

# Line Follower

---

## The robot follows black line on the track as fast as possible

### 1. Contest description

After being started, the robot has to run over the course and follow black line. The ranking is determined by the time the robot needed to go from the start to the finish line. The time is measured from referee's signal to the moment the foremost part of the robot crosses the finish line. The robot must be fully behind the start line before the race starts. If the robot loses the line, it must return to the line so that it does not shorten its way thanks to the line loss. If the race time exceeds 3 minutes or if the robot leaves the playing field, the referee terminates the race.

The races are organized in several rounds. During the qualifications, robots proceed to next round if they successfully pass all obstacles and finish the run. Robots with the best time in the last qualification round qualify for the finales. In the finale part, the races will be held on a knock-out basis. In case of a tie, a repeated race may be ordered by the organizers.

If time allows, the robots may repeat a run in qualification rounds (with priority for robots with less attempts in that round).

### 2. Robot

The robot is fully autonomous and must not be dangerous or excessively annoying.

Throughout the race (including the start) no external connection is allowed. The robot must not be touched or interfered with in any way since the player starts it until the referee allows so. On its top side, an emergency switch must be located. By pressing it all actuation must be switched off. The switch must be big enough and well distinct so that it can be easily recognized, reached and used. A 10x7 cm space for sticker marking must be reserved on the robot's top side.

Maximum size of the robot is 32(w)x32(h) cm, there is no limit on its length.

### 3. Playing field

Playing field ground is white. The track is marked by a black line, approx. 1.5 cm wide. The line does not cross itself; however, it may split and re-join (in such case, the robot may take any of them; the paths can be however of different length). The line may even end with a loop which reverts the robot back towards the start. Starting and finishing lines are marked by two perpendicular marks 5 cm off the track. Minimal distance between the line and playing field border is 15 cm. Minimal curve diameter is 10 cm. There could be slight level differences on the playing field (but we will aim to have the playing field nicely flat).

There may be some obstacles on the track:

- a) An object: There could be an object laid on the track. Its size is at least 10(w)x8(h)x2(l) cm, weight at least 100 g. The robot may touch it but it must not move it.
- b) Line cut-off: The line may be discontinued at any place for max. 20 cm. After the gap, the line may continue anywhere within  $\pm 30^\circ$  from the original direction. The playing field border is at least that far so that at both extremal angles the line could continue and the safety distance mentioned above is met.

After passing the obstacle, the robot must continue to follow the line at latest at 30 cm from its end.

There are no obstacles in the first qualification round. In every consecutive round, the obstacle count increases. For the time to be recorded, the robot must pass all obstacles.

### 4. Power of officials and liability

If a robot or a participant violates the rules, the referee may disqualify them from the race. He may also disqualify the participant or the robot for further races.

No objections against the decisions of the referee or the organizers are allowed.

The organizers may change the rules without prior notice, e.g. based on number of participants, local conditions etc.

The participants are responsible for their robots and their safety and will be liable for all damages caused by them, their robots or their equipment.

The organizers will not be under any circumstances held liable or responsible for any accidents of the participants or any damages caused by the participants, their robots or their equipment.