ROBOFINIST

Narrow Line Follower: Extreme

RoboFinist competition rules

Version 3.4 dated August 19, 2024

1. General Provisions

The run is held by each team independently. One team plays one robot.

1.1. Task Description

The distance must be completed along the specified trajectory for in a minimum of time.

1.2. Restrictions

A team must meet the following requirements, unless otherwise specified by the Organizing Committee of a particular Event:

- the number of participants in the team is 2 or less (the number of coaches/team managers is not limited)
- the oldest member of the team is 19 years old or less in the year of the competition.

Additional requirements may apply by the Educational, Age or Design category of the competition, in case the corresponding category is indicated in the name of the contest (see the General Competition Rules).

2. Requirements for the Robot

The robot must meet the following requirements:

- length - not more than 250 mm;
- width - not more than 250 mm;
- height - not more than 250 mm;
- weight - not limited.

The robot must not violate these requirements after the start of the race.

The robot must be absolutely autonomous; remote control in any form is prohibited.
The programs run by the robot must be written by the participant(s) only.

Robots must be assembled from individual parts. Pre-built robots and/ or robots with manufacturer pre-installed motion programs, are not eligible for competition.

The design of the robot must ensure the actuating of the «start-finish» system.

The tires and other components of the robot (when off) in contact with the ground must not be capable of lifting and holding an 80 g/m2 A4 sheet for more than 2 seconds.
The robot must have a start and stop button or a remote control that allows to start/stop the robot remotely. Using a smartphone or computer/laptop for this purpose is prohibited.

3. Specifications of the Field

The field is a flat rectangular white surface made of no particular material with a black line on it. Optionnaly, a one piece banner with a density of 400-500 g/m2.

The starting (finish) line is marked by a dash line perpendicular to the track line. It is two separate strips in the color of the track line, 10 mm wide, 50-75 mm long with a gap between them of half the maximum allowable width of the robot.

The starting (finish) line can be placed on any straight section of the track at least 100 mm from the nearest curve.

The length of the track is 15000+/-5000 mm.

The size of the field and the track design is set by the Organizers of the Event.

Line Specifications:

- width - 15 mm;
- minimum radius of curvature - 0 mm;
- free space - at least 250 mm on both sides;
- the minimum break angle of the track is 90°.

There may be obstacles on the track:

- intersections - perpendicular intersection of lines, at least 100 m from the nearest curvature or obstacle;
- gaps - up to 200 mm in length, not less than 100 m from the nearest curvature or obstacle

The robot must overcome obstacles in a forward direction.

