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A.I. Soccer	Participation	League
	👤 1~3	Junior/ Challenge

1. Game description

AI soccer is an E-SPORTS soccer game in which participating teams program team strategies and tactics using AI technology. After coding, strategic algorithm implementation is required because it is controlled by a program without human intervention.
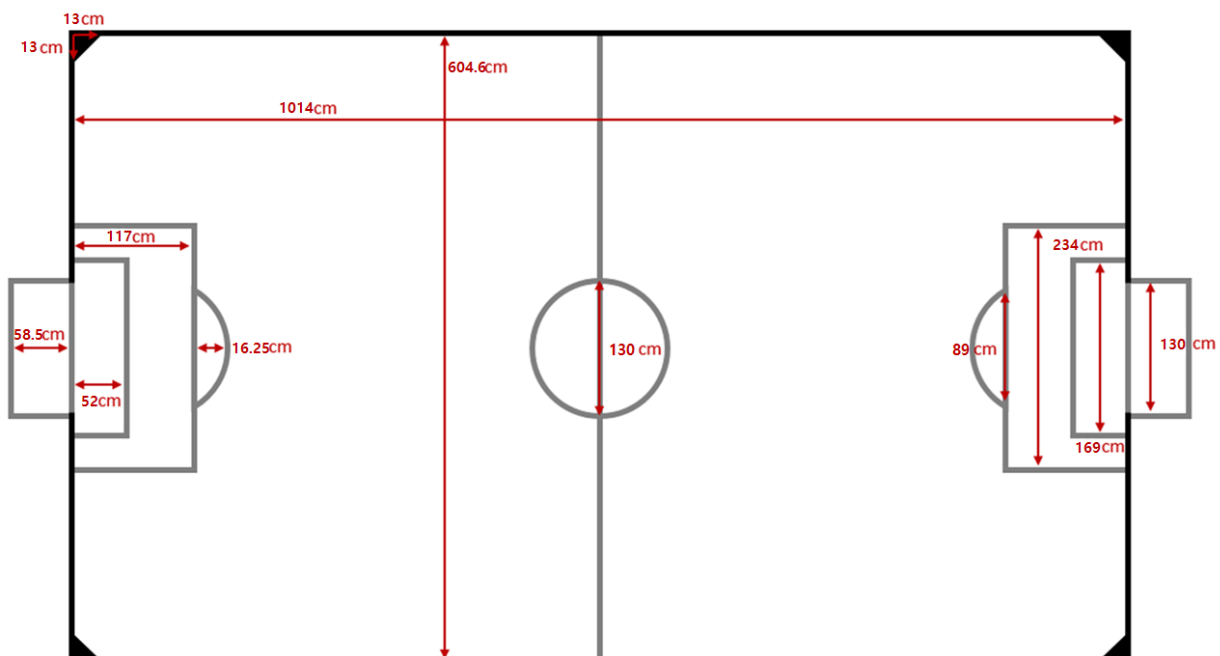
2. Platform

2-1. Platform Participants will be able to play the game using the existing platform distributed at the venue

If you proceed and provide a personal laptop or a laptop from the organiser, it should be installed on that PC. The platform is available for a fee

