STEERING COMMITTEE

ASIAN ROBOTIC COMPETITION FOR PRIMARY AND SECONDARY SCHOOLS

7TH AJR
KUALA LUMPUR
ASIAN JUNIOR ROBOT CUP

GAMES CATEGORY

- ANIMATION ROBOTIC
- CREATIVE
- 2on2 SOCCER
- MAZE SOLVING
- THEATER ROBOT

AJR EXCITING EVENTS

- 5 EXCITED GAMES
- AJR WORKSHOP/CAMP
- CULTURAL PERFORMANCE
- EDUTOUR SAINS ROBOTIC

BIG MATCH SOCCER CUP

26 FEB 2023

REGISTRATION

Information
+62838-9321-9801 (Ms. Syifa)
+62895-3342-34403 (Ms. Lila)

MAKERS SPACE
IIUM

@racerrobotic

RACER Robot Official

Organized By

GENERAL RULES

1. Only **participants** and **observer** with ID Cards are **allowed** to enter the Hall
2. **STRICTLY** prohibited to bringing food / drink in the competition area.
3. Have to bring own battery for robot which rent from committee or have your own by using AA and AAA battery type
4. Participants **MUST** bring along all necessary items(laptops, batteries, robotics parts).
5. **STRICTLY** prohibited to exchange media transfer such as external harddisk, flashdisk, etc.
6. Participant are **not allowed** to out from competition area while competition is progress.
7. Participants queue number will be moved to the bottom if has called 3 times not present in the competition area.
8. Genereal robot specification are limited to :
   a. 1 Kg weight
   b. Maximum dimesion **20cm(length) x 20cm(width) x 20cm (height)**
   c. Shall not use **rechargeable battery**
   d. There are expetions on Creative,Theater Robot (Please refer to each rule details).
9. Can share the same robot for the same institution/school.
10. Competition with **OPEN** level category mean there is **no difference** of junior and senior level.
11. In the event of category level with less than 10 teams the competition reserves the right to combine the level become the level become open level or you can change to another game category..
12. There are 2 time competition sesion :
    a. **Session A** : 09.00 – 12.00
    b. **Session B** : 13.00 – 15.00
13. Participants have to choose which 2 maximum category at one of the session (ex: participant join 2 category on session A). it is not recommended to join more than 3 categories in session
14. if the participant is less than 10 teams then the committee has the right to change the level of the category to **OPEN** level or **ELIMINATE** the category unilaterally
15. Observer are **NOT ALLOWED** to have direct communication with the participants during the competition. If they have any urgent request, kindly approach our staff.
16. Participants should take care of personal belongings as the organizer will **NOT BE RESPONSIBLE** for any losses.
17. As the venue is a public location, students are remind to observer their behaviors at all times.
18. Please **DO NOT DAMAGE** the vanue properties. The organizer will not be liable for anny damages and serious action will be taken.
19. In the even of any disagreement or misunderstanding, the judges decision will be **FINAL**.
20. If there are any changges to the rules and regulations, it will be announced to all participants 7 days before the competition starts. The judges will have full authority to explain and enforce the rules for all the competition.
21. Prior to the start of the competition, all robots will undergo an inspection. If the robots do not meet the requirements, participants will be given a grace time of 15 mins to modify their robots, other wise the participants will be disqualifed.
22. If the robots encounter any technical difficulty before the start of the match, they will be given 1 mins t do the changes to the robot.
23. Participants not allowed to touch their robots and/or remote controls during the competition unless instructed by the judges.
24. Any act cheating and non-compliance with the rules(disturbing the remote signal/ RF / Bluetooth frequency) will be **IMMEDIATELY DISQUALIFIED** and **BLACKLISTED** from the IYRA & International Competition Event.

