

CIJ 1 INTERNATIONAL ROBOTICS COMPETITION 2021

INTRODUCTION

Robotics can strengthen and support students' skills in developing their knowledge through the creation, design, assembly, and operation of robots. On the other hand, by having to control a physical robot and seeing what goes wrong, students learn and experience what robots can and cannot do. Eco-Schools is an international program of environmental and sustainable developmental education for schools. At the heart of the program is a structured 'change management' process called THE SEVEN STEPS, used by schools to work towards continuous improvement in environmental action.

The merge between robotic and environment can help pupils to take care of their environment while having fun and emphasizes the meaningful problem-based learning through the integration and application of their knowledge about robotic and caring for the environment.

Here we need a TRASH COLLECTOR, a truck specially designed to collect waste. There have been many variations of the garbage truck since its invention. So, what to wait for, let us design your ideal truck using your creativity in cleaning the trash to make our environment free of trash.

CATEGORY

- **JUNIOR CATEGORY**

- Age: 7-12 years old
- Date of birth: 1 Jan 2009 – 31 Dec 2014

- **SENIOR CATEGORY**

- Age 13-17 years old
- Date of birth: 1 Jan 2004 -31 Dec 2008

TEAM

The team will consist of a maximum of 2 members with 1 teacher. Maximum 5 teams per school.

REGISTRATION FEES

Malaysian: RM50 per team

International: USD 50 per team

RULES & REGULATIONS

GROUND RULES

1. The organizer reserves the right to change the rules and regulations without prior notice to ensure for fair and high-quality competition experience.
2. Violation of the rules and regulations may result in disqualification.
3. The judging result is final. Complain and inquiries will not be entertained.

ROBOT DESIGN

1. The objective is to build a **TRASH COLLECTOR with REMOTE CONTROL** to:
 - a. Collect the recycle waste (white ping pong balls) from the field to the recycling station.
 - b. Collect the non-recycle waste (orange ping pong balls) from the field to the incinerator station.
 - c. And the Trash Collector has to back to its original parking point after having completed all the tasks UNDER 2 minutes.
2. Maximum size of robot with width 300mm and length 300mm before the game start. No limit of robot height.
3. No limit of robot size after the robot left the parking point to run the task.
4. Only ONE Wedo1.0, Wedo2.0, NXT, EV3 or Spike Prime's CONTROLLER can be used in the robot design.

5. All the parts used to assemble the robots must be from the LEGO® Education Robotics platforms such as Wedo1.0, Wedo2.0, NXT, EV3, Spike Prime or LEGO branded non-electrical/non-digital elements. Alteration of the LEGO part is strictly forbidden.
6. The robot can ONLY be controlled by any compatible device using LEGO® Education Wedo1.0, Wedo2.0, NXT, EV3 or Spike Prime programming software.
7. The robot can be moved/operated by using phone or remote control or Bluetooth controller or IR Beacon.
8. The robot must collect or pick the balls and place the balls to the recycling and incinerator station. The robot cannot push the balls across the recycling and incinerator divider to both the stations.
9. No screws, glues or tapes are to be used to fasten any components of the robot. Hazardous parts are strictly not allowed.

TIMER

1. Standard countdown timer is set to start at 2 minutes and stop at 0 minutes once the SPACE key (start) is pressed.
2. Participant must press SPACE key to STOP the timer once the robot completes all the task (collect all the trash) and back to the parking point in less than 2 minutes.
Download the timer at <http://www.xnotestopwatch.com/xnsw.exe>
3. The timer must be displayed using computer or laptop during the recording of the video.

