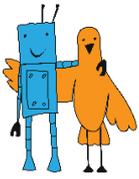## «*RELAY RACE*»
CONTEST RULES

Version 3.0 dated 20 July, 2017

Contents

1. General provisions

1.1. Task Description

Two robots from each team participate in the relay race. During the race two robots of the same team shall drive one after another the maximum number of laps with a relay baton passing it every time in the exchange area. Duration of the race is five minutes.

2. Field, Line and Relay Baton Specifications

The field is a flat surface of a white material with a black line on it indicating the trajectory.

Colour of the field is white.

Principal line:

colour is black;

width is 50 mm;

minimum curvature radius is 30 mm.

Line restricting the exchange area:
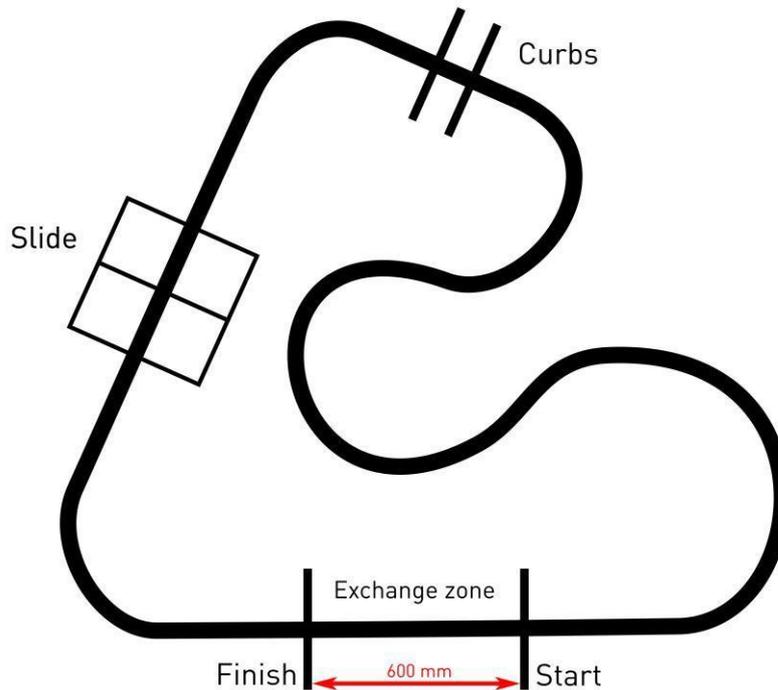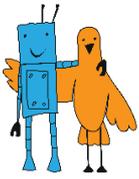
colour is black;

width is 30 mm.

Exchange area:

length is 600 mm;

width is 300 mm.

See the Fig. 1 for a sample of the field. Real field may differ from that presented in the figure.

There may be some obstacles on the line, at the discretion of the Organizers.

Fig. 1. Field sample

A white cylinder is used as a relay baton:
diameter is 60-65 mm;
height is 100-135 mm;
material is wood or paper;
weight is up to 75 g.

3. Robot Specifications

The robot must be fully autonomous.
The robot shall have mechanisms to pass the relay baton.
When starting, robot dimensions shall be:
length: no more than 30 cm;
width: no more than 30 cm max;
height: not limited;
weight: no more than 3 kg.
During the movement the robot can increase its size to 50×50 cm.

4. Procedure of the Competition

At the start both the robots should be in the exchange area.
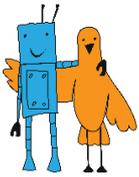
When starting, the relay baton should be outside the line limiting the exchange area in front of the robot which starts to move along the black line first.

After starting up the robot shall drive along the specified black line and when got back to the exchange area pass the relay baton to the next robot.

Relay baton passing is permitted only in the exchange area. During the exchange the baton should touch the surface of the field.

In the exchange area the relay baton may stay as long as needed within the allotted time.

The robot which passed the relay baton shall stay in the exchange area.

Relay baton losing can occur only outside the exchange area.

Relay baton is considered to be lost if no part of the robot touches the relay baton for more than 5 seconds and the relay baton is outside the robot's contour.

If the relay baton is lost the robots must be restarted on the referee's instruction.

In the following cases the race terminates and if the time of attempt is not expired the new race begins, the robots are restarted:

if the robot has lost the relay baton;

if the robot has left the exchange area without the baton;

if the operator has touched the robot body or the relay baton;

if any robot has lost the line for more than 5 seconds;

if the robot which passed the relay baton leaves the exchange area following the other robot which received the relay baton.

4.1. Ineligibility Conditions

In the following cases the robot will be disqualified:
the robot is non-autonomous (the human is in control of the robot).

# 5. Procedure to Determine the Winner

The team gets one point per each full lap correctly finished by the robots with the relay baton.

The lap is considered to be finished correctly if one robot crosses the starting line with the relay baton, then follows the principal line and crosses the finish line, passes the relay baton to another robot into the exchange area and the second robot with the relay baton crosses the starting line.

If there were several restarts during the attempt only one start with the maximum number of points counts.

In case there were several attempts, each of them is counted separately and the attempt with the maximum points counts.

With an equal number of points at two robots a number of the successful start is counted. If this number is also the same the time of the first successfully finished lap is counted from this attempt.
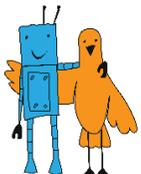
6. Revision History

№	Doc. No.	Date	Note	Previous Version	Update Version
1	2	3	4	5	6
1.	2.1		Paragraph added	-	3.3.7.
2.	2.2		Paragraph changed	3.2.2	
3.	2.3		Paragraph changed	4.1.5.	
4.	3.0		Entire text chaged	Based on version 2.3	