Head Referee/Judges

Assoc. Prof. Dr Yasir Mohd Mustafah
Advisor IIUM Roboteam Malaysia
Dr. Riza Muhida, M.Eng.
Steering Commitee IYRA Indonesia, Director CRIM
Ir. Saharuddin, M.Eng.Sc.IPM.
Senior Lecture, Electrical Engineering Dept, Institut Teknologi Indonesia
Neny Anggraini, MT
Senior Lecture Informatics, UIN Jakarta
Firdiansyah, MIT
Chairman IYRA Indonesia

Organizing Committee

IIUM Roboteam Malaysia
Team R&D RACER Robot Indonesia

ESTIMATE RUNDOWN

Friday, 24 February 2023	Activity	Location
09.00 – 12.00	Animation Scratch	Online
Sunday, 26 February 2023	**Activity**	**Location**
07.30 – 09.00	Registration All Delegation	Makers Space IIUM
09.00 – 09.30	Opening AJR 2023	
09.30 – 13.00	Maze Solving	
	2 On 2 Soccer	
	Creative	
13.00 – 14.00	**LUNCH & Dancing Robo Show**	
14.00 – 16.00	Theater Robot	Makers Space IIUM
16.00 – 16.30	**Award Announcement**	Makers Space IIUM
16.30 – 17.00	Closing Ceremony & AJR Photo 2023	

GAME LEVELS

Levels	
Junior	**SD / Primary**
Senior	**SMP – SMA / Secondary**
Open	**No Age Limit**

GAME CATEGORIES

CATEGORIES / LEVEL	JUNIOR	SENIOR	OPEN
Maze Solving / Coding Mission	✓	✓	-
Animation Scratch	✓	✓	-
2 On 2 Soccer	-	-	✓
Theater Robot	-	-	✓
Creative Open	✓	✓	-

List of Awards

Award @ Games

1. **Gold Medal**
2. **Silver Medal**
3. **Bronze Medal**

7TH AJR

Maze Solving

Level	- Junior - Senior
Team	Individual / Team (1 - 3 Person)
Robot	Open Robot
Mission	Program maze solving robot that make correct decision at junctions to find shortest route and gain all the points.
Game Method	Mission completion and Time record

1.0 Objective

This game required participant to construct and program a Maze Solving Robot that will move by following the line track and make decision at each of the junctions to reach more points. The robot is considered completing the task when the robot successfully reaches the END point.

2.0 Robot Dimension and Weight

1. The size of the robot at the starting box shall not exceed **20cm (H) x 20cm (W) x 20cm (L).**
2. Each robot must fully comply with size restriction, even after all the appendages have been fully expanded.

3.0 Restriction on Robot Design

1. Robots shall not damage any part of the field or obstacles deliberately.
2. Robots are **not allowed** to have any power supply above **9V DC** (Volt of Direct Current).
3. Robots Must using **AA** and **AAA** battery type
4. Robots shall not cause any danger to the arena and surroundings in anyway whatsoever.
5. Robots will need to protect their sensors if necessary from any outside interferences.

4.0 Game Rules

4.1 Length of a Match

1. Programming, trial, and match session will be given for **3 hour**.
   a. Programming and Trial : **1 hours**.
   b. Match: **2 hours.**
   c. When match session, each team have only **5 minutes** to run their robot.
2. In the following cases, a match will end even before 5 minutes.
   a. When the task is achieved and robot stop at the END point.
   b. In the event of disqualification.
   c. When the referees judge that continuation of the match is impossible.

4.2 Building of Robot

1. Prebuilt.

4.3 Starting the Robot

1. Whistle will be blown as a sign of start of the match.
2. Participant is allowed to start (SWITCH ON) the robot using single switch operation.
3. After the switch is 'ON', the robot should move autonomously and no communication allowed between the robot and team member (no assistance of remote control or similar) until it crosses the finish line.
4. If the robot run out of the track or crosses the finish line while match, then the jury will stop timing and recorded as end of match.
5. The participant who performs the starting operation shall keep distance with the game field area without touching or disturbing the game field.
6. The participant who are touching or disturbing the game field will be disqualified from the match.

4.4 Competition Tasks

1. Each team have to program their own robot when the jury showing up the game track first.
2. Time will be given 1 hour for programming.
3. When programming, each team member have to use software, robots that are not programmed through software will be **disqualified.**
4. When the team has finished programming the robot, participants are entitled to **trial 2 times attempts** with **2 times re-try**.
5. In match session there's **1 times attempts** and **3 times re-try** will be given to each team.
6. There will be a trial sequence, if the team who first completed in programming the robot, then that team gets first order in the trial stage.
7. Once the match has begun, each robot shall complete the tasks as below:
   a. Following the line track.
   b. Make decision at each junction to complete the task.
8. All robots **MUST** stop at the **END POINT** in order to get **10 points**.
9. Timing will begin when the referee whistles at the Start line.
10. Timing will stop once the robot stop at the Finish Line or the robot run out of the track and the time taken to complete the route will be recorded.
11. Robots can deploy any tactics as long as it does not constitute a foul.
12. The parts which are fallen or broken from the robots cannot be fixed back into the robots during the match.

