



ROHINI

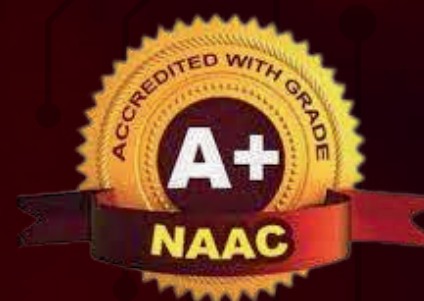
COLLEGE OF ENGINEERING AND TECHNOLOGY

Autonomous Institution

Approved by AICTE & Affiliated to Anna University

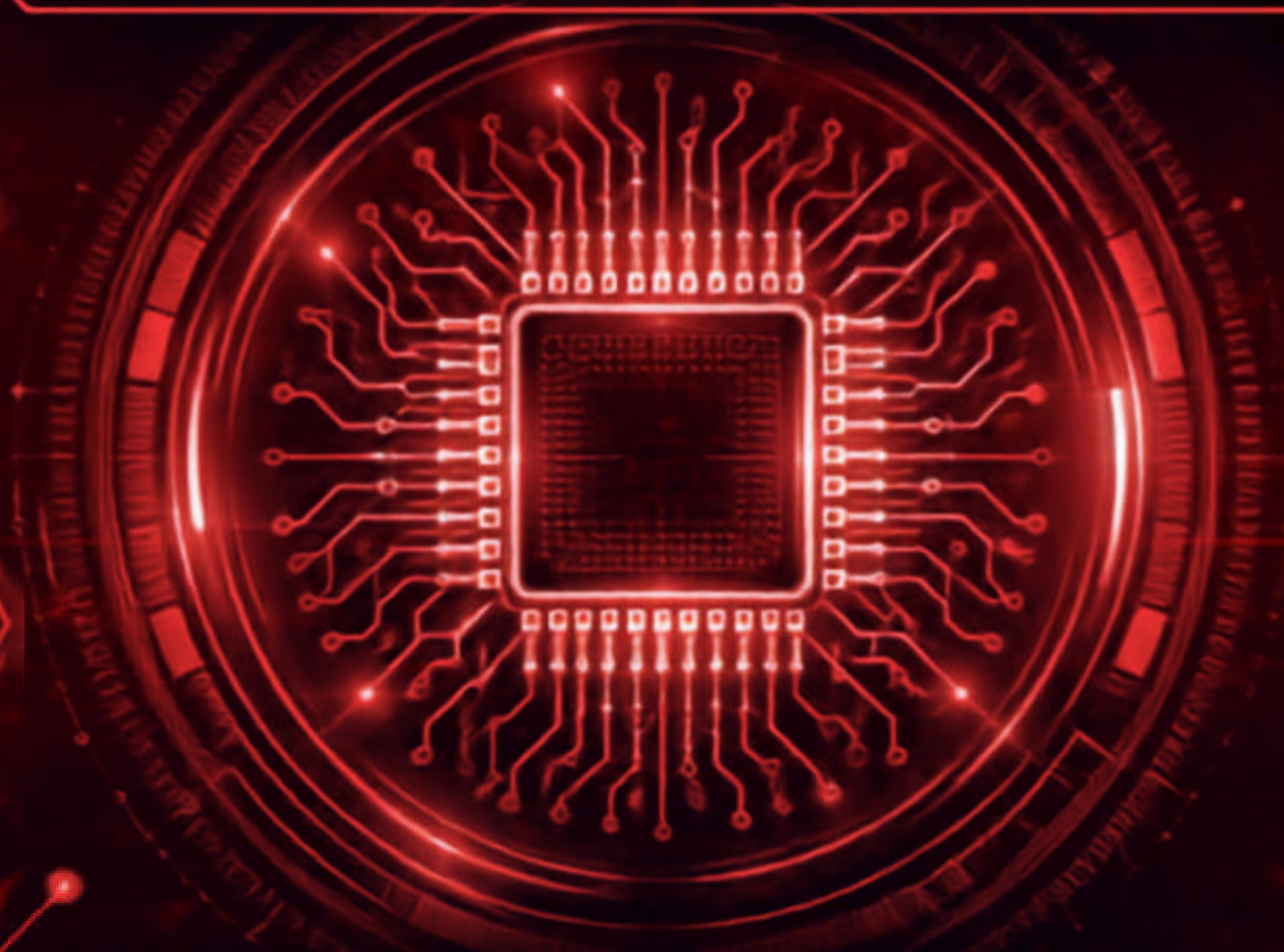
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RONIX 2K26

ANNUAL MAGAZINE 2026 - 2027



DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING

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III Year ECE

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FROM THE DESK OF THE CHAIRMAN, RCET

Learning gives creativity, creativity leads to thinking, thinking provides knowledge, knowledge makes you great” - Dr.A.P.J.Abdul Kalam.

These words by - Dr.A.P.J.Abdul Kalam perfectly describe our aim at Rohini College of Engineering and Technology.

Our aim is to teach students to LEARN, not just STUDY. Hence, we strive to travel beyond the boundaries of mere books.

I can proudly say that Rohini College of Engineering and Technology is the most modern and sophisticated multidisciplinary institution, imparting quality education and providing a wide and varied arena for the staff and students to showcase their academic and extracurricular talents.

RCET has made a tremendous progress in all areas crossing several milestones within a very short span of time. I feel happy to know that the students and faculty of ECE department of RCET bringing out the technical magazine RONIX 2k26.

The role of a department magazine is therefore vital in promoting what an institution offers. It brings out into the open things hitherto unrevealed. It brings to light the names of the unsung heroes and their mighty deeds.

I am proud to say that once our students step in RCET, they step out with self- confidence and knowledge to face all future endeavors with full conviction. Fly in the plane of Ambition, Land in the Airport of Success, the luck is yours the wish is mine. May your future always shine. Good Luck.



Cordially,

**Shri.K.NEELA MARTHANDAN
Chairman Rohini Groups**

**FROM THE DESK OF THE
PRO CHAIRMAN, RCET**

Dear All,

My heartfelt congratulations to the Head of the Department of ECE department at RCET and her team of students and professors for their continued dedication, commitment, hard work and collective creative energies, who have labored hard to bring out the magazine for the academic year 2026-27.



As the Pro chairman of the institution, my heart swells with pride to see the ECE department blossoming and spreading its fragrance of excellence and unfold its petals of quality education. With each progressing year, the ECE department of RCET has strengthened its prime objective and commitment to provide quality education with an elemental emphasis on character formation. The teaching faculty of ECE department comprising a group of qualified, talented and dedicated members consistently emphasize upon enforcing discipline among students with quality classroom teaching and wholesome education. This magazine serves as a channel to express thoughts, imagination and creativity into words. This edition of the magazine encapsulates the arrested moments of yet another eventful year in its flow. The RONIX 2026 annual magazine faithfully mirrors multifarious activities and the harmonious growth of the ECE department of RCET and also proves to be an outlet for the talent of the engineers of tomorrow.

Cordially,

**Dr. N. Neela Vishnu, MBA, D.Litt
Pro-Chairman Rohini Groups**

**FROM THE DESK OF
MANAGING DIRECTOR, RCET**

Dear All,

**“If you are not willing to learn
No one can help you
If you are determined to learn
No one can stop you”**

-Zig Ziglar



I am glad to know that the ECE department of RCET is bringing out the annual issue RONIX magazine. The magazine beautifully records the splendid moments of the 2026-2027 academic year. It is a reflection of the enthusiasm, passion, intensity and dedication of teachers for the profession they have chosen. The report reflects that the year 2026-2027 has been yet another vibrant and progressive year for the ECE department of RCET. It serves as a platform to display the creative thoughts and talents of the students. Initiatives like this provide opportunity to the students and encourages their talents. The department not only strives to transform students into professional graduates but also sensible and responsible young active citizens. I hope that they continue to create delightful academic excellence and a bounty of opportunities to make budding engineers, competent enough to face the future.

I would like to extend my warm greetings to the HOD, staff and the students of the ECE department and send my best wishes for their future endeavors

**Cordially,
Dr.V.M.Blessy Geo, M.Sc,Ph.D
Managing Director of RCET**

PRINCIPAL'S MESSAGE



Dear All,

It gives me an immense pleasure to note that Department of Electronics and Communication Engineering of ROHINI College of Engineering and Technology is bringing out the Magazine 'RONIX2k26'

Dear All, it gives me great pleasure, as a Principal of this college, to say a few words about Rohini College of Engineering and Technology. Any Institution, if it aims at reaching greater heights, needs to have clearly spelt Vision and Mission. Our college has set its Mission as to impart Quality Education to all the people, thereby developing the nation as a whole. UGC has conferred the Autonomous Status to the college starting from the academic year 2026-2027 for a period of 13 years.

Our long term vision being to achieve greater heights in the field of education by providing an opportunity to each and every individual to choose the right path, realize the value of education and achieve their goals by adding values through quality education. We give more emphasis to the overall molding of every student through quality education and In-plant training, right from the initial stage of education. The pleasing and peaceful environment in which the college is located, favors the students in focusing more on their studies. Well-equipped laboratories and work shop with most modern and sophisticated instruments/machineries are provided to impart state-of-the-art education to the students. Ample opportunities are being provided to the students in Personality Development and other extracurricular activities.

PRINCIPAL'S MESSAGE

The placement cell has a vital role in placing the students in the reputed companies. With all these facilities in place and with the right attitude of the Management, The students who continue education in this esteemed Institution would be greatly benefited in future. Each issue of this News letter is a milestone that marks our growth, unfolds our imaginations, and gives life to our thoughts and aspirations. My heartfelt Congratulations to staff members and Students for their fruitful effort. Best Wishes.

**Best Wishes,
Dr. R. RAJESH, M.E., Ph.D.
Principal, Rohini College of Engineering
And Technology Palkulam,
Kanyakumari**

HOD'S MESSAGE



It is with immense pride and pleasure that We announce that the Department of Electronics and Communication Engineering is preparing to release the “RONIX 2k26 “Magazine, a remarkable testament to the talent, creativity, and dedication of our faculty and students. This magazine serves as a reflection of our continuous commitment to excellence in both academics and extracurricular activities. As we step into an era of rapid technological advancements, it is our responsibility to ensure that our students not only excel in their technical abilities but also grow as well-rounded individuals, ready to take on the challenges of the world. The "RONIX 2k26" Magazine encapsulates this very ethos, highlighting the collective achievements, innovative ideas, and collaborative spirit that define our department. I commend the Editorial Board, the authors, our talented faculty, and the students who have contributed their time and effort to make this publication a reality. Your hard work is truly appreciated, and I look forward to seeing this magazine become an annual tradition that continues to inspire and showcase the brilliance of our department. Let this magazine not only serve as a chronicle of the year gone by but also as a source of inspiration for all of us to continue striving for excellence, innovation, and meaningful contributions to society. On behalf of the Department and myself, I would like to express my sincere congratulations to the Magazine Committee for their relentless dedication. I wish you all the best in the successful publication of the “RONIX “ 2026

Dr.Reji.M
Professor & Head
ECE Department

FACULTY ADVISOR



Dear All,

It gives us great pleasure to bring you the first issue of “ElectroVision”, the ECE department Newsletter of Rohini College of Engineering and Technology, Kanyakumari. The name and fame of an institute depends on the caliber and achievements of the students and teachers. The role of teacher is to be a facilitator in nurturing the skills and talents of students. This Newsletter is a platform to exhibit the literary skills and innovative ideas of teachers and students “ELECTROVISION” presents the skills and innovative thinking of students and contributions of teachers. We would like to place on record our gratitude and heartfelt thanks to all those who have contributed to make this effort a success. We profusely thank the management for giving support and encouragement and a free hand in this endeavor. Last but not the least we are thankful to all the authors who have sent their articles. We truly hope that the pages that follow will make an interesting read. With Best Wishes!

**Mrs.S.K.Gayathri,
Assistant Professor,
ECE Department.**

FROM THE DESK OF EDITOR



Dear Readers,

It gives me immense pleasure and pride, on behalf of the Department of Electronics and Communication Engineering, Rohini College of Engineering and Technology, to present the latest edition of our department technical magazine, RONIX 2K26.

RONIX is more than a collection of articles; it is a reflection of the knowledge, creativity, innovation, and aspirations of our faculty members and budding engineers. This edition brings together the intellectual curiosity and diverse talents of our students and faculty, providing a platform to share ideas, explore emerging technologies, and celebrate academic and co-curricular accomplishments.

Through this magazine, we are delighted to present insightful technical articles, innovative ideas, creative contributions, and noteworthy achievements that reflect the dynamic learning environment of our department. I hope the contents of this edition will inspire our readers to think beyond boundaries, embrace innovation, pursue excellence, and transform ideas into meaningful contributions to society.

I extend my sincere gratitude to our Esteemed Management, Respected Principal, faculty members, and students for their constant encouragement, support, and valuable contributions towards bringing this edition to fruition. I also express my heartfelt appreciation to all the authors and contributors whose knowledge and enthusiasm have enriched the pages of RONIX 2K26.

Finally, I congratulate the editorial team and student coordinators for their commitment, creativity, teamwork, and dedicated efforts in shaping this edition. May RONIX 2K26 continue to inspire young minds, foster a culture of innovation, and serve as a vibrant platform for knowledge sharing and professional growth.

Happy Reading!

**With thanks and best regards,
Dr.SUMI M S,
Associate Professor/ECE,**

General sceretry's message

A Message to My Fellow ECE Friends,

**“தெய்வத்தான் ஆகா தெனினும் முயற்சிதன்
மெய்வருத்தக் கூலி தரும்.”**

“Even if something cannot be achieved by divine help, sincere effort will surely reward the one who strives.”

Dear ECE Family,

As we turn the pages of our department magazine, let us also turn the pages of our own journey—with courage, determination, and hope. The above Thirukkural beautifully reminds us that success is not simply a matter of luck or circumstances; it is the reward of consistent effort, patience, and perseverance.

As Electronics and Communication Engineering students, we may face challenging subjects, demanding projects, technical failures, deadlines, and moments when our confidence is tested. But every failure is an opportunity to learn, and every challenge is a stepping stone towards excellence. A circuit may not work on the first attempt, a program may contain errors, and a project may fail—but our effort should never fail. Let us dream beyond limitations, learn beyond classrooms, innovate beyond expectations, and work together towards a brighter future. Our achievements will not be measured only by the marks we earn, but by the problems we solve, the knowledge we gain, and the positive impact we create.

Believe in your potential. Trust your journey. Keep striving.

Because when determination meets effort, success becomes inevitable.

With warm wishes,



**Mr.C. Pushparaj
General Secretary – ECE
Rohini College of Engineering
and Technology**

EDITORS DESK

The Creative minds of the Electronics and Communication department of Rohini college of Engineering and Technology have come together to present what they have always wanted to and we congratulate every student who has given their contribution.

They can't be appreciated enough and we can't explain how difficult it was to compile all their accomplishments into a single magazine. We take pride in showing you of how our very own Velammalians have imaginations which spread across the horizons.

We would like to thank the Management and all the staffs who have supported the 'Evolve' initiative and for having trust in the Editorial board by giving us full freedom to choose the contents and design for our magazine. The magazine should serve as a pillar of motivation for every other student who is yet to emerge as an Achiever and to carry the legacy of Evolve. The students who follow in the next academic years, we advise you to do the same. Go Mad, B.E. productive but at the same time B.E. creative! (pun intended)



C.Pushparaj
IV Year ECE



L.Gibin
IV Year ECE



C.Subin Karthick
III Year ECE

ABOUT



Rohini College of Engineering and Technology

Rohini college of Engineering and Technology (RCET), founded in the year 2012 by Shri.K.Neela Marthandan, a great Industrialist and philanthropist, stands out as a prestigious Institution of higher learning with a mission of pursuing excellence in education and research. The Institution is run by Dr.N.Neela Vishnu as the pro chairman and Dr.V.M.Blessy Geo as Managing Director.

The institution, with dynamic community of students offers 9 undergraduate programs, 8 postgraduate programs and a research program in the Department of Mechanical Engineering with accomplished faculty, high class facilities and premium hostels. RCET is located at Palkulam near Anjugram which is 5 kms from Kanyakumari and 14 kms from Nagercoil junction.

INSTITUTE VISION

- **To be a center of excellence in technical and professional education, advancing innovation and research in rural contexts, and nurturing ethically responsible, globally competent professionals who contribute meaningfully to national development.**

INSTITUTE MISSION

- **M1: To deliver industry-integrated, multidisciplinary education through state-of-the-art infrastructure and value-based learning, empowering students across all tiers of professional development.**
- **M2: To cultivate a dynamic ecosystem for advanced research and technological innovation, specifically addressing the challenges of agriculture, industry, and national security.**
- **M3: To develop socially responsible, globally competitive professionals who bridge the urban–rural divide and drive sustainable, secure national growth.**

DEPARTMENT VISION

- **To promote Ethical and Innovative Electronics and communication Engineers through excellence in teaching, training and research so as to contribute to the advancement of the rural society and mankind.**

DEPARTMENT MISSION

- To focus on quality teaching and learning that will make students to adapt to the needs of the industry and higher learning.
- To infuse a spirit of social responsibility, innovation, creativity and ethical practices through all round development activities of students.

UNIQUENESS

- An ISO Certified institution Ø Project cost of Rs.26,75,000/- sanctioned by AICTE under the Modernization and removal of Obsolescence Aspirational-(MODROB-ASP)
- Project sanctioned worth Rs.5, 00,000/- by Tamil Nadu State Council for science and Technology (TNSCST) for the proposal “Mapping of Science and Technology needs of Tamil Nadu”.
- Received fund of Rs.1.5 Lakhs for the Scheme Unnat Bharat Abhiyan under the Ministry of Human Resource and Development (MHRD).
- The outcome of the faculty research is published in major research journals and reputed international conferences in India and abroad.
- The Institute boasts of about 42 patents including 1 Australian patent, out of which 39 patents have been published and 3 granted till date.
- All the departments have set up Product Development Centre to inculcate research practices in the student community.
- The Institute facilitates the placement training activities with the help of industry experts and corporate trainers to prepare the students industry-ready, apart from providing placement training right from First year in the regular schedule for the Distinctive Syllabus framed.
- Over 90% of the eligible students are placed in reputed companies such as Cognizant Technology Solutions (CTS), Capgemini, Infosys, Tata Consultancy Services, Wipro India Limited, Ramco Systems, Nggawe Nirman Technologies etc., with a salary package ranging from 2.5 LPA to 4 LPA.

UNIQUENESS

- **RCET has signed Memorandum of Understanding(MoU) with certain leading industries and Premier Institutes to attain symbiosis and to reduce the gap between Industry expectations and Academics. The Institute has MOU with:**
 - **SWAYAM - NPTEL Local Chapter.**
 - **Nodal Centre for Virtual Lab of IIT, Kharagpur.**
 - **Siemens Centre of Excellence in Manufacturing, NIT Trichy.**
 - **IREL(India) Limited**
 - **Natural Resources Development Project - Vivekananda Kendra.**
 - **ZOHO**
 - **HCL Tech**
 - **Perfect Electronics**

Faculties Profile



Dr.M.Reji
Professor &HOD/ECE

Total Years of Experience in Teaching : 19 Years

Subject Expertise :
Wireless Communication

Awards / Achievements / Recognitions :

- IET CLN young inspiring teacher
- Guinness world record CBR-training appreciation award April 2016
- ANNA UNIVERSITY ME -9 th Rank
- 50+ journal paper published
- 4 books published
- 15 pattern filed
- 10+ conference conducted
- 4 grant pattern

Faculties Profile

PROFESSORS



**Dr. NAVEENAA
PRIYADHARSINI**
Professor/ECE

Total Years of Experience in Teaching : 14.3 Years
Research dean
NPTEL SPOC
Awards / Achievements / Recognitions :

- Excellence in Innovation and Research Award

ASSOCIATE PROFESSORS



DR. M S SUMI
Associate Professor/ECE

Total Years of Experience in Teaching : 6.5Years
Placement officer

Awards / Achievements / Recognitions :

- Received Best Paper Award at ICNIS 2019 conference held at Noorul Islam Centre for Higher Education.



Dr.R. SOWMIYA
Associate Professor/ECE

Total Years of Experience in Teaching : 13 Years

Contributions :

- Naan Mudhalvan Single Point of Contact (SPOC) during 2022-2023.
- Dance club Incharge

Faculties Profile



DR. R. BABY SHALINI
Associate Professor/ECE

Total Years of Experience in Teaching : 12.1 Years
IQAC coordinator
Assosiate Dean /IPR

Contributions :

- Guest lectures, patents, Book Publications



Dr.S.Jacily Jemila
Associate Professor/ECE

Total Years of Experience in Teaching : 18 Years

Subject Expertise :
VLSI Design,Digital Electronics,Image Processing

Awards / Achievements / Recognitions :

- Best Faculty Award.
- Research Excellence Award.
- Best Paper Award .

ASSISTANT PROFESSORS



Dr. N. SATHYA SHEELA
Assistant Professor/ECE

Total Years of Experience in Teaching : 1.4 Years
IETE Coordinator

Subject Expertise :

WIRELESS COMMUNICATION

Faculties Profile



Mrs. R. ASHLIN JINUSHIA
Assistant Professor/ECE

Total Years of Experience in Teaching : 7 Years

Subject Expertise :

Wireless Networks, C programming and Data structures



**Mrs.C.PRISCILLA PACKIA
SLACER**
Assistant Professor/ECE

Total Years of Experience in Teaching : 8Years

ICT Coordinator

Department placement coordinator

Subject Expertise :

COMMUNICATION SYSTEM,VLSI



Mrs.S.K.GAYATHRI
Assistant Professor/ECE

Total Years of Experience in Teaching : 1 Years

Subject Expertise :

SIGNALS AND SYSTEMS

Faculties Profile



Ms.R.Thazleema banu
Assistant Professor/ECE

Total Years of Experience in Teaching : 4.1 Years

Awards / Achievements / Recognitions :

- 100 % Result Achiever Award



Mr. S.SUDHAKAR
Assistant Professor/ECE

Total Years of Experience in Teaching : 8Years

Subject Expertise :

Communication Systems



Mrs.J. JENILA
Assistant Professor/ECE

Total Years of Experience in Teaching : 1 Years

Subject Expertise :

Microwave Engineering

Faculties Profile



Mr. N.M. INIYAN ARASU
Assistant Professor/ECE

Total Years of Experience in Teaching : 7.1Years

Subject Expertise :

Wireless Networks, , Antenna Design, IoT, Wireless Communication



Mr.S.SURESH
Assistant Professor/ECE

Total Years of Experience in Teaching : 12.2 Years

Awards / Achievements / Recognitions :

- **Placement Coordinator, NAAC/NBA Department Coordinator.**



Mr.R.VENKATESH
Assistant Professor/ECE

Total Years of Experience in Teaching : 19.6 Years

Subject Expertise :

Optical Communication, Wireless Networks, Digital signal Processing

Staff's Profile



Mrs.N.VIJILA
Lab Assistant

Total Years of Experience in Teaching : 4.1 Years

Awards / Achievements / Recognitions :

- 100 % Result Achiever Award



Mrs.M.TAMIL SELVI
Lab Assistant

Total Years of Experience in Teaching : 8Years

Subject Expertise :

Communication Systems



Mr.J. STALIN PONPANDI
Lab Assistant

Total Years of Experience in Teaching : 1 Years

Subject Expertise :

Microwave Engineering



Dr.M.Reji
Professor &HOD/ECE

President



Mrs.S.K.GAYATHRI
AssistantProfessor/ECE

Faculty Advisor



Mr.C.Pushparaj
IV Year ECE

General Secretary



R.K.Nishanth
III Year ECE

Joint Secretary



M.K.Karthika
IV Year ECE

Treasurer



S.V.Gohul
IV Year ECE

Executive Member



R.V.Rishikesh
IV Year ECE

Executive Member



A.Arsha lekshmi
III Year ECE

Executive Member



H.Midhula
III Year ECE

Executive Member



V.Gowsik Sarathy
II Year ECE

Executive Member



D.Shivaani
II Year ECE

Executive Member

Mentors

IV YEAR



DR. R. BABY SHALINI
Associate Professor/ECE



Mr. R. VENKATESH
Assistant Professor/ECE

III YEAR



Dr. R. SOWMIYA
Associate Professor/ECE



Mr. S. SUDHAKAR
Assistant Professor/ECE

II YEAR



Mrs. S. K. GAYATHRI
Assistant Professor/ECE



Mrs. C. PRISCILLA PACKIA SLACER
Assistant Professor/ECE

Mentors

I YEAR - A



Dr. N. SATHYA SHEELA
Assistant Professor/ECE



Dr. NAVEENA A PRIYADHARSINI
Professor/ECE

I YEAR - B



Ms. R. Thazleema banu
Assistant Professor/ECE



Mrs. R. ASHLIN JINUSHIA
Assistant Professor/ECE

Representatives

IV YEAR



Mr.C.Pushparaj
IV Year ECE



M.K.Karthika
IV Year ECE

III YEAR



R.K.Nishanth
III Year ECE



J.Emima Rose
III Year ECE

II YEAR



R.B.Britto Shah
II Year ECE



Siva Nethra S A
II Year ECE



Dr.M. REJI

Professor& HEAD

It is a proud moment to see the diverse talents and achievements of our students celebrated in this magazine. Innovation and creativity are the driving forces behind progress, and I encourage you all to nurture these qualities. Whether through academics, arts, sports, or community service, your contributions make our college a vibrant place of learning and growth.

