

ROBO CONTEST

ROBO SOCCER

Description: This is a technical team event. This event will be played by robots of two teams against each other. The main objective of the event is to score goals by bots.

Bot Specifications:

1. The dimensions of bots should not exceed 26 cm×25 cm×18 cm (l×b×h). The above dimensions are for complete bot.
2. Motors: only 2 DC geared motors (Max torque of each motor 5 kg-cm & maximum speed of each motor is 500 rpm) per bot is allowed.
3. Controlling mechanism: Bluetooth, Wi-Fi, ZigBee or RF. Wired mode of controlling mechanism not allowed.
4. Maximum weight is 2.5 kg.
5. The power supply for the bot must be from a battery of maximum 12 V.

General rules:

1. Each registered team has to pair up with another registered team(of their own choice). The paired two groups will play as a single team. One bot will play the role of goal keeper and the other will be the striker. After half time the roles of bots of each team will be swapped.
2. No bot is allowed block the ball or block other bot for more than 5 seconds.
3. Whenever a foul occurs the timer will be paused, arena will be reset and then timer will be resumed.
4. The teams should obey the final judgement.
5. If the both the teams score equal number of goals then each team will be given a chance to score a goal. The winner will be decided on time constraint.

ROBO RACE

Description: The main theme of the RACE is to build a completely autonomous robot which is capable of tracing a path which consists of various aspects like line following, obstacle detection. The event consists of two rounds. The bot which meet the required criteria will move to further round.

Mission:

Round-1:

The rover(Autonomous robot) has to accomplish the following mission:

The arena will be in the shape of '**S-T-E-P-Cone**'. The actual alphabet arrangement and shape will be shown clearly in the **arena description** which is a 3D view of the arena.

- 1) The rover has to enter the alphabet '**S**' from the point described as '**ENTER**' placed on the arena.
- 2) The rover has to trace the path of alphabet '**S**' using the mechanism of line follower.
- 3) In the arena the starting '**S**' and ending '**Cone**' are connected by the alphabets '**TEP**'. The alphabets TEP are designed using sheets (which act as walls) which are obstacles.
- 4) The '**Cone**' is like line follower and here the line is on the top of the bridge (bridge starts with an elevation at the end of letter 'P'). The bot should follow the line of the top of the bridge.

Round-2:

As mentioned above, the rovers which qualify the ROUND1 will move to the final round.

The arena is same as in round 1, but here alphabet T is filled with a layer of sand and the bot should moving forward on the layer of sand. Alphabet **P** is filled with stones and the bot should move forward on the stones.

- Sand with a depth of less than 1Inch.
- Stones are small in size(approximate diameter of a stone will be around 0.5 inch).

Alphabet Description:

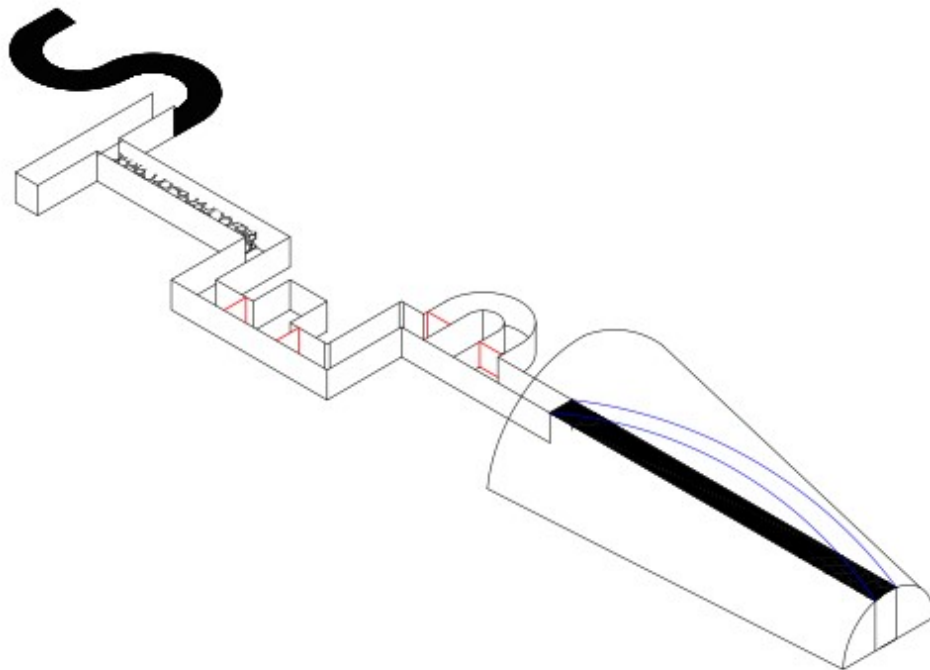
A) Both the starting alphabet '**S**' is a black line of 50mm as shown in figure.

The walls in alphabets '**T,E,P**' are white in colour made up of '**FOAM PLASTIC**' material. The path width is 300**mm** and the wall height is **150mm** as shown in the figure.

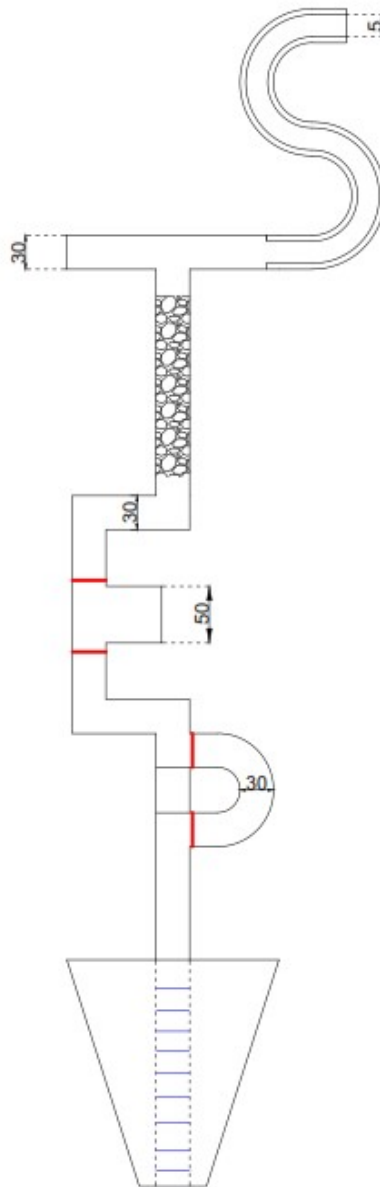
B) The shape '**Cone**' will have a black line inside over the white background.

The thickness of the line will be **50mm** which is made up of '**VINYLSHEET**'.

ISOMETRIC VIEW:



TOP VIEW WITH DIMENSIONS:



SCORING:

- A. The total time taken for tracing the total path is calculated. The bot which traces the path in minimum time is declared as winner.
- B. If the bot disturbs the path (excluding the path made for line follower mechanism) 5 seconds to total time will be added for every time it touches the path.
- C. The participant is allowed to put the bot in the path if he/she thinks the bot is out of track. Per every touch 5 seconds will be added to total time.

RULES AND REGULATIONS:

- A) The rover should be completely autonomous and any external manual signal will lead to immediate disqualification.
- B) The rover dimensions can be decided by participant as per the arena dimensions.
- C) Touching/moving the rover without intimating co-ordinator in charge will also lead to violation.
- D) In case of any discrepancies regarding the race. The decision of event in charge will be final and abiding.