SUBMERGE

TASK:

Make a wired controlled or wirelessly controlled bot, powered only by batteries, which has to navigate through obstacle and perform task course under water in the shortest time possible.

ARENA:

1. Arena is consisting of water.
2. Arena in water is a part of swimming pool of dimensions 22m x 10m, and depth varies.
3. The Arena is divided into two parts, each one dedicated to a task which the bot has to perform.
4. Obstacles in the pool will be according to the task.

SPECIFICATIONS:

1. The bot must fit into a box of 50 cm x 30 cm x 30 cm at all times.
2. The bots should be strictly battery powered only.
3. If the bot is wired controlled, The wire length should be greater than 20m.

POWER SUPPLY AND PROPULSION:

The machines have to use an on-board electric power supply. No external power supply will be allowed. Teams shall bring their own power supply for all its machines.

RULES:

1. The position of participant in competition will be based on points basis.
2. Participants are not be allowed to touch the bot directly or indirectly at any time during the run, doing so will lead in disqualification.
3. Disintegration of the bot will lead in immediate disqualification.
4. The operator is not allowed to move and has to control the bot from the fixed position.
5. If the bot starts off before the whistle is blown, the counter would be restarted and the machines would get a second chance. However, if the bot starts off without the flag being waved for a second time, it will be disqualified.

6. Any cost incurred due to damage or disintegration of the bot will be borne solely by the participant and is not the responsibility of Techfest.

7. No normalization of the result will take place due to any advantage or disadvantage to a participant due to ripples in the pool or wind.

8. In case of tie between two teams, speed of the bot will be the key factor and the exact task will be given on the spot.

9. Top teams will qualify for round 2, details about which will be provided on the spot.

GENERAL RULES:

1. Only one member of the team is allowed to handle the bot.

2. Participants are not allowed to keep anything inside the arena other than their bot.

3. Any team that is not ready at the time specified will be disqualified from the competition automatically.

4. The machines will be checked for their safety before the run and will be discarded if found unsafe for other participants, spectators and arena.

5. The bot is not allowed to leave anything behind, all components should be rigidly fit to the machine, and there should be no falling off of parts of the robot.

6. Organiser decision shall be treated as final and binding on all.

7. The organisers reserve the right to change any or all of the above rules as they deem fit.

8. Change in rules, if any, will be highlighted on the website and notified to the registered participants.

9. Organisers reserve the right to disqualify any team indulging in misbehaviour or violating any rules.

10. In case of any disputes/discrepancies, the organiser's decision will be final and binding.

11. Note that at any point of time, the latest information will be that which is on the website. The information provided in the pdf downloaded earlier may not be the latest. However, registered participants will be informed through mail about any such change.

12. Using bot making kits is strictly prohibited. Doing that shall lead to disqualification.

GAME PLAY

1. This is based on maneuvering vehicle under the water.

2. The obstacle course of the rounds are buoys (spherical objects) of diameter 20 cm(approx) suspended inside water.

3. The bot is supposed to maneuver its path by touching the buoys up to the finish line.
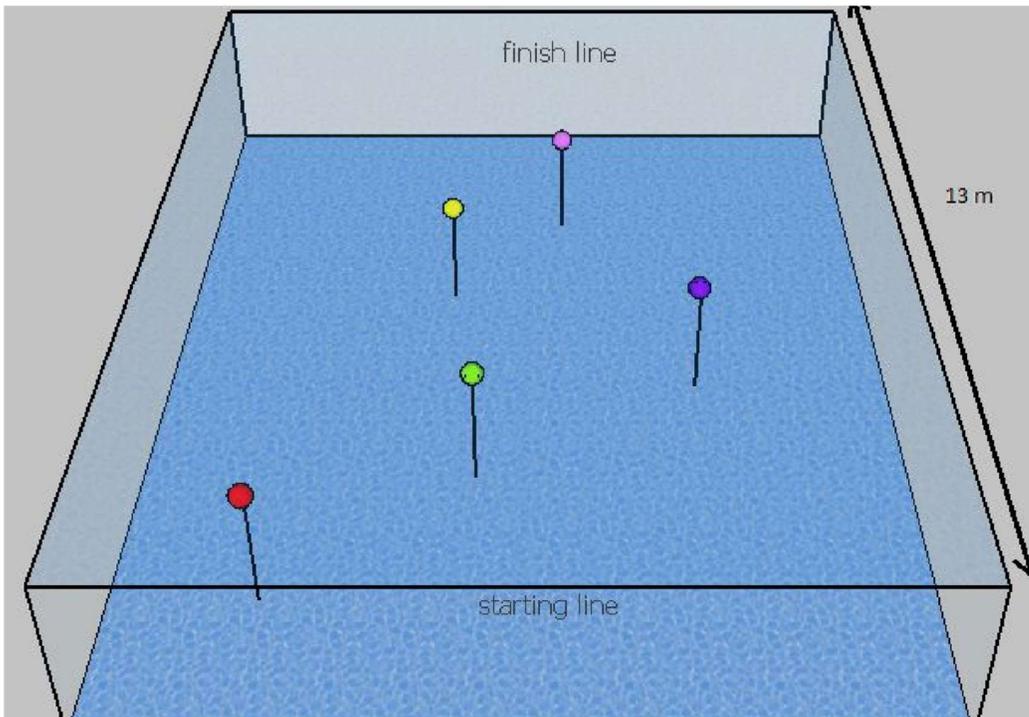
4. There are 5 buoys from starting line up to the finish line, each placed at 2.5 m distance from the adjacent one along the length.