**Dr. NAVEENA A
PRIYADHARSINI**

Professor



This magazine beautifully reflects the enthusiasm and accomplishments of our students. Every achievement is the result of commitment, perseverance, and teamwork. May you continue to set higher goals, believe in your abilities, and strive for excellence in every endeavor you undertake.



DR. M S SUMI

Associate Professor

As future engineers, you have the opportunity to shape the world through technology and innovation. This magazine is a celebration of your talents, ideas, and experiences. Keep learning, questioning, and experimenting, and let your knowledge become a force for positive change.

DR. R. SOWMIYA

Associate Professor



True learning extends far beyond the walls of a classroom. The activities and achievements presented in this magazine demonstrate the diverse talents of our students. I encourage you to participate actively, discover your strengths, and make every opportunity a meaningful part of your journey.



DR. R. BABY SHALINI

Associate Professor

Dreams become reality when supported by determination and consistent effort. This magazine captures the spirit, talent, and aspirations of our students. Believe in your dreams, remain committed to your goals, and never hesitate to take the first step towards achieving something extraordinary.

Dr. N. SATHYA SHEELA

Assistant Professor



Electronics and Communication Engineering is a field that connects ideas, technology, and people. I am delighted to see our students developing their skills while contributing creatively to various activities. May you use your technical knowledge responsibly and create innovations that benefit society.



Mr.R.VENKATESH

Assistant Professor

Every experience is an opportunity to learn, grow, and become better. This magazine showcases the confidence and enthusiasm of our students. Continue to face challenges with courage, learn from every experience, and believe that every small step contributes to a successful future.

Mrs. R. ASHLIN JINUSHIA

Assistant Professor



The achievements highlighted in this magazine remind us of the power of teamwork and collaboration. Great ideas become greater when shared and developed together. I encourage our students to support one another, communicate effectively, and work together to achieve remarkable outcomes.



**Mrs.C.PRISCILLA
PACKIA SLACER**

Assistant Professor

Curiosity is the beginning of every great discovery. The enthusiasm and innovative spirit of our students are truly inspiring. Continue to ask questions, explore possibilities, and learn beyond textbooks. Your curiosity today can become the innovation that shapes tomorrow.

Mrs.S.K.GAYATHRI

Assistant Professor



Success is not achieved overnight; it is built through patience, perseverance, and continuous effort. This magazine celebrates the journey as much as the achievements of our students. Stay determined during difficult times and remember that every challenge is an opportunity to grow stronger.



Mr. S.SUDHAKAR

Assistant Professor

It is wonderful to see the remarkable potential of our students reflected through their academic, technical, cultural, and extracurricular achievements. Each student possesses unique talents and abilities. Recognize your strengths, develop them with dedication, and use them to make a positive difference.

Mrs.J. JENILA

Assistant Professor



The field of Electronics and Communication Engineering continues to evolve with new technologies and ideas. Our students are an important part of this exciting journey. I encourage you to remain adaptable, develop practical skills, and approach every problem with creativity and an innovative mindset.



**Mr. N.M. INIYAN
ARASU**

Assistant Professor

Engineering is not only about designing technology; it is also about understanding its impact on people and society. I am proud to see our students developing both technical abilities and personal values. May you grow into responsible professionals who use technology for the greater good.



Mr. S. SURESH

Assistant Professor

Every student journey is filled with opportunities, challenges, experiences, and achievements. This magazine provides a glimpse into those memorable moments. Cherish your experiences, learn from every opportunity, and continue moving forward with confidence, passion, and a positive spirit.



Ms.R.Thazleema banu

Assistant Professor

It is truly encouraging to see the energy, creativity, and achievements of our students brought together in this magazine. You are not merely preparing for a career; you are preparing to shape the future. Dream boldly, learn continuously, and inspire others through your actions and achievements.

Dr.S.Jacily Jemila

Assistant Professor



Every student journey is a collection of moments—opportunities that inspire, challenges that strengthen, experiences that shape, and achievements that create lasting memories. This magazine captures a glimpse of those special moments. Treasure every experience, embrace every opportunity, learn from every challenge, and step ahead with confidence, passion, and a positive mindset.

Engineering Your Destiny: The Power of Persistent Effort



**தெய்வத்தான் ஆகா தெனினும் முயற்சிதன்
மெய்வருத்தக் கூலி தரும்.**

திருக்குறள் எண் 619

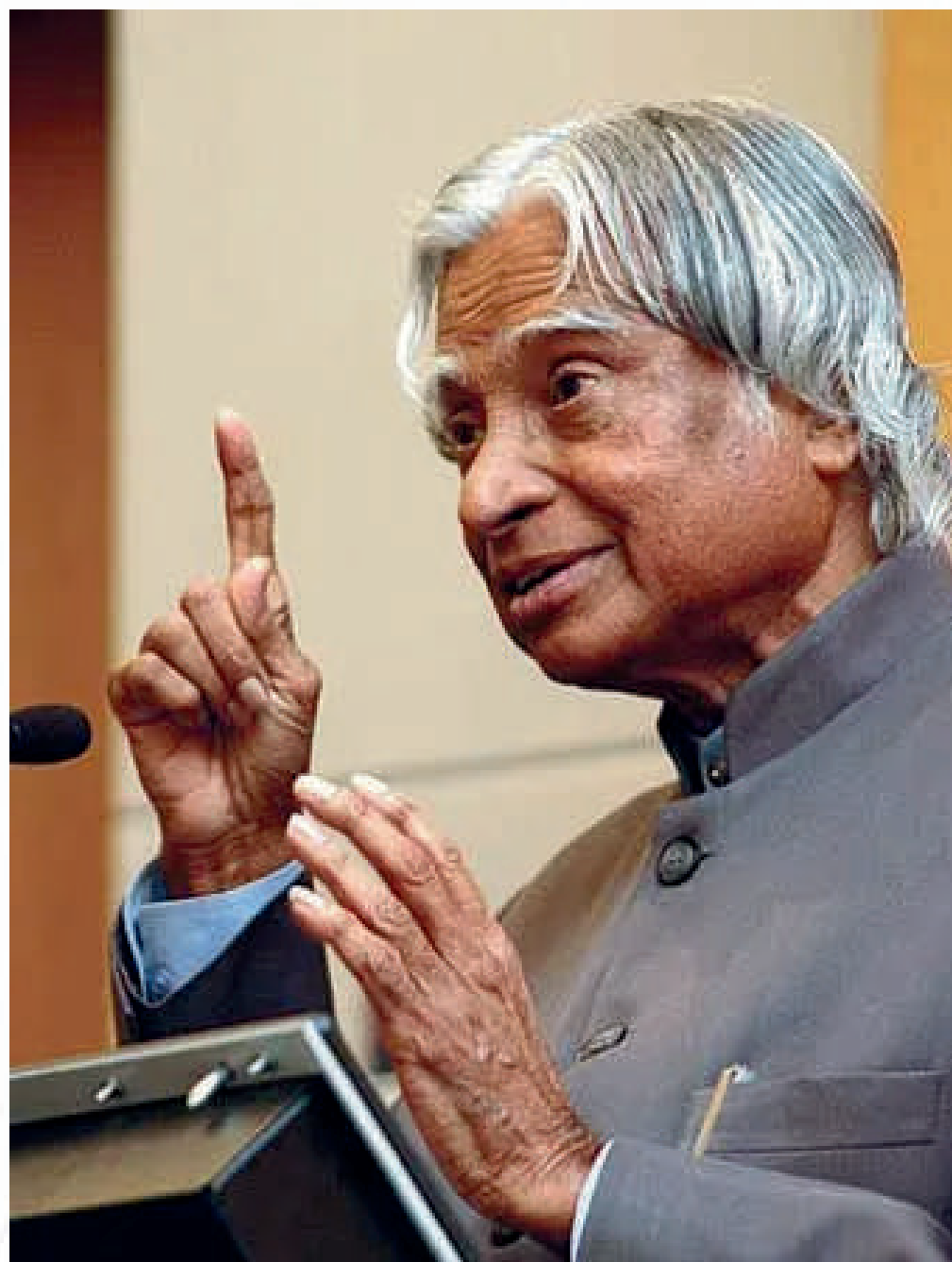
This timeless Thirukkural reminds us that while destiny may influence our lives, persistent effort is always rewarded. Even if success does not come immediately through fate, sincere hard work, determination, and perseverance never go in vain. Every achievement begins with a single step taken with confidence. Challenges, failures, and obstacles are not the end of the journey—they are opportunities to grow stronger, wiser, and more resilient. The sweat we invest today becomes the success we celebrate tomorrow.

As students and future engineers, let us embrace the spirit of continuous learning, innovation, and dedication. Instead of waiting for opportunities, let us create them through our passion and unwavering commitment. Success belongs to those who dare to dream, work relentlessly, and never give up.

"Hard work may not change destiny overnight, but it always builds the path to a brighter future."

Keep striving. Keep learning. Keep believing. Your efforts will always bear fruit.

Igniting Minds: Dr. A.P.J. Abdul Kalam's Vision for True Education



"Learning gives creativity, creativity leads to thinking, thinking provides knowledge, knowledge makes you great."

Dr. A.P.J. Abdul Kalam

Dr. A.P.J. Abdul Kalam viewed education as a holistic force meant to build moral character, ignite creativity, and shape enlightened citizens. He believed true learning extends far beyond memorization, serving instead to develop critical thinking and practical skills. In his philosophy, the core purpose of education is to cultivate human values alongside technical expertise, creating individuals who prioritize societal progress over personal gain. Dr. Kalam placed immense responsibility on teachers, viewing them as the true architects of a nation's future because they have the power to ignite young minds. Furthermore, he reframed failure as a vital educational tool, famously defining it as the "First Attempt In Learning." Ultimately, he envisioned an egalitarian education system that provides equal opportunities for all individuals to develop their unique talents, empowering the youth to innovate, solve real-world problems, and confidently drive national development.



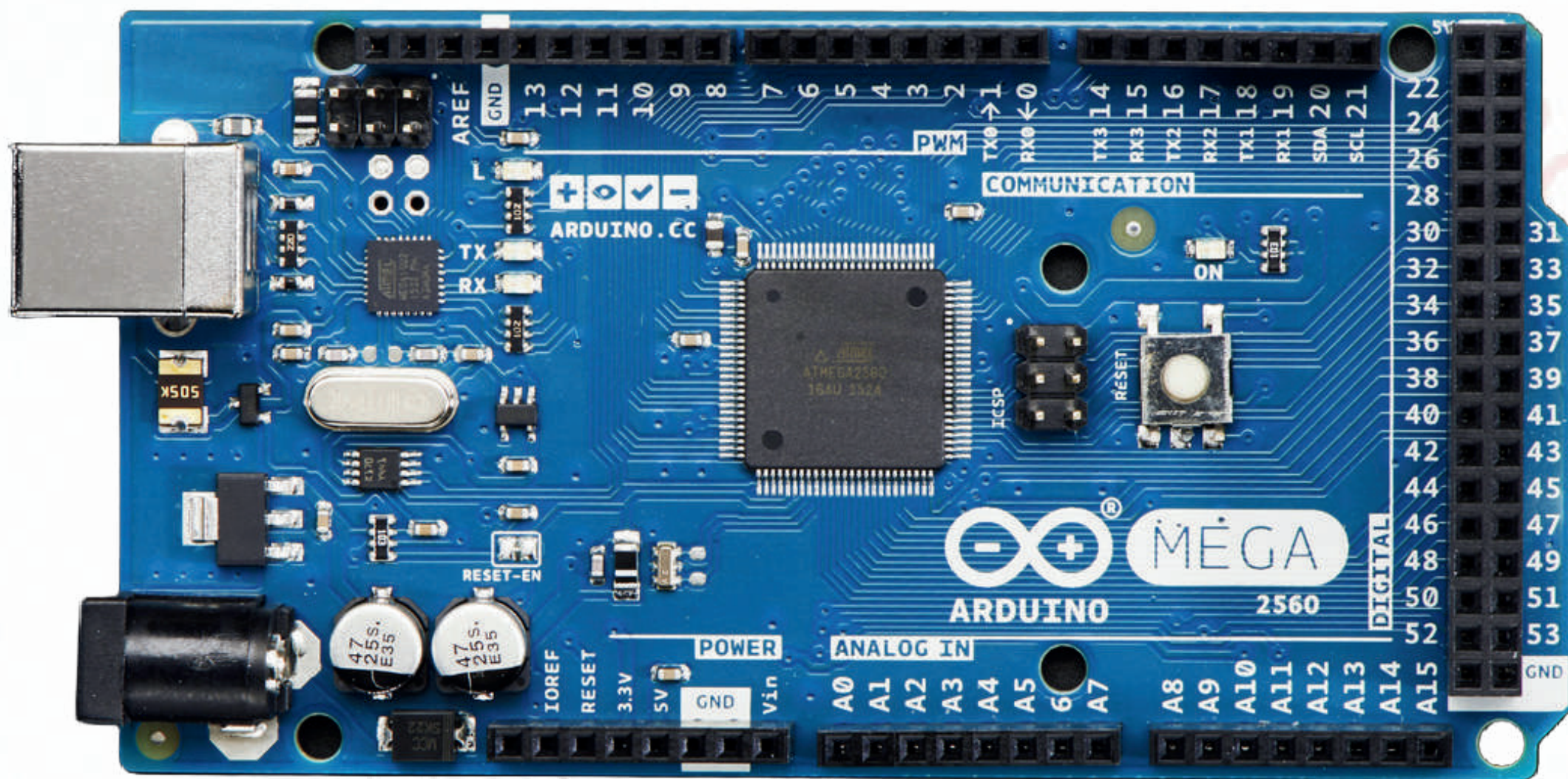
True Learning vs. Rote: True learning is continuous and requires unlearning old notions. Memorizing facts without understanding crushes a child's innate capacity to wonder.

Dr. V. Irai Anbu

Dr. Irai Anbu emphasizes that true learning extends far beyond memorizing textbook facts. Rote learning forces children to absorb information passively, which completely kills their natural curiosity, imagination, and creative thinking. When the educational system focuses strictly on high scores and intense competition, it inadvertently crushes a child's innate capacity to wonder about the universe.

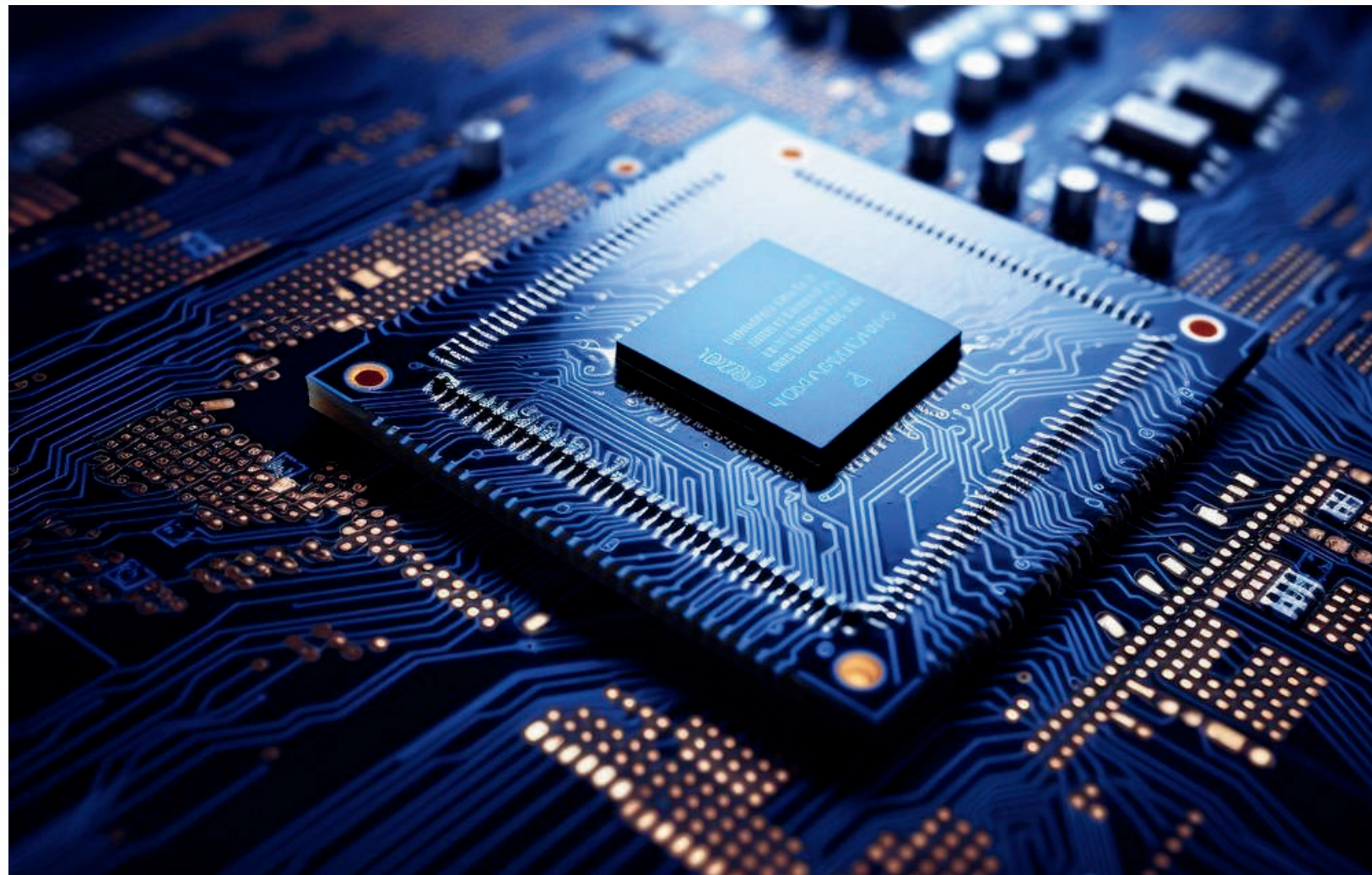
In stark contrast, real education is a dynamic, lifelong journey of active discovery and personal growth. It requires immense intellectual flexibility, meaning students must constantly unlearn outdated notions to make room for fresh perspectives. Instead of just accumulating borrowed knowledge from the past, true learning deeply transforms an individual's mindset. It encourages critical thinking, profound understanding, and an inner awakening. By moving away from rigid memorization, we allow children to explore, question, and retain their natural marvel for nature, ultimately turning raw information into true, actionable wisdom.

ARDUINO



Arduino is an open-source electronics platform based on easy-to-use hardware and software, designed to make building digital devices and interactive projects simple for beginners and professionals alike. At its core, an Arduino board is a small microcontroller that can read inputs—such as light from a sensor, a finger on a button, or a message from another device—and turn them into outputs like turning on an LED, moving a motor, or sending data to a display. The board is programmed using the Arduino IDE, which uses a simplified version of C/C++ language, making coding approachable even for those new to programming. Because Arduino is open-source, there is a vast community that shares libraries, tutorials, and project ideas, making it easier to learn and experiment. Its affordability, versatility, and simplicity have made it one of the most popular platforms for robotics, automation, IoT projects, and DIY electronics worldwide.

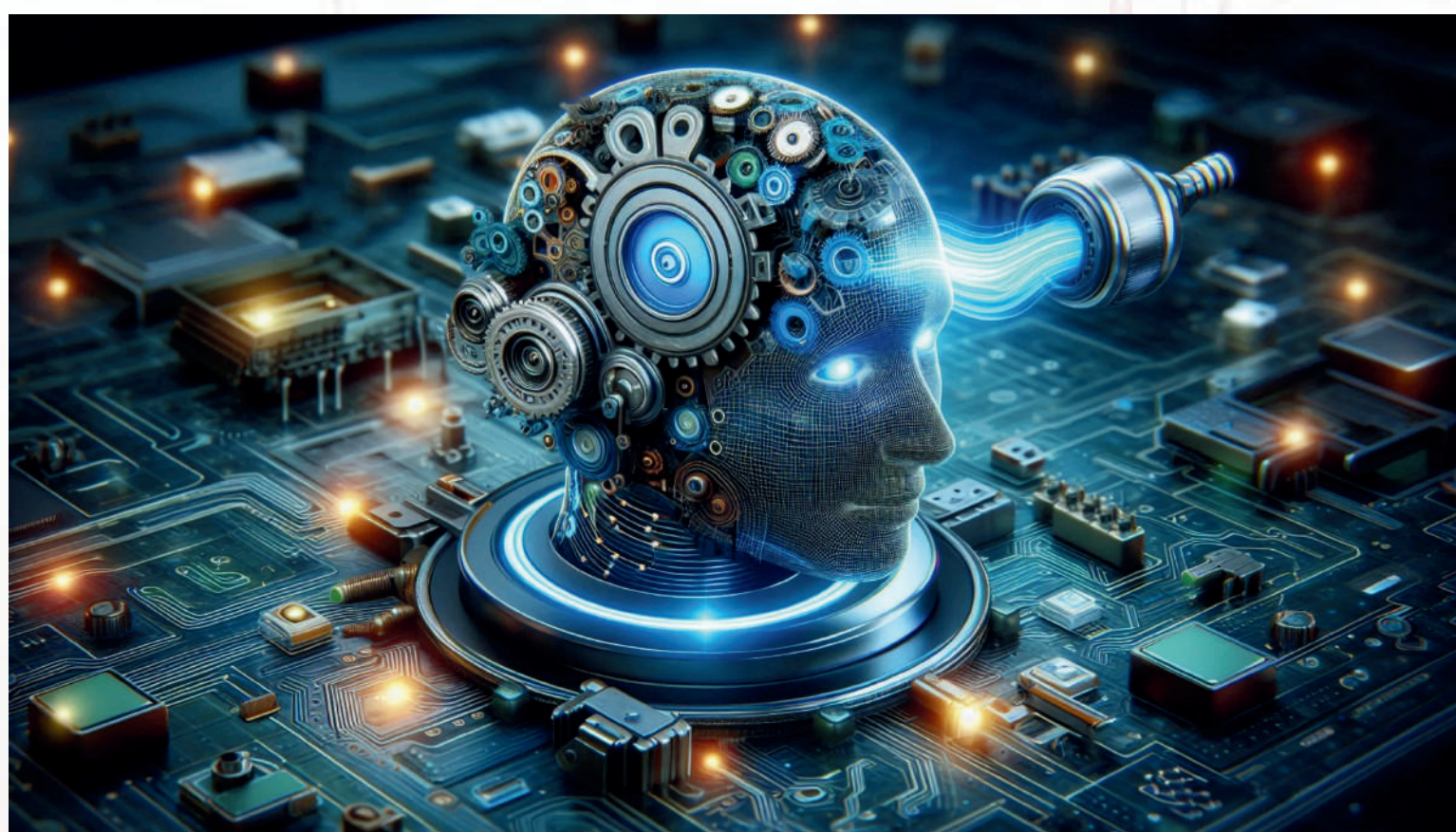
SEMICONDUCTOR



A semiconductor is a type of material whose electrical conductivity lies between that of a conductor (like copper) and an insulator (like glass). The most commonly used semiconductor material is silicon, though germanium and compound semiconductors like gallium arsenide are also used. The unique property of semiconductors is that their conductivity can be controlled by adding very small amounts of impurities, a process called doping, which creates two types of semiconductors: n-type (extra electrons as charge carriers) and p-type (holes as charge carriers). When p-type and n-type materials are joined together, they form a p-n junction, which is the building block of most semiconductor devices like diodes, transistors, and integrated circuits. Semiconductors are the foundation of all modern electronics, as they allow switching, amplification, and signal processing in a compact and efficient way. Their conductivity also changes with temperature and light exposure, making them useful in sensors and solar cells. Because of these properties, semiconductors are crucial for computers, smartphones, communication systems, and almost every electronic device we use today.

