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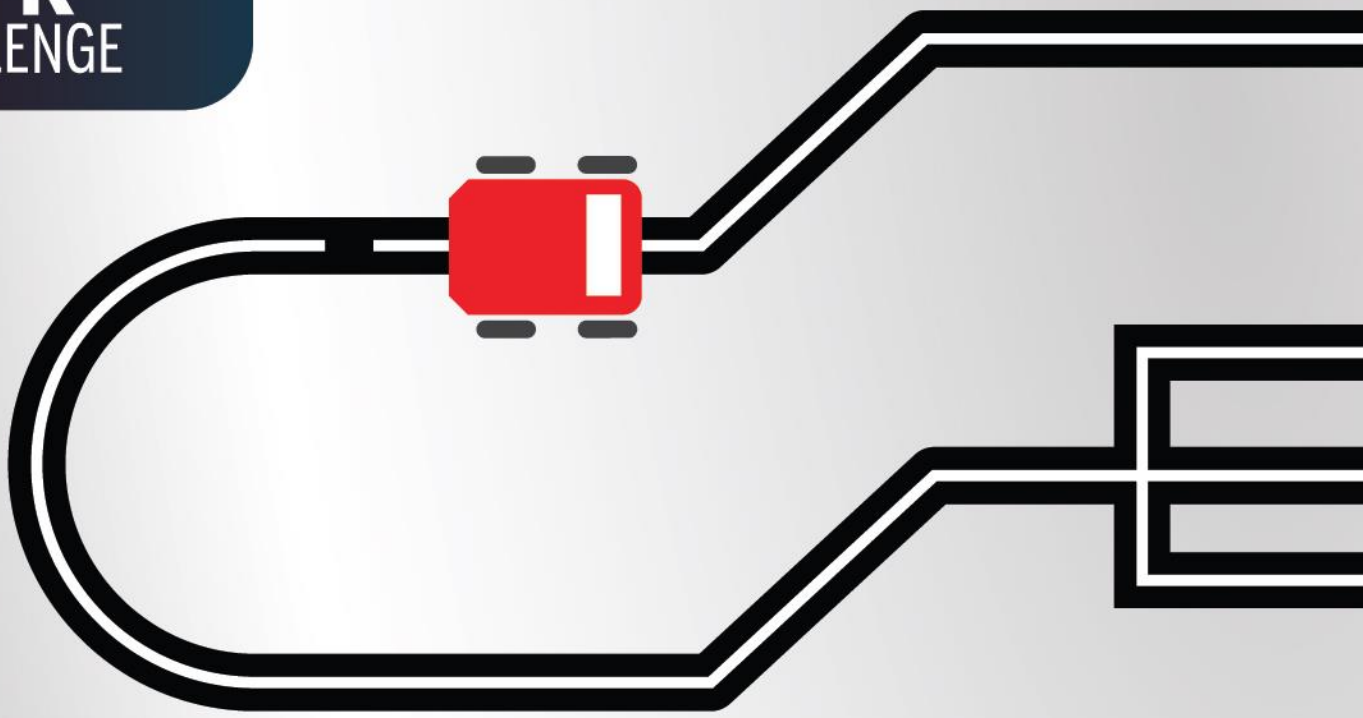
OCTOBER 6

LFR CHALLENGE



PROUD ORGANIZER | MECHANICAL & CHEMICAL ENGINEERING
ISLAMIC UNIVERSITY OF TECHNOLOGY

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Eligibility:

This competition is open for all colleges and undergraduate students of all the universities of Bangladesh. Students with a valid identity card of their respective educational institutes will be allowed to participate in this event. Participants have to take part in a team and each team will have a team leader and a team name. Each team will be recognized by its registered team name and registered team leader. A team may consist of maximum four members. Students from different educational institutes can form a team. The team leader will be a member of the team as well.

Race at a Glance:

- A small autonomous robot has to follow a white line on black surface under various conditions (e.g. round corners, sharp corners, crossovers, hills/bridges, gaps, tunnel, obstacles or maze)
- There will be two portions on the track, one for LFR & the other for MAZE solving.
- The bots will start from a common starting point then either chose to complete the MAZE or the LFR track.
- There will be 2 rounds,
  - 1st round: the bots will have to complete a LFR track.
  - 2nd round: the bots advancing to the 2nd round will either chose to complete a LFR track or solve a MAZE.
- Number of teams selected in the qualifying round will be decided the by the judges.
- Top 2 teams will be selected as Champion and runners up.

