DHANALAKSHMI SRINIVASAN
ENGINEERING COLLEGE
(AUTONOMOUS)
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
Re-Accredited with 'A' Grade by NAAC, Accredited by TCS.
Accredited by NBA (AERO, BME, CSE, ECE, EEE, IT & MECH)
PERAMBALUR - 621 212. TAMIL NADU

VELOCITY WALL MAGAZINE

A vibrant showcaseofinnovation, insight,andimaginationfrom the heart of the Electronics and Communication Engineering department.

2023-2024

DHANALAKSHMI SRIVASAN ENGINEERING COLLEGE (AUTONOMOUS)

Vision

An active and committed centre of advanced learning focused on research and training in the fields of Engineering, Technology and Management to serve the nation better.

Mission

- To develop eminent scholar with a lifelong follow up of global standards by offering UG,PG and Doctoral Programmes.
- To pursue Professional and Career growth by collaborating mutually beneficial partnership with industries and higher institutes of research.
- To promote sustained research and training with emphasis on human values and leadership qualities.
- To contribute solutions for the need based issues of our society by proper ways and means as dutiful citizen.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Vision

To be a centre of repute for higher learning and research to cater the knowledge in Electronics and Communication field to the ever growing needs of industries and to facilitate the transformation of students into good human beings.

Mission

- M1: Develop life-long learning skills that allow them to be adaptive and responsive to changes in society, technology and the environment, as well as career demands.
- M2: Promote a research activity through constant interaction with research organizations and industries.
- M3: Instigate our students to become responsible citizens and competent professionals with high ethical values.
- M4: Enable students to develop skills to solve complex technological problems of time and also provide a framework for promoting collaborative and multidisciplinary activities.

Program Educational Objectives (PEOs):

- PEO1: An in-depth knowledge and demonstrations related to the core area of Electronics and Communication Engineering, starting from the basics to the level of analysis, synthesis and design of circuits and systems, in addition to the exposure on latest advancements in the field. PEO2: Knowledge of recent
- design trends and adapt to new technologies through lifelong learning.

- PEO3: Technical knowledge, ethical values for professional development of the student to solve complex problems and to work in multi-disciplinary ambience, whose solutions lead to significant societal benefits.
- PEO4: Motivation to pursue higher studies so that they can contribute to the teaching profession, research and development of Electronics and Communication Engineering.

Program Specific Outcomes (PSOs):

- PSO1: Fabrication of Electronic Components: Graduates of the program will design a hardware model in real time applications using embedded technology and fabricate electronic equipment used in communication industries.
- PSO2: Usage of Tools: Graduates can exploit tools like Xilinx, Tanner, IE3D, Labview, Matlab, ModelSim, Keil and OrCAD to meet desired specifications with realistic constraints such as manufacturability and sustainability.

Program Outcomes (POs):

- PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

FROM CHANCELLOR DESK

Shri.A.Srinivasan
Esteemed Chancellor
Dhanalakshmi Srinivasan University

Society is long dependent on education to provide the necessary stepping stone on one's path towards individual growth, which contributes directly to the growth of a society and country as a whole. In view of the ever-increasing demand for professionally qualified youth, it has become imperative to increase the availability of quality higher education in diverse fields.

Dhanalakshmi Srinivasan Engineering College (DSEC) strives to establish itself as a citadel of quality technical education in the global arena of engineering and technological education. The college actively updates itself with foresight, vision and perspective of committed learning, research and training to meet the global demands for professional talents of international standards.

"Towards Excellence" is the motto of the institution. The institution provides world class infrastructural facilities comparable with the best of its kind in the field of education, state of the art laboratories, innovative teaching-learning process and personality development programmes in moulding and creating students of high technical expertise and managerial capabilities.

FROM PRINCIPAL DESK

Prof. Dr. D. Shanmugasundaram M.E., Ph.D., F.I.E., C.Eng.,
Principal

Welcome to Dhanalakshmi Srinivasan Engineering College (AUTONOMOUS), where we are dedicated to providing a transformative educational experience that empowers our students to excel in the ever-evolving world of engineering and technology. Since our founding in 2001, our mission has been clear: to bring quality technical education to the rural communities of Tamil Nadu, bridging the gap and creating opportunities for aspiring engineers. At DSEC, we take great pride in our achievements: the DSEC is accredited with A Grade by NAAC, which remains valid until 2025 and the departments of AERO, BME, CSE, ECE, EEE, IT AND MECH of the institution are accredited by the NBA. Right now, the DSEC offers 11 UG Programmes and 6 PG Programmes and also promotes a research culture at all three higher educational levels. This recognition is a testament to our unwavering commitment to academic excellence and innovation. Our lush green campus and state-of-the-art facilities provide an inspiring environment for learning and growth, complemented by our distinguished faculty who bring a wealth of industry and academic experience to mentor and guide our students.

As we celebrate 25 years of enchanting education, the success stories of our graduates stand as a testament to the quality of education imparted at DSEC. Our graduates are sought after by reputable industries, reflecting the caliber of talent nurtured within our institution. Our accredited programs, state-of-the-art facilities, and dedicated faculty foster a culture of research and excellence. Join us at DSEC and embark on a transformative educational journey that opens doors to boundless opportunities.

FROM VICE PRINCIPAL DESK

Dr.K.Anbarasan M.E.,Ph.D.,
Vice Principal

It gives me immense pleasure to share my thoughts through this edition of our magazine. A magazine is more than just pages of text and images—it is a reflection of our collective spirit, creativity, and achievements. Each article, design, and idea represents the dedication of our students and staff, who continue to inspire us with their talent and innovation.

Education is not confined to classrooms alone. It thrives in every debate, every experiment, every cultural performance, and every creative expression. This magazine is a testament to that vibrant learning environment, where curiosity meets discipline and imagination meets knowledge.

As Vice Principal, I encourage each of you to embrace challenges with confidence, nurture your passions, and contribute meaningfully to society. Let this magazine remind us that growth is a continuous journey, and every small effort adds to the larger vision of excellence.

I extend my heartfelt appreciation to the editorial team, contributors, and all those who worked tirelessly to bring this edition to life. May this magazine continue to be a source of inspiration and pride for our institution.

FROM HOD DESK

Mrs.P.Rajeswari
Head of the Department

It is a privilege to address you through this edition of our department magazine. A magazine is not merely a collection of articles—it is a mirror that reflects the enthusiasm, creativity, and intellectual growth of our students and staff.
Our department has always strived to balance academic excellence with holistic development. Beyond textbooks and classrooms, true learning happens when ideas are shared, challenges are embraced, and innovation is encouraged. This magazine stands as evidence of that spirit, showcasing the talents and achievements of our vibrant community.

I urge every student to cultivate curiosity, discipline, and teamwork. These qualities will not only help you excel in academics but also prepare you to face the challenges of the professional world with confidence. Remember, success is not defined by grades alone, but by the values you uphold and the contributions you make to society.

I extend my sincere appreciation to the editorial team, faculty mentors, and all contributors who have worked diligently to bring this edition to life. May this magazine continue to inspire creativity, foster collaboration, and strengthen the identity of our department.

EDITOR'S DESK

CHIEF PATRONS

Shri.A.Srinivasan,
Esteemed Chancellor, Dhanalakshmi Srinivasan University.

CONVENER

Dr.D.Shanmugasundaram,
Principal.

CO-CONVENER

Dr.D.Anbarasan,
Vice Principal.

