

Maker Bhavan Foundation

**VISHWAKARMA
AWARDS 2024**

Finalists 2024

Smart Mobility

1. Airships for Disaster Management

Team Members: Taha Kachwala, Vara Srinivas, Pranav Rathi & Rochan Prasad [IIT Bombay]

Description: Scaled-down prototype airship for disaster surveillance, aiding efficient rescue, communication, and resource deployment.

2. RegenDrive Autonomous Mobile Robots (AMR)

[Addverb Problem Statement]

Team Members: Sanya Vishwakarma & Aishwarya Chourasiya [IIT Bombay]

Description: Energy-efficient AMR with regenerative braking, advanced payload handling, and camera-based navigation for sustainable warehouse automation.

3. Federated Learning-Based Geolocalization for UAVs Using Aerial Imagery

[Ideaforge Problem Statement]

Team Members: Saurav Kumar, Yash Tripathi, Akash Pratap Singh & Superb Rialch [JUIT]

Description: AI-powered solution for UAV geolocation via real-time aerial imagery and satellite map matching, eliminating GNSS dependency.

4. Adaptive Footwear for the Visually Impaired

Team Members: Bharath Raj B, Indhu A, Dharshini S & Sundaralingam D [Dr. NGP Institute of Technology]

Description: Smart shoes with embedded sensors for real-time hazard feedback, enhancing mobility and independence.

5. OCHOBOT

[Addverb Problem Statement]

Team Members: Shravan A P & Keerthi Mangala C [Amrita Vishwa Vidyapeetham]

Description: AI-powered autonomous robot with depth cameras and Rocker-Bogie mechanism for exploration and rescue on uneven terrains.

6. Autonomous Drone-Based Temperature-Controlled Medicine Delivery

Team Members: Sumanto Roy, Anurag Biswas, Baibhab Adhikari & Soumyadeep Das [Adamas University]

Description: Temperature-regulated VTOL drone for emergency medicine delivery with innovative Made-in-India controllers.

Green Technology

1. Sustainable Modular Structures from Agricultural Residues

Team Members: Kusum Saini [IIT Delhi]

Description: Modular biocomposite structures made from agricultural residues to replace synthetic construction materials and reduce stubble burning.

2. BIOBULB MKone

Team Members: Chinmoy Dan, Aryan Anand, Sudhanshu Kumar & Ishika Roy [Delhi Pharmaceutical Science and Research University]

Description: Eco-friendly carbon capture system using microalgae for air quality improvement, biofuel production, and fertilizer creation.

3. PotholeFix Mat

Team Members: Eshani Dixit & Muktha Methi [SRM Institute of Science and Technology]

Description: Self-adhesive, weather-resistant mat for quick and sustainable pothole repairs using EVA material.

4. Gfoot

Team Members: Deepanshu Pandey, Shaurya Kumar Maurya, Raj Shivhare & Shivang Rampriyan [IIT Delhi]

Description: Biodegradable vegan shoes made from waste, reducing carbon and water footprints significantly.

5. Multi-Functional Survival Power Bank

Team Members: Rahul Kumar Malik, Shibam Ghosh, Aditya Mishra & Saurav Chauhan [Army Institute of Technology, Pune]

Description: Solar, mechanical, and electrical energy harnessing power bank for emergency and remote locations.

6. Carbon Negative Cycling System

Team Members: Mohit Jajoriya & Aryan Gupta [IIT Bombay]

Description: Retrofits bicycles to capture CO₂ during pedaling, promoting active participation in emission reduction.

Water and Sanitation

1. Harnessing Metal-Organic Frameworks and MXene

Team Members: Harish Kumar R, Mohammed Askkar Deen F & Sulaiha Juvairiya [IIT Guwahati]

Description: Efficient dye removal and degradation in textile effluents using innovative biopolymer-based MOF adsorbent and MXene filters.

2. Aquafy Systems

Team Members: Harish Panda & Saraswat Das [Odisha University of Technology & Research]

Description: IoT-enabled greywater treatment unit with self-cleaning and multi-stage filtration for sustainable water management.

3. Autonomous Smart Solar Desalination System

Team Members: Swagat Baghel & Gajanand Kumawat [Chitkara University, Punjab]

Description: Octagonal solar desalination system with enhanced wicks and heat storage for efficient water purification.

4. The Hydro Harvesters

Team Members: Krishiv Dawda & Hemant Sardana [IIT Bhilai]

Description: IoT-enabled hydroponic farming system growing 120+ plants in minimal space with 1.5x production efficiency.

5. Groundwater Level Prediction and Alert System

Team Members: Anurag Singh, Tanuj Kashyap & Surojit Mondal [Guru Ghasidas University]

Description: AI/ML-powered platform for water availability insights, promoting sustainable groundwater management.

6. S.A.M. - Smart Aqua Meter

Team Members: R Rakesh Reddy & B Harish [BV Raju Institute of Technology, Narsapur]

Description: IoT-based water monitoring device for real-time data on consumption, leakage, and quality management.