

Robot's Intellect 2023

Line Following

1. The task

The objective of this contest is to complete the course in the shortest period of time while accurately tracking the course line from start to finish.

2. General rules

1. It is strictly forbidden for robots to injure any participants or viewers.
2. It is forbidden for robots to damage the course, obstacles or any other items of organizer's inventory, unless it is explicitly a part of competition.
3. Robots must be autonomous. During the match human input isn't allowed, unless it's specifically allowed by competition.
4. It is forbidden to intentionally cause any harm to other participants or robots.
5. Robots must be registered until organizer's specified date.
6. Robots must pass qualification before participation. Robots that are late for qualification must get competition coordinator's permission to pass qualification after official qualification time.
7. During qualification, each robot will be assigned a unique number, which must be put on the robot, in a clearly visible location.
8. Competition coordinator has final say on all questions and problems during the competition.
9. The organizers keep the right to alter/edit the rules, accordingly informing the participants about it.
10. Violation of the rules above will result in disqualification or criminal liability.

3. Requirements for robot

1. Weight must not exceed 1 kg.
2. Maximum robot size: 0.25x0.25x0.25 m (length, width, height).
3. Additional Requirements for LEGO Robots: robot parts must be manufactured and distributed by LEGO®; LEGO® licensed parts from third party manufacturers are also allowed.

4. Team

1. Team can not contain more than 5 members.
2. The number of robots presented by a team is unlimited.

5. Competition field

1. The course shall be a black 15 mm wide line on a white field. The line course starts and ends inside the starting area.

2. The course base material is PVC fabric.
3. There could be cross-sections (e.g., places where the line crosses itself).
4. The line is surrounded by 0.25 m of free space on both sides, except on cross-sections.
5. The lines on the cross-sections are perpendicular at least to the extent of 0.15 m from the point of crossing.
6. Sharp angles may occur, but not less than 90° .
7. The minimum turning radius of the line is 0 m.

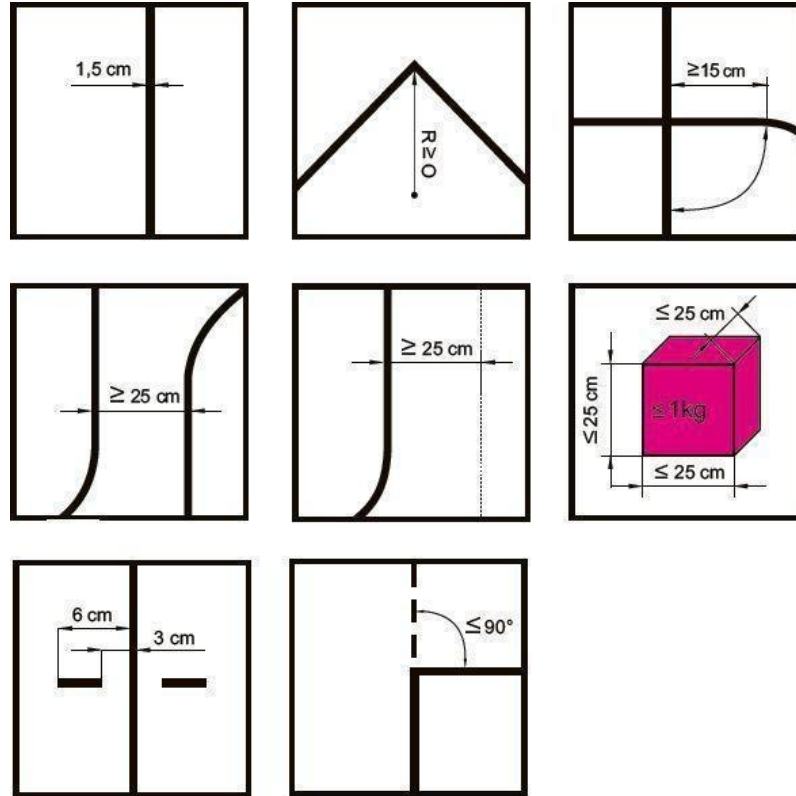


Figure 1 The dimensions of the track

6. Competition progress

6.1. General rules

1. Before the start of the competition, the robot must pass a check.
2. A robot is allowed 3 minutes to complete the course. If it fails to do so in the given time, the failed attempt is not recorded.
3. Once a robot has crossed the starting line it must remain fully autonomous, or it will be disqualified.
4. A robot that wanders off the track surface will be disqualified. A robot shall be deemed to have left the track when any wheel, leg, or track has moved completely off the track surface.
5. Any robot that loses the line course must reacquire the line at the point where it was lost, or at any already traversed point.

6.2. Time

1. Time measurement will begin after the robot crosses the start line and will stop after the robot crosses the finish line.

2. A robot is deemed to have crossed the line when the forward most part of the robot contacts or crosses over the line.
3. Time shall be measured by an electronic gate system or by a judge with a stopwatch, based on the availability of equipment.

7. Deciding the winner

1. The team of the robot, which would finish the track in the shortest time, while keeping to the aforementioned requirements, is declared the winner.
2. In the event of two or more robots finishing the track in the same amount of time (with 0.01 s accuracy), the robots in question must repeat their runs on the track until one of them completes it faster than the others.
3. If several robots of the same team take the prize, only one robot with the higher place gets the prize.