



# NEW HORIZON COLLEGE OF ENGINEERING

Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC  
Accredited by NAAC with 'A' Grade. Accredited by NBA

INFORMATION SCIENCE AND ENGINEERING

# NEWSLETTER



## I - NEWS

JULY-DECEMBER  
2025

# ABOUT THE DEPARTMENT



Information Science and Engineering department focuses on current Information Technology Trends, and Domain Specific Applications.

The program facilitates the evolution of skills in students to help them attain a higher degree of knowledge, global competency and Excellence, for the betterment of the society.

The Department of Information Science and Engineering at NHCE was established in the year of 2001 and offers graduate, post graduate and PhD programs. The four year B.E degree equip the students to meet day-today Technological advancements of the ever dynamic IT field through adept training on various subjects of curriculum of Information Science and engineering and beyond. The department offers B.E program through autonomous scheme from the year 2015. The department has a very good team of highly qualified and talented faculty members including Professors, Associate Professors and Assistant Professors.

# VISION

To emerge as a Department of eminence in Information Science and Engineering in serving the Information Technology industry and the nation by empowering students with a high degree of technical and practical competence.



# MISSION

To strengthen the theoretical, practical and ethical dimensions of the learning process by fostering a culture of research and innovation among faculty members and students.

To encourage long-term interaction between the academia and industry through their involvement in the design of curriculum and its hands-on implementation.

To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.



# MESSAGE FROM PRINCIPAL



It gives me great pleasure to give my best wishes to i-News, a Newsletter from the Department Of Information Science and Engineering Of New Horizon College Of Engineering, Bengaluru. The students and faculties of the department are always proactive in taking initiative in organizing all kinds of events. I congratulate all achievers, contributors and editorial board for bringing out such an informative newsletter. I hope this newsletter reflects all activities Of the department and inspires Others to do their best

# MESSAGE FROM HOD



Welcome to i-News, the pulsating heartbeat of the ISE Department at New Horizon College of Engineering, Bengaluru. Our dedicated team of teachers and students have crafted this newsletter to showcase our remarkable achievements and vibrant activities. Within these pages, you'll discover a world of opportunities for students to engage in curricular, co-curricular, and extra-curricular activities through our various clubs. We celebrate milestones, share captivating projects, and highlight the spirit of our department. To our students, seize the gift of today and make it extraordinary. Congratulations to our faculties and editors for creating an exciting and interesting issue. Join us on this captivating journey as we shape the future together. Welcome to i-News, where possibilities come alive.



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# NH BYTES





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# AUGUST



# FUNDING OPPORTUNITIES FOR STUDENT INNOVATION AND START-UPMESSAGE FROM HOD



On 28th August 2025, Department of ISE and NHCIIE hosted a mentoring session on "Funding Opportunities for Student Innovation and Start-Up," led by Dr. Mukul Manohar, Professor and Associate Head of IIE, NHCE.

The session covered government schemes like Startup India Seed Fund, NIDHI, and MSME programs. The institutional's support through incubation centers such as AICTE, UGC Grants, and Atal Innovation Mission was discussed.

The session highlighted the role of the private investors, and crowdfunding platforms that support student ventures. Participants learned how to access funding, improve business planning, and pitch ideas effectively.



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# SEPTEMBER



# A GUEST TALK ON "BEYOND BOUNDARIES – UNLOCKING GLOBAL LEARNING"



The Department of Information Science and Engineering at New Horizon College of Engineering organized a Guest Talk on "Beyond Boundaries – Unlocking Global Learning" on Friday, 12-09- 2025, at 11:00 AM in the ISE Department, Chhatrapati Shivaji Block, NHCE.



The event began with a welcome note by Ms. Deepika, a student of the 7th semester, followed by an introduction to the guest talk by Dr. Vandana C. P., Head of the ISE Department. The participants of the event were students from the 7th semester.

A Guest talk on "Study Abroad Opportunities" was conducted by the Department of Information Science and Engineering in Room No. 524. The session aimed to provide students with insights into international education, application procedures, scholarships, and career prospects. The event was attended by students, faculty members, and experts in the field of international education.



# IGNITE LEARNING: AN OUTREACH PROGRAM



On 18th September 2025, the Department of Information Science and Engineering at NHCE conducted a Social Outreach Program titled "Ignite Learning: An Outreach Program" at Government School, Ramanagar. The initiative aimed to support education and foster joy among young learners through meaningful engagement and resource sharing.

