Rowboatics

Task
Design and make a wired controlled or wirelessly controlled yacht, powered only by batteries, which has to navigate through obstacle and perform task course on water while caring a payload, in the shortest time possible.

Constraints of Yacht
- The yacht has to be of length between 30-60 cms
- There is no constraint on the width of yacht, it could be varied to maximize its stability and pace but it must be less than length of the yacht
- Only onboard power supply is allowed, no external power supply is allowed. Teams shall bring their own power supply for all its machines.
- If the bot is wired controlled, wire length should be greater than 20m.
- Each yacht must carry payload of 50gms during the entire race. Penalty Points will be levied if the payload falls into the water.
- Yacht cannot be constructed using readymade Lego kits or any readymade mechanism. Violating this clause will lead to the disqualification of the team.

Arena
The arena will have multiple obstacles and checkpoints which will carry predefined points.The yacht should be maneuverable while maintaining its stability during hard turns without compromising with its pace.

- Arena in water is a part of swimming pool of dimensions 22m x 10m, with varying dept.
- The Arena is divided into two parts, each one dedicated to a task which the yacht has to perform.
- Obstacles in the pool will be according to the task.
- Width of the track will vary from 1.5m to 2 m.
- The changes in obstacles, if any, will be duly addressed to you through mail.
- A lap of the track is completed when the yacht reaches the finish line.
- The track will consists of following obstacles:
    1. TYPE 1: Blocks of Fixed Floaters would be placed at constant gap in a linear form and yacht would have to maneuver as shown in the figure 1.
    2. TYPE 2: Blocks of non Fixed floaters would be placed at random gaps and yacht would have to maneuver without touching them
    3. TYPE 3: Rods of length less than width of arena will be placed and yacht would have to maneuver as shown in the figure 2

