grandeur on Tuesday, 15th August 2023, at the Ahalia Auditorium. The occasion marked a significant milestone for the graduating class of 2023, as 150 students from various engineering disciplines — including Electronics and Communication Engineering — were awarded their graduation certificates.

The celebration commenced with an academic procession led by distinguished dignitaries: Prof. A. Seshadri Sekhar, Director of IIT Palakkad; Dr. P.R. Sreemahadevan Pillai, Principal of ASET; Dr. Krishna Kumar Kishor, Vice-Principal; Heads of Departments; and the graduands. The event began with a soulful invocation and the traditional lighting of the lamp, followed by a warm welcome address delivered by Ms. Kripa K.

Dr. P.R. Sreemahadevan Pillai presided over the function and, in his presidential address, extended heartfelt congratulations to all graduates, commending their hard work and perseverance. The Guest of Honor, Prof. A. Seshadri Sekhar, formally declared the graduation day open. In his inspiring inaugural address, he urged the young engineers to apply their acquired knowledge responsibly and contribute meaningfully to society.

Felicitations were offered by Vice-Principal Dr. Krishna Kumar Kishor. The heads of various departments then announced the names of the graduates, who received their certificates from the Guest of Honor amid much applause and pride.

The event concluded with a vote of thanks by Dr. V. Balamurugan, Head of the Department of Electronics and Communication Engineering, acknowledging the efforts of the organizing team and all staff members. The ceremony ended with the rendition of the national anthem, leaving behind memories of achievement, joy, and a sense of new beginnings.



Arduino Training Program at KV Olavakode

19th August 2023

Fostering Technical Skills Beyond Campus

An Arduino training program was successfully conducted on 19th August 2023 at Kendriya Vidyalaya, Olavakode, by the staff and students of Ahalia School of Engineering and Technology as part of the department's technical outreach initiative.

The session aimed to introduce school students to the fundamentals of electronics and programming using the Arduino platform — a widely used open-source electronics prototyping tool. Hands-on activities and live demonstrations enabled the participants to understand basic circuit connections, sensor integration, and simple automation concepts.

The training was well-received by the students of KV Olavakode, who showed keen interest and enthusiasm in learning about embedded systems and real-time applications. The event also served as a platform for ASET students to develop leadership and teaching skills while promoting STEM education among school students.

Such outreach programs reflect the ECE Department's commitment to community engagement, knowledge dissemination, and nurturing a passion for technology among young learners.



IV to RF Chamber at IIT Palakkad

22nd August 2023

Exploring the Frontiers of RF and Antenna Testing

The IEEE Student Branch of Ahalia School of Engineering and Technology, in association with the Department of Electronics and Communication Engineering, organized an industrial visit to the RF Anechoic Chamber at IIT Palakkad on 22nd August 2023.

The visit provided a valuable opportunity for students to gain hands-on exposure to advanced RF and antenna testing environments. The RF chamber, designed to eliminate electromagnetic interference, plays a critical role in the precise measurement and analysis of antenna patterns, signal strength, and RF device performance. Students were introduced to real-time testing setups and learned about measurement techniques essential for the development of wireless communication systems.

Guided by experts and research scholars at IIT Palakkad, the session offered insights into current research trends, electromagnetic compatibility (EMC) practices, and the importance of high-frequency design in modern electronics. The interaction was both educational and inspiring, bridging theoretical concepts with their practical applications in a cutting-edge research setting.

Such visits enhance industry-academia linkage and encourage students to pursue deeper interests in RF systems, antenna design, and communication technologies.



Congratulations to the 2019–2023 Batch S8 Academic Topper

The Department of Electronics and Communication Engineering proudly congratulates Ms. Neha of the 2019–2023 batch for securing the highest CGPA of 8.56 in the eighth semester. Her consistent academic excellence and dedication have brought pride to the department.



We extend our heartfelt wishes for her continued success in all future endeavors !!

2019–2023 Batch Academic Topper



CONGRATS

The Department of Electronics and Communication Engineering extends hearty congratulations to Ms. Arya R Krishna of the 2019–2023 batch for emerging as the overall academic topper with an outstanding CGPA of 9.19. Her remarkable performance reflects her hard work, discipline, and commitment to excellence.

We wish her all the very best in her future academic and professional pursuits.