ISE students donated essential educational materials such as notebooks, pens, pencils, and storybooks to the school children. The program featured interactive group games and creative activities designed to build teamwork, confidence, and enthusiasm among the participants. Motivational interactions encouraged the children to pursue their studies with dedication and to dream ambitiously about their future.

The outreach program not only provided much-needed learning resources but also created a vibrant and joyful atmosphere for the children. It instilled a strong sense of social responsibility among the ISE students and fostered a spirit of community engagement. The event concluded with valuable reflections on compassion, gratitude, and the impact of small acts of kindness.



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# OCTOBER



# PARENT TEACHERS MEETING FOR EVEN SEM (VII SEM 2025-26)



The Department of Information Science & Engineering, New Horizon College of Engineering, organized a Parent-Teacher Meeting on Saturday, 11<sup>th</sup> October 2025, at 10:00 AM in the department classroom C524 for VII Semester, located in the Chatrapathy Shivaji Block.

The primary objective of the meeting was to provide a common platform for interaction between parents and faculty members, facilitating a constructive dialogue regarding the academic performance, discipline, and holistic development of students. The session aimed to strengthen the collaborative relationship between the institution and parents, thereby enhancing the quality of education and student engagement.

The meeting was conducted under the guidance of Dr. Vandana C. P., Associate Professor and Head of the Department, Information Science & Engineering. Faculty members, mentors, and parents of the VII Semester students actively participated in the meeting.

The discussions were insightful and productive, focusing on strategies to improve academic outcomes, attendance, and overall student well-being. The department expressed its appreciation to all parents for their cooperation and valuable feedback, which will contribute significantly to the department's continuous efforts toward academic excellence and student-centric growth.

# OUTREACH PROGRAM – SHARING JOY AND LEARNING BEYOND THE CLASSROOM



On 30th October 2025, the Department of Information Science and Engineering organised a Social Outreach Program titled "Sharing Joy and Learning Beyond the Classroom." The initiative aimed to instil values of social responsibility and compassionate leadership among students.

A donation drive was held on campus where students voluntarily contributed funds for the cause. The collected amount was accounted for and used to purchase essential groceries. Faculty and students visited Makkala Dhama Orphanage, Devanahalli, Bangalore to personally deliver the items and engage with the children.

The interaction sessions fostered emotional support and created a warm, encouraging atmosphere. Groceries including rice, pulses, cooking oil, snacks, and other essentials were handed over to the orphanage authorities. Students also participated in informal activities and conversations with the children, deepening their understanding of empathy and gratitude.

The orphanage staff shared insights on childcare and the challenges faced by such institutions. The experience left a lasting impact, inspiring students to continue contributing to society through future outreach programs.

# EXPERT TALK – INNOVATION JOURNEY: IMAGINE, DESIGN, AND MAKE IT REAL



On 14th October 2025, the Department of Information Science and Engineering hosted an expert talk titled Innovation Journey: Imagine, Design, and Make It Real. The session was presented by Ms Sreeja, Founder of [openyourmind.in](http://openyourmind.in). The talk aimed to provide insights into the design thinking process and its role in transforming ideas into impactful solutions.

The expert began by stressing imagination as the foundation of innovation. She guided participants through the stages of Ideation, Design, and Realisation. The Design Thinking framework of Empathise, Define, Ideate, Prototype, and Test was explained in detail. Techniques for generating and refining innovative ideas were shared with students. The role of empathy in designing user-centric solutions was emphasised.

Real-world examples of successful innovations driven by design thinking were presented. Tools and mindsets for translating ideas into tangible outcomes were introduced.

The session motivated many to explore innovation and design thinking in academic projects and entrepreneurial pursuits.

Overall, the talk successfully inspired students to imagine, design, and make their ideas real.



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# NOVEMBER



# PARENT TEACHERS MEETING FOR EVEN SEM (VII SEM 2025-26)



The Department of Information Science & Engineering at New Horizon College of Engineering held a Parent-Teacher meeting on Saturday, November 8, 2025, at 10:00 a.m. in rooms C519 of the Chhatrapati Shivaji Block, NHCE. The meeting aimed to provide a collaborative platform for teachers and parents to discuss and enhance students' educational experiences and overall development.

Organized under the guidance of Dr. Vandana C. P., Head of the Department of Information Science & Engineering, the meeting welcomed teachers and parents of students from the 5<sup>th</sup> semesters.