- The arrangement and number of these obstacles will vary in the arena

POINTS SYSTEM
- Each obstacle of TYPE 1 carries 15 points for successfully crossing it
- Crossing obstacle of TYPE 2 will give 30 points
- Each obstacle of TYPE 3 carries 20 points
- If the payload falls at any point during the game, 10 points would be penalized
- If the yacht touches any of the mentioned obstacle 5 points would be penalized each time
- If the yacht turns over during its maneuver it will be placed at the beginning of that Type of obstacle and it will have to redo the task.
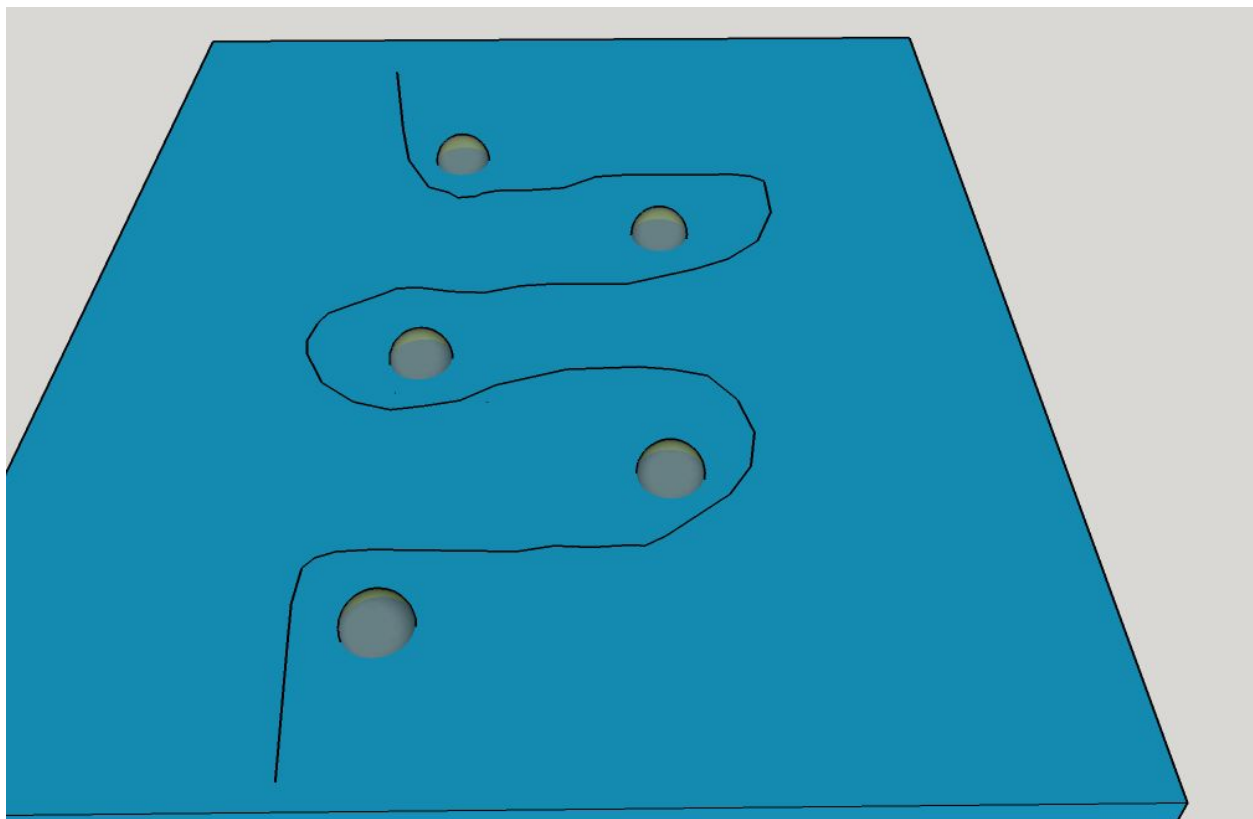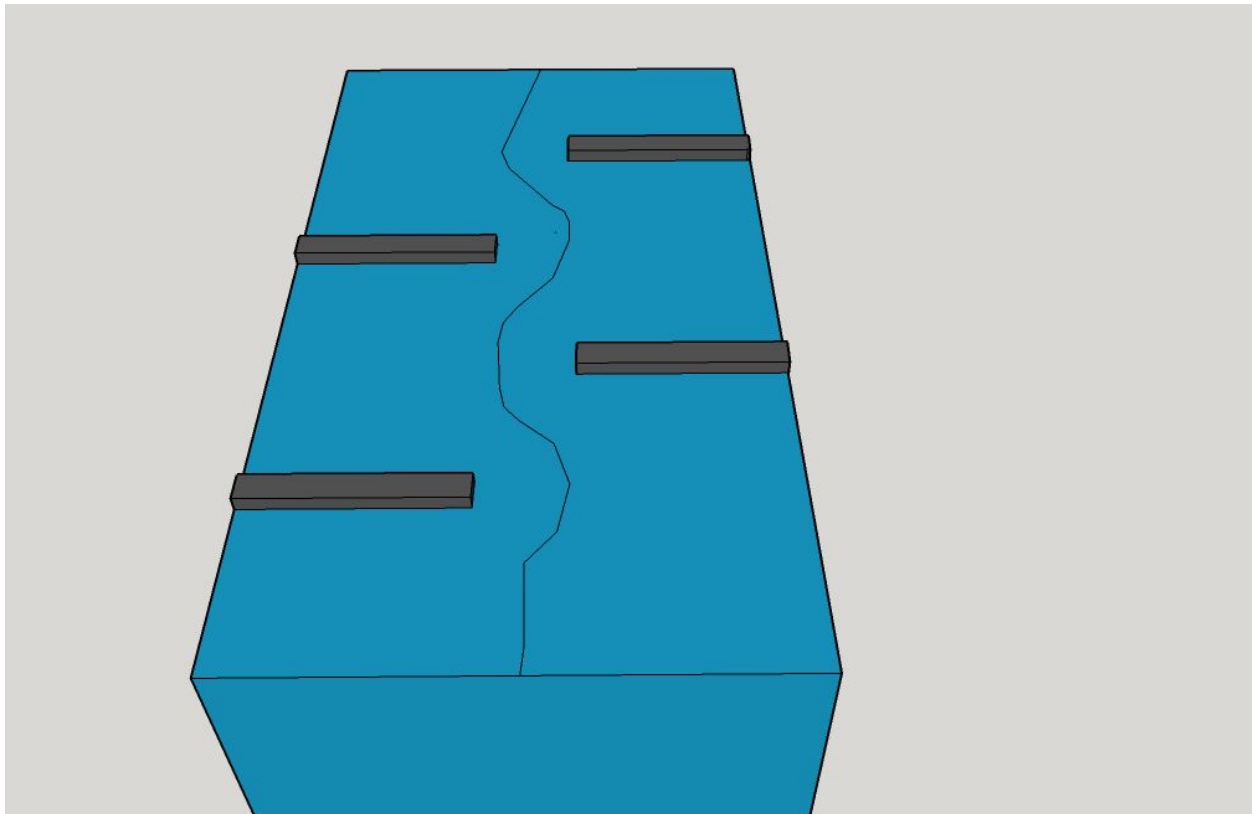

Figure 1

Figure 2

Competition Structure
- The arena will have multiple obstacles and checkpoints which will carry predefined points
- There will be a knockout round to filter half number of teams in each round
- The final round will be played amongst Top 8 teams

NOTE
- +/- 5% error dimensional error may be there in actual track.
- There might be one surprise obstacle which will have some bonus points.

