SANDROVER

Aim: - Build a robot that can carry a load of coarse aggregate across uneven topography.

The Task: - Reach the final destination with minimum loss of aggregates and time while tackling as many obstacles as possible

Eligibility Criteria/General Rules: -

1. The entries are restricted to the students' currently pursuing education in recognized Institute.

2. The participants may be asked to furnish supporting documents at any stage to prove the aforementioned condition.

3. Students from different colleges can form a team of maximum 5 participants.

4. No damage should be made by a bot to the arena or to other team's bots during the match in any manner.

5. Bots should not be disassembled until the results are declared.

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

7. When a team is called for match, they must report within five minutes.

8. Judges/manager's decision will be final in case of any discrepancy.

Event Structure: -

The event will be conducted in two rounds.

1. Round 1 (Elimination Round): The first round will be an elimination round in which the bots will complete the arena for round 1 with a closed box of sand(500gram) (a lid can be put to close the open side). All other judging criteria, leaving the sand carrying part will be same.

2. Round 2 (Final Round): In the second round, 500 gram of sand will be filled in the sand carrier of the bot (with an open lid). The bot will have to traverse the complete arena carrying sand. All the judging criteria mentioned below will be applied. Some additional obstacles will be added to the arena 1 which will be revealed on the spot.

Arena Specifications and Dimensions: -

Round 1

- The arena will consist of 10 parts
    1. Deep sand (250 cm)
    2. Rollers (250 cm)
    3. Sea-Saw (250 cm)
    4. Inclined circular path (250cm)
    5. Hanging Bridge(100cm)
- Arena's width – 60 cm
- Slope's
    1. Sea-Saw ~ 15 deg.
    2. Inclined circular path~ 15deg
    3. Hanging Bridge~ 25deg

Round 2 (will be revealed on-spot)

Bot Specifications: -

1. Only wireless bots are acceptable with maximum battery voltage: 24V

2. Max weight of bot allowed = 2kg (Without sand)

3. Maximum dimensions of Robot should be: 40 cm * 30 cm * 30 cm (L*B*H)

4. The box carrying coarse aggregate should be a cuboid with dimensions exactly equal to 10cm x 10cm x 5 cm (L*B*H)

5. Motors: There is no restriction on speed (High torque motors will be better for the terrain)

6. Coarse aggregate to be placed on the chassis of the robot: 500 grams.

7. The terrain will be uneven and unduly.

8. The robot should reach the finish point in minimum loss of aggregates and in minimum time.

9. The box carrying the sand will be attached on upper side of the robot and should be made of wood sheet of minimum thickness 3 mm.

Gameplay: -

1. The bot must start from starting point and start moving when the timer starts.

2. The bot has to move towards the on the given track passing through all the obstacles in the arena (mentioned above)

3. If the bot is stuck/gone out of the track a hand touch is allowed, but only 5 such touches will be allowed.

4. Points will be awarded for each and every obstacle the bot crosses according to the judging criteria mentioned below.

5. The bot should avoid loss of aggregates as well as, should complete the track as soon as possible.

Judging Criteria/Event Rules: -

1. Loss of Aggregate-The team which has minimum loss of aggregates will get higher points (0 to 25 points).

2. Timing-The team which completes the task in minimum time will get higher points (0 to 25 points).

3. The number of hand touches on the robot will be counted for each team. The team with minimum hand touches will be awarded higher points (0 to 25 points)(Maximum hand touches allowed=5)

4. The following bonus will be given for completing each obstacle without any hand touch (Total – 50 points)

1. Deep sand (6)
2. Rollers (6)
3. Sea-Saw (4)
4. Inclined circular path (6)
5. Hanging Bridge(4)

5. The whole task is to be finished within 5 minutes

6. Final Score:

A= Total points earned in performing all tasks

B= ((300 - total time taken to complete the run)/300)*25

C= ((Wt. of sand remaining)/500)*25

Final Score= A + B + C

Note: B will be considered only if a team completes all the tasks within the stipulated period of 360 seconds. Team with maximum points will win the round.