

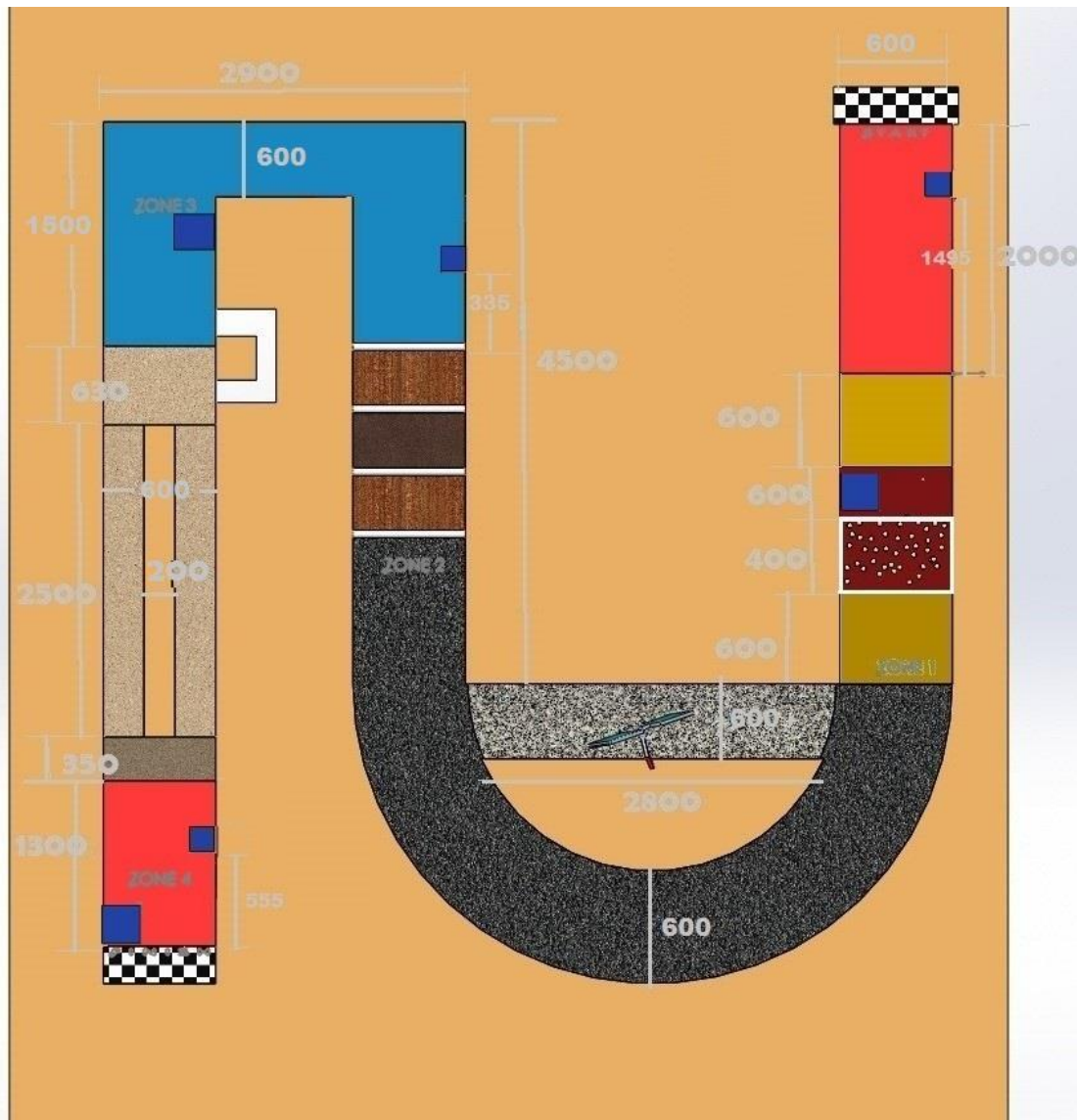
## DROID