4.5 Deciding the Winner

1. Each robot will be given 1 times attempts include 3 times re-try to complete the whole course and the best score will be taken as the final score. The score priority consists of:
   a. **Points** (after the robot has following each obstacle).
   b. **Time**.
2. In the event of a draw, or there are 2 or more participants gain the same points, the winner will be decide based on the fastest time.

4.6 Disqualification

A team shall be disqualified if it commits any of the following during the match :

a. Team member touches the robot without referee's approval.
b. If Robot is unable to move off 5 seconds after whistle blow.
c. Robot does not comply with the size restrictions.
d. A robot is stopped for more than 10 seconds.
e. A robot is moved outside of the play field for 10 seconds.
f. Participants are not programmed their robot through software.

7TH AJR

Animation Scratch

Level	- Junior - Senior
Team	Individual
Software	Open Scratch
Mission	Make animation for expressing the given theme
Game Method	Mission completion and Time record
Competition	ONLINE

1.0. Objective

Participants make animation works, presentations, stories, videos or music on the computer,then work to make them able to interact, act or respond to the physical world outside the computer using various sensors, so that the work becomes alive and able to interact between the computer and the physical environment.

2.0. Theme grid

All Level : **Robot Helping People**

3.0. Animation creation limitations

1. Participants must submit a work plan to be made and details of the story, the tools used.

2. If necessary, participants can create their own stage, with their own background.

3. Project must be collected at 08.00 WIB (Participants are given up to 08.10 WIB, if it exceeds at that time the participant cannot upload files to Google Classroom)

4. Design files (.sb3 format & .sb2 format) and presentation Live (via Zoom) are saved in Full Name Format andSchool (example: Andriana Bayhaqi_MIN3 Tangsel) at 09.00 WIB.

5. Participants collect the design by writing (name and school) in Private comments on GoogleClassroom

6. Using hardware and components will be an added value.

4.0. Deciding the Winner

Determination of the winner will be judged from several points which will be later accumulateto Total Points. Following are the points of assessment:

Logic to solve the problem	Relation to the theme	Content	Prototype design	Interactive	Program	Property and background	Creativity and uniqueness	Presentation skill
10	20	10	10	10	10	10	10	10

Theater Robot

Level	Open
Team	Team (2-10 Person)
Robot Kits	Open Robot
Mission	Perform theatrical show by combining participant sand robots as an actors/actress.
Robot Building	Pre-build
Game Method	Perform and evaluation by panel

1.0 Objective

The contestant should to demonstrate people & robot that performs interesting tasks for applications, such as in entertainment, domestic chores, industry etc.

2.0 Robot Dimension and Weight

There are no limitation on size dimension and weight as long as robot dimension does not exceed with perform arena dimension

3.0 Restriction on Robot

1. In the case where the contestants wish to employ radio control, they should inform the secretariat in advance. Contestants should not broadcast radio signals while another contestant's robot isperforming.Robots shall not damage any part of the field or obstacles deliberately.
2. Robots shall not cause any danger to the arena and surroundings in anyway whatsever
3. Robots will need to protect their sensor if necessary from any outside interferences

4.0 Robot Control

1. The competing robots, which can be self-navigating or remote-controlled, will perform their capability on a 8m x 4m perform arena for a period of time.
2. The robots may move freely around the arena or be in a static position.
3. One AC power of 220/230V, 50/60 Hz supply will be provided. However, the teams are to provide their own power adapter and extension means if it is required.

5.0 Game Rules

5.1. Length of a perform

1. Total duration up to 8 minutes is allocated for setting up the robot and any accessory equipment (3 minutes) and demonstration (5 minutes) of its capability. The time duration will be measured from the moment the contestants enter the arena. If more than 8 minutes elapsed, the robot must be removed from the arena.

