



TECHNOXIAN
WORLD ROBOTICS CHAMPIONSHIP
IRAN



**Line Maze
Solver**

**TECHNOXIAN
IRAN**

The 12th
National Student and Open
robotics Competition RobotixIran

First TechnoXianIran International Competition

KISH-IRAN-2025
DATE: 23-25 June

WWW.ROBOTIXIRAN.COM
WWW.TECHNOXIANIRAN.COM

Line Maze Solver

Introduction Participants must design a robot capable of navigating a black line on a white background and determining the correct path to reach the finish line. The robot should start at the beginning of the maze and autonomously find the main route to the endpoint using appropriate sensors.

Age Requirements: There are no age restrictions for this competition.

Teams:

- Each team can have a maximum of three primary members.
- Each team can have a maximum of one supervisor (leader).
- On the competition day, teams must present a printed technical report and documentation covering the mechanical, electrical (PCB design or components), and programming algorithm stages of their robot. (TDP; team description papers)
- Team members may modify or repair the robot during the competition, but the supervisor is not allowed to intervene.
- Supervisors must read the competition rules and provide a copy to team members.
- Supervisors will sign a commitment form on behalf of the entire team to follow the rules.
- A supervisor can also be a regular team member or leader.

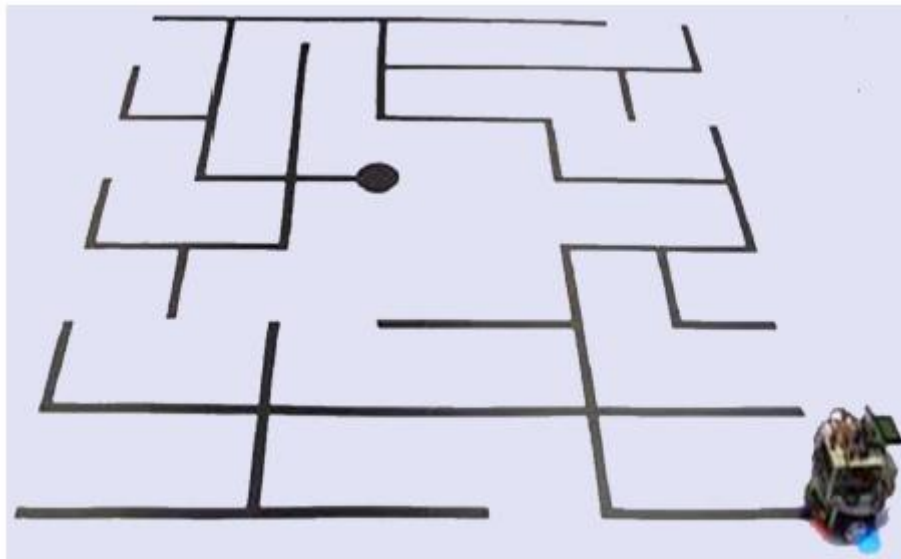
Robot Specifications

- The robot must operate autonomously and not connect to a laptop or any external system.
- Each team is allowed to have only one robot.
- The robot's dimensions must not exceed 20×20 cm.
- The robot must remain within the maze boundaries at all times; exiting the maze will result in no score.
- Touching the robot during the performance is prohibited.
- The robot must not damage the competition area.
- The robot must be battery-powered; external power sources are prohibited.

Competition Area

- The track is made of MDF or plywood with a white surface.
- Black lines approximately 15 mm thick are used as the maze path on the white background.
- The minimum distance between two parallel lines is 20 cm.
- Intersections are separated by at least 20 cm.
- A 20-cm diameter filled circle marks the endpoint of the maze.
- Dead ends are not marked but are represented by the end of the black path.
- The maze does not include loops.
- A minimum margin of 20 cm is maintained between the maze lines and the field edges.
- The competition area measures a maximum of $200 \times 200 \text{ cm}^2$ with a tolerance of 10%.
- Robots can try multiple paths to find the main route.

Sample Maze



Competition Procedure

- Teams must submit their robots to the judges for quarantine before unveiling the maze.
- Each team has up to four attempts to set their best record.
- The maximum time for recording and testing on the main track is 20 minutes.
- The team with the shortest recorded time will be declared the winner.
- Teams may replace batteries, sensors, and other components but cannot reprogram the microcontroller of the robot during recording.

Scoring

- If no team completes the maze, scoring will be based on the number of dead ends passed.
- Repeated dead ends are not considered in scoring.
- The winning team's technical report and documentation will contribute up to 20 points to their total score, with an additional 10 points awarded for interviews with the team members.
- Top five teams will be ranked, based on their total scores.
- Teams failing the technical interview may be disqualified if the technical committee decides.

Participation in the competition signifies acceptance of all stated rules.

Objections

- Objections must be submitted in the specified forms immediately after the competition or during the round. Late objections will not be considered.
- The final decision on disputes lies with the referees and the organizing committee.
- After the results are announced, no objections will be accepted.

Organizational Chart

- Teams are responsible for staying updated on any rule changes up to 2 weeks before the competition.
- Teams must register within the specified timeframe and submit a 1-5 minute video (max 100 MB) showcasing their robot's functionality and their motivation for participating. Videos should be emailed to technoxian.iran@gmail.com.
- Robots will undergo technical inspections by the competition committee.

Attention: Only one trophy and cash prize will be awarded to the winning team, not to individual members.

GOOD LUCK!