CENTRE FOR COGNITIVE ACTIVITIES
NIT Durgapur, M.G. Avenue, Durgapur, West Bengal, India. PIN - 713209

NIT DURGAPUR

Bomb squad

Save your comrades

Problem Statement: Teams have to design a manual / semi-autonomous robot with a hook and hand mechanism that can defuse a dummy bomb by plucking out the given colored wire.

GAME PLAY:

➢ The knockout round between the teams is a time based round.

➢ Both the teams start at the START point at the same time. Passing the hurdles, defusing the bombs and completion the tasks given are the criteria to win.

➢ The dimension of the entire area is (800 x 400) cm.

➢ The arena is divided into two alternate portions having same tasks; the bet is time and perfection.

➢ Teams will be competing two at a time having BLUE/RED tag on them.

➢ Tasks consists of defusing the bombs, defusing landmines clear all obstacles and bringing its winning flag back to its starting position which is kept in opponents arena.

➢ Path for departing to opponent's arena should be selected in such a way that they should meet each other.

➢ For defusing the bomb and landmines bot needs to pluck out the certain wire out of bomb.

➢ Bot must be capable of passing through rolling bridge and seesaw bridge.

➢ Each obstacle/bomb/ bridge, when skipped manually will cost team some points. And completion of the task will offer team certain points.

➢ The winner will be decided as per the final scores.

BOT SPECIFICATION:

1. During the whole event the bot must fit within a cube of edge 30cm.
2. The Robot must be stable and able to move.

   A Bot not fulfilling these criteria will be disqualified.

3. The wire used to power/feed the bot should remain slack at all times.

4. Maximum allowed potential difference between any two points of robot should not exceed 18V.

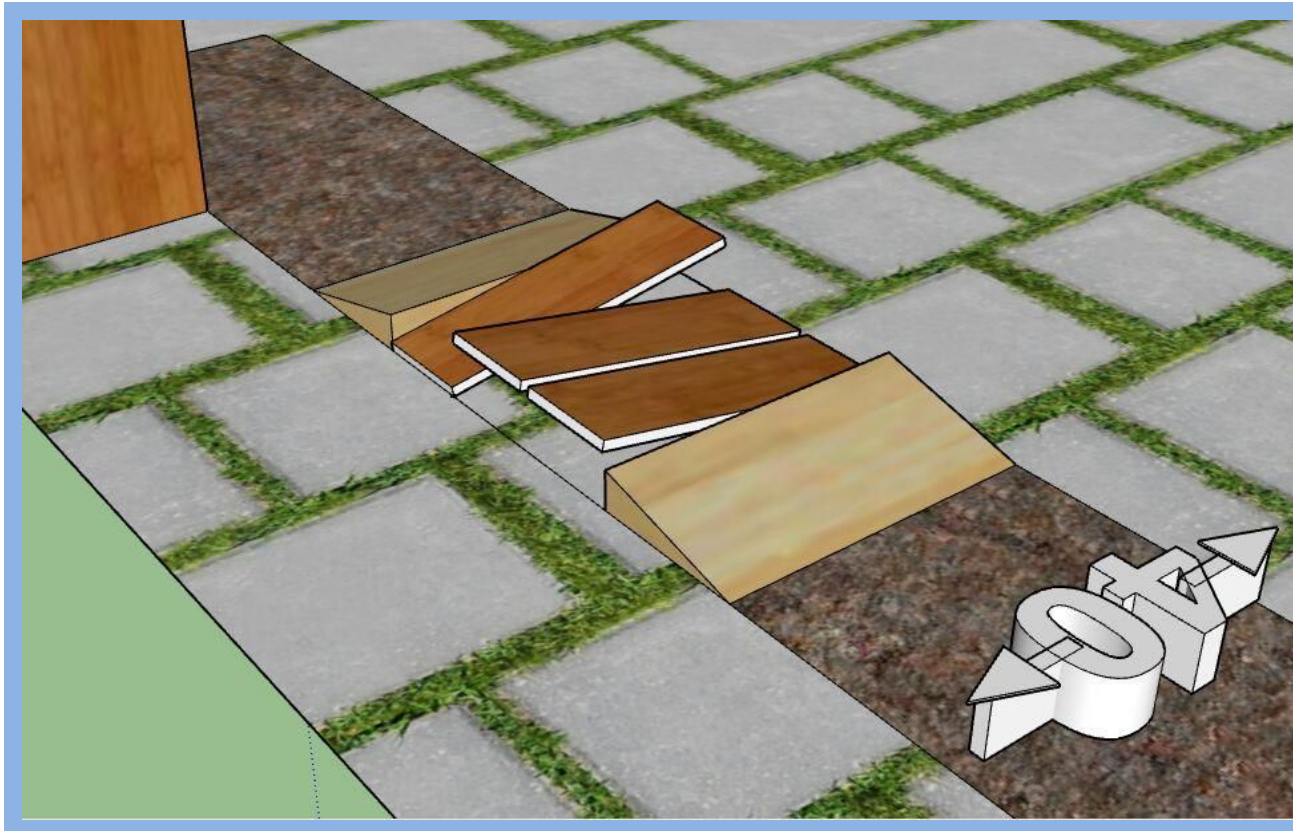   A source of 220V only will be supplied in the arena.

