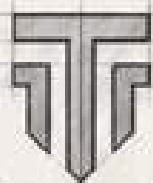




VELAMMAL
INSTITUTE OF TECHNOLOGY
Chennai - Kolkata Highway, Porur, Chennai



DEPARTMENT OF INFORMATION TECHNOLOGY



TECHVISTA

INNOVATE • INSPIRE • IMPACT

2K25-2K26



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STAFF COORDINATOR



Mrs.J MINI



Tribute to Our Beloved

HOD – Dr. P.Deivendran

We respectfully dedicate this edition of TechVista to the cherished memory of our beloved former Head of the Department, Dr. P. Deivendran. His exceptional leadership, unwavering dedication, and profound commitment to academic excellence continue to inspire our department and its students.

Dr. P. Deivendran was more than an accomplished academician—he was a visionary mentor who encouraged innovation, nurtured talent, and motivated every student to strive for excellence. His passion for education and his tireless efforts in strengthening the Department of Information Technology laid a strong foundation for growth and success.

Although he is no longer with us, his ideals, wisdom, and invaluable contributions remain a guiding light for our department. His legacy lives on through the achievements of our students, faculty, and the continued progress of the institution.

As we present this edition of TechVista, we offer it as a heartfelt tribute to his enduring legacy, expressing our deepest respect, gratitude, and remembrance for his remarkable service and lasting influence.

WE MISS YOU SIR

Velammal Institute of Technology



Vision and Mission of College

Vision of Institute

To be a leader in imparting quality technical education, research & enterprising skills in pursuit of professional excellence

Mission of Institute

- To promote quality education & technical skills to meet the industry requirements.
- To incorporate Team work, Leadership skills & Lifelong learning.
- To facilitate Career development & Higher education assistance
- To encourage innovative ideas for Research & Development and Entrepreneurship for societal needs.
- To inculcate Ethical responsibility & Human values

Velammal Institute of Technology



Vision and Mission of Department

Vision Of Department

To be a center of excellence in the field of Information Technology to solve complex industrial and societal needs.

Mission Of Department

- To impart strong knowledge to students in recent technologies by organizing various technical events.
- To provide platform for the students to encourage creativity, team work, leadership quality and social responsibility.
- To develop the employability and entrepreneurial skills of the students by conducting industry collaborated training.
- To inculcate the importance of research and higher education through awareness programs

Velammal Institute of Technology



IT Department

PROGRAM EDUCATIONAL OBJECTIVES(PEO'S)

- **PEO-1:** Demonstrate technical competence with analytical and critical thinking to understand and meet the diversified requirements of industry, academia and research.
- **PEO-2:** Exhibit technical leadership, team skills and entrepreneurship skills to provide business solutions to real world problems.
- **PEO-3:** Work in multi-disciplinary industries with social and environmental responsibility, work ethics and adaptability to address complex engineering and social problems.
- **PEO-4:** Pursue lifelong learning, use cutting edge technologies and involve in applied research to design optimal solutions.

PROGRAM SPECIFIC OUTCOMES(PSO'S)

- **PSO1:** Understand, analyze engineering fundamentals, mathematics, database, algorithms, design, analytics and programming skills to develop various computing applications
- **PSO2:** Apply modern tools and technologies to develop research and innovative solutions to contribute societal and industrial needs.

Chairman Message



Dear Participants and Distinguished Guests,

It gives me immense pleasure to present another edition of TechVista, the magazine of the Department of Information Technology. This magazine reflects the vision, creativity, and relentless efforts of our students and faculty members.

In today's rapidly evolving technological landscape, learning extends beyond classrooms. TechVista serves as a platform where students can showcase their technical expertise, creative thinking, leadership, and communication skills. It is heartening to witness their enthusiasm in contributing meaningful articles, innovative ideas, research insights, and creative works.

I congratulate the editorial team for their dedication in bringing out this wonderful edition. I also encourage every student to actively participate in future editions and continue striving for excellence in both academic and extracurricular pursuits.

May TechVista continue to inspire innovation, knowledge sharing, and lifelong learning. I extend my best wishes to everyone associated with this publication and look forward to its continued success.

Shri.M V Muthuramalingam
Chairman
Velammal Institute of Technology

Director Message



Dear Students, Faculty, and Esteemed Guests,

I am delighted to see the continued growth of TechVista, a magazine that beautifully represents the academic excellence and innovative spirit of the Department of Information Technology.

This publication showcases the remarkable talents of our students, highlighting their achievements in technical, creative, and co-curricular activities. It serves as a valuable platform for exchanging ideas, promoting research, and encouraging intellectual curiosity.

