



STEMI FON

Fastest Line Follower Rules and Regulations

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1. Objective

To design and build an autonomous robot capable of following a predefined black line on a white surface and completing a full lap of the track in the shortest possible time.

2. Team Composition

- Each team may consist of **1 to 3 members**.
- Open to **6 to 12 Grade**
- Each team can enter only one robot into the competition.

3. Robot Specifications

- **Autonomy:** The robot must operate autonomously after the start — no remote control or manual intervention is allowed during the run.
- **Sensors:**
 - The robot may use a maximum of 16-channel IR sensor array for line detection.
- **Power Supply:**
 - Maximum allowable voltage: 12V DC (must be battery-powered).
- **Dimensions:**
 - The robot must fit within a 20 cm x 20 cm x 20 cm cube at the start.
- **Construction:**
 - The robot must be built using components designed or assembled by the team.
 - No off-the-shelf line followers or kits with pre-built logic allowed.

4. Track Specifications

- The track will be white with a black line (approximately 2 cm width).
- The line may include:
 - Curves
 - Sharp turns
 - T-intersections
 - Cross-junctions
 - S-shaped patterns
 - Speed breakers or bridges (optional)

- The robot must follow the black line at all times.

5. Game Rules

- Starting Point:
 - The robot must start behind the start line.
 - The run begins once the team signals readiness and the judge gives the go-ahead.
- Finish Line:
 - The run is considered complete when any part of the robot crosses the finish line after completing one full lap.
- Calibration Time:
 - Teams will be given 30 seconds of calibration/setup time before each official run.
 - During this time, adjustments to sensors or starting position can be made.

- Total run Time : 3 minutes

6. Scoring Criteria

- Fastest Completion Time wins.
- If no team finishes the track, the team that covers the maximum distance accurately following the line will be ranked higher.
- Timing starts when the robot crosses the start line and stops when it crosses the finish line.

7. Penalties

- Touching the Robot during the run: +5 Seconds penalty.
- Deviating from the Line:
 - If the robot skips any lines or curves, a 2-second time penalty will be applied.
- Exceeding Total Run Time Limit (3 minutes): Run is invalid.
- Failure to stop in a designated stop zone (if applicable): +5 seconds penalty.

8. General Rules

- Robots must not damage the track.
- External sensors, remote control, or manual interference after the start will result in disqualification.
- Teams must comply with the instructions of event judges.
- Referee/judge decisions are final and binding.

9. Tie-Breaker

- In the case of a tie:
 - The robot with fewer penalties will be ranked higher.
 - If still tied, a re-run may be conducted between tied teams.