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RAJ KUMAR GOEL INSTITUTE OF TECHNOLOGY

5TH K.M. STONE, DELHI-MEERUT ROAD, GHAZIABAD (U.P) 201017

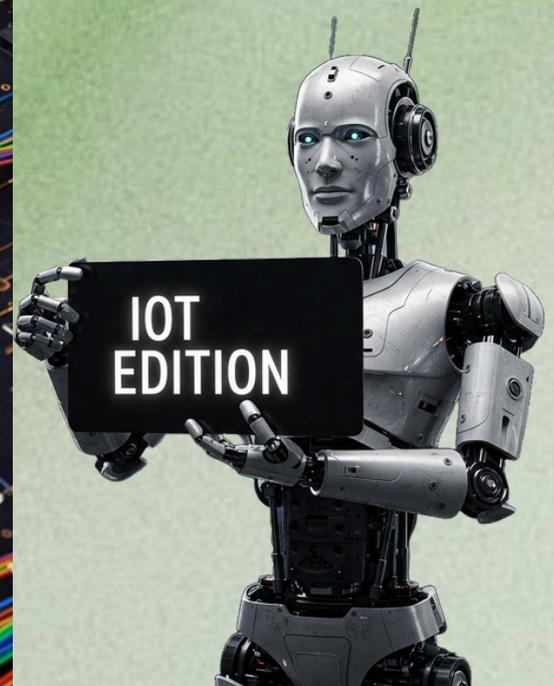


DEPARTMENT OF CSE(IOT)

2024-25

"The Internet of Things is not about connecting devices, it's about connecting people."

NO-H-SH-I-O-I



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VISION OF THE DEPARTMENT

To create a high quality academic and research environment which empowers faculty and students to meet the needs of industry, economy, society and environment in the field of Internet of Things.

MISSION OF THE DEPARTMENT

- M1. To provide the state- of- the art facilities to shape the students in industry-ready IoT system development.
- M2. To nurture the sense of creativity and innovation to adopt the socio-economic related activities.
- M3. To promote collaboration with the reputed industries to have the best career opportunities.

PSO OF THE DEPARTMENT

PSO 1: The capacity to hone problem-solving abilities through programming approaches for resolving actual issues in real life by applying pertinent Internet of Things concepts and principles.

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Table of **CONTENTS**

MESSAGE FROM OUR MENTORS

FACULTY ACHIEVEMENTS

INDUSTRIAL VISITS

WORKSHOPS

GUEST LECTURE

ALUMINI/INVITED TALK

DEPARTMENT'S ACHIEVEMENTS

STUDENT'S ACHIEVEMENTS

NPTEL ACHIEVEMENTS

STAR PERFORMERS

ALL ROUNDERS

PLACEMENTS

CLUBS AND SOCIETIES

FACULTY CORNER

STUDENT CORNER

PHOTO GALLERY

MESSAGE FROM OUR MENTORS:



Dr. B.C. SHARMA
DIRECTOR - RKGIT

I congratulate to the Computer Science & Engineering (Internet of Things) Department on the release of the Volume 3 of their newsletter "IOT Vision" Your dedication and teamwork have led to remarkable success in various areas. From excelling in academics and project work to actively participating in club activities, your students have showcased outstanding overall development.

It's inspiring to see such great achievements across the board. Keep up the excellent work, and I'm confident that your department will continue to thrive in the future.

Dear Students,

It gives me immense pleasure to pen a few words for our departmental magazine, a platform that showcases the creativity, talent, and intellectual spirit of our vibrant IoT community.

The field of the Internet of Things is rapidly evolving, bridging the gap between the digital and physical worlds. As students of this exciting discipline, you stand at the forefront of innovation—poised to shape the future through smart solutions and intelligent systems. I encourage each one of you to continue nurturing your curiosity, sharpening your skills, and embracing the challenges that come with this dynamic domain.

This magazine is not just a collection of articles and achievements but a reflection of your journey, passion, and commitment to excellence. I am proud of the strides our department has made and even prouder of the role you all play in that growth. Let us continue to learn, innovate, and inspire.



Ms. DEEPIKA RAWAT
OFFICIATING
HOD- CSE(IOT)



FACULTY ACHIEVEMENTS

MS. DEEPIKA RAWAT

(ASST. PROF.)

- Ms. Deepika Rawat successfully completed the "Bootcamp for Faculty Development Program on Big Data & Data Science" conducted by C-DAC Noida in association with RKGIT from 09/09/2024 to 13/09/2024.



MS. SHRUTI SAXENA

(ASST. PROF.)

