



ROBO TRACER

Junior Category

RULES & REGULATIONS

PETROSAINS RBTX CHALLENGE 2019

Robo-Tracer Junior Level Contest Rules & Regulations

1. The Challenge

This category is open to contestants aged 6 to 12 years old only.

The challenge is to build a robot that can move on a given line (black line on white background) and pass through all designated checkpoints on the COMPETITION FIELD. The robot with the most points and fastest time will be declared as the winner.

1.1. General Rules - (Phases for Qualifying)

1.1.1. Phases of Competition

The competition is divided into three phases as per the following:

- i. Construction and Programming
- ii. Quarantine
- iii. Competition Run

The minimum Construction and Programming time is ONE hour. It can be extended depending on track complexity and subjected to committee discretion.

Upon the completion of Construction and Programming during the allocated time, all robots will be placed in the Quarantine area by the contestants. No addition, removal, changes of hardware or software is allowed during this period.

In the Competition Run, contestants will take their robots from the Quarantine Area and place it on the track.

1.1.2. Competition Run and Checkpoints

Each team will have two competition runs.

Each competition run will have its own Construction and Programming and Quarantine phases.

The competition run should not last more than three minutes (labelled as RUNTIME).

If a robot has yet to pass through all checkpoints once the RUNTIME is over, a BUZZER will sound and the team will be asked to remove the robot from the COMPETITION FIELD.

The checkpoint positions will be revealed on the day of the competition and may change between competition runs.

1.1.3. Race clock

As and when the whole body of the robot have passed the START line, the referee will start the timer to begin RACETIME.

The time that the robot takes to pass each checkpoint will be recorded.

When any part of the robot reaches the FINISH line, the referee will stop the timer and the final recorded RACETIME value will be saved.

1.2 Team Members & Mentors

1.2.1. All team members except for the team mentor must be between **6 to 12 years of age**.
(Maximum of two team members)

1.2.2. Only one mentor in the team is allowed as a technical advisor.

1.2.3. The technical advisor is not allowed to touch or repair the robot during the phases of the competition (refer to 1.1.1)

1.2.4. The technical advisor should not be involved in the programming of the robot during the phases of the competition (refer to 1.1.1)

1.2.5. In case of any interference by the technical advisor with the robot or referee decisions during the competition, the team will risk disqualification.

2. Competition Field

2.1. Field specifications

2.1.1. Lines to be followed are 18mm to 20mm in width and are black in colour.

2.1.2. Expect all measurements and dimensions to have a 10% tolerance.

2.1.3. The organizing committee will make every possible attempt to ensure that there are no 'bumps' between the tiles although there may be slight deviations in height and width of up to 3mm. Contestants must be prepared to deal with these slight imperfections.

2.1.4. There will be one START line, one FINISH line and 10 checkpoints in the entire field.

2.1.5. The dimensions of the COMPETITION FIELD are as follows:

3.2.5. Contestants should prepare a laptop/computer for this purpose and must carry a fully charged battery in case of a power supply problem at the competition venue.

3.3. Sensors

3.3.1. A maximum of five line sensors are allowed.

3.4. Power Source

3.4.1. The robot must be powered by a power source such as a battery fixed on to the robot.

3.4.2. The robot cannot be powered by a stationary power source connected to the robot by a cord.

3.5. Construction

Any robot kit or building material may be used, as long as the robot fits the above specifications.

4. Game Play

4.1. Construction and Programming Zone

An area inside the competition venue will be designated as the CONSTRUCTION ZONE. No one is allowed inside the construction zone except for the robot handlers and the referees.

4.2. Game Zone

An area around the field will be designated as the GAME ZONE. No one is allowed inside the game zone except for the robot handlers and the referees.

4.3. Start and Restarts

4.2.1. One team member is elected as the robot handler. Only that team member is permitted to handle the robot during the game.

4.2.2. The robot will be placed at the START line and checked by one of the referees.

4.2.3. A robot may restart the run as the handlers deem necessary within the RUNTIME.

The restart can be requested if the robot doesn't follow the line, has stopped halfway or has lost the direction.

4.2.4. At any restart, the robot must be positioned back at the start line.

4.2.5. Adjusting the sensor position on the robot is allowed during the allocated RUNTIME.

- 5.1 Flags will be placed on the track to indicate the checkpoints.
- 5.2 The direction of the pointed arrow will indicate where the robot should pass to collect points.

6. Scoring

- 6.1 One (1) point is given each time the whole body of the robot passes a checkpoint for the first time. No extra point will be given for the robot if it passes the same checkpoint during the round.
- 6.2 The robot is required to pass as many checkpoints as possible without any preferences given on sequence.
- 6.3 RACETIME is the time considered for tracing the route from START and as the robot passes each checkpoint, the time it does that will be recorded.
- 6.4 RACETIME is started by the referee as and when the whole body of the robot have passed the START line.
- 6.5 The final RACETIME is concluded as and when any part of the robot reaches the FINISH line.
- 6.6 The team that reaches the FINISH line with the highest accumulated points will be the winner.
- 6.7 If no team reaches the FINISH line, the team with the highest accumulated points and fastest time of its final checkpoint will be the winner.
- 6.8 If there are 2 teams or more with the same accumulated POINTS, the team with the fastest RACETIME or fastest time of its final checkpoint in the event of not reaching the FINISH line during Competition Run 2 will be at a higher standing, followed by averaging the RACETIME of Competition Run 1 and Run 2.

7. Code of Conduct

7.1. Fair Play

- 7.1.1. Robots that cause deliberate interference with other robots or damage to the field will be disqualified.
- 7.1.2. Contestants that cause deliberate interference with robots or damage to the field will be disqualified.

7.1.3. It is expected that the aim of all teams is to play a fair and clean game.

7.2. Behaviour

7.2.1. Contestants who misbehave may be asked to leave the competition area and risk being disqualified from the contest.

7.2.2. The rules will be enforced at the discretion of the referees, officials, and local law enforcement authorities.

8. Juries

8.1. All decisions about scoring, gameplay and timing are made by the juries. Teams should completely respect their vote and decisions.

8.2. Juries may discuss and announce new rules or decisions pertaining to any issues that are not mentioned in the rules and regulations. Objections will not be entertained.