TECH ROCKS HERE!

2020

DNIPRO

BEST ROBO FEST

# ROBO RACE

## BLACK LINE RACE

## SPECIFICATION

# 1 Race description

Team members prepare an autonomous robot that can race down the track as fast as possible, following the black line.

# 2 Competition / participant categories

| Category | Description | Dimensions, weight |
|---|---|---|
| **RoboRace S** | The contestant robot is equipped one color sensor (light filter or optocoupler) | 25 x 25 x 25 cm, 1 control panel, 800 g |
| **RoboRace L** | The contestant robot is equipped 2 or more motion sensors | All others |

Depending on the number of competitors, teams may be divided into additional categories

## 3 Team

- Teams are comprised of 1–3 participants and a coach. The age of team members is unlimited. Each team is represented by one robot.

## 4 Determining the winner

- Each team competes for points. Only the fastest time for each team is used to determine winners.
- The winner will be the team that travels the distance of the track fastest, thus receiving the most points.

## 5 Prizes available

- All participants will be awarded commemorative participation certificates.
- The winning teams will receive certificates, trophies, and/or other prizes or gifts from the Organizers and Sponsors of BestRoboFest.

# 6 Technical requirements

### 6.1. All robots

- must be autonomous;
- may use any base element;
- pass a technical inspection prior to the competition;
- Display the unique registration number at all times in order to be identified by the referees and spectators.

### 6.2. Robot designs must not allow the following

- parts that may break, scratch or damage the arena;
- any flammable devices or components.

### 6.3. The requirements and technical aspects of the field are

- field material shall be matte banner fabric;
- field color shall be white, line color shall be black;
- the black line shall be 2 cm wide;
- the starting and the finish area of the black line are clearly marked by a transverse line 2 cm thick and 4 cm long;

- the black line must not approach the edges of the track within 15 cm;
- the minimum curve radius is to be not less than 7.5 cm;
- the black line has no sharp corners.

## 7 Competition procedure

- Competitions are held in 2 rounds. Each team has 2 attempts in each round. The first round is a clockwise race around the track. All participants take part in the first round before the second round starts. The second round is a counterclockwise race around the track.
- If the robot makes a successful attempt on the first try, the team immediately moves on to the second round. If the robot could not complete the attempt, the team is given a second attempt to complete round one. In the second round, all teams traverse the track in the opposite direction. If the robot could not complete the attempt then the team is given a second attempt.
- A team's fastest results (time taken to complete the attempt) of both rounds are summed together and the participants are assigned ranks: the faster the times, the higher the placing. If more than one team shares the same combined time, the team who used fewer attempts will rank higher in the placings.
- Robots are only placed in the ring on the direction of the judge.
- After the robot is placed at the starting position, the judge will confirm that the operator is ready. If the operator affirms they are ready, then the "Start" command is announced. The participant then starts the robot. During the competition, team members are not allowed to be in the ring area and/or touch the robots.
- The race time is counted from the moment the robot starts to move until the robot crosses the exit line. Crossing the line means any part of the robot touches or crosses the line.

- The robot must follow the black line. Any robot that deviates from the line must be returned no further along than at the point where it left, or at a previous point.
- Participants may make design changes to the robot between rounds (repair, adjustment, battery replacement, program selection, etc.), provided the changes do not oppose the robot design requirements and do not violate the rules of the competition.
- The time allowed for the operator to carry out such changes is determined by the judge but cannot exceed 3 minutes.
- If during the round any electrical part of the robot is not fixed rigidly (torn off or hanging on the wires), then this robot is considered to forfeit the round.
- If a result is in question, the judge may order a retry.

**7.1. Participants may be disqualified in the following cases**

- if the robot deviates from the line for more than 5 seconds and/or loses motion;
- if the robot pollutes or damages the competition field.

## 8 Safety precautions

- Participants are responsible for their own actions during the events/activities of the Festival and for the safety of their robots and any accidents caused by them/their own actions.
- The organizers/Organizing Committee of the Festival (competition) are not responsible for violations of safety rules and/or any damage caused by such violations.

*The Organizing Committee of the Festival may make changes to the Rules no later than 2 weeks before the competition. In this case, the Organizing Committee is obligated to inform the participants no later than 10 days prior to the competition.*