



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (AI&ML)

“SMART SOLUTIONS WITH MACHINE LEARNING AND IOT: A HANDS-ON WORKSHOP”

Event Type	: Workshop
Date	: 24 th February – 03 rd March 2025, 09 th March 2025.
Venue	: ECE Seminar Hall
Resource Person(s)	: Mr.P.Ashok Chakravarthy, Founder & CEO,SLABS
Name of the Convener	: Dr S. Jayaprada, Head Of the Department CSE(AI&ML)
Name of the Co-ordinators(s)	: Dr Shaik Salma Asiya Begum , Assoc.Prof, Dept of CSE(AI&ML) Dr Shaik Jameer, Assoc.Prof, Dept of CSE(AI&ML) Mr. R Chiranjeevi, Asst. Prof, Dept of CSE(AI&ML) Ms. P Padmini, Asst. Prof, Dept of CSE(AI&ML) Mr Ch. John Wesily, Asst.Prof, Dept of CSE(AI&ML)
In Association With	: SLABS,Guntur
Targeted Audience	: B.Tech IV Sem CSE(AI&ML) Students, 5 Faculty members
Total No.of Students	: 141 Students

Objective of the Event: The objective of this workshop aims to equip participants with the knowledge and practical skills to develop intelligent IoT-based solutions using machine learning. This workshop will provide a comprehensive understanding of IoT architecture, sensor data acquisition, and ML model development for real-time analytics and decision-making. Through hands-on sessions, attendees will explore data preprocessing, model training, and deployment on IoT hardware such as Raspberry Pi or cloud platforms. Additionally, the event will cover key aspects of edge computing, security challenges, and optimization techniques for AI-powered IoT applications. By the end of the workshop, participants will gain valuable experience in integrating ML and IoT to solve real-world problems in domains such as healthcare, agriculture, and smart cities.

Learning Objective of the event:

Understanding Smart Solutions

- Introduce participants to the concept of smart solutions integrating **Machine Learning (ML)** and the **Internet of Things (IoT)**.

- Explore real-world applications in domains such as healthcare, agriculture, smart cities, and industrial automation.

Fundamentals of IoT and ML

- Understand the basics of **IoT architecture, sensors, and data acquisition**.
- Learn about **machine learning algorithms** and how they are applied in IoT-based solutions.

Data Collection & Preprocessing

- Learn how to collect data from **IoT devices and sensors**.
- Explore **data preprocessing techniques** to clean, transform, and prepare data for ML models.

Machine Learning Model Development

- Implement **ML models** for predictive analytics and decision-making in IoT applications.
- Explore **supervised and unsupervised learning techniques** for IoT data analysis.

Hands-on Implementation

- Work on practical **hardware and software integration** for IoT-based ML solutions.
- Deploy ML models on **Raspberry Pi, Arduino, or cloud platforms** for real-time decision-making.

Cloud and Edge Computing in IoT

- Understand the role of **edge computing and cloud platforms** in IoT-based ML applications.
- Explore tools like **Google Cloud, AWS IoT, or Azure IoT** for real-world implementations.

Optimization and Security Aspects

- Discuss best practices for **efficient data processing and model optimization**.
- Learn about security concerns in IoT and how to **protect ML-based IoT systems**.

Project Development & Case Studies

- Work on a **mini-project** integrating IoT and ML for a smart solution.
- Analyze case studies of successful **AIoT (AI + IoT) implementations**.

Future Trends and Opportunities

- Discuss emerging trends in **AI-powered IoT** and career opportunities in this domain.

