

## Law follower

**OVERVIEW:** It's time to test your basic robotics skills! A line follower robot is an automated vehicle capable of following a line without any human intervention.

### **PROBLEM STATEMENT:**

Design an autonomous robot capable of following a guided path on the ground. The guides shall be lines or/and walls. The accuracy of the robot in following the path in shortest time will be the judging criteria.

### **ROBOT SPECIFICATIONS:**

1. The robot, while starting on the track, should be a maximum size of 25cm x 25cm x 30cm.
2. The robot should be completely autonomous. Once on the track, no wired/wireless communication with the robot is allowed. The robot should follow the given track on its own.
3. Power source (battery/solar panels) for the robot should be on the body of the robot. No external sources of power to the robot are allowed.
4. All types of microcontroller/development boards (Arduino/LEGO/VEX, etc.) and sensors to solve the problem statement are allowed.
5. The maximum permissible weight for the robot is 10 kilograms.
6. The robot shall undergo strict weight and dimension checking. If it violates the above specifications, it shall be disqualified.
7. The participants are solely responsible for the safety of their robots and equipment. The organisers are not responsible for any incidents/accidents caused by participants or their equipment.
8. Potential difference between any two points at any time during competition cannot exceed **24V**. We understand that a battery rated at 24V can exceed by few volts when fully charged.

### GENERAL FORMAT:

The competition is open to all.

#### ROUND 1:

The robot should follow a given line path on the ground without wandering off the track in the shortest time. The robot is free to take a pre-programmed path.

#### ROUND 2:

The robot should reach the end point without colliding with walls (height 25 cm) along its path. The path may be continuous or broken. Further instructions about the track will be given during the main competition.

### TRACKSPECIFICATIONS:

1. The thickness of the line path will be uniform and equal to 3 centimetres in both rounds.
2. The lines will be black in colour, on a white background.
3. The path may consist of straight lines, hairpin bends, acute angled bends, crossovers (intersecting lines) and curved lines.
4. Walls (round 2) will be placed opposite to each other and have a uniform width of 40 cm between them.
5. The actual path which is to be followed by the robot will be disclosed only during the event.

### GENERAL RULES:

1. Sometime shall be provided between each round for participants to make any changes to their robot's code, etc.

2. The time for completion of the track from start to finish shall be measured by a stopwatch. Time will not be paused in case of robot wavering off the track or other circumstances.
3. A robot cannot be imparted any momentum initially or during the time it is on the track.
4. Participants are strictly not allowed to touch their robot at any point on the track.
5. Teams of 3-5 people are allowed.
6. If a robot wavers off the track, The team can place the robot back on the line from where the robot had left the track. However there will be a heavy penalty each time this is done. This may make the qualification to the next round difficult.
7. A robot that wanders off the arena boundaries will be disqualified. A robot will be judged to have left the arena if one wheel/leg is found to be completely outside the boundary drawn.
8. The robot should not damage the arena under any circumstances.
9. **THE DECISION OF THE ORGANISERS REGARDING ABOVE RULES AND CONDUCT OF THE EVENT SHALL BE FINAL AND BINDING.**

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