STAFF CO-ORDINATOR

Dr.P.Rajeswari,
Head of the department-ECE.

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Mr. Nishanth P,III year ECE-B
Mr.Priyadharsan, III year ECE-B
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Mr.Navaaneth N, III year ECE-B
Mr.Muthu Selvam, III year ECE-B
Mr.Arun S,Il year ECE-A

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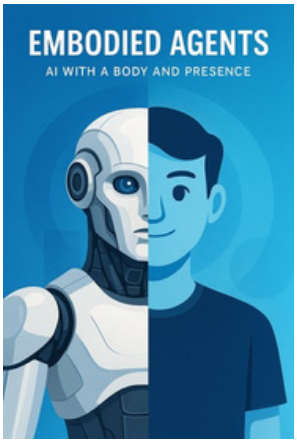
RECENT TECHNOLOGIES IN ENGINEERING

EMBODIED AGENT



Anembodied agentisanintelligent system that interacts with its environment through a physical or virtual "body" rather than just processing text or data. Unlike traditional AI like ChatGPT, which is "disembodied," these agents use sensors (cameras, microphones, touch) to perceive the world and actuators (motors, digital animation) to influence it.

EMBODIMENT MATTERS IN AI

Itenablesagents tointeractwiththeworldinhuman-like ways—physically or socially. Here's why it's important:

- Real-world interaction: Embodied agents can perceive and respond to their environment, making them useful in robotics, healthcare, and education.
- Social presence: Virtual embodiments (like avatars) help AI communicate more naturally, using gestures, expressions, and tone.
- Learning through experience: Physical embodiment allows agents to learn by doing, improving adaptability and decision-making.
- Trust and engagement: People relate better to embodied agents, which boosts user trust and emotional connection.

By giving AI a "body," we move from abstract intelligence to practical, relatable systems that can act, react, and connect.

FORMS OF EMBODIMENT

There are three types of embodiment. They are,

1. Physically embodied agents (robots, drones).
2. Virtually embodied agents (avatars, animated assistants).
3. Embodied Conversational Agents (ECAs).

1.Physically embodied agents

Physically embodied agents are AI systems with a real, tangible body—like robots, drones, or autonomous vehicles—that can sense, move, and act directly in the physical world.
They differ from virtual agents because they don't just simulate presence; they actually interact with the environment through hardware and sensors.

2.Virtually embodied agents

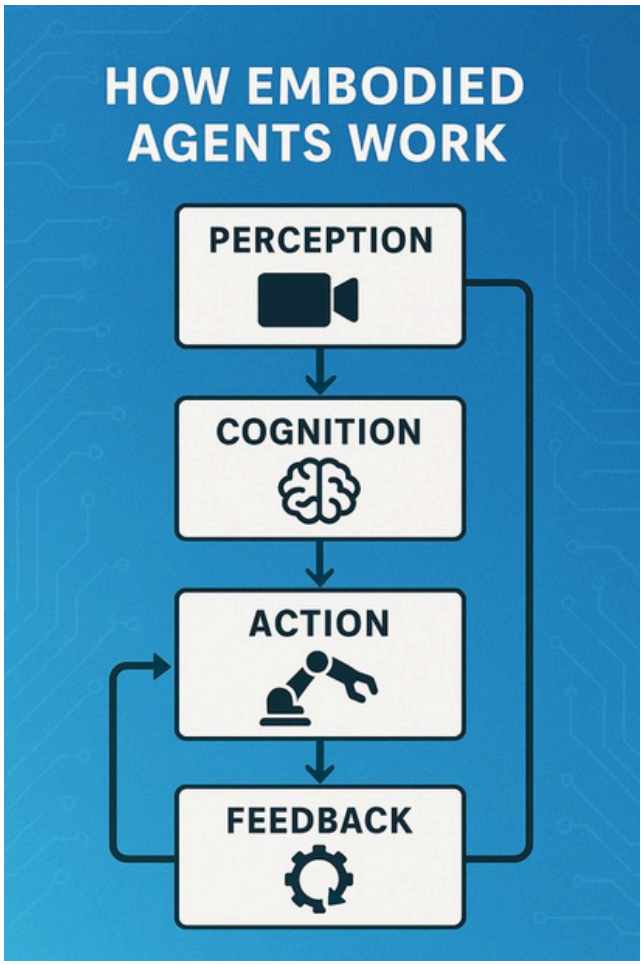
Virtually embodied agents are AI systems that exist in a digital form, appearing as avatars, animated assistants, or characters in virtual environments. They don't have a physical body but create a sense of presence through speech, gestures, and facial expressions, allowing them to interact naturally with users in online spaces such as classrooms, customer service platforms, or games.

3. Embodied Conversational Agents (ECAs).

Embodied Conversational Agents (ECAs) are AI-driven virtual characters designed to communicate with humans using both verbal and non-verbal cues such as speech, facial expressions, and gestures. They create a more natural and engaging interaction experience, often used in education, therapy, customer service, and entertainment,

HOW EMBODIED AGENTS WORK

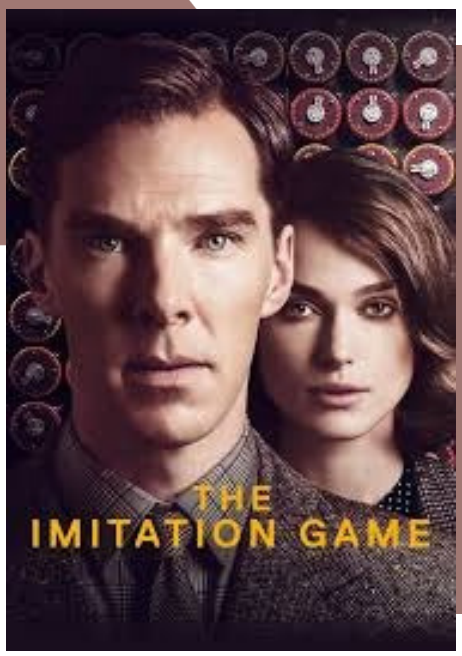
- **Perception**: They use sensors (like cameras, microphones, or touch sensors) or virtual inputs to gather information about their environment.
- **Cognition**: AI models process this input, reason about it, and decide what action to take. Memory and internal models help them adapt and learn from past experiences.
- **Action**: They perform physical movements (robots, drones) or virtual gestures (avatars, animated assistants) to respond.
- **Interaction Loop**: Embodied agents operate in a continuous cycle of sense → decide → act → receive feedback, which helps them improve over time.



CONCLUSION

Embodiedagents—whether physical robots, virtual avatars, or conversational characters—represent a crucial step in making AI more interactive, adaptive, and human-like. By combining perception, cognition, action, and feedback, they bridge the gap between abstract intelligence and real-world or digital presence. Their applications span healthcare, education, customer service, manufacturing, and entertainment, showing how embodiment enhances trust, engagement, and effectiveness. In essence, embodied agents transform AI from being just "smart software" into active participants in both our physical and virtual environments.