Onam Celebration 2023' at ASET

5th September 2023

Onam, the most cherished and culturally significant festival of Kerala, was celebrated with great enthusiasm and unity at Ahalia School of Engineering and Technology. The vibrant event, organized by the students, brought together the entire ASET family — students, teaching, and non-teaching staff — in the spirit of togetherness and tradition.

The festivities began with the creation of a beautiful pookkalam (floral carpet), symbolizing a warm welcome to the legendary King Mahabali. A range of traditional games and competitions such as vadamvali (tug of war), lemon and spoon race, and other fun-filled activities added energy and excitement to the celebration.

The event truly reflected the cultural richness of Kerala and fostered a sense of community and joy across the campus.





Workshop on Career Opportunities in AI and ML

7th September 2023

The Center for Career Development at Ahalia School of Engineering and Technology organized an insightful workshop on “Career Opportunities in Artificial Intelligence and Machine Learning” on 7th August 2023. The session was aimed at guiding students towards emerging trends and professional pathways in the rapidly evolving fields of AI and ML.

The workshop witnessed active participation from final and pre-final year B.Tech. students across all branches. It provided valuable information about industry demands, skill requirements, career roles, and further learning opportunities in AI and ML, equipping students with the knowledge to make informed career choices.



Two Days Workshop on “Python for Beginners”

29th and 30th September 2023

The Department of Electronics and Communication Engineering, Ahalia School of Engineering and Technology, organized a Two-Day Workshop on “Python for Beginners” on 29th and 30th September 2023. The sessions were effectively handled by Prof. Abhijit V., with a focus on introducing Python programming to pre-final year students (2021-25 Batch).

Recognizing that many ECE students face challenges in grasping core programming concepts, the workshop was designed to build a strong foundation in coding. Through hands-on sessions, students learned basic programming logic, syntax, and application of Python in solving real-world problems.

The initiative aimed to enhance students’ confidence in programming, thereby improving their technical skill set for better placement opportunities. The workshop concluded with a positive feedback session, where students expressed keen interest in having more such sessions on programming and related technologies.

The department appreciates the enthusiastic participation of the students and acknowledges the efforts of the organizing team. Events like these play a vital role in bridging the gap between academic learning and industry expectations, preparing students for future technological challenges.



Finalists in SWADARSH '23

Team Neutralizers from Ahalia School of Engineering and Technology (ASET) made the institution proud by being shortlisted as finalists in SWADARSH '23 – Innovate, Design and Build the Future of Robotics, a prestigious national-level competition organized by C-DAC, Government of India.

The team, comprising S5 ECE students — Mr. Amith Mathew Titus, Ms. Dakshayani, Ms. Megha P., Ms. Sreelakshmi M., and Mr. Vignesh V. — showcased an innovative prototype of an automated debris cleaner for water bodies. The project was guided by Prof. Aneesh, Assistant Professor, Department of Electronics and Communication Engineering.

Out of 146 participating colleges, only 8 teams were shortlisted for the grand finale. The finalists had the unique opportunity to interact with eminent personalities such as Shri. Barker Bhaskaran, Former Head of iPod Video, Apple Inc., USA and Founder & CEO, Savtoa Software Technologies; Shri. Alok Mukherjee, Former Head of Robotics, DRDO; senior scientists, and C-DAC officials.

In addition to the competition, students attended enriching sessions on Unmanned Systems for Defence Applications and cutting-edge robotics technologies, gaining valuable insights into the future of robotics and automation.



Alumna Joins Ahalia Group, Abu Dhabi

The Department of Electronics and Communication Engineering is proud to share that Ms. Anjana R, a distinguished alumna of the 2019–2023 batch, has joined the Ahalia Group, Abu Dhabi.

We extend our heartfelt congratulations and wish her continued success in all future endeavors.



CONGRATULATIONS

Arduino Training Program at Kendriya Vidyalaya, Kanjikode

04th November 2023

An Arduino training program was successfully conducted at Kendriya Vidyalaya, Kanjikode on 4th November 2023 by the staff and students of Ahalia School of Engineering and Technology. The session aimed to introduce the basics of Arduino and hands-on electronics to school students, sparking their interest in embedded systems and programming.

The training was led by Prof. Abhijit V., Assistant Professor, Department of ECE, and Mr. Sathyan P., Senior Instructor, Department of ECE, along with enthusiastic contributions from ECE students — Mr. Aswath P., Mr. Mohammed Afran, Ms. Sreelakshmi R., and Mr. Vignesh V.

