



# Hurdle Rush

## Task

Each team has to make a battery powered wireless racing car that will beat the other cars on the track. The goal will be to finish the race by crossing all the hurdles in the race in minimum time or quicker than the opponent (based on the rounds).

## Team Specifications and Eligibility

1. A team may consist of a maximum of 4 participants.
2. Students from different educational institutes can form a team.
3. All students with a valid identity card of their respective educational institutes are eligible to participate.

## Bot Specification

1. The size of the bot must be within 25 X 25 X 25 cm. (Robot with error greater than 4% will not be allowed to participate.)
2. The space between the left and right tyres should be at least 10cm.
3. Bot must have on board power supply.
4. Bot must be started individually by only one switch.
5. Potential difference between any two points on the bot should not exceed 12V.
6. The bot must be made on your own. No readymade bots and LEGO kits are allowed.  
Its obvious that you can use third party microcontrollers like Arduino.
7. Controls should be wireless.

## Hurdles in the track

The track would contain following Hurdles

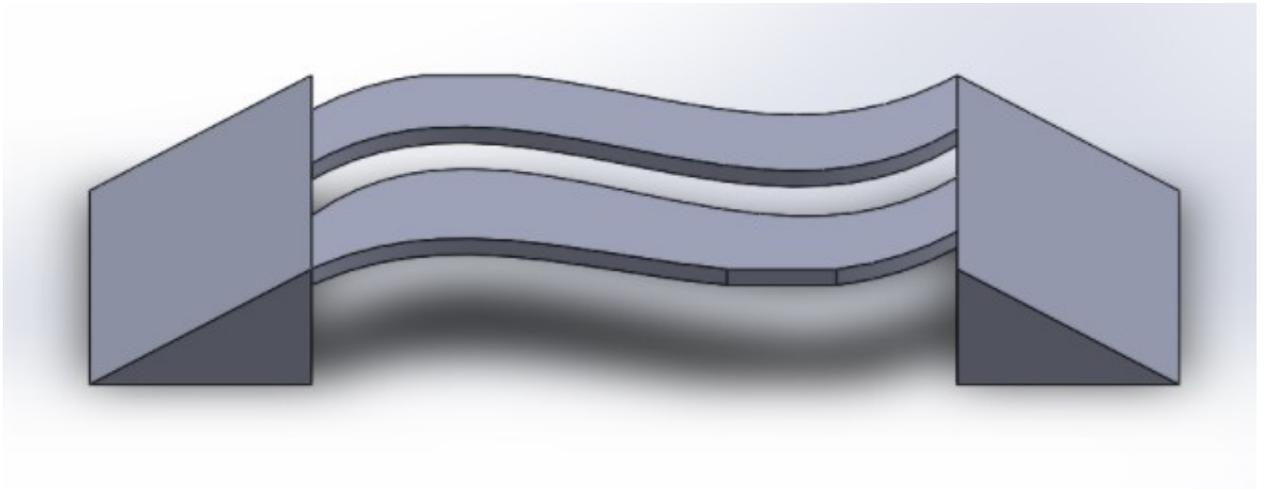
### 1. Gravel

- No option to skip
- Length of this hurdle would be approx. 75 cm



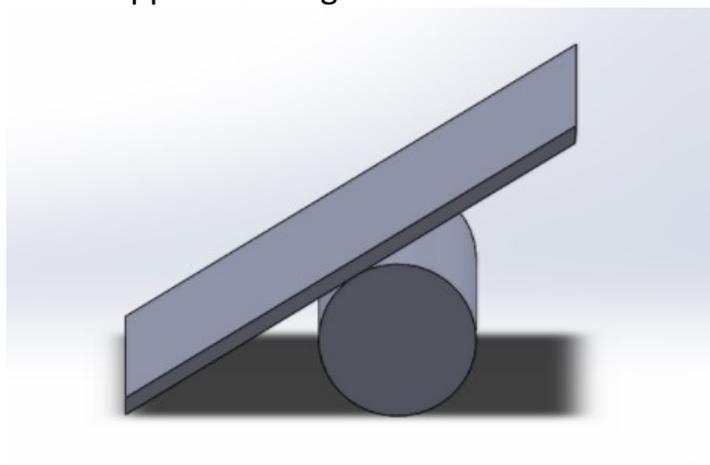
## 2. Mid Slit

- Width of the slit would be 9cm.
- The length of the slit would be 50cm(approx.).
- If the bot goes in the slits it must be taken to the previous checkpoint.
- The hurdle can be skipped with a penalty of 40s.



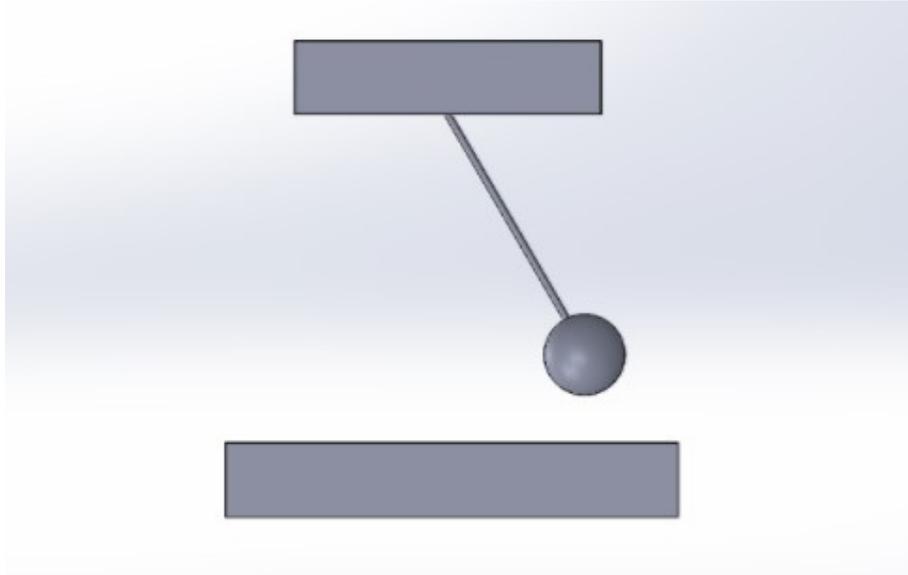
## 3. See-Saw

- The Hurdle can be skipped with a penalty of 20s.
- If the bot gets out of the track while dropping out it has to be placed at the previous checkpoint.
- The angle would be approx. 35 degrees.