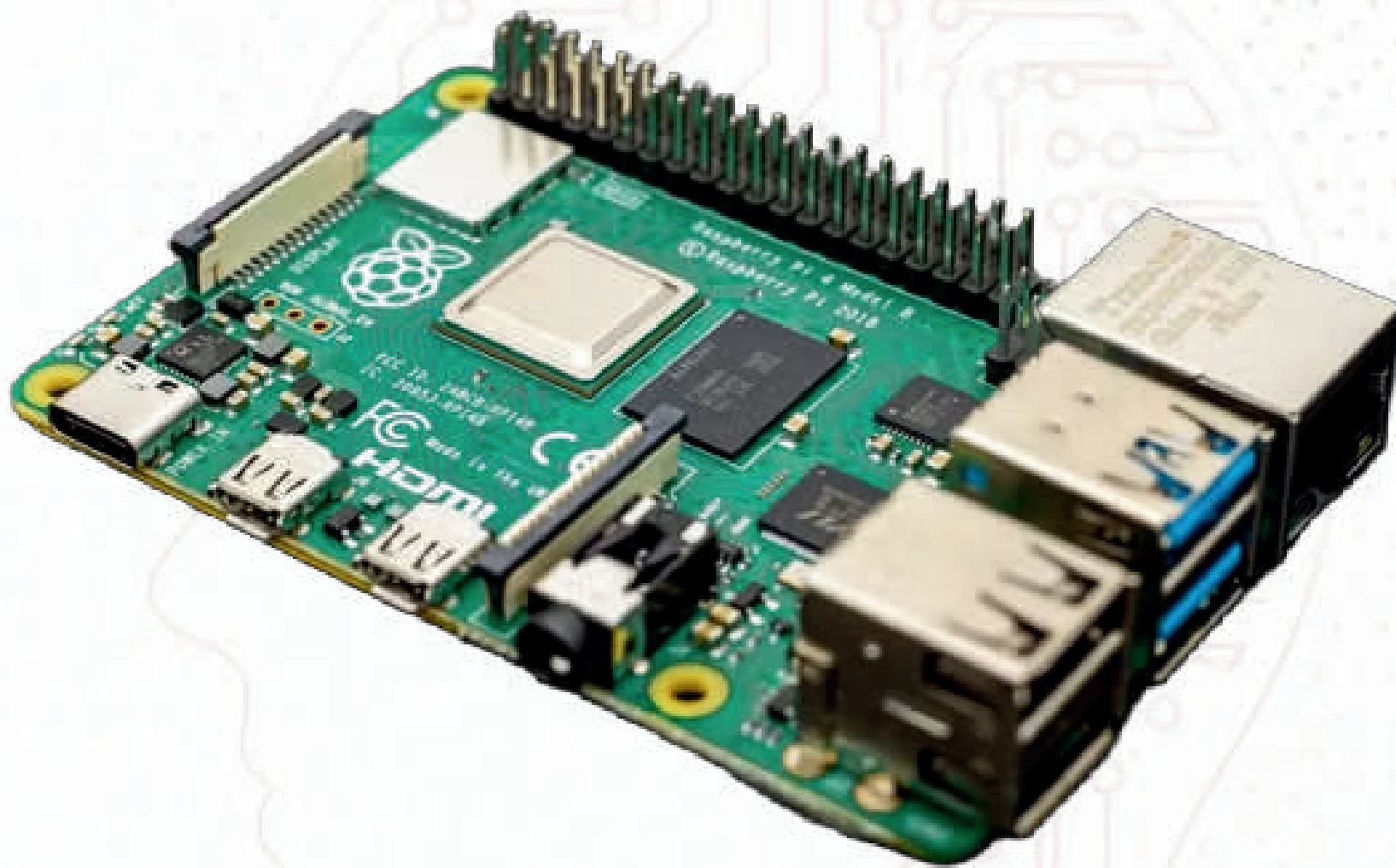
VLSI WITH MACHINE LEARNING

VLSI (Very Large Scale Integration) refers to the process of creating integrated circuits (ICs) by combining thousands to millions of transistors on a single chip. VLSI technology is at the heart of modern electronics, from microprocessors and memory chips to communication devices. Traditionally, VLSI design involves complex steps like logic synthesis, placement and routing, timing analysis, and verification, which are computationally intensive and time-consuming. Machine Learning (ML) is now increasingly being applied to VLSI design to improve efficiency, optimize performance, and reduce human effort. For example, ML algorithms can predict optimal placement of components, detect design errors early, and optimize power, area, and timing in chip design. Reinforcement learning and deep learning models are particularly useful for tasks like placement and routing, where conventional algorithms struggle with the huge search space. ML can also be used for hardware fault detection,



RASPBERRY PI

Raspberry Pi is a small, affordable, single-board computer developed by the Raspberry Pi Foundation in the UK. It was designed to promote computer science education and digital creativity but has grown popular among hobbyists, engineers, and developers for building electronics projects. Despite its tiny size, a Raspberry Pi can perform many tasks of a standard computer, including running a full operating system (usually a Linux-based OS like Raspberry Pi OS), browsing the internet, playing media, programming, and controlling hardware devices.



The board features a CPU, GPU, RAM, USB ports, HDMI output, GPIO (General Purpose Input/Output) pins, and sometimes Wi-Fi and Bluetooth modules, depending on the model. The GPIO pins make it particularly powerful for electronics projects, allowing users to connect sensors, LEDs, motors, and other hardware components. Raspberry Pi is widely used in IoT projects, robotics, home automation, AI/ML experiments, media centers, and even educational kits for coding and electronics learning. Its low cost, versatility, and huge community support make it one of the most popular platforms for makers and students.

PIERRE-SIMON LAPLACE

INTRODUCTION :

Pierre-Simon Laplace (1749–1827), later known as the Marquis de Laplace, was a remarkable French mathematician, astronomer, and physicist. His contributions spanned various fields, including engineering, mathematics, statistics, physics, astronomy, and philosophy. Let's delve into some fascinating facts about this extraordinary scientist.

FACTS :

CELESTIAL MECHANICS AND MÉCANIQUE

CÉLESTE:

Laplace's magnum opus was his five-volume work titled *Mécanique céleste* (Celestial Mechanics), published between 1799 and 1825. In this monumental work, he summarized and extended the study of classical mechanics using calculus, revolutionizing the field of celestial mechanics.

His research helped establish the stability of the solar system, and he made significant contributions to mathematical astronomy.



BAYESIAN PROBABILITY:

Laplace played a pivotal role in developing the Bayesian interpretation of probability. His work laid the foundation for statistical inference and probability theory.

The Bayesian approach considers prior knowledge and updates it based on new evidence—a powerful framework still widely used today.

Laplace's Equation and Transform

He formulated Laplace's equation, a fundamental partial differential equation used in various scientific disciplines. Laplace pioneered the Laplace transform, a mathematical tool that appears in mathematical physics. It allows us to solve differential equations more effectively.

NEBULAR HYPOTHESIS AND BLACK HOLES:

Laplace restated and developed the nebular hypothesis, proposing that the Solar System formed from a rotating cloud of gas and dust. Remarkably, he also hinted at an idea similar to that of a black hole, long before the concept gained prominence. Stephen Hawking even acknowledged that "Laplace essentially predicted the existence of black holes."

MATHEMATICAL GENIUS AND INFLUENCE:

Often referred to as the French Newton or the Newton of France, Laplace possessed an exceptional natural mathematical talent. He examined a young Napoleon Bonaparte when the latter graduated from the École Militaire in Paris in 1785. Laplace received titles such as Count of the Empire (1806) and Marquis (1817) during the Bourbon Restoration.



ASSOCIATION INAUGURATION

The Department of Electronics and Communication Engineering successfully conducted the Department Association Inauguration for the academic year 2026–2027 on 8 July 2026 at the Imperial Hall. The programme marked the formal inauguration of the department association, “The Faire Connectrons,” and the commencement of its activities for the new academic year. The event brought together faculty members and students with great enthusiasm, creating a positive atmosphere for the beginning of another year of learning, participation, and professional development.

The Department Association was inaugurated with the objective of providing students with opportunities to enhance their knowledge beyond the regular classroom environment. Through various technical, academic, and co-curricular activities, the association aims to encourage students to develop their skills, explore new areas of interest, share ideas, and actively participate in departmental initiatives. The association also provides a platform for students to improve important qualities such as communication, teamwork, leadership, creativity, confidence, and problem-solving.



ASSOCIATION INAUGURATION

The highlight of the programme was the presence of the distinguished resource person, Mr. J. Sivakumar, Deputy Director (Retd.), Stage Assembly & Integration Entity (SAIE), ISRO Propulsion Complex (ISRO), Mahendragiri. As part of the programme, the resource person provided the students with an introductory session on space, offering them an opportunity to develop a basic understanding of the fascinating world beyond Earth. His session created curiosity among the students and introduced them to the broader field of space science and exploration.

The introductory session gave students an opportunity to look beyond their everyday understanding of the world and learn about the significance of space and space exploration. The resource person introduced the students to the fascinating nature of space and the importance of exploring and understanding the universe.



ASSOCIATION INAUGURATION

His interaction helped students appreciate how human curiosity and scientific exploration have contributed to the development of space technology and our understanding of the world beyond Earth.

The session also provided students with an introduction to the role of ISRO in India's space programme. Through his experience and association with the Indian space sector, the resource person gave students a glimpse into the journey of India's efforts in space exploration and technological development.



The introduction helped students understand that space exploration involves the combined efforts of scientists, engineers, researchers, and technical professionals working together towards common goals.

For students of Electronics and Communication Engineering, the session was particularly interesting as it helped them recognize the connection between their field of study and the broader world of space technology. Electronics and communication systems form an important part of modern technological development, and the session encouraged students to understand that the concepts they learn as engineering students can have applications in advanced and challenging fields.

ASSOCIATION INAUGURATION



The Department Association Inauguration 2026–2027 was therefore a meaningful beginning to the activities of “The Faire Connectrons.” The installation of the office bearers established a strong foundation for student leadership, while the introductory session on space provided students with an inspiring glimpse into the fascinating world of space and India's space journey. The event successfully created enthusiasm among the students and encouraged them to remain curious, explore new areas, and make effective use of the opportunities available to them.

With the beginning of the new academic year, the Department of Electronics and Communication Engineering looks forward to a year filled with learning, participation, innovation, collaboration, and achievement. The inauguration marked not just the start of an association, but the beginning of a journey towards discovering new ideas, exploring new possibilities, and reaching greater heights.

STAFF ARTICLE

6G and Beyond: Intelligent AI-Driven Global Connectivity

The rapid evolution of wireless communication has transformed the way societies interact, innovate, and grow.

From the early days of 1G voice communication to the ultra-fast, low-latency capabilities of 5G, each generation has redefined connectivity standards. As we move towards the next frontier, 6G and beyond promise to revolutionize global connectivity by integrating intelligent Artificial Intelligence (AI) at the core of communication systems, enabling a fully connected, smart, and adaptive digital ecosystem.

6G is expected to operate in the terahertz (THz) frequency bands, delivering unprecedented data rates in the order of terabits per second (Tbps), ultra-low latency in microseconds, and massive device connectivity. However, achieving such performance requires more than just advanced hardware; it demands AI-driven intelligence embedded throughout the network. Intelligent AI will play a crucial role in network optimization, resource allocation, traffic prediction, and real-time decision-making, ensuring seamless and efficient communication.

One of the key features of 6G networks is the concept of ubiquitous connectivity, where communication extends beyond terrestrial networks to include satellite systems, aerial platforms, and underwater communication. AI-driven algorithms will enable dynamic spectrum management, self-organizing networks, and autonomous system adaptation, making networks more resilient, energy-efficient, and scalable. This will support emerging applications such as smart cities, autonomous vehicles, remote healthcare, extended reality (XR), and the Internet of Everything (IoE).



Mr. S.SUDHAKAR
Assistant Professor/ECE

STAFF ARTICLE

Furthermore, 6G will integrate human-centric and machine-centric communication, enabling direct interaction between humans and intelligent machines. Technologies such as holographic communication, brain-computer interfaces, and digital twins will become feasible, powered by AI-enhanced data processing and analytics. Intelligent AI will also enhance security by enabling real-time threat detection, anomaly identification, and adaptive encryption techniques, ensuring secure and trustworthy communication.

Energy efficiency and sustainability are also critical aspects of future communication systems. AI-driven optimization techniques will minimize energy consumption by intelligently managing network resources and reducing unnecessary transmissions. Green communication technologies will play a vital role in achieving sustainable development goals while maintaining high performance.

In conclusion, 6G and beyond represent a paradigm shift in wireless communication, where intelligent AI acts as the backbone of global connectivity. By combining ultra-high-speed communication, intelligent automation, and seamless integration of diverse technologies, 6G will not only enhance connectivity but also transform industries, economies, and everyday life. This next-generation communication framework will pave the way for a smarter, more connected, and intelligent world.

STAFF ARTICLE

Deepfake Detection Using AI and Signal Processing



Ms.R.Thazleema banu
Assistant Professor/ECE

The rapid advancement of Artificial Intelligence (AI) has made it possible to create highly realistic synthetic images, videos, and voices-commonly known as deepfakes.

While these technologies have promising applications in entertainment, education, and digital media, their misuse has created serious concerns related to identity theft, misinformation, financial fraud, cybercrime, and social manipulation. A person's face or voice can now be digitally manipulated to make them appear to say or do something that never actually happened. Deepfake detection has therefore emerged as an important research area at the intersection of Electronics and Communication Engineering (ECE), Artificial Intelligence, Image Processing, and Signal Processing. Modern detection systems analyse subtle abnormalities in facial features, eye and lip movements, image textures, lighting patterns, compression artefacts, and other visual characteristics. Similarly, audio-based systems examine speech patterns, frequency characteristics, spectral features, and other signal-level inconsistencies to identify AI-generated or manipulated voices. Deep learning techniques such as Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), and Transformer-based models can learn complex patterns that are difficult for humans to identify. By combining visual and audio analysis, multimodal deepfake detection systems can provide a more robust approach for identifying sophisticated synthetic media. As generative AI continues to evolve, deepfake detection is becoming a technological race between generation and detection. Developing reliable, explainable, and real-time detection systems will be essential for protecting digital identity and maintaining trust in the rapidly changing digital world.

STAFF ARTICLE

The Role of Medical Image Processing in Modern Healthcare



Dr.S.Jacily Jemila
Associate Professor/ECE

Healthcare has entered an era in which medical decisions are increasingly supported by advanced technologies capable of acquiring, processing, analyzing, and interpreting complex clinical information

Among these technologies, medical image processing has emerged as a powerful component of modern healthcare. Medical images obtained from X-ray, Computed Tomography (CT), Magnetic Resonance Imaging (MRI), ultrasound, Positron Emission Tomography (PET), and other imaging modalities provide clinicians with valuable information about the structure and function of the human body.

However, the growing volume and complexity of medical images have created a significant challenge. Conventional visual interpretation depends heavily on the expertise, experience, and workload of medical professionals. Medical image processing addresses this challenge by applying computational techniques to enhance image quality, extract clinically relevant information, identify abnormalities, and support diagnosis and treatment planning.

Today, medical image processing is evolving from traditional image enhancement and segmentation techniques toward Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL)-based intelligent systems. This transformation is creating new opportunities for faster, more accurate, and increasingly personalized healthcare.

STAFF ARTICLE

Early medical image processing systems primarily relied on conventional techniques such as filtering, thresholding, histogram-based enhancement, edge detection, morphological operations, and region-based segmentation. These methods remain valuable and form the foundation of many modern imaging systems.

However, medical images often contain complex anatomical structures, varying intensities, noise, artifacts and significant differences between patients. Designing a single rule-based technique that performs consistently across all clinical conditions can therefore be challenging.

The emergence of machine learning has introduced a new paradigm. Instead of relying entirely on manually defined rules, machine learning algorithms can learn patterns from medical imaging datasets. Deep learning has further advanced this capability by automatically learning hierarchical representations directly from images

. Convolutional Neural Networks (CNNs), for example, have demonstrated significant potential in image classification, detection, and segmentation. Architectures such as U-Net have become particularly influential in biomedical image segmentation, while other deep learning architectures are being investigated for disease detection, image reconstruction, registration, and multimodal image analysis.

Thus, medical image processing is gradually evolving from “processing images” to “understanding images.”

STAFF ARTICLE

Medical image processing has applications across numerous clinical specialties.

- 1. Neurological Imaging*
- 2. Cancer Detection and Analysis*
- 3. Cardiovascular Imaging*
- 4. Ophthalmic Imaging*
- 5. Medical Image-Guided Treatment*

Modern healthcare increasingly generates multimodal and three-dimensional imaging data. Combining information from different imaging modalities can provide complementary structural and functional information. For example, MRI provides excellent soft-tissue contrast, while CT provides detailed anatomical information and is widely used for structural assessment. The integration of multimodal imaging can potentially provide a more comprehensive representation of a patient's condition

The future of medical image processing lies in the integration of AI, advanced imaging, high-performance computing, communication technologies, and clinical expertise. The future of medical imaging is therefore not simply about producing clearer images. It is about transforming complex medical images into meaningful clinical knowledge. As technology continues to advance, medical image processing will remain a critical bridge between engineering innovation and human healthcare, contributing to a future in which diagnosis becomes faster, treatment becomes more personalized, and healthcare becomes increasingly intelligent and accessible.

STAFF ARTICLE

From Aryabhata to Gaganyaan: India's Journey from Ancient Astronomy to Human Spaceflight



Dr. NAVEENA A PRIYADHARSINI
Professor/ECE

India's relationship with space is not a recent achievement. Long before rockets, satellites and spacecraft existed, Indian scholars studied the Sun, Moon, planets, stars and the motion of the Earth with remarkable mathematical precision.

The journey from ancient astronomy to Gaganyaan, India's human spaceflight programme, represents a remarkable transformation—from observing the universe with the naked eye to engineering spacecraft capable of carrying humans into space.

One of the most celebrated names in India's astronomical history is Aryabhata, who lived in the 5th–6th century CE. His famous work, *Aryabhatiya*, presented mathematical and astronomical ideas that were far ahead of his time. He described the Earth as spherical and provided an explanation involving the Earth's rotation to account for the apparent movement of the stars. His calculations concerning the rotation of the Earth and the length of the year demonstrate the importance he placed on mathematical observation. His work also dealt with planetary positions, eclipses and methods for astronomical calculations. These contributions established a strong mathematical foundation for Indian astronomy.

Following Aryabhata, scholars such as Varahamihira, Brahmagupta and Bhaskara I continued develop Indian astronomy and mathematics. Brahmagupta's *Brahmasphutasiddhanta*, written in the 7th century, made significant contributions to mathematical astronomy, including planetary calculations and eclipse computations.

STAFF ARTICLE

Indian astronomical knowledge subsequently influenced scientific thought beyond India through translations and scholarly exchanges. Centuries later, astronomical observatories such as the Jantar Mantar located in Jaipur, Rajasthan, and contains several large-scale masonry instruments. Among them is the Samrat Yantra, one of the world's largest stone sundials. It can be used to determine local solar time and observe the movement of the Sun. Other instruments were designed to study the positions of stars and planets and to determine celestial coordinates.

Jai Singh II established observatories at several locations, including Jaipur, Delhi, Ujjain, Mathura and Varanasi. These observatories reflected the Indian scientific tradition was deeply connected with observation, mathematics and systematic calculation. The modern Indian space journey began with the establishment of the Indian Space Research Organisation (ISRO) in 1969.

India's early space programme focused on using space technology for national development, particularly communication, weather forecasting, remote sensing and education. A major milestone came on 19 April 1975, when India launched its first satellite, Aryabhata, which carried out experiments related to X-ray astronomy, aeronomy and solar physics. India gradually developed launch vehicles and spacecraft. The Polar Satellite Launch Vehicle (PSLV) became one of ISRO's most successful launch systems, supporting Earthobservation and scientific missions.

India's space exploration achievements expanded with the Chandrayaan lunar missions, the Mars Orbiter Mission (Mangalyaan) and the Aditya-L1 Solar mission operated 1.5 million km away from Earth. These missions demonstrated India's ability to design, launch and operate spacecraft far beyond Earth. These achievements marked an important transition: India was no longer only observing space from Earth—it was sending its instruments and spacecraft into the wider solar system.

STAFF ARTICLE

The next milestone is Gaganyaan, India's first human spaceflight programme. Its objective is to demonstrate India's indigenous capability to send humans to Low Earth Orbit and safely return them to Earth. ISRO's planned mission involves a crew of three astronauts travelling to approximately 400 km altitude for a three-day mission, followed by a safe return and sea landing.

Gaganyaan is technically far more demanding than an ordinary satellite mission because human safety becomes the most important design requirement. The programme requires a human-rated launch vehicle, life-support systems, crew escape mechanisms, astronaut training, advanced avionics, communication systems, navigation, thermal protection and reliable recovery systems. ISRO is conducting a series of precursor tests and uncrewed missions before the human mission. The significance of Gaganyaan extends beyond a single space mission. It will strengthen India's capabilities in human-rated rockets, space medicine, life-support systems, robotics, advanced materials, artificial intelligence, communication and autonomous spacecraft operations.

The programme is therefore a multidisciplinary engineering achievement involving Aerospace Engineering, Electronics and Communication, Computer science, Mechanical Engineering, materials science, Artificial Intelligence, Biomedical science and control systems. This progression demonstrates how scientific curiosity can evolve into technological capability when supported by education, research, innovation and persistent engineering effort.

Gaganyaan is not intended to be the final destination. ISRO describes it as a foundation for a sustained Indian human-spaceflight programme. Future ambitions include advanced human and robotic missions, space-station capabilities and scientific exploration beyond Earth. India has also announced plans for the Bharatiya Antariksh Station, envisioned as a national platform for multidisciplinary microgravity research and as a stepping stone towards future lunar exploration and beyond.

STAFF ARTICLE

FROM SILICON TO SMART SYSTEMS

Electronics and Communication Engineering (ECE) has always been closely connected with technological progress. What began with basic electronic circuits, transistors and communication systems has grown into a world of microprocessors, wireless networks, embedded intelligence, artificial intelligence and connected smart systems.

Today, the role of an ECE engineer is no longer limited to designing circuits or communication links. ECE engineers are increasingly becoming the creators of intelligent systems that can sense, communicate, process information and make decisions.

The New Era: Smart, Connected and Intelligent

The transformation from silicon chips to smart systems is being driven by the convergence of several technologies. Artificial Intelligence and Machine Learning are enabling devices to learn from data and support intelligent decision-making. The Internet of Things is connecting sensors, machines, vehicles, homes and industries. 5G and the emerging 6G ecosystem are creating faster and more reliable communication, while edge computing allows intelligence to move closer to where data is generated.

At the same time, semiconductor and VLSI technologies continue to provide the foundation for this digital world. Advanced chips are becoming smaller, faster and more energy efficient. Robotics, autonomous systems, wearable electronics, medical devices and smart transportation are bringing these technologies into everyday life.

Can the Future ECE Engineer Make an Impact?

The opportunities for ECE graduates are expanding across traditional and emerging domains. Semiconductor and VLSI design offer opportunities in chip architecture, verification and hardware development. Communication engineering is evolving towards 5G/6G, satellite communication and intelligent wireless networks. Embedded systems are becoming the core of automobiles, industrial equipment, consumer electronics and medical devices.



Mrs.C.PRISCILLA PACKIA SLACER
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STAFF ARTICLE

ECE engineers can also contribute to AI-enabled IoT, robotics and automation, aerospace systems, renewable-energy systems, cyber-physical systems, healthcare technology and smart-city infrastructure. These areas demand engineers who can understand both hardware and software and connect them into complete, reliable systems.

Skills for Tomorrow

The future belongs to ECE engineers who are willing to continuously learn. A strong foundation in core ECE subjects remains essential, but it should be complemented by programming, data analysis, AI/ML fundamentals, embedded development and knowledge of emerging communication technologies.

- *Strong fundamentals in electronics, signals, communication and embedded systems*
- *Programming and problem-solving ability*
- *Awareness of AI, IoT, edge computing and semiconductor technologies*
- *Innovation, creativity and design-thinking skills*
- *Teamwork, communication and interdisciplinary collaboration*
- *A habit of lifelong learning and adapting to new technologies*

From Students to Innovators

For today's ECE students, the most important question is not simply, 'Which job will I get?' but rather, 'Which problem can I solve?' The future will reward engineers who can identify real-world challenges and build meaningful solutions. A student project that combines sensors, embedded systems and AI can become a smart healthcare device. A communication project can evolve into an intelligent network. A semiconductor idea can become the foundation of a new product.

Colleges therefore have an important role in encouraging project-based learning, innovation, research, industry interaction and entrepreneurship. Students should be given opportunities to move beyond theoretical learning and experience the complete journey from an idea to a working prototype.

STAFF ARTICLE

The Future Is in Your Hands

ECE is not simply a branch of engineering; it is one of the technologies that connects the physical world with the intelligent digital world. From a tiny silicon chip to a smart city, from a sensor to an autonomous machine, ECE engineers are involved in creating the technologies that shape modern life.

The journey ahead is exciting. The engineers of tomorrow must be curious, creative, adaptable and ready to learn continuously. They should not merely follow technological change—they should become the people who create it.

“Innovate today. Transform tomorrow. That is the power of ECE.”

STAFF ARTICLE

From Sand to Superpower: The Global Chip War and the World's Most Advanced Semiconductor Factories



DR. R. BABY SHALINI
Associate Professor/ECE

The Tiny Chip That Rules the World

Imagine waking up one morning to discover that your smartphone won't turn on, ATMs have stopped working, electric cars refuse to start, satellites lose communication, and hospitals can no longer operate advanced medical equipment. While this may sound like a scene from a science fiction movie, it highlights a simple truth: our modern world runs on semiconductor chips.