I appreciate the sincere efforts of the students, faculty members, and editorial team whose dedication has made this edition possible. Their commitment reflects the culture of excellence our institution strives to uphold.

I wish TechVista greater success in the coming years and hope it continues to motivate students to explore, innovate, and contribute positively to society.

May TechVista continue to inspire innovation, knowledge sharing, and lifelong learning. I extend my best wishes to everyone associated with this publication and look forward to its continued success.

Shri MVM Sasikumar
Director
Velammal Institute of Technology

Director Message



Dear Students, Faculty, and Honored Guests,

It is with great pleasure that I extend my warm greetings on the release of the latest edition of TechVista, the Department of Information Technology magazine. This publication stands as a reflection of the talent, innovation, and determination of our students and faculty members.

In today's dynamic technological era, it is essential for students to cultivate not only technical expertise but also creativity, leadership, and effective communication. TechVista provides an excellent platform for students to share their knowledge, express their ideas, and showcase their accomplishments across a wide range of technical and non-technical fields.

I am delighted to see the enthusiasm and commitment displayed by the students in contributing meaningful articles, research insights, creative works, and innovative ideas. Such initiatives foster a culture of continuous learning, collaboration, and academic excellence.

I sincerely appreciate the efforts of the editorial board, faculty coordinators, and every student contributor whose dedication has made this publication a reality. Their hard work reflects the values of discipline, teamwork, and perseverance that our institution upholds.

Shri S.Santhosh Kumar
Director
Velammal Global Hospital, Chennai

Principal Message



Dear Students and Faculty Members,

It gives me immense pleasure and pride to witness the remarkable journey and continuous growth of our department magazine, Techvista, over the years. This magazine has become a wonderful platform that reflects the creativity, innovation, and dedication of our students.

I am delighted to see the enthusiastic participation of students in both technical and non-technical domains. Their willingness to explore new ideas, express their thoughts, and showcase their talents is truly commendable. Every article, project, artwork, and achievement featured in this magazine stands as a testament to the hard work and passion of our student community.

A magazine is much more than a collection of pages—it is a reflection of the vibrant culture, values, and aspirations of an institution. Techvista successfully captures the spirit of learning, collaboration, and excellence that defines our department.

I also extend my sincere appreciation to the editorial team, faculty members, and everyone who worked tirelessly to make this edition a success. Their dedication and commitment deserve heartfelt recognition.

I look forward to seeing Evolve reach even greater heights in the years to come, with richer content, broader participation, and fresh ideas that continue to inspire future generations of students.

I wish the editorial team and all contributors my heartfelt congratulations and best wishes for the continued success of Techvista.

Dr.N.Balaji
Principal
Velammal Institute of Technology

Vice Principal Message



Dear Students and Esteemed Colleagues,

It is a matter of great pride to witness the continued success of TechVista, the Department of Information Technology's magazine. This publication reflects the creativity, innovation, and dedication of our students and faculty.

I am pleased to see students actively participating in both technical and non-technical activities, demonstrating their talents beyond academics. Such initiatives help nurture confidence, teamwork, leadership, and critical thinking, which are essential qualities for future professionals.

My sincere appreciation goes to the editorial committee and faculty coordinators for their hard work in producing this excellent edition. I encourage every student to continue contributing with enthusiasm and make TechVista an even more vibrant platform in the years ahead.

I extend my heartfelt congratulations to everyone involved and wish the magazine continued success.

Dr.S.Soundararajan
Vice Principal
Velammal Institute of Technology

HOD Message



Dear Faculty Members and Respected Participants,

I am delighted to witness the active participation of students in both technical and non-technical domains. Their articles, project ideas, achievements, creative expressions, and innovative thinking truly demonstrate the vibrant learning culture of our department.

TechVista is more than just a magazine; it is a platform that encourages knowledge sharing, critical thinking, creativity, and collaboration. It inspires students to explore new ideas, develop confidence, and express themselves beyond the boundaries of the classroom.

I extend my heartfelt appreciation to the editorial team, faculty members, and every student contributor for their dedication and hard work in making this edition a success. I encourage all students to continue participating actively and contribute even more enthusiastically in the years to come.

I wish TechVista continued success and hope it grows into an even stronger platform that celebrates innovation, excellence, and the limitless potential of our students. My best wishes to everyone associated with this wonderful publication.

Dr.C.Ganesh
Head of the Department
Information Technology
Velammal Institute of Technology

ARTICLES

The In-Depth Exploration and Commentary on the Digital Age

The digital age is not only a time of technological advancement, but also a time of profound change in the way we live, work, and play. This issue of the magazine explores the many facets of this new era, from the latest in artificial intelligence to the challenges of privacy in the digital world.

