

## Robo-Olympic Rulebook

### Event Highlights:

The Robo Olympics featured thrilling competitions in Robo Race, Line Follower, and Robo Soccer, showcasing the best in robotics innovation and engineering.

In Robo race, robots competed for speed and precision on a challenging track.

The Line Follower event tested robots ability to stay on a path with accuracy, while Robo Soccer highlighted strategy as robots played autonomous soccer. The event celebrated cutting-edge robotics, with teams pushing the limits of design, programming, and automation.

The Robo Olympics proved to be an exciting display of technological brilliance and a glimpse into the future of robotics

### Prizes and Awards:

Prizes	Robo Race	Line Follower Robot	Robo Soccer
FIRST PRIZE	25,000/-	12,000/-	12,000/-
SECOND PRIZE	15,000/-	8,000/-	8,000/-
THIRD PRIZE	10,000/-	6,000/-	6,000/-

### Fee Structure:

	<b>Robo race</b>	<b>Line following robot</b>	<b>Robo Soccer</b>
<b>Registration fee</b>	300	200	200

## **Participation Guidelines:**

- A match was played by a single team in one go, with each team consisting of 1 Racing Bot.
- Participants had the option to compete individually or form a team of 2-4 members.
- Any institution (School/College/University/Vocational Institution) or group of students could form a team.
- Teams registered by filing a Google form or on the official website, following details regarding the registration process, deadlines, and submission requirements.
- Each team was required to construct a wireless or wired manual robot, emphasizing creativity and innovation.
- All the three events will be held simultaneously, so if you want to attend all three events three leaders and three separate robots are mandatory.
- Three separate registrations are mandatory for separate events of the Robo-Olympics.

## **Rules and Regulations:**

### **1. Robo Race:**

#### **-Team Composition:**

- Teams typically consist of 2–3 members.
- Only one robot per team is allowed unless specified.

#### **-Robot Specifications:**

- Participants designed manually controlled robots with the capacity to cover the maximum distance in the shortest possible time, navigating challenging hurdles strategically placed along the track.
- Bots had to fit inside a 30\*30 centimeters wide and 40 centimeters high cube at any point in time.
- Maximum weight should not exceed 5 Kg.
- The robot could be wired or wireless, with the length of the wire (for wired bots) long enough to cover the entire track, ensuring the wire remained slack during the complete run.
- A maximum of 24 Volt power supply could be used.

### **Track Details:**

- The track may feature curves, slopes, obstacles, or challenges like bridges or rough terrain etc,
- Robots must stay within the boundaries of the track.
- Track layout will often be shared with participants before the competition or revealed just before the event.
- - The racing track stretched over a total length of 80-90 feet (approximately).
- - The racing arena had a dimension of 30 X 20 sq.ft.
- - The track, 50 cm wide, featured various checkpoints before hurdles.
- - The surface and course line were intentionally uneven, with different hurdles like switch bridges, speed breakers, marble pits, balls ramp, pebble pit, slippery path, rotating disc, curve ramp down, seesaw, bridge, turn-table, banking of road, suicide point, football court, etc.

## **2. Line Following Robot:**

### **1. Team Composition:**

- Teams typically consist of 2–3 members.
- Only one robot per team is allowed.

## **2. Robot Specifications:**

- Dimensions: Maximum size 30 cm x 30 cm x 30 cm may be specified.
- Weight: May have a maximum limit 2–5 kg.
- Power Source: Robots must be powered by batteries up to 12V; no combustible power sources are allowed.

## **3. Track Specifications:**

- The track will be a solid line (black or white) on a contrasting background.
- The line width and track dimensions (e.g., line width: 2–3 cm, track length: 10–20 meters) are specified in advance.
- The track may include straight paths, curves, intersections, or loops etc.
- Obstacles, gaps in the line, or elevation changes may be added for advanced competitions.

## **4. Competition Format:**

- Each team is allowed multiple attempts (usually 2–3 runs), and the best performance is recorded.
- Robots must complete the course as quickly as possible while staying on the line.

Robots should autonomously follow the line without external control once the run begins.

