RULE of ROBOT CANNON SHOOTER BALL
STEAMCUP INDONESIA 2016

1. **OBJECTIVE**
a. The mission of robot cannon shooter ball is to build a robot that **can pick** and **throw balls** into basket at opponent's area.
b. The objective of this game is to practice the mechanical creativity, control skill, time management, teamwork, and leadership of players.

2. **ROBOT**
a. There is one robot in one team.
b. Robot can be controlled by one players.

2.1 Size and Wight
a. The size of robot is limitited to **30cm(L) x 30cm(W) x 35cm(H)**.
b. Any transform or extension during the game must be within size limitation.
c. There is no weight limitation.

2.2 Specification
a. The robot can build all type robot, like educational robot kit, modified, or can build own robot.
b. Only one controler for one robot.
c. The robots must be motorized and able to move.
d. The robots must be powered by independet power source, such as batteries.
e. The maximum power source is 12VDc.
f. All robots should be built with ZigBee or Bluetooth modules and able to be controlled wirelessly with remote controller or smart phone.
g. All robots should be assembled and programmed before the game.

2.3 Prohibition
a. All sharp, liquid, powdered, meshy, sticky, flammable, explosive materials are prohibited.
b. **Laser pointer** is prohibited
c. Any robot that damage the platform or hurt people will be disqualified immediately.

2.4 Name patch
a. Robot must be labeled with the name of team on visible area of the robot.
b. The minimum size of patch is 5cm and the minimum height of the number is 4cm, as showed in figure.

RobotisKidsLab Indonesia
Manyar Megah Indah Plaza Blok I-21, Jl. Ngagel jaya Selatan, Surabaya, East Java, Indonesia
Tel : +62-31-503-9431 ext 23
Fax : +62-31-503-9465
Email : learn@innovativeelectonics.com / steamcup@innovativeelectronics.com
Homepage : www.steamcup.innovativeelectronics.com

Figure 1. size of Name patch

3. SETUP THE GAME

3.1 The Field

a. The game field is on a hard rectanguler in **244 cm(L) x 122cm(W)** as in figure 2.

b. The field is surrounded by sidewall with height of 20cm as in figure 2.

c. Start boxes in red and blue colour boarder with size of 30cm(L) x 30 cm(W) near the short side of each field as in figure 3.

d. There are two divider at the center with length 20cm and height of 7cm to divide the field into two halves can see figure 3.

e. Radius of basket is 28cm upside and 20cm downside, with height 26 cm as in figure 4.

f. Height basket from base is 85cm as in figure 4.

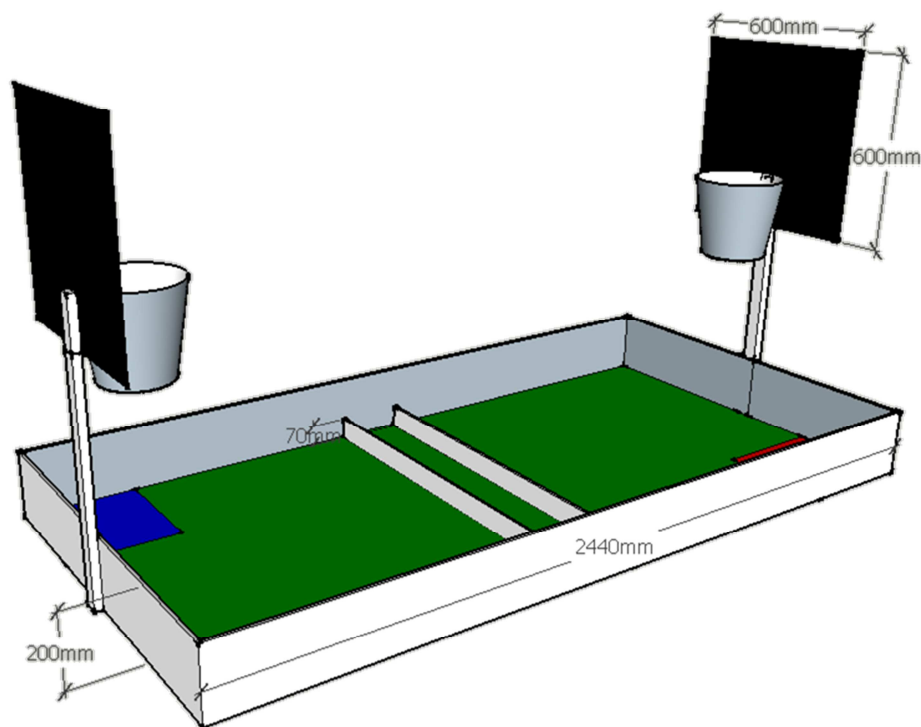g. The actual field size may have 5% tolerance to all measuremnt above.
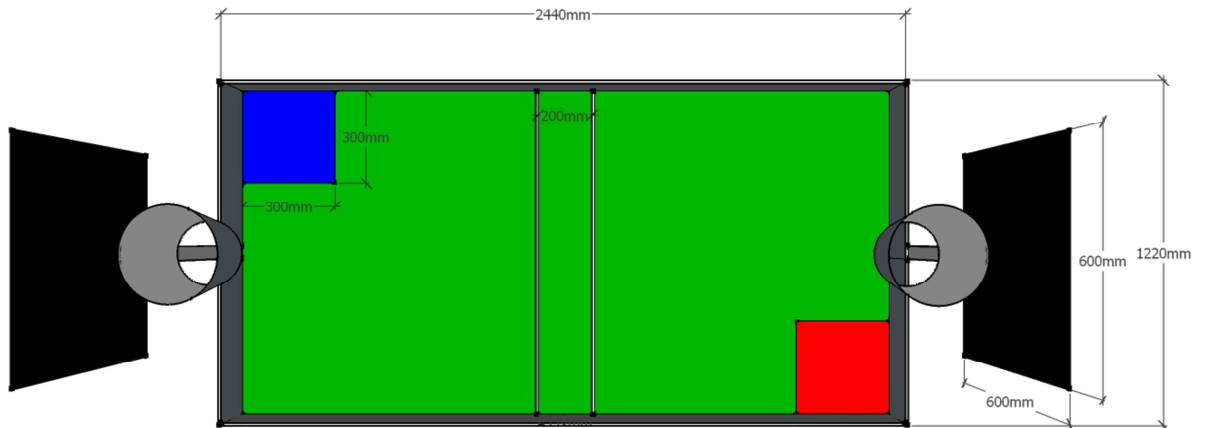

