Artificial Intelligence in Mobility – AIM 2025

About AIM 2025

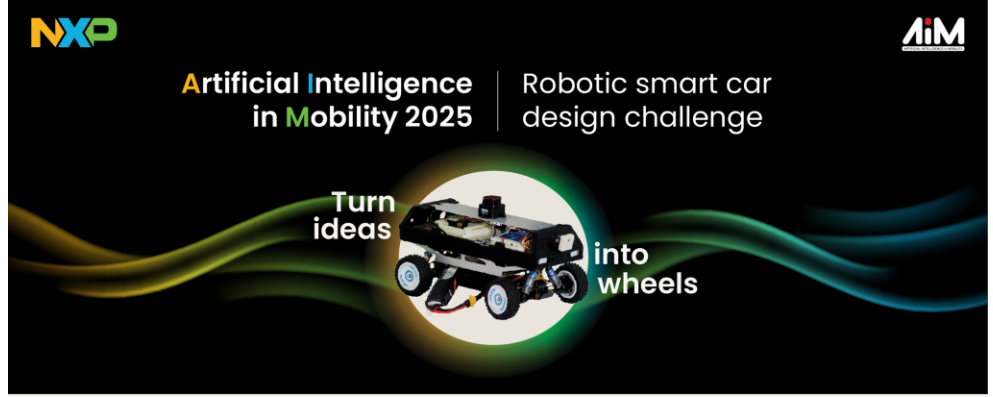
https://www.nxp.com/aim

ARTIFICIAL INTELLIGENCE in MOBILITY

- AIM, is an exciting platform for engineering students to dive into the world of AI in Mobility and Robotics.
- Students design and create mobile robotics prototypes using cutting-edge technologies like AI/ML, object/sign recognition, sensors, motion detection, computer vision, and obstacle avoidance.
- Students will participate in multiple challenges both in simulation and real-world environment.

AiM

ARTIFICIAL INTELLIGENCE in MOBILITY



What is AIM?

AIM, Artificial Intelligence in Mobility is an exciting platform for engineering students to dive into the world of AI in Mobility and Robotics. Students design and create mobile robotics prototypes using cutting-edge technologies like AI/ML, object/sign recognition, sensors, motion detection, computer vision, and obstacle avoidance. Students will participate in multiple challenges both in simulation and real-world environment.

Eligibility Criteria

Students of **16-26 years** as on 1st April 2025 and **currently pursuing UG/PG in engineering** from registered Indian colleges.

Team Size:
1 to 4 members

Register at:
nxp.com/aim

Register Now

Last date for registration:
23rd June 2025

Exciting awards to grab:

Grand Finale
1st Prize
₹ 1,00,000

Grand Finale
2nd Prize
₹ 75,000

Grand Finale
3rd Prize
₹ 50,000

Grand Finale
AI Arjuna Award
₹ 10,000

Grand Finale
Innovator's Edge Award
₹ 10,000

Grand Finale
Precision Excellence Award
₹ 10,000

Regional Finale
Winner
₹ 10,000

Timeline:

Connect with us on social channels:

Features and Benefits

This fun and interesting event is targeted for engineering students, aged between 16-26 years, exposing them to program embedded controllers, develop algorithms for autonomy, and explore the world of artificial intelligence and automated driving. The vision of the challenge is to create well-rounded youth with industry skill sets and help them with the technical knowledge required for the new-age technologies.

Ease of Access

An intuitive online platform for managing the entire competition process, from registration and training to team management, submissions, and results.

Free Tutorials

An opportunity to learn, practice and perform in the whole new era of Artificial Intelligence.

New-age Technologies

Gain exposure to cutting-edge technologies such as AI/ML algorithms, object recognition, sensors, sign recognition, obstacle detection, computer vision, image processing, and more.

Industry Talks

Embark on a journey that opens endless opportunities in the AI domain, with the chance to meet and interact with leading industry experts across various fields.

Personal Development

Develop well-rounded skills such as communication, interpersonal abilities, ethics, presentation, adaptability, social responsibility, and productivity.

AIM 2025 Challenge Background

- AIM-2025, It's not just a race on a track, but a race to solve real-world problems. Tackle real-world issues with creative solutions.
- This challenge aims to design Mobile Robotics Prototypes by integrating various sensors inputs like camera, Lidar, etc. For the Regional Finale, Teams compete in a virtual environment using the Gazebo simulator.
- Post-Selection in the regionals, selected teams receive NXP buggy hardware kit (returnable).
- In Grand Finale, teams needs to compete in a real-world environment. Design and Develop:
  - Sensor processing software
  - Sign and object recognition software
  - Obstacle avoidance software
  - Self-driving robotics algorithm

- **Eligibility**
  - Only students of 16-26 years as on 1-April of the given year of AIM challenge and currently pursuing UG/PG in Engineering from registered Indian colleges.
- **Evaluation**:
  - Participants need to complete task as fast as possible with minimum penalties. Details will be provided during virtual training sessions.

AIM 2025 Challenge : Warehouse Inventory Management

Participate and design a Mobile Robotics Prototype (MR-Buggy3) for warehouse inventory management driving algorithm by interfacing camera & lidar inputs to the rover.

- **Efficient Navigation:** Develop algorithms for the rover to navigate through warehouse aisles seamlessly.
- **Accurate Inventory Tracking:** Implement systems for real-time inventory monitoring and management, ensuring that stock levels are always up-to-date.
- **Obstacle Avoidance:** Ensure the rover can detect and avoid obstacles to maintain smooth and safe operations within the warehouse.
- **Data Integration:** Integrate camera and lidar data for precise location and movement within the warehouse, enhancing the rover's ability to perform tasks autonomously.
- **Optimized Workflow:** Design solutions that streamline warehouse operations, reducing time and increasing efficiency in handling and storing goods.

TimeLine

Registration

- 23rd May – 23rd June 2025
- Team qualification as per eligibility criteria by AIM Team.

Model Creation

- Use Gazebo robotics simulator
- Design & Develop mobile robotics model for warehouse inventory management. Challenge details will be provided in Virtual Training Session #1.

Virtual Training Session #2 (only for Grand Finale selected teams)

- August 2025.
- Delivered on-line, during evening
- Training with NXP MR-Buggy3 HW Kit (WITB Mobile Robotics Platform, CANHUBK344-S32K344-Q172 Eval Board, LiDAR, NavQPlus with Camera).

Virtual Training Session #1

- Last week of June – First week of July 2025
- Delivered on-line, during evening
- Software Tools Gazebo Simulator, ROS Operating System, AI/ML, Open CV, etc.

Regional Finale

- Last week of July–1st week of August 2025
- Event at 3 / 4 cities
- Demonstrate your model in virtual environment (No NXP Hardware).
- Best performing teams will be selected for Grand Finale and will be provided with NXP MR-Buggy3 HW Kits (returnable).

Grand Finale

- November 2025.
- In-person event at NXP India.
- Compete with MR-Buggy3 HW in real world. Participate, Win Awards, Be the Champion !
- Travel support reimbursed as per guidelines.

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