From the smartphone in your pocket to the satellite orbiting Earth, semiconductor chips have become the invisible engines of the digital age. They process information, store data, enable wireless communication, and power everything from artificial intelligence (AI) to electric vehicles (EVs). Despite being smaller than a fingernail, these tiny chips have become one of the most valuable and strategically important technologies in the world.

Today, nations are investing billions of dollars to secure their semiconductor industries, giving rise to what experts call the "Chip War." This global race is not merely about producing smaller and faster chips. It is about technological leadership, economic growth, and national security.

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Why Are Semiconductor Chips So Important?

Semiconductors are often called the "brains" of electronic devices because they control how information is processed and transmitted. A modern semiconductor chip may contain billions of transistors, each acting as a tiny electronic switch. Together, these transistors perform billions of calculations every second. Without semiconductors, the digital economy would simply stop functioning.

The Global Chip War

As the demand for advanced electronics continues to grow, countries around the world are competing to strengthen their semiconductor capabilities. The United States leads in chip design, AI processors, and semiconductor software. Taiwan has become the global center for manufacturing advanced chips used in smartphones, computers, and AI systems. South Korea dominates memory chip production, while Japan supplies many of the precision materials and manufacturing equipment needed for chip fabrication. China is investing heavily to expand domestic chip production, and India is rapidly building its semiconductor ecosystem through government initiatives and industrial investments. This worldwide competition reflects the strategic importance of semiconductors in today's economy and technology landscape.

Inside the World's Most Advanced Chip Factory

Building a semiconductor chip is one of the most complex manufacturing processes ever developed. The facilities where these chips are made are known as semiconductor fabrication plants, or simply fabs.

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Welcome to the World's Cleanest Workplace

Before entering a fab, every engineer must wear a special protective outfit called a bunny suit, which covers the entire body, including the head, gloves, and shoes. This is not to protect the workers - it is to protect the chips.

Even the smallest dust particle can damage microscopic circuits on a semiconductor wafer. For this reason, fabrication plants maintain ultra-clean environments, often cleaner than hospital operating rooms. Advanced air filtration systems continuously remove airborne particles, while robots handle wafers to minimize contamination.

From Sand to Silicon

Every semiconductor chip begins with one of Earth's most abundant materials - sand. The silicon dioxide found in sand is purified into ultra-pure silicon, melted, and grown into a large cylindrical crystal. This crystal is sliced into thin circular discs called silicon wafers, which serve as the foundation for building integrated circuits. A single 300 mm wafer can hold hundreds of chips, depending on their size.

Printing with Light: EUV Lithography

One of the most remarkable steps in chip manufacturing is Extreme Ultraviolet (EUV) Lithography. This technology uses light with a wavelength of 13.5 nanometers to print incredibly small circuit patterns onto silicon wafers. EUV lithography machines are engineering marvels. They weigh around 180 tonnes, contain more than 100,000 precision components, and cost hundreds of millions of dollars. Their extraordinary precision enables manufacturers to produce the advanced processors used in AI systems, smartphones, and supercomputers.

STAFF ARTICLE

Building Billions of Transistors

A semiconductor chip is constructed layer by layer through a series of highly controlled manufacturing processes. These include:

- *Thin-film deposition*
- *Photolithography*
- *Etching*
- *Doping*
- *Chemical Mechanical Polishing (CMP)*

This sequence is repeated many times until billions of transistors are formed and interconnected. Manufacturing a single advanced chip may require more than 1,000 process steps and several months of production time.

Testing and Packaging

After fabrication, every chip undergoes extensive testing to verify its electrical performance, speed, and reliability. Chips that meet quality standards are packaged into protective casings that shield them from heat, moisture, and physical damage. Modern packaging technologies such as 3D stacking, chiplets, and flip-chip packaging improve performance while reducing power consumption.

Why the Chip War Matters

Semiconductor manufacturing has become a key driver of innovation and economic competitiveness. Countries are investing heavily to secure reliable chip supplies, recognizing their importance in industries such as telecommunications, healthcare, transportation, and defense. India is actively expanding its semiconductor ecosystem through initiatives that encourage chip design, manufacturing, packaging, and research.

STAFF ARTICLE

These efforts are expected to create new opportunities for engineers and strengthen the nation's role in the global electronics industry.

India's Semiconductor Journey

India's semiconductor story began with early electronics research in the 1960s, but its transformation into a global chip-design hub accelerated after Texas Instruments set up operations in Bengaluru in 1985. Since then, Indian engineers have become an important part of the world's IC-design ecosystem, contributing to VLSI, ASICs, processors, RF chips, embedded systems and semiconductor IP. Today, India accounts for nearly 20% of the global semiconductor design workforce. The country's ambition is now moving beyond design. Through initiatives such as the Design Linked Incentive (DLI) and Chips to Startup (C2S) programmes, Indian startups, universities and engineers are being supported to develop their own chips and take designs from simulation to tape-out and real silicon. By early 2026, DLI-supported projects had achieved 16 tape-outs and six fabricated ASICs. At the same time, India is building manufacturing and packaging capabilities, including Tata-PSMC's semiconductor fab at Dholera, Micron's ATMP facility, CG Power's OSAT facility, Tata's Assam facility, and projects by Kaynes, HCL-Foxconn and others. Thus, India's journey is changing from “Design in India” to “Design, Make and Build in India.”

STAFF ARTICLE



Mrs. R. ASHLIN JINUSHIA
Assistant Professor/ECE

Transforming the Future with Intelligent Robotics

Robotics is rapidly evolving from conventional programmed machines into intelligent systems capable of sensing, learning, reasoning, adapting and interacting with humans. The latest developments in artificial intelligence, computer vision, advanced sensors, edge computing, cloud technologies and high-performance processors are changing the way robots are designed and used. Robotics is no longer restricted to automobile manufacturing and repetitive assembly operations. It is expanding into healthcare, agriculture, logistics, education, construction, space exploration, domestic services and disaster management. The most important change in the present generation of robotics is the transition from robots that simply follow predefined instructions to robots that can understand their environment and select suitable actions. This development is closely associated with the growth of physical AI, where artificial intelligence is connected directly to machines that interact with the physical world.

Artificial intelligence has become a major driving force behind modern robotics. Machine learning and deep learning algorithms enable robots to analyse large amounts of sensory information and improve their performance through experience. Computer vision allows robots to identify objects, recognize patterns, estimate distances and understand changes in their surroundings. More recently, vision-language-action systems are being developed to connect visual perception, natural-language instructions and physical movement. These systems allow robots to understand a task expressed in ordinary language and convert that instruction into a sequence of actions. Recent research has also demonstrated techniques for reducing the delay between robotic actions by allowing robots to prepare their next movement while completing the current one. Such developments indicate that future robots will increasingly combine perception, reasoning and action within a unified intelligent framework.

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Humanoid robotics is another major trend attracting considerable research and industrial investment. Humanoid robots are designed with human-like body structures so that they can potentially work in environments created for people. Their applications are being explored in manufacturing, warehouses, logistics, inspection and service operations. In 2026, the industry is moving beyond demonstrations toward questions of practical deployment, reliability, operating cost and scalability. The rapid development of humanoid robots has also created a growing ecosystem involving artificial intelligence, actuators, sensors, batteries, control systems and advanced manufacturing. However, widespread adoption still depends on overcoming challenges such as reliable manipulation, energy consumption, safety, durability and economic feasibility.

Collaborative robots, or cobots, are changing the relationship between humans and machines. Conventional industrial robots generally perform predetermined operations within controlled areas, whereas cobots are intended to work more closely with human operators. They can support workers in assembly, inspection, packaging, material handling and precision operations. The future development of cobots is expected to make them lighter, easier to program and more capable of recognizing human activities. Artificial intelligence can allow a cobot to understand changes in a work environment and modify its behaviour accordingly. This human-robot partnership can combine human creativity, judgement and problem-solving ability with the precision, consistency and endurance of machines.

Autonomous mobile robots are also becoming increasingly important in logistics, manufacturing and service environments. These robots use cameras, LiDAR, inertial sensors and other technologies to determine their location and navigate through changing surroundings. Instead of following fixed tracks, advanced mobile robots can identify obstacles, select routes and adjust their movement dynamically.

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Warehouses are increasingly using autonomous systems to transport materials, organize goods and support order fulfilment. Similar technologies can be adapted for hospitals, airports, campuses and large industrial facilities. The continued improvement of navigation algorithms, sensor fusion and onboard computing is expected to make mobile robots more flexible and reliable.

The integration of robotics with digital twins, cloud computing and edge computing represents another important development. A digital twin provides a virtual representation of a physical robot or production environment and can be used for simulation, monitoring and optimization. Engineers can test robot movements virtually before applying them to a physical machine, reducing development time and the risk of equipment damage. Edge computing allows important decisions to be processed close to the robot rather than depending entirely on a remote server. This is particularly useful when rapid response is required. Cloud platforms, meanwhile, can provide large-scale data storage, model training and centralized fleet management. Together, these technologies are creating connected robotic ecosystems rather than isolated machines.

Medical robotics is progressing from surgical assistance toward a wider range of healthcare applications. Robotic systems can provide highly precise movements during medical procedures, while rehabilitation robots can assist patients in recovering movement and strength. Wearable robotic devices and exoskeletons are being developed to support mobility and physical assistance. Future healthcare robots may combine physiological sensors, artificial intelligence and adaptive control to provide assistance based on the user's individual movements and requirements. Robots may also perform transportation, cleaning, medicine delivery and other repetitive tasks in hospitals, allowing healthcare professionals to devote more time to direct patient care.

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Agricultural robotics has significant potential to improve precision farming. Robots equipped with cameras, environmental sensors and artificial intelligence can monitor crops and identify weeds, diseases and variations in plant growth. Autonomous machines can potentially perform seeding, harvesting, weeding and selective spraying with greater precision. Instead of applying agricultural inputs uniformly across an entire field, intelligent robotic systems can make decisions based on the conditions detected at specific locations. This approach can reduce unnecessary consumption of water, fertilizers and pesticides while supporting sustainable agricultural production. In countries such as India, agricultural robotics could become particularly valuable for addressing labour challenges and improving productivity.

The next major stage of robotics is expected to involve greater autonomy. Future robots will not simply receive a command and execute it; they will increasingly be able to interpret objectives, plan a sequence of operations, monitor their progress and recover from unexpected situations. This requires advances in embodied intelligence, where an AI system learns through interaction with the physical environment. Robots may learn from simulations, demonstrations and real-world experience. Knowledge acquired by one robot could eventually be transferred to other robots through shared models and datasets. This could significantly reduce the time required to train new robotic systems.

Multi-robot cooperation is another promising direction. Instead of using one large machine to perform an entire operation, several smaller robots can work together and divide the workload. Swarm robotics takes inspiration from collective behaviour observed in biological systems. Robots in a swarm can communicate, coordinate movements and respond collectively to changes in their environment. Such systems could be useful for search and rescue, environmental monitoring, agricultural surveillance, warehouse operations and exploration of difficult environments.

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Future developments in communication, distributed intelligence and coordination algorithms will make these systems more capable. Robotics is also expected to become more accessible through Robotics-as-a-Service models. Instead of purchasing and maintaining expensive robotic systems, organizations may obtain robotic capabilities through flexible service arrangements. This can make automation more practical for small and medium-sized organizations. Software-based improvements can also extend the capabilities of existing robots without requiring complete hardware replacement. The combination of reusable hardware, cloud-based software, simulation and AI models may therefore reduce the barrier to adopting advanced robotics.

The future of robotics will require strong attention to safety, cybersecurity and ethical responsibility. As robots become more autonomous and connected, failures can have physical consequences. Robots working near humans must correctly recognize people, objects and unexpected movements. Connected systems must also be protected against unauthorized access, manipulation and data theft. Human oversight will remain important in safety-critical applications. The development of appropriate standards, testing procedures and responsible AI practices will therefore be as important as improvements in mechanical and computational performance.

India has considerable potential to contribute to the next generation of robotics. The combination of engineering talent, software expertise, manufacturing capability and growing interest in artificial intelligence provides a strong foundation for innovation. Future progress can be accelerated through collaboration among universities, research laboratories, industries and government organizations. Greater development of indigenous sensors, actuators, robotic controllers, embedded systems, batteries and AI software can reduce dependence on imported technologies while creating opportunities for research and entrepreneurship.

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In the coming years, robotics is likely to become increasingly intelligent, connected, adaptive and human-centred. The most important transformation will not simply be the production of robots with greater speed or strength, but the development of machines that can understand situations, learn from experience and cooperate safely with people. Humanoids, cobots, autonomous mobile robots, medical robots, agricultural robots and multi-robot systems represent different pathways toward this future. At the same time, reliability, affordability, safety, cybersecurity, employment impact and ethical considerations must be addressed carefully. Robotics therefore represents more than an automation technology; it is becoming a foundation for a new generation of intelligent physical systems. With responsible innovation and continued research, future robotics can improve productivity, support human capabilities, perform dangerous tasks and contribute to solving complex challenges across society.

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Artificial Intelligence: Transforming the Future of Electronics and Communication Engineering



Mr. N.M. INIYAN ARASU
Assistant Professor/ECE

Artificial Intelligence (AI) is rapidly transforming Electronics and Communication Engineering (ECE), bringing intelligence into communication networks, electronic devices, embedded systems, semiconductor design, and signal processing. In 2026, one of the most important developments is the integration of AI with Edge Computing and next-generation 6G wireless communication.

In wireless communication, AI is being used for intelligent channel estimation, spectrum allocation, beamforming, network optimization, and dynamic resource management. Research on 6G increasingly considers AI as a fundamental component of the network rather than simply an additional application. AI-based resource management can simultaneously optimize radio, computing, and caching resources across edge and cloud systems.

Another emerging area is AI-native 6G, where communication systems are designed to learn, adapt, and make decisions autonomously. Agentic AI is being explored for intelligent network management, enabling future networks to understand changing conditions, reason about requirements, and dynamically optimize services.

AI is also creating new opportunities in Integrated Sensing and Communication (ISAC). Future ECE systems may use the same wireless infrastructure for both communication and sensing—for example, detecting vehicles, monitoring environments, and supporting autonomous systems.

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Recent research is exploring AI-integrated sensing and communication as a closed-loop system in which sensing provides information to AI, while AI dynamically influences communication and sensing decisions.

In the electronics and semiconductor field, AI-assisted Electronic Design Automation (EDA), intelligent testing, predictive maintenance, and automated inspection are becoming increasingly important. AI is helping engineers accelerate chip-design processes and improve manufacturing quality. At the same time, efficient Edge AI and low-power AI hardware are becoming essential because many applications require real-time intelligence with limited power and latency.

For ECE students, this emerging landscape creates exciting opportunities in AI-enabled communication, VLSI and chip design, embedded AI, robotics, IoT, autonomous systems, signal processing, computer vision, cybersecurity, and 6G networks. The future ECE engineer will therefore need not only strong knowledge of electronics and communication fundamentals but also practical skills in AI, machine learning, programming, and intelligent hardware.

Conclusion: AI is no longer a technology limited to computer science. It is becoming a core technology for the next generation of electronic and communication systems. The combination of AI + Edge Computing + Advanced Electronics + 6G is expected to create smarter, faster, energy-efficient, and more autonomous systems, opening new horizons for ECE education, research, and innovation.



Mrs.J.Jenila
Assistant Professor/ECE

Terahertz Communication

Why Terahertz Communication?

Terahertz (THz) communication operates in the 0.1 THz to 10 THz frequency range, 100 GHz–10 THz in the electromagnetic wave spectrum, bridging the gap between microwave and infrared bands. This spectrum offers massive bandwidth, enabling data rates in the terabits-per-second (Tbps) range, to enable ultra-high-speed, low-latency wireless networks, making it a key technology for 6G and beyond, far exceeding current 5G capabilities. The short wavelength of THz waves allows for compact antennas, precise beamforming, and high spatial resolution, which is beneficial for both communication and sensing applications. It is between microwave/mm Wave communication and infrared/optical communication on the electromagnetic spectrum.

Why use terahertz waves?

THz frequencies offer enormous bandwidth, potentially allowing data rates far beyond today's 5G/6G systems. 5G typically uses frequencies up to tens of GHz. 6G/THz may use hundreds of GHz to several THz. Potential data rates of hundreds of Gbps to Tbps in specialized short-range systems.

A typical THz communication system consists of a data source, encoder, modulator, THz transmitter, antenna/beamforming system, THz channel, receiver, demodulator, and decoder. The transmitter converts information into a THz electromagnetic signal, sends it through the air, and the receiver detects and converts it back into information.

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Modulation techniques include BPSK, QPSK, QAM, OFDM, and OOK. It operates with very high data rates providing huge available bandwidth. With very low latency useful for applications requiring extremely fast communication. High directional signals of short wavelengths allow very small, high-gain antennas and antenna arrays. Potential for ultra-high-resolution sensing, THz waves can also be used for imaging and spectroscopy.

Beyond few challenges of High atmospheric absorption, Short transmission range and Hardware complexity, THz communication is used in 6G cellular networks, Ultra-high-speed wireless links between buildings, Wireless replacement for some fiber/cable connections, High-speed communication between satellites or spacecraft, Communication inside data centers, Wireless VR/AR, Integrated communication and sensing. THz communication is like trying to build an extremely wide, ultra-fast wireless highway. . Experimental testbeds and trials are already demonstrating the feasibility of THz links, paving the way for commercial deployment in the next decade. Research is ongoing to overcome propagation losses, develop efficient transceivers, and implement beamforming and antenna solutions. THz communication is a cornerstone for 6G and beyond, integrating communication and sensing to support applications like augmented reality, autonomous systems, and Industry 4.0. It is expected to play a pivotal role in shaping the future of wireless networks and advanced sensing technologies isn't simply "faster Wi-Fi."

There are significant difficulties:

- water vapor and other molecules can strongly attenuate THz signals.
- especially compared with lower-frequency radio.
- Poor penetration: THz waves generally don't pass well through walls and obstacles efficient THz transmitters, receivers, amplifiers, and antennas are difficult to build.
- Beam alignment: highly directional beams need accurate alignment.

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Where could it be used?

Potential applications include:

In simple terms THz communication is like trying to build an extremely wide, ultra-fast wireless highway. The highway can carry vastly more traffic than today's roads, but it doesn't work well over long distances and is much more sensitive to obstacles and weather.

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DR. M S SUMI
Associate Professor/ECE

Advanced VLSI Technology: India's Journey Towards Semiconductor Leadership

Very Large Scale Integration (VLSI) technology is one of the fundamental pillars of modern electronics. It enables millions and billions of transistors to be integrated onto a single semiconductor chip, making electronic systems increasingly compact, powerful, reliable and energy efficient. From smartphones and computers to automobiles, artificial intelligence (AI), Internet of Things (IoT), 5G communication and emerging 6G systems, VLSI technology is at the heart of the digital transformation taking place around the world.

The evolution of VLSI has been closely associated with continuous improvements in semiconductor technology. Conventional planar CMOS technology has gradually evolved towards advanced transistor architectures such as FinFET and Gate-All-Around (GAA) structures. At the same time, advanced process technologies, sophisticated design methodologies and innovative packaging techniques have enabled designers to achieve higher transistor density, improved performance and better energy efficiency. However, modern semiconductor advancement is no longer driven by transistor scaling alone. Technologies such as chiplets, three-dimensional integrated circuits (3D ICs), heterogeneous integration and advanced packaging are becoming increasingly important in building high-performance systems.

India's Growing Role in the Semiconductor Industry

India has traditionally been recognised as an important global centre for semiconductor design, embedded systems, verification and engineering talent. A large pool of engineers and researchers has contributed to the development of processors, communication systems, automotive electronics, consumer electronics and other semiconductor products for global technology companies.

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In recent years, India has begun expanding its focus beyond semiconductor design towards the development of a more integrated semiconductor ecosystem. The India Semiconductor Mission (ISM) and the Semicon India Programme are important components of this transformation. The broader objective is to strengthen capabilities across semiconductor design, fabrication, assembly, testing, packaging and electronic manufacturing.

This transition is significant because a strong semiconductor ecosystem requires more than a fabrication facility. It needs semiconductor intellectual property (IP), electronic design automation (EDA) tools, skilled engineers, wafer fabrication, packaging and testing facilities, reliable supply chains, research institutions and companies capable of converting semiconductor technologies into commercial products.

From Chip Design to Chip Manufacturing

One of the most important developments in India's semiconductor journey is the emergence of large-scale semiconductor manufacturing and packaging projects.

Tata Electronics is developing a semiconductor fabrication facility at Dholera, Gujarat, in partnership with Powerchip Semiconductor Manufacturing Corporation (PSMC). The facility is intended to support applications including automotive electronics, computing, communications and artificial intelligence. The project represents an important step towards establishing domestic wafer fabrication capability in India.

Another major development is the Micron semiconductor assembly, test, marking and packaging (ATMP) facility at Sanand, Gujarat. The facility was inaugurated in February 2026, and commercial production and shipment of made-in-India semiconductor memory modules marked an important milestone in India's participation in the global semiconductor value chain

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These developments demonstrate that India's semiconductor ambitions are extending beyond chip design towards manufacturing, packaging and testing. Such capabilities can strengthen supply-chain resilience and create opportunities for both large industries and semiconductor startups.

Strengthening Indigenous Chip Design

While semiconductor fabrication is receiving significant attention, indigenous chip design is equally important. A semiconductor industry becomes strategically stronger when it develops its own intellectual property, processor architectures, Application Specific Integrated Circuits (ASICs), System-on-Chip (SoC) designs and specialised accelerators.

The Design Linked Incentive (DLI) Scheme is intended to support semiconductor design activities, including the development of integrated circuits, chipsets, SoCs and semiconductor IP cores. Government-supported initiatives have also encouraged Indian startups and engineering teams to develop indigenous semiconductor solutions.

The development of RISC-V-based processors is another promising area. Since RISC-V is an open standard instruction-set architecture, it provides researchers, startups and institutions with greater flexibility to develop customised processors for applications ranging from embedded systems and IoT to artificial intelligence and high-performance computing.

The VLSI Design Flow

The development of a modern semiconductor involves a highly structured and complex design flow. It begins with system specifications and architecture definition, followed by hardware description and verification. A typical digital VLSI flow includes:

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System Specification → Architecture Design → RTL Design → Functional Verification → Logic Synthesis → Physical Design → Place and Route → Static Timing Analysis → Sign-off → Fabrication → Packaging → Testing

Each stage requires specialised knowledge and sophisticated EDA tools. Verification is particularly important because modern chips contain enormous numbers of transistors and complex interactions that cannot be practically tested only after fabrication.

Physical design also plays a crucial role in determining the performance, power consumption and area of a chip. Design constraints related to timing, signal integrity, power distribution, clock networks and interconnects must be carefully addressed before a chip can be manufactured.

Artificial Intelligence: A New Driver for VLSI

Artificial intelligence is creating a major demand for specialised semiconductor hardware. Modern AI applications require enormous computational capability and high memory bandwidth. Conventional general-purpose processors alone may not always provide the required performance and energy efficiency.

As a result, specialised AI accelerators, neural processing units (NPUs), Graphics Processing Units (GPUs), tensor-processing architectures and domain-specific accelerators are becoming increasingly important. These systems require innovative VLSI architectures that can perform massive amounts of parallel computation while maintaining low power consumption.

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For India, the growth of AI hardware provides an opportunity to combine its strengths in software and semiconductor design. Indian engineers and startups can contribute to the development of application-specific processors and accelerators for AI, edge computing, robotics, healthcare, automotive systems and communication networks.

Chiplets and 3D Integration

As conventional transistor scaling becomes increasingly challenging and expensive, designers are exploring new ways to improve system performance. Chiplet-based architectures divide a complex system into smaller functional dies that can be integrated within a single package. Different chiplets can perform different functions such as computation, memory, communication or acceleration. Similarly, 3D IC technology and advanced packaging enable multiple layers or dies to be integrated more closely, potentially reducing interconnect distances and improving system-level performance.

These technologies represent an important change in VLSI design philosophy. Instead of focusing only on making a single chip smaller, future semiconductor systems will increasingly focus on how multiple dies, memories and functional blocks can be efficiently integrated into a complete system.

VLSI and the Future of 5G and 6G

Advanced VLSI technology is also essential for next-generation communication systems. 5G networks require highly integrated RF, digital signal-processing and communication hardware, while future 6G systems are expected to demand even greater computational capability, energy efficiency and integration

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Technologies such as massive MIMO, high-frequency communication, intelligent sensing, edge computing and AI-assisted wireless systems will require advanced semiconductor solutions. This creates opportunities for research in RFICs, mixed-signal circuits, low-power digital design, high-speed interfaces and communication processors.

For India, developing expertise in these areas can strengthen the connection between semiconductor technology and the country's growing telecommunications and electronics ecosystem.

Challenges on the Road Ahead

Despite the rapid progress, building a globally competitive semiconductor ecosystem is a complex and long-term undertaking. Semiconductor fabrication requires enormous capital investment, highly controlled manufacturing environments, specialised equipment, reliable utilities and sophisticated process technology. There is a need for semiconductor supply chains, advanced packaging capabilities, equipment support, materials technology and research infrastructure. Another major requirement is the development of a highly skilled workforce capable of working across the entire semiconductor value chain.

