

ROBOVANTA – LINE FOLLOWER ROBOT (LFR) RULE BOOK

1. Event Overview

The Line Follower Robot (LFR) competition challenges participants to design a robot capable of following a predefined black line track and completing it in the shortest possible time.

The robot that successfully completes the track with the least time will be declared the winner.

2. Team Structure

- Team Size: **1–4 Members**
 - One robot per team.
 - One operator allowed during the run.
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3. Robot Specifications

Dimensions

- Maximum Size: **300 mm × 300 mm × 300 mm**

Weight

- Maximum Weight: **5 kg**

Power Supply

- Maximum Voltage: **12V DC**

Control System

- Autonomous operation is preferred.
 - Semi-autonomous robots may be allowed based on organizer discretion.
 - Wired and wireless robots are permitted only for programming and monitoring purposes.
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4. Track Specifications

Line

- Black Line on White Background.
- Line Width: **25 mm ± 5 mm**

Track Features

The track may contain:

- Straight Paths
- Sharp Turns
- Acute Angles
- Right Angle Turns
- Zig-Zag Sections
- Curves
- Intersections
- Dead Ends
- Loops
- Speed Zones

Track design will be revealed on the event day.

5. Competition Format

Round Type

- Knockout Format

Time Limit

- Qualification Round: **3 Minutes**
 - Final Round: **5 Minutes**
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6. Starting Procedure

1. Robot must be placed behind the start line.
2. Robot dimensions will be checked.
3. Referee announces:
 - Ready

- Set
- Go

4. Timing begins when the robot starts moving.

7. Winning Criteria

Winner will be decided based on:

1. Successful completion of track.
 2. Fastest completion time.
 3. Least penalties.
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8. Checkpoints

- Multiple checkpoints may be included.
 - Missing a checkpoint results in penalties.
 - Checkpoint decisions made by judges are final.
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9. Penalty Rules

Violation	Penalty
Human intervention	+10 Seconds
Missing checkpoint	+15 Seconds
Robot leaves track	+10 Seconds
Restart from checkpoint	+10 Seconds
Unsafe robot operation	Disqualification

10. Robot Off-Track Rules

A robot is considered off-track if:

- Entire robot leaves the line.
- Robot moves in the wrong direction.

- Robot becomes stuck for more than 10 seconds.

The team may restart from the last checkpoint with a penalty.

11. Human Intervention

Allowed only when:

- Robot is stuck.
- Robot completely loses the track.

Penalty:

- +10 seconds per intervention.
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12. Disqualification

Teams may be disqualified for:

- Exceeding robot specifications.
 - Operating above 12V.
 - Damaging the track.
 - Unsportsmanlike conduct.
 - Using hazardous components.
 - Intentional interference with other teams.
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13. Safety Rules

- Batteries must be securely mounted.
 - Wiring must be insulated.
 - No sharp edges.
 - No dangerous rotating mechanisms.
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14. General Rules

- Judges' decisions are final.
- Organizers reserve the right to modify track layouts.

- Teams must report 15 minutes before their slot.
 - Late arrival may result in disqualification.
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Event Summary

Parameter	Specification
Event Name	Line Follower Robot(LFR)
Team Size	1–4 Members
Robot Size	300 × 300 × 300 mm
Maximum Weight	5 kg
Maximum Voltage	12V DC
Line Width	25 mm ± 5 mm
Format	Knockout
Qualification Time	3 Minutes
Final Time	5 Minutes
Objective	Complete Track in Minimum Time

Possible Track Challenges

Sharp Turns
Zig-Zag Path
Intersections
Curves
Dead Ends
Loops
Speed Sections

"Follow the Line, Beat the Time, Become the Champion!"