Description of the event :

Day1: 24-02-2025

- Workshop was inaugurated on 24/02/2025 by **Dr.S.Jayaprada**, HOD CSE(AI&ML), Convener of the workshop, along with **Mr.P.Ashok Chakravarthy**, Resource Person, Slabs, Founder & CEO, Coordinators of the workshop and all the teaching staff of CSE(AI&ML).
- Coordinators of the Workshop, **Dr. Shaik Salma Asiya Begum** and **Dr. Shaik Jameer** welcomed all the dignitaries and delegates. In the welcome speech, the importance and objectives of organizing this Workshop were highlighted. The convener of the Workshop, **Dr. S.Jayaprada** started the speech by thanking LBRCE Management and congratulating all the participants who registered for this workshop. Then she thanked the Resource Person **Mr.P.Ashok Chakravarthy** and his Team, for accepting our request irrespective of his busy schedule. They added the importance of IoT using Arduino & Raspberry Pi-Pico. She suggested all the students should utilize this opportunity, which will help them in identifying/doing projects in IoT.

- Resource Person **Mr. P. Ashok Chakravarthy** started this workshop and explained IoT Basics, The Future of IoT, few applications of IoT, Challenges of IoT, IoT Architecture, Server, Gateway, Processor, Controller, Mobile Application in Machine Learning.
- Resource Person **Mr. P. Ashok Chakravarthy** and his team handled hands-on sessions for the Future of IoT and The Key Components of IoT.

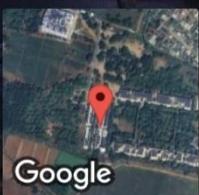


Day2: 25-02-2025

- Resource Person **Mr.P.Ashok Chakravarthy** covered few applications of IoT, Challenges of IoT, Sensors and Actuators, Processor, Cloud.
- Resource Person **Mr.P.Ashok Chakravarthy** and his team handled hands-on sessions on Mobile Application with Installation of Arduino software.



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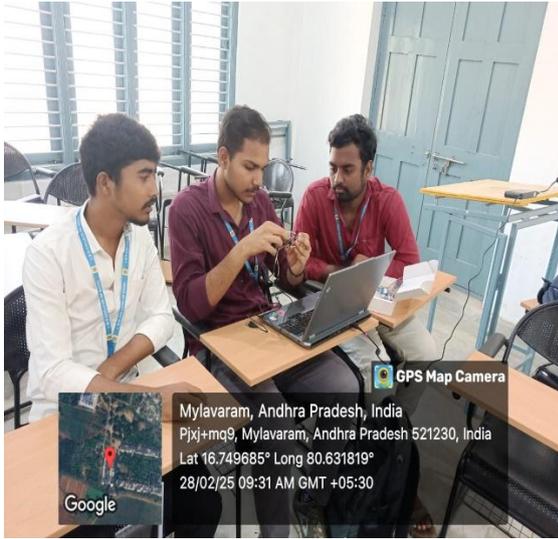
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Day 3: 28-02-2025

- Resource Person **Mr.P.Ashok Chakravarthy** covered Ultra sonic sensors, App Development with Machine learning models to predict and train the model.
- Resource Person **Mr.P.Ashok Chakravarthy** and his team handled hands-on sessions on Picking Up a real-World problems such as smart cities, industrial automation, healthcare, agriculture, and consumer electronics, gaining insights into how IoT technology is transforming different sectors.





Day 4: 01-03-2024

- Resource Person **Mr.P.Ashok Chakravarthy** covered Deep Learning introduction, cloud updating the values.
- Resource Person **Mr.P.Ashok Chakravarthy** and his team handled hands-on sessions on Picking Up a real-World problems and Idle Python installation with libraries.