As the digital age advances, it brings with it a host of new challenges and opportunities. This issue of the magazine explores the many facets of this new era, from the latest in artificial intelligence to the challenges of privacy in the digital world.

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THE FUTURE OF INFORMATION TECHNOLOGY

Information Technology (IT) is the backbone of today's digital world, driving innovation across industries such as healthcare, education, banking, agriculture, and business. Technologies like Artificial Intelligence (AI), Cloud Computing, Cybersecurity, and the Internet of Things (IoT) are transforming the way people live, work, and communicate, making systems smarter, faster, and more efficient.

The Information Technology department prepares students with essential skills in programming, networking, database management, software development, and cybersecurity. Along with technical expertise, students develop problem-solving, creativity, and teamwork skills, enabling them to build successful careers and contribute to the ever-evolving world of technology.



GREEN COMPUTING – TECHNOLOGY FOR A SUSTAINABLE FUTURE

Green computing involves designing, manufacturing, using, and disposing of computers, servers, and associated subsystems efficiently and effectively with minimal impact on the environment. Its goals are threefold: reduce the use of hazardous materials, maximize energy efficiency during the product's lifetime, and promote the recyclability or biodegradability of defunct products and factory waste.

In an era where data is the new oil, the engines powering our digital world—data centers, devices, and networks—consume vast amounts of energy. The information and communications technology (ICT) sector is responsible for an estimated 2-4% of global greenhouse gas emissions, a figure rivaling the aviation industry. The solution lies in Green Computing, the environmentally responsible and eco-friendly use of computers and their resources. It's no longer just a niche corporate social responsibility initiative; it's a fundamental shift toward ensuring our digital future doesn't cost us the planet.



THE IMPORTANCE OF INFORMATION TECHNOLOGY

Information Technology is the central nervous system of the modern global economy, fundamentally reshaping how we communicate, conduct business, and solve complex problems. Its importance lies in its ability to obliterate traditional barriers of distance and time, enabling the instantaneous flow of data that powers every sector—from healthcare, where telemedicine and electronic records save lives, to finance, where algorithmic trading and digital banking democratize wealth management. Beyond mere connectivity, IT provides the critical infrastructure for organizational intelligence, allowing businesses and governments to analyze vast datasets, predict future trends with artificial intelligence, and automate inefficient manual processes.

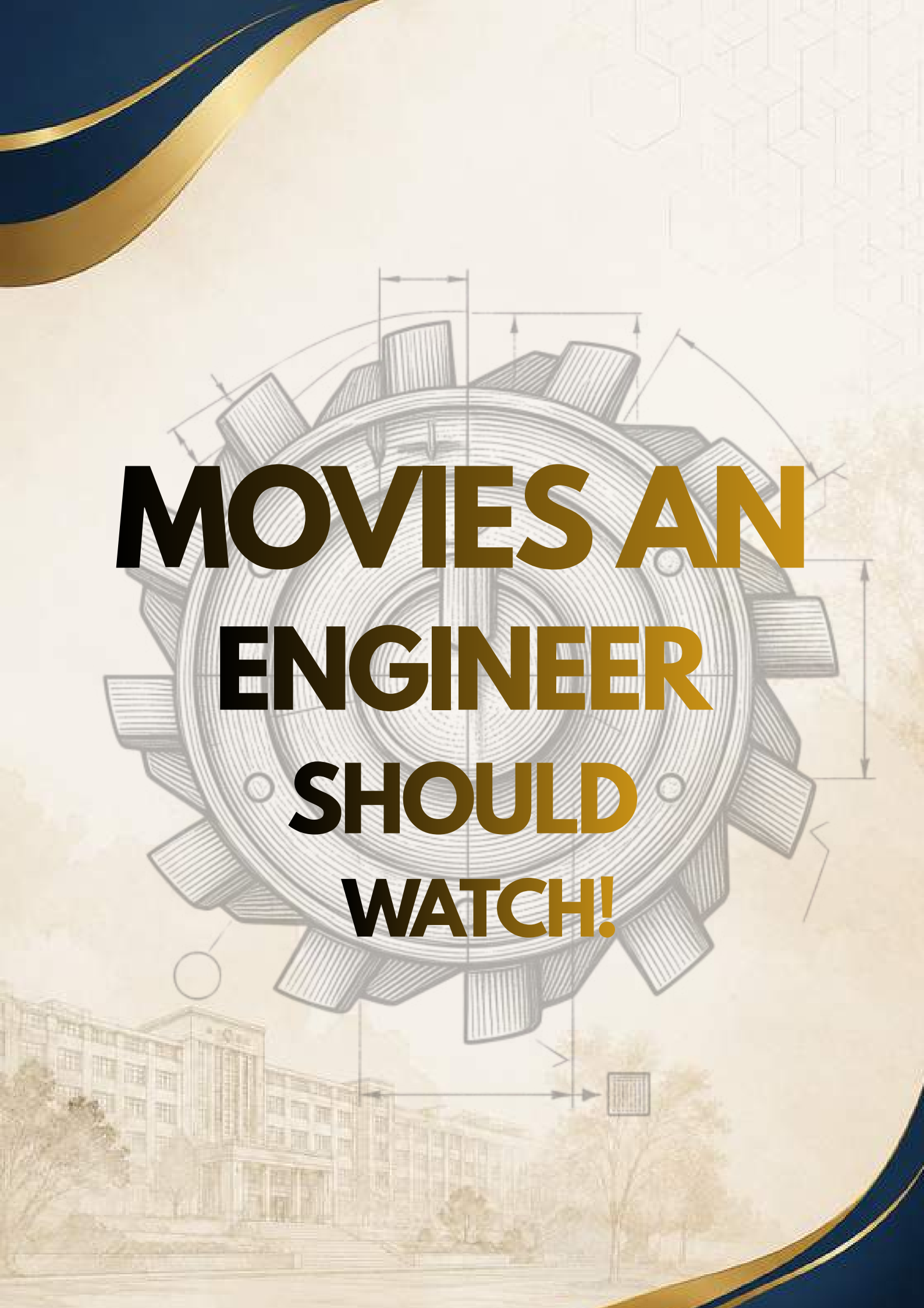
In essence, IT has transformed data from a passive resource into one of the world's most valuable strategic assets, driving innovation, creating new economic models, and fostering an interconnected global culture.



