

Sustainable Development Goal 9 (SDG 9)



1. Club Name: Robotics and Machine Intelligence (RMI)

Activity Title: Development of ROV, AMR & Drone (SDG 9: Industry, Innovation & Infrastructure)

This activity focused on the development of advanced robotic systems, including a Remotely Operated Underwater Vehicle (ROVIO), an Autonomous Mobile Robot (AMR), and a payload-delivering drone, promoting innovation in automation and robotics.

Impact:

- **Participants: 26**
- **Developed 3 functional robotic prototypes**
- **Enhanced skills in robotics, automation, and system design**
- **Promoted innovation and practical problem-solving**
- **Builds industry-relevant technical expertise**



2. Club Name: PSI Racing

Activity Title: Efficient Mechanical Design for BAJA EV

This activity focused on optimizing key components of a BAJA electric vehicle, including gearbox, shafts, and drivetrain systems, to improve efficiency, reduce material usage, and enhance manufacturing processes using advanced design methods.

Impact:

- **Participants:** 25
- Improved **drivetrain efficiency and performance**
- Reduced **material consumption and weight**
- Enhanced **manufacturing practices**
- Encourages **innovation and practical engineering design**

3. Club Name: Designer's Consortium

Activity Title: BioGRID – Biodegradable RFID Tags (SDG 9: Industry, Innovation & Infrastructure)

BioGRID focuses on developing biodegradable RFID tags using paper substrates, zinc antennas, and beeswax coatings to replace plastic-based tags, reduce e-waste, and enable sustainable logistics solutions.

Impact:

- **Participants:** IITM Shaastra Design Challenge team & DC Smart City team
- Developed **functional biodegradable RFID prototypes**
- Promotes **eco-friendly and scalable innovation in logistics**
- Supports **reduction of electronic waste**
- Encourages adoption of **green technologies in industry**

4. Club Name: Electric Vehicles and Energy Resources (EVER)

Activity Title: Building BOT

Developed a low-cost Autonomous Mobile Robot (AMR) to automate material transport in small-scale industries, featuring path-following, obstacle avoidance, and a motorized lifting system to improve operational efficiency.

Impact:

- **Participants:** 3
- Achieved **90% task completion efficiency**
- Reduced **manual labor by 30 hrs/week**
- Ensured **95% obstacle avoidance success**
- Enabled **50 kg payload handling per trip**
- Promotes **affordable industrial automation**