



# One Minute Game

## Move the Can robot

### JUNIOR

### GAME RULES



## Section 1 About participants

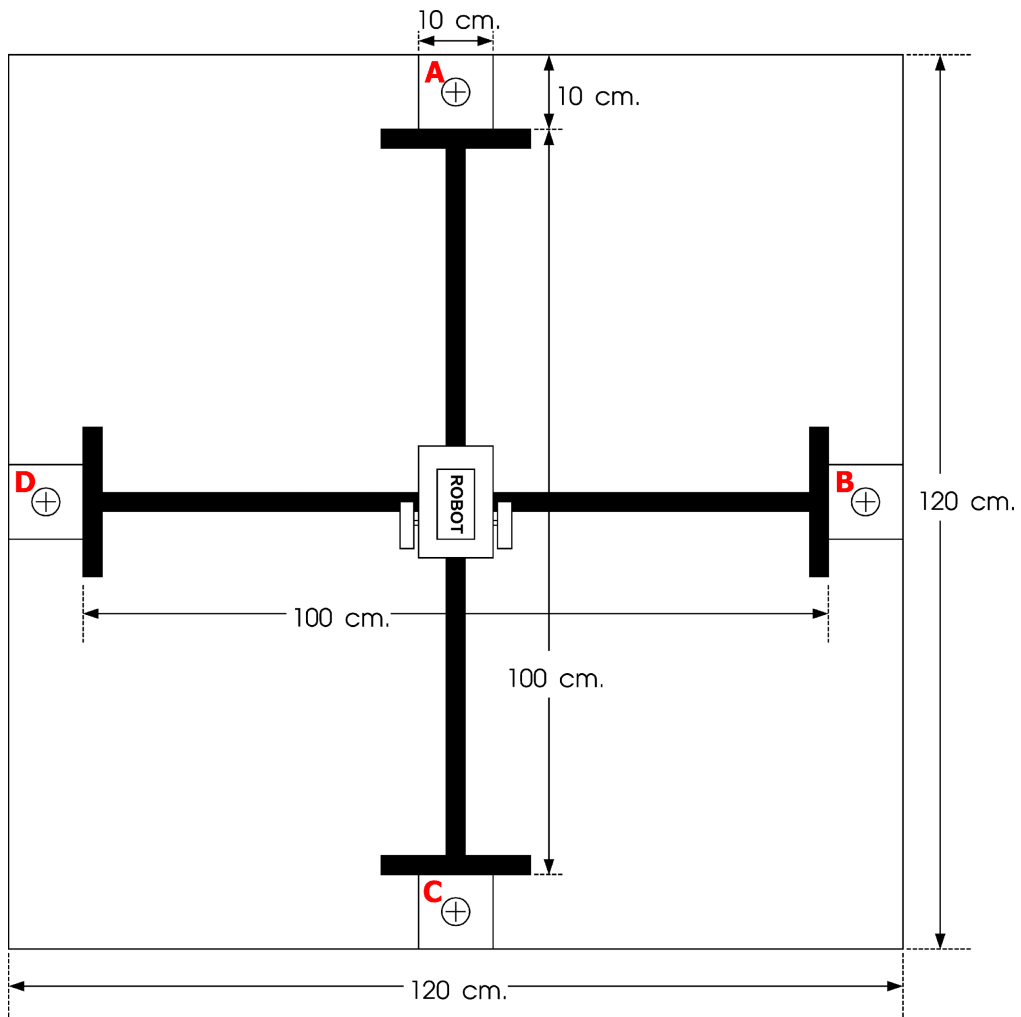
### Article 1

- 1.1 There is one participant per team.
- 1.2 Every team may or may not have teacher/mentor by each team must have only 1 person (1 teacher or mentor can supervise multiple team).
- 1.3 Each participant can play only one team.

## Section 2 Playing field pattern

### Article 2 Playing field

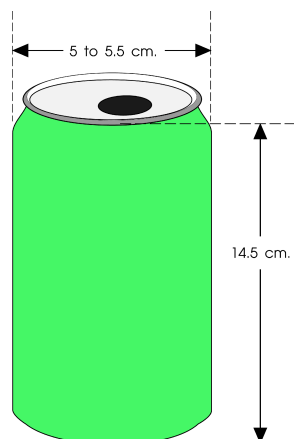
- 2.1 The playing field is flat but may have joints less than 3 mm. in height and the field size is 120 x 120 cm. There are path lines as shown in Figure 1.
- 2.2 The black line wide around 2.5 cm.
- 2.3 There are 4 target positions for placing cans.



**Figure 1 : The playing field of the Move the can game.**

### Article 3 Specifications of the can

- 3.1 The can size is diameter 5.5 cm, and height 14 cm. (minimum)
- 3.2 The can stands without falling or rolling.
- 3.3 May use sized beverage can 330 ml.



