robotex International

TALTECH FOLKRACE
RULES

COORDINATOR FOR THIS COMPETITION

Sander Laas
Sander.laas@robotex.ee

Contents

1 Introduction

The aim of the competition is to simulate the immersive nature of the rallycross. Up to five robots are allowed to access the track at the same time. An idea of the competition can be seen from this VIDEO.

2 The Field

1. The color of the field is not determined.
2. The wall at the edge of the field is white and its height is 12 ± 1 cm.
3. There will be a green and red band (width 10 cm) on the floor of the field to help identify the correct direction (correct direction identified with color green). Color codes: (CMYK: 100, 0, 100, 0 – RGB: 0, 255, 0) and red (CMYK: 0, 100, 100, 0 – RGB: 255, 0 , 0).
4. The trajectory of the track is curved and closed.
5. The width of the track varies between 100–120 cm.
6. The field may have simple obstacles, such as hills, holes, loose material. Additionally, there may be hindering walls, which are installed in a way that a robot who moves along the edges of the wall is not capable to pass the track.
7. The tracks can be on two levels. This means, that a part of a track may cross another via a bridge, etc.

3 The Robot

1. The robot must be autonomous.
2. In the starting position, the maximum dimensions of the robot are 20 x 15 cm (length x width), an unlimited height and a mass of up to 1 kg.
3. The robot is not allowed:
    - to change its dimensions;
    - to damage the field and endanger the spectators;
    - to emit gases, liquids or dust;
    - to actively ram other robots;
    - to use other robots for movement.

4. The robot must have a start and stop button or a remote control (recommended).

4 The Competition

1. The competition is held in two age categories. The first one is for competitors aged 1-15 and the second category is for competitors aged 16 and older. If the team has at least one member that is aged 16 and older they only qualify for the older age category.
2. If the referee is suspicious whether a team in the younger age category has built and programmed their robot themselves (for example if the referee suspects that a teacher/parent has built/coded the robot), the referee may ask the team to give an overview of the robot build and code. If it turns out the team is just competing with a robot that has been built by another person the referee may disqualify the team or if possible then just bump them to the older age category.
3. It is allowed to have up to three members in a team.
4. The winner is the robot who earns the most points.
    - Each correct completion of the lap gives one point.
    - A lap is considered completed once the robot crosses the starting line, depending on the movement direction, with the correct direction of movement being determined immediately before the particular race.
5. The points can be earned within three minutes.
6. At the beginning of the competition, the robots are placed at the starting line.
7. The starting positions and the sub-group of the robots will be drawn by lots.
8. The start signal will be given once the competitors are ready.
9. The robot is allowed to begin its movement five seconds after the start signal.
10. If the robot starts to move before the appointed time, it will be considered as a false start.
11. The robot who makes a false start, receives a warning, if it happens for the second time, the robot will be disqualified.
12. The robot that has completed the race or made a false start will be removed from the field by the representative of the team by the order of the referee.
13. If the competition is stopped (for example, all robots are still for 15 seconds), the

referee has the right to give an order to the representative of the team to remove the robot that is preventing the movement.

14. The robot who prevents movement is installed in the same place after 10 seconds.
15. If the robot stumbles during the competition and does not prevent other robots from moving, then the representative of the team has the right to decide, whether the robot:
    - is left down in the same place;
    - is returned to the starting line.
16. If a robot is stuck, the team representative can place the robot back on the starting line without disrupting other robots or participants.
17. If the robot is placed on the starting line during the race for whatever reason, one point will be subtracted from the points earned so far.
18. Upon violation of the rules, the referee may disqualify and remove the robot from the track.
19. The sub-groups may have up to five members.
20. There are three races in each sub-group.
21. At the end of the sub-group, the robots will be divided into new sub-groups based on their place.
22. If the number of the points is equal at the end of the races, the ranking will be announced on the basis of an additional race.
23. The winner of the additional race is the robot who first manages to cover one lap in the designated direction. An additional race is only carried out if the robots have earned an equal amount of points. The starting positions of the additional race will be drawn by lots.
24. Only one team member may be closer to the track than two metres and he or she is considered the representative of the team.