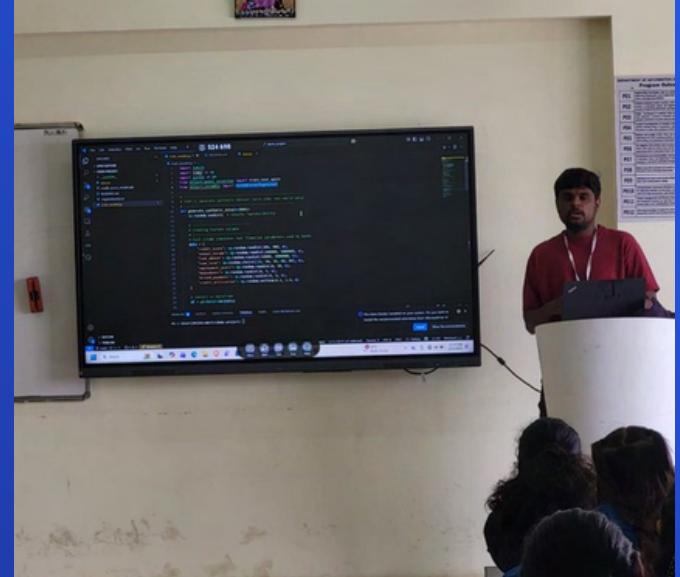


INFORMATION SCIENCE AND ENGINEERING

# DECEMBER



# EXPERT TALK ON END-TO-END MACHINE LEARNING: BUILD, DEPLOY, AND DELIVER AN ML MODEL



On 2nd December 2025, the Department of Information Science, and Engineering hosted an expert talk on End-to-End Machine Learning: Build, Deploy, and Deliver an ML Model by Mr. Naveen Sagayaselvaraj, Lead Automation Engineer at Symphony AI, Bengaluru. The session demonstrated the complete ML lifecycle from data preparation and training to API creation and cloud deployment.

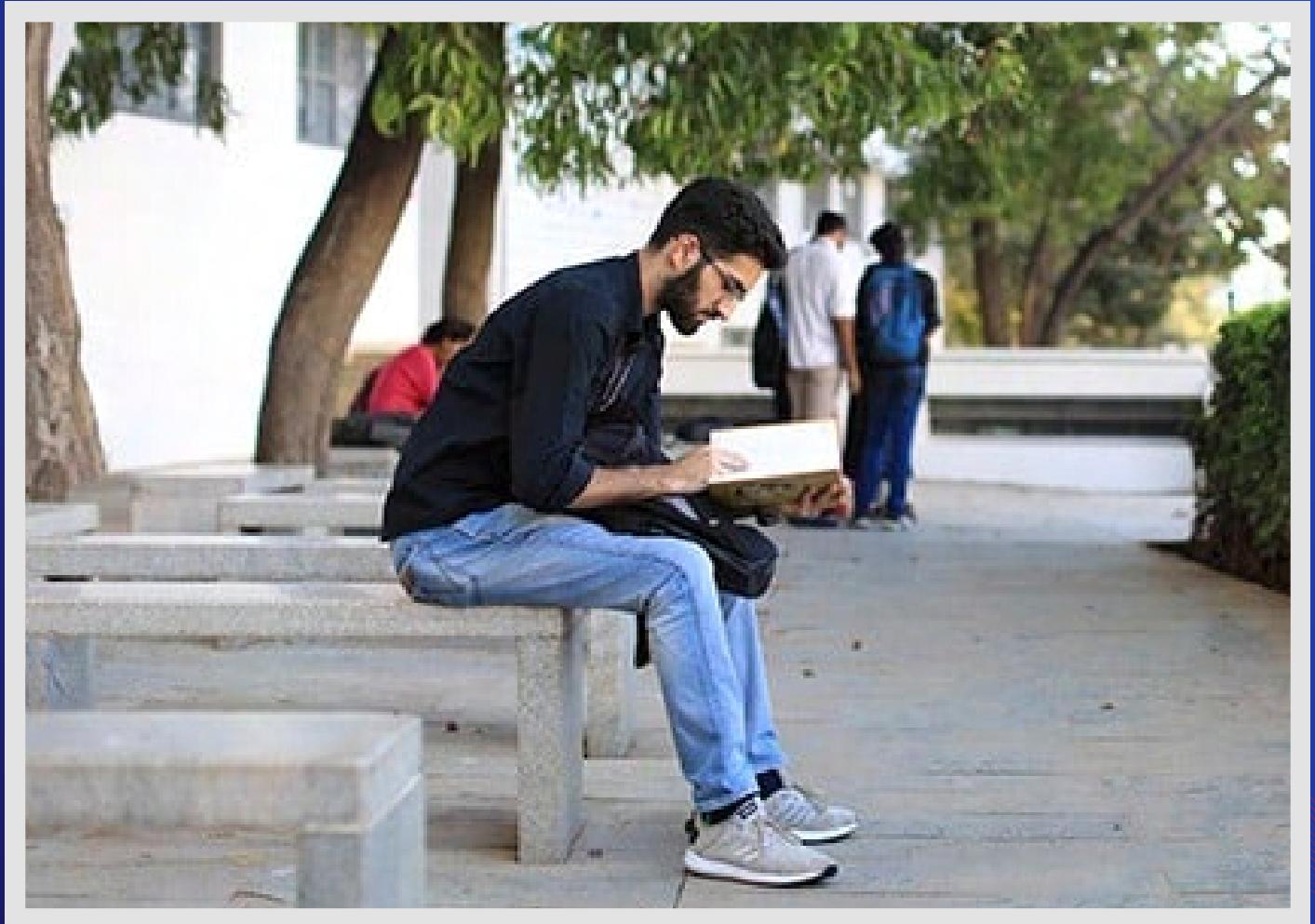
The expert explained that deployment transforms models into production-ready services, enabling real-world applications like fraud detection, product recommendation, and customer-behaviour prediction. He highlighted automation in decision-making, integration with business workflows, scalability through Docker and Kubernetes, and real-time predictions for systems such as self-driving cars and voice assistants.

