Junior Category
Tasks and Scoring (Draft)

World Robot Challenge

Program

Junior Category

World Robot Challenge

This category will develop youth human resource for the realization of a new world where robots and humans live and work together.

〈Background〉

- In our ever-changing society where new technological tools are being introduced into daily life more rapidly than ever before, more and more innovative and creative people are needed to fulfill the work of advancing technology.

- By bringing robotics into students' lives, by 'making' with robotics activities accessible for all students, the students will be given opportunities to learn skills and knowledge needed for them to become successful citizens who can contribute to future technological advancement.

Challenges

School Robot Challenge

Programming the standard platform robot to complete tasks that might be useful in a school environment

Home Robot Challenge

Setting tasks equivalent to those in the service robotics category's partner robot challenge and making robots that complete such tasks

● **Objective :** To foster interests and understanding of the importance of robotics development among young citizens; and to prepare students to participate in Robotics and A.I. research and development in the future

● **Participants :** Teams of students aged 19 or younger

* With regards to competition details in 2020, stated details are all present assumptions and the final details will be confirmed by referring to the progress of technology and the results of pre-competition which will be held in 2018.

World Robot Challenge

Home Robot Challenge

Leagues

Home Robot Challenge has two leagues:

- Mini Size League – Mini Size league competition will be held on a table top (about the size of a Ping Pong table)
- Real Size League

Tasks

1. Skills Challenge
2. Open Demonstration
3. Technical Interview

Task1 (Skills Challenge)

Mini Size League

Skills challenges for 2017 include:

1. Robot Guide Test
2. Follow Me Test
3. Pick and Place Test

1. Robot Guide Test- The Robot Guide Test aims for the robot to compete for the task as a guide dog in leading blind and visually impaired person around obstacles.

2. Follow Me Test - The Follow Me Test aims for the robot to compete for the task to follow another robot.

3. Pick and Place Test - The Pick and Place Test aims for the robot to compete for the task to pick up an object placed on a table, move it to another table.

Task1 (Skills Challenge)

Real Size League

Skills challenges for 2017 include:

1. Robot Guide Test
2. Hearing Robot Test
3. Assisted Service Robot Test

1. Robot Guide Test - The Robot Guide Test aims for the robot to compete for the task as a guide dog in leading blind and visually impaired person around obstacles.

2. Hearing Robots Test - The Hearing Robots Test aims for the robot to compete for the task as a hearing dog in assisting deaf and hearing impaired person by alerting to important sounds, such as doorbells, smoke alarms, ringing telephones, and alarm clocks. They may also work outside the home environment, alerting to important sounds such as sirens, vehicles, and a person calling the owner's name.

3. Assisted Service Robot Test - The Assisted Service Robots Test aims for the robot to compete for the task as a service dog in helping people who have disabilities. The robot is required to be able to communicate with the owner to understand the owner's needs or instructions in order to provide appropriate assistance.

Task2 (Open Demonstration)

A 10-minute demonstration to showcase the capabilities of their robot. Teams propose and execute creative and innovative tasks that they want the robot perform at home. Teams should demonstrate and describe the tasks and their use of the capabilities of their robots such as communication and/or interaction with humans, navigation, or creative and innovative use of tablet, and algorithms developed. Teams need to present a summary of the technical description of how the capabilities have been developed, the challenges overcame and the algorithms controlling the behavior/performance. The assessment is done on the following categories: successful description of the robot's capabilities and execution of the demonstration.

Task3 (Technical Interview)

A 15-minute face-to-face interview with a panel of judges in which robot performance, algorithms and programs are assessed against technical criteria. Creative and innovative ideas and use of technical aspects are rewarded with higher scores. Judges are interested in determining students' understanding of the robotic technologies and programming they have used. Teams must show authenticity and originality with regard to the use and performance of robot in this interview.

Each team members must be prepared to answer questions about the technical aspects of their involvement in the development of ideas, design of robot performance and programming.