TROOPER 2.0

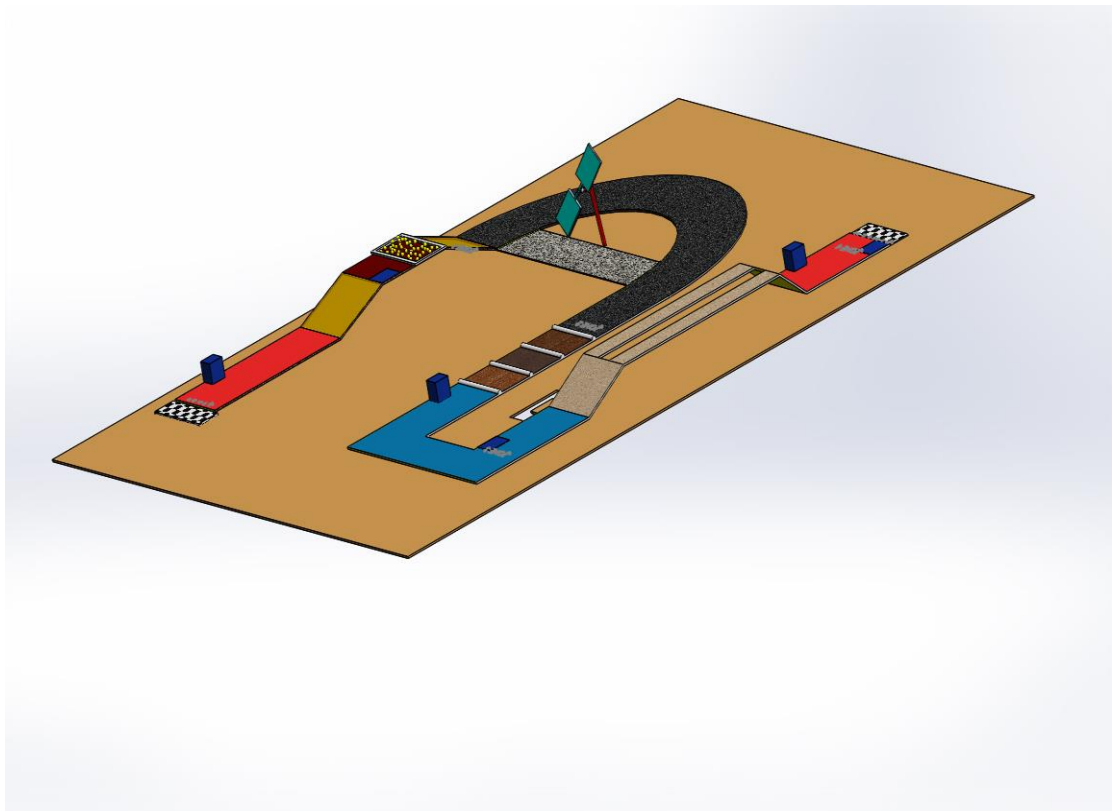
