Aqua Missile

Introduction

In this challenge students need to build a rocket powered with water or air or combination that has a maximum time of flight. Each team must also build a rocket launcher which can launch the rocket at an angle or different angles.

Problem Statement

Design and build a water rocket which can be launched at any angle with respect to the ground.

Game Play

• **Time of flight:** Time taken by the rocket till the end of the flight. End of flight is considered when the rocket hits the ground or stops falling (e.g. hangs on a tree) or goes out of sight.

• **Landing time zones**: There are two types of landing zones: Bonus time zone and Surprise time zone. These are special landing locations in the challenge lawn marked with points which gets added to the time of flight. Bonus time zones are fixed marked locations as shown in arena specifications. Surprise landing locations will be added on the day of the competition.

• The team with maximum points; time of flight added to the points from landing time zones will win the challenge.

Rules and Regulation

Technical

- Only rocket falling in qualifying area will be scored as per the scoring criteria and points shown in Arena Specification.
- The minimum launch angle can be 30° and the maximum launch angle will be decided on the day of the event.
- The size of the rocket system (rocket mounted on the launcher) must fit into the launching zone.
- The launcher must be robustly built so that launch direction does not change when the rocket is launched.
- The launcher must have specification of variable angle.
- The bottle for rocket should be 1.25l Coke Bottle.
- No external metal parts are allowed on the rocket but are allowed on the launcher.

- The energy source for the rocket can be air or water or combination. Using other source of energy will lead to disqualification.
- Each team must carry safety equipment (eye glasses and ear plugs) on the day of the challenge.
- It is suggested to bring different rocket for each launch as shape and hence performance rockets made of plastic bottles may change.
- No supplies or support material related to the challenge will be provided to teams on the challenge day. Each team must have their own air pump, launcher and rocket.

Procedural

- Each team will be assigned a pit, where all the team members along with their rocket system will gather and must wait for their call.
- Before the rocket launch judges will evaluate teams on knowledge of tools, material and designs involved in the rocket system they have built.
- Teams will be given a time slot and will be called accordingly. Teams must be ready with their rockets and launcher before their time slot. Teams missing their calls will be disqualified.

- The time duration given to each team for making a launch is **5 minutes**. If the team cannot complete the launch in the allotted time, the score for that round will be considered as zero.
- Total **3 chances** will be given to each team and best of three will be considered to be the final.

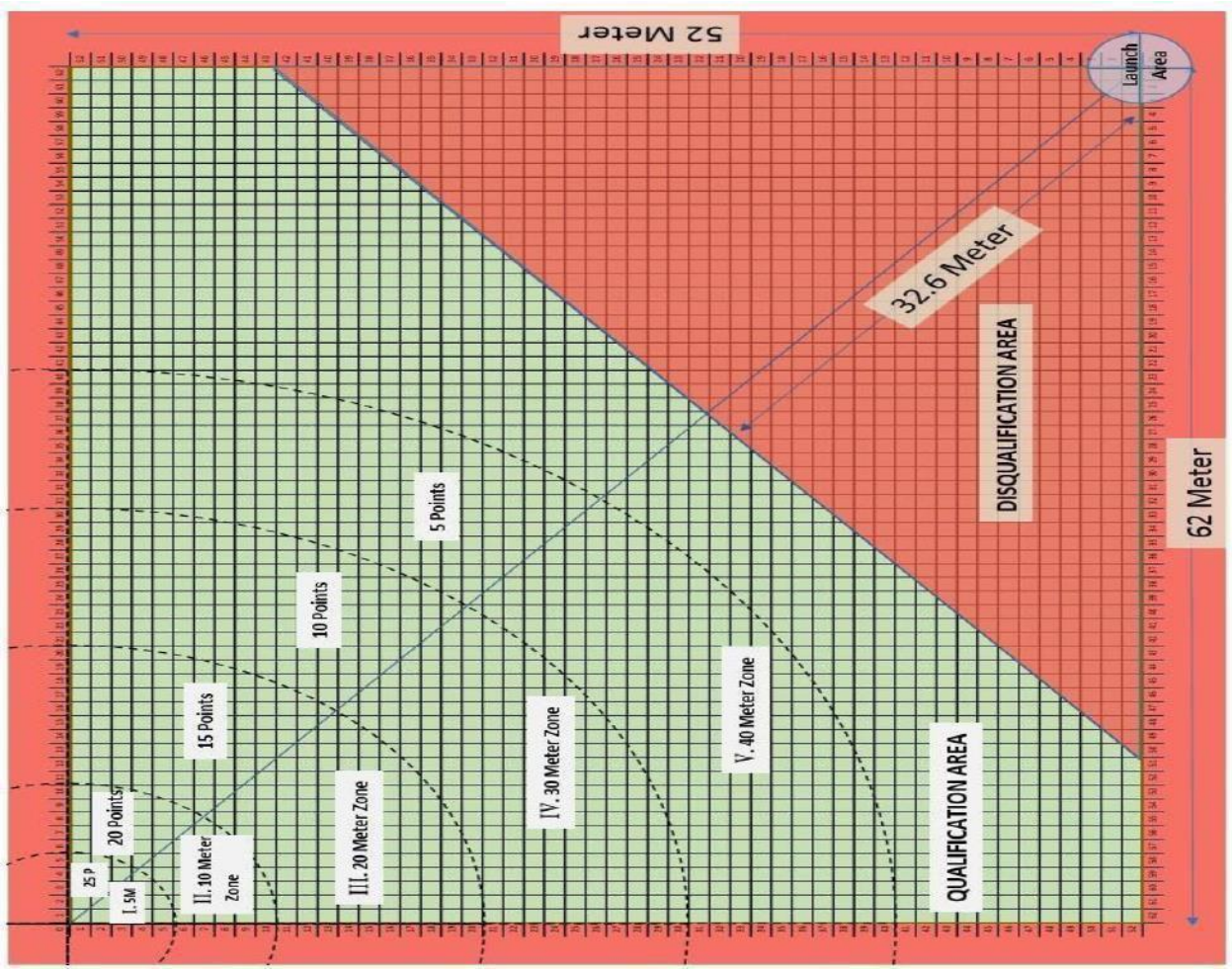
Conduct

- A commander will be provided to the team at the time of launch who after inspecting the angle and direction of flight will command the team to launch the rocket.
- As soon as your rocket leaves the launcher the commander will start the stopwatch, and will stop the watch when the labeled part of the rocket touches the ground, a tree, a building or goes out of sight.
- Students must not damage or tamper with the challenge lawn and the projects of other teams. This will lead to disqualification.

Game Play

- The challenge is conducted in three rounds.
- In each round teams will be called one by one along with their rocket system (rocket and rocket launcher) to launch their rockets from the launch zone. The best score of all the three rounds will be considered as the final score.

Sample Arena: This fig. is just to give the overview of the field.
Final markings of the ground will be declared at the time of the event.



Coordinators

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Prizes
Prizes worth **10000** INR

Schedule
Will be updated on website : www.blitzschlag.org