

## General Terms & Conditions

### The terms and conditions of the Competition are as follows:

1. Petrosains RBTX Challenge 2023 has 3 main categories which are Robo Sumo, Robo Tracer and Innovation with 8 sub-categories; Robo Sumo 1kg, Robo Sumo 3kg, Robo Tracer Open, Robo Tracer Junior, Robo Tracer Advance, Innovation Junior, Innovation Advance and Innovation Open. Each sub-category contains specific rules and regulations.
2. Brief descriptions of each category are as follows:

#### 2.1 Robo Sumo

Robo Sumo is a sport that involves designing and programming a small robot equipped with sustainable features to push its opponent out of a circular ring. The robots are equipped with sensors, motors, and other mechanical components that allow them to navigate the arena and react to their opponents. The aim is to create a resilient autonomous robot that can outmaneuver and outsmart its opponents, pushing them out of the ring while remaining inside itself.

##### 2.1.1 Robo Sumo 1kg

Robo Sumo is a sport that involves designing and programming a small robot equipped with sustainable features to push its opponent out of a circular ring. The robots are equipped with sensors, motors, and other mechanical components that allow them to navigate the arena and react to their opponents. The aim is to create a resilient autonomous robot that can outmaneuver and outsmart its opponents, pushing them out of the ring while remaining inside itself. This category is open for young innovators aged 7-17 years old.

##### 2.1.2 Robo Sumo 3kg

Robo Sumo is a sport that involves designing and programming a small robot equipped with sustainable features to push its opponent out of a circular ring. The robots are equipped with sensors, motors, and other mechanical components that allow them to navigate the arena and react to their opponents. The aim is to create a resilient autonomous robot that can outmaneuver and outsmart its opponents, pushing them out of the ring while remaining inside itself. This category is open for young innovators aged 10 years old and above.

#### 2.2 Robo Tracer

Robo Tracer, also known as line following, is a technique used in robotics where a robot follows a line, usually a contrasting color, that is marked on a surface. This is accomplished using sensors, such as infrared or optical sensors, that detect the contrast between the line and the surrounding surface. By continuously detecting the position of the line, the robot can adjust its movement to stay on the line and follow its path and complete the course.

### **2.2.1 Robo Tracer Open**

Robo Tracer, also known as line following, is a technique used in robotics where a robot follows a line, usually a contrasting color, that is marked on a surface. This is accomplished using sensors, such as infrared or optical sensors, that detect the contrast between the line and the surrounding surface. By continuously detecting the position of the line, the robot can adjust its movement to stay on the line and follow its path. The challenge of this category is to program a robot that can move on a given line (black on white) and pass through all obstacles. This category is open for young innovators aged 7 years old and above.

### **2.2.2 Robo Tracer Junior**

Robo Tracer Junior category aligns with SDG 12, which focuses on responsible consumption and production. The aim of this category is to promote sustainability by encouraging young innovators aged 7-12 to create a robot that collects and sorts waste into recycling and non-recycling bins in a city park, thereby reducing waste generation and promoting responsible consumption. The goal is to maintain a clean and healthy environment for present and future generations.

### **2.2.3 Robo Tracer Advance**

The Robo Tracer Advance category aligns with SDG 9. The efficient use of space and resources is a key component of sustainable development, and SDG 9 specifically aims to build resilient infrastructure, promote sustainable industrialization and foster innovation. The aim of this category is to promote sustainability by encouraging young innovators aged 13 – 17 are tasked to create a robot that collects and stacks items in a designated area. The goal is to create awareness in communities of the importance of reducing excess clutter and utilizing space more efficiently which contribute to achieving SDG 9 targets.

## **2.3 Innovation**

Innovation category aims to encourage young innovators to create innovative and sustainable solutions using robotic and digital technology that address the challenges in alignment with UN Sustainable Development Goals (SDGs).

### **2.3.1 Innovation Junior**

In the context of SDG 12, which aims to ensure responsible consumption and production, the Innovation Junior category challenges young students aged 7-12 to generate innovative ideas and solutions that leverage digital technology to promote sustainability. Participants are expected to build a prototype using a Microcontroller and showcase their creations to judges. Through this competition, students will learn about the importance of responsible consumption and production, and how digital technology can be leveraged to promote sustainability.

### **2.3.2 Innovation Advance**

In the context of SDG 9, the Innovation Advance category aims to promote sustainable industry, innovation, and infrastructure. Participants aged 13 - 17 are expected to generate innovative ideas and solutions that leverage digital technology to address sustainability challenges. They must use sustainable materials and design principles to build a prototype using Microcontroller and IoT, and showcase and pitch their

creations. The goal is to develop sustainable solutions that support economic growth and meet the needs of present and future generations while minimizing the impact on the environment.

