

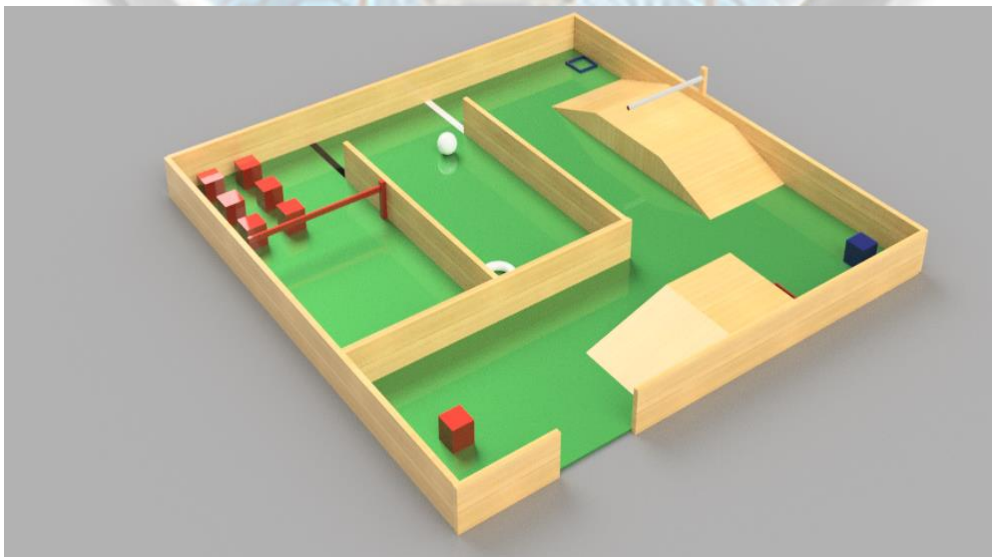


Block It

Arena View 1:

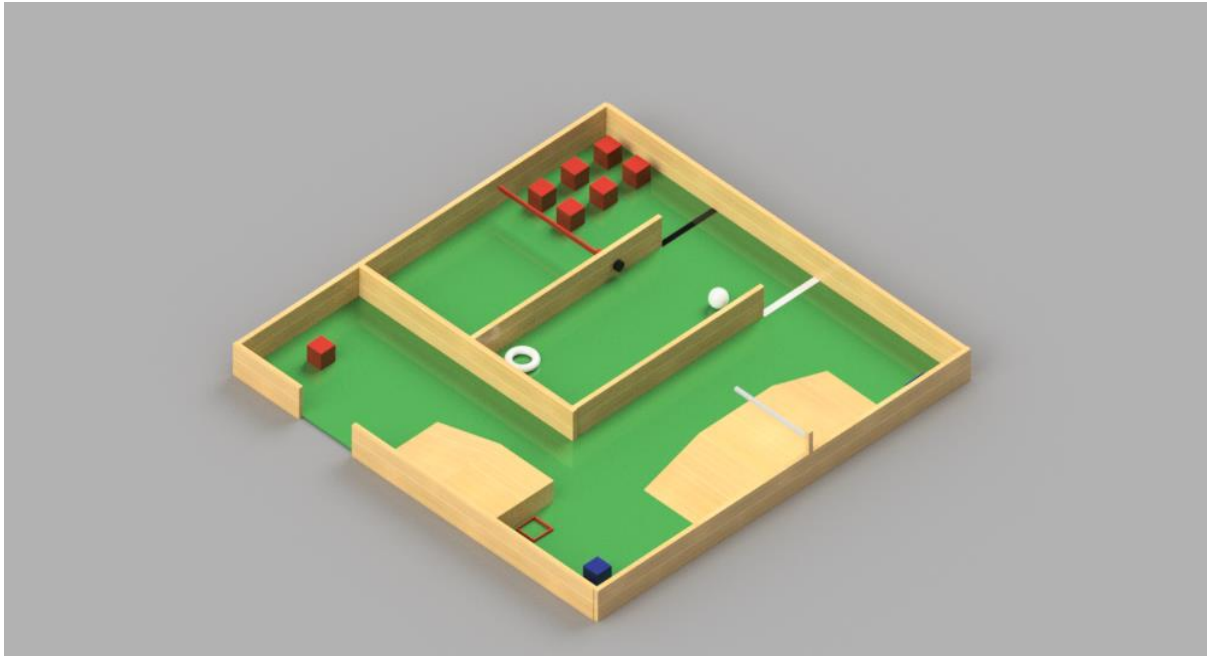


Arena View 2:

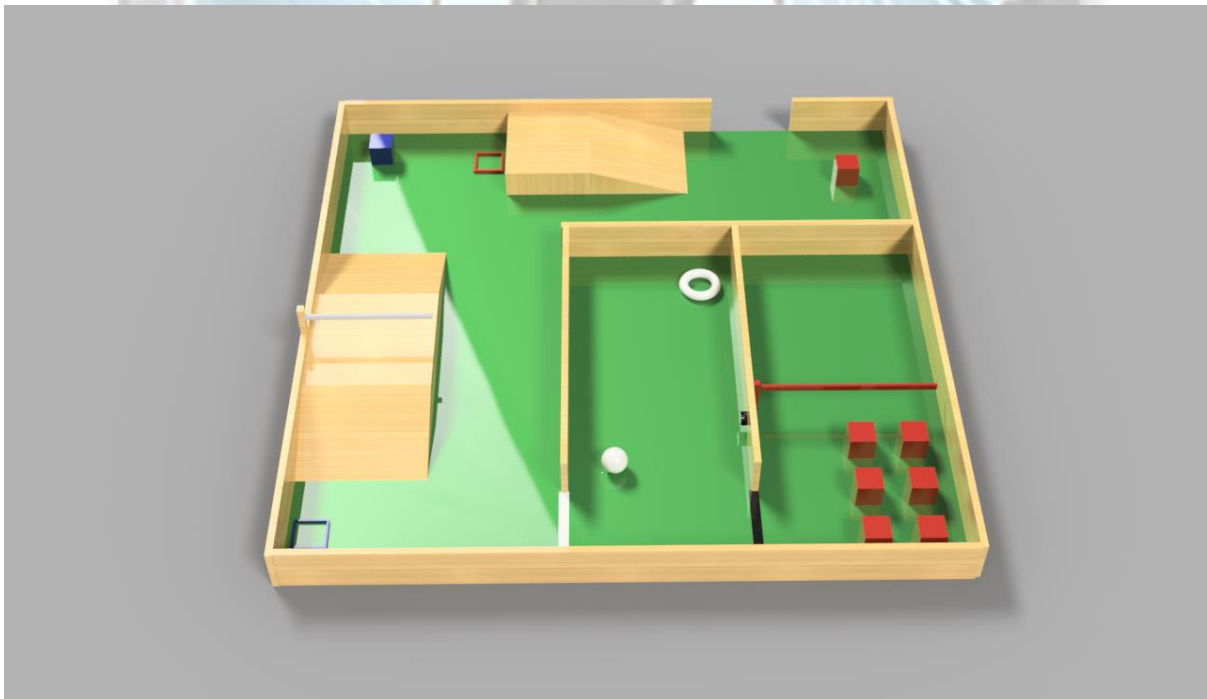




Arena View 3:



Arena View 4:





GAMEPLAY:

The whole arena is colored in green. The dimensions of various parts have been shown in the above pictures. 1 strip of black and white color each have been placed randomly in the arena, which will serve as checkpoints.

The teams need to start from the starting area of the arena.

*Only one team is allowed per pool

NOTE:

- A.) All the blocks have to be dropped in the corresponding baskets.
- B.) Each team needs to make a controller, using *Inertial Measurement Unit (IMU)* & flex sensors.
 - imu for motion of the bot and flex sensors for gripping and lifting. Use of other controllers (like switches, joysticks, PS2 controller etc.) is not allowed. Any violation of this rule will result in disqualification.
- C.) Communication between the robot and the controller can be wired or wireless.
(For e.g. a team can make a glove containing an imu, an arduino and flex sensors and use wired communication to control the motors).
- D.) Teams are free to use any platform (eg: arduino, R-Pi) to interpret the readings of imu and flex sensor.
- E.) A team can perform the tasks given below in any order.

TASKS:

- 1.) As soon as the bot enters, it will encounter a red block, pick it up, climb the wedge, drop the block from the wedge into the basket directly below it and come down the wedge. (50pts)
For any other route followed, only 10pts will be awarded
- 2.) The task is to pick the blue block, pass the bridge and drop it in the corresponding basket. (50pts)
For any other route followed, only 10pts will be awarded
- 3.) Pass the checkpoint with white strip.
- 4.) The task is to pick the ball and place it in the basket (basket height 10cm). (80pts)

*For entering the free-zone (refer -Pt.6), the bot needs to press a button placed near the black strip to open the gate to the free zone.
- 5.) Pass the checkpoint with black strip.
- 6.) The bot encounters six red blocks. The task is to stack them in the free zone (red colored area in the arena). The points for block at nth position will be given as $10 \cdot (3^{n-1})$, n = position of block in a stack (eg. bottom : 1,..). One is allowed to form multiple stacks of different heights

*A penalty of 50 pts will be imposed if the ball is not placed in the basket before entering the free zone.



*CHECKPOINT: There are two points in the checkpoints in the arena. In case of manual interruption, you will have to start from the last checkpoint, given that the bot has passed the checkpoint once.

Arena Description:

*In case of any confusion please refer the pictures on the 1st and 2nd page.

1. Arena Size:

- a) Length =2.00 m
- b) Breadth=2.00 m

2. Block Sizes:

- a) Total number of blocks= 8(6 in freezone)
- b) 8 blocks (7 red, 1 blue) of size: 8cm x 8cm x 8cm

3. Entrance to the arena is 30cm wide.

4. Wedge, Bridge:

- a) Full wedge/bridge- Width =40cm, Height =10cm, Length=100cm
- b) Half wedge- Width =35cm, Height =10cm, Length=65cm

5. Baskets:

- a) Total number of baskets=3

6. Two strips ~ 1 white & 1 black.

*In case of manual interruption or going out of the arena, the corresponding team will have to start from the last basket in which they placed a box or the last checkpoint (whichever is closest).

Bot:

1. The initial size of the bot shouldn't increase 25*25*30

Length <= 25 cm

Width <= 25 cm

Height <= 30 cm

2. The bot has to be kept within the starting area initially.

3. The bot has to move within the arena at all points.

Note:

Dimensional Tolerance for arena = 10%

Dimensional Tolerance for Block Size = 10%

Disclaimer:

- In case of any discrepancy, the final decision lies in the hands of the co-ordinators.
- In case of a tie, the total time taken to finish the tasks will be considered.