ELSOC × ROBOMANTHAN

PRESENTS

HARDWARE HACKATHON

AUGUST 30-31

10AM - 6PM

BMS COLLEGE OF ENGINEERING

PRIZE POOL 10K

REG. FEE ₹600 PER TEAM

KIT DETAILS: CHECK REG. FORM

TEAM SIZE 2 - 4

Explore the world of AI, robotics and computer vision through a hands-on challenge.

Gain practical experience in smart automation, real time tracking and system integration.

INTERNSHIP FOR TOP PERFORMERS

DAY 1 MENTOR GUIDANCE

DAY 2 8 HOUR HACKATHON

SCAN TO REGISTER:

Keerthana Kabbur : 7975171266

Shreeya Uppal : 70091 58184

HACKATHON THEME

Get Ready to Build Smarter. Think Intelligent. Think Embedded.

Welcome to a hands-on challenge where hardware meets intelligence! This hackathon will immerse participants in designing a hardware-based intelligent system that combines elements of mobility, object detection, and real-time data interaction

🔍 Object or Human Tracking

🎯 Sensor/Camera-based Recognition

🚧 Obstacle Avoidance

🌐 Real-Time App or Dashboard Connectivity

💡 Whether it’s AI-powered mobility or real-time data processing, you’ll explore how smart systems respond, adapt, and interact with the real world.

🔔 Note:

The final problem statement and deliverables will be revealed on Day 1.
All teams will start on equal footing with a fresh opportunity to innovate.

COMPONENTS LIST

🔧 Suggested Components:

To be fully equipped for the challenge, teams are encouraged to carry components such as:

- Raspberry Pi 4– Powerful microcomputer for control
- Pi Cable – Reliable power & data connection
- Jumper Cables – Quick plug-and-play wiring
- 4 Motors – High-torque DC motors
- Motor Driver – Dual H-bridge controller
- 4 Wheels – Durable and smooth-rolling
- Robot Chassis – Solid frame for all parts (included in kit)
- 3D Chassis – Compact & lightweight base (included in kit)
- Camera Module (optional) – Enables computer vision (a phone camera can work too)
- Laptop with Python & OpenCV – For coding, testing, and real-time ML deployment

💡 Participants may either bring these components individually, purchase or borrow a kit, or use their own existing setups based on the requirements.

📦 Only the Robot Chassis and 3D Printed Trolley will be provided on rent if needed.

HARDWARE USAGE RULES

✅ Allowed Controllers:

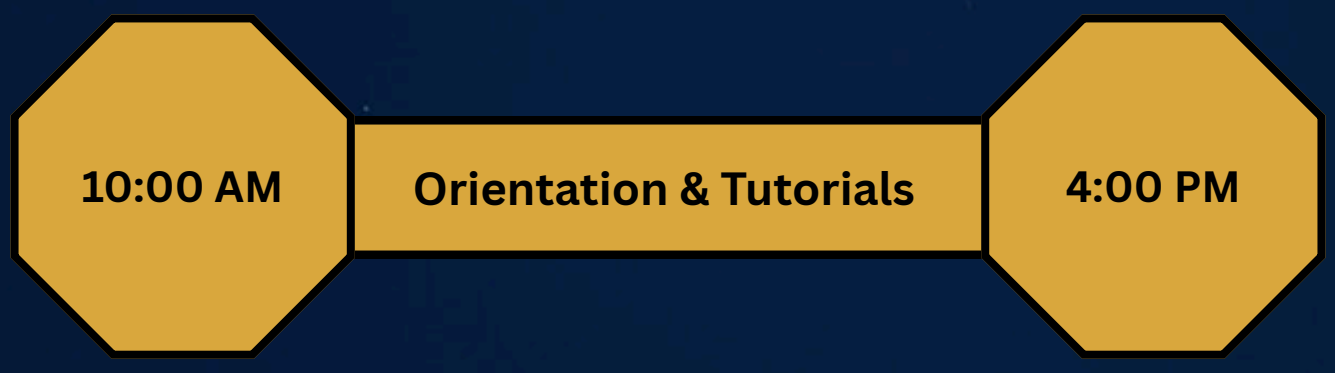
- Arduino (Uno, Nano, Mega)
- Raspberry Pi 4 (any model) **[BEST SUITED]**
- STM32 (Nucleo boards or equivalent microcontrollers)

❌ Restrictions:

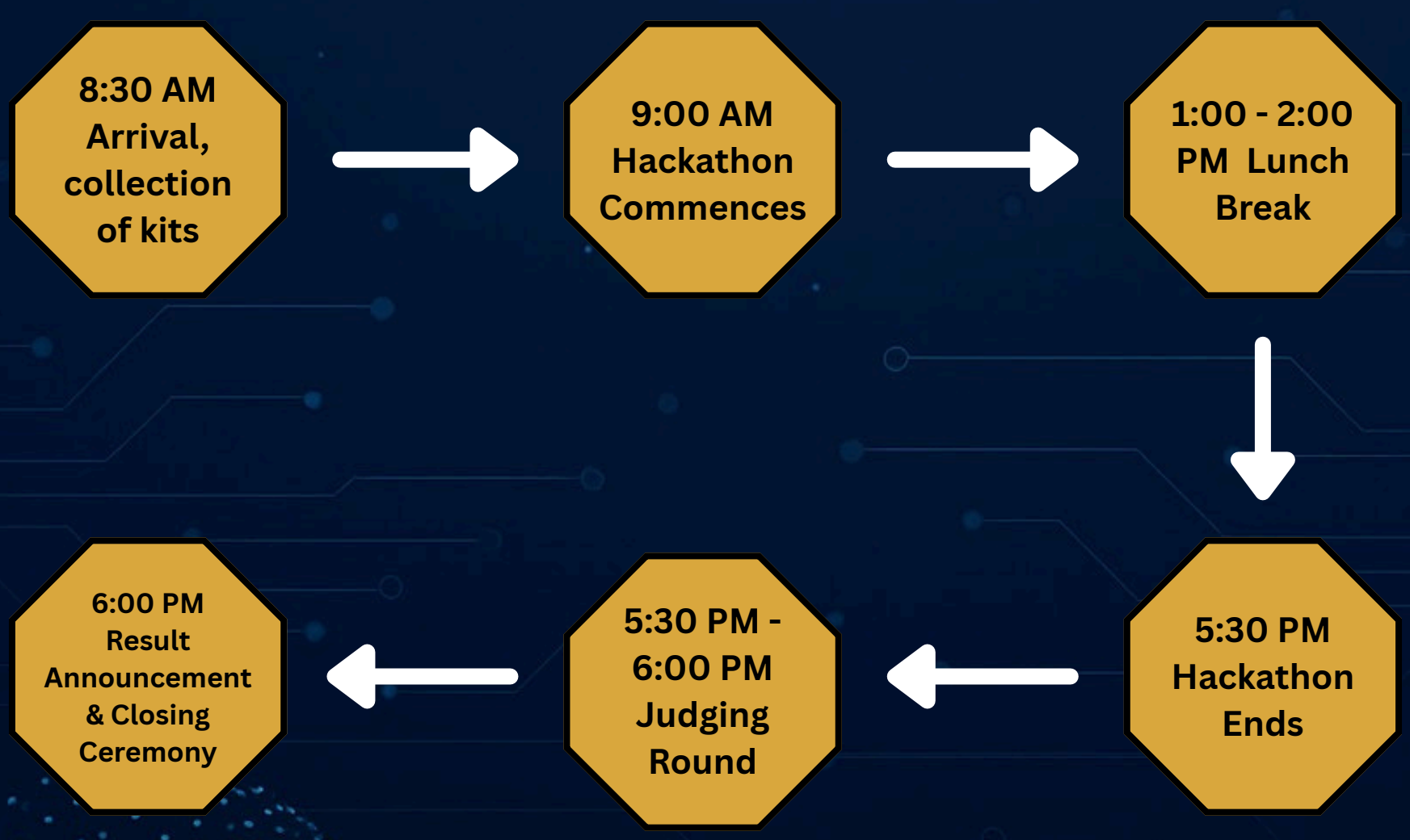
- No external distance sensors (e.g., ultrasonic, IR, LIDAR)
- Robots must be battery-powered only (no AC input)
- Object detection must rely only on pre-registered images/datasets
- No cloud-based inference or online processing during the demo
- Use only standard or locally custom-trained models for image processing

Event Flow

- **Day 1 : 30th Aug**



- **Day 2 : 31st Aug**



Event Outcomes

- AI & Embedded Systems Integration
- Hands-on Prototyping
- Team Collaboration & Problem-Solving
- IoT & Automation Exposure
- Pitching & Demo Skills
- Internship Opportunity at RoboManthan
- Networking with Experts
- Practical Career Boost

Hackathon Rules & Guidelines

1. **Team Size**: 2 to 4 members per team; one team per participant.

2. **Reporting Time**: Teams must check in by 8:30 AM; hackathon runs from 9:00 AM to 5:30 PM.

3. **Problem Statement**: Theme will be revealed on the day; solutions must align with the given problem.

4. **Originality**: All work must be original and created during the event; plagiarism leads to disqualification.

5. **Behavior**: Professionalism and respectful conduct are mandatory throughout the event.

6. **Kit Policy**: Only chassis and 3D trolley are provided on rent or purchase; other components must be brought by teams, or they may purchase/rent the complete kit.

7. **College ID**: Valid college ID is compulsory at registration.

8. **Submission**: Projects must be submitted by 5:30 PM sharp; no late entries accepted.

9. **Health & Safety**: Stay hydrated and take breaks; First-aid is available on-site

10. **Tool Flexibility**: Any programming language or platform is allowed for development.

11. **Social Media**: Participants may post about the event, but not share other teams' work without permission.

12. **Presentation**: Each team must give a 2–3 minute explanation during the final demo.

About Robomanthan

- About Robomanthan Pvt. Ltd., incubated at IIT Patna, is a growing robotics & AI company developing humanoid robots, autonomous systems, and intelligent machines.

- We have collaborated with 30+ colleges and 50+ schools across India to offer hands-on robotics training, internships, and live industrial projects.

What We Do

- Product Development in:
  - Humanoid & Autonomous Robots
  - AI/ML-based Robotics
  - Computer Vision (OpenCV, ROS)
  - IoT Devices (Raspberry Pi 4, ESP32, Arduino)

- Trainings & Internships
  - AI/ML with real-time robotics
  - ROS & Industrial Automation
  - Python + Computer Vision
  - IoT with Cloud & Smart Surveillance

- Core Projects
  - Human-following robots (MediaPipe + OpenCV)
  - Voice-assisted robotic heads
  - Smart CNC plotters & bots
  - SLAM navigation (ROS)
  - Home automation via MQTT, Google Assistant & VR

- Recognition & Impact
  - IIT Patna Incubation | Start Bihar Funding
  - 10,000+ students trained
  - Labs in schools like Rashtriya Military School
  - Solutions delivered to Godrej

Contact Information

Robomanthan

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- **Linkedin:** Robomanthan

ELSOC

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Event Coordinators

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