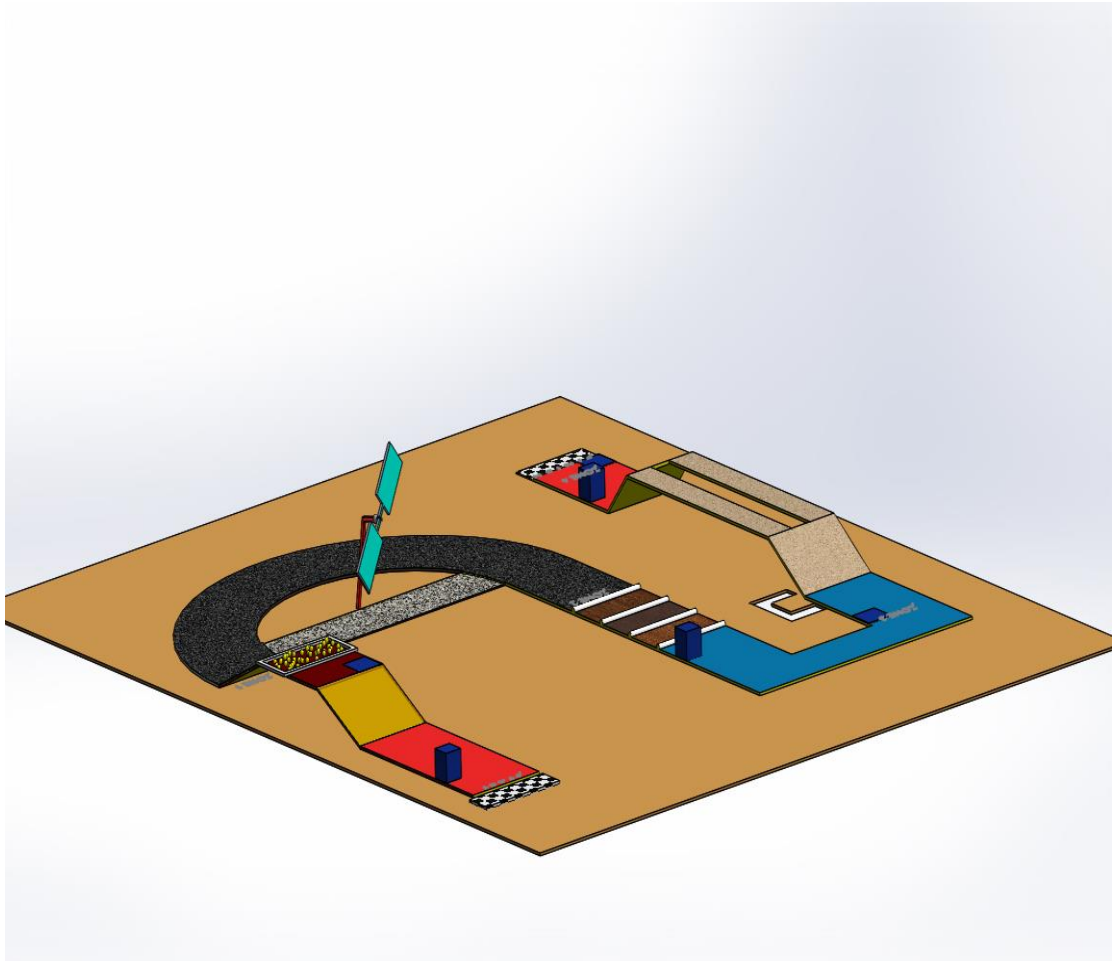
## TASK

