ROBO BUILD 1.0

<Build your robo, it builds for you>

Introduction

TECNOESIS'18 brings to you the constructive race "RoboBuild" This competition is to show how fast can your robot construct a structure using blocks.

Problem Statement

Teams must build two robots, one of which will construct a structure (builder bot) and the other (helper bot) will help/attack/defend during the game.

Specifications

BOT SPECIFICATION

1.Builder bot: Maximum dimensions = 25cm*25cm*20cm (l*b*h)

    (including the and wheels)

        Maximum radius of arm = 40cms.

2.Assistive bot: Maximum dimensions = 25cm*25cm*20cm (l*b*h)

     (including the and wheels)

        Maximum radius of the arm=40cms.

3.Maximum weight (per bot) = 4.5kg

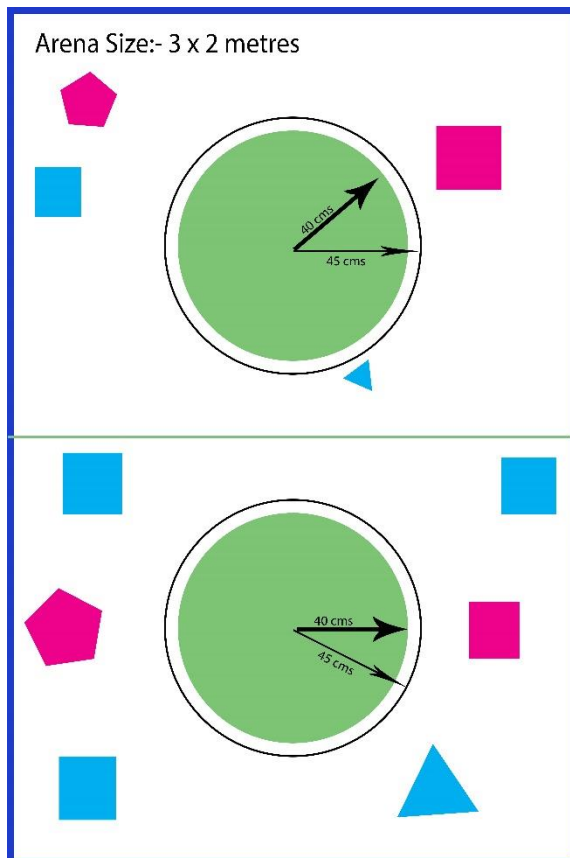4.Use of ready-made kits and ready-made mechanical grippers are not allowed.

5.The potential difference between any two points in the bot should not exceed 12 Volts.

6.The bot must be controlled by wired or wireless remote-control mechanism throughout the game.

7.220V AC power supply will be provided by the organisers.

ARENA SPECIFICATIONS

1.Dimensions = 3m*2m (l*b)

2. Radius of circle where the tower is to be built - 40cm

Arena Size:- 3 x 2 metres

40 cms

45 cms

40 cms

45 cms

*The image is only for the description purposes. The actual arena might vary.

TOWER SPECIFICATION

- Ground Floor: Maximum 6 blocks
- First Floor: Maximum 5 blocks
- Second Floor: Maximum 4 blocks
- Further floors have no restriction   on the number of blocks present.

BUILDING BLOCKS SPECIFICATION

- Cuboid
- Cube
- Frustum
- Sphere

Note: The shapes will have different colours according to the points they carry. No block will exceed the radius of 7 cm. So, design the width of the builder bot's grabber accordingly.

TEAM SPECIFICATIONS

1.Each team may have maximum 5 members.

2.Participants from different educational institutes can form a team.

WHAT WE GIVE

- 4 motors @300 rpm
- 1 motors @200 rpm
- 1 motor @60 rpm
- Rainbow wires 5 metres
- 4 DPDT Switches
- Clamps
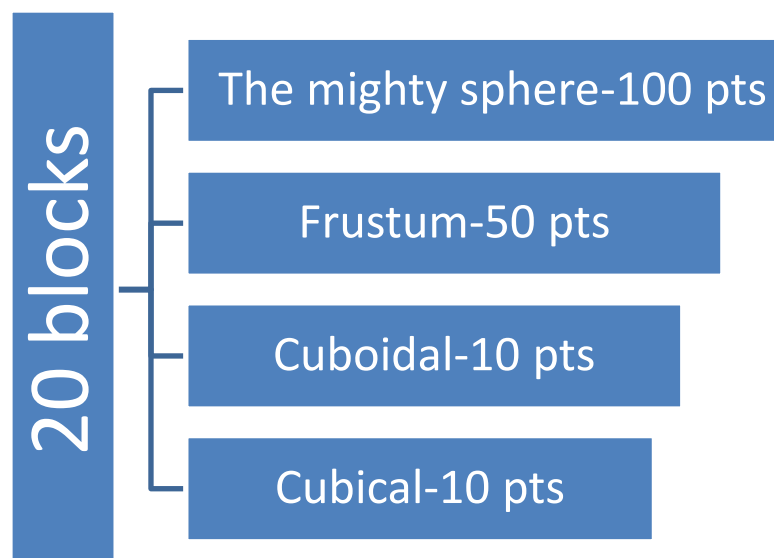- 1 female adaptor socket
- And lot's of advices…

GAME PLAY

So, stay with me..

When you reach the arena and you will be given a total time of 2 minutes to setup your bots and run a dry test on the arena.

Total time of the match =12 mins

Then when the warmup time ends both the team's builder bot will be surrounded by a distinct set of colour coded blocks with some numbers written on it. These number will be representing the scores you will be adding to your score card if you use it in your tower. These numbers will be graded according to the difficulty of the shape of the blocks which are as follows: -

20 blocks

- The mighty sphere-100 pts
- Frustum-50 pts
- Cuboidal-10 pts
- Cubical-10 pts

The more edgy blocks you use, the more points you gain adding 'em up in your building.

These blocks will be out of range from the builder bot thus the assistive bot will have to bring them closer to the builder bot so that it can place them and pile them up thus forming a tower.

At the 6th minute…

Also, the assistive bot will be given a total time of 1.5 minutes at the 6th minute of the gameplay to enter up to a certain region (the outer dotted circle of the opponent) of the opponent team and demolish their building/tower. Also, at the end of 6th minute or the beginning of 7th minute the assistive bot should cease all its actions of the demolition and return to its allotted arena. Any hits after the allotted time will be considered as a foul and will be penalised by the no. of points which will be lost by the victim's team.

At the 9th minute…

One mighty sphere will be added to the arena at the exact centre, the person who is successfully able to add it to their structure with the ball staying for at least 20 seconds will be given 100 bonus points.

P.S. – The mighty sphere can only be added on or after the second floor.

Who Wins?

Win will be considered in two situations: -

1) At the end of 12 minutes the tower which has the maximum no. of points in their score card will be considered as the winner.

2) In case none of the teams, at the end of 12 minutes, can form a tower of more than the ground floor, then the highest sum of the 6 blocks in the ground floor present inside the circle will be taken into the consideration.

RULES AND REGULATIONS

1)One player will control the striker bot and one player will control the assistive bot(One more person can lend a hand in controlling the weapon only)

2)Participants are not permitted to touch the bot except for the controllers while the match is ongoing until the bot goes immobile for 60 sec.

3) 3.5 minutes of repair time will be given. If the team is unable to repair within the time, then they will be penalised with a disqualification.

4) The bot in no manner should damage the arena.

5) The blocks will be placed as per co-ordinators jurisdiction and is not questionable.

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