THE ROLE OF INFORMATION TECHNOLOGY IN BUSINESS

Information Technology has evolved from a back-office support function into the primary engine of business strategy and competitive advantage. Its most fundamental role is the automation and optimization of core operations, turning manual, error-prone tasks into seamless digital workflows that boost productivity and drastically cut costs. Beyond efficiency, IT now dictates how a company interacts with its customers; e-commerce platforms, mobile apps, and social media channels have transformed the customer experience from a transactional afterthought into a continuous, personalized dialogue.

Crucially, IT empowers a shift from intuition-based to data-driven decision-making. Business intelligence and analytics tools sift through massive streams of real-time data, revealing hidden market trends, supply chain vulnerabilities, and customer preferences, allowing leaders to make precise, evidence-based choices rather than relying on gut feeling. In this landscape, a company's IT capability is no longer just a departmental budget item—it is the very architecture of its value proposition and its primary tool for survival against more digitally agile competitors.



**MOVIES AN
ENGINEER
SHOULD
WATCH!**

The image features a large, detailed technical drawing of a gear with multiple teeth and dimension lines, centered over a background of a university building. The text is overlaid on the gear. The background is a light beige color with a faint, stylized drawing of a university building and trees. The top and bottom corners have decorative blue and gold curved borders.

1. PROJECT HAIL MARY (2026)

BASED ON THE NOVEL BY ANDY WEIR, THIS FILM CENTERS ON A MOLECULAR BIOLOGIST TURNED ASTRONAUT WHO MUST USE HIS SCIENTIFIC AND ENGINEERING SKILLS TO SAVE A DYING SUN AND EARTH. IT IS CELEBRATED FOR ITS DEEP DIVE INTO REALISTIC, THEORETICAL ASTROPHYSICS AND MECHANICAL PROBLEM-SOLVING.



~Tharun M
II IT

2. THE ENGINEER (2023)

An action-thriller based on real-world events, following a team of elite operatives and intelligence engineers trying to track down a rogue bomb maker responsible for a wave of terror in the Middle East. It highlights the clash between weapons engineering and tactical intelligence.



~Anush M S
II IT

3.THE MARTIAN (2015)

THE MARTIAN IS A SCIENCE FICTION FILM ABOUT AN ASTRONAUT WHO IS ACCIDENTALLY LEFT BEHIND ON MARS AFTER HIS CREW BELIEVES HE HAS DIED DURING A POWERFUL STORM. ALONE ON THE PLANET, HE MUST RELY ON HIS SCIENTIFIC KNOWLEDGE, CREATIVITY, AND DETERMINATION TO SURVIVE WHILE FINDING A WAY TO COMMUNICATE WITH EARTH. AS SCIENTISTS AND HIS FELLOW ASTRONAUTS WORK TIRELESSLY TO BRING HIM HOME, THE FILM HIGHLIGHTS THE POWER OF HUMAN RESILIENCE, TEAMWORK, AND INNOVATION IN THE FACE OF EXTRAORDINARY CHALLENGES.



