

## DEBI Robotics Challenge 2023

DEBI Robotics Challenge 2023 is an annual competition launched by the Egyptian Ministry of Communications and Information Technology, under the Digital Egypt Builders Initiative (DEBI). The challenge is inspired by the GdR TurtleBot Challenge 2018 and aims to advance robotic software and autonomous capabilities. The competition is a physical tournament where robots compete in one-vs-one matches in a predefined playground.

### Competition Details

- \* The playground is divided into two identical halves separated by a red line.
- \* Each half has three randomly placed balls with random colors.
- \* The main mission for each team is to reduce the number of balls in their area by moving them to the opponent's side.
- \* The competition is based on knockout matches, and the winner is determined by the team with fewer balls at the end of each match.
- \* The robot must be fully autonomous, and it cannot step onto or pass the red line or the playground walls.

### Rules and Guidelines

- \* All team members must be physically present on the competition day.
- \* The competition is based on knockout matches, and DEBI reserves the right to change the competition style based on the number of participating teams.
- \* The robot must be fully autonomous, and it cannot touch the red line.
- \* The match duration is 10 minutes, and if no team wins, the match will resume for another 3

minutes.

- \* If the match ends in a draw after the first 13 minutes, a golden-ball scheme will be followed.

## Eligibility Criteria and Teams Formation

- \* All participants must hold Egyptian nationality.

- \* All participants must be registered undergraduate students at any of the Egyptian universities (from a relevant background).

- \* Graduates from no more than 5 years are allowed to participate.

- \* Each team is expected to consist of 3-5 members, and teams with more than five members will not be allowed to participate.

- \* Each team must select a member to be the representative of the team (Team Leader).

## 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

## Technical Specifications

- \* DEBI provides TurtleBot 3 Waffle Pi equipped with OpenMANIPULATOR-X 3 with installed configuration of Ubuntu 20.04 and ROS1 Noetic Ninjemys.

- \* Playground dimensions: 420 cm x 300 cm, walls height is 31 cm.

- \* Balls: diameter = 5.5 cm, Color = random.

## Contacts

\* Please send your inquiries to [robotics@debi.gov.eg](mailto:robotics@debi.gov.eg)

Sponsored by: In Cooperation with:

*	TurtleBot	Specifications:
	<a href="https://emanual.robotis.com/docs/en/platform/turtlebot3/features/#specifications">https://emanual.robotis.com/docs/en/platform/turtlebot3/features/#specifications</a>	
*	OpenMANIPULATOR-X	Specifications:
	<a href="https://emanual.robotis.com/docs/en/platform/openmanipulator_x/specification/#specification">https://emanual.robotis.com/docs/en/platform/openmanipulator_x/specification/#specification</a>	

The summary is saved as a PDF file in the output directory.

PDF File Name: DEBI\_Robotics\_Challenge\_2023\_Summary.pdf