"LABYRINTH: THERE AND BACK" CONTEST RULES

*Version **1.3** dated September 13, 2015*
Based on the robofinist.ru and robolymp.ru versions

1   Robot

1.1   The maximal width of the robot is 25 cm, its length is 25 cm.

1.2   During the movement the robot may not exceed the specified dimensions.

2   Field

2.1   Labyrinth field has a size of 150x330 cm and is divided into cells with 30 ± 2 cm (see fig. 1). Wall with height of 10 cm and a thickness of 17 ± 1 mm can be installed between the cells. Walls are also installed around the perimeter of the labyrinth. There can be gaps and overhangs up to 5 mm between the walls.

2.2   Start area and finish area are limited with black line. Cell with the start area is marked in red, the cell with the finish area is marked in green.

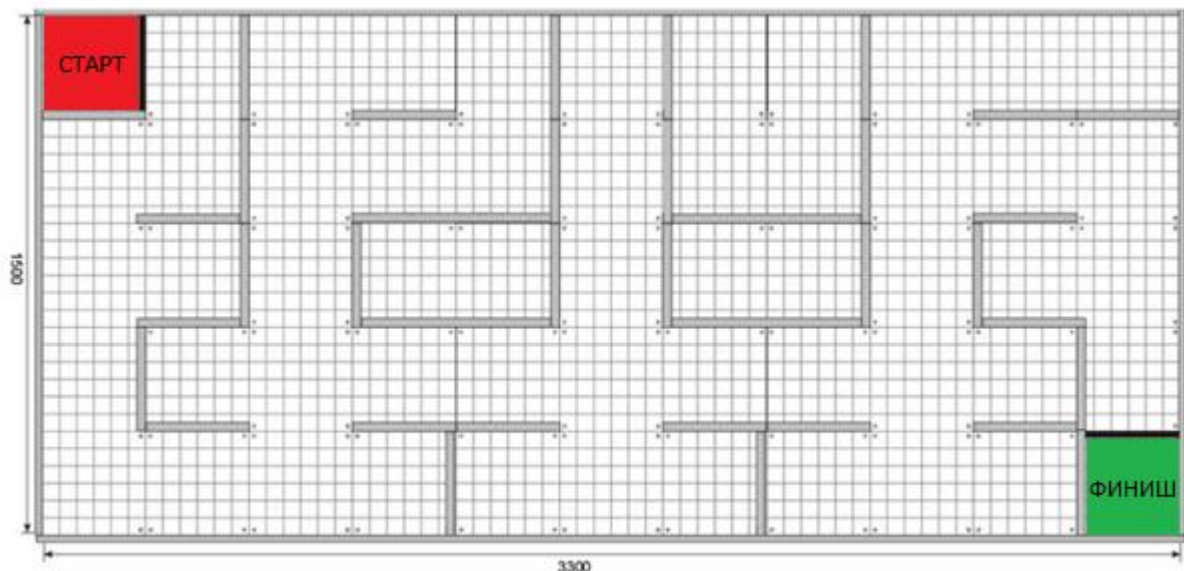2.3   The location of the wall changes just before the attempt.

Fig. 1. Field scheme

3   Competition rules

3.1   Each participant attempt lasts 10 minutes. During this time the participants robot participant may make an unlimited number of heats. During the attempt the partic-

ipant cannot change robot design and program, but the robot can make heats under different programs.

3.2 During the heats the robot need to get from start to finish and back from the finish line to the start area.

3.3 If the robot does not leave the cell within 30 seconds the heats is stopped.

3.4 Scoring is performed as follows.

3.4.1 It is determined the number of cells at the field that make up the shortest route from start to finish (hereinafter referred to as the length of the shortest route).

3.4.2 Robot motion at the field consists of two consecutive stages - route from start to finish (hereinafter referred to as the route "forth") and route from finish to start (hereinafter referred to as the route "back"). Route "back" begins after the robot was in the finish cell.

3.4.3 For completing of each route a robot gets points, which in sum equals the result attempt.

3.4.4 If at the end of the heats the robot passed the route it would get points equal to the length of the shortest route, multiplied by 10.

3.4.5 If at the end of the heats the robot did not completely pass the route, then the number of cells is calculated that make up the shortest route from the cell of the robot location to the cell of the end of the route. The result is subtracted from the length of the shortest route and multiplied by 10. The resulting number is the number of points that robot gets for completing the route.

3.4.6 If the robot didn't start to pass the route, then it does not get points.

3.5 Each participant is given one attempt. The best heats result of this attempt is counted.

3.6 If two or more participants score the same count of points in their best heat, result of participant who took the minimal time for making heat is considered as the best. If participants take the same time to make their best heat, results of the next heats are compared to determine the winner.

4 History of rules modifications

4.1 Par. 3.4.7 removed; par. 3.6 added in version 1.3 of the present rules.

4.2 The section 3 is changed in version 1.2 of the present rules. Attempts at version 1.1 replaced by heats, which are merged into one attempt.

4.3 The paragraph 3.1 is changed in version 1.1 of the present rules. The maximum time for heats is changed from 120 to 240 seconds.

4.4 Version 1.0 of this rules is established at April 30, 2015 and is based on the version 2.0 of the "Labyrinth" competition rules from the robofinist.ru site. Paragraphs relating to the return of the robot are developed on the basis of the version of the rules from the robolymp.ru site.