PROBLEM STATEMENT

D'AERO GLISSEUR

Introduction

Design and fabrication of a remote-controlled, wireless hovercraft or an ACV (Air-Cushion Vehicle) which can cruise, race, move on any track and compete. The vehicle will be tested for top-end speed, good acceleration, manoeuvrability and handling & control on a path consisting of challenging terrains like plain & rough surface, water, sea-saw, obstacles, speed breakers (bumps) & gravels, boundaryless path, wind flow.

The event consists of two rounds:

1. Qualifier Round
2. Finale (Racing Round)

Qualifier Round

General Rules:

- Only one hovercraft will run at a time.
- Hovercraft cannot remain in the arena for more than 480 seconds.
- Each team will be given only two chances; the best out of the two scores will be considered; hence team is solely responsible for its disqualification if any part of the hovercraft detaches from its main body after both the chances.
- There will be a total of 6 checkpoints. Hovercrafts need to pass through the checkpoint's gates in correct and numbered order.
- If the time goes out and team is in between any checkpoints, they will be given points corresponding to the last checkpoint crossed. Each checkpoint has different point distribution depending upon the level of difficulty and type of terrain.
- There are no limitations on the number of laps. Till 480 seconds, team should maximize its points.
- The **water path** will be between starting point and checkpoints 1.
- A **boundaryless path** will be provided between Checkpoint 1 and 2.
- Path with **gravels and speed breakers** will be provided between Checkpoint 2 and 3.
- **Wind** will be present between checkpoint 3 and 4.
- **Obstacles** will be provided between Checkpoint 4 and 5 and seesaw (you can choose the alternative rough semi-circular path) will be provided between checkpoint 5 and 6.

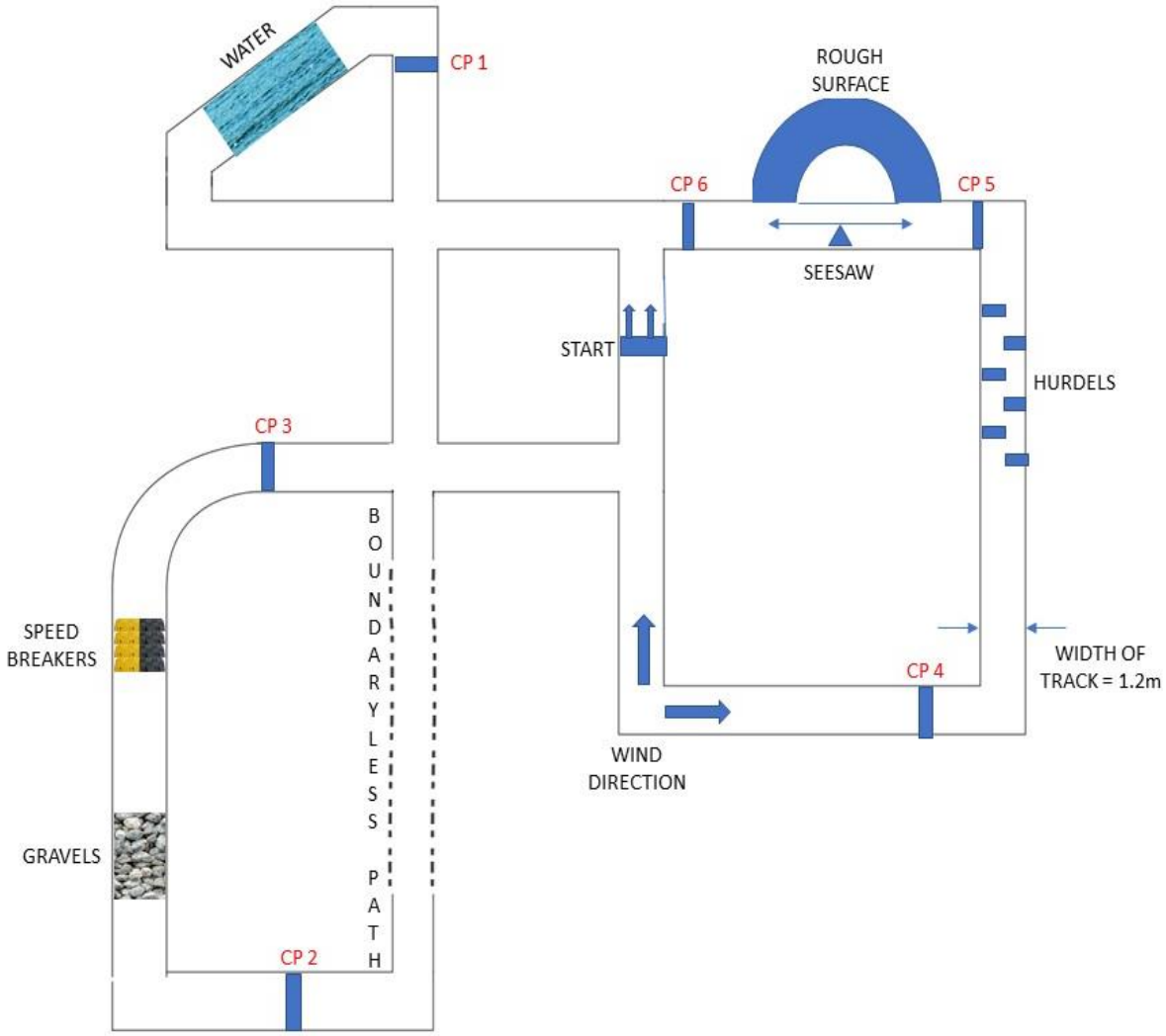
- Teams will be awarded the following points on successful crossing of respective checkpoints (The total points are cumulative).