Opportunities for ECE and VLSI Students

The growth of India's semiconductor ecosystem is creating exciting opportunities for Electronics and Communication Engineering students. With appropriate skills, one can explore areas such as:

- *Digital VLSI design*
- *ASIC and SoC design*
- *RTL design using Verilog/SystemVerilog*

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- *Functional verification*
- *Physical design*
- *Static timing analysis*
- *Design for Testability (DFT)*
- *FPGA development*
- *Analog and mixed-signal IC design*
- *Embedded systems*
- *Semiconductor device technology*
- *AI accelerator design*
- *RISC-V processor development*
- *Hardware security*
- *RF and communication IC design*
- *Chiplet and advanced packaging technologies*

The Road Towards Semiconductor Leadership

India's semiconductor journey represents an important transition from being primarily a global centre for semiconductor design and engineering services towards building a broader semiconductor ecosystem. The development of fabrication, assembly, testing and packaging capabilities, combined with indigenous chip design and semiconductor research, can provide a stronger foundation for long-term technological growth.

However, semiconductor leadership cannot be achieved through manufacturing infrastructure alone. It requires innovation, intellectual-property creation, research excellence, skilled human resources, entrepreneurship and strong collaboration between government, industry and academia.

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Conclusion

The future of VLSI technology is moving beyond simply increasing transistor density. Advanced transistor architectures, AI accelerators, RISC-V processors, chiplets, 3D ICs, advanced packaging, edge computing and next-generation communication technologies are reshaping the semiconductor industry. By combining the strengths in engineering and chip design with investments in fabrication, packaging, research and indigenous semiconductor technologies, our country can gradually strengthen its position in the global semiconductor landscape. Today's engineers and researchers will play an important role in designing the processors, communication systems, AI hardware and electronic technologies of tomorrow.

India's semiconductor journey has moved from designing chips for the world towards building an ecosystem capable of designing, manufacturing and innovating chips in India. The road ahead is challenging, but the opportunities are enormous.

STORY

The Unsubmitted Project

It was 2:15 a.m.

The room was silent except for the sound of a laptop fan and the occasional click of a keyboard.

A Boy was sitting alone at his desk, working on his final project. His circuit had failed again. He sighed and looked at his phone.

There were three missed calls from his mother.

He didn't call back.

He knew what she would ask.

“Did you eat?”

“Are you studying properly?”

“When will you come home?”

He was tired of answering the same questions.

So he put the phone aside and continued working.

At 3:40 a.m., he finally fixed the circuit.

The LED glowed.

For the first time that night, he smiled.

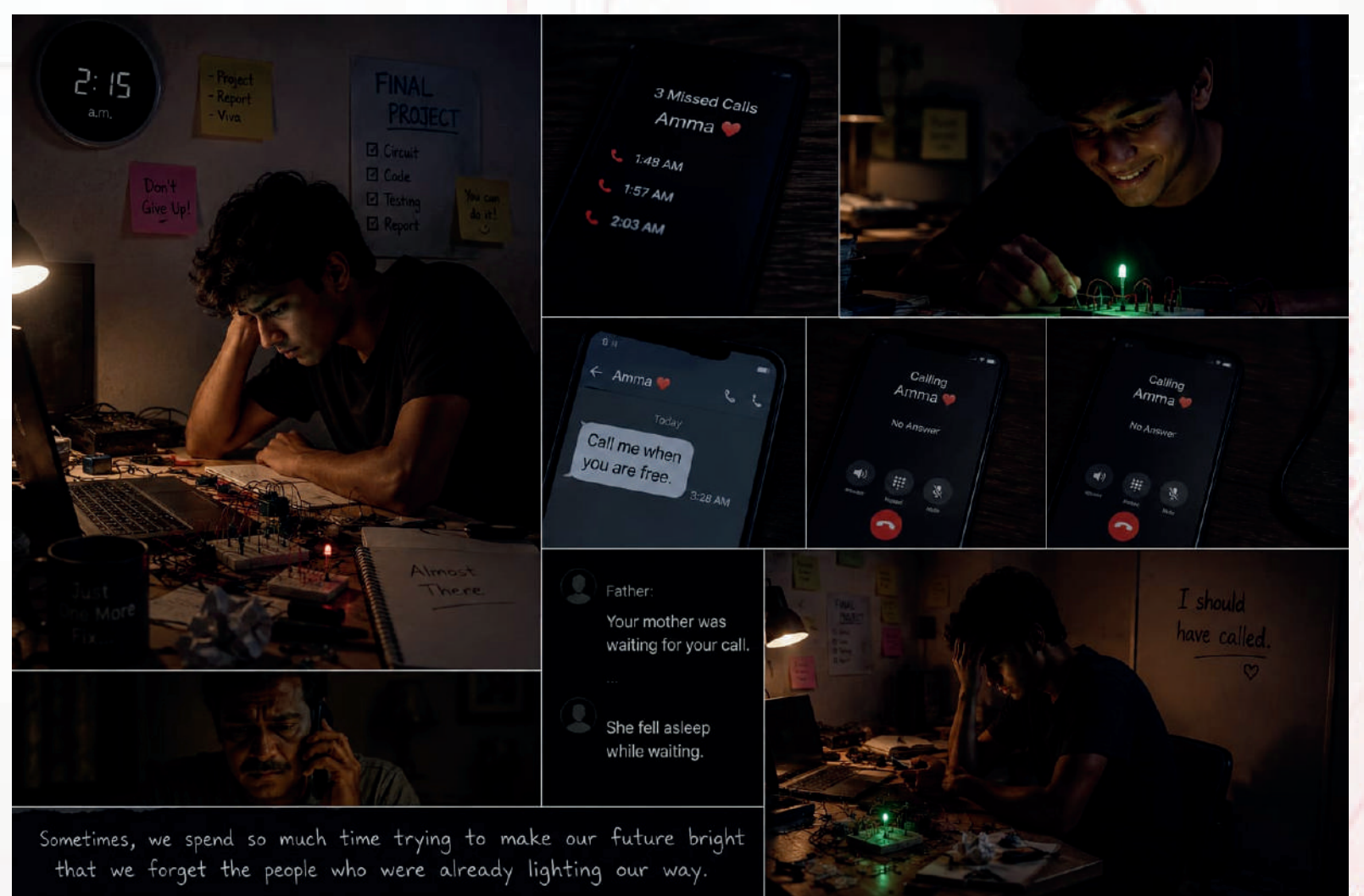
He picked up his phone to tell his mother.

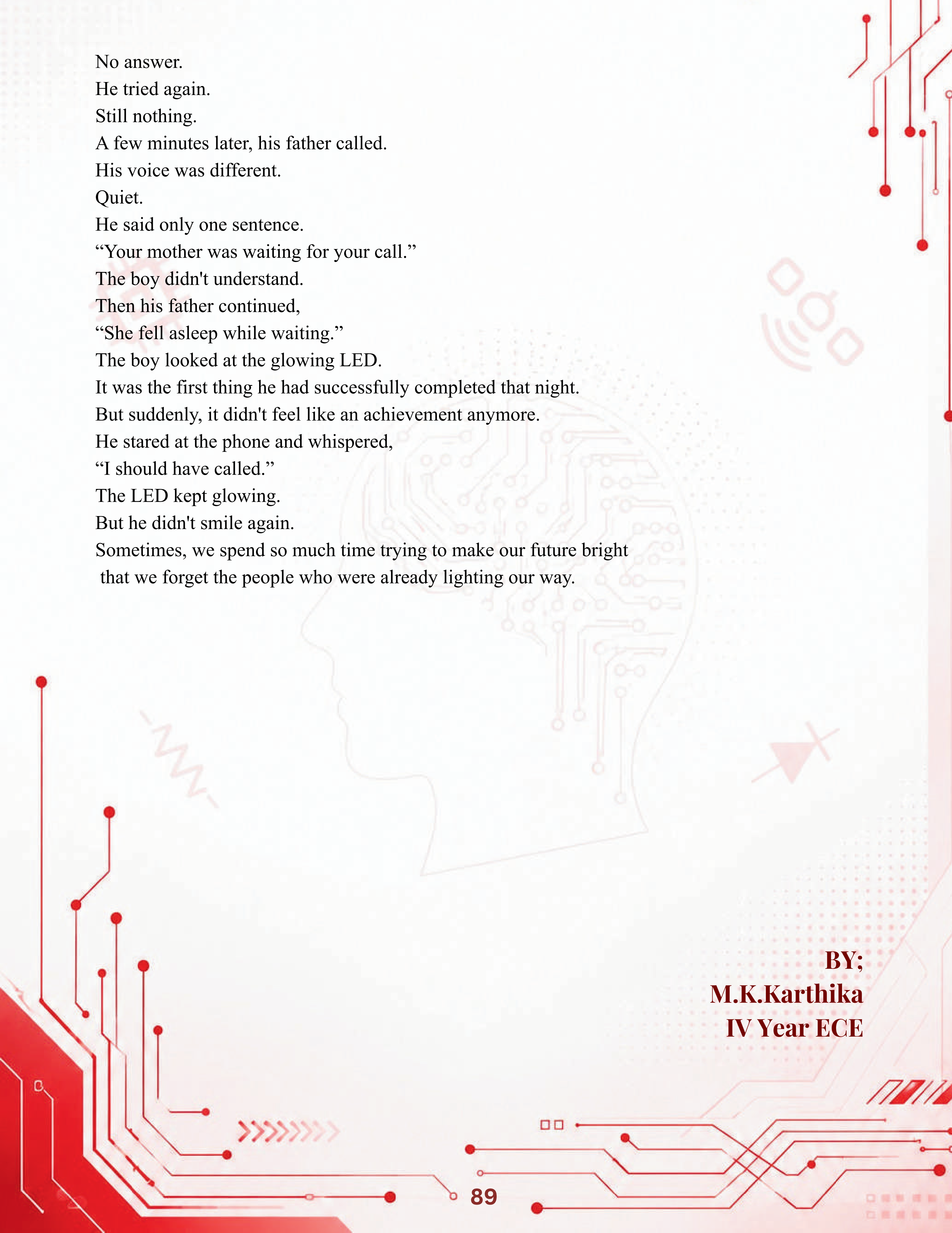
There was a message.

“Call me when you are free.”

He called immediately.

To Be Continued.....





No answer.
He tried again.
Still nothing.
A few minutes later, his father called.
His voice was different.
Quiet.
He said only one sentence.
“Your mother was waiting for your call.”
The boy didn't understand.
Then his father continued,
“She fell asleep while waiting.”
The boy looked at the glowing LED.
It was the first thing he had successfully completed that night.
But suddenly, it didn't feel like an achievement anymore.
He stared at the phone and whispered,
“I should have called.”
The LED kept glowing.
But he didn't smile again.
Sometimes, we spend so much time trying to make our future bright
that we forget the people who were already lighting our way.

BY;
M.K.Karthika
IV Year ECE

STORY

Leo did not just play with toys. He dismantled them.

By age twelve, his bedroom floor was a graveyard of stripped remote-controlled cars and gutted alarm clocks. Where others saw broken junk, Leo saw secrets waiting to be unlocked. His hands were constantly stained with solder, and his mind was always asking "why."

Then came the night the sky turned black. A brutal summer storm ripped through the valley, tearing down power lines and plunging the entire town into darkness.

The blackout was more than an inconvenience; it was a disaster for the local community greenhouse. Inside those glass walls lived thousands of delicate medical plants, completely dependent on automated temperature controls.

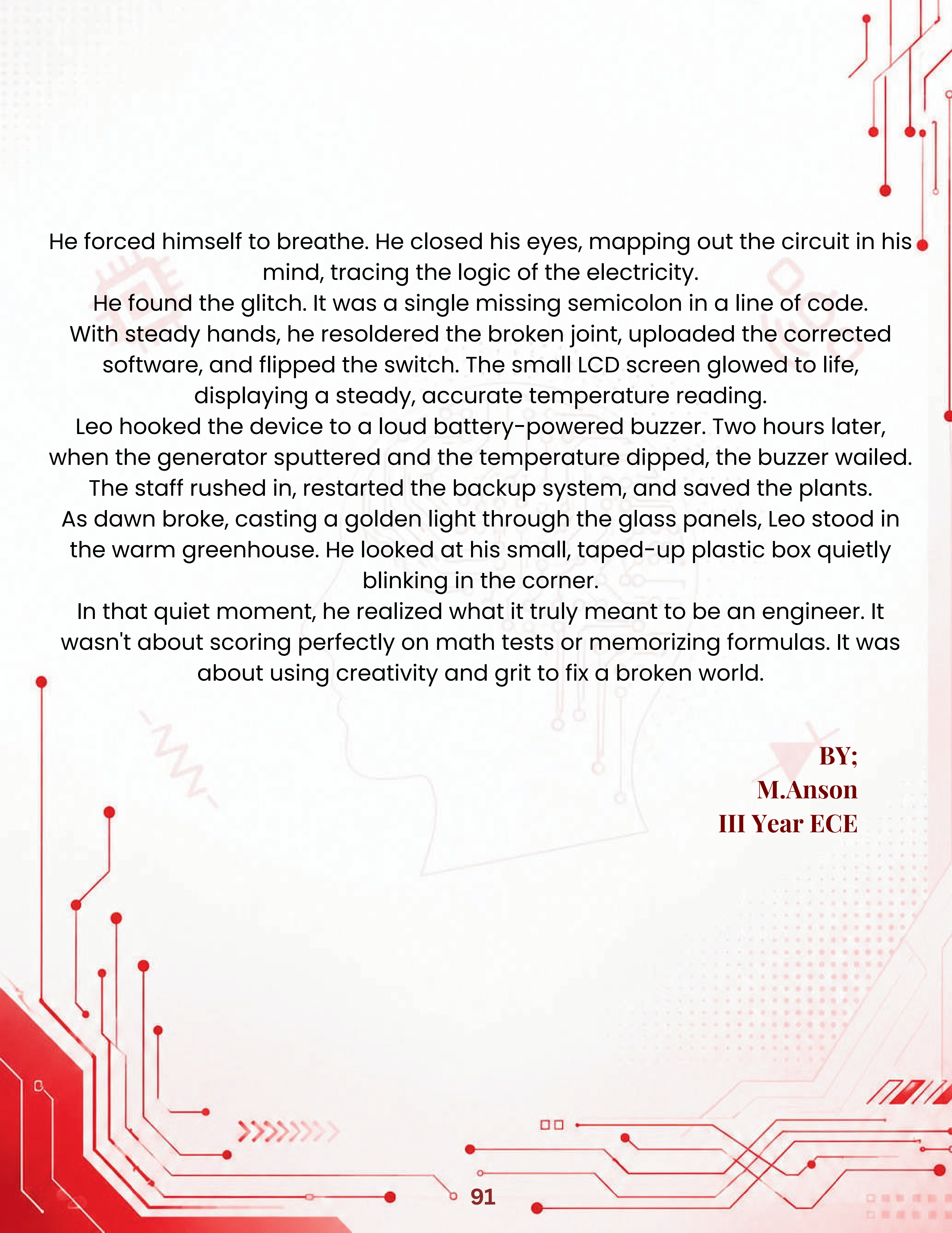
Without power, and with the backup generators fluctuating, the crops would freeze before dawn.

Leo's uncle, the head gardener, called the boy in a panic. He didn't need a certified professional; he needed someone who could think fast.

Leo grabbed his backpack. Inside was a makeshift kit: an old Arduino microcontroller, a cheap digital thermometer, a soldering iron, and a tangled nest of copper wires.

Working by the shaky beam of a flashlight, Leo began to build a temporary monitor. The greenhouse was growing colder by the minute.

Frustration set in quickly. His first attempt at coding the sensor failed. The screen flickered and died. A thin wire snapped under his trembling fingers. Self-doubt hit him like a physical blow. He was just a kid on a bedroom floor—how could he save something this important?



He forced himself to breathe. He closed his eyes, mapping out the circuit in his mind, tracing the logic of the electricity.

He found the glitch. It was a single missing semicolon in a line of code. With steady hands, he resoldered the broken joint, uploaded the corrected software, and flipped the switch. The small LCD screen glowed to life, displaying a steady, accurate temperature reading.

Leo hooked the device to a loud battery-powered buzzer. Two hours later, when the generator sputtered and the temperature dipped, the buzzer wailed.

The staff rushed in, restarted the backup system, and saved the plants. As dawn broke, casting a golden light through the glass panels, Leo stood in the warm greenhouse. He looked at his small, taped-up plastic box quietly blinking in the corner.

In that quiet moment, he realized what it truly meant to be an engineer. It wasn't about scoring perfectly on math tests or memorizing formulas. It was about using creativity and grit to fix a broken world.

**BY;
M.Anson
III Year ECE**

Whispers of Nature

When morning paints the silent sky,
And golden rays begin to fly,
The trees awake with gentle grace,
A smile appears on nature's face.

The breeze hums soft through leaves so green,
A peaceful song, calm and serene.
The rivers dance with crystal light,
Reflecting stars that blessed the night.

The mountains stand both proud and wise,
Their peaks embracing endless skies.
Each flower blooms with colors bright,
A tiny miracle in sight.

The birds compose a joyful tune,
To greet the sun and silver moon.
The forests whisper, "Take your time,
Life blooms in every leaf and vine."

So pause a while, just look around,
Where hope and beauty can be found.
For in each breeze and drop of rain,
Nature heals the heart again.

By,
Karthika M K
Final year ECE

The Politics of Solving

When truth seeks paths through tangled webs of might,
The loud applaud, yet silence greets the just;
One law by day, another cloaked by night,
Where double standards fracture public trust.
Each problem wears the colours power paints,
While answers bend beneath ambition's reign;
The voice of reason weakens into complaints,
As justice stumbles, burdened by disdain.
Yet Anna (C.N Annadurai) taught that duty lights the way,
Not crowns, nor cheers, nor fortune's fleeting call;
"Kadamai, Kanniyam, Kattupaadu" still holds sway,
When honest minds refuse to yield or fall.
Solve not for victory, nor loud acclaim,
But leave the world more truthful than it came.

T.Jefrin Samuel
ECE-II

எம்பெட் இன்ஜினியரின் கவிதை

கோடில் ஒரு Semicolon விட்டேன்,
Compiler என்னை திட்டிவிட்டேன்!
Debug செய்து இரவு முழுதும் விழித்தேன்,
Embedded Engineer ஆகும் கனவை விடவில்லை.

LED ஒளிரும் போது மனசும் ஒளிரும்,
Sensor பேசும் போது அறிவும் வளரும்.
Microcontroller நண்பனாக இருந்தால்,
Assignment கூட சிரித்தபடி முடியும்.

Wi-Fi போனால் கவலை இல்லை,
Embedded Board இருந்தால் தனி ஸ்டைல்!
Code Run ஆனால் சந்தோஷம்,
Error வந்தால் Google தான் தோழன்.

என் இதயம் ஒரு Microcontroller,
உன் நினைவு ஒரு Interrupt.
எப்போது வேண்டுமானாலும் Trigger ஆகிவிடும்,
அதுதான் என் வாழ்க்கையின் Sweetest Output!

Code-உம் Circuit-உம் சேர்ந்த பயணம்,
கனவுகளை நனவாக்கும் நம் முயற்சி தினமும்.
Error வந்தாலும் மனம் தளராது,
Embedded Engineers என்றென்றும் முன்னேறுவோம்!

By,
Gejo J
Final year ECE

மலரும் நினைவுகள்

நம் ECE பயணம்
 முதல் வருடம் வந்தபோது,
 புதிய முகங்கள்... புதிய வகுப்பறை...
 "யார் இவர்கள்?" என்ற கேள்வியோடு
 தொடங்கியது நம் பயணம்...
 இன்று நான்காம் வருடம் முடிவில்,
 "இவர்கள் இல்லாமல் எப்படி?" என்று கேட்கும் அளவுக்கு
 நம் இதயத்தில் இடம் பிடித்துவிட்டீர்கள்...
 ECE என்ற மூன்று எழுத்துகளில்
 நாம் படித்தது Electronics மட்டும் அல்ல,
 Friendship, Emotion, Confidence என்ற
 வாழ்க்கைப் பாடங்களையும்தான்!
 Circuit-ல் connection தேடினோம்,
 ஆனால் வாழ்க்கையில் நல்ல மனிதர்களின் connection கிடைத்தது...
 Lab-ல் circuit வேலை செய்யாமல் போனாலும்,
 நண்பர்களுடன் சேர்ந்து செய்த அந்த முயற்சிகள் மட்டும்
 என்றும் Failure ஆகாது!
 Record எழுதாத இரவுகள்,
 Assignment ஓடிய காலைகள்,
 Exam-க்கு முன் படித்த பதற்றங்கள்,
 "Pass ஆகிடுவோமா?" என்ற பயங்கள்...
 இன்று நினைத்தால் எல்லாமே சிரிப்பாகிவிட்டது!

நான்கு வருடங்கள்...
 நான்கு semester அல்ல,
 நான்கு வருட GPA அல்ல,
 நான்கு வருட Attendance அல்ல...

அது,
 சிரிப்புகள்,
 கண்ணீர்,
 சண்டைகள்,
 சமாதானங்கள்,
 வெற்றிகள்,
 தோல்விகள்,
 மற்றும் மறக்க முடியாத நட்புகளின்
 ஒரு அழகான வாழ்க்கை!
 நாளை யாரோ Chennai-ல்,
 யாரோ Bangalore-ல்,
 யாரோ வேறு நாட்டில்...
 வேறு வேலை...
 வேறு வாழ்க்கை...
 வேறு பாதைகள்..
 ஆனால் எத்தனை வருடங்கள் கடந்தாலும்
 ஒரு நாள் சந்திக்கும்போது...
 "டேய்... நம்ம College Days ஞாபகம் இருக்கா?"
 என்று ஒருவர் கேட்டால் போதும்...
 அந்த ஒரு கேள்வி நம்மை மீண்டும்
 அந்த Classroom-க்கே அழைத்துச் செல்லும்!
 இன்று நம் வகுப்பறையின் கதவு மூடுகிறது...
 ஆனால் நம் கனவுகளின் கதவு இன்றுதான் திறக்கிறது!
 College Life முடிகிறது...
 ECE memories முடிவதில்லை...
 நம் பாதைகள் பிரிகின்றன...
 நம் நட்பு பிரிவதில்லை!
 ஒரு நாள் நாம் பெரிய இடத்தில் இருப்போம்...
 அப்போது திரும்பிப் பார்க்கும்போது
 நம் வாழ்க்கையின் மிக அழகான Chapter-ஆக
 இந்த நான்கு வருடங்கள்தான் இருக்கும்.
 "விடைபெறுகிறோம் கல்லூரியே..
 நன்றி நண்பர்களே...
 நன்றி ஆசிரியர்களே...
 நன்றி ECE எங்கள் வாழ்க்கையின்
 மறக்க முடியாத அத்தியாயமாக இருந்ததற்கு!"
 ECE Batch 2023 - 2027
 ஒரு வகுப்பு அல்ல... ஒரு குடும்பம்

- மீனா.மு (IV ECE)

The Journey of Knowledge

**In halls of learning, minds take flight,
With every spark, a guiding light.
From pages turned and lessons gleaned,
The journey of knowledge is keenly esteemed.**

**Through realms of history, we stride,
Unraveling tales, side by side.
With each discovery, we bridge the past,
Crafting futures that forever last.**

**In laboratories, where wonders breed,
Curiosity sows the fertile seed.
Experimentation fuels our quest,
As we seek to unveil what's best.**

**In classrooms filled with eager minds,
Instructors guide, and wisdom finds.
A symphony of thoughts, a chorus grand,
As intellects unite to understand.**

**With every question, a world unfurls,
Inquiry's touch, the map of pearls.
Education, the compass true,
Guiding hearts to skies of blue.**

**For in the realm of the educated mind,
Lies the power to uplift humankind.
So let us cherish each lesson taught,
And embrace the knowledge dearly sought.**

**Dr. R. Baby Shalini
Associate professor/ECE**

எது உண்மை?

கீழ்விழுந்த பனித்துளி உருகிவிழ ஆறாகி விழிகளின்
வாசற்திறந்து! இல்லை இல்லை. வாசற்கதவையும்
உடைத்துக் கொண்டது! அனுமதி இல்லாமல் அவள்
கன்னம் தொட்டுத் தடவியது. உருண்டோடி
மண்ணைக் கவ்வியது

ஏன் ??!

புன்னகை அணிந்த இதழ்கள்! ஆனால் பொன் நகை
அணிந்த பொலிவு மறைந்ததேனோ! இருந்தால்
தானே மறைவதற்கு
நீர் கோர்த்த கண்கள்
புன்முறுவலுடன் அந்த இதழ்கள்
எது உண்மை!!!??

புரிந்து கொள்ள ஏங்குகிறது என் இதயம்
வினவலாம் என்றது! அருகினேன் உருகிய கண்கள்
என் மேல் பதிந்தது! ஓசையில்லா மொழிகளும்
புரிந்தது! காரணம் தெரியாது எனினும் என்
இதயம் வருந்தியது

இவள்;
ஆனி ஜூலியட் பா.அ
III Year ECE

பைத்தியக்கார மனம்....

