

Event 2 - Robo Race Challenge Rulebook

Location	Arena
Robo Race	
2 Rounds	Qualifier and Finale
Per team	11 minutes
Max teams (team of 4): 15	4 hours
Prize	Point based (in the case of ties, time based)
Jury	Internal

Event Overview: In this exhilarating two-stage challenge, participants will design and race their wired or wireless robots within strict size constraints of 250mm x 250mm x 200mm (length x width x height). The mission: to navigate a dynamic track filled with obstacles, testing not just speed, but also control, precision, and strategic thinking. This event calls for non-destructive, electrically powered bots, showcasing the pinnacle of technical skill, creativity, and robotics innovation. Unleash your bot and compete for glory in the ultimate Robo Race challenge!

Stages: Qualifiers and Finale (top 4 teams compete in the finale)

Challenge:

Participants will design and race their robots through a course that includes a variety of tasks such as Pick and Place, Ramp Navigation, and Rocky Terrain Traversal. The challenge is designed to push the limits of creativity, robotics, and engineering, all while keeping it achievable within the given size and technical constraints.

Arena Layout & Tasks:

1. Ramp Run

- **Objective:** Your robot begins the race by climbing a steep ramp. The ramp's incline varies, requiring both speed and precise control to ascend without tipping over.
- **Challenge:** Make it to the top of the ramp to continue the course.

2. Rocky Terrain Traversal

- **Objective:** After the ramp, the robot must traverse a rugged terrain filled with rocks, uneven ground, and bumps.
- **Challenge:** The robot must remain stable and navigate through the rocky terrain without getting stuck or losing its way.

3. Pick and Place

- **Objective:** Next, the robot must pick up an object from a designated area and place it accurately into a marked target zone.
- **Challenge:** Successfully pick up and place the object without dropping it or misplacing it.

4. Zigzag Navigation

- **Objective:** The robot must navigate through a series of narrow, zigzag gates without hitting the barriers.
- **Challenge:** Navigate through the tight turns quickly and accurately.

5. Final Sprint

- **Objective:** After completing all the challenges, the robot enters the final stretch—a straight track that requires maximum speed to the finish line.
- **Challenge:** Race to the finish line in the shortest time while maintaining control.

Arena and Bot Specifications:

- The robot should fit inside a box of 30cm x 30cm x 40cm.
- The robot should not exceed 4 kg of weight.
- The robot should be wireless.
- The robot should be self-powered with supply not exceeding 12V (on board power supply). Participants cannot draw power from outside.
- Only one participant should control the robot. No player can be exchanged in the match.
- **Obstacle Complexity:** The course includes ramps, rocky terrains, pick-and-place stations, zigzag gates, and a speed finish line.

Rules

- Penalty may be included and will be conveyed during the event.
- Teams must report to the referee 10 mins prior to the commencement of the game. Teams can be penalized at the referee's discretion if they are late for the game start.
- The robot will be placed at the starting point, the RACE CLOCK will start as soon as the robot crosses the starting point and will stop after the robot crosses the end point.
- Restart or 2nd run will not be allowed.
- Reprogramming the robot is not allowed or to add/remove parts on the robot during the run.
- The robot must start the run in 10 Seconds after pressing the Start Button.
- The robot must restart the run if the bot is touched by the handler. (maximum of two restarts)

Rubric

- Picking up and placing the object accounts for 10 scores each
- Time taken to complete the arena
- For innovation and creative design (10% of total score)



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Consider all these parameters to determine the winners.

Prizes and Recognition:

- **Winner:** 5,000 INR + Certificate
 - **Runner-Up:** 3000 INR + Certificate
 - **Best Innovation Award:** Special recognition for the most creative design.
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