## **Article 4 Lighting and magnetic conditions**

Team must prepare the robot to work under lighting conditions in the playing field which the lighting condition may differ in the competition

## **Section 3 Robot requirements**

### **Article 5 Technical features**

5.1 The robot size must not exceed than 20 x 20 cm. No height limit and it must be placed in a rectangular box within 20 x 20 cm. that the referees have prepared before the competition.

5.2 Any type of wheeled robot is allowed. For microcontroller rules, the sole decision rests with the individual country representative or the committee in the absence of a country representative. Please contact your individual country representative/committee for more information.

**5.3 The number of movement motor maximum is 4 included the can moving mechanism motor.**

**5.4 The number of sensor maximum is 4 and no limit of any sensor type.**

5.5 The playing robot must be programmed to work automatically. Participants must be prepared to deal with any possible radio waves or infrared light during practice and competition.

5.6 Robot cannot be separated or expanded while playing the game.

5.7 No limit on the source of all mechanical parts and accessories. It can be hand-made, formed from 3D printer, or modified from toy.

5.8 Fixing screws and nuts or any fixation component in the robot must be securely firmly. If during the playing have any piece dropped or broken onto the playing field, the referees will not remove it and allowed to continue the competition. Referees cannot hold responsible for consequences during removal of a loose piece from the playing field.

5.7 No limit for the computer properties used to program the robot.

5.8 No limit for power supply features.

### **Article 6 Moving the can**

6.1 The robot must check conditions on the competition field to ensure that the can is found and able to grab and lift or do other actions to move the can to the target position.

6.2 To place the can, it must be placed upright, not falling for at least 3 seconds.

## **Article 7 Prohibition of making the robot**

The robot must not be installed any parts or equipment that can any way damage the playing field.

## **Section 4 Mission**

The robot moves from the starting point at the center of the playing field at the intersection. Robot moves along the line to the can position to moving the can by any actions to the target position in the following order:

- A. Move the can from position A to B
- B. Move the can from position C to D
- C. Move the can from position B to C
- D. Move the can from position D to A
- E. The robot moves back to the starting point at the center of the competition field.

After finish 5 steps above, it means the robot complete the mission 1 round. If time still not running out, the robot can do continue the mission until timeout (1 minute).

## **Article 8 Preparation before competition**

8.1 The participant places the cans at position A and C.

8.2 Places the robot on the intersection at the center of the playing field.

8.3 No testing before playing the game.

## **Article 9 Starting the game**

9.1 The playing will begin when the participant turns switches on to run the robot operation. After that the robot must move automatically and independently without any control from any device.

## **Article 10 How to play**

10.1 When the game starts, the robot moves out from the starting point.

10.2 When leaving the starting point, the robot must move along the line to position A.

- 10.3 When the robot arrives the can position, moves the can to the target position.
- 10.4 The can's moving will complete when it is placed upright and not falling for at least 3 seconds. If the can falling after 3 seconds with any cause, the referee will allow the participant replace the can in designated position by the competing continue.
- 10.5 After the robot completely placing the cans at every target position, must move back to the center of the playing field to confirm that mission is complete.
- 10.6 From rule 10.5, the robot can do continue in next round immediately to collect more scores until timeout.
- 10.7 If the robot cannot place the can upright or it falls before 3 seconds in each position, the referee will not count the score on that point in that round and will lets the participant place the can in the correct point to continue the game by the time is running.
- 10.8 If the can is dropped from the robot during moving, will deem that cannot place the can and following rule 10.7.
- 10.9 If the robot moving slipped out of the line or out of the playing field, the competition is end.
- 10.10 The referee will record the score after timeout (1 minute) or the robot moving out of the line.

## **Article 11 Retry the competition**

- 11.1 Each team can retry at any time in case:
  - 11.1.1 The robot stops moving but still over the line.
  - 11.1.2 The robot carries the can and stops over the line.
  - 11.1.3 The robot moves along the line wrong direction.
  - 11.1.4 The robot still moves along the line but no progress of movement.
- 11.2 When the retry is occurred, the participant picks up the robot and place back at the starting point and the cans were moved back to the point A and C as at the beginning of the competition.
- 11.3 Previously achieved scores will not be canceled. Scores will not be score for hitting the ball previously done in that round.

### **Example 1**

*If the robot can move the can correctly 3 times in one movement, then request for retry, team will get 3 points. When making a new running, scores are not added until the can is correctly moved for*

*the 4th time. If the robot continues to complete the mission, it will continue to get more scores until the end of the competition or until the robot moves outside the line.*

11.4 Participants can repair and improve the robots within the playing field upon request to retry. But do not download or re-upload the program and it is strictly forbidden to change the control board. In case of violation, the referee will order to terminate the competition.