Team specification:

Teams will consists of 4 members. There will be a team leader who will be a member of the team as well.

Team may be formed with members from the same university or different universities but team members must be undergraduate or college students.

Robot Specification:

1. Maximum dimension: 30*30*30 cm
2. Maximum weight: 2kg
3. Bot should be running on wheels

4. If any bot damages the track in any way possible the team will be disqualified.

5. Readymade bots are not allowed

6. Readymade circuit boards are allowed

7. A bot should not have more than 2 switches. If there are more than 2 switches marks will be deducted.

8. Any kind of communication module is not allowed and if it is found that any bot have communication module in it will be disqualified

9. Teams are not allowed to use readymade lego kits or any such assemblies (such as – hands)

10. Robot must use an on-board power supply. No external power supply will be allowed.

11. Each team should bring its own power supply for robot.

12. The potential difference between any two points should not exceed 24 volts DC.

13. Robots must be able to operate under any lighting conditions. (You should take necessary measures to isolate the sensors from external lighting like sunlight, camera flash etc.)

Track specification:

-The total size of track will be 18ft*22ft

-width of line will be 3 cm

-there will be no angle less than 30 degrees

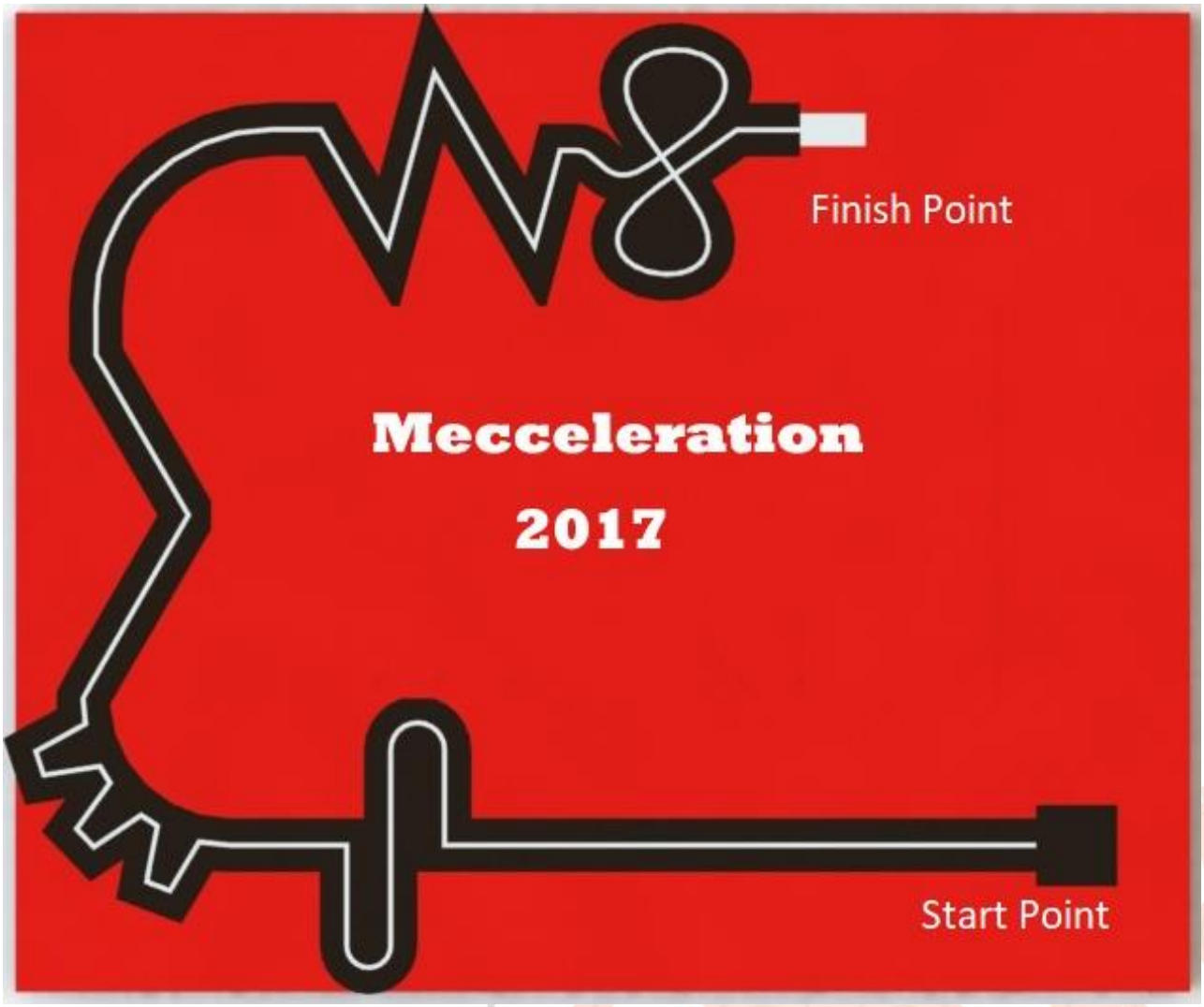
-in the maze portion the minimum distance between 2 nodes will be 12cm