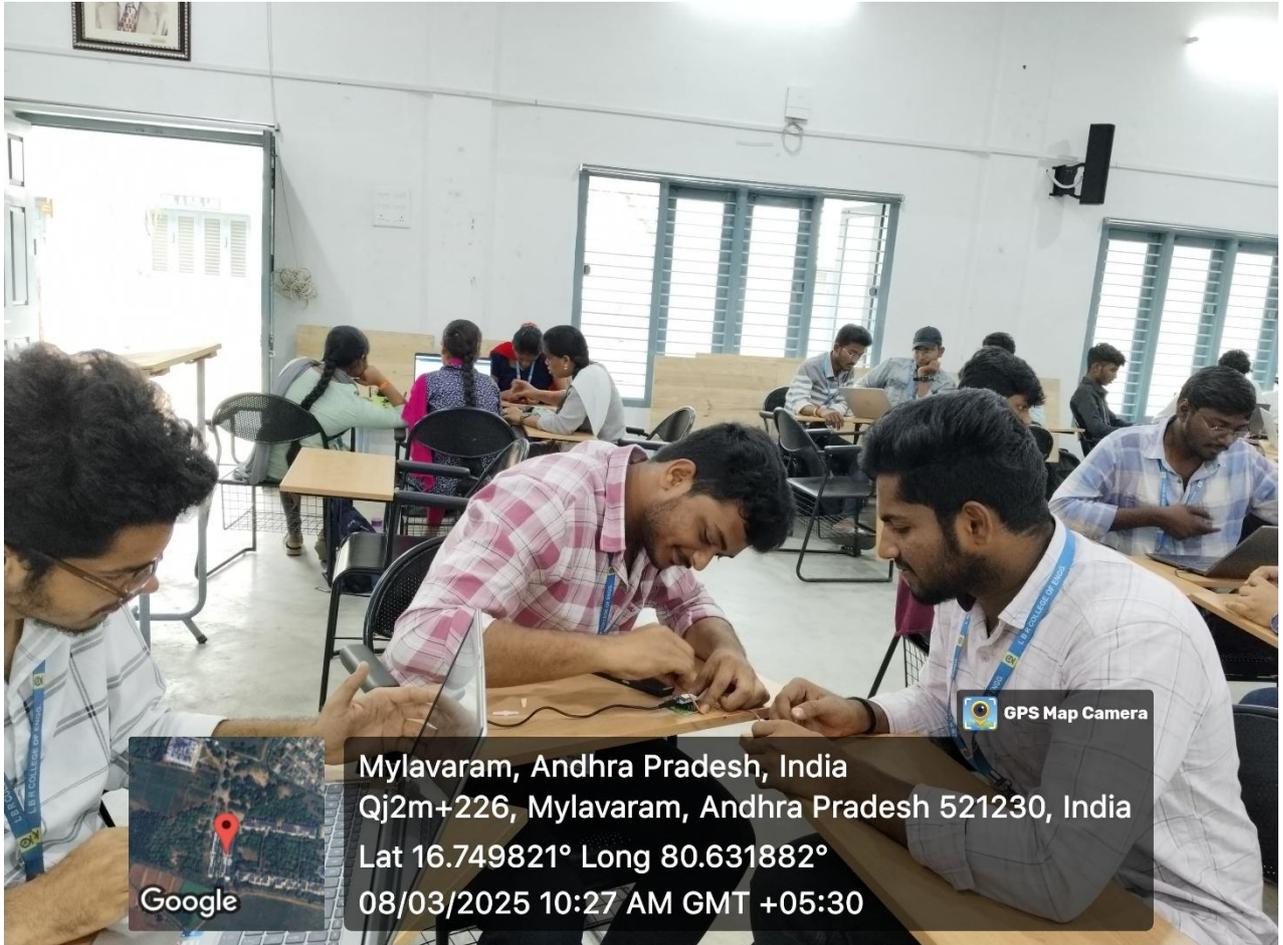
Day 6: 03-03-2025

- Resource Person **Mr.P.Ashok Chakravarthy** covered Deep Learning introduction, cloud updating the values. Applications of iot, Robotic car simulation, led bulb on and off, water pump controller, disco light strip.
- Resource Person **Mr.P.Ashok Chakravarthy** and his team handled hands-on sessions on training the models with face recognitions undying ML, finger counting and face recognition algorithms



Day 6: 08-03-2025

- An intra-level hackathon on IoT with smart solutions is currently underway, where participants are challenged to develop innovative solutions for real-world problems in areas such as smart cities, industrial automation, healthcare, agriculture, and consumer electronics. The top three winners will be awarded exciting prizes for their outstanding contributions.