~Ayyan Karthick
II IT

4.TENET (2020)

TENET IS A SCIENCE FICTION ACTION THRILLER THAT FOLLOWS A SECRET AGENT KNOWN ONLY AS THE PROTAGONIST AS HE EMBARKS ON A MISSION TO PREVENT A GLOBAL CATASTROPHE. USING GROUNDBREAKING TECHNOLOGY THAT ALLOWS OBJECTS AND PEOPLE TO MOVE BACKWARD THROUGH TIME, HE NAVIGATES A WORLD WHERE THE NORMAL FLOW OF TIME IS NO LONGER A FIXED RULE. FILLED WITH INTRICATE PUZZLES, BREATHTAKING ACTION SEQUENCES, AND MIND-BENDING CONCEPTS, TENET EXPLORES THEMES OF TIME, DESTINY, AND THE CONSEQUENCES OF HUMAN AMBITION.



~Dhayananth S
II IT



POETRIES

BY OUR

STUDENTS



பெண் அவளின் பார்வை பட்டா
நெஞ்சில் பல மின்னல் வெட்டா
அழகிய பெண்ணைக் கண்டேன்
புதுவித தயக்கம் கொண்டேன்
என்னவளின் அழகைக் கண்டே
அய்யோ நான் சிதைந்தேன் அன்றே
காதல் அம்பு பறந்து சென்றே
தேவதையை கூட்டி வந்தே!!



காற்றோடு காற்றாகி காற்றாகும் மரமோ
உன்னை வளர்த்து இம்மனிதனோ??
விதையோடு வேராகி வேரெல்லாம் மரமாகி
மரமெல்லாம் கிளையாகி
கிளையெல்லாம் நிழலாகி
செடிகளை நட்ட கைகளடி
தற்பொழுது இன்ஸ்டா மோகமடி...
இம்மரங்களை வெட்டுகையில்
பதறுகிறது என் நெஞ்சமடி! நெஞ்சமடி!

-ராகேஷ் ரா.பு
II -IT

வீசம் தென்றலின் கொன்றை வாசம்
கொண்டவள் அவள்
விழும் மீனின் வெளிச்சம்
கொண்டவள் அவள்
பூக்களோடு சேர்த்து என் புண்ணைகையையும்
சூடினாள் அவள்
மாதரை காக்க வந்த மடந்தையவள்
அழகியல் என்னும்
சொல்லின் உவமையவள்
காணும் உலகின் காணாத
பக்கங்கள் அவள்
நிலை மறந்து பூவின் சுவையறிந்து
ரீங்காரமிட்டுத்திரியும்
வண்டின் கனா அவள்
வானில் மிளிரும் நட்சத்திரங்களின்
சாயல் அவள்
மலரும் கூட நாணம் கொண்டு
துஞ்சும் அவள் அழகைக் கண்டு
காலம் சென்றாலும் உன்னைப் பாடிய இக்கவி
மறையாது

-நிதேஷ் து.வே

III -IT

அகன்ற பால்வெளியில் அசைந்தாடும்
விண்மீனின் ஒளி கொண்டவள் அவள்
ஆழிப் பேரலையில் அசைந்தாடும்
தோணியின் நடை அவள் இடை
இலக்கணமில்லா உயிரைத் தீண்டும்
இலக்கியவள்
ஈகையின் மொத்த உருவம் அவள்
உலகமெல்லாம்
உவமையாக்கினாலும் அவள் அழகை
கூறி முடித்தலாகாது
ஊறிக் தெளிந்திருக்கிறாள்
அழகிலும் தமிழிலும் நான் ஊர்ந்து
கொண்டிருக்கிறேன் அவளைக்
கண்டு
என்னவளின் குரல் எனக்குத்
திருக்குறள்
ஏதிலி நான் என் இறை நீ
ஐயம் தீர கவிப்பாட வா கரைந்து
போவோம்
ஒவ்வாமையோ நான் உனக்கு
ஒவியமோ நீ யெனக்கு
ஓராயிரம் கவி எழுதினேன் ஒற்றை
ஒளவியம் கொண்டேனடி என் இதழ்
இருக்குமிடத்தில் சாயக் குச்சி
இருப்பதைக் கண்டு

-நிதேஷ் து.வே
III -IT

எதார்த்தமாய் உன்னை பார்த்தேன்
எதார்த்தமாய் உன்னிடம் பேசினேன்
எதார்த்தமாய் உன்னிடம் சிரித்தேன்
எதார்த்தமாய் உன்னிடம் பழகினேன்
எதார்த்தமாய் உன்னை ரசித்தேன்
ஆனால் இது எதுவுமே எதார்த்தம் இல்லை
இது நான் - நீயென்றும் என ஆகிவிட்டாய் நீ!