5.2. Building of Robot

1. In the case that a robot requires special accessory equipment or tools during its performance, the participants should provide such items.
2. In the case that a robot performance is to be accompanied by music, the contestants should provide the means to reproduce this music.
3. All perform contents should not contain “SARA” / pornography.
4. The designs of the competing robots must be original and unique. No two identical designs are allowed in the competition.

5.3. Starting the Robot

1. The competing robots can start from any point in the contest arena

5.4. Competition Task

1. Minimum duration of demonstration is 3 minutes.
2. Maximum duration of demonstration is 5 minutes.

5.5. Deciding The Winner

1. Score shall consist of :
   a) Degree of Innovation
   b) Design & Realisation
   c) Performance
   d) Content
      - Entertaiment (e.h. audience participation).
      - Application

*Sample Score Record

Team	Degree of Innovation	Design & Realisation	Performace	Content (Entertainment e.g.audience participation and Application)	Total
Racer	20%	20%	30%	30%	100%

6.0 Perform Arena

1. here is no specific flooring material of the contest arena. The flooring will very much depend on the available contest site. However, if there is a special requirement such as carpet, the contestants will have to provide for it
2. The boundary for the arena will be black or white depending on the floor

CREATIVE INNOVATION

Age	- Junior - Senior
Team	Team (2-5 students)
Robot Kits	Open Robot
Mission	Create a robot expressing the given theme
Robot Building	Pre-build
Game Method	Presentation and on/off-line evaluation by panel

1.0 Objective

Provide a platform for student to showcase their creativity, innovative and programming skills. They are required to work together as a team to design a robot based on the given theme. Besides, they will also need to present and demonstrate their robot creation well to convince and impress the judges.

2.0 Robot Dimension and Weight

Maximal robot dimension and the weight is not limited.

3.0 Restriction on Robot

1. Participants are allowed to used products other than MRT such as arduino etc. There is no limitation to the amount of blocks used to build the robot. You are allowed to cross use the parts from the above mentioned systems for the robots.
2. Robots shall not damage any part of the field or obstacles deliberately.
3. Robots allowed to move or make motion autonomously OR use remote control.
4. Robots can use and add other materials such as camera, sensors, paper, rings, clips, chopsticks, paper cups, and 3D Printing materials etc.
5. VAC (Volt of Alternating Current) power supplies are strictly prohibited for safety reasons.
6. Robots shall not cause any danger to the arena & surroundings in anyway whatsoever.
7. Robots will need to protect their sensors if necessary from any outside interference.
8. It is allowed to use platforms like Blynk, Adafruit IO, Thingspeak, etc.
9. Internet connection set up by each team.
10. Allowed WiFi module to be a controller board such as ESP8266, ESP32, etc
11. Any need for a presentation simulation is prepared by the team or participants.

4.0 Game Rules

4.1 Method of a Match

1. Participants shall build a robot in advance.
2. Participants are given 2 hours duration to prepare their robot.
3. Each group has presentation time of 5 minutes to introduce their robots to the referee on the stage. Presentation can be done in English. If they are unable to present in English they have to prepare their own translator.
4. Robots may be displayed in/around the venue. The team members or teacher may keep the robots and explain to the public.
5. Participants should carry the printed manual (presentation). About the manual, please refer to the rule
6. Theme : **Robot Helping people**

4.2 Deciding the Winner

1. The judges will check if the team meets the requirements or not, and evaluate teams' works online first.
2. The judges will notice the results If the participants are qualified or disqualified.

4.3 Score shall consist of :

1. Relevance to theme (10 score)
2. Creativity & Uniqueness (30 score)
3. Robot Functionality (30 score)
4. Team work (10 score)
5. Presentation skill (20 score)

2 On 2 SOCCER CUP

Level	Open Level (Limited Participant. Just Available for 8 Team Indonesia & 8 Team Malaysia)
Team	2 participants per team with 2 robot
Robot	Open
Mission	Soccer match using remote control Wireless
Game Method	Tournament

1.0. Objective

To promote team work and test student ability to construct a robot with high stability and controlling skill to play soccer game.

2.0 Robot Dimension and Weight

1. The size of the robot at the starting box shall not exceed **20cm (H) x 20cm (W) x 20cm (L).** However, robot is not allowed to expand to any size after the game starts.
2. The maximum weight of the robot is **1000 grams** (Include batteries).

