MOMENTUM

Introduction:

"**MOMENTUM"** One of the heavily participation filled with the enthusiasm of Technex recorded over the years. Momentum has recorded huge participation every year in TECHNEX.

The enthusiasm for this event is spreading and this is your chance to get involved. Over the past years this event is seen as the day built for fun, team building and much exciting things in its box.

Technex'23 brings to you a thrilling opportunity to make your own water rockets and see them fly high. Hope to See You with Great Enthusiasm, Zeal & Passion to participate and Win in the most **THRILLED & EXCITING** event of **TECHNEX '23.**

TASK:

Design and construct a water propelled rocket pressurized with air to complete against various constraints in separate rounds to encounter your enemies.

The event consists of only two rounds: -

1. **Max Range**
2. **Platform 9 $^{3}/_{4}$**

1. Max Range:

- The Round Measures the Range of the Water Rocket.
- Range will be measured from the launching point.
- Participants are allowed to use maximum pressure of 50 psi.

- **Points distribution: -**
  - **Points (P_o)= Range (in meters)**
  - **NOTE: Range is measured from launching zone.**

2. Platform 9 $^{3}/_{4}$:

- The round measures accuracy of the rocket.
- There is a railway station with the above platform no. just behind a wall of 4.5m height which is at a distance of 70m from launching point. Cross the wall and catch the train.

- **Points distribution: -**

  Case 1: Rocket doesn't make contact with the wall

  (a) Lands before the wall:

  Points (P1) = 1 x range (in meters)

  NOTE: Range is measured from launching zone.

  (b) Lands after the wall:

  Points (P2) = 70 + 100(for crossing the wall) + Landing Zone Point value

  A: 80,

  B: 60,

  C: 40,

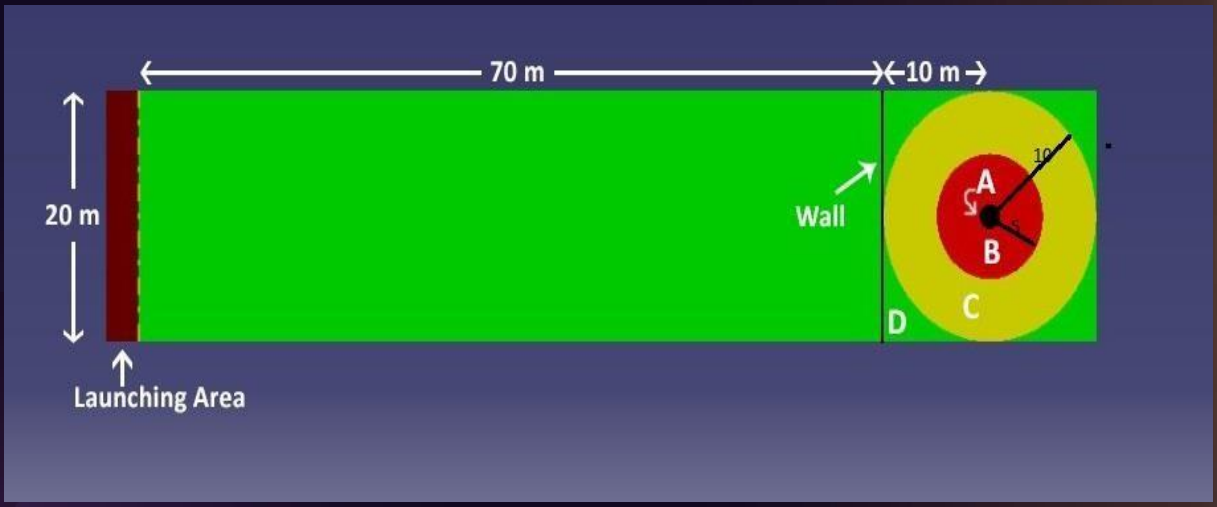
  D: 20

Case 2: Rocket makes contact with the wall:

(a) Lands before the wall:

Points (P3) = 70 + 1 x Time of flight (in secs)

(b) Lands after the wall**: Points(P4) = P3 + 100**



- Radius of zone A = 1m
- Radius of zone B = 5m
- Radius of zone C = 10m

[NOTE: Timer will be started as the rocket launch and stops till it makes first contact with the wall.]

Competition Rules:

- Each team should consist of maximum of 4 members. Members can be from different institutes.
- Teams should have their own launcher, and in case they don't have, a simple launcher will be provided by Organizing Team.
  (**NOTE: 30 points will be provided in each round if you use your own launcher.**)
- Participating team will be disqualified if any damage occurs to the launcher provided by the organizing team.
- Teams having innovative mechanism must bring their own launcher like in case of booster, multistage.
- Only **two chances** will be given to each team in each round.
- Launching angle to be decided by the participating team.
- Range (in meters) and time of flight (in seconds) will be measured by the organizers.
- Only members of the participating team will be allowed to launch.
- Rocket has to be launched from a fixed point on the ground using a fixed launcher.
- Distance between the launcher and the first point of contact of falling rocket with the ground will be taken as

the range. In case of booster and multistage, range will be calculated with the contact of last falling part (rocket).

- Participant's model should not damage the arena or hurt any person.
- Rules & regulations of the round are liable to change as per the situation.
- Any change regarding the event will be mentioned on the website and mailed to the registered participants. You are advised to visit the website regularly.
- The decision of organizing team will be final and binding on all.
- All dimensions in the sketch of arena are in metres.

Model specification:

1. Rocket may consist of electronic components for increasing time of flight by parachute or booster mechanism but chemicals are not allowed.
2. Metals are not allowed in any form to be used with the rocket.
3. Working fluid is water and only it should be used in propulsion of rocket, no other things or system should be used. Participants will use the water provided by the organizers.

4. Foot pump will be provided by organizers, this foot pump is compatible with the standard bike valve. Please check the sizes of nozzle which you are using in case of using your own launcher. If any other size than the standard available in the market is used, arrange it beforehand to avoid any inconvenience. It will not be provided by the organizers. In case participants using their own pumps, the pump must have a pressure gauge.

Contact Details:

Tanisha Singh
tanisha.singh.mec20@itbhu.ac.in
Mobile: 9569923639