A live demo showed a trained model served via a cloud API. Students engaged actively with discussions and innovative ideas while gaining insights into industry practices. Feedback was highly positive, appreciating the practical examples and inspiring delivery that motivated participants to explore real-time ML deployment.



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# ARTICLES



# EDGE COMPUTING: BRINGING INTELLIGENCE CLOSER TO DATA

In today's hyper-connected digital world, the explosion of Internet of Things (IoT) devices, real-time applications, and data-intensive services has placed enormous pressure on traditional cloud computing models. While cloud platforms offer scalability and centralized processing, they often struggle with latency, bandwidth limitations, and real-time responsiveness. This challenge has led to the emergence of Edge Computing, a paradigm that shifts computation and data processing closer to the source of data generation.

Edge Computing refers to the practice of processing data at or near the edge of the network—such as on IoT devices, gateways, or local servers—instead of sending all data to a centralized cloud. By minimizing the distance data must travel, edge computing significantly reduces latency and improves response times. This makes it ideal for applications where real-time decision-making is critical, such as autonomous vehicles, industrial automation, healthcare monitoring, and smart cities.

One of the major advantages of edge computing is its ability to handle real-time analytics. For example, in autonomous vehicles, sensors generate massive amounts of data every second. Sending all this data to the cloud for processing would introduce unacceptable delays. Edge computing enables these vehicles to analyze sensor data locally, make instant decisions, and ensure passenger safety. Similarly, in healthcare, edge devices can monitor patient vitals and trigger immediate alerts without relying on cloud connectivity.

Security and privacy are additional benefits of edge computing. Sensitive data—such as medical records, biometric information, or industrial data—can be processed locally, reducing exposure to external threats during transmission. While edge devices themselves must be secured, the reduced dependency on centralized systems limits the impact of large-scale data breaches. However, managing security across distributed edge nodes remains a significant challenge.

# EDGE COMPUTING: BRINGING INTELLIGENCE CLOSER TO DATA

Despite its advantages, edge computing is not without limitations. Deploying and maintaining edge infrastructure requires careful planning, skilled personnel, and robust device management strategies. Interoperability, standardization, and scalability are ongoing concerns, especially as edge environments become more complex. Additionally, balancing workloads between edge and cloud systems requires intelligent orchestration.

The future of edge computing lies in its integration with emerging technologies such as artificial intelligence, 5G networks, and blockchain. AI-powered edge devices can perform intelligent analytics locally, while 5G provides the ultra-low latency needed for real-time applications. Together, these technologies are paving the way for faster, smarter, and more efficient digital ecosystems.

In conclusion, edge computing represents a fundamental shift in how data is processed and managed. By bringing intelligence closer to where data is generated, it enables faster responses, improved efficiency, and enhanced security. As digital transformation continues to accelerate, edge computing will play a vital role in supporting next-generation applications and redefining the future of distributed computing.