MOVIES FOR ENGINEERING

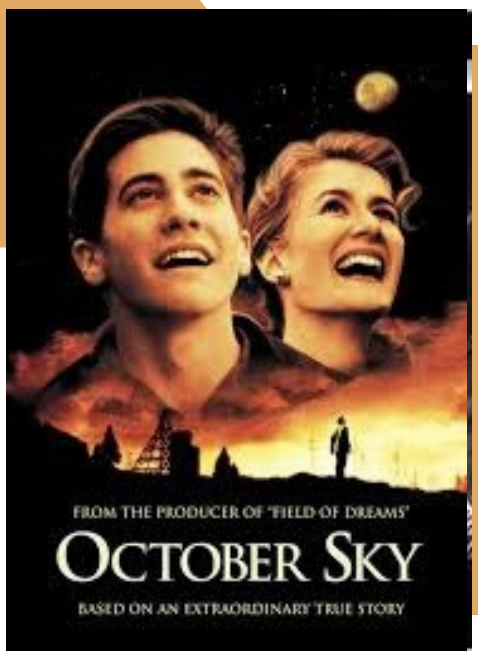


THE IMITATION GAME (2014)

Based on the life of Alan Turing, this film showcases how his groundbreaking work in cracking the German Enigma code during WWII laid the foundation for modern computing. It's a powerful story of mathematics, engineering, and perseverance.

APOLLO 13 (1995))

A gripping retelling of NASA's ill-fated 1970 lunar mission. The movie highlights the critical role of engineering problem-solving, teamwork, and innovation under extreme pressure to bring astronauts safely back to Earth.



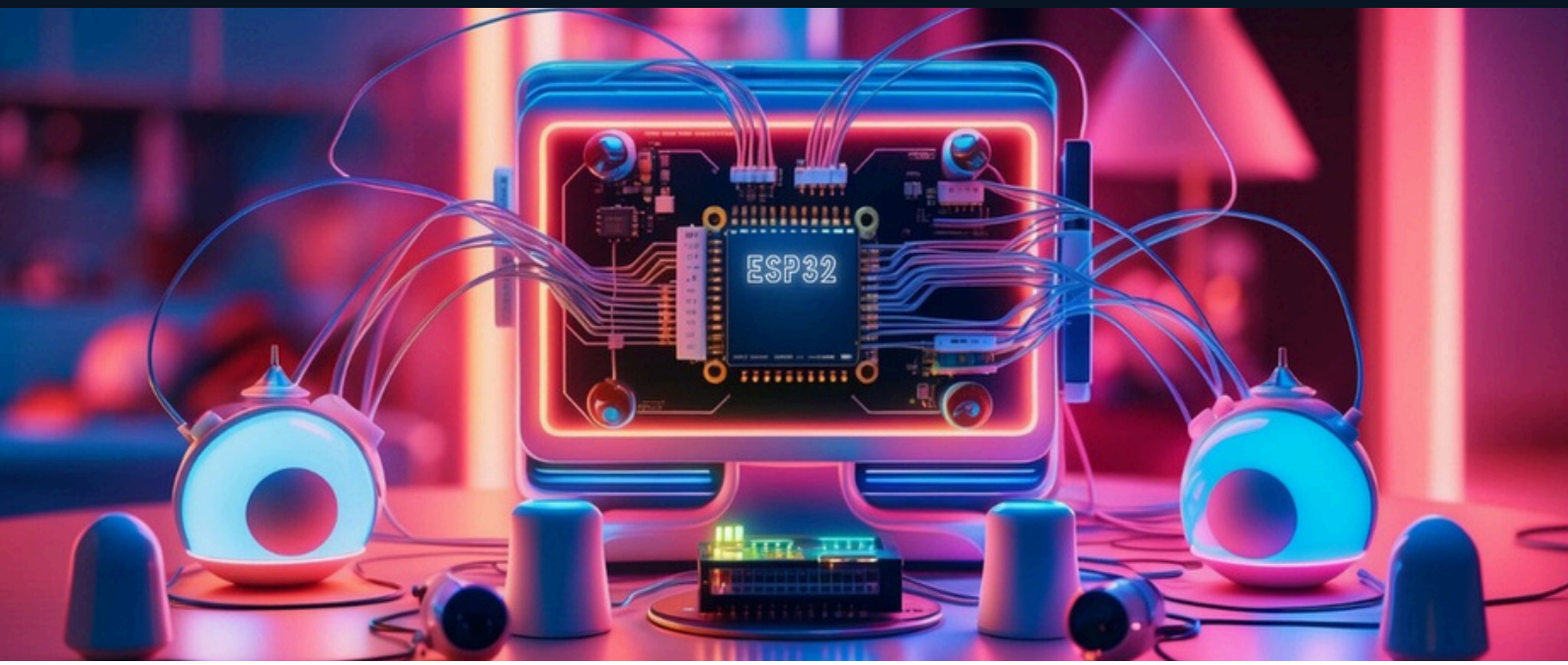
OCTOBER SKY(1999)

Inspired by the true story of Homer Hickam, a coal miner's son who pursued rocketry against all odds. It's a tale of determination, engineering curiosity, and how science can change lives.

THE SOCIAL NETWORK (2010)

While more focused on software engineering and entrepreneurship, this film depicts the creation of Facebook, showing how coding, algorithms, and engineering decisions can reshape global communication.

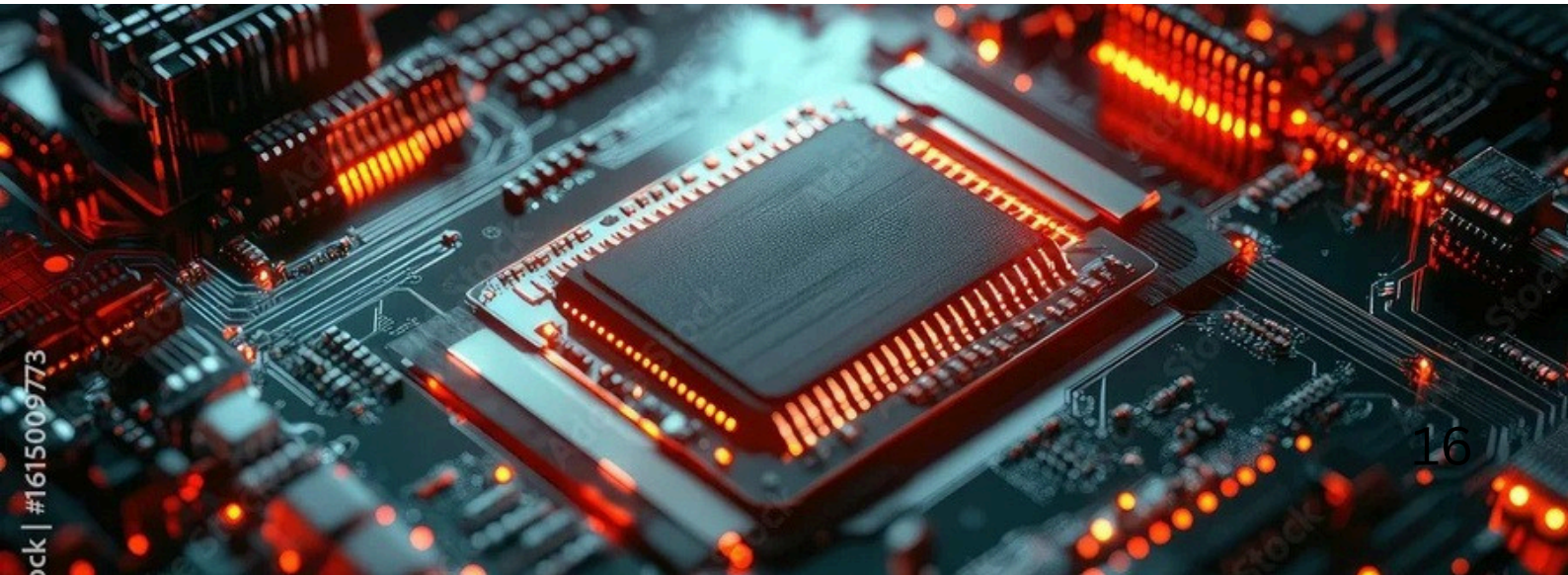
ENGINEERING MADE SIMPLE



ESP32 MICROCONTROLLER

INTRODCTION

The ESP32 is a powerful, low-cost, and energy-efficient microcontroller developed by Espressif Systems. It was first released in 2016 as the successor to the ESP8266. What makes the ESP32 stand out is its built-in Wi-Fi and Bluetooth connectivity, which allows it to serve as the backbone for countless IoT (Internet of Things) and embedded projects.