Point Distribution:

- Checkpoint 1 = 40 pts.
- Checkpoint 2 = 30 pts.
- Checkpoint 3 = 20 pts.
- Checkpoint 4 = 40 pts.
- Checkpoint 5 = 40 pts.
- Checkpoint 6 = 80 pts. (for alternative path=30 pts.)

- If tie between teams occurs, then those teams will have to cover distance between checkpoint 4 and 5. Minimum time required for covering that distance will be taken into consideration for tie breaker.

Arena for Round 1

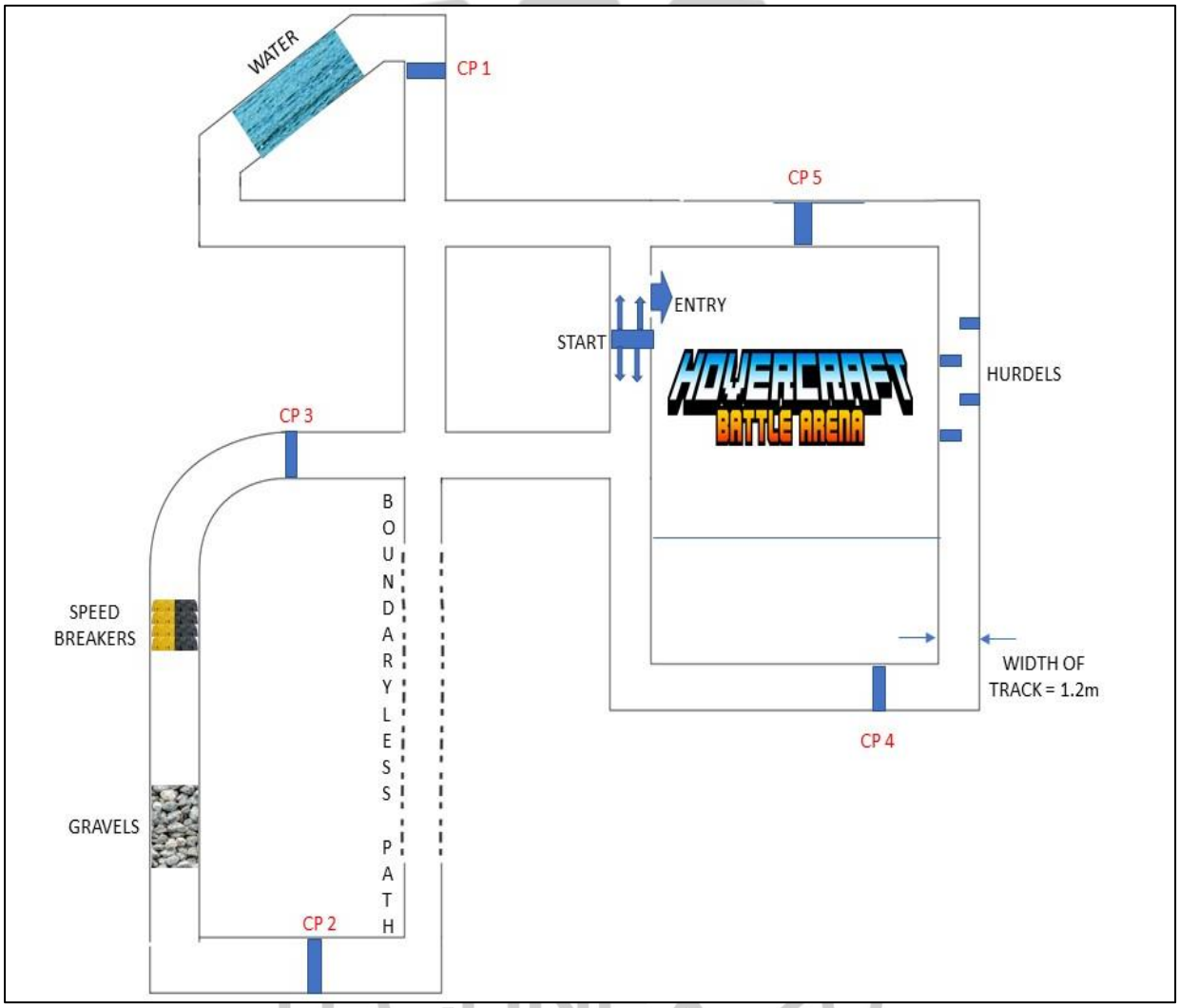


FINALE (RACING ROUND + FIGHTING ROUND)

GENERAL RULES:

- Top 8 teams qualifying round one will be paired up and a time-based racing match will take place.
- The two hovers will start simultaneously but from starting point in opposite direction. The team which has scored higher in qualifier round will get the privilege to select their starting direction.
- This Racing Round will be of 480 seconds. Team failed to complete its loop during this time will be disqualified.
- If both teams failed to complete the loop then, team which has gained a greater number of scores will be considered as Winner.
- If both teams will complete the loop, then there will be a HOVER WAR of 300 seconds between both the teams.
- Team which will knockout other Team out of battle arena will be declared as Winner.
- If none of team is knocked out, then team which has completed its arena in least time in Racing Round will be declared as winner.

Arena for Round 2



MODEL SPECIFICATIONS:

- The dimensions of the hovercraft should not exceed 55cm x 45cm x 50 (L X B X H).
- Readymade models or kits are strictly prohibited. However, participants can purchase electronic components such as ESCs, Motors etc.
- Internal Combustion Engines are strictly prohibited.
- Use of Metallic Propellers is not allowed.
- It is suggested to have cushion height greater than or equal to 2cm.

ELECTRONICS:

- Motor: Brushless motor with rating not more than 2200 KV can be used.