Impact Analysis :

The workshop on "Smart Solutions with Machine Learning and IoT: A Hands-on Workshop" provided participants with practical exposure to emerging technologies, equipping them with the necessary skills to develop real-world smart solutions. This impact analysis evaluates the effectiveness, reach, and key takeaways from the workshop.

2. Key Impact Areas

a) Knowledge and Skill Enhancement

- Participants gained hands-on experience with IoT devices, ultrasonic sensors, and machine learning models.
- Improved understanding of how IoT and ML integrate to create smart solutions in various domains.
- Exposure to real-world applications such as smart cities, industrial automation, healthcare, agriculture, and consumer electronics.

b) Practical Implementation and Problem-Solving

- The workshop encouraged participants to apply their learning to solve real-world problems.
- Hands-on sessions helped bridge the gap between theoretical concepts and practical applications.

- Teams worked on innovative projects, boosting their analytical thinking and creativity.

c) Innovation and Entrepreneurship Development

- Encouraged participants to develop prototypes and proof-of-concept solutions.
- Inspired students and professionals to explore entrepreneurial opportunities in IoT and ML-based smart solutions.
- Enhanced industry readiness by aligning with current trends and demands.

d) Collaboration and Networking

- Facilitated interaction between experts, researchers, and participants, fostering collaboration.
- Created opportunities for future research projects and industry-academic partnerships.

e) Career and Research Opportunities

- Improved awareness about career prospects in IoT, AI, and ML-based smart solutions.
- Motivated participants to explore advanced research and contribute to technological advancements.
- Provided guidance on future trends, challenges, and research gaps in smart technologies.

3. Measurable Outcomes

- Number of Participants: 141
- Projects Developed: 10+ innovative smart solutions
- Skill Improvement: 90% of participants reported increased confidence in ML & IoT
- Future Research & Collaboration: 5+ participants-initiated research projects based on workshop learnings

4. Conclusion

The workshop on Smart Solutions with Machine Learning and IoT had a significant impact by enhancing technical skills, fostering innovation, and encouraging problem-solving. The hands-on approach provided practical knowledge, preparing participants for future challenges in IoT and AI-driven smart solutions. The event successfully bridged the gap between academia and industry, paving the way for future developments in smart technology solutions.

Feedback & Suggestions:

Clarity and Structure: Your questions and requests are clear, making it easier to assist you.

Specificity: Providing specific details about your requirements helps in providing more accurate assistance. **Grammar and Spelling:** Pay attention to grammar and spelling to ensure clarity and professionalism in your communications.

Organization: Structuring your questions and responses in a clear and organized manner can improve readability and understanding.

Feedback on Assistance: Providing feedback on the assistance you receive can help tailor future responses to better meet your needs.

Open-ended Questions: Consider asking open-ended questions to encourage deeper discussion and exploration of topics. **Clarity and Structure:** Your questions and requests are clear, making it easier to assist you.

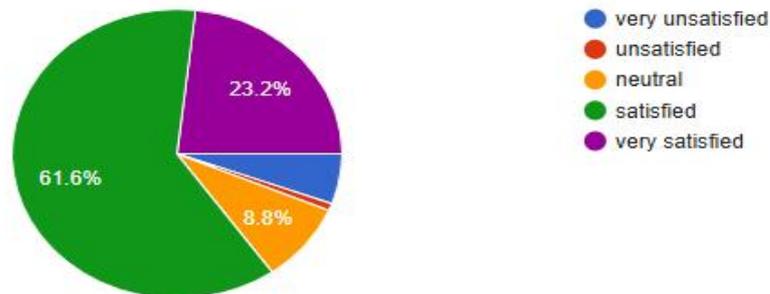
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FEEDBACK RESPONSES FROM ALL THE PARTICIPANTS:

Were the objectives of the workshop clearly defined and communicated?*

125 responses



Was the information presented easy to understand?*

125 responses



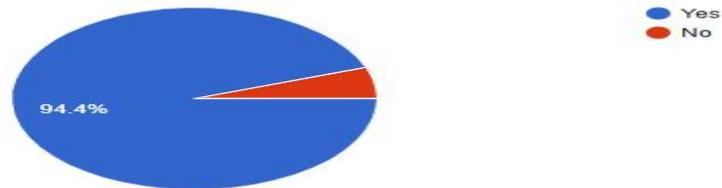
Do you feel the topics covered were new and insightful?*

125 responses



Did the facilitator effectively engage the students?*

125 responses



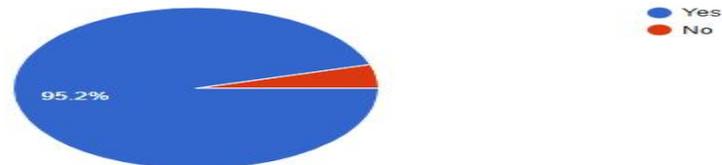
Were you encouraged to engage and interact during the workshop?*

125 responses



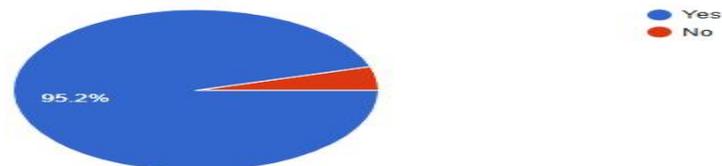
Did the facilitator make effective use of real-world examples?*

125 responses



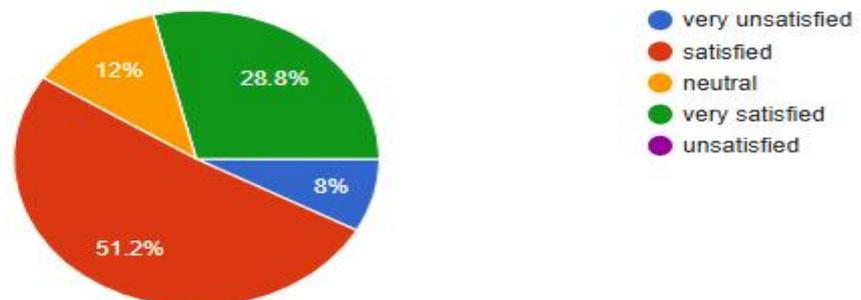
How well did the facilitator respond to questions or concerns?*

125 responses



Was the information presented easy to understand?*

125 responses



Any suggestions or comments?

125 responses

All good
No suggestions
No suggestions
It is very helpful
Noo
no
Very useful to students,I suggest you to provide one kit in the department which will be useful to the students to do iot project

FEEDBACK RESPONSES FROM ALL THE PARTICIPANTS on Hackton:

SUGGESTIONS:

- Make lectures interactive with discussions and hands-on activities.
- Use real-world examples to illustrate IoT concepts.
- Assign practical projects and programming exercises.
- Provide timely feedback on assignments and participation.
- Invite guest speakers for industry insights.
- Offer flexible learning options and resources.
- Keep content relevant with current IoT trends.
- Ensure easy access to course materials and support.
- Encourage student exploration and creativity.
- Seek and act on student feedback for continuous improvement.

OUTCOME OF THE EVENT:

- Increased awareness and understanding of IoT technologies.
- Enhanced skills in IoT development and implementation.
- Collaboration opportunities among participants and industry experts.
- Exploration of emerging IoT trends and applications.
- Potential for innovative solutions and projects in various domains.
- Networking and knowledge-sharing among attendees.
- Inspiration for future research and career paths in IoT.