HOW TO GET STARTED

1. Buy an ESP32 board (like ESP32 DevKit v1).
2. Install Arduino IDE on your computer.
3. Open Board Manager → search for ESP32 → install it.
4. Connect ESP32 via USB and select the correct COM port.
5. Upload a test program (like the Blink sketch to flash the onboard LED).
6. Once it works, explore Wi-Fi and Bluetooth examples to see its real power.

KEY FEATURES

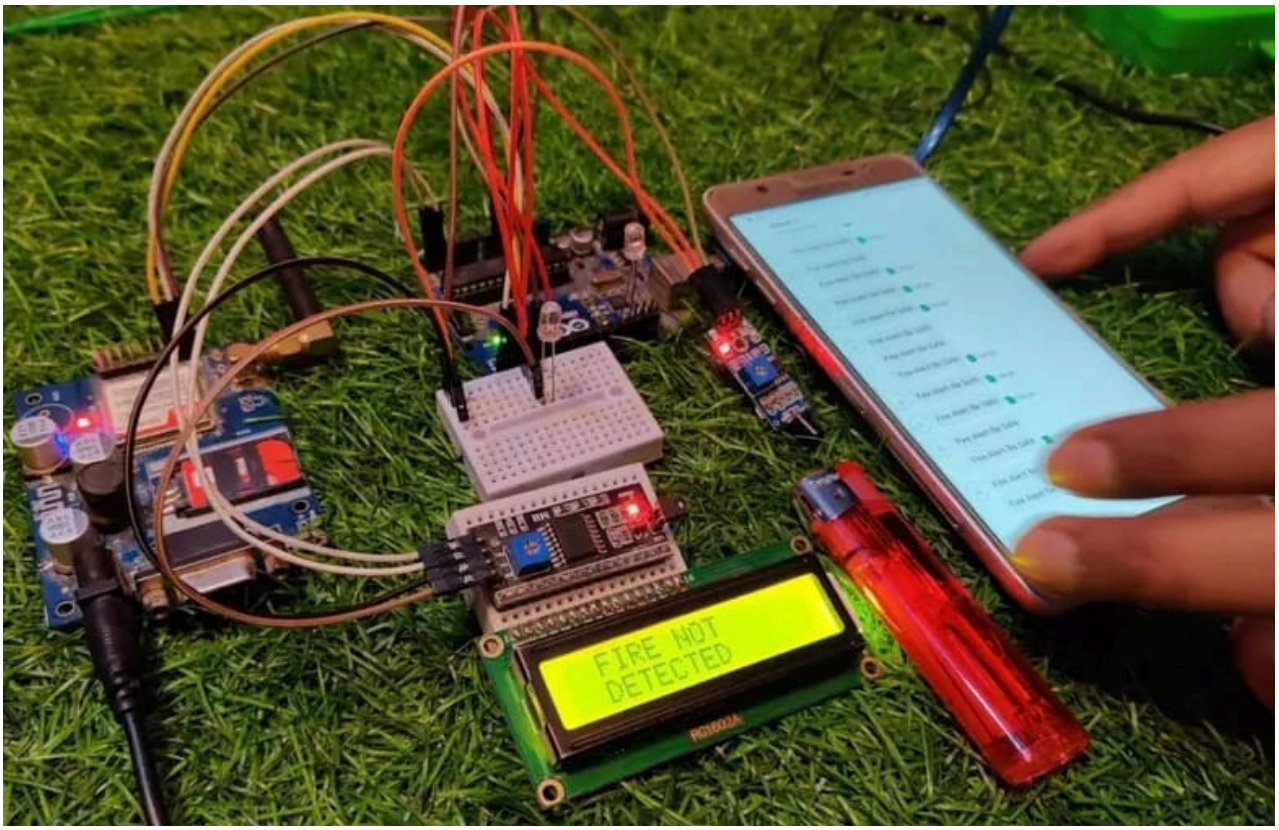
- Connectivity: Built-in Wi-Fi and Bluetooth (Classic + BLE) for wireless communication.
- Processing Power:
  - Dual-core Tensilica Xtensa LX6 processor (up to 240 MHz).
  - Variants also include Xtensa LX7 or RISC-V cores.
- Memory: 520 KB SRAM, with external flash support.
- Power Efficiency: Ultra-low power consumption with multiple sleep modes, making it ideal for battery-powered devices.
- Integration: Includes antenna switches, RF balun, power amplifier, low-noise receiver, filters, and power management modules.
- Operating Range: Works reliably from –40°C to +125°C, suitable for industrial environments.

APPLICATIONS

- IoT Devices: Smart home automation, sensors, and connected appliances.
- Wearables: Fitness trackers and portable electronics.
- Robotics: Wireless control and sensor integration.
- DIY Projects: Makers often use ESP32 for Arduino-like prototyping with added wireless capabilities.