- Ms. Shruti Saxena from RKGIT participated in a two-day online workshop on "Supercomputing" organized by GLBCRI and CSE(AIML) department from 28th-29th November 2024.
- Ms. Shruti Saxena successfully completed a bootcamp FDP on "Big Data & Data Science" conducted by C-DAC Noida in association with RKGIT from 09/09/2024 to 13/09/2024.
- Ms. Shruti Saxena, Assistant Professor at RKGIT Ghaziabad, participated in the ITU Kaleidoscope Conference on "Innovation and Digital Transformation for a Sustainable World" held in New Delhi from 21-23 October 2024.



MR. BRIJESH KUMAR MISHRA

(ASST. PROF.)

- Mr. Brijesh Kumar Mishra successfully completed a one week faculty development program on "Bootcamp on Big Data & Data Science" conducted by C-DAC, Noida in association with RKGIT from 9th September to 13th September 2024.
- Mr. Brijesh Kumar Mishra participated in an AICTE-SANKALP workshop on High Performance Computing at RKGIT, Ghaziabad on 4th June 2024.

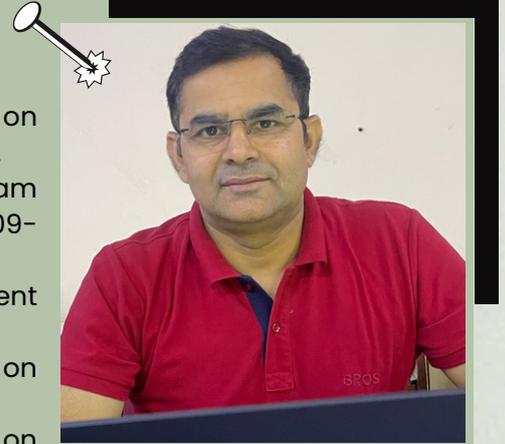




FACULTY ACHIEVEMENTS

MR. ISRAR AHMAD (ASST. PROF.)

- Mr. Israr Ahamad completed ATAL Faculty Development Program on "Quantum Machine Learning" at RKGIT Ghaziabad (06-11/01/2025).
- Mr. Israr Ahamad completed Faculty Development Program Bootcamp on "Big Data & Data Science" at C-DAC Noida (09-13/09/2024).
- Mr. Israr Ahamad completed NPTEL-AICTE Faculty Development Program on "Cloud Computing" (Jul-Oct 2024) with 56% score.
- Mr. Israr Ahamad completed Faculty Development Program on "Python for Educators" at RKGIT (06-10/01/2025).
- Mr. Israr Ahamad completed Faculty Development Program on "Entrepreneurship & Start-up Development" at RKGIT (02-06/09/2024).



MR. AZAD KUMAR (ASST. PROF.)

- Mr. Azad Kumar has successfully completed 4 days FDP on Quantum Machine Learning by AICTE at RKGIT Ghaziabad on 06/01/2025 to 11/01/2025.
- Mr. Azad Kumar successfully completed a one week online faculty development program on "Recent Trends in Computing 4.0" conducted by Vishwakarma Institute of Technology, Pune from 8th July to 13th July 2024.



MS. JYOTI (ASST. PROF.)

- Ms. Jyoti successfully completed the NPTEL course "Data Base Management System" with a consolidated score .





FACULTY ACHIEVEMENTS

MS. PRIYANKA SINGH (ASST. PROF.)

- Ms. Priyanka Singh has successfully completed a course on "SQL for Data Science" authorized by the University of California, Davis and offered through Coursera on 2nd August 2024.
- Ms. Priyanka Singh has successfully participated in a 5-day Faculty Development Program on "Modern Data Science, Machine Learning and Cyber Security Strategies (MDSMLCS)" organized by the Department of Computer Science and Engineering (AI & DS) at Panipat Institute of Engineering and Technology, Panipat, co-sponsored by Innove Intellects LLP, from 15th July to 19th July 2024.



MS. RASHMI TIWARI (ASST. PROF.)

- Ms. Rashmi Tiwari successfully completed the "Bootcamp for Faculty Development Program on Big Data & Data Science" conducted by C-DAC Noida in association with RKGIT from 09/09/2024 to 13/09/2024.
- Ms. Rashmi Tiwari, Assistant Professor at RKGIT Ghaziabad, attended the National Webinar on "Financial Empowerment Through Wealth Creation" organized by BNM University and AMFI on 24th July 2024.





FACULTY ACHIEVEMENTS

MOHD.SHAHROOKH HUSSAIN (ASST. PROF.)

- Mr. Mohd. Shahrookh Husain of Raj Kumar Goel Institute of Technology has successfully completed the workshop on "IoT Analytics using MATLAB" on 08th April, 2025. This workshop was powered by MathWorks and organized by AICTE IDEA Lab, MIET, Meerut.
- Mr. Mohammad Shahrookh Husain has successfully completed the Bootcamp for FDP on Big Data & Data Science conducted by C-DAC, NOIDA in association with RKGIT, held from 09th September 2024 to 13th September 2024, under the FutureSkills PRIME Project (MeitY & nasscom Digital Skilling Initiative).