5. There must be a hand mechanism (grabbing and lifting) and a hook in a bot.

6. A hand must be able to pick the object of size 10cmx5cmx5cm

ARENA:

10,5,5
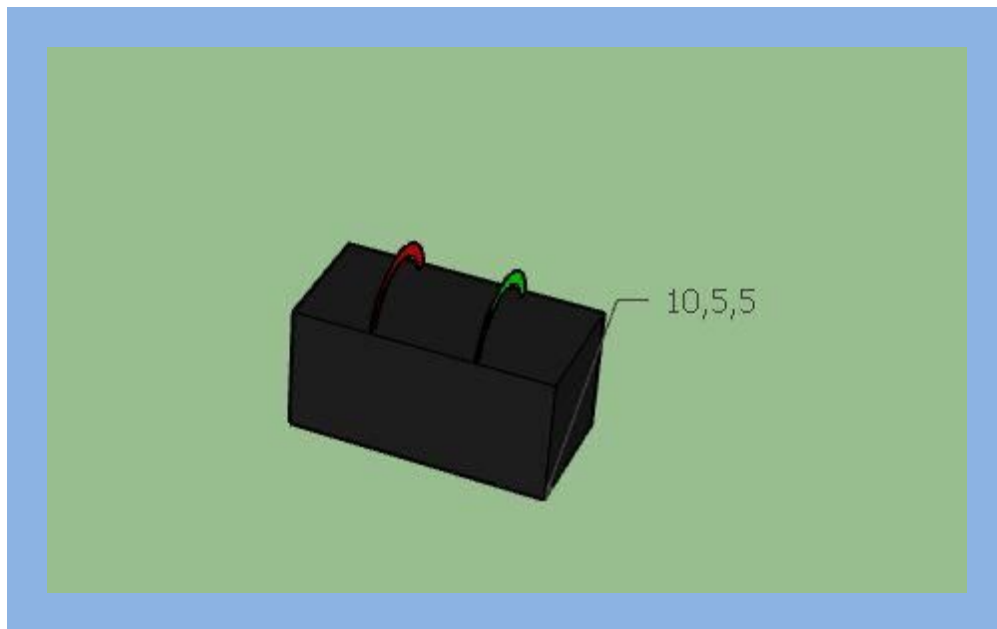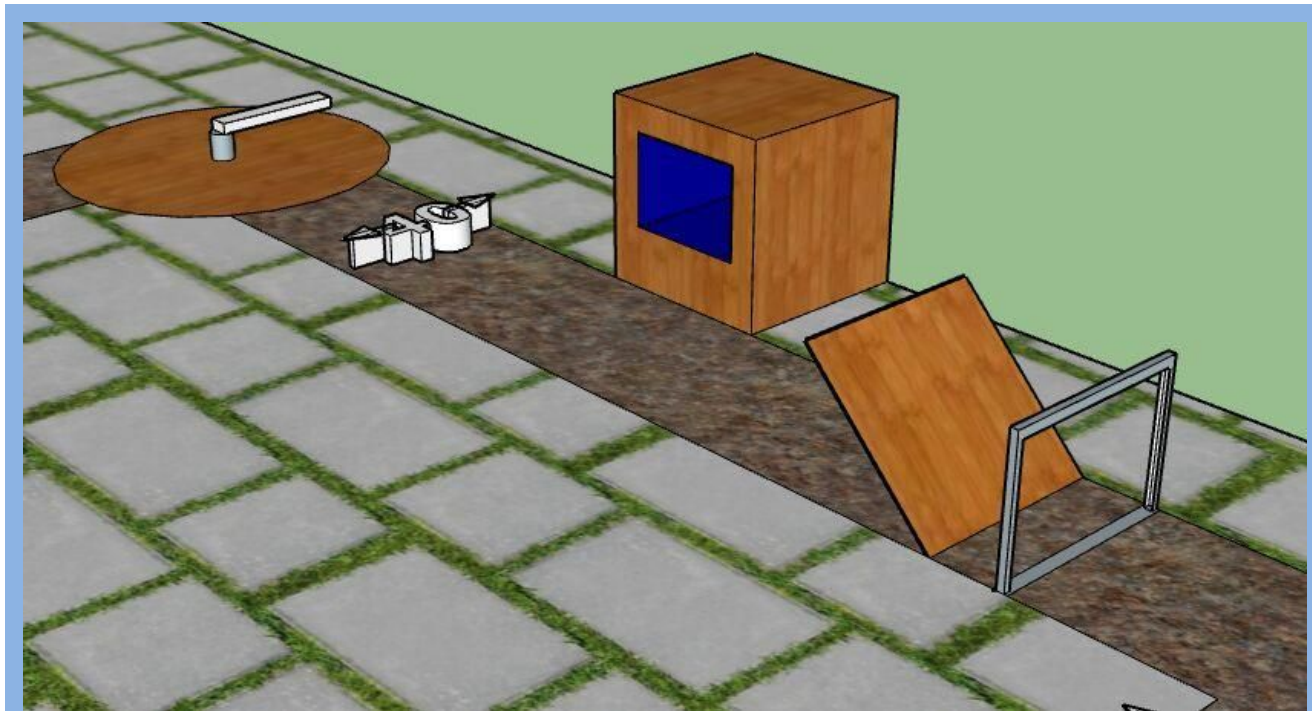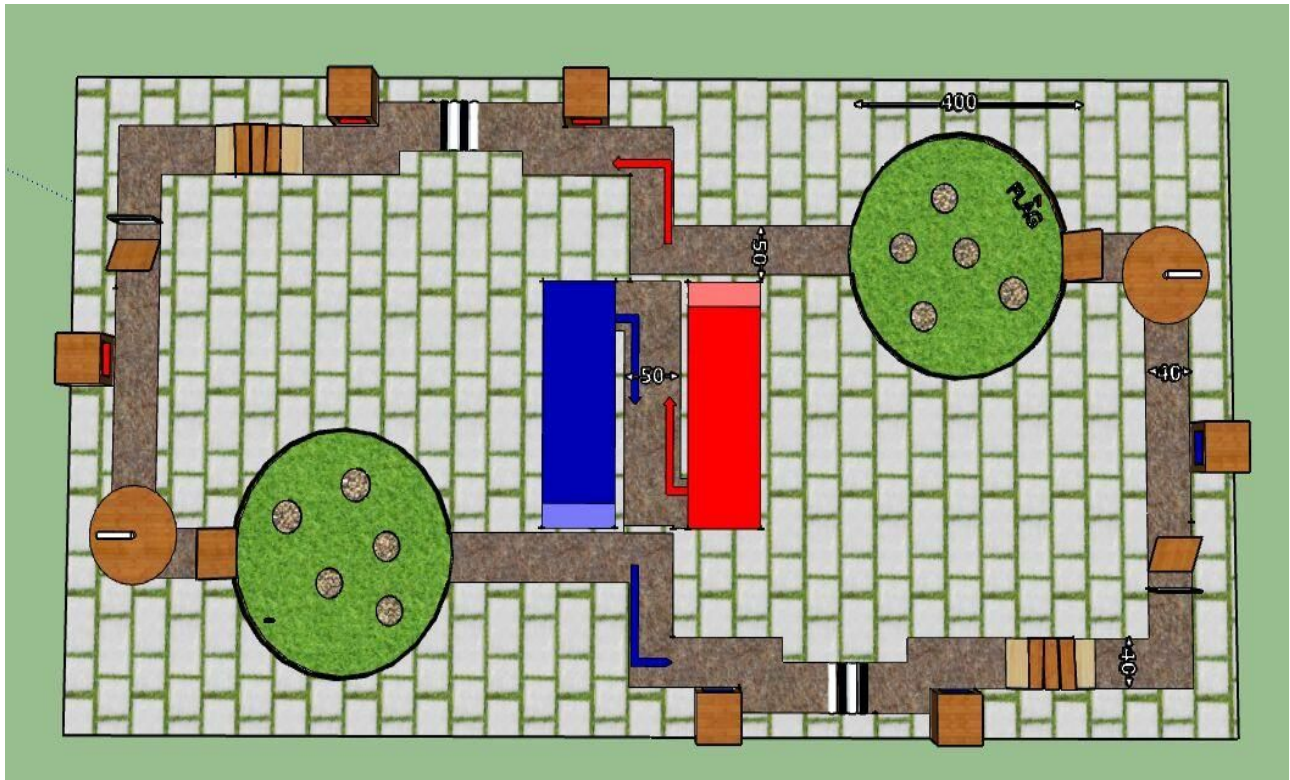
GENERAL RULES:

- Each team can have a maximum of 5 participants.
- Only 2 members per team can step inside arena.
- Certificates of Excellence and Prize Money will be awarded to the top three teams, certificates of participation will be provided to all participating teams.
- No damage should be made by a robot to the arena or to other team's bots during the game in any manner.
- Bots should not be disassembled until the results are declared.

- The organizers reserve the right to change the rules and/or arena as they deem fit.

SCORING SYSTEM:

1. Initially 200 points are given to each team.

2. For diffusing landmine you get +10 points.

3. For defusing Bomb you get +30 points.

4. Penalties for skipping sections are as follows :-

    a. Skipping rotating cylinder : -40 points.

    b. Skipping See-Saw : -50 points.

    c. Skipping Door hurdle : -30 points.

    d. Skipping rotating door : -60 points.

5. Penalties for violations are as follows :-

    a. Bot stepping out of track : -10.

    b. Dropping bomb once : -15

    c. Dropping bomb for second time : -30(Bomb is considered exploded).

    d. Bot stepping on Landmines : -20. (considered exploded)

6. If n skips are used, $10n^2$ points are subtracted.

Certification policy and Prizes:

➢ Certificates of excellence will be provided for winner and runner up.

➢ Certificate of appreciation will be provided for 2nd runner-up.

➢ All teams qualified for second round will be given participation certificates.

Contacts:

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 There may be small changes in area design. In case of any dispute or argument the decision of the organizers will be final.