**ROSEMARY CHACKO**  
ASSISTANT PROFESSOR

# VERICHAIN: INTEGRATING AI, BLOCKCHAIN, AND MACHINE LEARNING FOR DIGITAL TRUST

In today's digital age, verifying documents and identities has become both essential and challenging. Fake certificates, altered records, and forged signatures pose serious risks in areas such as education, banking, legal services, and government administration. To tackle these issues, VeriChain introduces a modern and reliable solution by integrating Artificial Intelligence (AI), Blockchain, and Machine Learning (ML) into a single powerful platform.

VeriChain is an integrated document verification and authentication system consisting of a web application and a signature verification API. Users can upload documents in the form of images or PDFs, which are processed using Google's Gemini AI (gemini-2.5-flash). This AI performs Optical Character Recognition (OCR) to extract key information such as names, identification numbers, and other important text from the documents.

After extraction, the data is converted into a SHA-256 cryptographic hash. Instead of storing the actual document, this hash is securely recorded on the Ethereum blockchain (Sepolia testnet). Since blockchain data cannot be modified once added, this ensures the integrity and authenticity of the document. If the document is altered later, the hash will no longer match, immediately revealing any tampering.

In addition to document verification, VeriChain also provides Machine Learning-based signature authentication. Through its API, users can register reference signatures and later verify new ones. The ML model analyzes various features of the signature, such as strokes and patterns, and determines whether it is genuine or forged. The system returns results like "REAL (MATCH)" or "FAKE (NO MATCH)" along with confidence scores and accuracy, making decision-making faster and more reliable.

# VERICHAIN: INTEGRATING AI, BLOCKCHAIN, AND MACHINE LEARNING FOR DIGITAL TRUST

VeriChain supports multiple databases including SQLite, PostgreSQL, and MySQL, with AWS RDS integration for scalable cloud deployment. Built using Flask, Python, HTML5, Tailwind CSS, and Bootstrap, the platform is designed to be both efficient and user-friendly.

By combining AI, blockchain, and machine learning, VeriChain offers a future-ready solution for secure digital verification, helping organizations build trust, reduce fraud, and protect sensitive information.



**Madhavan Venkatesh**  
**USN: 1NH23IS188**

# VOICE-BASED NATURAL LANGUAGE TO SQL AGENT

Modern databases store enormous amounts of valuable information, but accessing this data often requires knowledge of Structured Query Language (SQL). For many users, writing SQL queries can be difficult and time-consuming. To bridge this gap between humans and databases, the Voice-Based Natural Language to SQL Agent introduces a smarter and more accessible way to interact with data.

This system allows users to speak or type questions in natural language—for example, “Show all students who scored above 80”—and automatically converts them into accurate SQL queries. The goal is to make database interaction as easy as having a conversation.

Unlike many existing systems that depend on cloud servers, this project is designed to work entirely offline, ensuring complete data privacy and security. It uses locally deployed small language models such as LLaMA 3.2 (3B) and Phi-3 Mini, executed through Ollama, so no sensitive data ever leaves the user’s device.

At the core of the system is the Model Context Protocol (MCP), a standardized framework that connects language models to external tools like databases in a safe and reliable way. Instead of allowing the AI to directly execute database commands, MCP acts as a secure middle layer. It validates queries, handles errors, and ensures that all operations follow correct rules, preventing accidental or malicious database damage.

The architecture includes multimodal input processing, meaning it can accept both voice and text. A pyttsx3-based voice interface allows users to speak their queries, making the system highly accessible. The AI then generates schema-aware SQL, meaning it understands the structure of the database before creating queries. This improves accuracy and prevents invalid commands.

# VOICE-BASED NATURAL LANGUAGE TO SQL AGENT

The system supports complete CRUD operations (Create, Read, Update, Delete) and maintains audit logs, making it suitable for real-world use in secure environments such as offices, institutions, and data-driven organizations.

Performance evaluations show impressive results. Compared to traditional ReAct-style AI agents, this system improves query success rates from around 60–70% to over 95% and reduces response time from 30–40 seconds to just 6–9 seconds on normal consumer hardware.

By combining voice technology, AI, and secure database protocols, this project demonstrates how powerful and user-friendly data systems can be built without sacrificing privacy or reliability. It represents an important step toward making databases more accessible to everyone, even those without technical knowledge.



