Robots' Intellect 2019

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 registrated 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 Physical Requirement for Robots

3.1 Size and Weight Limits

The maximum size of a robot is 25 x 25 x 25 cm, the maximum weight is 1 kg. Robots must have passed inspection prior to competing.

3.2 Additional requirements for LEGO robots

- Robot parts must be manufactured and distributed by LEGO®;
- and also LEGO® licensed parts from third party manufacturers

4 General Requirements

4.1 Course Time

Time is measured from crossing the start line until the robot crosses the finish line. A robot is deemed to have crossed the line when the forward most part of the robot contacts or crosses over the line.

4.2 Time limit

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.

4.3 Timekeeping

Time shall be measured by an electronic gate system or by a judge with a stopwatch, based on the availability of equipment.

4.4 Autonomous Control

Once a robot has crossed the starting line it must remain fully autonomous, or it will be disqualified.

4.5 Arena Edges

A robot that wanders off the arena surface will be disqualified. A robot shall be deemed to have left the arena when any wheel, leg, or track has moved completely off the arena surface.

4.6 Losing the Line

Any robot that loses the line course must reacquire the line at the point where it was lost, or at any already traversed point.

4.7 Course Specifications

- The course shall be a black 15 mm wide line on a white field. The line course starts and ends inside the starting area;
- There could be cross-sections (e.g. places where the line crosses itself);
- The line is surrounded by 25 cm of free space on both sides, except on cross-sections;
- The lines on the cross-sections are perpendicular at least to the extent of 15 cm from the point of crossing;
- Sharp angles may occur, but not less than 90°;
- The minimum turning radius of the line is 0 cm.

4.8 Power of Officials

The decisions of all officials regarding these rules and the conduct of the event shall be final.

5 The Winner

The team of the robot, which would finish the track in the shortest time, while keeping to the aforementioned requirements, is declared the winner.

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.

6 Declaring Objections

No objections shall be declared against the judges' decisions. The lead person of a team can present objections can be presented to the judge before the match is over

7 Flexibility of Rules

Modifications or abolition of the rules can be made by the local event organizers as long as they are published prior to the event and are consistently maintained throughout the event.

8 Liability

Participating teams are always responsible for the safety of their robots and are liable for any accidents caused by their team members or their robots. The organizers will never be held responsible nor liable for any incidents and / or accidents caused by participating teams or their equipment.

9 Appendix

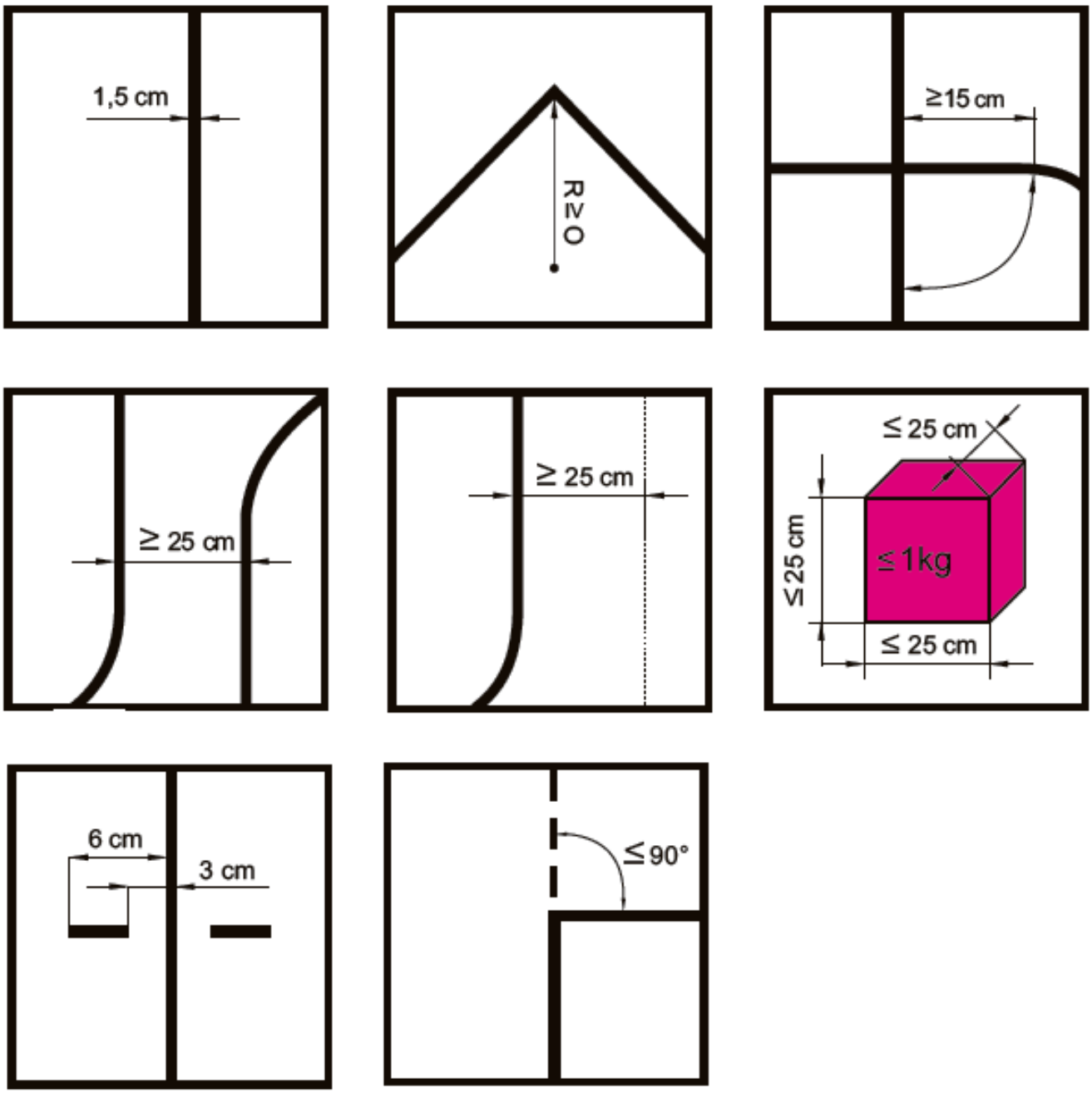

Figure 1: The dimensions of the track and robot