MS. DIVYA SINGH (ASST. PROF.)

- Ms. Divya Singh has successfully completed a one-week Faculty Development Program on "AI Driven Technology in VLSI Design for IoT Applications" organized by the Department of Electronics & Communication Engineering at Raj Kumar Goel Institute of Technology, Ghaziabad from 30th December 2024 to 6th January 2025.
- Ms. Divya Singh has successfully completed the Bootcamp for FDP on Big Data & Data Science conducted by C-DAC, NOIDA in association with RKGIT, held from 09th September 2024 to 13th September 2024, under the FutureSkills PRIME Project (MeitY & nasscom Digital Skilling Initiative).
- Ms. Divya Singh has participated in a two-day online workshop on "Supercomputing" organized by GLBCRI and Department of CSE (AIML) in collaboration with UPLC, Government of UP, held from 28th November to 29th November 2024.

DEPARTMENTAL

ACHIEVEMENTS

| <u>CATEGORY</u> | <u>DETAILS</u> |
|--|---|
| <u>Books Published</u> | <p>Title: Optimizing Big Data with AI: Innovative Approaches & Practices</p> <p>ISBN: 978-81-979918-7-5</p> <p>Publisher: A2Z EduLearningHub (September 2024)</p> <p>Authors:</p> <ul style="list-style-type: none">• Mr. Brijesh Kumar Mishra• Mr. Azad Kumar• Ms. Priyanka Singh• Ms. Rashmi Tiwari |
| <ul style="list-style-type: none">• <u>Courses Completed</u> | <p>Faculty Names & Courses:</p> <ul style="list-style-type: none">• Ms. Priyanka Singh has successfully completed a 12-week NPTEL course on "Cyber Security and Privacy" conducted from July to October 2024• Mr. Azad Kumar successfully completed the NPTEL course "Introduction to Internet of Things" with 86% score.• Mr. Brijesh Kumar Mishra successfully completed the NPTEL course "Introduction to Internet of Things" with 83% score (Jul-Oct 2024) from IIT Kharagpur. |

WORKSHOPS



INTRODUCTION:

A highly engaging workshop was conducted on 30th September 2024 for CSE-IOT 3rd Year, led by **Mr. Ravindra Kumar Mishra**, Senior Research and Development Engineer at Sofcon India Pvt. Ltd., Faridabad. With extensive experience in the fields of IoT and Machine Learning.

A workshop on "Hands-On Practice with IoT" was conducted to introduce participants to the world of the Internet of Things (IoT) and provide practical experience in working with IoT technologies. The session aimed to enhance the understanding of IoT architecture, applications, and hands-on implementations using sensors, microcontrollers, and communication protocols.

THE MAIN OBJECTIVES OF THE WORKSHOPS WERE:

Mr. Mishra shared valuable insights and practical knowledge with the students. His session provided in-depth understanding and sparked great interest among attendees, contributing significantly to their learning and skill development. To provide an introduction to IoT, its architecture, and practical applications.

To familiarize participants with hardware components such as sensors, actuators, and microcontrollers. To offer hands-on experience with IoT devices, including data collection, analysis, and communication •

To enhance participants' knowledge of IoT protocols and platforms, like MQTT and cloud integration.



INDUSTRIAL VISIT

The Department of **CSE-IOT** organized a Two days Industrial visit to ITU Kaleidoscope at **Bharat Mandapam, Delhi** conducted by the **International Telecommunication Union (ITU)** from **Oct. 22nd to Oct. 23rd 2024** for **3rd Year CSE-IOT** students to provide practical exposure to emerging technologies and research trends in the field of telecommunications, ICT, and innovation. Students got the exposure to meet International and National Delegates and learnt the depth of core Engineering, Research and Professional Environment. The visit was successfully coordinated by **Ms. Shruti Saxena and Mr. Shahrukh Husain** from CSE-IOT department. Total **100** CSE-IOT students visited and participated at ITU Event.



ITU KALEIDOSCOPE AT BHARAT MANDAPAM, DELHI

ALUMNI TALK



IMDADUL REHMAAN

Software Engineer Trainee
MTSL, Noida

The Department of CSE-IOT organized a "Alumni Talk" for second and third year students on Monday, 23rd September 2024, CSE-IOT Alumni "Imdadul Rehmaan" who is currently working as a Software Engineer in MTSL Noida. The program commenced with a warm welcome address by Dr. Seema Malik HOD (CSE-IOT). The Alumni welcomed with sapling by Dr. H.G.Garg, Dean of student Welfare. The program was coordinated by Ms. Divya Singh.

