



Get your mind fueled with new ideas and great passion to design a tank that runs without any fuel. sansCARBURANT challenges you to design a completely autonomous tank which, using your zeal and spirit as fuel, crushes the conspiracies your foes to disturb peace without fearing the hurdles in the path.

PROBLEM STATEMENT:

You need to design an autonomous tank installed with a shooting mechanism capable of braking at a specific point and shooting a table tennis ball without any manual involvement. The tank should not be power driven, rather it must use the momentum generated by the loss of potential energy and finally halt within a predefined area, firing the ball.

ARENA SPECIFICATION :

- ❖ **WEDGE**- Inclination 30(in degrees), width 45 cm and base 200 cm.
- ❖ **LAUNCH PAD**- A 50cm stretch of plywood on the wedge that would act as the starting zone of the tank.
- ❖ **SHOOTING ZONE**- A combination of five different zones having different marking scheme.
- ❖ **ROUND 1**
TARGET- An arrangement of vertical and horizontal bars at a distance of 150 cm from the end of the incline. It consists of 9 different zones through which the table tennis balls must be fired.
- ❖ **ROUND 2**
The shooting mechanism must have a range of about 150 cm. Further, the arena will be disclosed on the spot.

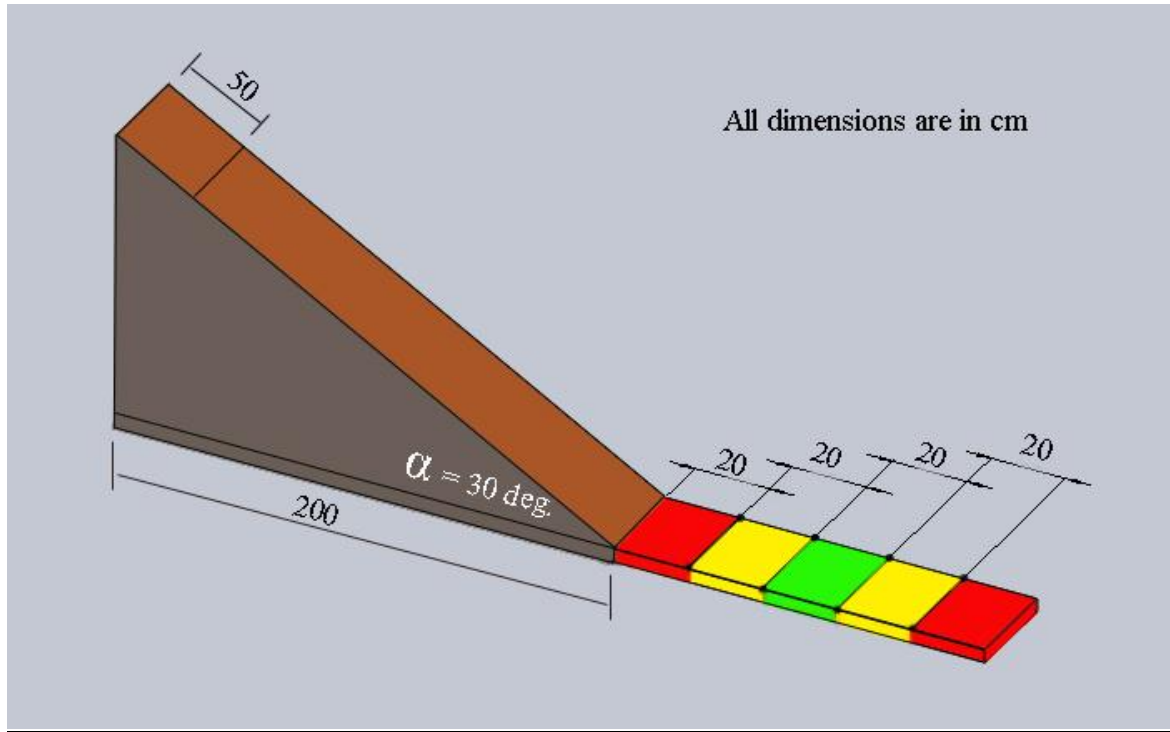


FIGURE 1 : ARENA- sansCARBURANT

JUDGEMENT CRITERION

Each team will be given three trials. The best of the three will be considered for the final scoring.

