



REGULATIONS OF THE COMPETITION

"GRAND JOURNEY"

Age of participants: 12-15 years.

Team: 1-2 people.

Robots: autonomous robots.

Equipment used: no restrictions.

Programming language: no restrictions.

Description of the task: In this test, the robot must, within the framework of one run, sequentially pass through polygons with different tasks: follow a line with a moving obstacle, follow an inverse line, overcome a maze, push pins out of the ring.

1. Requirements for robots

- 1.1. The use of any parts, including those made by yourself, is permitted in the design of the robot.
- 1.2. The maximum width of the robot is 250 mm, length – 250 mm, height – 250 mm at the time of the robot's start.
- 1.3. During the competition, robots may change size after launch.
- 1.4 The robot must be autonomous.
- 1.5. The robot must be brought assembled on the day of the competition.
- 1.6. The robot body must not damage the surface of the competition area in any way, otherwise the team may be removed from the competition and disqualified.

2. Requirements for the landfill

- 2.1. The category polygon consists of three sequentially placed polygons (see Fig. 1).
- 2.2. Each of the three polygons has dimensions of 1200×1200 mm.
- 2.3. The colors of the lines on the polygons are black and white. The width of the lines is 25 mm (except for the Kegelring ring).
2. 4. Starting pads (green) and finishing pads (red) – 30x30 cm squares, within which the robot must be located entirely at the start and finish.

3.7. The robot must consistently complete tasks on all three polygons without the participants interfering in the process.

3.7.1. The task of the "Follow the line" polygon: the robot must go along the line drawn on the polygon from the start zone to the finish zone (going around the obstacle).

3.7.2. Task of the Labyrinth polygon: the robot must go inside the labyrinth from the start zone to the finish zone.

3.7.3. Task of the "Kegelring" polygon: the robot must move from the start zone to the finish zone. During the task, the robot must push all the pins out of the ring.

3.8. If the task of the first and/or second polygon is not completed, the race is interrupted, and the participant, with the permission of the judge, manually places the robot in the starting zone of the next polygon. The countdown is not interrupted.

3.9. The end of an attempt is recorded in one of the following cases:

3.9.1. The robot stopped in the finish area of the last training ground (Kegelring).

3.9.2. After 3 minutes from the start of the attempt.

3.9.3. The robot left the black line with its projection while performing the task on the "Follow the line" test site (except for going around an obstacle).

3.9.4. The participant prematurely interrupted the attempt by saying the word "Stop".

3.9.5. The participant touched the robot.

3.9.6. If the robot is unable to continue the competition and/or the robot loses motor activity for 20 seconds (determined by the judge).

3.9.7. The robot left the competition site with its projection.

3.10. The competition is held in two runs. Each team makes one attempt in two runs. After the first attempt, the team quarantines the robot until all participants have completed the test. 30 minutes are given to prepare for the second attempt.

4. Counting points and determining winners

4.1. The attempt with the maximum number of points is counted.

4.2. The team with the highest number of points will be declared the winner.

4.3. In case of a tie in points in the best attempt, the winner is determined by the highest points in the less successful attempt.

4.4. If teams score the same number of points in two attempts, the team that spends the least time on completing the task is declared the winner.

4.5. Accrual of points:

Criterion	Points
The robot has completely left the starting area of the "Follow the Line" test site with its projection	4 p.
The robot, moving along the line, discovered an obstacle, drove around it and then continued moving along the line	10 p.
The robot, moving along the line, overcame the inverse trajectory zone (black rectangle with a white trajectory)	10 p.
The robot touches the finish area of the "Follow the Line" training ground.	6 p.
The robot was able to overcome (visit new) three sections of the Labyrinth training ground	6 p.
The robot was able to overcome (visit new) five sections of the Labyrinth training ground	8 p.
The robot touches the finish area of the Labyrinth training ground	16 p.
The robot has pushed the pin out of the ring. The pin is completely outside the ring and does not touch the black line that borders the ring (points are awarded upon completion of the attempt)	3 p. x 8
The robot touches the finish area of the Kegelling training ground	6 p.
The robot visited all three testing grounds without any intervention from the participants	10 p.
Total:	100 p.

Recommendations for judges

1. Time is recorded in the polygon area using a timer.
2. If the robot's projection leaves the competition area, the judge must stop the attempt.
3. If the attempt was interrupted by agreement with the judge or by the judge himself, the points scored by the team are recorded in the protocol and the maximum time of 3 minutes is recorded.

Recommendations for organizers

1. Each team is provided with a work space (table, 2 chairs).
2. Team leaders are not allowed to participate in the competition.

Note: When developing the regulations, materials from robofinist.ru were used