3. Competition Site

3-1. Size and Composition Size of the playfield will be 1014cm x 604.6cm (error ±10%).
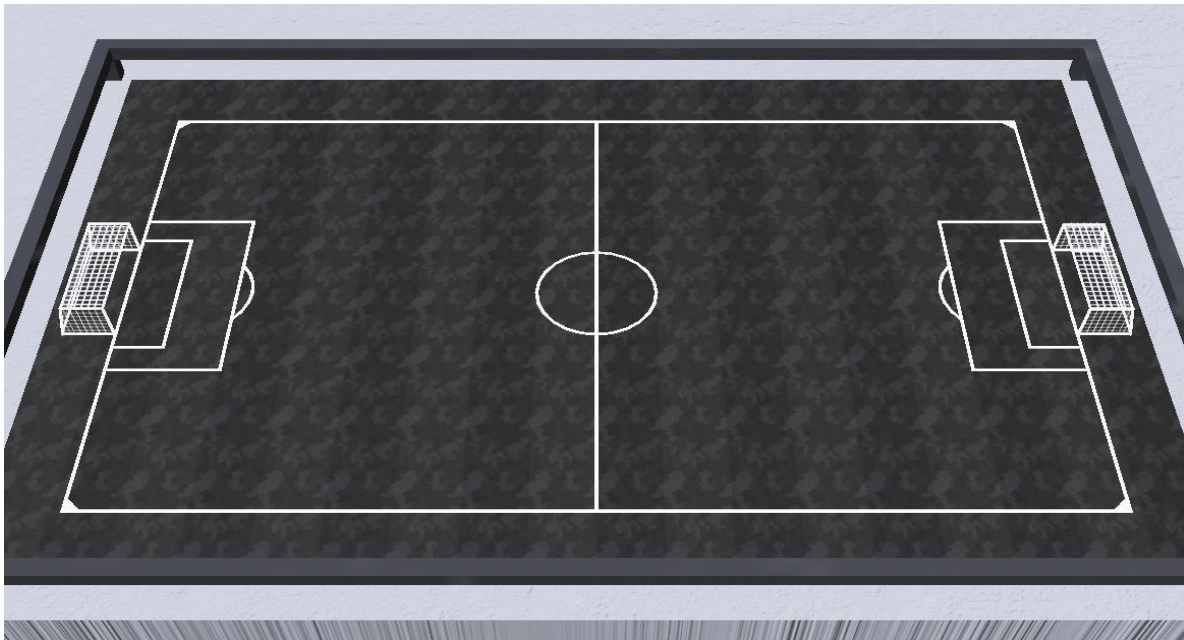
3-2. Competition field Pitch will be a dark gray stadium, and there may be an advertisements or logo of the hosts on the field.

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<Actual Screen>
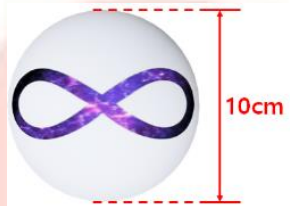
3-3. Playfield adjuncts

3-3-1. Soccer ball Weight 18.4g, Diameter of 10cm.

EX

<Example>

3-3-2. Soccer player

3-3-2-1. Role of robot Basic format consists of 3 roles (GK, Defender, Forward), but the users can play freely regardless of their role.

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	Goal Keeper	Defender (D1, D2)		Forward (F1, F2)	
Role of Team A	GK	D1	D2	F1	F2
Role of Team B	GK	D1	D2	F1	F2

<Role>

3-3-2-2. Shape of robot Shape of the robot is shown below. Players can choose a player to organize a play.

<Robot shape (Adult)>
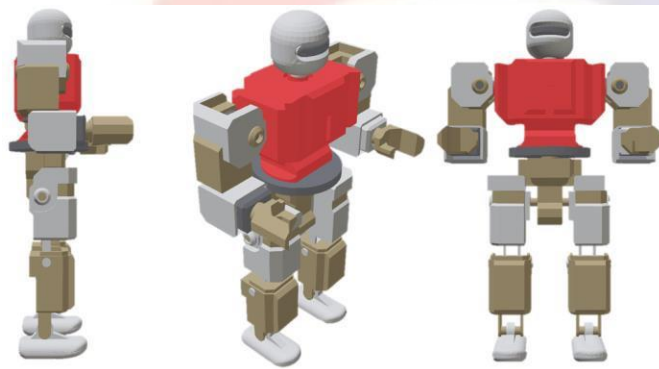
3-3-2-3. Specifications 5 robots in a team share the same coordinate system. Some specifications may vary based on the roles as followings.

Specifications \ Role	Goal Keeper (0)	Defender (1, 2)	Forward (3, 4)
Weight of robot	2.5 kg	2.0 kg	1.5 kg
Gravity center of robot	1.5 cm above the ground		
Weight of wheel	0.15 kg each		
Weight of slider	0.5kg each		
Maximum speed	1.8 m/s	2.1 m/s	2.55 m/s
Maximum rotating torque	0.8 N*m	1.2 N*m	0.4 N*m

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<Physical law specification>

4. Game process

4-1. Process
4-1-1. Game time First half 1.30 minutes, second half 1.30 minutes.
Each participant will play two games with the opposing team, and the total game time will take 6 minutes.
4-1-2. Position Team A: Left field, red robot / Team B: Right field, blue robot

4-2. Code making
During face-to-face processing, participants' code-making time is given at least four to six hours, and code-making time can vary depending on the number of people. The code must be made within the code making time. It shall be produced and submitted within the basic code provided. Code production can utilize code production programs that are easy for participants to handle, such as visual studio and pycham. However, all codes written before the start of the competition must be deleted in the program.