Figure 2. The field in 3D

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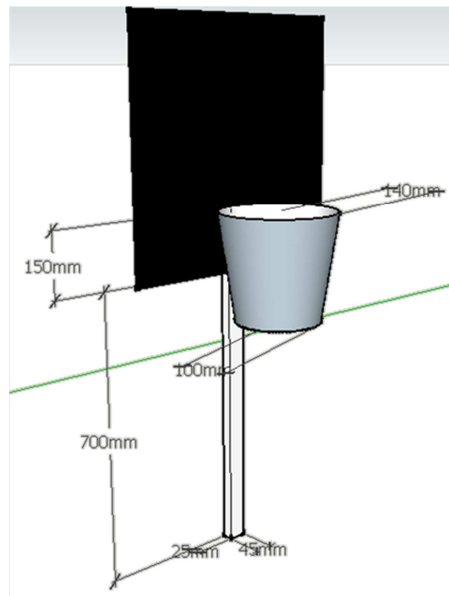
Figure 2. The field with Measurement

Figure 4. Basket

3.2 The balls

   a.   Five table tennis ball carry with participants.

   b.   Ten table tennis ball will put in each half before game start.

   c.   If any ball gets out the field, the ball is not return to the field till the end of the game.

   d.   Score :

       ➢ Five ball carry with robot : 5 Point each ball throw into basket.

       ➢ Ten Ball in field :

           o   Pick up and throw to opponent area : 3 Point.

           o   Pick up and throw into basket : 10 point.

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4.   THE GAME

4.1 Game duration

- a.   The game lasts three minute.
- b.   The players have three time to take the point.
- c.   The point will sum from take point 1 + take Point 2 + Take Point 3, and we will be rank look for winner.

4.2 Preparation

- a.   Players must take the card point before goto field and then hand over to referee.
- b.   Players must be ready with robots in three minute once referee called for start.
- c.   The robot must be turned on, ready to be controlled and placed in start boxes before the game starts.
- d.   Robot can carry maximum 3 ball in robot.
- e.   Ten table tennis balls be ready in each half.
- f.   Referee will blow whistle as a sign to start the game, then the players can start controlling the robots to move, pick and throw in the balls to basket at opponent's half.

4.3 Interruption, time and wpithdrawing

- a.   All player must stop all robots when referee whistles to interrupt the game in following condition
    - a.   End of each game.
    - b.   Any foul is called.
    - c.   A team calls for time out (each team can only call once in each game).
    - d.   Emergency situation that may damage the field or hurt the players and audience.
- b.   The time of game keeps running even in interupption.
- c.   Once referee whistled for interruption, there are ten second for all robots to return to start boxes before resuming the game.
- d.   If withdrawn robot is not ready in ten seconds, the game continues without it. Once it is ready, the player should ask permission from referee to reenter the field. Once referee gave permission, then the player can put the robot on start box of own side to reenter the field.

4.4 Foul

- a.   The player touches any robots, the ball or the field without permission from referee.
- b.   The player does not follow instruction from referee.
- c.   The player commits unsuporting behaviour towards an opponent, a team-mate, the referee, or any other person.

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4.5 Winning
a. Winner will selected from players with highest points.
b. Maximum point is 125 point.
c. If the participants have same point, the winner will be selected from the last time throw the ball.
d. Exampe point to calculate :
Team A throw into ball to basket 5 ball from ball brought, can pick up ball and throw to opponent 5 ball, and can pick up ball and throw into basket 5 ball.
Calculate :
➢ 5 ball carry, throw in to basket   : 5 x 5 : 25
➢ 5 ball pick up and throw to opponent   : 3 x 5 : 15
➢ 5 ball pick up and can throw into basket : 10 x 5: 50
   Total   : **90 Point.**

5. ADDITIONAL RULE
a. The committee has the total rights to add or amend the rules.
b. Once the rule are announced, no objection will be taken.

Contact :

Bagus Yunanto

Email : steamcup@innovativeelectronics.com

Wa   : +62-8523-3199-5947

Fb   : idrobotiskidslab

Example Card Point

		MISSION CARD **Nama Team :** **No :**					
		Take POINT					
No	**Point**	**1**		**2**		**3**	
		Ball	Point	Ball	Point	Ball	Point
1	ball carry, throw in to basket						
2	ball pick up and throw to opponent						
3	ball pick up and can throw into basket						
	Total						
	Sing Participant						
	Sign Judge						