STUDENT'S MINI-PROJECTS

1. DUAL AXIS SOLAR TRACKER



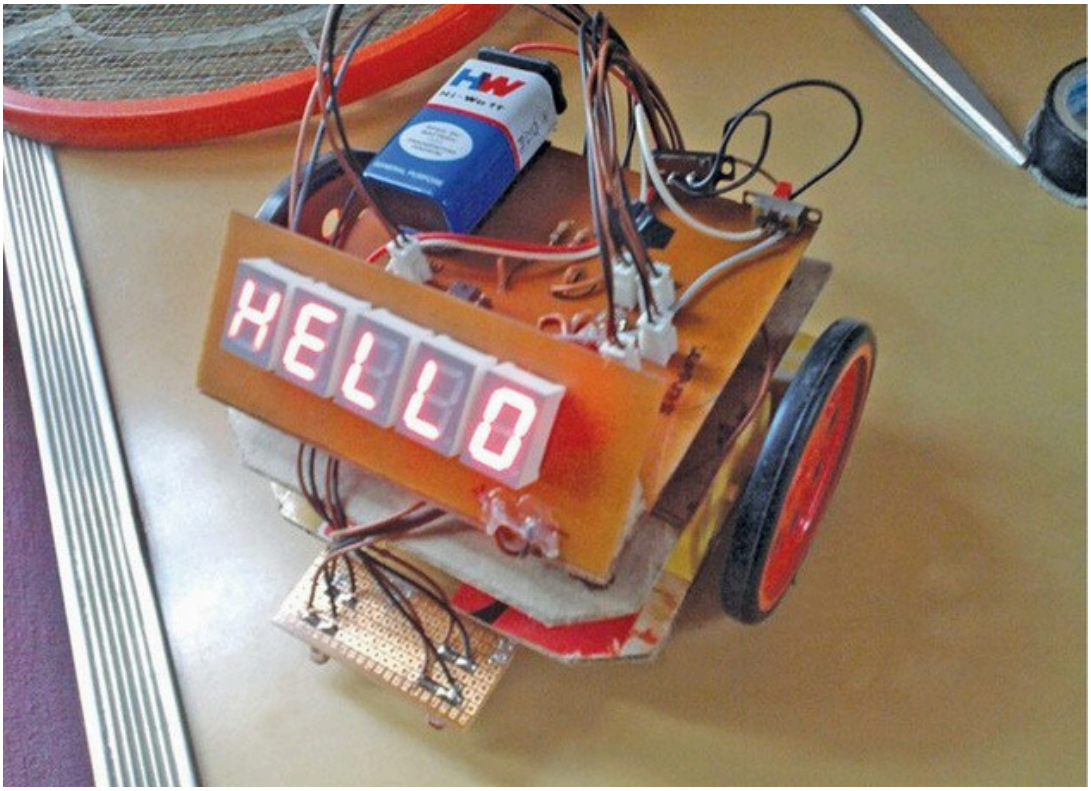
ABSTRACT

•Our seconds final year project for electronics and communication is very popular on the internet. the name of this project is Dual axis solar tracker. this project is very helpful to get the maximum efficiency from the sunlight. there are we using the traditional method with the solar tracker.

TEAM MEMBERS

1. Madhusudanan.S.S
2. Muthu Selvam.M
3.Monika,M
4.Mohana.G

2. LINE FOLLOWER ROBOT



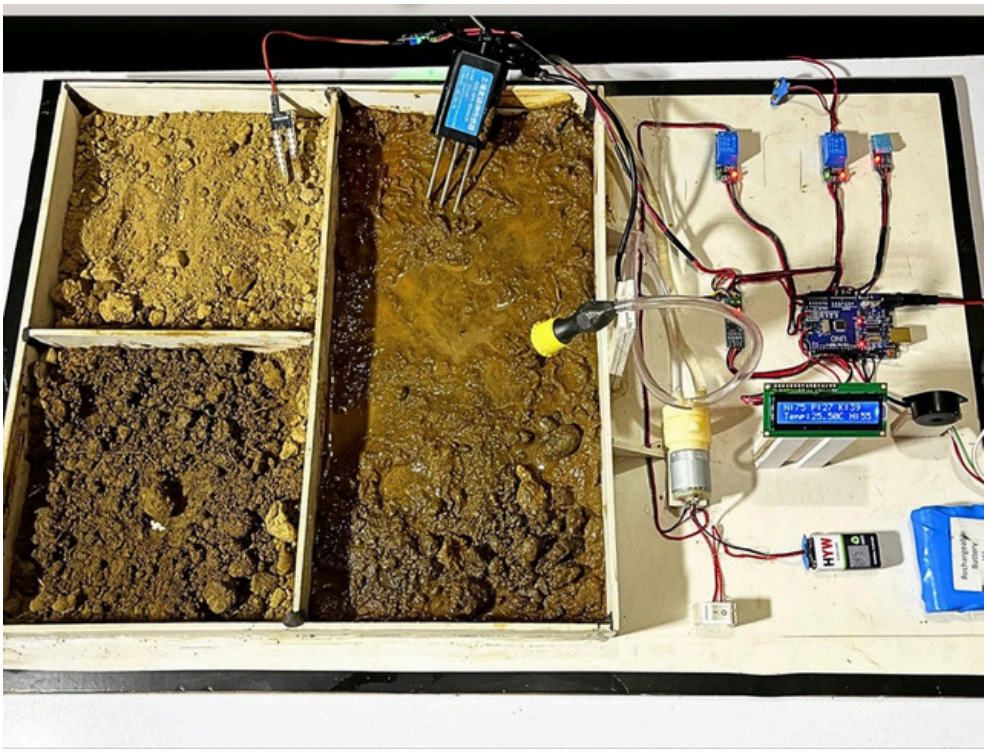
ABSTRACT

- We start the list off with a personal favorite. It describes a line-follower robot without a microcontroller, making this suitable for non-electronics engineers as well. This robot follows a particular color with the help of sensors. It is a simple project, which can be taken up as a classroom assignment. It lays the foundation for building your own behavior-based (simulated) robot.

TEAM MEMBERS

1. Kishore Kumar.K
2. Keasavan.M
3. Keerthana.P
4.Karthika Sri.M

3.SMART IRRIGATION SYSTEM



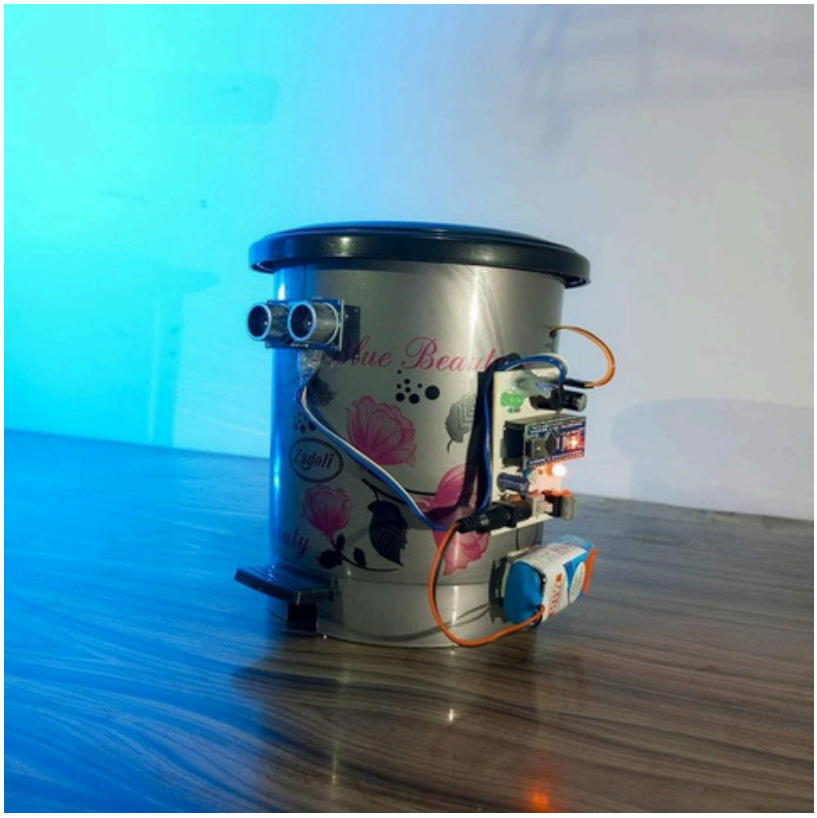
ABSTRACT

- The Automatic Irrigation System uses a soil moisture sensor and microcontroller to monitor plant needs and automatically activate a motor pump when the soil is dry. Water is drawn from a reservoir and delivered to the plants through tubing, ensuring consistent watering without manual effort. This low-cost, energy-efficient design helps conserve water and supports healthy plant growth, making it ideal for home gardens and small-scale farming

TEAM MEMBERS

1. Navaaneeth.N
2. Kavin.R
3. Kowsalya.I
4.Nisha.M

SMART DUSTBIN USING ULTRASONIC SENSOR



ABSTRACT

- The Smart Dustbin uses an ultrasonic sensor to detect when someone approaches and automatically opens the lid using a motor. After a short delay, the lid closes again, ensuring hands-free waste disposal. This simple system improves hygiene, reduces contact with germs, and demonstrates practical sensor-based automation for everyday use.

