# IEM ONLINE ROBOTIC CHALLENGE 2022

## BACKGROUND

The Institution of Engineers Malaysia (IEM) being the forefront in promoting and advancement of the science and profession of engineering took up the challenge to deliver series of higher quality STEM and STI activities for school students and youth through digital classes, talks, hands-on activities and competition since 2018**.** For year 2022, IEM plans to conduct **IEM Online Robotic Challenge 2022** targeting **national level** participation. This is inconsideration of the COVID-19 pandemic and to adhering to mass gathering restriction.

The IEM Online Robotic Challenge 2022 will involve **online workshops** to introduce the students to the robotic and innovation challenge, and then students with help from teachers and coaches will look for or build and practice with robot that is suitable for the challenge, **record video** of the robot completing a preliminary task and finally the best students compete in **competition online** or through video streaming.

Competition is open to all students from government and private **primary** and **secondary** schools and **youth** of up to 30 years old.

It is also envisage that the winners for some of the categories will be selected to represent Malaysia in **International Robot Olympiad (IRO) 2022.**

## SCHEDULE

| No. | Event | Date | Location |
|---|---|---|---|
| 1 | Competition Launch for Youth category | 1st August 2022 | Online |
| 2 | Competition Launch for Primary and Secondary school categories | 3rd October 2022 | Online |
| 3 | Introduction Workshop for Primary , Secondary school & Youth categories | ~~18th October 2022~~ 21st October 2022 | Online (9.00am – 12pm) |
| 4 | Competition Registration Dateline | ~~31st October 2022~~ 7th November 2022 | Online |
| 5 | Preliminary Round Dateline (video submission) | ~~10th November 2022~~ 18th November 2022 | Online |
| 6 | Final Round (live streaming) | ~~26th – 27th November 2022~~ 3rd – 4th December 2022 | Online |

## REGISTRATION FEES

| | |
|---|---|
| **Primary & Secondary Categories** | **FREE** |
| **Youth Categories** | **RM40** |

**Online Registration Form:**
https://docs.google.com/forms/d/1vn1U6T4f0rNnTEfWuH8Pviq7c63pI-OugmBnGA8uQAM

***Organized by:***

***Information & Communication Technology Special Interest Group (ICTSIG)***
***IEM STEM Promotion Club***

***Co-organized with:***

***In Conjunction with:***

# COMPETITION CATEGORIES

## A. LINE FOLLOWING ROBOT

- Line following robot where robot has to move along a black line track from start to finish line
- Using only robot that is built using off the shelves controller and components (DIY) i.e. not bought in and purpose built robot
- To ensure robot is built using off the shelves components: main controller, motor controller and sensors must be on different PCB and are connected to each other using wires
- Three open sub-categories:
  i. Primary school students (6 to 12 years old)
  ii. Secondary school students (12 to 17 years old)
  iii. Youths (18 to 30 years old)
- Participants: Maximum 2 students per team
- Team coordinator: 1 teacher / coach / mentor



## B. PATH FINDING ROBOT

- Line following robot where robot has to move along a black line track with junctions on the track where robot has to be programmed take junctions to pass through certain check points from start to finish line
- Can use bought-in or purpose built robot
- Two open sub-categories:
  i. Primary school students (6 to 12 years old)
  ii. Secondary school students (12 to 17 years old)
- Participants: Maximum 2 students per team
- Team coordinator: 1 teacher / coach / mentor



## C. TAG-OUT ROBOT

- Tag-Out is a tournament game which aims to push away Avatar out of the playfield faster than opponent.
- Game requires usage of sensors and mobility algorithm in order to avoid landmines that are located around the field.
- Can use bought-in or purpose built robot
- Only one open sub-categories:
  i. Primary school students (6 to 12 years old)
- Participants: Maximum 2 students per team
- Team coordinator: 1 teacher / coach / mentor



## D. CREATIVE INNOVATION

- In creative innovation, robot or innovation is to be designed and constructed to solve a problem according to the theme “Smart City”
- Robot or innovation has to be presented and functionality demonstrated.
- Robot has to be built during the competition period
- Two sub-categories:
  i. Secondary school students (12 to 17 years old)
  ii. Youths (18 to 30 years old)
- Participants: Maximum 2 students per team
- Team coordinator: 1 teacher/coach/ mentor



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## REGISTRATION FORM

| | | |
|---|---|---|
| **Name of Institution** | | |
| **Institution Address** | | |
| **Team Coordinator / Teacher** | | |
| **IC Number** | | |
| **Mobile No** | | |
| **Participants** | **1.** | |
| | **IC No:** | **Mobile No:** |
| | **2.** | |
| | **IC No:** | **Mobile No:** |
| **Team Name** | | |

| **Competition Category (Please tick (/))** | | | |
|---|---|---|---|
| **Line Following Robot – Primary** | | **Path Finding Robot – Secondary** | |
| **Line Following Robot – Secondary** | | **Tag–Out Robot – Primary** | |
| **Line Following Robot – Youth** | | **Creative innovation – Secondary** | |
| **Path Finding Robot – Primary** | | **Creative Innovation – Youth** | |

Note: Acceptance of participation is subject to decision by the Organizing Committee.

**We enclose herewith a crossed cheque/bank draft issued in favor of "The Institution of Engineers, Malaysia"**
**No: _____**

**We authorize you to debit my Visa/ Mastercard**
**Name: _____**
**Card No: _____**
**Card Expiry Date: _____**
**Amount: RM_____**

**I/We understand that the fee is not refundable if I/we withdraw after my/our application is/are accepted by the Organizing Committee. However, substitution of participants is allowed. If I/we failed to attend the competition, I/we will still settle the registration fee in full. All payment must be received by 31 October 2022.**

**Date: _____** **Signature: _____**

## ENQUIRY

IEM Online Robotic Challenge 2022 Secretariat: **Ms. Amira**

Email: amira@iem.org.my
Tel. No.: 03-79684026

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