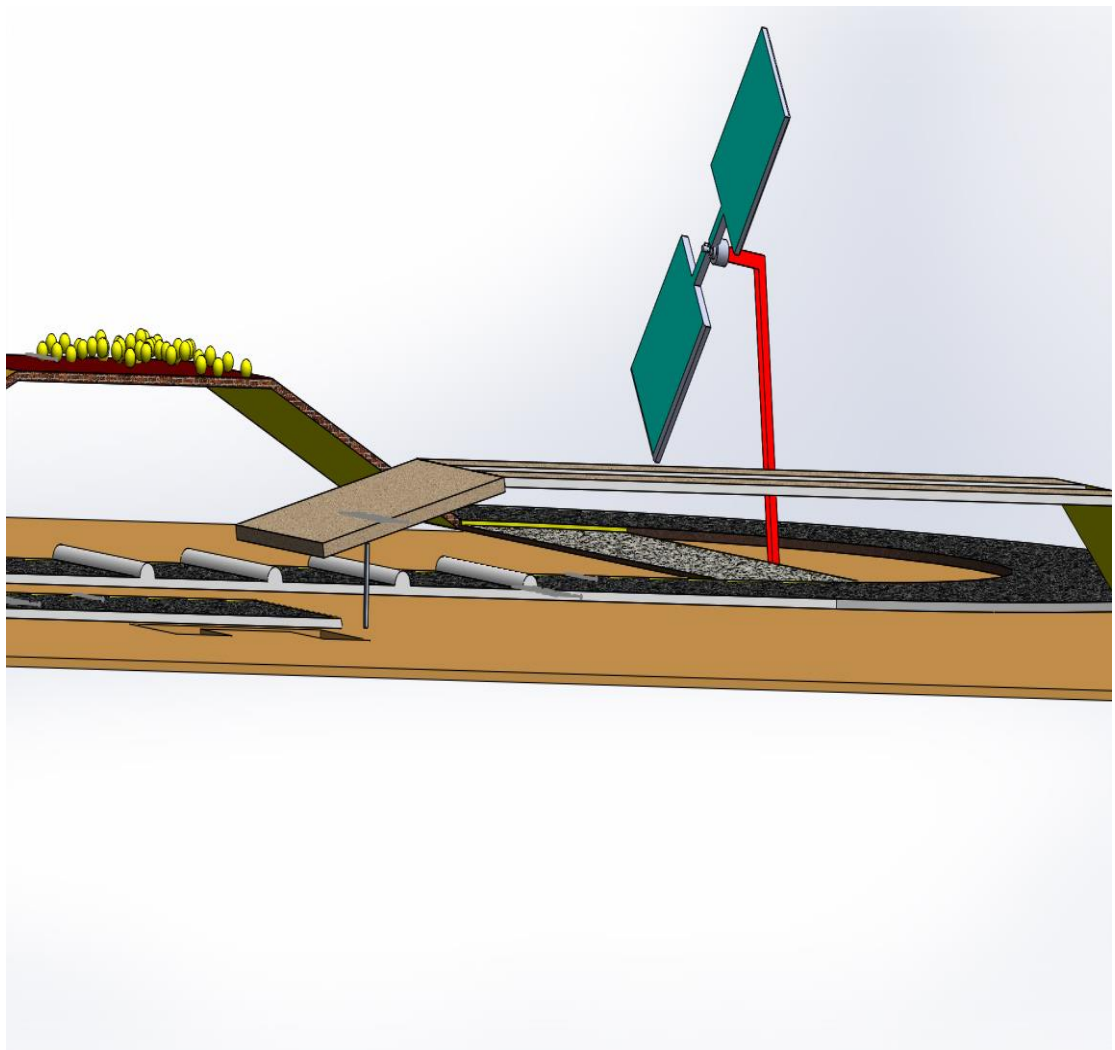
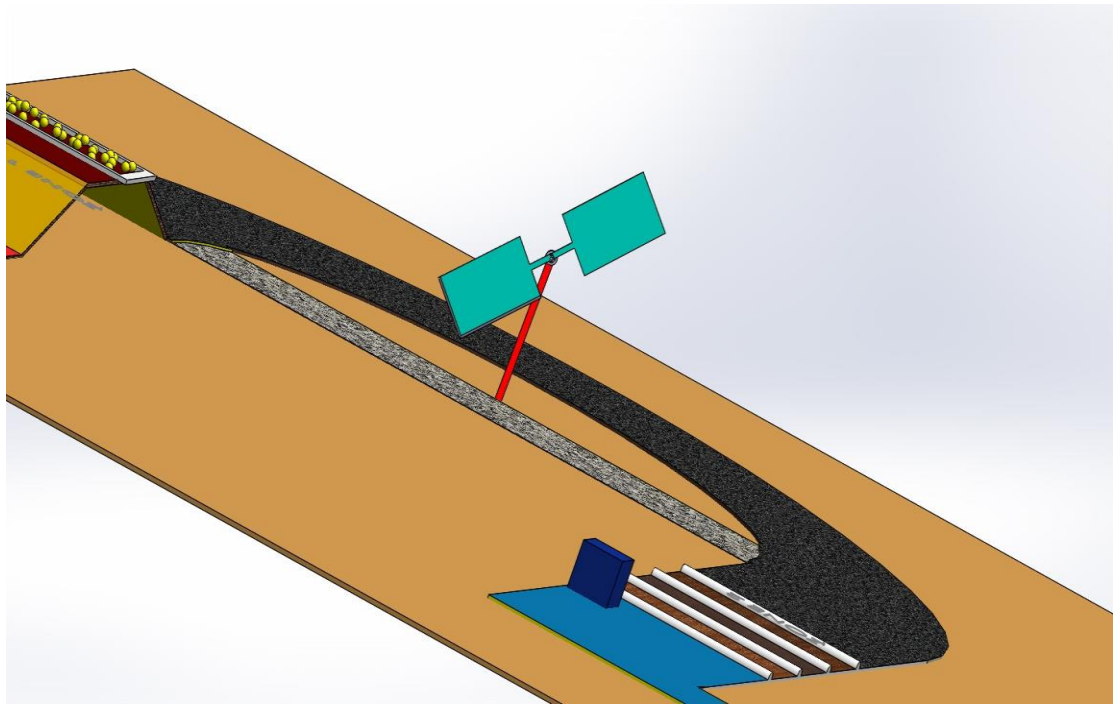
- > The teams have to build a manual robot (wired or wireless) which has to place the cubes at their respective destination points at different locations in the track after crossing different terrains which is divided into zones.
- > The teams will be awarded points for the above task and also crossing the zones in the stipulated time limit.