TEAM MEMBERS

1. Priyadharshan.D
2. Nishanth.P
3. Kanshiya.S
4.Janani.R

DEPARTMENTAL SYMPOSIUM

DECIBERTZ

Unity is Strength

PLACEMENT DRIVE

ABOUT HRDC

The Department of HUMAN RESOURCE DEVELOPMENT CENTRE (HRDC) interacts with reputed organizations all over the country for arranging campus interviews for the placement of final year students. for in-plant training to enhance their technical ability and gain exposure to the practical world. THE HUMAN RESOURCE DEVELOPMENT CENTRE (HRDC) has been established to contribute directly to the growth of the student. Right from its inception, it is continuously focused on the uplift of human resource under 4 wide areas like:

- Higher Education Cell
- Industry Institution Interaction Cell
- Department of Training and Placement
- Entrepreneur Development Cell

PLACEMENT RECORDS

TOP 5 PLACED STUDES

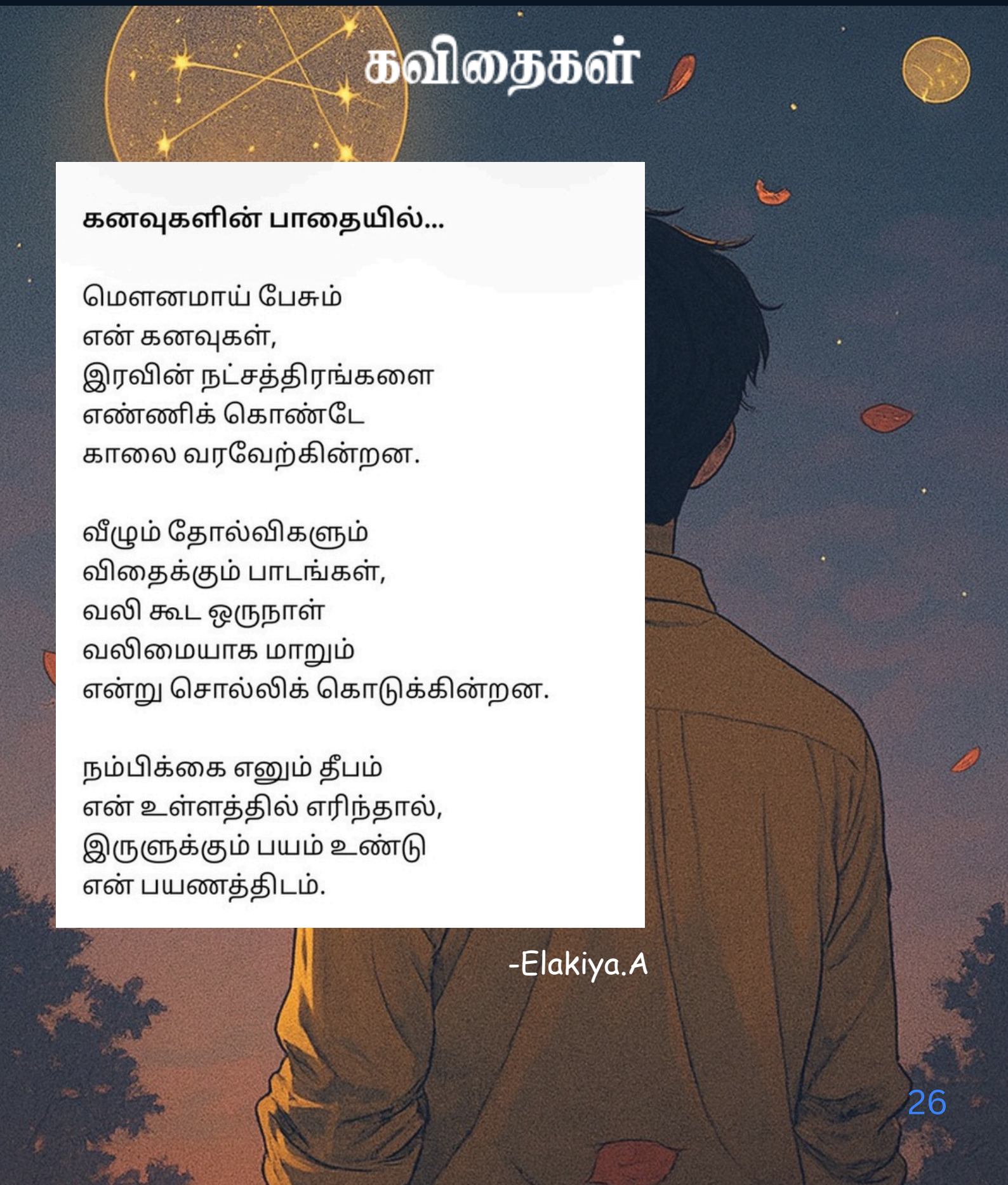
SATHISH KUMAR A

KATHIRAVAN K

MUTHURAJ.A

SUMANA.R

RAMESH M



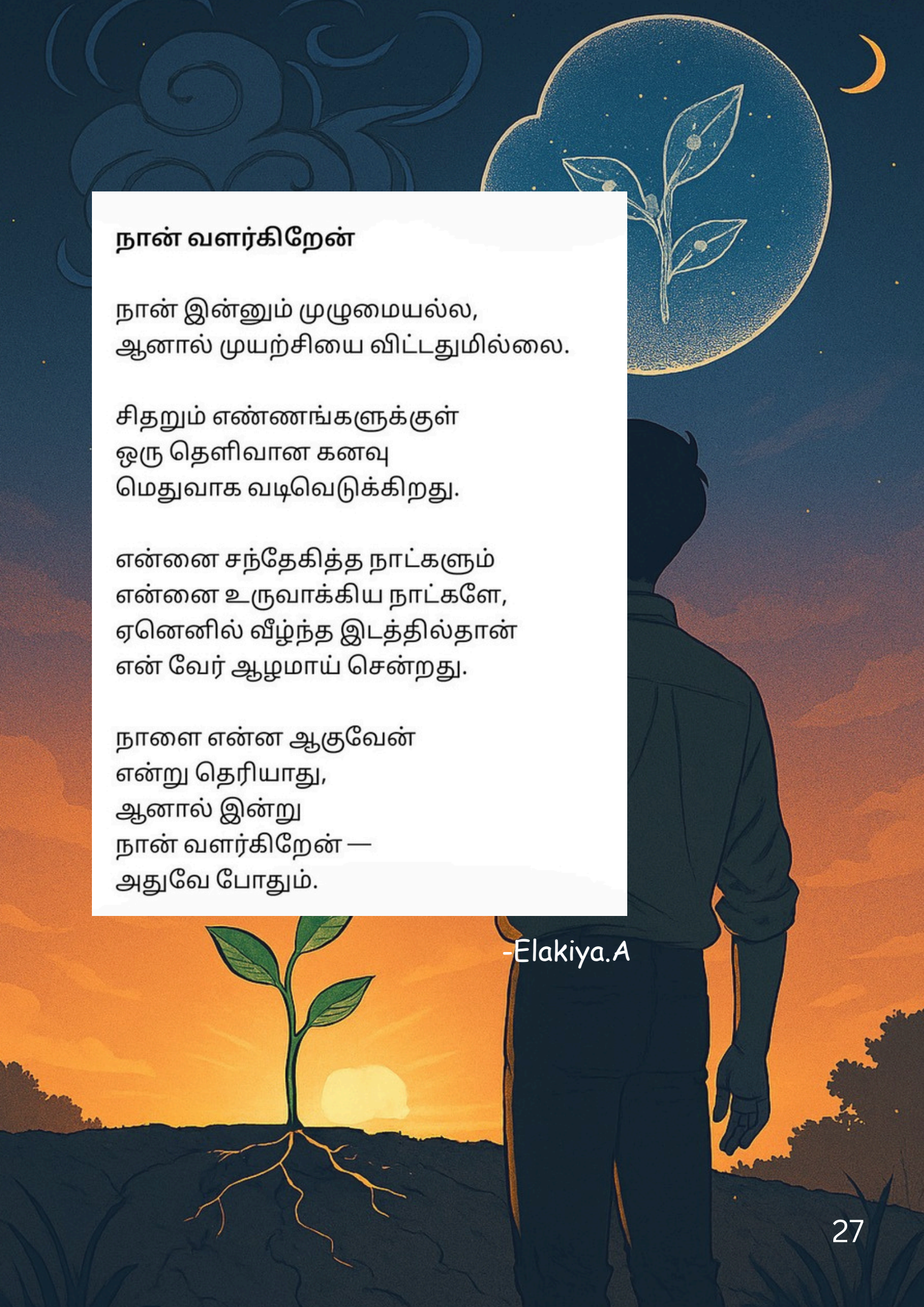
கனவுகளின் பாதையில்...