Scoring scheme for the respective rounds -

I. **Round 1-** As shown in figure above:

- ✓ GREEN ZONE- It is the central region. Shooting from this region will fetch you 50 points.
- ✓ YELLOW ZONE- It is the mid region. Shooting from this region will fetch you 30 points.
- ✓ RED ZONE- It is the danger region. Shooting from this region will fetch you 0(zero) points.
- ✓ The position of the front wheels of the tank during shooting will decide the zone for the scoring.
- ✓ The points for the target are marked in the figure 2.
- ✓ Total score for round 1 will be the cumulative sum of points scored in both the sections.

II. **Round 2-** The shortlisted teams from the round 1 will compete for 2nd round whose marking scheme will be displayed there only.

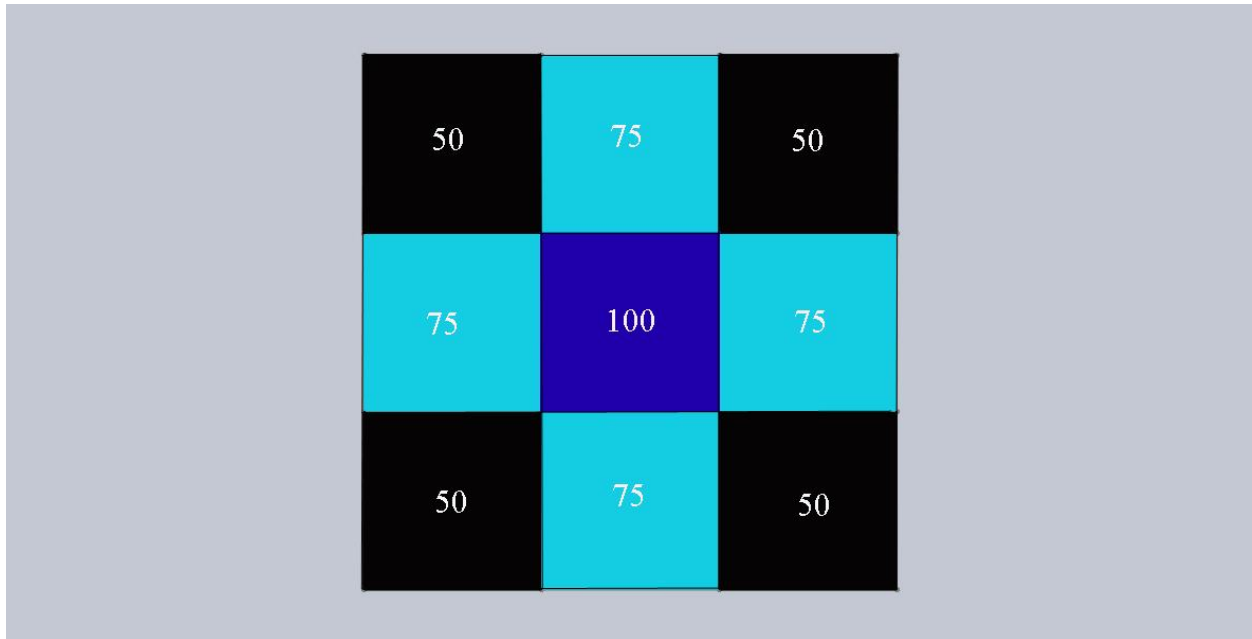


FIGURE 2 : ROUND 1 TARGET

RULES :

- 1) There can be a maximum of 3 members in a team. The members in the same team can be of different institutions.
- 2) The tank must be completely mechanical in structure. No electrical or electronic equipment should be installed on it.
- 3) The machine should not be power driven. It should run only on the energy generated by gravitational pull.
- 4) The tank must be completely autonomous in functionality, i.e. no human intervention will be allowed once the tank leaves the launch-pad.
- 5) The maximum size for the tank should be 30cm x 30cm x 30cm.
- 6) Any machine violating the above size specifications will be disqualified.
- 7) The projectile will be of the size of a table tennis ball.
- 8) Any damage to the arena or harm to the spectators caused by a tank will lead to immediate disqualification of the respective team.