DEÜ Engineering Faculty

ETE3007 Fundamentals of Robotics

Robot Challenge Spring 2025

16.06.2025 13:00

Operation Manual v1.0

AIM

In this robot challenge, the aim is to develop and apply a mobile robot system for test platform navigation. The navigation starts from start line and completed on the finish line.

The robot challenge platform between the start and finish lines consists of a hill up and down, three wall obstacles on the playground, and a colorized track with red, green, red, blue, red, blue, and green areas in order. Pictures of the platform are given below with checkpoints.
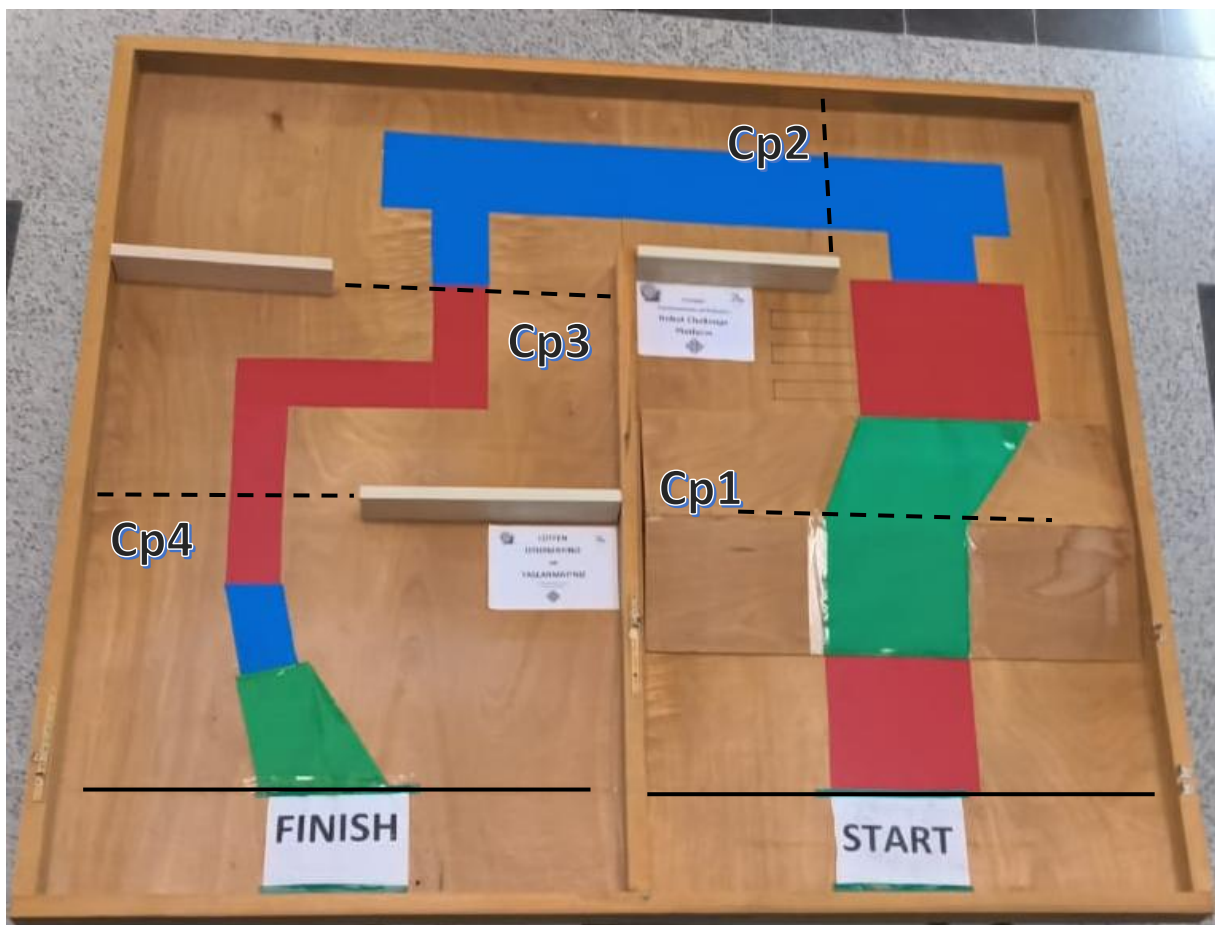
Each team must create own mobile robotic structure in any locomotion type, microprocessor and actuator they choose. and develop autonomous embedded code for traveling the track.

RULES

1. The competition will be 16.06.2025 13:00, but in the morning, the teams may use the platform for final tests
2. Each robot has a proper registered name.
3. No remote control is allowed.
4. All control must be inside of embedded processor on the robot
5. During the competition, Bluetooth, wifi or any other communication tools are forbidden. But, exercise conditions, the teams may use communication tools for diagnostics.
6. Every robot must be examined before the competition by technical committee.
7. The robot will be put just before the start line with reset button pressed by a member of the team. The referee starts timing with start signal. Then reset button released and the robot starts. While the robot passes the finish line, the timer stopped by the referee and announced the score.
8. If the robot does not complete the track, each obstagle or checkpoint passed will be added to scores.
9. If the robot stops or stucks, the team may request restart ones.
10. During the competition, every team has two trials to apply. The team will choose the best one.
11. The final score is calculated by given table below.
12. Each team must prepare a report explaining the robot and the algorithm applied.

SCORE TABLE

Technical inspection	Competing the track	Time bonus	Robot Complexity	Checkpoint 1	Checkpoint 2	Checkpoint 3	Checkpoint 4	Robot Aesthetic
10	20	10	20	10	5	10	10	5
5		8	15					4
		6	10					3
		4	5					2
		2						1