-maximum angle of bridge will be 30 degrees

Round details:

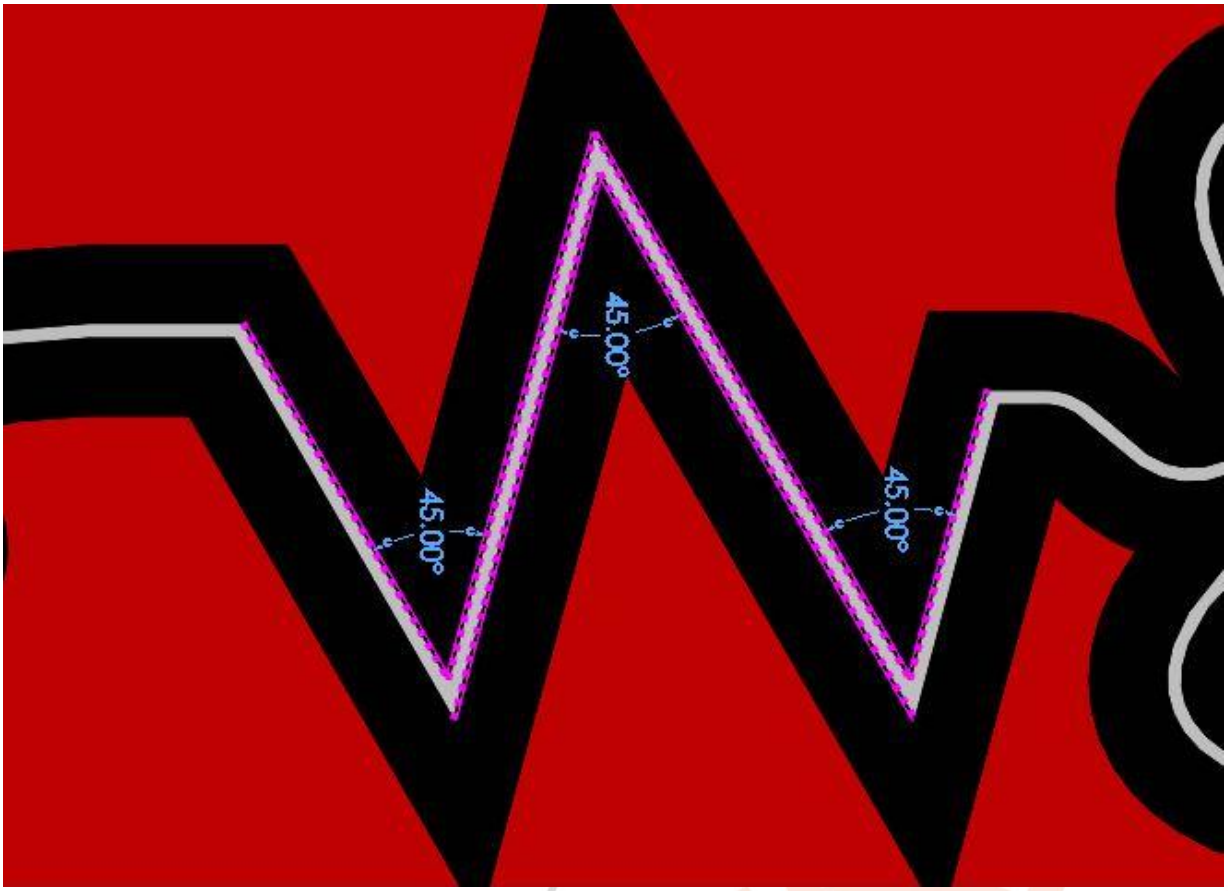
1st Round Details:

In the 1st round the bots will have to start from the start point and have to finish the track within shortest time.