காலம் நம்மை கண்டது...
காலம் நம்மை சேர்த்தது...
காலம் அதை கண்டு ரசித்தது...
ஆனால் ஏனோ அதே காலம்
பொறாமையும் கொண்டது...
அதனால் அதே காலம் நம்மை
பிரித்தது...
அதே காலம் நம் பிரிவை கண்டும்
ரசித்தது...
இது காலத்தின் தவறா... இல்லை
பிரிந்தும் சேர்ந்தும்
விட்டுக்கொடுக்காமல் வாழும்
நமது தவறா...?

-கீர்த்தனா.சி

III -IT

பெண்ணும் மரமும் ஒன்றே
எப்படி மரம் விதையிலிருந்து
முளைகிறதோ
முளைத்த விதை செடியாகிறதோ
செடி கொடியாகிறதோ
கொடி மரமாகிறதோ

அது மொட்டாகி
மொட்டிலிருந்து பூவாகி
பூவிலிருந்து காயாகி
காய் காய்த்து
காய்கள் பழமாகி
பழம் பல பழுக்கின்றன

அதே போலும்
பெண் கருவிலிருந்து குழந்தையாக மாறி
பிறக்கிறாள்
பிறந்து பேதையாகிறாள்
பேதையாகி மங்கையாகிறாள் மங்கையாகி
பருவபெண்ணாகிறாள்

அதை கடந்தபின் பெண்ணாகி
பிடித்த மணாளனை கரம் பிடித்து மணந்து கொள்கிறாள்

இறுதியில் தயாகிறாள் அடுத்து அவள் பெண்ணை தயாராக்கி
தாணும் தாயாகிறாள்

அந்த பெண்ணும் இச்சக்கரத்தில் சுழல்கிறாள்

சுழந்து அவள் தாயை
மீண்டும் தாயாக்குகிறாள்
அவளும் தாய்மை அடைகிறாள்

இப்படி ஒரு பெண் விதையிலிருந்து ஆலம் போல்
பல விழுல் கொண்ட மரமாகிறாள்
அப்படி பெண்ணும் மரமும்
கொடுத்து கொடுப்பதில் சிறக்கிறார்கள்

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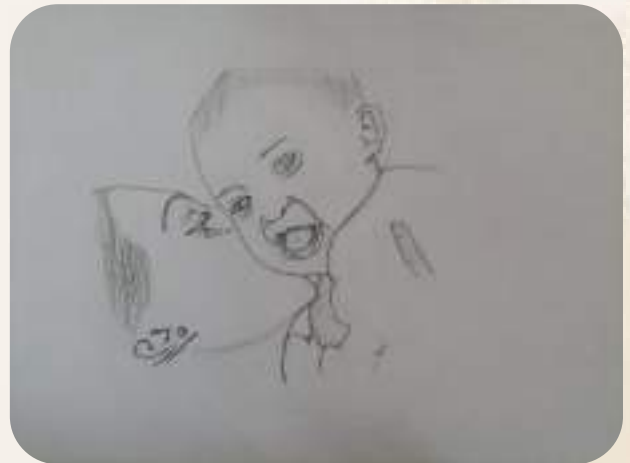
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**VEDAVYASS
II-IT**









1. WHAT DOES THE ACRONYM "BIOS" STAND FOR IN COMPUTING

- A) Binary Input Output System
- B) Basic Input/Output System
- C) Built-In Operating System
- D) Bootable Integrated Open Source

2. In networking, what does a "Trunk Port" primarily do?

- A) It connects a single computer to a router
- B) It connects multiple local networks to a single power source
- C) It carries traffic for multiple VLANs across a single network link
- D) It speeds up wireless data transfer

