

Relay Race RoboFinist competition rules

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1. General Provisions

The run is held by each team independently. One team plays two robots.

1.1. Task Description

During the race two robots of the same team must drive one after the other (first one robot drives a full lap, then the other robot does) the maximum number of laps with a relay baton passing it every time in the exchange area.

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 is 2 or less (the number of coaches/team managers is not limited)
- the oldest member of the team is 15 years old or less in the year of the competition.

2. Requirements for the Robot

The robot must be fully autonomous.

The robot must have mechanisms to pass the relay baton.

Requirements for the robot at the start:

- length not more than 300 mm;
- width not more than 300 mm;
- height not limited;
- weight not limited.

After the start, the robot's dimensions may vary, but must not exceed:

- length not more than 500 mm;
- width not more than 500 mm.



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 only.

Robots must be assembled from individual parts. Pre-built robots, including but not limited to Polulu 3pi, SumoBot by Parallax, Sumovor by Solarbotics, and/ or having manufacturer pre-installed motion programs, are not eligible for competition.

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.

3. Specifications of the field

The field is a flat rectangular white surface made of no particular material with a black line on it.

Line Specifications:

- width 50 mm;
- minimum radius of curvature 300 mm.

The exchange area is limited by 300 mm long starting and finish lines oriented perpendicularly to the track line and symmetrical in relation to it (see Fig. 1); the shape of the line section inside the exchange area is rectilineal:

- the distance between the starting and finish lines is 600 mm in the light;
- the thickness of the lines is 30 mm;
- the lines are in black.

Obstacles placed on the track:

- Slide:
- width (b) 300 mm;
- length (l) 300 mm;
- height (h) 40 mm.
- Curb:
- quantity 2;
- the distance between (in the light) 50 mm;
- the thickness from 5 to 10 mm.

Obstacles are fixed on straight sections of the track no closer than 300 mm from the beginning of the curvature of the line.

The trajectory of the track line may vary at the discretion of the Organizers.





Figure 1. Field example

A white cylinder is used as a relay baton:

- the base diameter 60+/-5 mm;
- height 120+/-20 mm;
- material wood, plastic and/or thick paper;
- weight 75+/-25 g.

4. Contest Procedure

On the day of the competition, the Organizers may change the design of the field, as well as the arrangement and the number of elements.

The number of attempts is determined by the Organizers on the day of the competition.

Robots are given 3 minutes to complete the task.

Before the start of the race, both robots are placed in the exchange area along the line one after the other. The Operator places the baton vertically on the base at the intersection of the track line and the starting (or finish) line.



After starting, the robot must capture the baton, drive a full lap along the track and pass the baton to another robot in the exchange area.

During the baton exchange, the robot must place the baton vertically on a base in the exchange area.

The race ends when the race time expires.

4.1. Restart

The track driving is interrupted, the time does not stop, the robots return to their original position in the exchange area and restart in the following cases:

- the robot lost the baton the robot lost contact with the baton outside the exchange area;
- the Operator touched the robot or the baton while the robots were moving;
- the robot left the line (the projection of the robot is not above the track line).

An additional launch is counted at the time of the restart condition, regardless of the success of the subsequent launch of the robots.

When a restart occurs during the first baton exchange, the time of the first baton exchange is reset.

5. Disqualification

In the following cases the robot will be disqualified:

• the robot is non-autonomous (external control of the robot).

6. Scoring

The team is scored a number of points equal to the arithmetic mean of the number of baton exchanges: the total number of baton exchanges made during the race divided by the number of starts, taking into account the first one.

The exchange is considered to have been performed if the actions are performed in the specified sequence:

- holding the baton, the first robot completely left the exchange area to the track;
- following the line of the track the robot made a full lap;
- passed the baton to the second robot;
- holding the baton, the second robot completely left the exchange area to the track.

The attempt with the highest score is counted. If the points are equal, the attempt with the minimum time of the first-performed baton exchange is counted.



7. Procedure for Determining the Winner

The winner is the team with the highest score.

If the points are equal, the team with the minimum time of the first-performed baton exchange gets the advantage.