## Article 12 The playing time

12.1 The playing time is 1 minute.

12.2 No testing time before starting.

## Article 13 Scoring

13.1 When robot move to the can position and can move the can correctly, will get 1 point.

13.2 After the robot complete all missions and moves back to the middle of the playing field to start a new round of missions.

13.3 The robot can continue doing the mission after completely move the can all 4 positions. The referee will continue counting the scores when the robot does complete the mission.

13.4 If the robot can complete the task, it is included following the line and moving the cans correctly all the time continuously for 1 minute without retrying. Team will get an additional bonus 5 points.

Category	<b>One Minute Game : Move the can Robot</b>			
Participant ID				<input type="button" value="RESTART"/>
<b>Move the can mission</b>	Move the can A to B	Move the can C to D	Move the can B to C	Move the can D to A
<b>Score</b>			<b>Bonus points</b>	
<b>Total scores</b>				

**Figure 2 : Score sheet of the Move the can game**

### Example 2

*The robot can move along the line from the starting point and moves the can correctly 8 times. There is no retry. Team will get scores as follows:*

- 1. Score from moving the can correctly 8 points*
- 2. Bonus points from no retry 5 points.*

***Total score  $8 + 5 = 13$  points.***

### Example 3

*The robot can move along the line from the starting point and move the can correctly 8 times and have retrying. Team will get scores as follows:*

- 1. Score from moving the can correctly 8 points*
- 2. No bonus points due to have retry.*

***Total score  $8 + 0 = 8$  points.***

### Example 4

*The robot can move along the line from the starting point and moves the can correctly 4 times. There is no retry. Team will get scores as follows:*

- 1. Score from moving the can correctly 4 points*
- 2. Bonus points from no retry 5 points.*

***Total score  $4 + 5 = 9$  points.***

## **Article 14 The end of playing**

14.1 Time up 1 minute.

14.2 The robot moving slipped out of the line.

14.3 Hands on the robot during running.

## **Article 15 Starting of the robot**

The starting of the robot is possible with a single press of a switch or button on the robot. After that, the robot will work automatically.

## **Article 16 The lack of progress**

16.1 If the following cases happens for more than 5 seconds shall be deemed to lack of progressed in the competition.

- 16.1.1 The robot does not move
- 16.1.2 The robot is spinning all the time.
- 16.2 If the robot lack of progressed in the competition, it will be forced to retry.

## Section 5 The game format

### Article 17

- 17.1 In the first round is a playing to collect points. Each team completes its own mission to earn scores.
- 17.2 Every team has chance to complete the mission at least 2 times Choose the best scores to be placed in the rank.
- 17.3 The top 4 teams with the highest scores will ahead to the final round.
- 17.4 In case of equal scores, the referee will consider the based on other competition round. The team who has better score in other competition round get better rankings.
- 17.5 The finals round will be played on the same rules as the first round.

### Article 18 Ranking

- 18.1 The top 4 teams with the highest scores will ahead to the finals.
- 18.2 Team 5th to 8th won **the 3rd runner-up award**.
- 18.3 Team 3th and 4th in the finals won **the 2nd runner-up award**.
- 18.4 The 2nd place scoring team in the finals won **the 1st runner-up award**.
- 18.5 The highest score team in the finals won **the Champion of competition**.
- 18.6 If the teams playing in the finals have equal score, will have to play again. The team with more scores will be the winner.
- 18.7 From rule 18.6, if still got equal score, will have to play again. The team that can move the can in all 4 positions first is as the winner.

## Section 6 Fouls

### Article 19

The participants who act insulting, abusing an opponent, whether verbally or physically, or lets the robot make noises, express messages or act in a disrespectful manner will be disqualify.



## **Article 20**

If the participants do any of the following, will be deemed to be fouls as well:

- 20.1 Do any act that interferes with the opponent's robot.
- 20.2 Enter the opponent's field, throw, or bring any piece or equipment into the opponent's field.
- 20.3 Take any action that causes the competition to be stopped without justifiable reason.
- 20.4 Acts of any kind that are disrespectful to the competition.
- 20.5 Take any action that contradicts or does not accept the decision of the referee without sufficient justifiable reason.

## **Section 7 Punishment**

### **Article 21**

Those any participants do the action following the Article 19 and 20 will be ordered to terminate the playing and count the score as received.

### **Article 22**

If the mentor does the action following the Article 19 and 20, all the teams that mentor supervised will be disqualified.

### **Article 23 Conflict of judgment**

During the competition, the referee's decision is final.

## **Section 8 Damage and accidents during the playing**

### **Article 24 Request to stop the competition**

Participants can request to stop the playing when their robot has an accident that can't continue to run.

### **Article 25 Time for repairing**

- 25.1 Participants can repair their robots at any time of the competition but the time remain continues.
- 25.2 Must be repaired at the playing field only.

## **Section 9 Identification of the robot**

### **Article 26**

The identification of the names or numbers of robots participating in the competition must be always made clearly and easily visible.