3. Which of the following memory types has the fastest access time?

- A) RAM
- B) Hard Disk Drive
- C) ROM
- D) Cache Memory

4. What is the fundamental concept behind Object–Oriented Programming (OOP)?

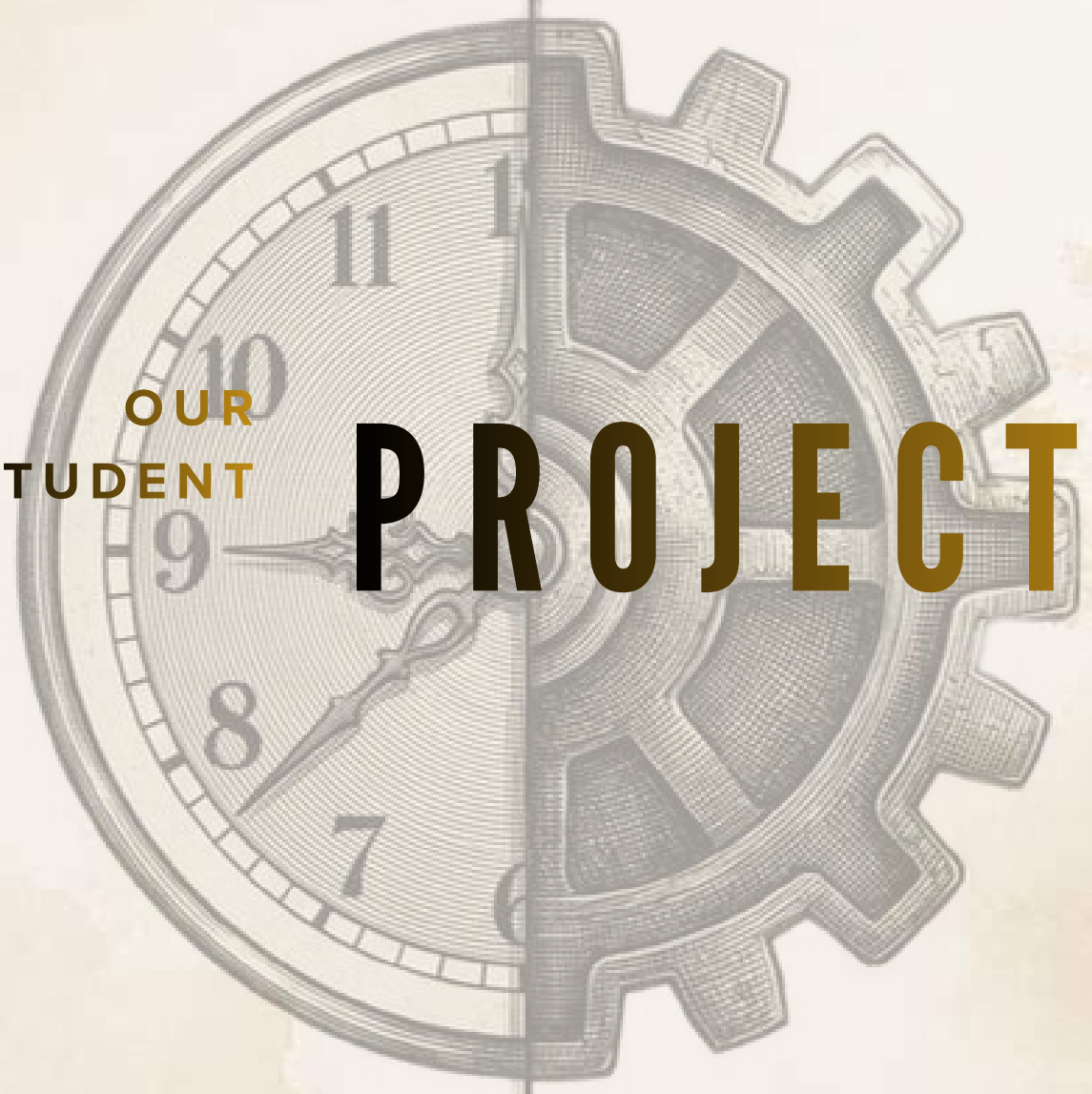
- A) Executing code strictly in sequential order
- B) Organizing code into functions and procedures
- C) Using "objects" that represent data and methods to manipulate it
- D) Converting high-level code directly to machine language

5. Which of the following is considered a symmetric encryption algorithm?

- A) RSA
- B) AES
- C) ECC
- D) Diffie-Hellman



OUR
STUDENT



PROJECTS

ABSTRACT

Road safety is a major concern for two-wheeler riders, as accidents often result from not wearing helmets, riding under the influence of alcohol, and using overheated helmets that cause discomfort. Existing safety measures rely heavily on rider compliance, which is often neglected. To address these issues, this project proposes a smart helmet system that automatically monitors helmet usage, alcohol consumption, and helmet temperature to improve rider safety and reduce accidents.