- ESC: ESC current rating should not exceed 40A.
- Propellers: There is no limitation on the diameter of propellers.
- Battery: There are no restrictions on the type and rating of battery.

TEAM STRUCTURE:

- A team can consist of a maximum of 5 members. However, participants forming team can be from different institutions.

GENERAL RULES:

- Only one member will control the hover during the entire run from each participating team.
- The dimensions of the hovercraft should be strictly taken into consideration and teams exceeding the given dimensions will be penalized/disqualified.
- If during the run, hovercraft is jammed or trapped with any part of arena, one member of controlling team must put the hovercraft back on the last check point crossed but only after the permission of the organizers. During the process, time will continue and the time lost won't be adjusted.
- Only charging points will be provided by the organizing team. Participants should carry their own charging equipment.
- To prevent interference between the transmitters during the race, participants must use remote with frequency of band spectrum 2.4GHz.
- Participants are strongly recommended to bring spare parts to repair damages or replace faulty parts.
- Teams should have extra batteries for backup. No extra time will be given for charging the battery.
- No parts of the hovercraft will be provided/arranged by the organizing team in case of any damage.
- Decision taken by the organizing team will be final and cannot be questioned.
- Any misbehavior or violence will directly lead to disqualification from the event and all other activities of TECHNEX.
- Rules are subjected to change; hence participants are advised to update themselves regularly by visiting the website. Any change will be highlighted clearly.

CONTACTS

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