MATERIAL

- Each team must ready all the materials with the given specs under their own cost. Refer to the Appendix for illustration of the track.

| Item | Size | Material | Quantity |
|---------------------|--|---|----------|
| Track | L1200mm W600mm | Any material or ground surface | 1 set |
| Parking point | L300mm W300mm | Black tape to remark | 1 set |
| Trash center | | | 1 set |
| Trash | Standard diameter of 40mm Orange colour-10 units White colour-10 units | Ping Pong ball | 20 units |
| Track divider | Inner dimension: L1200mm W600mm Min. Height 20mm | Any materials such as -aluminium -wood -metal -cardboard -water pipe -acrylic -or others | 1 set |
| Incinerator Divider | L300mm W300mm Min. Height 20mm | | 1 set |
| Recycling Divider | | | |

- ** 1. Measurement of the width & length within ± 10 mm allowance is acceptable.
- All divider's height with minimum 20mm.

** GAMES RULES

- The setting of the track must be on the flat surface. The teams must make sure the balls are arranged alternately and static before starts the game.
- The setting of robot and all other materials must be placed as per in Appendix before start.
- Participant or mentor must measure the size of the
 - track & divider
 - incinerator & recycling divider
 - parking point & trash centre

4. The robot must be placed in the parking point and not exceed the size of the parking point prior to start.
5. The same participant will control the timer and the robot.
6. Once the timer space key is pressed (start), participant is only allowed to operate the robot.
7. Once the game starts, the robot must leave the parking point completely. Then proceed to the trash centre. The Robot is not allowed to cross directly to the trash centre from the parking point.
8. Participants are not allowed to touch any object in the field when the game is started.
9. Participants are not allowed to pick the balls that dropped outside the track and put in back to the track during the game.
10. Participants are not allowed to collect the balls that being place in the wrong station during the game.
11. Game is over once the timer show “0” and participant must stop operating the robot.
12. Timer’s space key (stop) is pressed once the robot complete collect all the trash and back to its parking point in less than 2 minutes. At least 50% of the robot body must be in the parking point after having completed the task.
13. Participant must count the number of ping pong balls collected in the incinerator station and recycling station at the end of the game.
14. Marks are counted based on the balls that place correctly in the recycling station and incinerator station. Robot that has completed the task and travel back to the Original Point under 2 minutes will be entitled bonus 5 points.

VIDEO

The video must:

1. Be original, no editing is allowed.
2. Clearly show all the items 1 to 13 in above ****Game Rules****.
3. Organizer reserve the right to disqualify the team with video that not full fill requirements in the rules and regulations.
4. Format of the video (MP4 or MOV only).

REGISTRATION & SUBMISSION

1. Registration is made through the link provided at the brochure or website.
2. The team must upload the video and the robot picture to the link provided at the brochure or website from 1 August 2021 to 18 August 2021. Any late submission will not be entertained.
3. Please rename the title of the video as below:

Local team: TEAM CODE-SCHOOL NAME

Example: J001-SK CONVENT INFANT JESUS 1

International team: TEAM CODE-COUNTRY NAME-SCHOOL NAME

Example: S001-THAILAND-AAAA

4. Team Code will be given before 1 August 2021 through CIJ IRC Telegram group and email.

JUDGING & EVALUATION

The following criteria will be used for judging using a maximum 25 points scale.

| Description | Points |
|--|--------|
| Each orange ball placed in the incinerator station | 1 |
| Each white ball placed in the recycle station | 1 |
| Each ball placed in the wrong station (example: place orange ball in the recycle station or placed white ball in the incinerator station) | 0 |
| Balls that go out of the track during the game | 0 |
| Robot is back to its parking point after having placed ALL the balls CORRECTLY in incinerator and recycle station before 2 minutes. (At least 50% of the robot is in the parking point) | 5 |

** if 2 or more teams gain the same total points, team with shortest time of completion will be counted as first among the said teams.

PROCEDURE

1. Registration.
2. Design the robot and ready the play field.
3. Record the video.
4. Submit the video and the robot's picture.
5. Result announcement.

PRIZES

1. Medals and certificates for top 15 winners from each category.
2. Cash prizes for top 3 winners from each category.
3. E-certificate for all participants.