சாலையோரங்களில் அனாதையைப் போல் அங்குமிங்கும்
தனியாகச் சுற்றிக்கொண்டிருக்கும் பைத்தியக்காரர்களைக் கூர்ந்து
கவனிக்கையில், அவர்கள் எதையோ யாரிடமோ சொல்வதைப்
போலவும், கேட்பதைப் போலவும் நினைத்து, தனிமையில் யாரோ
ஒருவருடன் நின்று உரையாடிக் கொண்டிருக்கின்றனர். அவர்கள்
நினைத்ததைச் சத்தமிட்டோ, உதடுகளை மட்டும் அசைத்து
சத்தமில்லாமலோ பேசிக்கொண்டு இருக்கின்றனர்.
இவர்களெல்லாம் யார்? எப்படியிப்படி ஆனார்கள்? எங்கேயிருந்து
வருகின்றார்கள்? என்று மனதிற்குள் பல்லாயிரம் கேள்விகள்
ஓடிக்கொண்டுதான் இருக்கின்றன.
அதிக ஆசை, அதிக அன்பு, அதிக கோபம், அதிக வெறுப்பு, அதிக
ஏமாற்றம், அதிக அழுகை—இவையெல்லாமே அதிகமாகி,
தனிமையில் தள்ளி, மூச்சுமுட்டி இறக்குமளவிற்குக் கொண்டு
போய்விடும்!!
இந்த அதிக அளவு அன்பு...
“எல்லா மௌனங்களும் திமிர் அல்ல. சில மௌனங்கள் சொல்ல
முடியாத காயங்கள்.”

BY,
L.GIBIN,
IV ECE

வாழ்க்கை

நிரந்தரம் இல்லாத உலகில் உனக்கான பாதையை
நீயே உருவாக்கிக்கொள். வாய்ப்பைத் தேடி ஓயாமல்,
உனக்கான வாய்ப்பை நீயே உருவாக்கிக்கொள்.

அடுத்தவன் ஆயிரம் சொல்லட்டும், அதைப்
பற்றியெல்லாம் நினைத்துக் கவலைப்படாதே...
ஏனென்றால் உனக்குப் பசித்தால் நீ மட்டும்தான்
உண்ண முடியும்.... தோல்வியை நினைத்துக் கலக்கம்
கொள்ளாதே! அதிலிருந்து பெற்ற அனுபவத்தை
மட்டும் எடுத்துக்கொள்!... ஏனெனில் புத்திசாலியை
விட அனுபவசாலிக்கே வலிமை அதிகம்...

உனக்குக் கிடைத்த தோல்வியைக் கல்லாக
நினைத்துக்கொள்!.. அதைச் சிலையாக (வெற்றி)
மாற்றுவதும், அப்படியே கல்லாக (தோல்வி)
வைத்திருப்பதும் உன்னிடமே உள்ளது....

உன்னை நீ நம்பு. உலகமே உன் வசமாகும்!

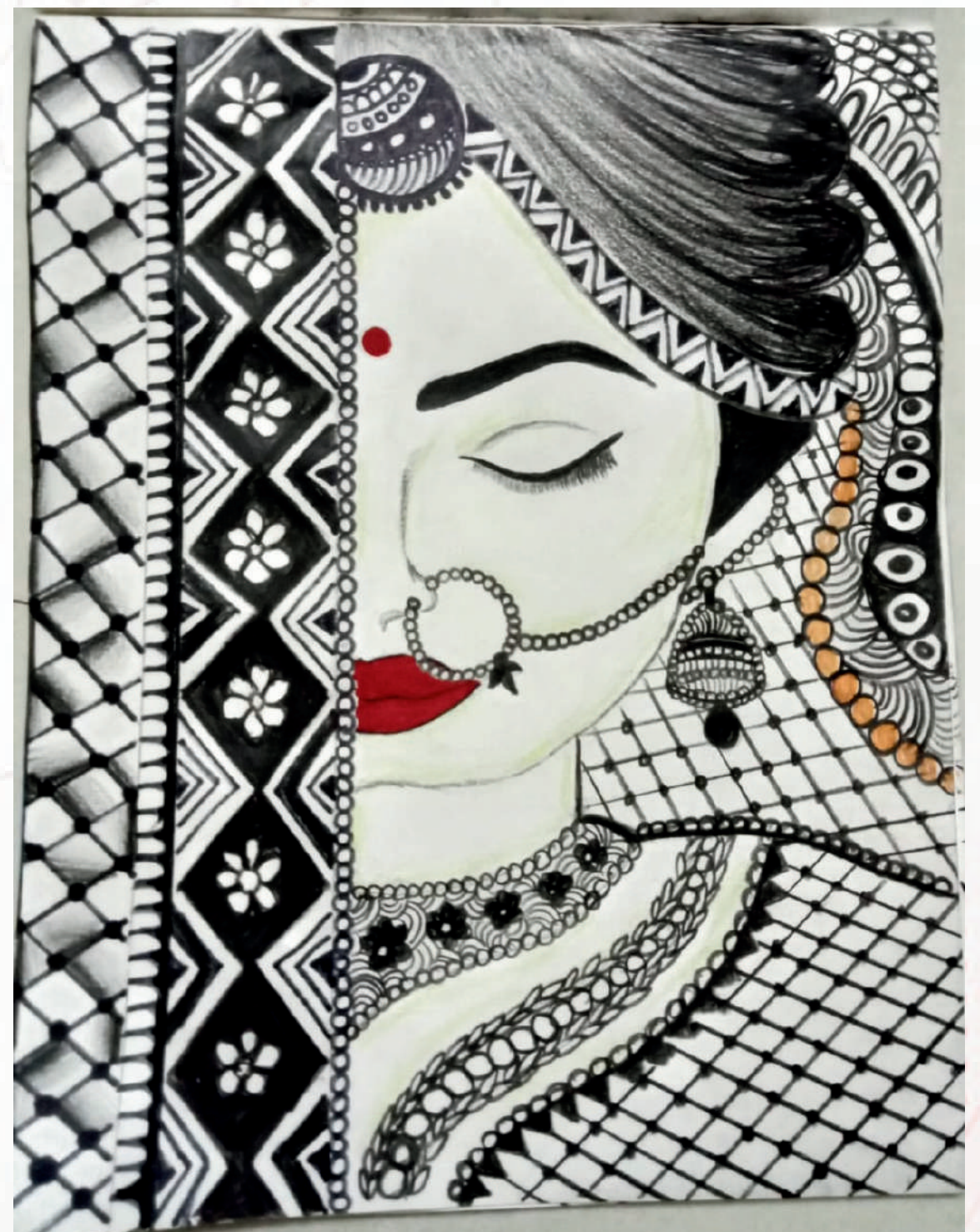
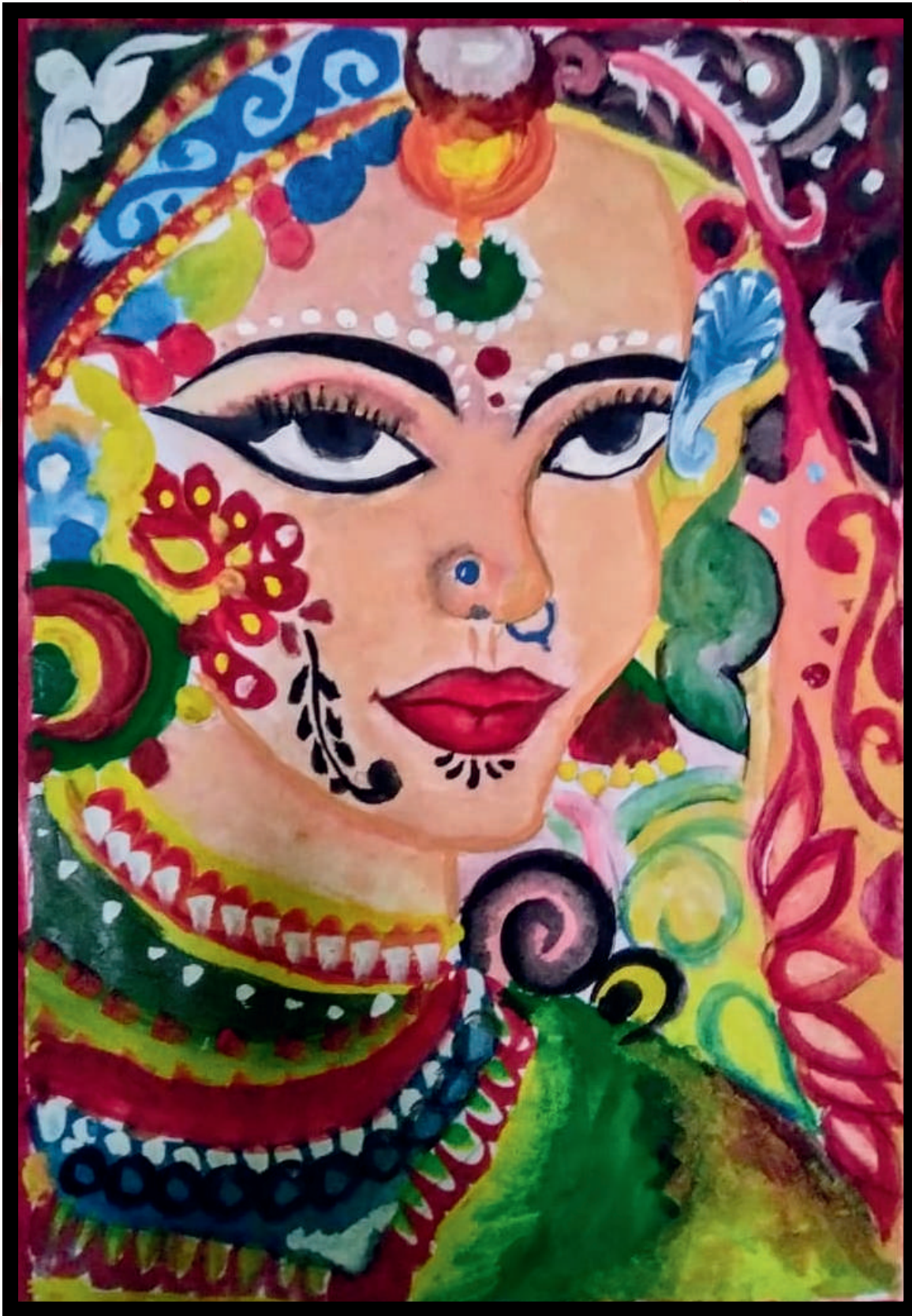
BY,
L.GIBIN,
IV ECE

DRAWING



**BY;
J.Emima rose
III Year ECE**

DRAWING



BY;
Keerthika
III Year ECE

DRAWING



**BY;
Rehan M
II Year ECE**

DRAWING



**BY;
DIRISHA GOLD
II Year ECE**

DRAWING



BY;
DIRISHA GOLD
II Year ECE

DRAWING



**BY;
Shivaani D
II Year ECE**



DRAWING



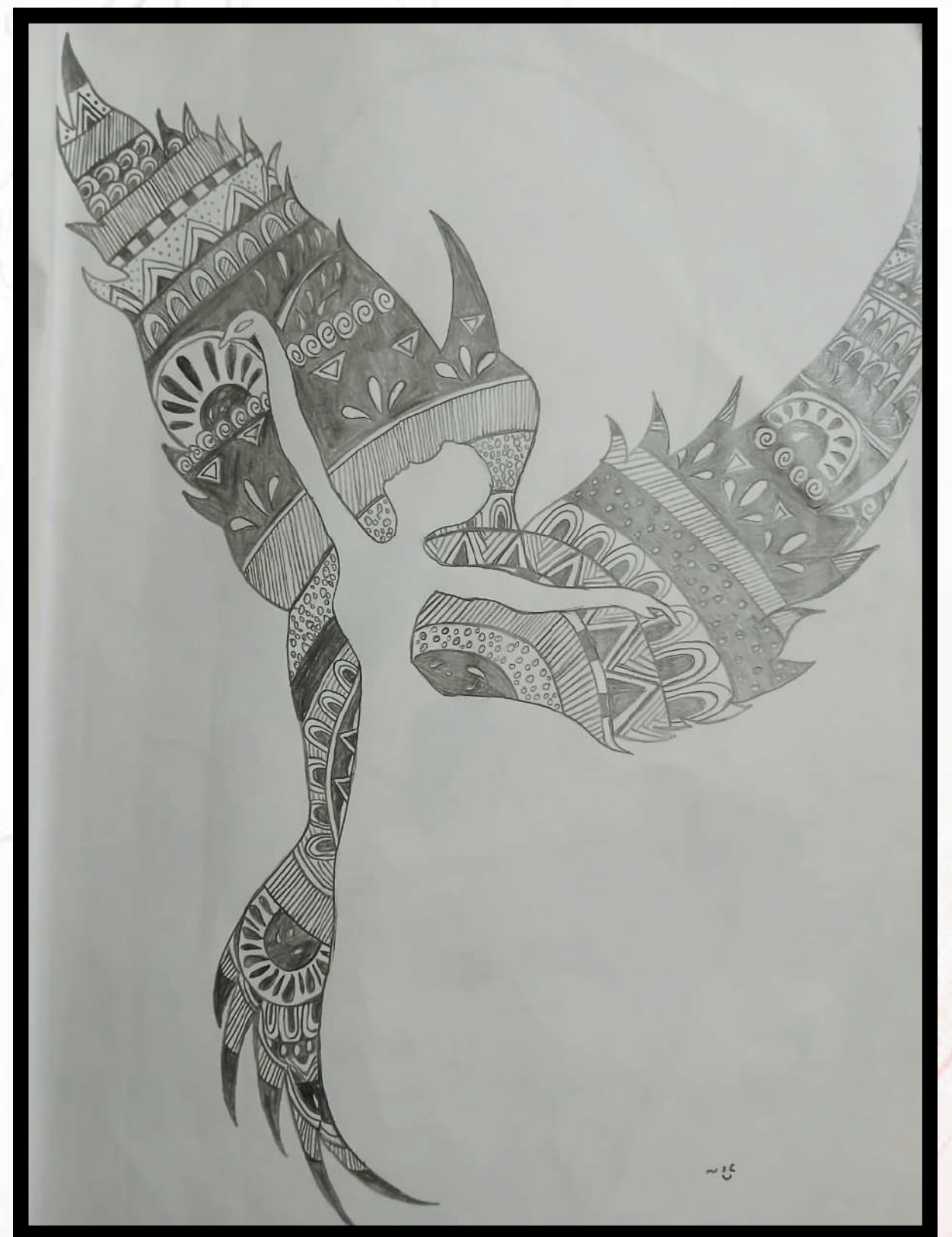
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Bhavya
III Year ECE**

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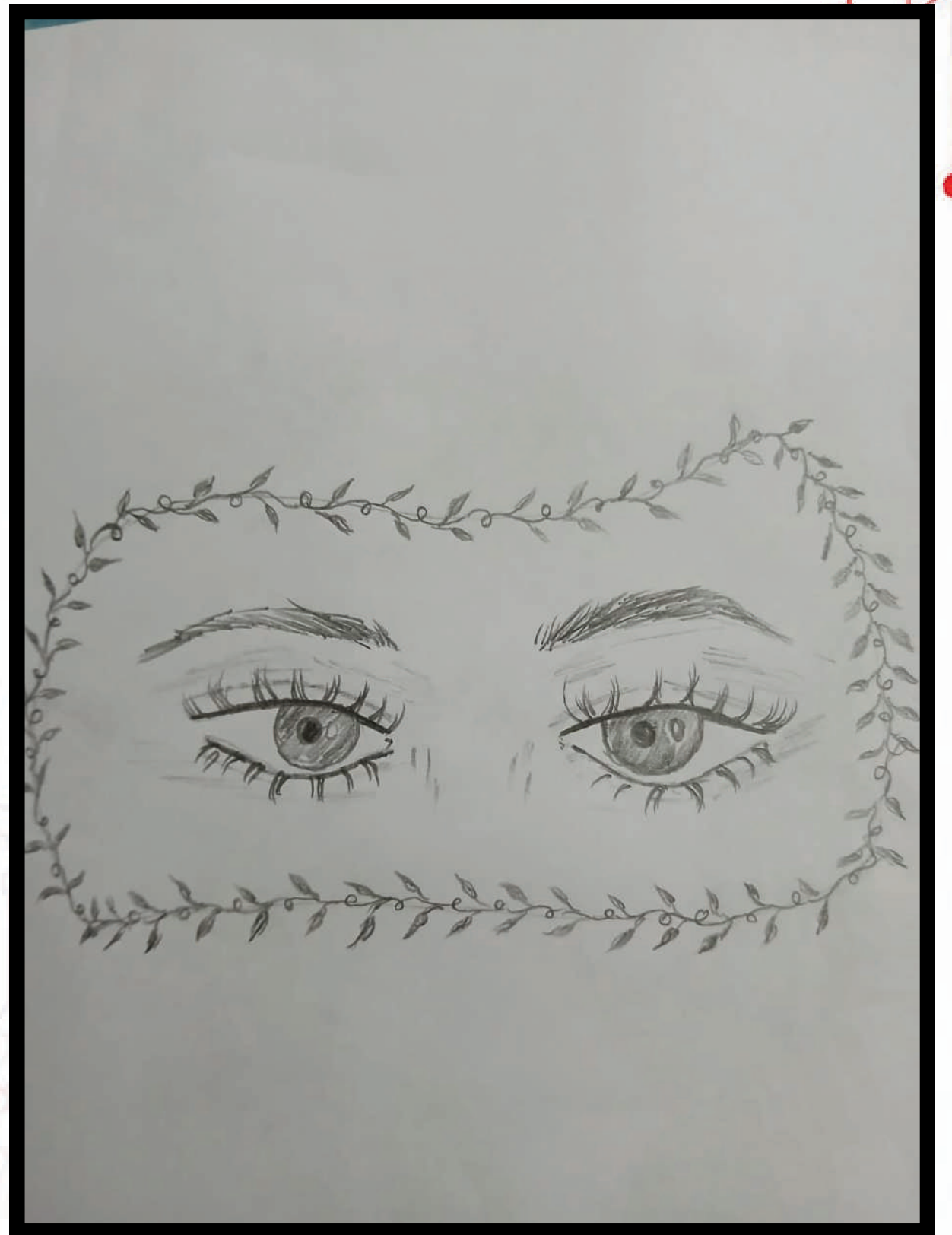
BY;
Rithika Shajini
III Year ECE

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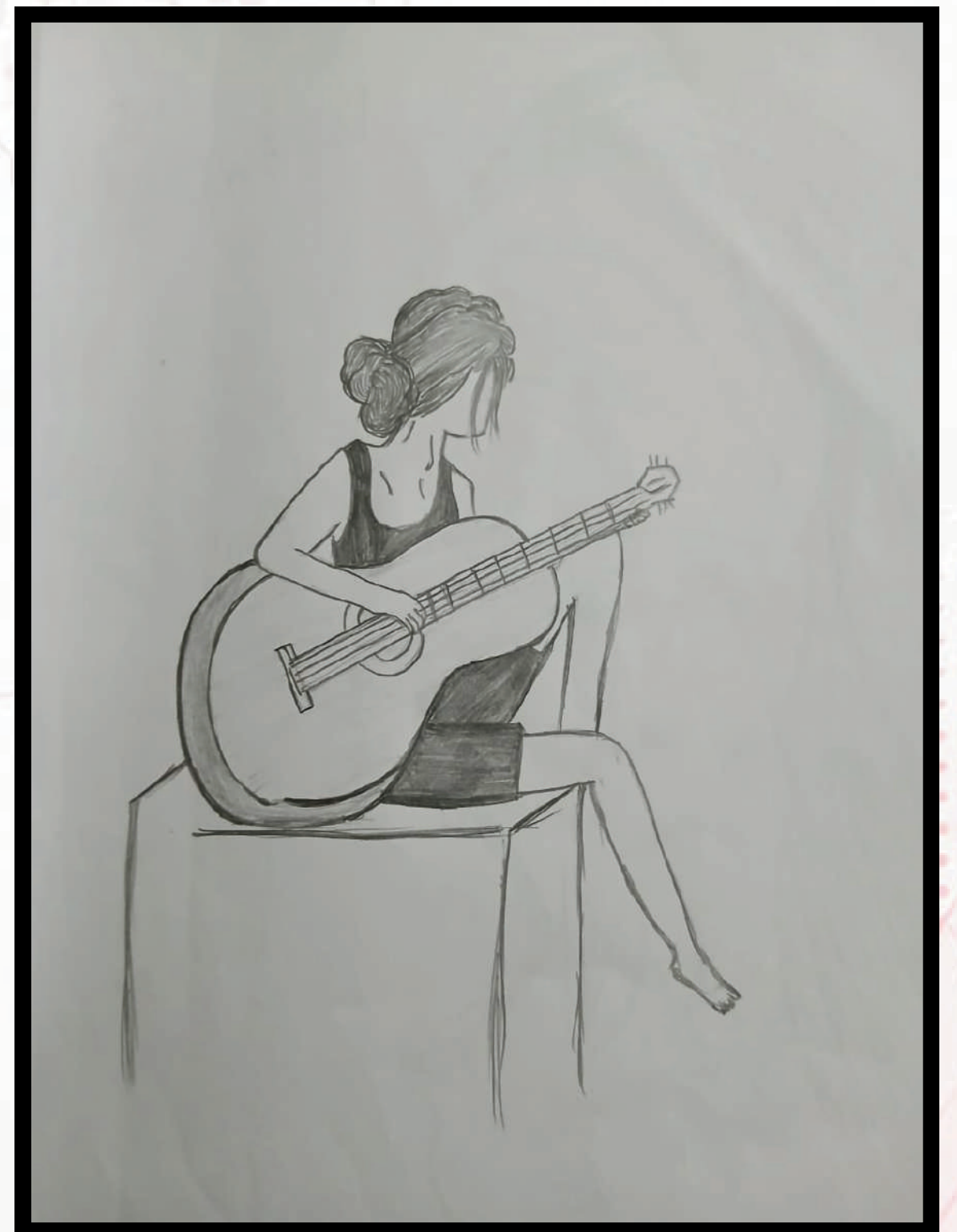


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Annie Juliet B.A
III Year ECE

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BY;
Annie Juliet B.A
III Year ECE

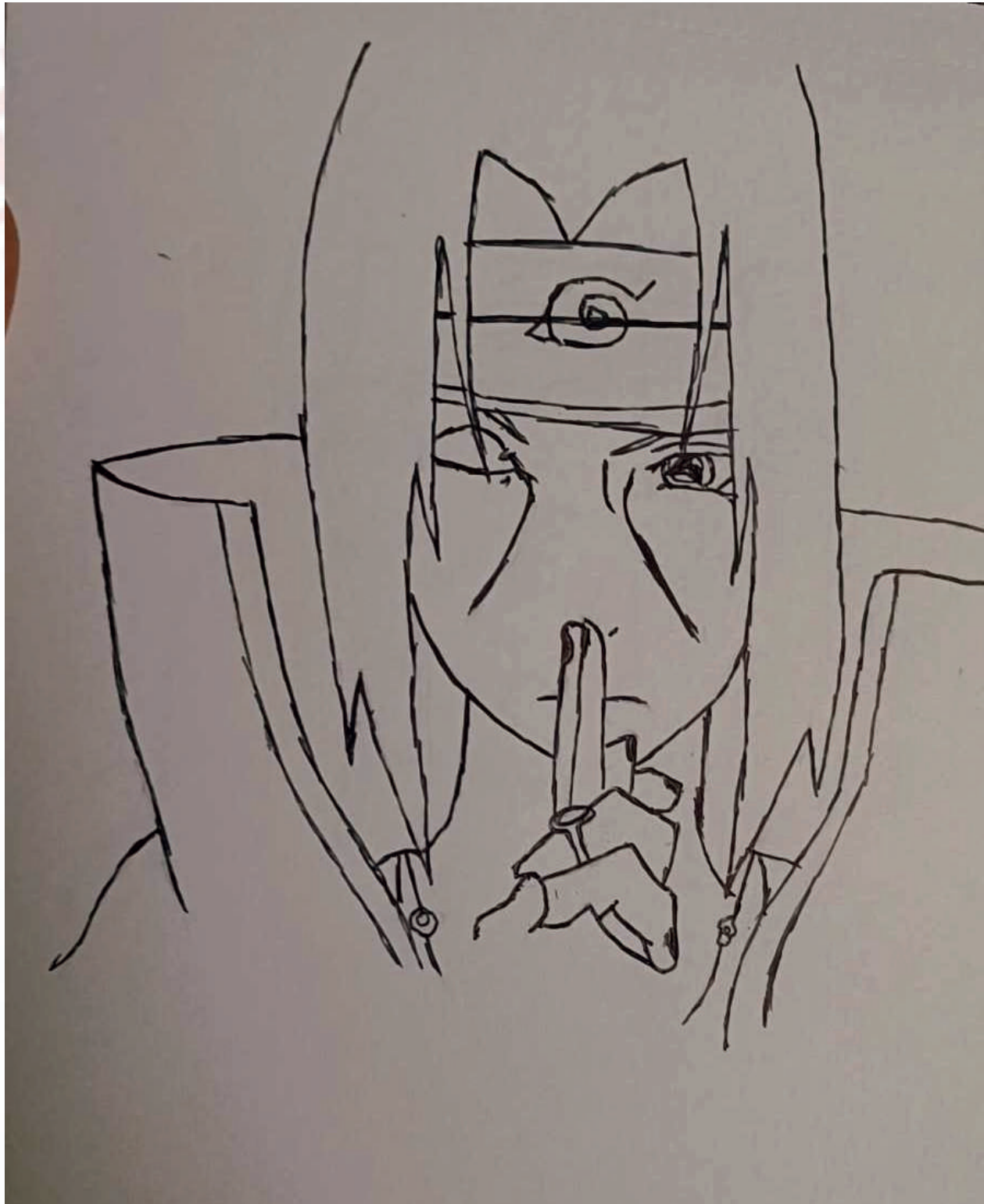


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**BY;
Siva Nethra
II Year ECE**