5 Obstacles

5.1 Bridge

Figure 1: Bridge

5.2 Hole

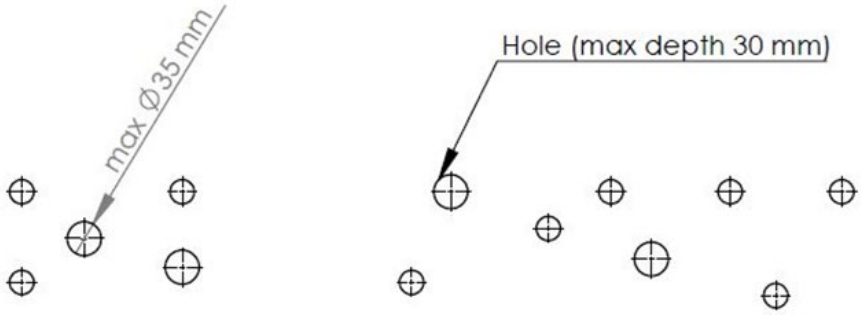

Figure 2: Hole

5.3 Loose material (rubber pieces etc.)

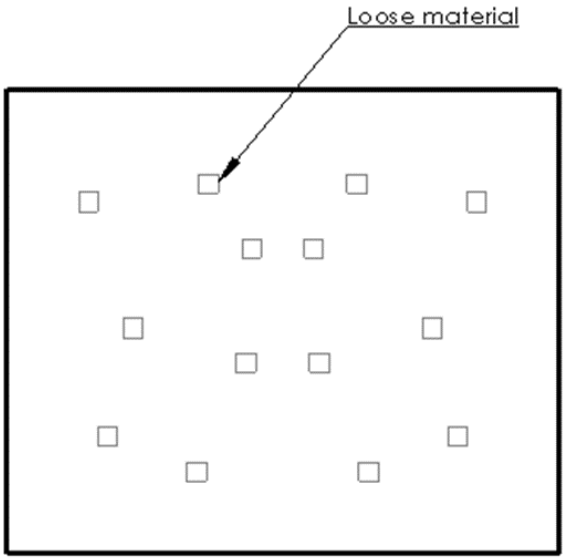

Figure 3: Loose material

5.4 Hindering wall

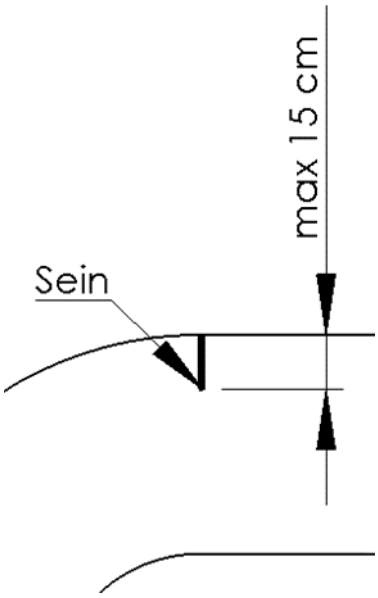

Figure 4: Hindering wall (top view)