The presentation topic was "Smart Factory" . He explained the concept, need and structure of smart factory after as per covid-19 impact and what are the changes and requirements needed for the industry. At the end Allumni is appreciated by presenting bouquet by Dr. Seema Malik HOD (CSE-IOT) We appreciate the support and participation of faculty members, students to make the event a success.



GUEST LECTURE



DR. SS INAMDAR

DIRECTOR, CGC INDIA VICE PRESIDENT,
VISHWANIKETAN

Department of CSE(IOT) organized a seminar on topic "PBL(Project Base Learning) for Career Development using UG Fellowship on Wednesday 13 November, 2024 .

Bridging the Gap between Education & Employment" for 2nd and 3rd year students. Dr SS Inamdar was the speaker for this session who is Director CGC India & President of Vishwaniketan. Event was very well organized by Coordinator Rashmi Tiwari with help of other faculties of CSE(IOT).



INVITED TALK



The Department of CSE(IoT) organized a Invited Talk for Second and Third year students on Tuesday, 08th April 2025. The topic of Invited Talk was "Hacked in Seconds: How IoT devices become Cyber weapons " delivered by **Ms.Shruti Arora**, Developer Advocate (DevRelSquad, Delhi).

The program commenced with a gracious welcome to the Speaker along with Dr R.K. Yadav, Dean Academics RKGIT and Ms.Deepika Rawat.

Dr.Amit Singhal(HOD-CSE), Dr.Vinish Kumar (HOD AIML), Dr.Preeti Sharma(HOD-DS), Dr.Ritu Agrawal (HOD-CS), Dr. Shiva Garg(HOD-MCA) were also present and their presence graced the event.

Ms. Shruti Arora

Developer Advocate
(DevRelSquad,Delhi)



INVITED TALK



Mr. Vijay Kumar Tripathi

Senior Technical Lead HCL Tech
(Noida)

The Department of CSE (IoT) organized an Invited Talk on April 24, 2025, for second and third-year students, featuring **Mr. Vijay Kumar Tripathi**, Senior Technical Lead at HCL Tech, who shared insights on AWS and AI technologies.

AWS (Amazon Web Services) is a leading cloud computing platform offering scalable services like EC2 (virtual servers), S3 (storage), RDS (databases), and Lambda (serverless computing). It enables businesses to innovate and scale efficiently across domains.

AWS AI (Artificial Intelligence on AWS) provides a robust suite of AI and machine learning tools, including Amazon SageMaker for model development, Rekognition for image and video analysis, Comprehend for NLP, Lex for chatbots, and Polly for text-to-speech. These services empower developers to build intelligent, data-driven applications with ease.



STUDENT ACHIEVEMENTS

GATE 2025 QUALIFIERS

VIKASH MALL
BATCH 2021-2025

| GRADUATE APTITUDE TEST IN ENGINEERING 2025 अभियांत्रिकी स्नातक अभिरक्षता परीक्षा २०२५ Organising Institute: INDIAN INSTITUTE OF TECHNOLOGY ROORKEE | |
|--|--|
| SCORE CARD | |
| Name of the Candidate | VIKASH MALL |
| Name of the Parent/Guardian | UPENDRA MALL |
| Registration No. | CS25S28012371 |
| Date of Birth | |
| Test Paper | Computer Science and Information Technology (CS) |
| Date of Examination | February 1, 2025 |
| GATE Score | 464 |
| *Marks out of 100 | 40.42 |
| All India Rank (AIR) in the test paper: | 9060 |
| Number of candidates appeared for the test paper: | 170825 |
| Qualifying Marks | |
| General: | 29.2 |
| EWS/OBC-NCL: | 26.2 |
| SC/ST/PwD: | 19.4 |

Vikash Mall

A candidate is considered qualified if the marks scored are greater than or equal to the qualifying marks mentioned for the category for which a valid category certificate, if applicable, must be produced along with this Score Card.

This Score Card is valid up to 31st March 2028.