**Wasiullah Rafeeq S**

**USN: 1NH23IS182**

# SMART CLOUD-BASED PRACTICE MANAGEMENT & NUTRIENT ANALYSIS FOR AYURVEDIC DIETITIANS

Ayurveda follows a holistic approach to health, where diet plays a vital role in maintaining balance based on an individual's dosha, prakriti, and lifestyle. However, Ayurvedic diet planning still faces challenges due to limited digital tools, fragmented patient management, and poor integration between traditional principles and modern nutritional analysis. Most existing diet management systems are designed for conventional nutrition and fail to capture the personalized and qualitative aspects of Ayurvedic care, making it difficult for dietitians to deliver efficient and tailored services.

To overcome these limitations, this mini-project proposes a smart cloud-based practice management and nutrient analysis platform specifically designed for Ayurvedic dietitians. The platform provides an integrated environment for managing secure patient records, appointment scheduling, personalized diet plans, and meal tracking. By centralizing these functions, the system simplifies daily practice operations and improves continuity of patient care.

The platform incorporates AI-driven modules that combine Ayurvedic concepts such as dosha balance and prakriti with modern nutritional databases to generate personalized diet recommendations. Continuous monitoring of dietary habits enables better assessment of patient progress, while predictive insights assist dietitians in making timely adjustments to meal plans. An optional food image recognition feature further enhances accuracy in meal logging and nutrient estimation.

# SMART CLOUD-BASED PRACTICE MANAGEMENT & NUTRIENT ANALYSIS FOR AYURVEDIC DIETITIANS

Being cloud-based, the system ensures scalability, data security, and remote accessibility for both dietitians and patients. Overall, this project demonstrates how AI-powered and cloud-enabled solutions can modernize Ayurvedic diet practice, improve patient outcomes, and create a secure, efficient, and scalable digital ecosystem for Ayurveda-focused nutritional care.



**Sriya Saravanan**  
USN: 1NH23IS162

# CENTRALIZED HEALTH RECORD AND EMERGENCY ACCESS SYSTEM: "MEDIWALLET"

MediWallet is a centralized health record and emergency access system designed to provide a secure and unified digital platform for storing and managing a patient's complete medical history. In many healthcare environments, medical data remains fragmented across hospitals, clinics, and laboratories, making it difficult to access accurate information when it is most needed. MediWallet addresses this challenge by maintaining a centralized repository of health records that can be accessed by patients and authorized medical professionals, ensuring better continuity of care and improved patient safety.

Each patient registers on the MediWallet platform and is assigned a unique identification number along with a QR code. Patients can upload and manage their medical documents, including prescriptions, diagnostic reports, and health summaries, within their digital profile. With patient consent, doctors can securely access these records and update them with new diagnoses, prescriptions, or treatment details. All medical data is stored in a centralised database and protected using authentication and encryption mechanisms to prevent unauthorized access.

In emergency situations, the system enables rapid retrieval of critical medical information by scanning the patient's QR code. Authorized healthcare personnel can instantly view essential details such as blood group, allergies, chronic conditions, and current medications, allowing for faster and more accurate medical intervention. The system supports real-time data synchronization, ensuring that patient records remain up to date and accessible anytime and anywhere.

# CENTRALIZED HEALTH RECORD AND EMERGENCY ACCESS SYSTEM: “MEDIWALLET”

The MediWallet application is implemented using a three-tier architecture, with a user-friendly frontend developed using HTML, CSS, JavaScript or React, a robust backend built with technologies such as Node.js with Express, Python frameworks like Django or Flask, or PHP, and a scalable database layer using MySQL, PostgreSQL, or MongoDB. QR code generation is handled using dedicated Node.js or Python libraries. Overall, MediWallet demonstrates how a centralized, secure, and digitally accessible health record system can significantly enhance healthcare delivery, emergency response, and patient trust.