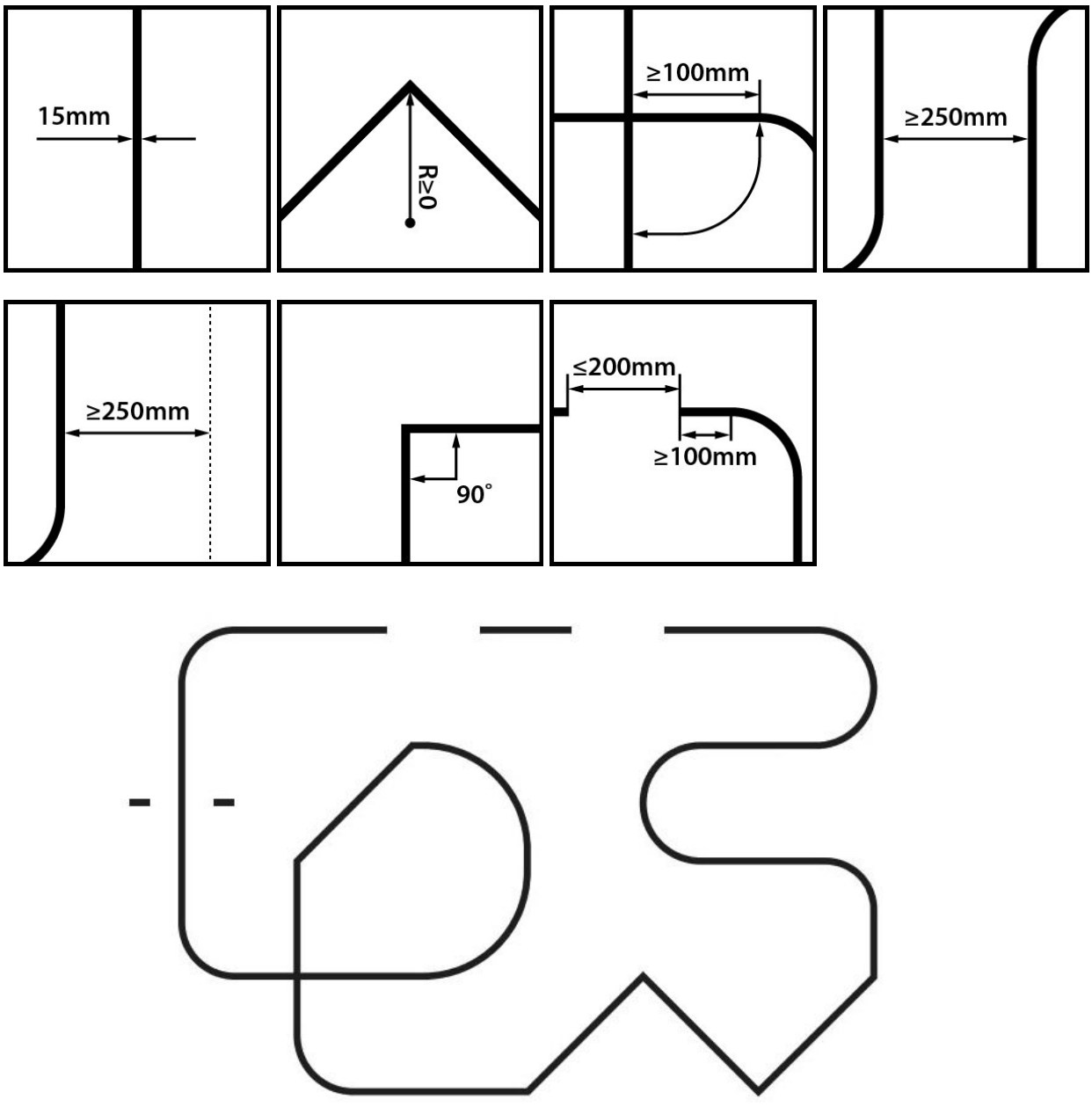

Figure 1. Field and elements examples

4. Contest procedure

Robots are given 2 minutes to complete the task.

At the discretion of the Officials, time is fixed by the "start-finish" system or by the judge using a stopwatch. The fixed time is final and cannot be reviewed.

The attempt stops if the time allotted for the run is over.

The run time is counted from the moment the robot crosses the starting line to the moment the robot crosses the finish line.

The Contest consists of two rounds: qualification and final.

The final round may not be held by decision of the Organizing Committee depending on the status of the competition, its duration and the number of participants.

4.1 Qualification Round

Qualification runs are carried out simultaneously at two fields.

A field for each robot is determined by the Judge by the draw method.

If absent from all qualifying runs, the participant's robot is disqualified and does not participate in the final round of the Competition.

A run with a minimum time counts for qualification.

4.2 Final Round

Teams with the best qualification round time proceed to the final round. The number of participants who reached the final round is determined by the Organizers on the day of the Competition.

Participants are paired on the «best vs. worst» principle according to the ranked list of finalists.

One match consists of several runs.

A field for the first run of each robot is determined by the Judge by the draw method. For each subsequent run the robots change fields.

At the Judge’s command, the robot must start moving within 3 seconds, otherwise it loses the run and one point goes to its opponent. If the robot crosses the starting line before the Judge's command, it loses the run and one point goes to its opponent.

The robot that finishes and shows the best time of the run, or which is closer to the finish line when the run time expired or when both robots lost the line, wins this run and gets 1 point.

The robot that scored 2 points wins the match, unless otherwise specified by the Organizers.

In order to resolve technical faults, the Judge may give the team a technical break for the duration of the run of the next pair of robots (if possible) or a five-minute technical break. During the final round each team may be given a technical break only once.

5. Disqualification

The attempt is disqualified if:

- the robot is not autonomous (the robot is under an external control);
- the participant touched the robot or the field during the run;

- the robot did not complete the task in a specified time;
- the robot has left the line (the robot projection is not above the line).

6. Scoring

The points are calculated in the final round according to the rules described in clause 4.2.

7. Procedure for Determining the Winner

The winner of the competition is the team that took the first place in the final round.

In case of absence of the final stage, the winner will be the team whose robot has spent the minimum time for covering a distance.