மௌனமாய் பேசும்
என் கனவுகள்,
இரவின் நட்சத்திரங்களை
எண்ணிக் கொண்டே
காலை வரவேற்கின்றன.

வீழும் தோல்விகளும்
விதைக்கும் பாடங்கள்,
வலி கூட ஒருநாள்
வலிமையாக மாறும்
என்று சொல்லிக் கொடுக்கின்றன.

நம்பிக்கை எனும் தீபம்
என் உள்ளத்தில் எரிந்தால்,
இருளுக்கும் பயம் உண்டு
என் பயணத்திடம்.

-Elakiya.A



நான் வளர்கிறேன்

நான் இன்னும் முழுமையல்ல,
ஆனால் முயற்சியை விட்டதுமில்லை.

சிதறும் எண்ணங்களுக்குள்
ஒரு தெளிவான கனவு
மெதுவாக வடிவெடுக்கிறது.

என்னை சந்தேகித்த நாட்களும்
என்னை உருவாக்கிய நாட்களே,
ஏனெனில் வீழ்ந்த இடத்தில்தான்
என் வேர் ஆழமாய் சென்றது.

நாளை என்ன ஆகுவேன்
என்று தெரியாது,
ஆனால் இன்று
நான் வளர்கிறேன் —
அதுவே போதும்.

-Elakiya.A

POETS

Between Now and Then

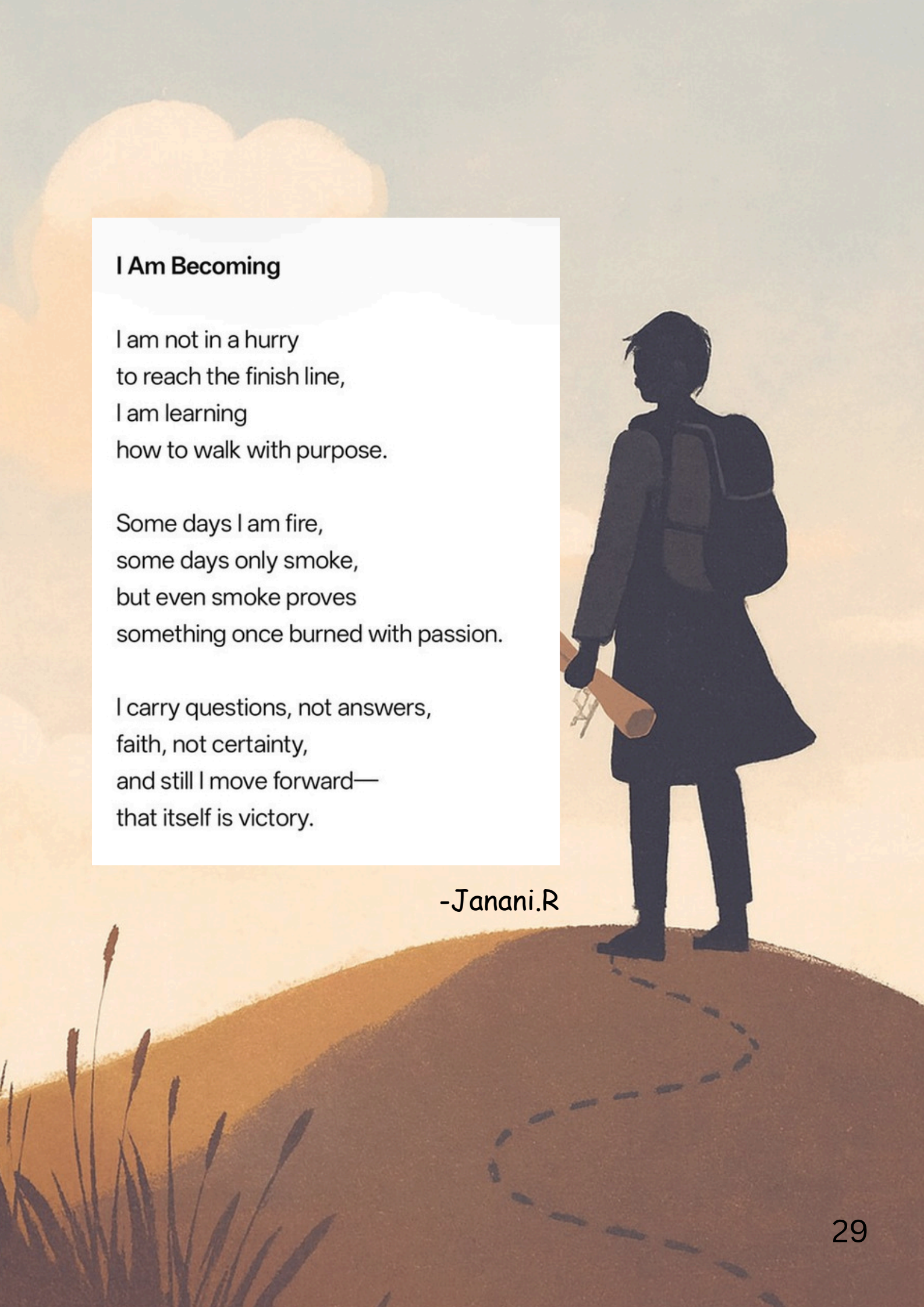
I am built from quiet mornings
and unfinished thoughts,
from pauses that linger
longer than words.

The world asks for certainty,
but I carry becoming—
a map drawn in pencil,
open to change.

Some nights I feel small,
some days limitless,
yet every step I take
belongs only to me.

I am not late,
not lost,
just learning how to arrive.