The program was coordinated by Smt. Bindu Valoor, Manager – Academics Outreach, and Mr. Mujib Rehman, Librarian, Kendriya Vidyalaya, Kanjikode. The initiative served as a valuable knowledge-sharing platform and strengthened the academic collaboration between institutions.

The interactive sessions and live demonstrations received positive feedback from the school students and faculty, who expressed interest in more such programs in the future. The training not only enhanced technical awareness among school students but also helped ASET students gain practical experience in teaching and communication.



കഞ്ചിക്കോട് കേന്ദ്രീയ വിദ്യാലയത്തിൽ ആർഡിനോ പരിശീലനം



കഞ്ചിക്കോട് കേന്ദ്രീയ വിദ്യാലയത്തിൽ അഹല്യ എൻജിനീയറിങ് കോളേജിലെ ഇലക്ട്രോണിക് വിഭാഗം, ഐ.ഇ.ഇ. സ്പുഡന്റ് ബ്രാഞ്ച്, ഇൻസ്പിറേഷൻ ഇന്നോവേഷൻ കൗൺസിൽ എന്നിവയുടെ നേതൃത്വത്തിൽ വിദ്യാർത്ഥികൾക്കായി നടത്തിയ ആർഡിനോ പരിശീലനം

പാലക്കാട് ഇലക്ട്രോണിക്സ് രംഗത്തും ഉത്പാദന രംഗത്തും വിദ്യാർത്ഥികൾക്ക് അവബോധം സൃഷ്ടിക്കുകയെന്ന ലക്ഷ്യത്തോടെ കഞ്ചിക്കോട് കേന്ദ്രീയ വിദ്യാലയത്തിൽ ആർഡിനോ പരിശീലനം സംഘടിപ്പിച്ചു.

അഹല്യ എൻജിനീയറിങ് കോളേജിലെ ഇലക്ട്രോണിക്സ് വിഭാഗവും ഇൻസ്പിറേഷൻ ഓഫ് ഇലക്ട്രിക്സ് ആൻഡ് ഇലക്ട്രോണിക്സ് എൻജിനീയേഴ്സ് സ്പുഡന്റ് ബ്രാഞ്ചും ഇൻസ്പിറേഷൻ ഇന്നോവേഷൻ കൗൺസിലും ചേർന്നാണ് പരിശീലനം സംഘടിപ്പിച്ചത്.

ഇലക്ട്രോണിക് ഉപകരണങ്ങളുടെ പ്രവർത്തനത്തെ കുറച്ചു കോഡിങ്ങിലൂടെ നിയന്ത്രിക്കുന്ന സംവിധാനമാണ് ആർഡിനോ. കഞ്ചിക്കോട് കേന്ദ്രീയ വിദ്യാലയത്തിലെ പ്രധാനാധ്യാപകനായ എസ്. ഹരിലാൽ, അധ്യാപകനായ മുഷീബ് റഹ്മാൻ, അഹല്യ എൻജിനീയറിങ് കോളേജിലെ അധ്യാപകനായ വി. അഭിജിത്, പി. സത്യൻ ബിന്ദു വള്ളൂർ, വിദ്യാർത്ഥികളായ വി. വിഷ്ണുനാഥ്, ആർ. ശ്രീലക്ഷ്മി, മുഹമ്മദ് അഹ്മാദ്, വി. അശ്വതി എന്നിവർ പരിശീലനത്തിന് നേതൃത്വം നൽകി.



2023 Chess Championship

The Department of Physical Education, Ahalia School of Engineering and Technology, conducted the 2023 Chess Championship with enthusiastic participation from students across various departments.

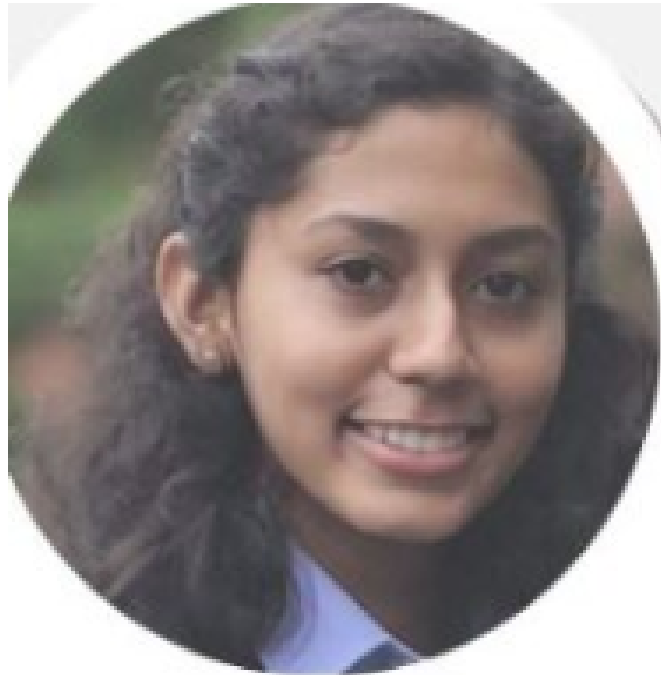
We are proud to announce that Ms. Ashrin A., from S3 ECE, emerged as the winner in the Girls category, showcasing exceptional strategic thinking and focus.