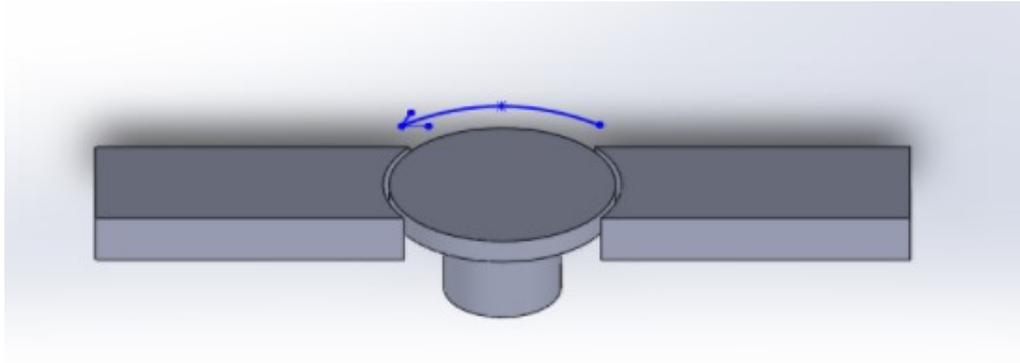
#### 4. Pendulum

- The length of the Pendulum is 45cm.
- If the bot touches the bob it has a penalty of 10s.
- The hurdle cannot be skipped.



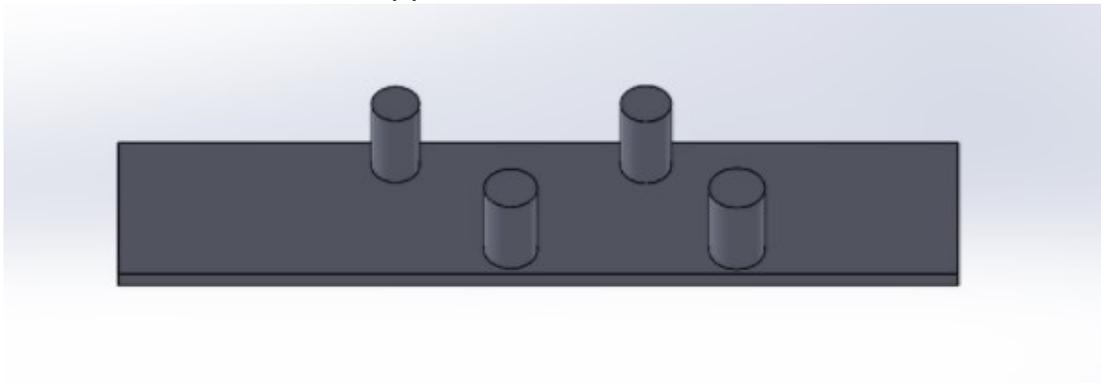
#### 5. Rotating Disc

- The rotational speed of the disc would be 50rpm.



#### 6. Touch Me Not

- The shortest distance between any two glasses would be more than 25cm.
- Every touch of a glass counts to 15s penalty.
- The Hurdle can't be skipped.



## 7. Min Golf

- There would be one light weight plastic ball and three pockets (**NOT** one, the diagram is just for reference). Depending on the pocket the ball is placed in the user get a decrease in the overall time.
- The hurdle can be skipped.



## Game Rules and Event Structure:

1. Checkpoints will be made after every hurdle.
2. Width of the track would be 30 cm.
3. The competition will consist of **two, time based rounds**.
4. The order would be decided through chit system.
5. In the qualification round the total time taken by each team to complete a round of the race track will serve as the criteria for its selection into the next round. **6** teams (can be changed based on the number of participants) will be selected for the next round.
6. In this round **Hurdle No. 1,3,4,6**(Gravel, See-saw, Pendulum, Touch me not) would be present.
7. The total time is the sum of the time taken to complete the race plus the penalty time added according to the rules specified above.
4. The selected teams will be qualified for the next round based on their performance in the qualification round and again the ordering would be done by chit system.
5. In this round **all the hurdles** would be present and again the time of completion would be recorded.
6. The knockout rounds will have races of **2 laps**.
7. Again, the total time would be time taken to complete the path plus penalty time due to hurdles.

8. In case both the robots fail to complete the race, the robot that moved the farthest wins.
9. Only one robot is allowed per team.

## **General Rules:**

1. Only one member of the team is allowed to handle the bot.
2. Participants are not allowed to put anything inside the arena other than the bot.
3. The participants are not allowed to go inside the arena or touch their bot during a race without the consent of the organisers.
4. Only the time recorded by the organizers shall be considered and their decision shall be final and binding in case of any disputes.
5. In case of any disputes/discrepancies the organizers decision will be final and binding.
6. The organizers reserve the rights to change any or all of the above rules as they deem fit, however any change shall be communicated to the respective teams.

## **Organisers**

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