IMPORTANT DATE & LINK

| Event | Date | Link |
|---------------------|----------------------------|---|
| Registration | 17 May to 25 July 2021 | https://forms.gle/SLkkBuGHnzFtLX7r9 |
| Video submission | 1 August to 18 August 2021 | https://forms.gle/6udvvGM3tfnavVsT7 |
| Result announcement | 15 Sept 2021 | Website http://gg.gg/cij1robotic Email |

PAYMENT

Payment can be made through online transaction to:

Bank Name: CIMB BANK BERHAD

Account Name: PIBG SKCIJ(1)

Account Number: 8004602613

SWIFT Code: CIBBMYKL (For International transfer)

Detail: CIJ1 IRC2021

Description: School Name

Receipt will be sent to the registered email.

Any inquiries, please contact:

The organizer of CIJ International Robotics Competition

Ms. Low Kai Lin

WhatsApp: 012 3293229

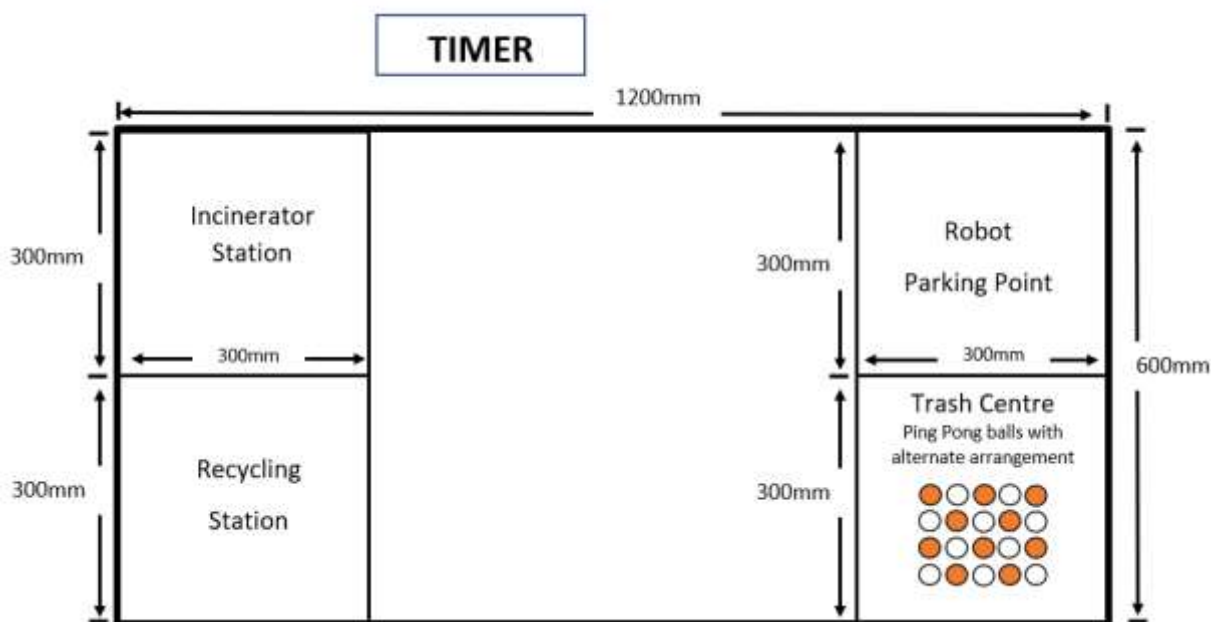
CIJ1 IRC Telegram Group: <https://t.me/joinchat/NOtST19XT6dhNWZl>

Email: cij1irc@gmail.com



APPENDIX

TRACK SPECS



Remarks:

1. Measurement of the track width & length within $\pm 10\text{mm}$ allowance is acceptable.
2. All divider's height with minimum 20mm.
5. Robot to place in parking point prior to start.
6. Total of 20 units Ping Pong balls (10 units white & 10 units orange arranged alternately) to be placed STATIC in trash centre.