# ARENA

The schematic views of arena is as follows



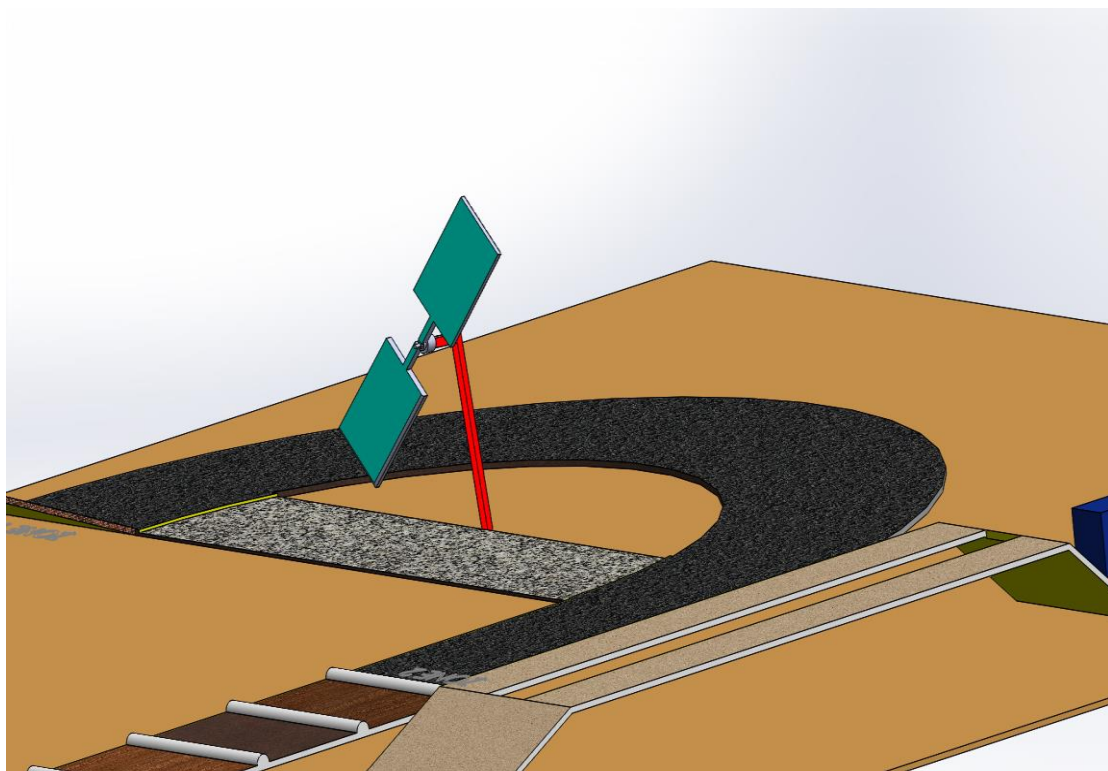