Prof. P. Arunugam
Organising Chairperson, GATE 2025
On behalf of NCB-GATE
Ministry of Education (MoE)



MARKS - 40.42/100
SCORE - 464/1000

PRIYANKA PUNDIR
BATCH 2022-2026

| GRADUATE APTITUDE TEST IN ENGINEERING 2025 अभियांत्रिकी स्नातक अभिरक्षता परीक्षा २०२५ Organising Institute: INDIAN INSTITUTE OF TECHNOLOGY ROORKEE | |
|--|--|
| SCORE CARD | |
| Name of the Candidate | PRIYANKA PUNDIR |
| Name of the Parent/Guardian | NARESH KUMAR |
| Registration No. | CS25S18011215 |
| Date of Birth | |
| Test Paper | Computer Science and Information Technology (CS) |
| Date of Examination | February 1, 2025 |
| GATE Score | 373 |
| *Marks out of 100 | 32.1 |
| All India Rank (AIR) in the test paper: | 12379 |
| Number of candidates appeared for the test paper: | 170825 |
| Qualifying Marks | |
| General: | 29.2 |
| EWS/OBC-NCL: | 26.2 |
| SC/ST/PwD: | 19.4 |

Priyanka

A candidate is considered qualified if the marks scored are greater than or equal to the qualifying marks mentioned for the category for which a valid category certificate, if applicable, must be produced along with this Score Card.

This Score Card is valid up to 31st March 2028.

Prof. P. Arunugam
Organising Chairperson, GATE 2025
On behalf of NCB-GATE
Ministry of Education (MoE)



MARKS - 32.1/100
SCORE - 373/1000

STUDENT ACHIEVEMENTS

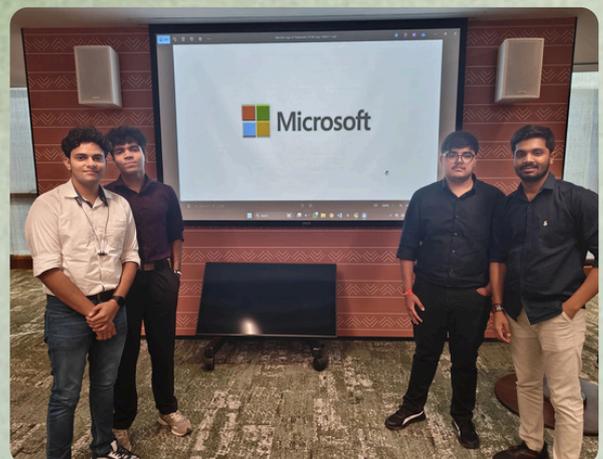
India International Science Festival (IISF) 2024

We are proud to share that **Harsh Saraswat**, a student of IOT department, actively participated in the "**Ideas for Nikshit Bharat S&T Hackathon**" held at **IIT Guwahati** during the **India International Science Festival (IISF) 2024** on **Dec 1, 2024**. The event brought together innovative minds from across the nation to propose impactful solutions for a sustainable and developed India. Harsh's involvement in such a prestigious platform highlights his passion for innovation and contribution to nation-building through science and technology.



CODEFORGE HACKATHON 2025

We are thrilled to share that a team of students named **Gagan Verma, Dhruv Rohilla, Rishabh Jain** students of CSE(IoT) department, secured a **Top 8 position among 750** competing teams at the prestigious **CodeForge Hackathon 2025** held on **April 18**, organized by **Microsoft**. This national-level event gathered some of the most talented and innovative minds to develop cutting-edge solutions to real-world problems. Team's exceptional performance at such a competitive platform is a testament to their technical prowess, creativity, and dedication to driving technological progress. We are proud to celebrate this remarkable accomplishment and look forward to their continued success.



STUDENT NPTEL ACHIEVERS

| SNo | NAME | YEAR | COURSE | Percent |
|-----|-----------------------|------|---|----------|
| 1 | Sakhsham Sharma | 3rd | Introduction to IoT (Jul-Oct 2024) | 91% |
| 2 | Anshima Manu | 3rd | Joy of Computing Using Python(Jul-Oct 2024) | 88% |
| 3 | Yash Yogeshvar Chaudh | 3rd | Introduction to IoT (Jul-Oct 2024) | 86% |
| 4 | Shreyashi Shukla | 4th | Introduction to IoT (Aug-Oct 2024) | 86% |
| 5 | Yashi | 3rd | Introduction to IoT (Jul-Oct 2024) | 80% |
| 6 | Mahi Rajput | 4th | Cloud Computing (Jul-Oct 2024) | 76% |
| 7 | Shagun Mishra | 3rd | Introduction to IoT (Jul-Oct 2024) | 72% |
| 8 | Vatsal Gupta | 3rd | Programming in java (Jul-Oct 2024) | 67% |
| 9 | Vansh Tyagi | 3rd | Programming in java (Jul-Oct 2024) | 66% |
| 10 | Varsha Dubey | 4th | Introduction to IoT (Jul-Oct 2024) | 63% |
| 11 | Aafiya Javed | 3rd | Google Cloud Computing (Aug-Oct 2024) | 62% |
| 12 | Pragati Trivedi | 4th | Google cloud computing (Aug-Oct 2024) | 58% |
| 13 | Dushyunt Kumar | 3rd | DAA using JAVA (Jul-Oct 2024) | 56% |
| 14 | Vipin Yadav | 4th | Programming in java (Jul-Oct 2024) | 56% |
| 15 | Ujjwal Tyagi | 3rd | Programming in java (Jul-Oct 2024) | 55% |
| 16 | Priyal Gupta | 3rd | DAA(Jan-Mar 2025), DBMS (Jul- Sep 2024) | 56%, 51% |
| 17 | Pooja Yadav | 4th | Google cloud computing (Aug-Oct 2024) | 54% |
| 18 | Isha Gupta | 3rd | DBMS(Jul- Sep 2024) | 51% |

