

****DEBI Robotics Challenge 2023: Overview and Rules****

The DEBI Robotics Challenge 2023 is a competition organized by the Digital Egypt Builders Initiative (DEBI) in cooperation with the Egyptian Ministry of Communications and Information Technology. The challenge is sponsored by various organizations and is aimed at advancing robotic software and autonomous capabilities.

****Challenge Description:****

The competition is a one-vs-one match between robots in a predefined playground. The playground is divided into two identical halves, separated by a red line. Each half has three randomly placed balls with random colors, and the objective of each team is to reduce the number of balls in their area by moving them to the opponent's side. The robots must act autonomously without human intervention.

****Rules and Regulations:****

1. The competition will take place on May 13, 2023, at DEBI's campus in Cairo.
2. Each team must consist of 3-5 members, and all team members must be physically present on the competition day.
3. The robots must be fully autonomous and cannot step onto or pass the red line or the playground walls.
4. If a robot crosses the boundaries of its side of the playground, it must start over from the initial position.
5. The match duration is 10 minutes, and if no team wins, the match will resume for another 3 minutes.
6. If the match ends in a draw after 13 minutes, a golden-ball scheme will be followed, where the first team to move a ball to the other side wins.
7. If a robot gets stuck due to a software or mechanical error, its team can manually move it to the initial position to start over.
8. Group members must follow the referee's instructions during the match time without any objection.

****Rewards:****

The winning teams will receive a financial award, as follows:

* First place: 80,000 EGP

* Second place: 60,000 EGP

* Third place: 40,000 EGP

****Eligibility Criteria:****

1. All participants must hold Egyptian nationality.
2. All participants must be registered undergraduate students at any Egyptian university (from a relevant background).
3. Graduates from no more than 5 years are allowed to participate.
4. Each team must select a member to be the representative of the team (Team Leader).
5. Team leaders must register their teams online via the provided link.

****Technical Specifications:****

1. DEBI provides TurtleBot 3 Waffle Pi equipped with OpenMANIPULATOR-X 3 with installed configuration of Ubuntu 20.04 and ROS1 Noetic Ninjemys.
2. Playground dimensions: 420 cm x 300 cm, walls height is 31 cm.
3. Balls: diameter = 5.5 cm, Color = random.

****Contact Information:****

Please send your inquiries to robotics@debi.gov.eg.

****TurtleBot and OpenMANIPULATOR-X Specifications:****

* TurtleBot Specifications: <https://emanual.robotis.com/docs/en/platform/turtlebot3/features/#specifications>

* OpenMANIPULATOR-X Specifications:

https://emanual.robotis.com/docs/en/platform/openmanipulator_x/specification/#specification