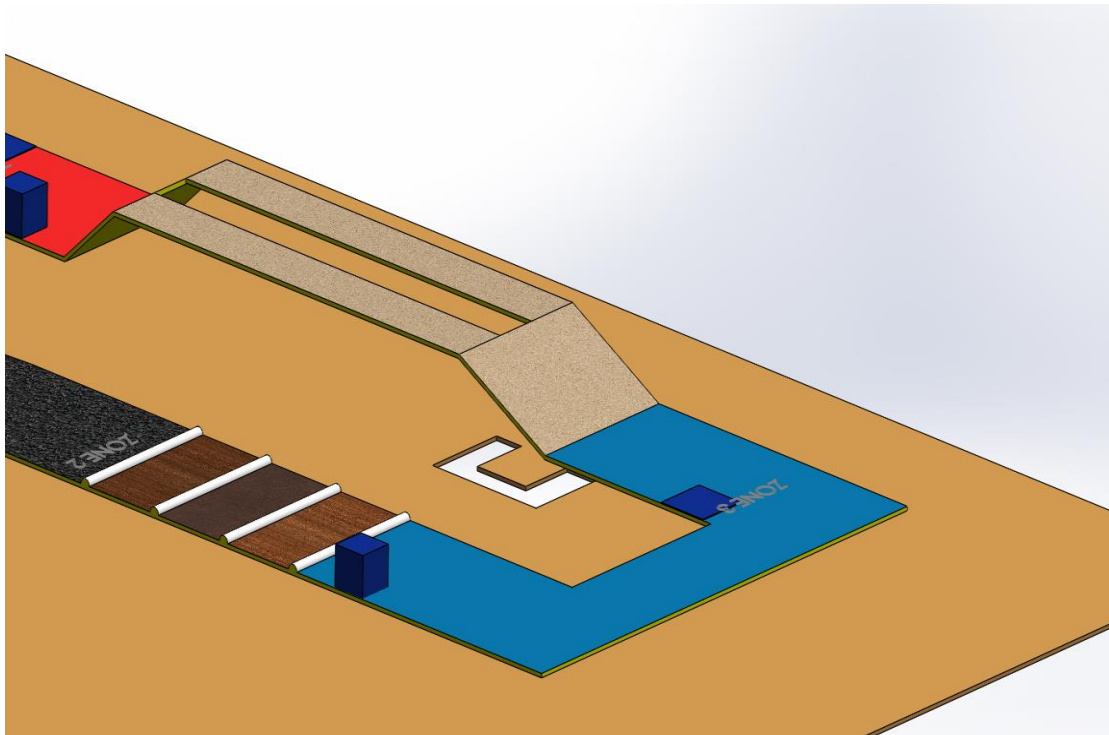
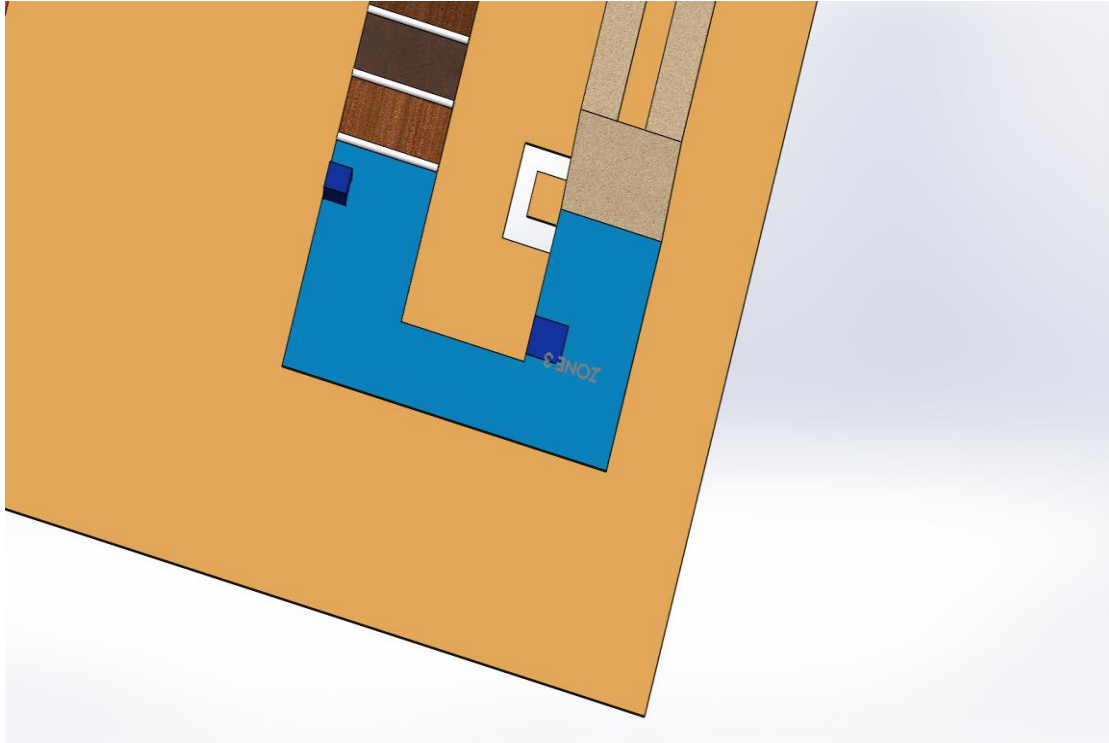
The arena consists of four zones which are as follows:

1. ZONE 1: It consists of the start line and a plain track with a cube placed on the **left**, the task is to make sure that the cube reaches its destination, which is the blue square, on the right. **The teams are free to use any technique to perform the task**, but one needs to make sure that they do not get off the track. The plain track ends with a slope of 20 degrees(both sides). The top surface of the slope has a spread of marbles enclosed within a boundary. The enclosure will have a width equal to the radius of a standard marble ball.

2. ZONE 2: There are two paths which come under ZONE 2, one is the curved path where the terrain is very rocky and covers a larger distance. The straight path is rocky and has a windmill, whose position is as shown in the figure, the bot will have to successfully pass through the rotating blades failing which, it will restart from the beginning of the zone. There will be no penalty for the above case. Hence the team can choose any of the paths.

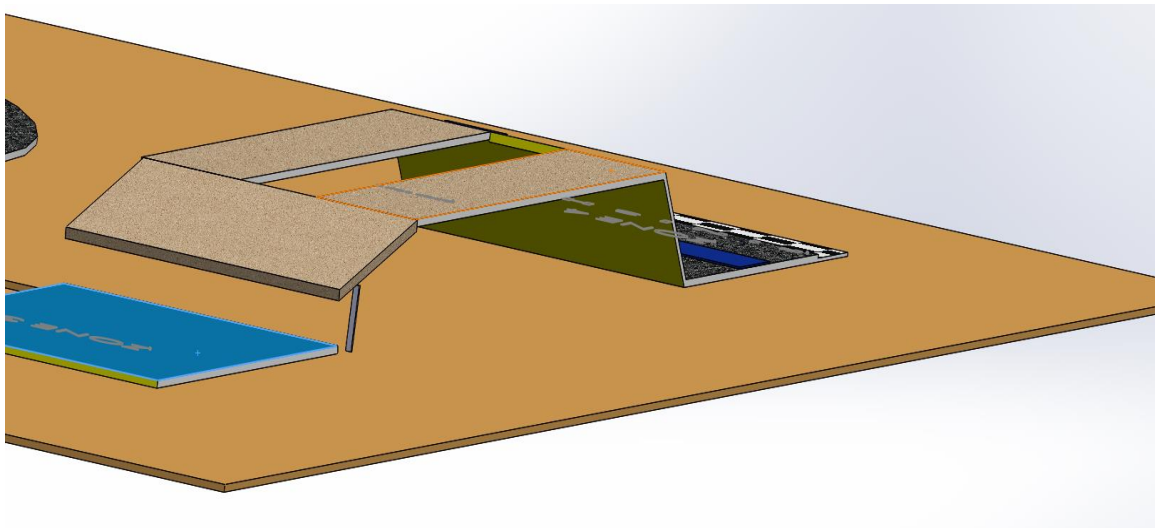


3. ZONE 3: It consists of rollers of 30 mm radius and a steep and narrow turn of 90 degrees. At the beginning of this zone, another cube is placed on the **right** which needs to be repositioned to its destination on the left (blue square).





4. ZONE 4: This zone comprises a gaped bridge of upward inclination 25 degrees and downward inclination 40 degrees which is covered with sand, here the contestants should make sure that bot should travel such that its left wheels are on one side and right wheels on other side of gap. One part of the bridge is not connected to the track(see figure) and is supported by a pole. The contestants need to connect the bridge by getting off the track(which is allowed only in this zone). At the end of the bridge there will be a cube and the same task needs to be performed before reaching the end line.



NOTE : The dimensions of the cube are 100mmX100mmX100mm and the dimensions of destination squares are 150mmX150mmX150mm (lXbXh) respectively.

## GAMEPLAY

>The 1<sup>st</sup> round or initial shortlisting round will be time based, where the bots have to traverse the whole arena (**without the cube**) and the teams performing the traversal in the minimum time will move to the second round.

>The 2<sup>nd</sup> round will be point based according to the POINTS ALLOCATION section below.

>The bot should start from START line only.

> The bot and the cube should not go out of the boundary lines at any cost.(There will be penalty for it).

## BOT SPECIFICATIONS

- > The maximum dimensions of the bot should not exceed 300mmX300mmX250mm.
- > The bot should be manual.
- > Any type of control including wired, bluetooth, RX TX etc can be used.

## GAME RULES

- >The bot would be checked for safety before starting and will be disqualified if found unsafe for other participants.
- >Only one team member is allowed to handle the bot.
- >The bot will be liable for disqualification if it causes any kind of damage to the arena.
- >If a bot gets disoriented in any zone then it can be placed in its original position but it has to start from the beginning of that zone. There will be **a penalty of 25s in Round 1** and no penalty in Round 2.
- >Once the timer starts there will be no stop to it unless the bot has reached the final line or the time limit is crossed.
- >The teams taking least time will qualify for next round.
- >**The 2<sup>nd</sup> round has a time limit of 4 minutes.**
- >**In case of any disputes / discrepancies, the organizers' decision will be final and binding.**
- >**The organizers 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.

## POINTS ALLOCATION

The points are allocated as follows:

1. Crossing the first zone: 20 points
2. Placing the first cube: 40 points
3. Crossing the second zone: 30 points
4. Crossing the third zone: 30 points
5. Placing the second cube: 40 points
6. Successfully connecting the bridge: 70 points
7. Placing the third cube: 40 points

## POINTS DEDUCTION/PENALTIES

Points will be deducted in following cases:

1. If the bot/cube goes out of the track: -20 points
2. If the bot falls off the sand bridge: -25 points
3. If the bot is unable to traverse the track in 4 minutes: -1 point per second after 4 minutes.

## **QUALIFICATIONS**

The top teams taking least time will be selected for the 2<sup>nd</sup> and final round. The number of teams selected for the final round will be decided on the day of play by the organizers.