



## «CORRIDOR RALLY» CONTEST RULES

*Version 4.0 dated July 20, 2017.*

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## 1. General Provisions

### 1.1. Task Description

The robot must cover a distance on the assigned trajectory in the best (minimum) time. The time of the race is two minutes.

## 2. Field Specifications

The field is a track enclosed with borders from both sides. Track and borders must be light-coloured.

Track width is 2 m max.

Border height is 20 cm min.

It is allowed protrusions and openings with depth of 10 cm max.

It is allowed obstacles on the field with height of 5 cm max. and inclination of 35° max.

It is allowed gaps in the joints between borders with width of 7 cm max.

There may be some obstacles on the field . Three lines 10 cm wide are put across the route 2 m before the obstacle to warn that the robot is approaching it. These lines alternate as follows BLACK - WHITE - BLACK.

A sequence of cross stripes with the alternating colors (black and white) is put 1 m from the obstacle to determine the type of the obstacle.

«Stone» obstacle: thin sheet material of max. 5 mm thick, with attached broken stones with sharp corners and elevation drops. The stone layer is 20-30 mm high on the average. The obstacle is max. 1500 mm long along the route. A sequence of three stripes (black - white - black) warns of approaching Stone obstacle.

Stop Line obstacle: a black strip 25 cm wide put across the route. The robot is fully to stop at this line and then continue to move. When stopped, no projection of any parts of the robot should extend beyond the black line limit in the direction of its movement. A sequence of seven stripes warns of approaching Stop Line obstacle (black - white - black - white — black - white - black).

## 3. Robot Specifications

The following requirements apply to robots:

width is 50 cm max;

length is 50 cm max;

height is 50 cm max;

weight is 10 kg max.

Robot shall be fully autonomous.



In rally four-wheel cars take part with rear- or front-wheel drive and with steering front wheel. Steering wheels shall not be installed on the same axis. The robot must turn by rotating steering wheels.

In order to minimize any damage, a protective bumper is put at the front of the robot by all means min. 1 cm thick of PU foam, foam propylene or any other shock-absorbing soft material (e.g. a plumbing insulation of the outer diameter of pipes).

## 4. Procedure of the Competition

Depending on the total number of competitors the competitions are conducted according to the Olympic system or competitors compete with each other.

Competitions are conducted in two stages:

the first stage – qualification;

the second stage – paired heat.

At the first stage it is evaluated the robot capability to execute task. Robot shall ride past the track according to these Rules.

The robots fulfilled the finish terms are allowed to take part in the second stage.

At the second stage robots start in pairs.

Position is pre-defined by drawing procedure. Meant from what side of the opponent's robot the competitor will start.

During the start, all parts of a robot must be located behind the start line.

The task is ended upon command of a referee after a robot crosses the finish line.

By the referee decision the attempt can be finished in advance.

Task execution can be interrupted and the time can be stopped in the following situations:

if penalty points number exceeds two;

if the finish conditions are fulfilled.

### 4.1. Penalty Scoring

One penalty point is charged every time the robot touches the banking boards of the route with its body.

If the robot moves in contact with the wall, one penalty point is charged for each meter of such movement.

If the robot does not stop at such special obstacle as Stop Line when the projection of its body on the field crosses Stop Line, 20 penalty seconds are charged to the robot.

Ten penalty seconds are charged to the robot if it stops at such special obstacle as Stop Line so that any part of the projection of its body on the field goes beyond the limit of Stop Line in the direction in which the robot moves.

### 4.2. Ineligibility Conditions

In the following cases the robot will be disqualified:



# РОБОФИНИСТ

the robot is non-autonomous (the human is in control of the robot);  
during the attempt the participant has touched the field or the robot;

## 5. Procedure to Determine the Winner

The robot wins when its total time of attempt including penalty time turns out to be minimum at the time the both robots have finished the race.

If no robot reaches the finish during the allotted time, the winner is the robot that locates closer to the finish area.



## 6. Revision History

<b>№</b>	<b>Doc. No.</b>	<b>Date</b>	<b>Note</b>	<b>Previous version</b>	<b>Update version</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
1.	3.1		Paragraph changed	1.2.2.	
2.			Paragraph added	-	2.1.7.
3.	4.0	20.07.2017	Entire text changed	Based on version 3.1	
4.					
5.					
6.					
7.					
8.					
9.					
10.					