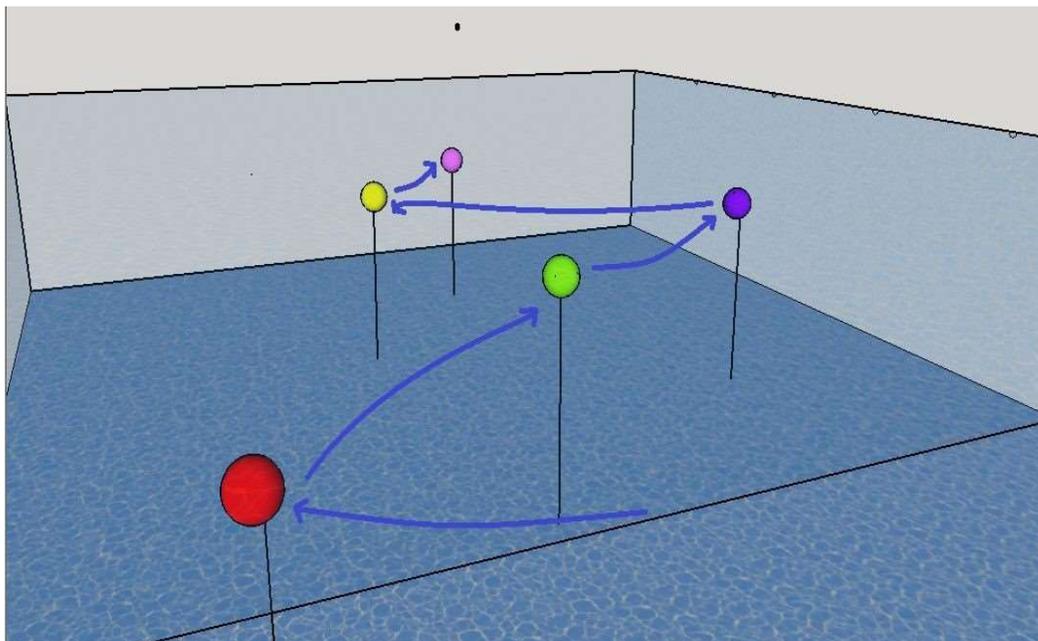**Fig. 1: Showing five buoys with arena for task 1**

Fig. 2: A demo path for the bot (showed with blue lines)

JUDGING CRITERION:

The positions of teams will be decided based on the points the team scored. In case of equal points of two teams, the team with lesser weight of bot will secure higher position.

SCORING CRITERION:

POINTS:

- 25 points for touching each buoy

- Bonus 10 marks for touching 2 buoys consecutively

- Bonus 15 marks for touching 3 buoys consecutively

- Bonus 20 marks for touching 4 buoys consecutively

- Bonus 25 marks for touching all buoys consecutively

So maximum points that can be earned = 150
Points to be deducted if time taken is more than 4 minutes for Round 1.
Total points - 2*Extra time taken (in seconds).

Example: If a team takes 4 minutes 11 seconds to complete the task, 22 points will be deducted from total points earned.

TEAM SPECIFICATIONS:

A team can consist of a maximum of 4 participants. Students from different educational institutions can form a team.

ELIGIBILITY:

All students with a valid identity card of their respective educational institutions are eligible to participate.

CERTIFICATE POLICY:

1. Certificate of excellence will be awarded to the top 3 teams.
2. Certificate of Participation will be given to those teams who complete the track at least once, without being disqualified.

REFERENCES:

1. https://www.youtube.com/watch?v=4G-P-Xtxp8I
2. https://www.youtube.com/watch?v=r57adIPVs8k
3. www.seaperch.org