## **3. Robo- Soccer:**

### **Team Composition:**

- Teams typically consist of 2–3 members.
- Each team can have 1 robot on the field at a time, depending on the event.

### **-Robot Specifications:**

- - Participants designed manually controlled robots with the capacity to cover the maximum distance in the shortest possible time, navigating challenging hurdles strategically placed along the track.
- - Bots had to fit inside a 30\*30 centimeters wide and 40 centimeters high cube at any point in time.
- - Maximum weight should not exceed 5 Kg.
- - The robot could be wired or wireless, with the length of the wire (for wired bots) long enough to cover the entire track, ensuring the wire remained slack during the complete run.
- - A maximum of 24 Volt power supply could be used.

#### **Competition Format:**

- Matches are played between two teams.
- Each match consists of two halves, usually lasting 5-7 minutes each, with a short break in between.
- Teams must score goals by moving the ball into the opposing team's goal.

#### **Pre-Race Inspection:**

- Each participant underwent a rigorous pre-race inspection by Technical Inspectors.
- Safety officers and the Event Technical Coordinator ensured materials and workmanship met satisfactory standards.
- Material used was scrutinized for modifications or changes; any deviation required re-inspection.
- The Event Coordinator/Organizing Head retained the authority to disqualify any robot that, in their opinion, was not safe in terms of materials, workmanship, or design details.

## Robo Race Gameplay:

- Races were governed by an appointed team of judges/organizers, following general rules and regulations of the competition. Judges decisions will be considered as final decision.
- Each race was meticulously monitored by judges, cameras, timing/lap systems, and volunteers.
- The participating teams drove their robots individually in the preliminary round, with each boot touching boundaries incurring a penalty of +5 seconds.
- The time taken to complete the path was considered the qualifying time, with other penalties and scoring points informed on the spot.
- Based on the sum of qualifying time and penalties of each team, top teams proceeded to the finals.

## Robo-Olympics Score, Penalties and Fouls

### 1. Robo Race:

#### Disqualifications

- **Rule Violations:** Failure to meet robot specifications or follow event rules.
- **Safety Breach:** Operating an unsafe robot or causing harm.

#### Penalties:

- If robot touches the boundary incur penalties of +5 seconds for every touch.
- To skip any hurdle the time will be added as per the difficulty level.

#### Scoring and Timing:

- **Fastest Time:** The robot completing the course in the shortest time wins.
- **Task Points:** Some races include tasks (e.g., avoiding zones, picking objects) that earn or deduct points.

**Any other relevant details will be conveyed in advance or on the day of completion.**

## 2. Line Following Robot:

### Completion Time:

- The robot's total time to complete the track is recorded.
- The fastest time typically determines the winner.

### Penalties:

- Deviating from the line may incur penalties of +2seconds for every off-track occurrence.

Manual intervention (e.g., repositioning the robot) may result in additional time penalties of +5 seconds per intervention.

**Any other relevant details will be conveyed in advance or on the day of completion.**

## 3. Robo Soccer:

### Scoring:

- A goal is scored when the ball fully crosses the goal line.
- Robots are not allowed to enter the goal area (or “penalty box”) in some formats.

### Match Points:

- The team with the most goals at the end of the match wins.
- In case of a tie, matches may go into extra time or a penalty shootout (robot vs. goalie robot).

### Tournament Points:

- Teams earn points for wins, draws, and losses.

### Ball Out of Bounds:

- If the ball goes out of bounds, it is placed back at the point where it left the field, and play resumes.
- Teams may lose possession for causing out-of-bounds situations.

### **Defense and Fair Play:**

- Robots cannot block the goal entirely or obstruct opponents unfairly.
- Defensive robots must maintain fair distance from the ball unless actively engaging.

### **Fouls and Penalties:**

- **Examples of fouls:** Pushing or colliding aggressively with other robots, trapping the ball, or entering restricted zones.
- Penalties can include free kicks, removal of a robot, or time penalties.

**Any other relevant details will be conveyed in advance or on the day of completion.**

### **Contact for any Queries:**

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