Congratulations to Ashrin for her commendable performance and bringing laurels to the Department of Electronics and Communication Engineering.



Congratulations to the 2022–2026 Batch S2 Academic Topper

The Department of Electronics and Communication Engineering is delighted to congratulate Ms. Pooja P Menon of the 2022–2026 batch for securing the highest SGPA of 9.72 in Semester 2.



POOJA P MENON

**S2 CSE
SGPA 9.72**

Her outstanding academic performance reflects her dedication, hard work, and commitment to excellence. We wish her continued success in the semesters ahead and in all her future endeavors.

Biomedical Signal Processing Bridging Electronics & Healthcare



Vijitha Khan

Biomedical Signal Processing (BSP) is an interdisciplinary field that applies advanced signal processing techniques to analyze physiological signals such as ECG (electrocardiogram), EEG (electroencephalogram), EMG (electromyogram), and PPG (photoplethysmogram). These signals are typically non-stationary, low in amplitude, and often affected by noise and artifacts, necessitating robust preprocessing methods like filtering, normalization, and artifact removal. BSP plays a critical role in various healthcare applications, including remote monitoring through wearable devices, early diagnosis of cardiac and neurological conditions, and assistive technologies like brain-computer interfaces. Feature extraction using time-domain, frequency-domain, and time-frequency methods (such as FFT and wavelet transform) helps in identifying clinically significant patterns.

The integration of machine learning and deep learning models—such as support vector machines, convolutional neural networks (CNNs), and recurrent neural networks (RNNs)—has enhanced the accuracy of automated diagnosis systems. Moreover, BSP supports data compression and real-time transmission in portable health monitoring systems, making it ideal for telemedicine and IoT-based healthcare. Despite challenges like inter-patient variability and noise resilience, ongoing research continues to improve the performance and efficiency of BSP systems. As a vital domain in modern ECE, biomedical signal processing offers students and researchers a unique opportunity to bridge electronics with life-saving healthcare innovations.

Radar Signal Processing in Autonomous Vehicles



Dr. Balamurugan V

Radar Signal Processing in Autonomous Vehicles plays a crucial role in enabling advanced driver-assistance systems (ADAS) and full vehicle autonomy by providing robust, real-time detection and tracking of objects under various environmental conditions. Unlike cameras and LiDAR, radar sensors function reliably in low visibility scenarios such as fog, rain, or darkness, making them indispensable for safety-critical applications. Modern automotive radar systems operate typically in the 76–81 GHz frequency band, offering high-resolution range, velocity, and angle measurements. Radar signal processing involves several key steps, including waveform generation (often FMCW – Frequency Modulated Continuous Wave), target detection using techniques like Fast Fourier Transform (FFT), and angle estimation through beamforming or Multiple Input Multiple Output (MIMO) radar. Advanced signal processing algorithms further enable object classification, Doppler velocity estimation, and clutter suppression, which are essential for distinguishing between moving vehicles, pedestrians, and static obstacles. The integration of machine learning models with radar data has enhanced the capability of scene understanding and predictive behavior modeling in dynamic environments. Moreover, sensor fusion—combining radar data with information from LiDAR, cameras, and ultrasonic sensors—yields a more accurate and comprehensive perception of the surroundings, crucial for autonomous decision-making. Ongoing research focuses on improving radar resolution, reducing mutual interference between vehicles, and developing cost-effective radar-on-chip (RoC) solutions for large-scale deployment. With its high reliability and affordability, radar signal processing remains a foundational pillar in the evolution of intelligent transportation systems and autonomous vehicle technology.

THANK YOU FOR READING TECH-TIDE

A PUBLICATION BY THE DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

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