DEPARTMENTAL CLUB



IoTUNO Club - RKGIT



The IoTUNO Club at RKGIT is a student-led club under the Department of **CSE-IoT**, focused on innovation in IoT, Robotics, and Automation. Its vision is to equip students with hands-on experience in emerging technologies, fostering creativity, collaboration, and real-world problem-solving. The IoTUNO club was restarted on April 12, 2025.

As a flagship technical society, it bridges academics with industry, promoting leadership in IoT across sectors like healthcare, smart cities, agriculture, and automation.

The club conducts workshops, competitions, and projects while collaborating with IEEE and CSI to provide industry exposure and networking opportunities.



STAR PERFORMERS

ACADEMICS CSE(IOT)



VIVEK TIWARI
83.58%

2021-25 BATCH



SHREYASHI SHUKLA
82.34%



KRITIKA SINGH
79.39%



AMAN KAUSHIK
77.43%



YASH
86.60%

2022-26 BATCH



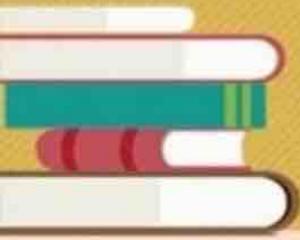
AAFIYA JAVED
85.60%



ANSHIMA MANU
85.37%



YASHI TYAGI
85.23%



ALL ROUNDERS



VIVEK TIWARI (4TH year)
ACADEMICS & IOTUINO



KRITIKA SINGH (4TH year)
ACADEMICS & IOTUINO



OM PANT (4th year)
PHOTOHOLICS & IOTUINO



HARSH SHARMA (4TH year)
ACADEMICS & BINARY CLUB



AMIT (4th year)
PHOTOHOLICS



UTKARSH (4TH year)
DEPARTMENTAL ACTIVITIES



AMAR PRATAP (4TH year)
SPORTS (STATE)