5.5 Sponge and unevenness

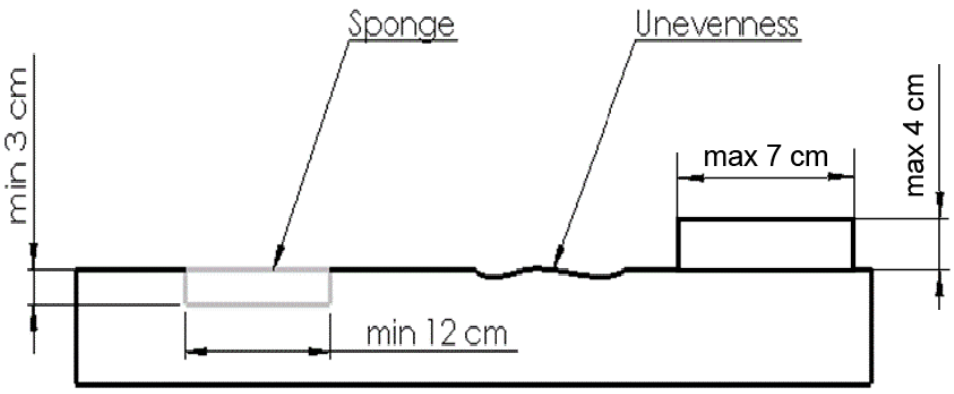

Figure 5: Sponge and unevenness

5.6 Post

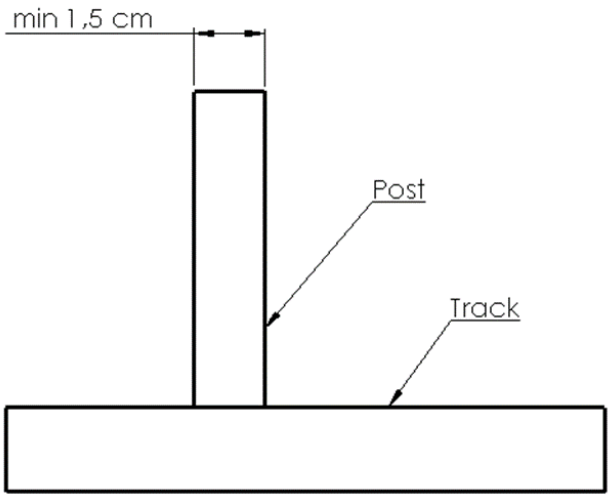

Figure 6: Post (side view)

6 Ogranisation

1. The robot must be registered before the competition. The registration process includes technical inspection of the robot, marking the robot with a number sticker, and the order number will be drawn.
2. Technical inspection must be completed by the time that is specified by the organisers.
3. For the better counting of laps, every team is given a coloured flag that has to be attached to the robot in a visible way.
4. The current score is displayed next to the track.
5. All questions and problems arising during the competition are solved by the referee.
6. Protests can be submitted by the team member who was first registered.
7. The final decision regarding any appeals is made by the referee and/or the organizers. All complaints must be reported to the referee during the match or right after the ending of the match. Complaints filed later will not be accepted. The final decision regarding any disputes or inconsistencies, is always made by the referee.

NB! The arena has at parts uneven lighting and infrared noise, which may disrupt the work of sensors during the competition. For this reason, the organizers recommend using covers or blinds for sensors, testing the sensors under intense lighting conditions or even under direct sunlight to imitate the lighting conditions of the competition arena.

7 Revision history

- 23.04.16 Paragraph 4 clause 15. The possibility of placing the robot back on the starting line has been added.
- 23.04.16 Paragraph 4 clause 16. Changes in the penalty for placing the robot back on the starting line.
- 27.04.16 Paragraph 6 clause 3. The requirement of marking the robot has been added.
- 27.04.16 Paragraph 6 clause 4. Changes in the method of keeping score.
- 07.08.16 Paragraph 3 clause 2. Specifications in the robot starting position dimensions, requirements for placing in the measuring box changed.
- 25.09.16 Paragraph 5 clause 1. Changes in the shape of the bridge.
- 28.09.16 Paragraph 2 clause 6. Construction of the track specified.
- 28.06.17 Paragraph 4 clauses 11, 12. Specified who removes the robot from the field and under what conditions.
- 28.06.17 Paragraph 6 clause 7. Specification about the complaints.
- 22.01.19 Paragraph 2 clause 1. Specification added about the color of the field.
- 22.01.19 Paragraph 4 clause 1. Specification about age categories.
- 04.03.19 Paragraph 5 clause 5.5. New image added.
- 14.07.21 Paragraph 2 clause 1. Removed field color specifications.
- 14.07.21 Paragraph 4 clause 1. Updated specification about categories.
- 14.07.21 Paragraph 4 clause 2. Added a new clause.
- 06.09.23 Removed rule „Each incorrect completion of the lap gives a minus point.“
- 06.09.23 Paragraph 2 clause 3. Added green and red band to identify correct direction.