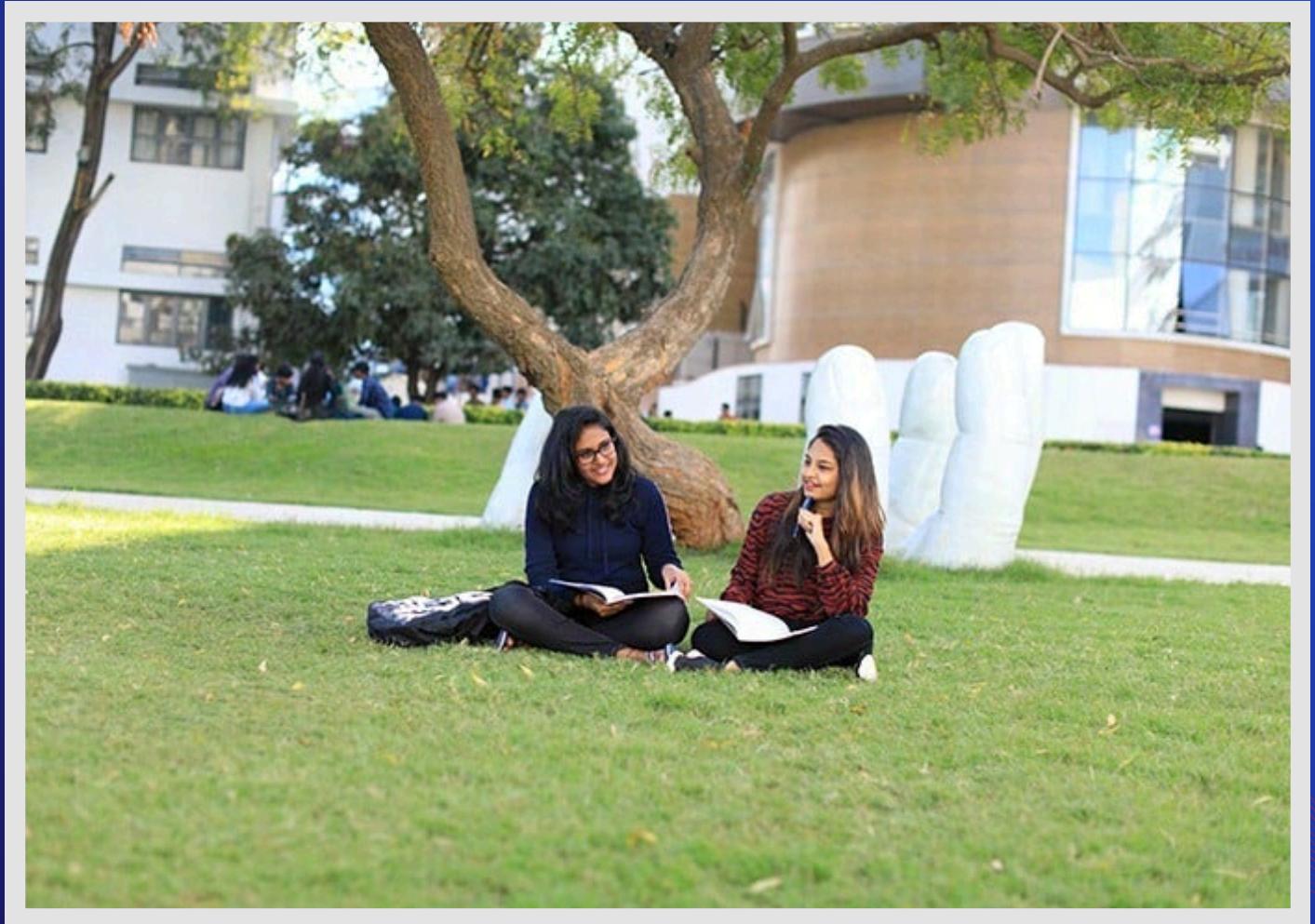
**Kapisatty Tanmaya**

**USN: 1NH23IS070**



INFORMATION SCIENCE AND ENGINEERING

# ACHIEVEMENTS



# QUANTUM X '25



Our team, Hawkeye, achieved remarkable success at Quantum X '25, securing 2nd place in Robowars, 2nd place in the Line Follower event, and 3rd place in Roborace. We proudly brought home a total cash prize of ₹35,000 during the event held on April 10th, 11th, and 12th.