3.0 Restriction on Robot Design

1. There is no limitation to the amount of blocks used to build the robot. You are allowed to cross use the parts from the above mentioned systems for the robots.
2. However, ONLY maximum **2 number of DC motors** and **1 mainboard** are allowed to use for for the competition.
3. Robot built is allowed to modify the mechanical parts (painting/folding) but not electronic parts. If found guilty, the player would be **IMMEDIATELY** disqualified.
4. Robots shall not damage any part of the field or obstacles deliberately.
5. Robots are not allowed to have any power supply above **6V DC** (Volt of Direct Current). VAC (Volt of Alternating Current) power supplies are strictly prohibited for safety reasons.
6. Robots Must using **AA** and **AAA** battery type
7. Robots shall not cause any danger to the arena and surroundings in anyway whatsoever.
8. Robots RC receivers will need to be protected from any outside interferences.
9. Robot cannot be design in a closed structure to handle the ball. The judge will check the robot structure before the competition begin.

4.0 Game Rules

4.1 Length of a Match

1. Each game is stipulated for **3 minutes**.

4.2 Building of Robot

1. Prebuilt and programmed

4.3 Starting the Robot

1. Whistle will be blown as a sign of start of the match.
2. The participant who remote controls the robot shall keep distance with the game field area without touching or disturbing the game field.

4.4 Competition Tasks

1. All the games will be based on “knock out” system. All the teams will be distributed in opposing pairs by AJR committee randomly.
2. Each team shall consist of 2 robots and 2 paticipants with each participants controlling one robot.
3. During the match, the participants who control their robot please keep distance with game field, and don’t touch or damage the field.
4. A robot **not allowed to handle the ball** for more than **5 seconds**.
5. Upon removal of a robot from the playing field, it can only re-enter the game upon referee’s approval.
6. Robots can deploy any tactics or maneuvers, as long as it does not constitutea foul.
7. The robot can only stay within the penalty area for a maximum of 5 seconds. Participant will be warned by the jury to move their robot if the robotstaywithin the penalty area more than 10 second.
8. Extra time of 1 minute shall be played only in the event of a draw.
9. Sudden death shall be played only in the event of draw on extra time.
10. The parts which are fallen or broken from the robots cannot be fixed back onto the robots during the match, unless permitted by jury.
11. While the match is in progress, at any time the jury whistles, the participants should stop therobot.

4.5 Deciding the Winner

1. Within 3 minutes, the team with highest goals will be the winner.
2. The ‘knock-out’ stage shall not consist of any points and the winner of the game shall proceed to the next round.
3. The time limit for extra time shall be 1 minute.
4. In the event of a **DRAW** by the end of extra time, ‘Sudden Death’ time shall decide the match in the event both teams are still tied for score. The team that missed the first ball, loses the game.

4.6 Disqualification

1. Touching the robots while the match is in progress.
2. Robot does not comply with the size restrictions.

ESTIMATE RUNDOWN AJR 2023 FOR INDONESIA DELEGATION

January - Wednesday, February 16, 2023	Activity
Registration	
Tuesday, February 7, 2023	**Activity**
14.00 – 16.00	Workshop Sesi 1 (Online)
Wednesday, February 8, 2023	**Activity**
14.00 – 16.00	Workshop Sesi 1 (Offline)
Thursday, February 9, 2023	**Activity**
15.30	Sosialisasi Teknis Keberangkatan AJR
Tuesday, February 14, 2023	**Activity**
14.00 – 16.00	Workshop Sesi 2 (Online)
Wednesday, February 15, 2023	**Activity**
14.00 – 16.00	Workshop Sesi 2 (Offline)
Thursday, February 23, 2023	**Activity**
15.00 – 16.00	Technical Meeting
Friday, February 24, 2023	**Activity**
09.00 – 12.00	Animation Scratch (Online Competition)
Saturday, February 25, 2023	**Activity**
09.00 – 14.00	Bootcamp International
Sunday, February 26, 2023	**Activity**
09.00 – 19.00	AJR Competition & IIUM Robo Lab Tour
Monday, February 27, 2023	**Activity**
08.00 – 17.00	City Tour KL
Monday, February 27, 2023	**Activity**
18.00 – 20.00	KLIA Malaysia Airport Transfer