The proposed system integrates an ESP32 microcontroller, an MQ-3 alcohol sensor, a DHT11 temperature sensor, a relay module, a buzzer, and LED indicators. The helmet detection mechanism ensures that the motorcycle can only be started when the rider is wearing the helmet. The MQ-3 sensor detects alcohol levels and prevents engine ignition if the rider is intoxicated. The DHT11 sensor continuously monitors the helmet's internal temperature and activates the buzzer and LED alerts when the temperature exceeds a predefined threshold, helping to maintain rider comfort. A lithium-ion battery powers all system components.

By preventing vehicle ignition in unsafe conditions, such as when the helmet is not worn or alcohol is detected, the proposed smart helmet system minimizes the risk of accidents caused by negligence and impaired riding. Experimental results demonstrate that the system effectively enhances rider safety, promotes compliance with traffic regulations, and illustrates the potential of smart technology in developing intelligent safety solutions for two-wheelers.

Keywords: ESP32 Microcontroller, Smart Helmet, MQ-3 Alcohol Sensor, DHT11 Temperature Sensor, Relay Module, Rider Safety.



**TEAM MEMBERS: ASMA, MANOJ, MUNIVEL
BATCH: 2022 - 2026**



**TEAM MEMBERS: SINDHUJA, HEMSOUNDAR,
FAIZ, SRIRAM
BATCH: 2022 - 2026**



**TEAM MEMBERS: GURUPRASATH,JAGADISH,
MONIKA,PRIYAVARSHINI
BATCH: 2022 - 2026**

The evolution of intelligent retail systems has driven the need for seamless, efficient, and secure shopping solutions. This project, titled "Intelligent Scan-and-Go Mobile Shopping with Automated Billing and AI Theft Prevention," presents a technologically advanced retail framework that leverages mobile applications, artificial intelligence, and computer vision to modernize the in-store shopping experience. The proposed system enables customers to scan product barcodes or QR codes using a mobile device, automatically update a virtual shopping cart, and complete transactions through a secure, automated billing process without reliance on conventional checkout infrastructure.

To address critical retail security challenges, the system integrates AI-driven theft prevention mechanisms using smart surveillance cameras and machine learning algorithms. These components continuously analyze customer behavior and product movement to identify anomalies such as unpaid item removal, concealment, or suspicious actions. Upon detection, real-time alerts are generated and communicated to store personnel through a centralized monitoring interface, thereby minimizing losses and enhancing store security.

By unifying mobile commerce, cloud-based data processing, and intelligent surveillance, the proposed solution improves operational efficiency, reduces human dependency, enhances customer convenience, and strengthens loss-prevention strategies. The system is scalable, adaptable, and well-suited for smart retail environments, offering a robust foundation for the future of automated and secure in-store shopping



1. Correct Answer: B) Basic Input/Output System

Explanation: BIOS is a firmware program stored on a small memory chip on the motherboard. It initializes and tests the computer's hardware components (a process called POST) during startup and acts as an interface between the operating system and the hardware.

2. Correct Answer: C) It carries traffic for multiple VLANs across a single network link

Explanation: A trunk port is designed to bundle traffic from multiple Virtual Local Area Networks (VLANs) over a single physical cable, typically between switches. It uses tagging protocols (like IEEE 802.1Q) to identify which packet belongs to which VLAN.

3. Correct Answer: D) Cache Memory

Explanation: Cache memory is located directly on or extremely close to the CPU chip. It is made of fast Static RAM (SRAM) and holds frequently used data to minimize access time. It is significantly faster than standard RAM, ROM, and any storage media like a Hard Disk Drive.

4. Correct Answer: C) Using "objects" that represent data and methods to manipulate it

Explanation: OOP is a programming paradigm organized around "objects" rather than "actions" or "functions." An object combines data (attributes/properties) and code (methods/functions) into a single entity, allowing developers to model real-world concepts.

5. Correct Answer: C) Using "objects" that represent data and methods to manipulate it

Explanation: OOP is a programming paradigm organized around "objects" rather than "actions" or "functions." An object combines data (attributes/properties) and code (methods/functions) into a single entity, allowing developers to model real-world concepts.

A large, faint background illustration of a clock face on the left and a gear on the right, both in a light grey tone. The clock face shows numbers 11, 10, 7, and 6. The gear is a large, multi-toothed mechanical gear. The overall background is a light cream color with a subtle pattern of hexagons in the upper right corner. A blue and gold wavy border is in the top left corner, and a similar blue and gold border is in the bottom right corner.

Thank
you