# VYUHANTHRA-2025



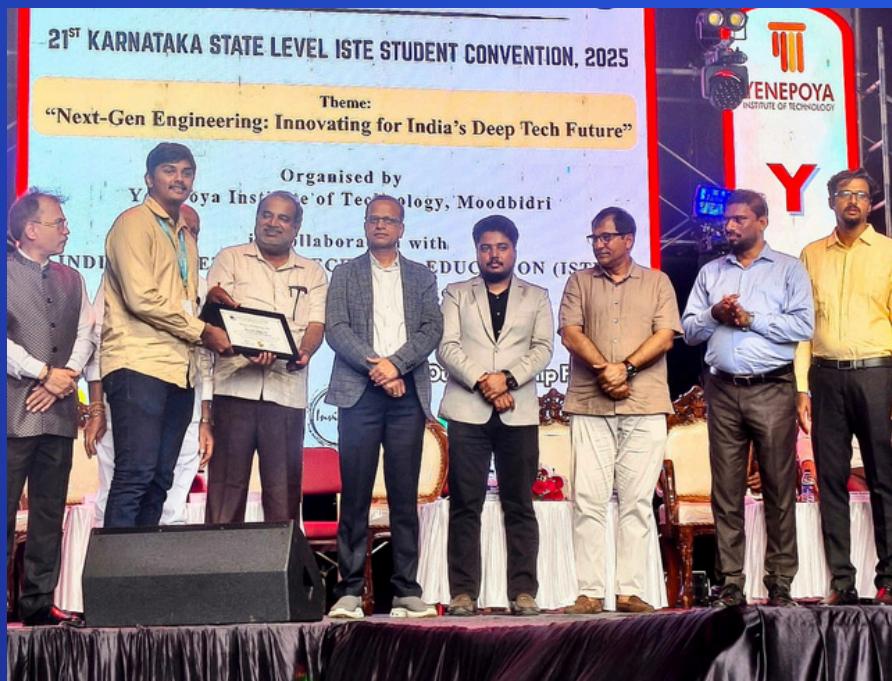
We are proud to inform you that Team Hawkeye achieved an outstanding result at Channabasaveshwara Institute of Technology, Tumkur, by securing both First and Third place in the Line Follower event, competing against 83 teams. The event was conducted on 29th October, and this achievement highlights the team's strong technical expertise, effective collaboration, and consistent performance in a highly competitive environment. The team members are Kaushik JT (1NH22IS065), Harshith KM (1NH22IS051), Anirudh Wagge (1NH22IS017), Akash Kalyankar (1NH22IS010), Ashutosh Kumar (1N23EC021), Gagan Chowdary (1NH23EC056), and Yashas V (1NH23EC185), whose collective efforts and dedication led to this remarkable accomplishment.

# VERTECHX 12.0



We are delighted to share that Team Hawkeye delivered an excellent performance at MVJ College of Engineering, securing second place in the Trace O Race competition. In addition to this achievement, our team also emerged as second runners-up in both RoboKabbadi and Cozmo Craze, showcasing strong technical skills, teamwork, and innovation across multiple events. The team comprises Kaushik JT (1NH22IS065), Akash K (1NH22IS010), and Anirudh W (1NH22IS017), whose collective effort and dedication contributed significantly to these accomplishments.

# ISTE KARNATAKA



We are proud to share that Kaushik JT (1NH22IS065) was honored with the Best Student Award 2025 at the 21st Karnataka State Level ISTE Student Convention, held at Yenepoya Institute of Technology, Moodbidri. This prestigious recognition was awarded by the Indian Society for Technical Education (ISTE), Karnataka Section, in appreciation of his exceptional academic performance, leadership qualities, and valuable contributions to technical and student-centric activities.



Team Hawkeye delivered an outstanding performance at the two-day state-level robotics event hosted by Amrita Vishwavidyalaya College of Engineering, held on 3rd and 4th November. Competing against 38 teams, the team secured 1st and 3rd place in Robo Race and 3rd place in Robo Soccer, demonstrating exceptional innovation, technical expertise, and teamwork. Their remarkable performance earned a total cash prize of ₹20,000, highlighting the team's consistent excellence across multiple events.

The team members are Kaushik JT (1NH22IS065), Harshith KM (1NH22IS051), Anirudh Wagge (1NH22IS017), Akash Kalyankar (1NH22IS010), Ashutosh Kumar (1N23EC021), Gagan Chowdary (1NH23EC056), Yashas V (1NH23EC185), and Darshan Gowda SG (1NH23EC045), whose collective dedication and collaborative efforts led to this impressive achievement.



I'm excited to share that Team Hawkeye secured 1st place in the National Level 24-hour Robothon 2025, conducted at Jyothi Institute of Technology in association with e-Yantra, IIT Bombay!

Out of 75 participating teams, we emerged as winners and received a cash prize of ₹40,000. Thank you for all your support and guidance throughout!

Kaushik jt (1NH22IS065)  
Anirudh wagge (1NH22IS017)

# EDITORIAL TEAM



DR. VANDANA C P

## Faculty Coordinator



DIVYA K V



SUBHI  
SRIVASTAVA



ARCHANA DAS

## Students



Nagareddy Thanvi



Kapisatty Tanmaya



Sriya Saravanan



# DREAMERS,DOERS,THINKERS!

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