RITIK VERMA (3RD year)
STHAPATYA



GYANESH DWIVEDI (3RD year)
DEPARTMENTAL ACTIVITIES & IOTUINO



MANASHVI SAHANI (3RD year)
DEPARTMENTAL ACTIVITIES & IOTUINO



ALL ROUNDERS



AARAV (3RD year)
ELECTRAZZ



ANSHIMA MANU (3RD year)
ACADEMICS & YANTRIKOM & IOTUINO



ÇAÇAN VERMA (3RD year)
DEPARTMENTAL ACTIVITIES & IEEE



HARSH SARASWAT (3RD year)
PUSHPAK & IOTUINO



HARSH TIWARI (3RD year)
YANTRIKOM & DC



DHRUV ROHILLA (3RD year)
DEPARTMENTAL ACTIVITIES & IOTUINO



PRIYANKA PUNDIR (3RD year)
DEPARTMENTAL ACTIVITIES



SHIPRA PANDEY (2ND year)
IOTUINO

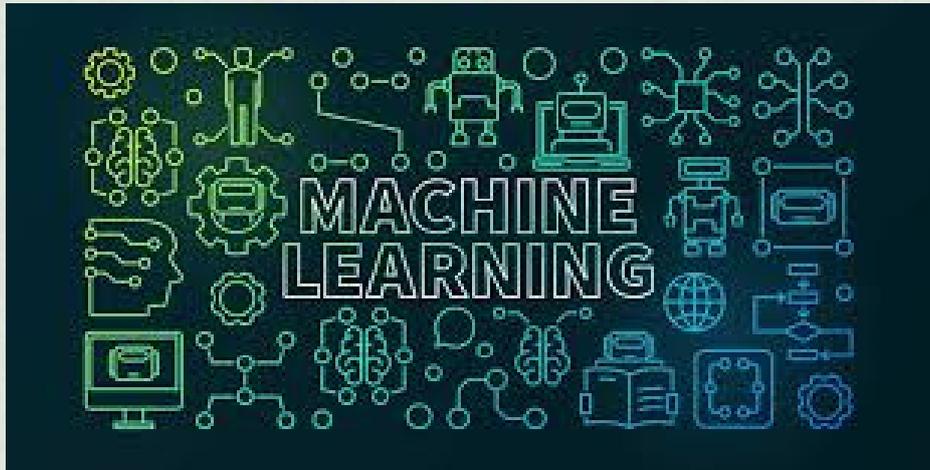


ANSHIKA PANDEY (2ND year)
IOTUINO



ARYAMAN KHARE (2ND year)
PHOTOGRAPHY & UNWAAN

MACHINE LEARNING : THE INVISIBLE ENGINE POWERING OUR WORLD



Machine Learning (ML) is no longer tech lingo—it's the backstage engine behind much of our online lives. From tailored Netflix recommendations to live fraud detection in banking, ML is learning and making choices at lightning speed. Rather than being hand-coded, ML systems recognize patterns and get smarter with experience, making them remarkably responsive to today's high-speed technology world.

Across sectors, ML is revolutionizing things quietly. Physicians are employing it to **diagnose diseases** early, **autonomous vehicles** are figuring out how to drive through traffic, and even agriculture is relying on intelligent drones for **crop monitoring**. From optimizing logistics to **designing personalized music** playlists, ML's footprint is growing. The more data we create, the more intelligent these systems get—making us live, work, and play better.

But the strength of ML comes with real challenges. Data bias can result in unequal outcomes, and privacy issues increase as machines use enormous, sensitive datasets. With ML expanding to more areas of society, ethics design is increasingly important. The future of ML isn't a matter of yet-better algorithms—it's one of responsibly deploying this technology to create a smarter, more just world.

"Torture the data, and it will confess to anything." - Ronald Coase



KARTIK MISHRA
CSE-IOT (3RD YEAR)

DIGITAL TWINNING & IOT – THE FUTURE IS NOW



Digital Twinning and the Internet of Things (IoT) are transforming industries by creating real-time digital replicas of physical objects, systems, or processes. Powered by IoT sensors and devices, digital twins can analyze, predict, and make autonomous decisions. Examples include:

- **Smart buildings:** optimizing performance, reducing costs, and predicting maintenance needs
 - **Manufacturing:** predictive maintenance reduces downtime and operational costs
 - **Healthcare:** personalized treatment plans and early diagnosis through patient-specific digital twins
- **Smart Cities:** simulating and improving infrastructure with real-time data
- **Aerospace & Automotive:** improving testing, safety, and lifespan without physical wear and tear

As AI and edge computing evolve, digital twinning will become more powerful, enabling autonomous systems that self-heal, optimize operations, and provide decision support. The fusion of IoT and digital twins offers unprecedented visibility, control, and insight into complex systems. This technology is paving the way for smarter, more resilient, and efficient systems, and is a key part of Industry 4.0. By combining IoT's sensory depth with digital twins' analytical intelligence, industries can unlock new levels of efficiency and innovation.

That's **Digital Twinning + IoT** in action.



MS. DEEPIKA RAWAT
OFFC. HOD (CSE-IOT)

CYBERSECURITY IN THE DIGITAL AGE-



Cybersecurity is a key priority in today's digital landscape, with cybercrime set to cost the world \$10.5 trillion each year by 2025, Cybersecurity Ventures states. Low-and-sophisticated cyberattacks—e.g., **Colonial Pipeline ransomware** attack and the **SolarWinds supply chain hack**—illustrate the expanding breadth and depth of threats. Over 80% of data breaches are caused by human error (IBM, 2023), which points toward improved cyber awareness and hygiene along with technical safeguards.

To tackle these issues, organizations are heavily investing in sophisticated security controls. Worldwide spending on cybersecurity is set to hit \$219 billion in 2024 (Gartner). Tools such as AI-based threat detection can lower breach detection time by as much as 96%, while Zero Trust Architecture allows for constant validation and reduces attack surfaces. And as quantum computing continues to advance, researchers are being pushed to create quantum-resistant encryption protocols to future-proof sensitive information. In spite of technological advancements, cybersecurity governance falls behind threat evolution. More than 70% of nations have no comprehensive cyber policies, and international data protection legislation is fragmented. Legislation such as the **GDPR** has established key precedents, but international cooperation is still weak. As cyber threats become more transnational, the future of cybersecurity hinges on not only innovation, but ethical governance, uniform policy, and international cooperation.



MS. RASHMI TIWARI
ASSISTANT PROFESSOR (CSE-IOT)

DATA SCIENCE IN IOT:-



In the Era of digital world, the Internet of Things (IoT) is revolutionizing the way we collect, process, and utilize data. The vast network of interconnected devices and sensors, combined with data science, has given the endless possibilities and opportunities for businesses, industries, automation streaming analytics and everybody which effect their daily life magically. The concepts of combining Data science with IoT empowering us to make innovative decisions, enhance our power and efficiency, and innovate in every possible aspect in human life.