4-2-1. Laptop for Code Creation
Laptops for code creation are prepared by participants themselves or provided by organizers. The basic code is stored and distributed on the USB provided by the organizers, and the USB is provided to one participant during the competition. If the organizer provides a laptop, there is a prior notice, otherwise a personal laptop can be used.

4-2-2. Before the competition begins, participants must remove all programs and files on their laptops except for basic code and simulation programs. When the competition begins and programs and files other than related programs are discovered, they will be disqualified.

4-3. Submission Before the competition begins, participants must remove all programs and files from their laptops except for basic code and simulation programs. When the competition begins and programs and files other than related programs are discovered, they will be disqualified.

4-3-1. Submission folder name
Team name (English full name, all capital letters)_py shall be written and submitted in the folder name, and if the name of the submitted folder is different or the default code name is changed arbitrarily within the folder, it shall be considered cheating and disqualified.
Submission Example) ROPI_py

4-3-2. Abnormalities in submission code
If the simulator at the start of the competition is unable to execute due to an abnormality in the submission code during the competition or if the action is repeated, it will be disqualified if it fails to operate normally for a period of 30 seconds.

4-4 **Disqualified** in accordance with 4-2-2, 4-3-1, 4-3-2.

5. Game

5-1. Mission The team that scores more during the first/second time wins.

5-1-1. Stalemate If all robots in both teams can't kick the ball properly.

There may be a situation that AI-based robots can't kick the soccer balls properly. Unlike the actual stadium, the stadium of AI football is surrounded by a hard wall. Thus, the robots can push the ball to the wall, and if several robots do the same action,the ball may fall in a stalemate that the ball does not move.

It is considered stalemate if the ball moves under 0.4m/s for four seconds. It will be handled differently based on the region stalemate occurred.

5-1-2. Field decision According to the tournament match table, the first game will be played accordingly, and second match will be played by changing the side.

5-2. Acquiring points 1point per goal will be given each time player puts a goal into the opponent's goal post.

5-3. Game rule

5-3-1. Kick off The competition will be carried out with the kick-off of the red team after the starting signal. After the first half, the second half will be carried out by the kick-off of the blue team. After scoring, the game will be played with a kick off the team that lost points.
* Robots other than forward(F2) of the team with the ball possession move when the ball falls out of the center circle or when the ball does not fall out from the center circle for 3 seconds.

5-3-2. Ball Out This refers to the situation in which the ball goes out of the sideline.

Check the general rule before reading this game rule. Please be aware that the general rules apply equally to all events during the competition.

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The game will be carried out with a goal kick or corner kick.

A team with a smaller number of robots that kicked before the ball out will take the possession of the ball. (Cases that more than two robots kick may exist.)

If numbers of robots are the same, the team in the direction where the ball went out takes the possession.

5-3-3. Corner kick If stalemate occurs in a corner area or if ball goes out of the field, the game will be continued as a corner kick. Depending on the location of the corner where the corner kick is taking place and the team that owns the ball, type of the corner kick will be processed.

Robots other than forward(F2) from the team with the ball possession move when the forward(F2) of the team with ball possession kicks the ball or when the robot fails to kick the ball for three seconds.

5-3-4. Penalty kick If stalemate occurs in a penalty area or at a foul situation, the game will be continued with a penalty kick.

Robots other than forward(F2) from the team with ball possession move when the forward(F2) of the team with ball possession kicks the ball or when the robot fails to kick the ball for three seconds.

Check the general rule before reading this game rule. Please be aware that the general rules apply equally to all events during the competition.

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5-3-5. Goal kick If stalemate occurs in a penalty area or in a foul situation, the game will be continued with goal kick.
Robots other than forward(F2) from the team with ball possession move when the goal-keeper(GK) of the team with ball possession kicks the ball or when the robot fails to kick the ball for three seconds.

5-3-6. Red card If robot turns upside down for 3 seconds, they will be sent outside the playground, then return to the basic position (kick-off position) after 5 seconds.
Exceptional situations: If there is another robot or ball in the position they must return, they must go back again after the obstacle moves.

5-3-7. Ball relocation Ball will be relocated if stalemate occurs at a region except corner and penalty area (red square). Ball will be relocated to the position closest to current position among the four designated positions (red points). The position doesn't get reassigned.

5-3-8 What is not specified above follows the rules of the game in the AI football manual.

6. Evaluation

6-1. Evaluation Will be evaluated according to scored points.

6-2. Extra time golden ball Before the tournament game. If the scores are the same after the second half of the game, extra time will be played, and the camp decides the camp through rock-paper-scissors and the participant who wins the first goal first wins.