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**BY;
R L Renjith
III Year ECE**

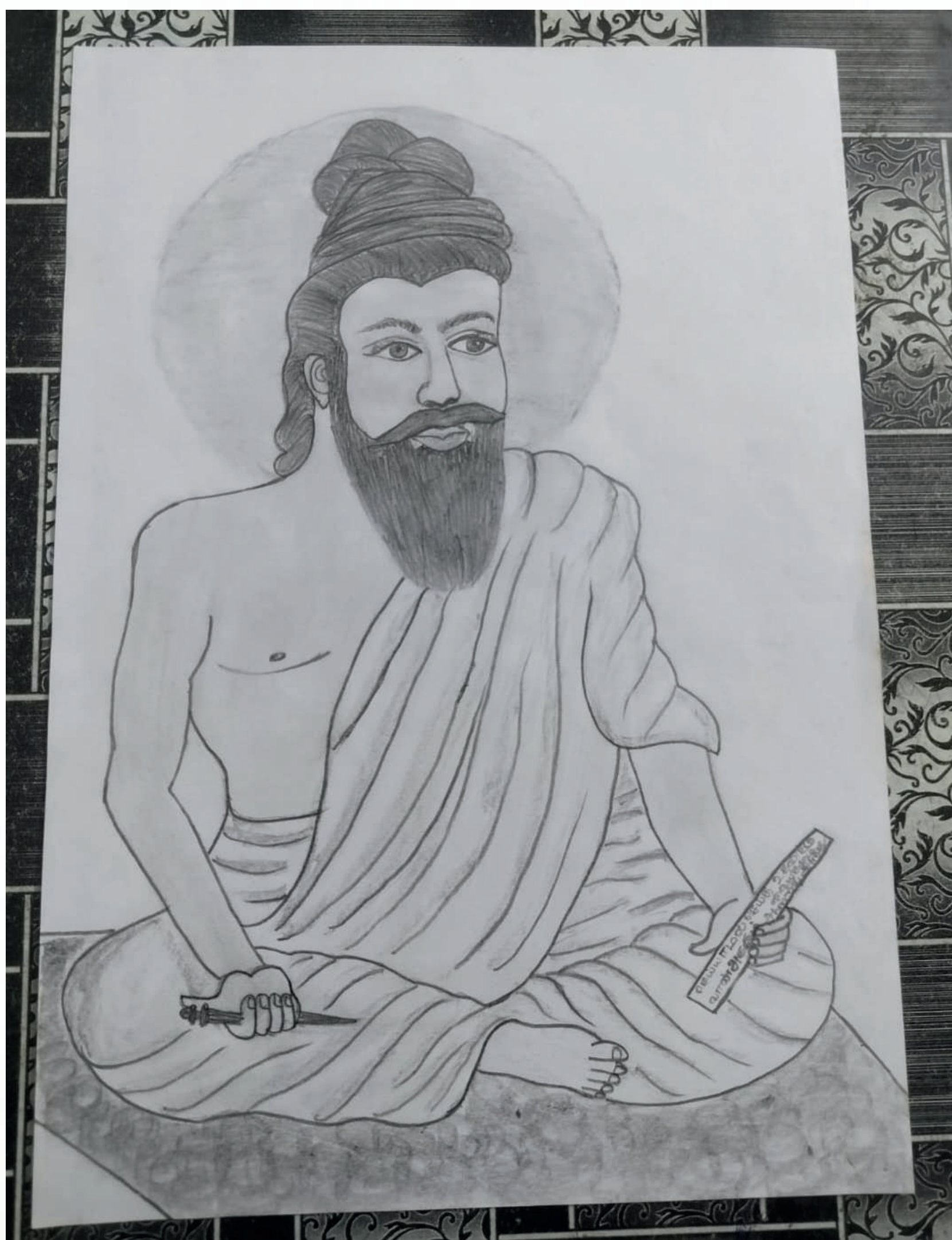
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R L Renjith
III Year ECE**

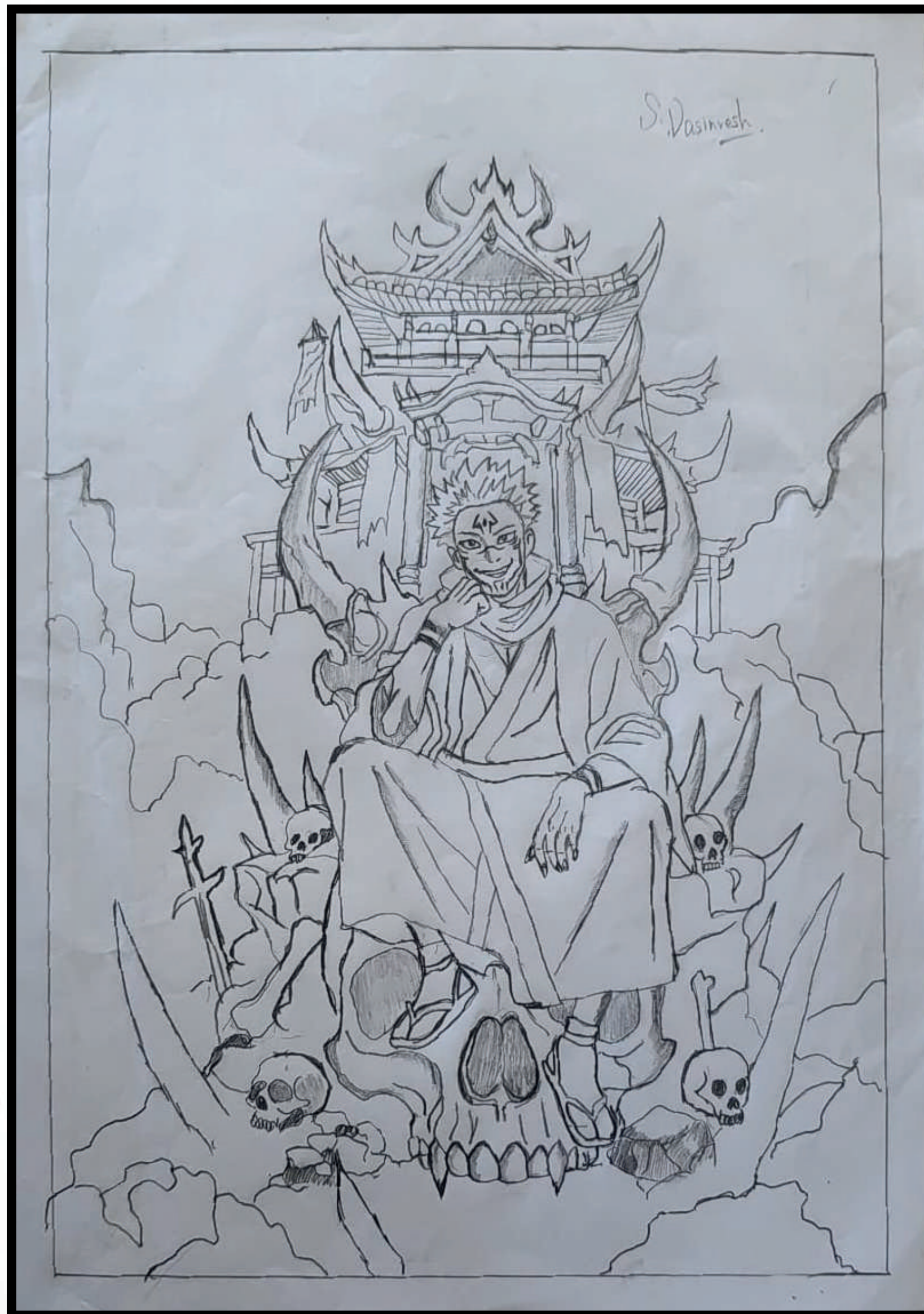
DRAWING

"வள்ளுவன் தன்னை உலகினுக்கே தந்து வான்புகழ் கொண்ட தமிழ்நாடு"



BY;
Siva Nethra
II Year ECE

DRAWING



BY;
VASIN RESH
IV Year ECE

DRAWING



BY;
Bhavya
III Year ECE

Art works



**BY;
Emima rose
III Year ECE**

Art works



BY;
Oviya SV
II Year ECE



Art works



**BY;
Rithika Shajini
II Year ECE**



Art works



BY;
Rithika Shajini
II Year ECE

Art works



**BY;
Latha
IV Year ECE**

Wall Paintings



BY;
Keerthika I
III Year ECE



Wall Paintings



**BY;
Bhavya
III Year ECE**

Photographs



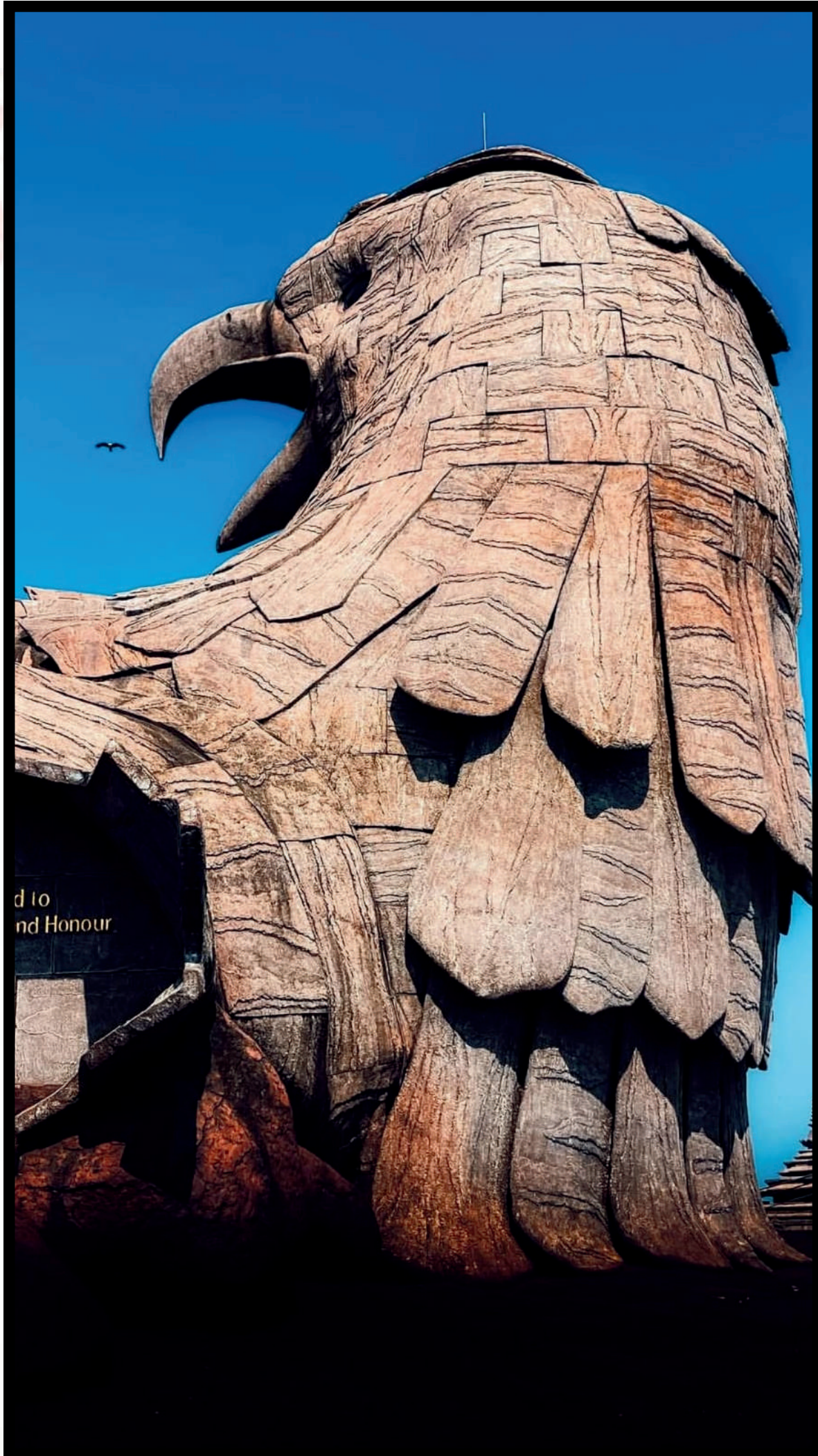
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C.Pushparaj
IV Year ECE

Photographs



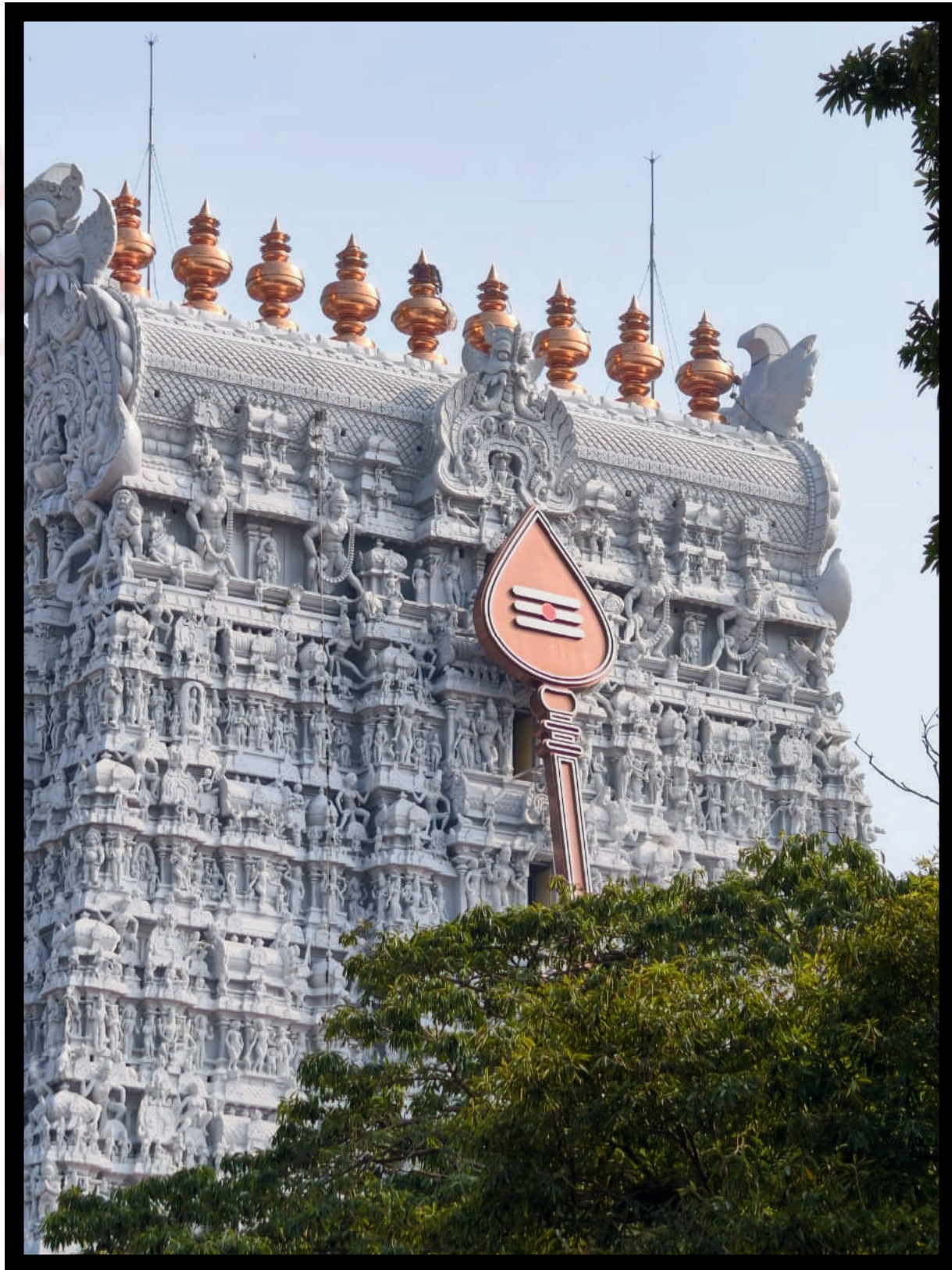
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Photographs