### 2.3.3 Innovation Open

This category aims to encourage young innovators age 10 years old and above to create innovative and sustainable solutions through data analytics that address the challenges related to SDG goals 3 (Good Health and Well-being), 4 (Quality Education), 7 (Affordable and Clean Energy), 8 (Decent Work and Economic Growth), 9 (Industry, Innovation and Infrastructure), 12 (Responsible Consumption and Production), and 13 (Climate Action). They will be required to build a prototype, showcase their creations, and pitch their ideas to a panel of judges. The aim is to promote sustainability and innovation by leveraging the power of data analytics to address some of the world's most pressing issues.

2. Teams consisting of participants residing in Malaysia are allowed to participate in any categories offered in this year's Competition. However, teams consisting of participants residing outside Malaysia (referred to onwards as International participants) are allowed to participate in the following categories only:
  - a. Robo Tracer Open: Age 10 years & above
  - b. Robo Sumo 3 kg: Age 10 years & above
  - c. Innovation Advance: Age 13 - 17 years
  
3. Everyone is allowed to sign up for one team in one category only. Participants are not allowed to sign up for more than one team, or in more than one category.
  
4. The number of participants for each team in this year's Competition categories is as follows:
  - Robo Tracer Junior, Advance & Open: maximum of 2 participants per team.
  - Robo Sumo 1 kg & 3 kg: maximum of 2 participants per team.
  - Innovation Junior & Advance: maximum of 4 participants per team.
  - Innovation Open: must consist of 2 participants per team. (*In the event that the team consists of participants below 18 years of age, the other team member(s) must be 18 years old or above*)
  - If all participants in a team are below 18 years of age, the team must be accompanied by a guardian (teacher/parent).
  
5. Registration is free.
  
6. Petrosains Sdn. Bhd. ("Petrosains") reserves the right at its sole discretion to change the duration of the competition period.
  
7. Employees of Petrosains., its organizing committees, advertising and promotion agencies and their immediate family members are not eligible to participate in the competition. Immediate family members include spouses, parents and children.

8. Petrosains reserves the right at any time without prior notice to add, alter, modify, change or vary the terms and conditions contained herein, wholly or in part at its absolute discretion and the Participants agree to be expressly bound by such additions, modifications, change or variations.
9. Petrosains reserves the absolute right to disqualify any participant if Petrosains is of the opinion that the participant has been involved in fraud at any time throughout the Competition.
10. The judges' decision in determining the winner shall be final and no appeals against the decision will be entertained.
11. All participants involves in the Zone qualifying (Robo Tracer Junior, Robo Tracer Advance, Robo Sumo 1KG) and Grand Finals (all categories) are required to be physically present at the event venue.
12. Petrosains and its affiliates will not be responsible for any cost incurred, including those that may arise from the participant's involvement in the Competition.
13. The winner of the Competition may be requested to participate in publicity events and/or campaigns to generate press coverage for the Competition and Petrosains. Petrosains shall be entitled at its sole discretion to quote statements made by the Participants in any press releases and press conferences relating to the Competition and/or Petrosains.
14. By participating in this Competition, all participants agree to be bound by the terms and conditions and any decisions made by Petrosains.
15. The prizes are not exchangeable, transferable, or redeemable for cash or any other form. Notwithstanding the above, Petrosains reserves the right to replace the advertised prize with other prizes of equal value, without assigning any reason whatsoever or prior notification.
16. The Competition winners will be required to attend prize-giving ceremonies (if any) at their own cost and expense. If a winner is not able to attend the prize presentation ceremony, the participant shall nominate a representative who shall accept the prize on his/her behalf.
17. Participants expressly grant to Petrosains the right at its sole and absolute discretion, to use the names, photographs and video recordings of the participants and/or their representatives without obtaining any prior consent nor making any payment whatsoever to the Participants and/or their representatives for publicity purposes in any medium.
18. Petrosains shall not be responsible and/or liable for any physical injury, including death and damage to property of the Participant arising out of this Competition

19. Petrosains shall also not be responsible and/or liable for any physical injury, including death and damage to property of any third party as a result of the conduct of the Participant.
20. Petrosains shall not be responsible and/or liable for any cost incurred to a participant by participating in this Competition.
21. No changes are allowed once registration is complete.
22. All terms and conditions may be amended or withdrawn at the discretion of the management of Petrosains and Petrosains RBTX Challenge 2023 at any time without prior notice.
23. Ownership of all documents and videos submitted for the purpose of Petrosains RBTX Challenge 2023 will solely belong to Petrosains. Petrosains shall have the right to edit, adapt, and modify the submission and shall use for any purpose that deems right. No part of the submitted document can be shared to any third parties or other competitors without prior permission of Petrosains.