IoT devices collect huge volumes of real-time sensor data. Data Science techniques like analytics, machine learning, and AI process this data to create actionable insights.

The importance of Data Science in IoT (Internet of Things) it's what makes IoT smart and useful and powerful ,With Data Science, IoT devices are collecting data with real purpose that is the core roots of Data Science in IoT.We can consider Data science is at the heart of IoT applications. which actually transforms valuable information from the massive data.

When IoT meets Data Science it actually converted into many ways such as predictive maintenance ,Industrial automation, Smart cities ,Smart Home and buildings, security and survillience,Smart energy management , Remote Health monitoring. So IoT senses, but Data Science makes sense of what is sensed.



MS. SHRUTI SAXENA
ASSISTANT PROFESSOR (CSE-IOT)

AUTHORITY OF BLOCKCHAIN IN WIRELESS SENSOR NETWORKS: A META HEURISTIC-DRIVEN FRAMEWORK

“When blockchain guards the gates and PSO picks the heroes—WSNs become smarter, safer, and way cooler than you thought.”

The convergence of blockchain with Wireless Sensor Networks has revolutionized security and trust by replacing vulnerable centralized models with decentralized, tamper-proof ledgers enhanced by intelligent algorithms for real-time, resource-efficient decision-making.

This article proposes a Blockchain-Integrated Wireless Sensor Network Framework guided by the Particle Swarm Optimization (PSO) algorithm for optimized cluster head (CH) selection. PSO, inspired by social behaviour patterns of birds and fish, dynamically selects energy-efficient nodes as cluster heads by minimizing intra-cluster distance and maximizing residual energy, thus ensuring sustainable routing. These CHs validate data blocks through a lightweight Proof-of-Authentication (PoA) consensus protocol and append them to a localized blockchain.

Smart contracts automate the validation of sensor data thresholds, trigger alerts, and maintain trust scores for nodes. This hybrid system not only reduces communication overhead and energy consumption but also fortifies the WSN against data tampering, Sybil attacks, and node impersonation.

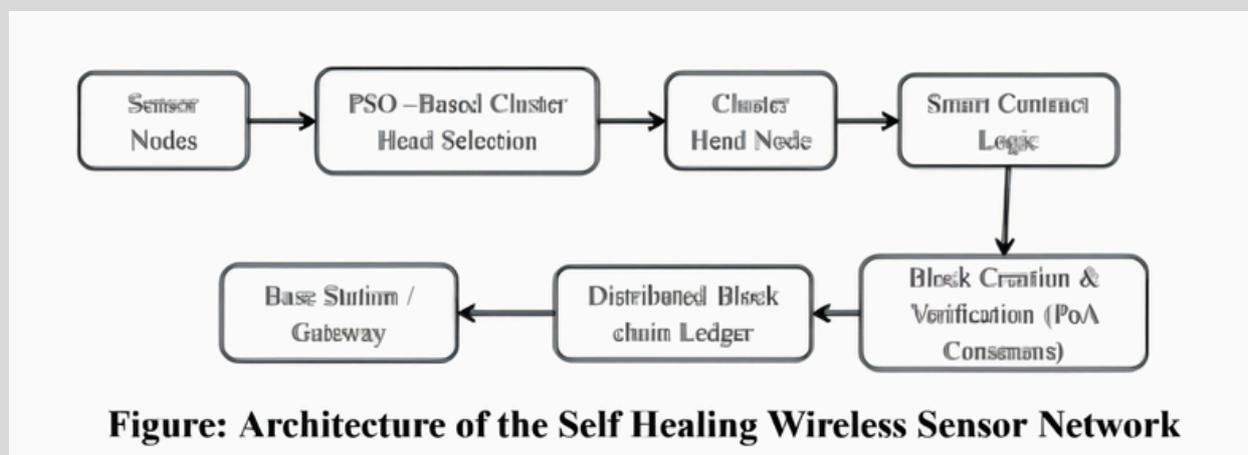


Figure: Architecture of the Self Healing Wireless Sensor Network

This architecture presents a promising future for intelligent, self-healing WSNs. The combination of blockchain's trust infrastructure and PSO's adaptive optimization capabilities results in a secure, energy-efficient, and autonomous system suitable for next-generation IoT.

The combination of blockchain's trust infrastructure and PSO's adaptive optimization capabilities results in a secure, energy-efficient, and autonomous system suitable for next generation IoT applications.



MS. MANPREET KAUR
ASSISTANT PROFESSOR (CSE-IOT)

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You did it!
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You did it!
Congratulations

A large yellow star graphic positioned behind the word 'Congratulations'.

PHOTO GALLERY