-Janani.R



I Am Becoming

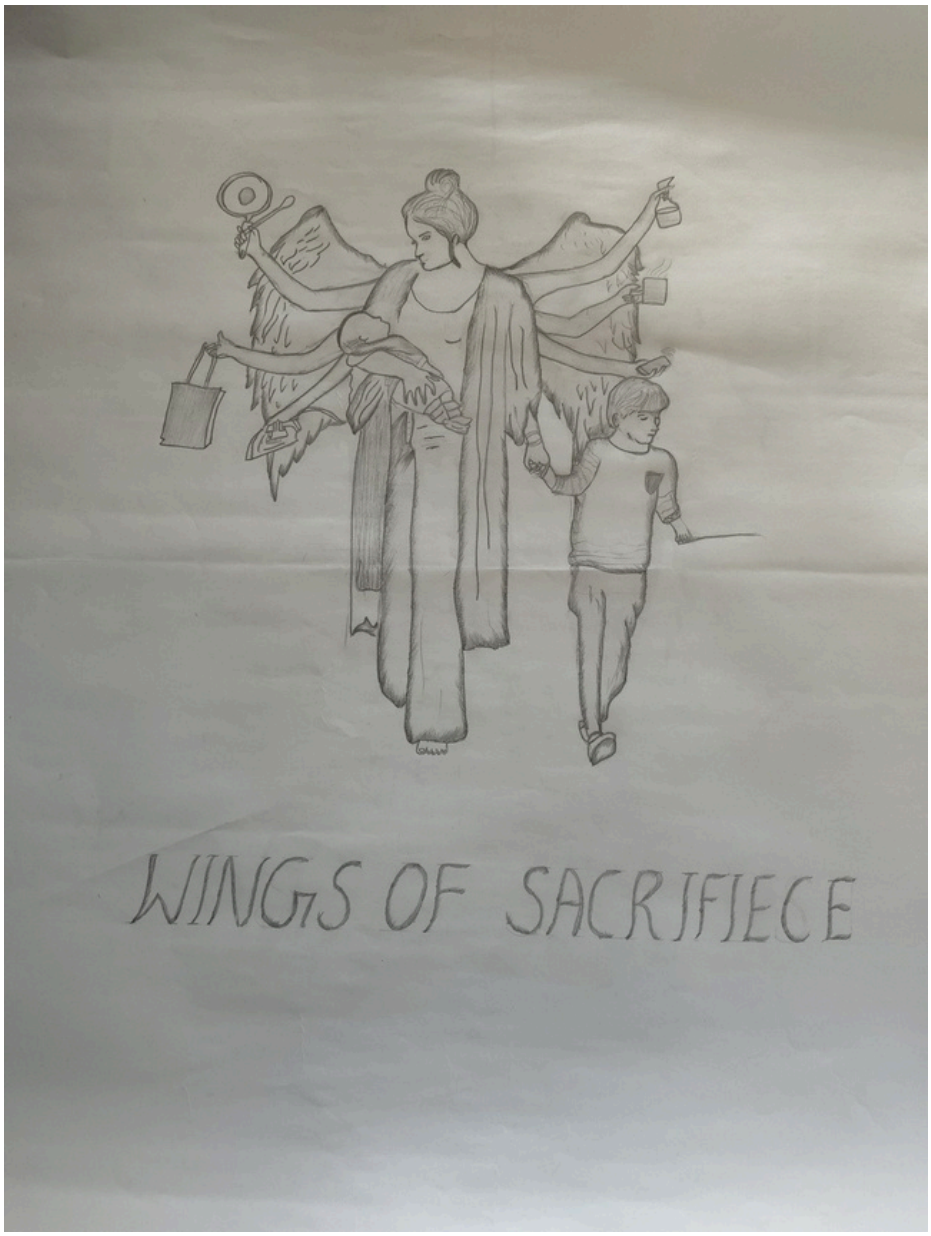
I am not in a hurry
to reach the finish line,
I am learning
how to walk with purpose.

Some days I am fire,
some days only smoke,
but even smoke proves
something once burned with passion.

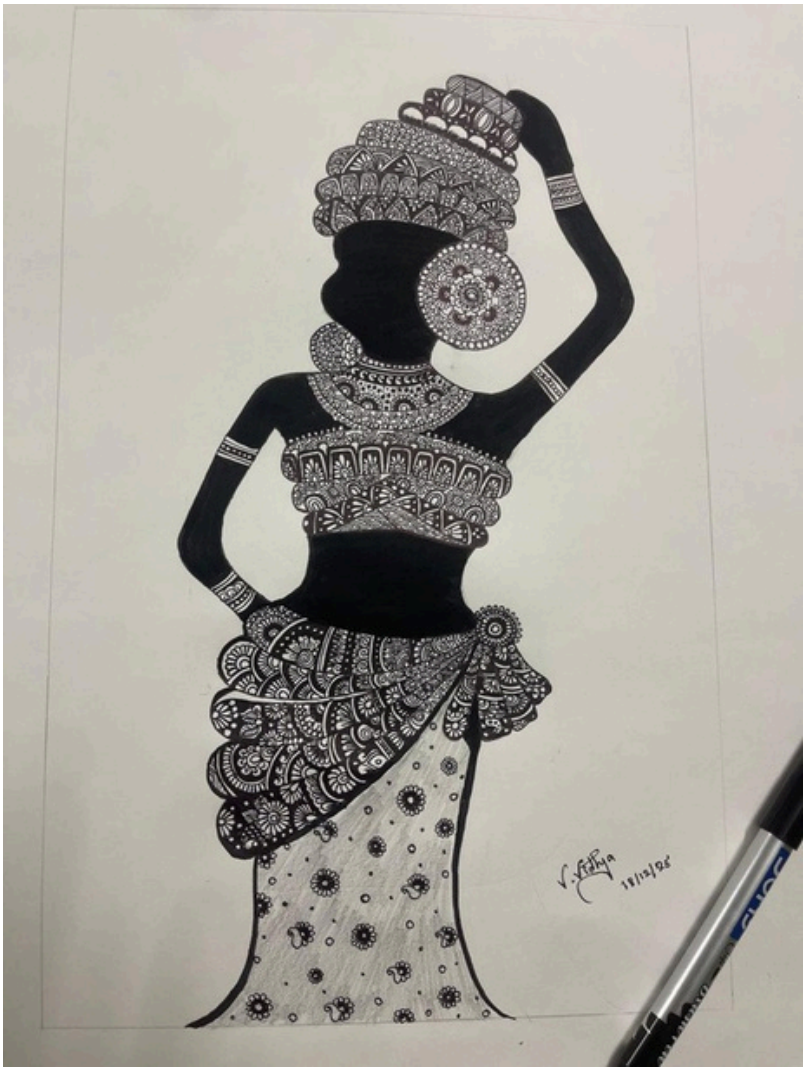
I carry questions, not answers,
faith, not certainty,
and still I move forward—
that itself is victory.

-Janani.R

ARTWORKS



-Kowsalya.I



-Vidhya.V

Rajaganesh.M

PHOTOGRAPHY

“Nature and Human Presence in Harmony”

-MUTHU SELVAM.M

NAVAANETH.N

CONCLUSION

As we turn the final page, we carry forward the spirit of exploration, resilience, and growth that defines every voice within this magazine. From quiet reflections to bold innovations, each contribution reminds us that becoming is a journey not a destination. May these pages inspire you to walk with purpose, embrace uncertainty, and celebrate the victories found in every step. The story doesn't end here it continues in the lives we shape, the questions we ask, and the passions we pursue.

Thank You...!