SCORING
- A = Points scored
- P = Penalties

- T = (480 -Time taken in seconds)
- Maximum of 8 minutes will be given for each team.
- Total points scored = A + T - P
- The team with maximum points will be declared as the winner.
- In case of equal points of two teams, the team with lesser weight of bot will secure higher position.

RULES
- Laptops/personal computers are not allowed near the arena. Other Wi-Fi, Bluetooth, etc. devices must be switched off.
- The time measured by the organizers will be final and will be used for scoring the teams. Time measured by any contestant by any other means is not acceptable for scoring.
- Once the boat enters the arena (into the water) the organizers are not responsible for any kind of malfunction or damage to the boat.
- **In case of any disputes/discrepancies, the organizer's decision will be final and binding.**
- **The organizer's reserve the rights to change any or all of the above rules as they deem fit.** Change in rules, if any will be highlighted on the website and notified to the registered teams.

STRUCTURE

Competition will take place in 3 stages
- Stage 1 - Submission of the design of yacht which will satisfy given conditions of Problem Statement. **Some teams** will be selected for the next stage. Successful submissions must have detailed specifications of designs. There are no restrictions on design and you can think like an unconventional thinker.

- Stage 2 - Selected teams will move to Stage 2. Here the teams will be given licensed for software CATIA (Dassault Systemes will provide the software). Support webinars to help them to import the sketch into CATIA and further enhance the design will be organized. Participants have to submit 3D model of their yacht to rowboatics@techfest.org

- Stage 3 – Teams selected in stage 2 will move to stage 3. **The structure of the boat has to be 3D printed with the teams free to do further enhancements to the base 3D printed structure.** These teams will compete at Grand Finale to be conducted during 14th – 16th December 2018, which itself would be held in two rounds namely Round 1 and Round 2.

TIMELINE

Last date for registration	30th October
Last date Submission of designs	30th October
Results and Shortlisting of teams for Stage 2	5th November
Last date for submission of model for Stage 3	25th November
Grand Finale	14th-16th December

REGISTRATION and SUBMISSION

The Participants have to register on the official Techfest Website and fill all the necessary details: www.techfest.org > Competitions > RowBoatics>Explore More> Register

Abstract Submission–
Teams will be required to submit one report to rowboatics@techfest.org. This report should contain the idea they are looking forward to work on.

Submission Format-
The project report should be emailed to rowboatics@techfest.org with the subject RowBoatics Report: Team Id (For example: RowBoatics: RB1234).

GENERAL RULES

1. Every team has to register online on official Techfest website for the competition.
2. A Team ID will be allocated to the team on registration which shall be used for future references.
3. A team can register at any point of time before and can submit final abstract(as mentioned in the structure).
4. **The decision of the organizers or judges shall be treated as final and binding on all.**
5. No responsibility will be held by Techfest, IIT Bombay for any late, lost or misdirected entries.
6. **The design presented by the teams should be original** (not protected by means of patent/copyright/technical publication by anyone).
7. Note that at any point of time the latest information will be that which is on the website. However, registered participants will be informed through mail about any changes.

TEAM SPECIFICATION & ELIGIBILITY

- All students with a valid identity card of their respective educational institutions are eligible to participate in the competition
- One team can have a maximum of 4 members.
- Students from different institutes can be a part of the same team.

CERTIFICATE POLICY and PRIZES

- The Prize money will be awarded to Top 3 Winners via NEFT and will be processed within 30 working days.
- Consolation prizes will be awarded to **top 20 teams** (other than top 3 winners, i.e. position 4th -20th)
- Top three teams in the grand finale will be awarded Certificate of Excellence.
- E-Certificate of participation will be given to the teams scoring more than the critical marks which will be decided later (top 60% of teams except top 3 teams)

The Winner will have to mail the following information (immediately after announcement of results) to rohan@techfest.org
Subject: RowBoatics, team id- your position (example- RowBoatics, RB1234 – 1st position)
Body of mail-
1. Account Holder's Name
2. Account Number
3. Bank name and Branch name.
4. IFSC Code