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Rehan
II Year ECE**

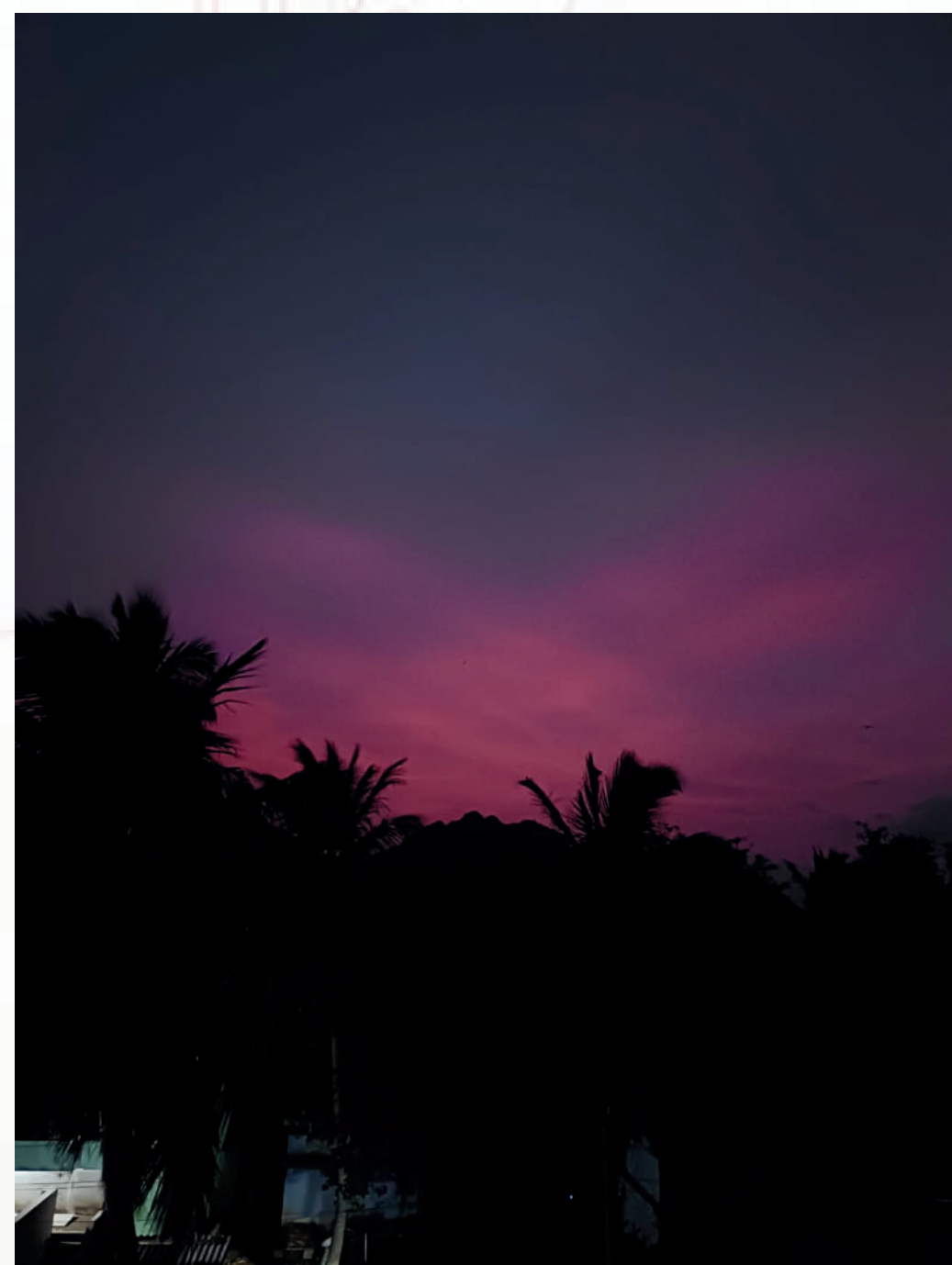


Photographs



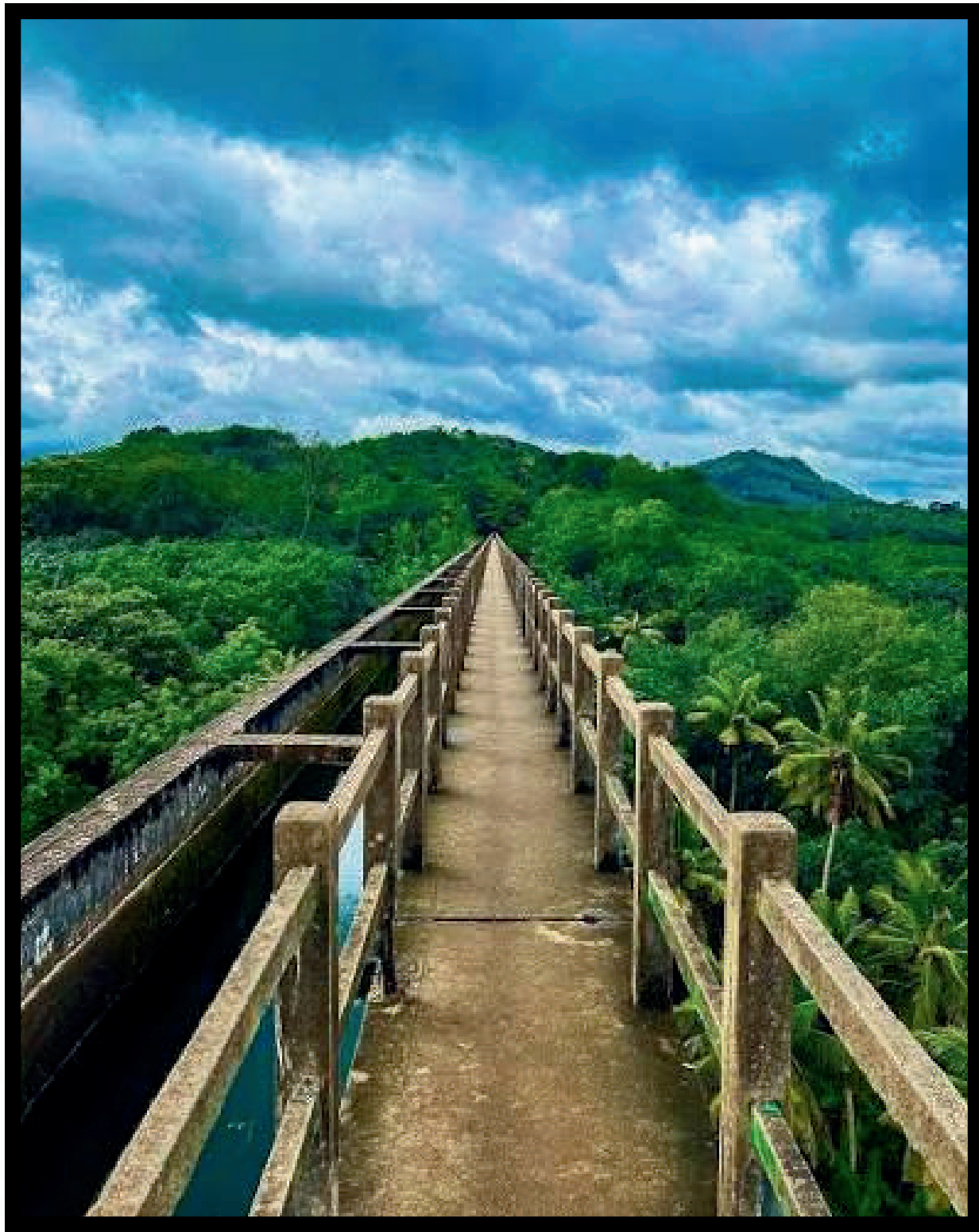
**BY;
Jeeva.P
III Year ECE**

Frames of RCET



**BY;
Rehan
II Year ECE**

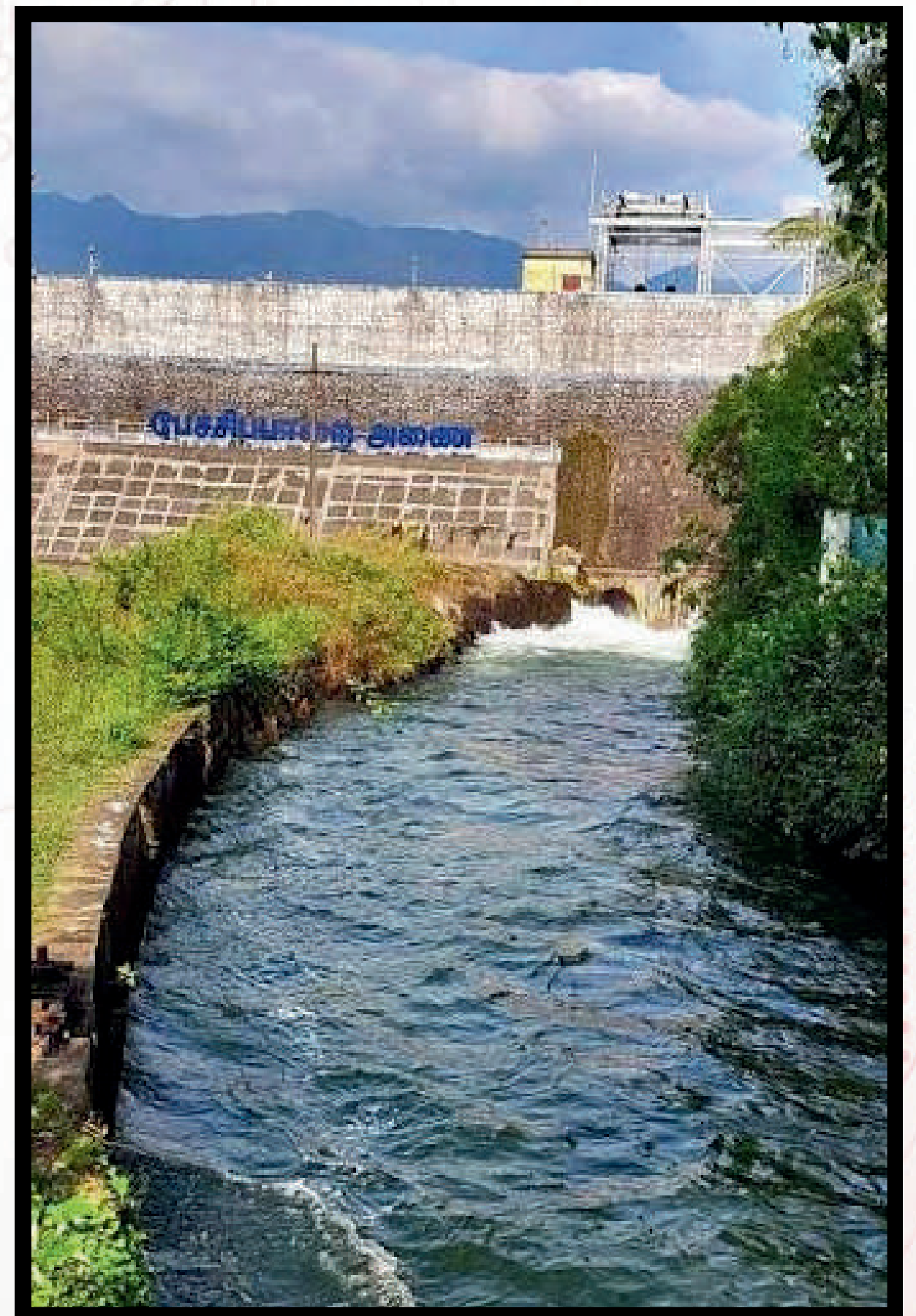
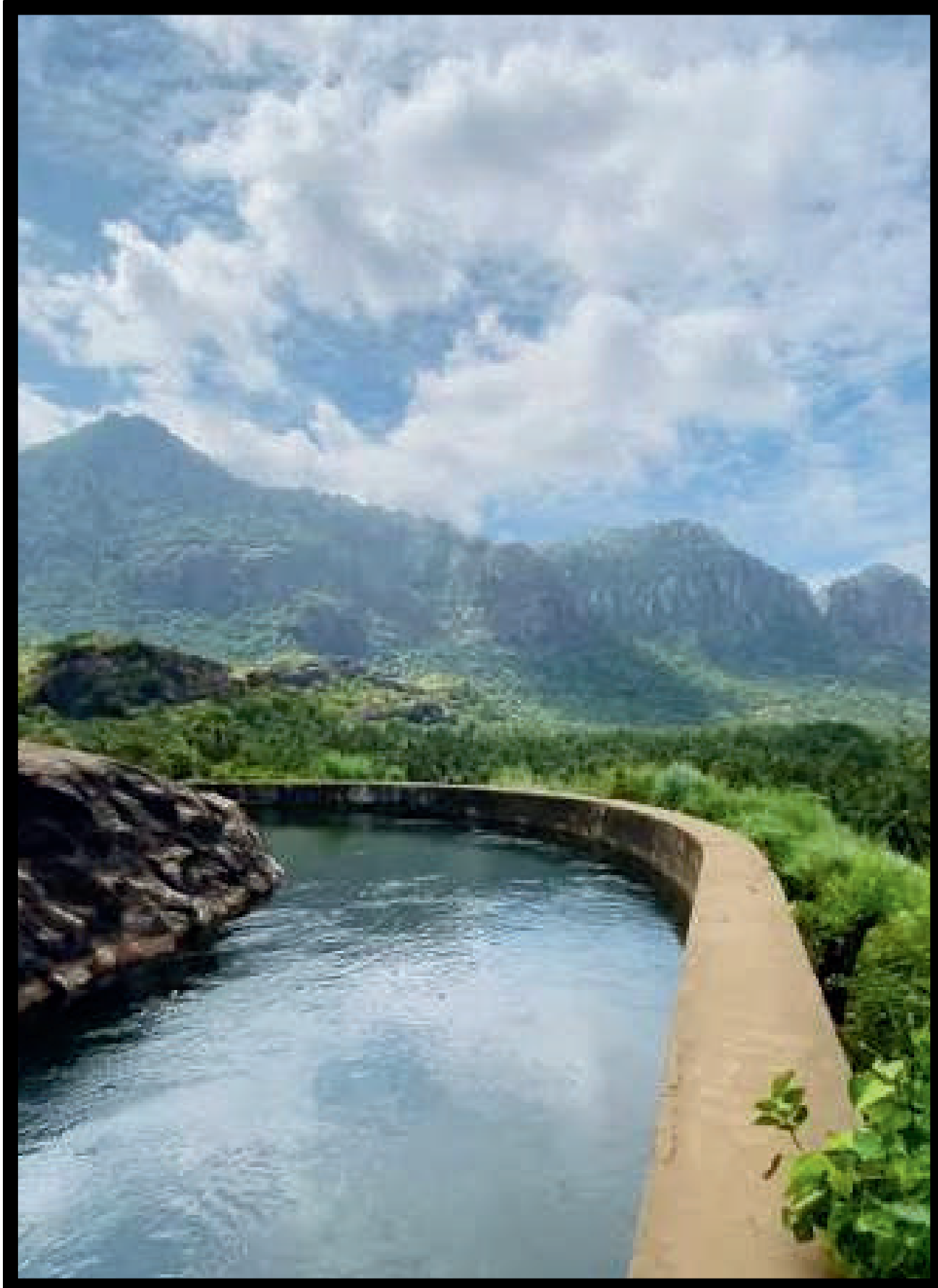
Frames of Kumari



Frames of Kumari



Frames of Kumari



BY;
C.Subin Karthick
III Year ECE

SPORT'S

A Proud Moment

Siva Surya(III ECE)



Sports play an important role in developing confidence, discipline, teamwork, and leadership among students. Our department is proud to celebrate the remarkable achievement of one of our students in volleyball.

The student actively participated in a number of volleyball matches and consistently demonstrated excellent playing skills, determination, and team spirit. Each match provided an opportunity to showcase not only individual talent but also the ability to work effectively with teammates, remain focused under pressure, and contribute to the team's performance. With dedication, regular practice, and a strong passion for the sport, the student delivered an impressive performance throughout the matches. The commitment and effort shown on the court were truly commendable and served as an inspiration to fellow students.

Recognizing this outstanding performance, the student was honoured with the "Best Player Award." This achievement is a proud moment for the student, the department, and the institution. It reflects the importance of balancing academic excellence with extracurricular activities and highlights the diverse talents of our students. The department extends its heartfelt congratulations to the student for this well-deserved recognition. We are proud of this achievement and hope it inspires more students to actively participate in sports, pursue their interests with confidence, and strive for excellence in every field.

Congratulations on this wonderful achievement! We wish the student continued success and many more accomplishments in the future.

SPORT'S



STUDENT'S ACHIEVEMENTS

- Student Nirmal kumar.V Participated in PAPER PRESENTATION and won 1st prize organized by MAR EPHRAEM COLLEGE OF ENGINEERING.
- Student R.BHARATH Participated in PAPER PRESENTATION and won 1ST prize organized by MAR EPHRAEM COLLEGE OF ENGINEERING .
- Student Sandhiya.V (III ECE) Participated in Paper Presentation and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Muthu Dharshini. L (III ECE) Participated in Paper Presentation and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Nafitha Rishma(III ECE)Participated in Paper Presentation and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Arshalekshmi(III ECE) Participated in Paper Presentation and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Midhula (III ECE)Participated in Paper Presentation and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Renjith. R. L(III ECE)Participated in Quiz and won 3rd prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Anson. M(III ECE) Participated in Quiz and won 3rd prize organized by BETHLEHEM COLLEGE OF ENGINEERING .

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- Student Anson. M(III ECE) Participated in Quiz and won 3rd prize organized by BETHLEHEM COLLEGE OF ENGINEERING .

STUDENT'S ACHIEVEMENTS

- Student Sandhiya.V (III ECE) Participated in Circuit Debugging and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Muthu Dharshini. L (III ECE) Participated in Circuit Debugging and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Sumitha N P (III ECE) Participated in Circuit Debugging and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Gejo (IV ECE) Participated in Circuit Debugging and won 2nd prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Antony (IV ECE) Participated in Circuit Debugging and won 2nd prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Anish (IV ECE) Participated in Circuit Debugging and won 2nd prize organized by BETHLEHEM COLLEGE OF ENGINEERING .
- Student Anish (IV ECE) Participated in Chess Competition and won 1st prize organized by BETHLEHEM COLLEGE OF ENGINEERING .

STUDENT'S ACHIEVEMENTS

- Student Nirmal Kumar.V Participated in PAPER PRESENTATION organized by JOY University
- Student L.GIBIN Participated in PAPER PRESENTATION organized by JOY University
- Student PUSHPARAJ.C Participated in PAPER PRESENTATION organized by JOY University
- Student BHARATH.R Participated in PAPER PRESENTATION organized by JOY University
- Student ATHISH.K Participated in PAPER PRESENTATION organized by JOY University
- Student P.BIBIN RAJ Participated in PAPER PRESENTATION organized by JOY University
- Student Sheik anfal khan.k Participated in PAPER PRESENTATION organized by JOY University
- Student ANTONY.A Participated in PAPER PRESENTATION organized by JOY University
- Student ATHISH.K Participated in PAPER PRESENTATION organized by JOY University
- Student PUSHPARAJ.C Participated in Coffee with collector program organized by Startup TN
- Student SUBIN KARTHICK.C Participated in Coffee organized by JOY University
- Student SHEIK ANFAL KHAN.C Participated in Coffee organized by JOY University

STUDENT'S ACHIEVEMENTS

- Student SUBIN KARTHICK.C selected for state level Hachathon organizing by Start up-TN
- Student R.L.RENJITH selected for state level Hachathon organizing by Start up-TN
- Student L.MUTHU DHARSHINI selected for state level Hachathon organizing by Start up-TN
- Student V.SANTHIYA selected for state level Hachathon organizing by Start up-TN
- Student E.ALWIN JASWA selected for state level Hachathon organizing by Start up-TN
- Student R.AASHIKA selected for state level Hachathon organizing by Start up-TN
- Student A.ANGELIN SWEETY selected for state level Hachathon organizing by Start up-TN
- Student J.EMIMA ROSE selected for state level Hachathon organizing by Start up-TN
- Student ARUNA DEVI.N Participated in QUIZ organized by CAPE INSTITUTION OF TECHNOLOGY
- Student ANSON Participated in HACHATHON AND WORKSHOP organized by LIYA TECH

STUDENT'S ACHIEVEMENTS



STUDENT'S ACHIEVEMENTS



STUDENT'S ACHIEVEMENTS



STUDENT'S ACHIEVEMENTS



STUDENT'S ACHIEVEMENTS



STUDENT'S ACHIEVEMENTS



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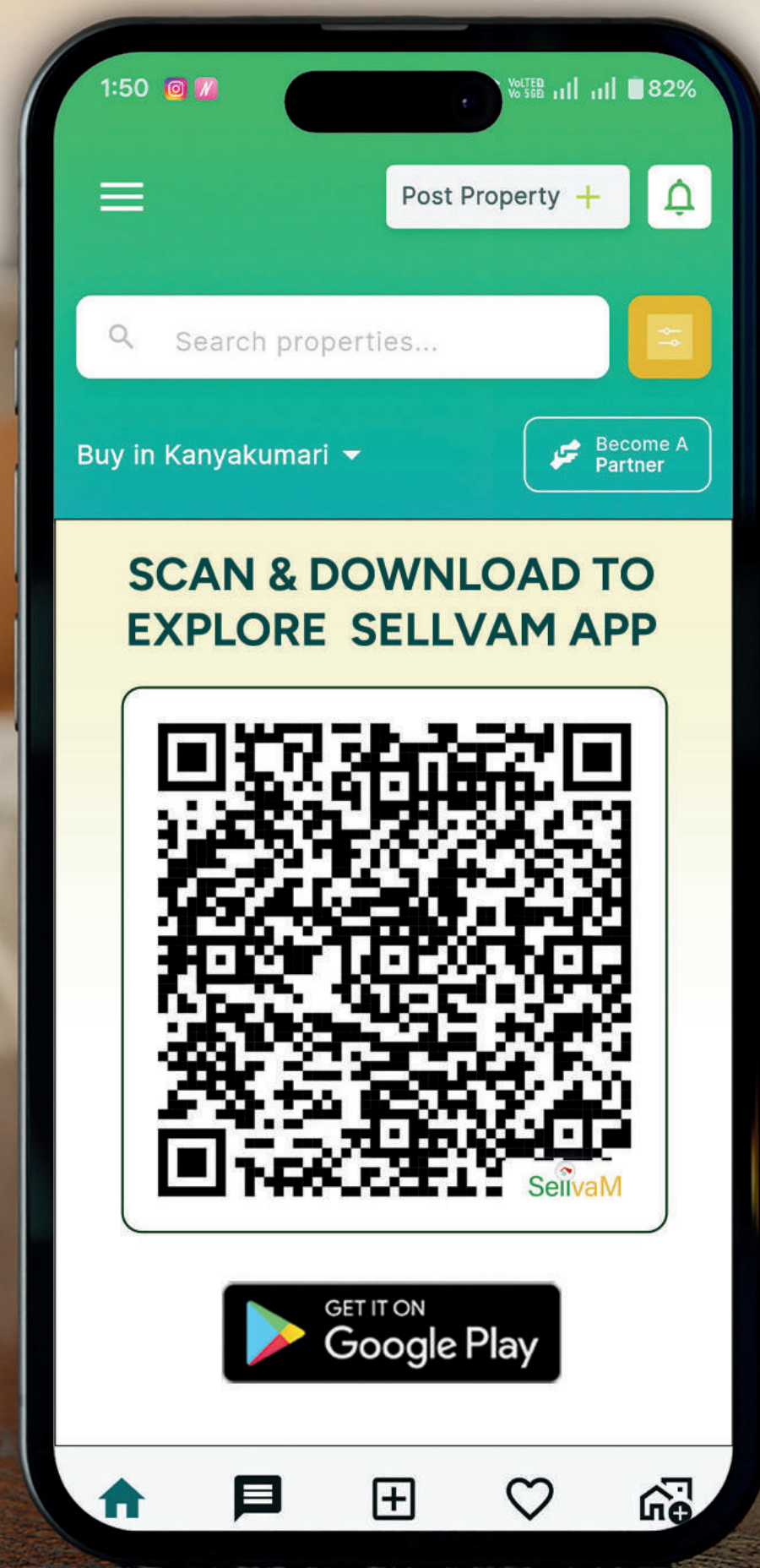
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The banner features a dark blue background with vibrant orange and pink wavy shapes. On the left is a PS5 console with a DualSense controller. On the right is a racing simulator setup with a steering wheel, pedals, and a monitor. In the center, a large white speech bubble contains the text '10% DISCOUNT'. Below the main title, icons represent various gaming options: PS5, Xbox Series X, VR, Simulator, Board Games, and 8Ball Games.



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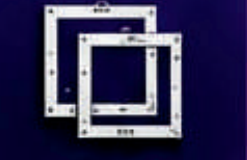


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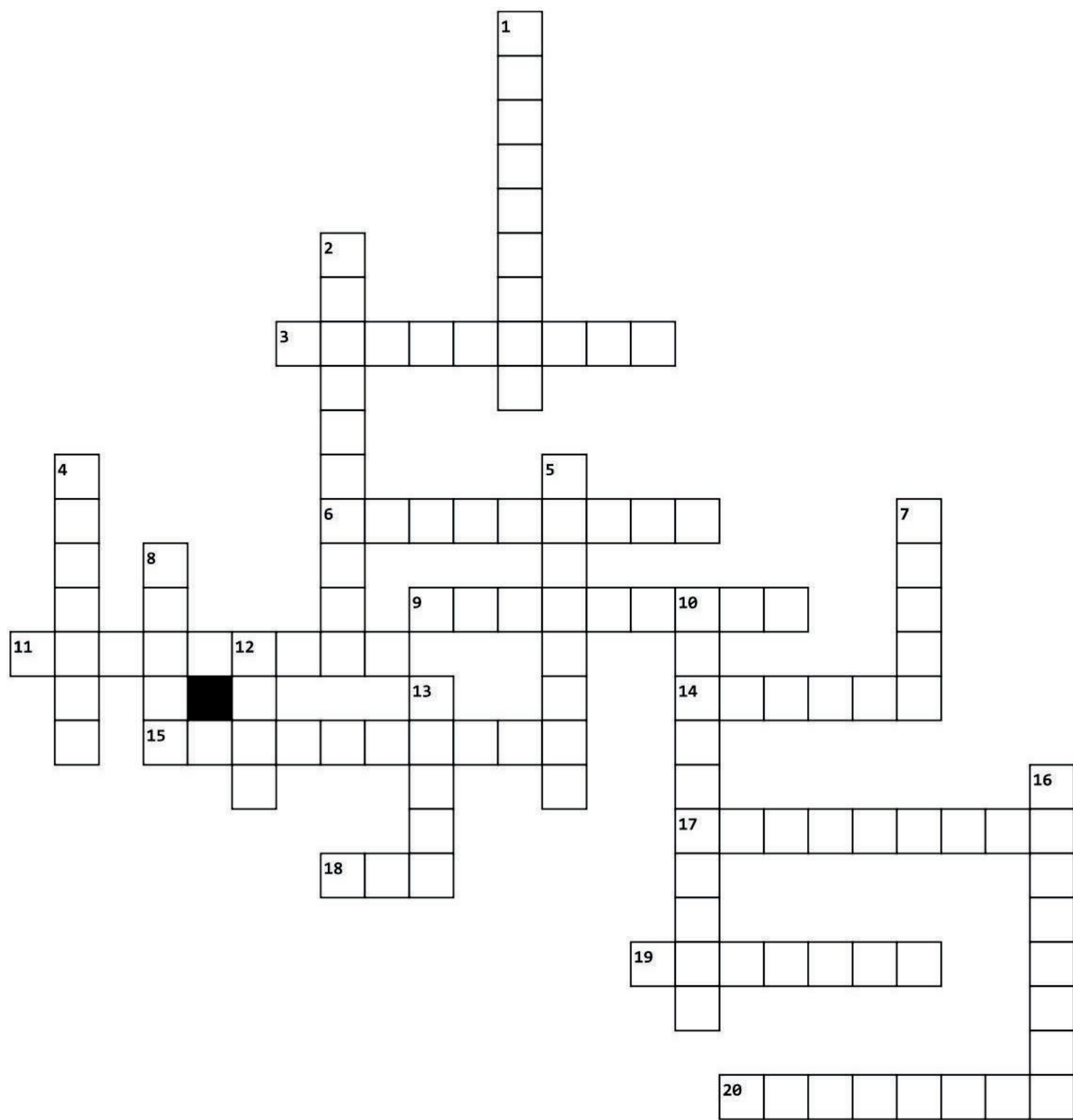
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PUZZLES

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- 3. - An instrument used to measure voltage or electrical potential difference.
- 6. - A material that does not conduct electricity.
- 9. - A device that stores electrical energy in an electric field.
- 11. - A device that converts alternating current (AC) to direct current (DC).
- 14. - The SI unit of electrical current.
- 15. - The measure of opposition to the flow of electric current.
- 17. - The process of producing a magnetic field in a body when exposed to a magnetic field.
- 18. - A semiconductor light source that emits light when current flows through it.
- 19. - The difference in electric potential energy between two points.
- 20. - A passive two-terminal electrical component that implements electrical resistance.

Down

- 1. - An electronic device that increases the amplitude of a signal.
- 2. - A semiconductor device that converts light into electrical current.
- 4. - The flow of electric charge carriers, usually electrons or electron-deficient atoms.
- 5. - A type of electrical connection where components are connected across common points.
- 7. - A two-terminal electronic component that conducts current primarily in one direction.
- 8. - A device that converts electrical energy into mechanical energy.
- 10. - A semiconductor device that amplifies or switches electronic signals.
- 12. - A safety device used to protect electrical circuits from overcurrent.
- 13. - The SI unit of electrical capacitance.
- 16. - A passive two-terminal electrical component that stores energy in a magnetic field.

PUZZLES

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QUIZ

1. What is the unit of electrical resistance?

- A) Watt
- B) Ampere
- C) Ohm
- D) Volt

Answer: C) Ohm

2. Which component is used to store electrical energy in an electric field

- A) Resistor
- B) Capacitor
- C) Inductor
- D) Diode

Answer: B) Capacitor

3. Which semiconductor material is most commonly used in the production of transistors? A) Silicon

- B) Germanium
- C) Gallium arsenide
- D) Carbon

Answer: A) Silicon

4. What is the primary purpose of a resistor in a circuit?

- A) To store energy
- B) To regulate current
- C) To convert energy
- D) To amplify signals

Answer: B) To regulate current

QUIZ

5. What is the function of a transformer?

- A) Convert AC to DC
- B) Change the voltage level
- C) Regulate the current
- D) Amplify signals

Answer: B) Change the voltage level

6. Which of the following is a typical use of a transistor?

- A) Voltage regulation
- B) Signal amplification
- C) Current limiting
- D) Power conversion

Answer: B) Signal amplification

7. What is the unit of electrical power?

- A) Volt
- B) Watt
- C) Ohm
- D) Ampere

Answer: B) Watt

8. What is the primary purpose of a voltage regulator?

- A) To convert AC to DC
- B) To increase the voltage
- C) To provide a constant output voltage
- D) To protect against overcurrent

Answer: C) To provide a constant output voltage

QUIZ

9. Which component is commonly used to prevent reverse polarity in a circuit?

- A) Capacitor
- B) Inductor
- C) Diode
- D) Resistor

Answer: C) Diode

10. What is the typical forward voltage drop of a silicon diode?

- A) 0.3 V
- B) 0.7 V
- C) 1.2 V
- D) 2.0 V

Answer: B) 0.7 V

11. Which of the following devices can be used as a signal amplifier?

- A) Capacitor
- B) Diode
- C) Transistor
- D) Resistor

Answer: C) Transistor

12. What does the term "AC" stand for in electronics?

- A) Alternating Current
- B) Amplified Current
- C) Analog Circuit
- D) Absolute Current

Answer: A) Alternating Current



QUIZ

13. Which of the following components is typically used to convert alternating current (AC) to direct current (DC)?

- A) Diode
- B) Transistor
- C) Rectifier
- D) Capacitor

Answer: C) Rectifier

14. Which country invented pizza?

- A) France
- B) Italy
- C) Greece
- D) Spain

15. What is the hardest natural substance on Earth?

- A) Gold
- B) Iron
- C) Diamond
- D) Steel

Answer: C) Diamond

திருக்குறள்

கற்க கசடறக் கற்பவை கற்றபின்
நிற்க அதற்குத் தக.

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திருக்குறள்



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கூலியைத் தப்பாமல் தந்துவிடும்

This timeless Thirukkural reminds us that sincere effort and perseverance always bear fruit. Challenges and failures are stepping stones to growth and success. As students and future engineers, let us continue to learn, innovate, and work with dedication. Dream boldly, work consistently, and never give up—your efforts will shape a brighter future.