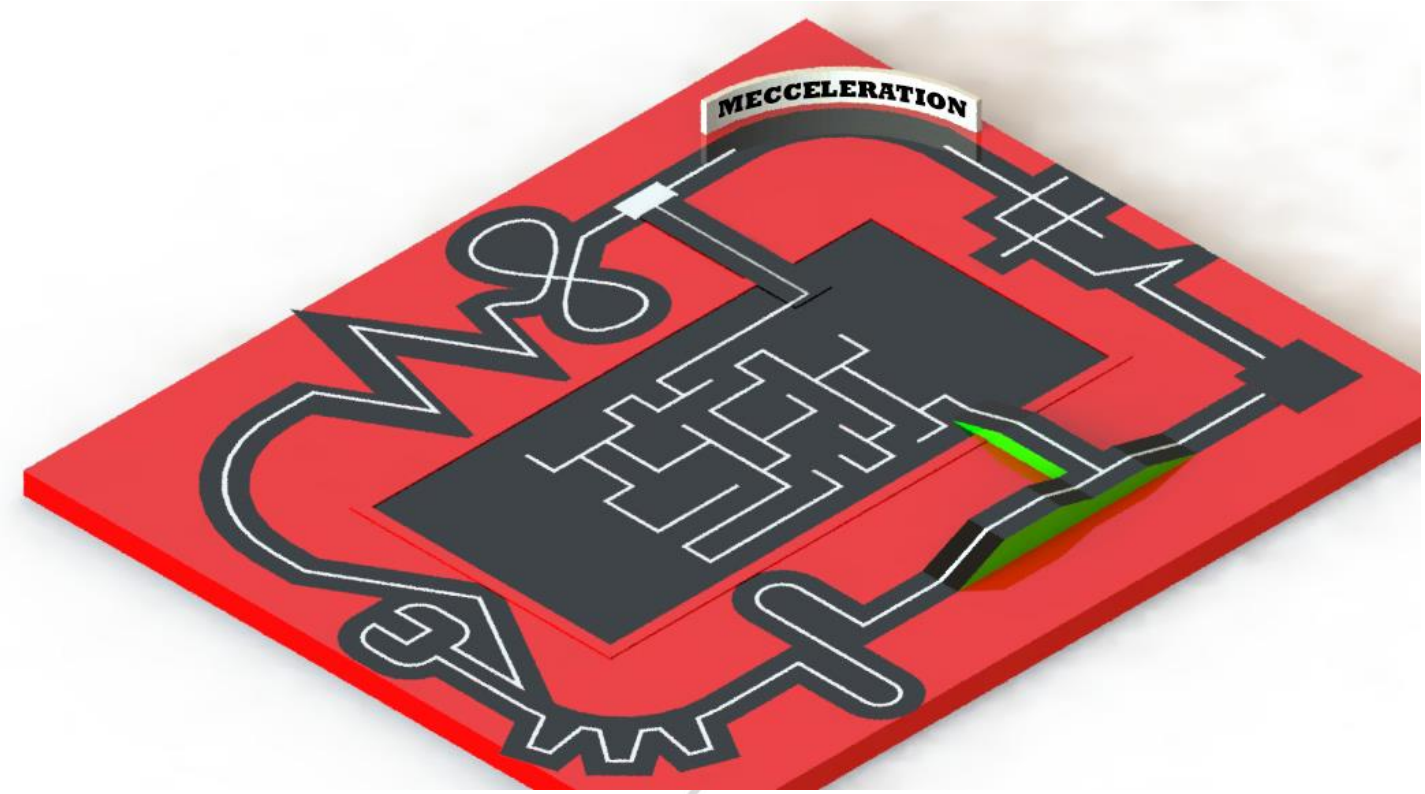
1st round track: 2D View

Gear
(all the gear angles will be 90^0)



Zig-zag

2nd Round Details:



3D view of the Track

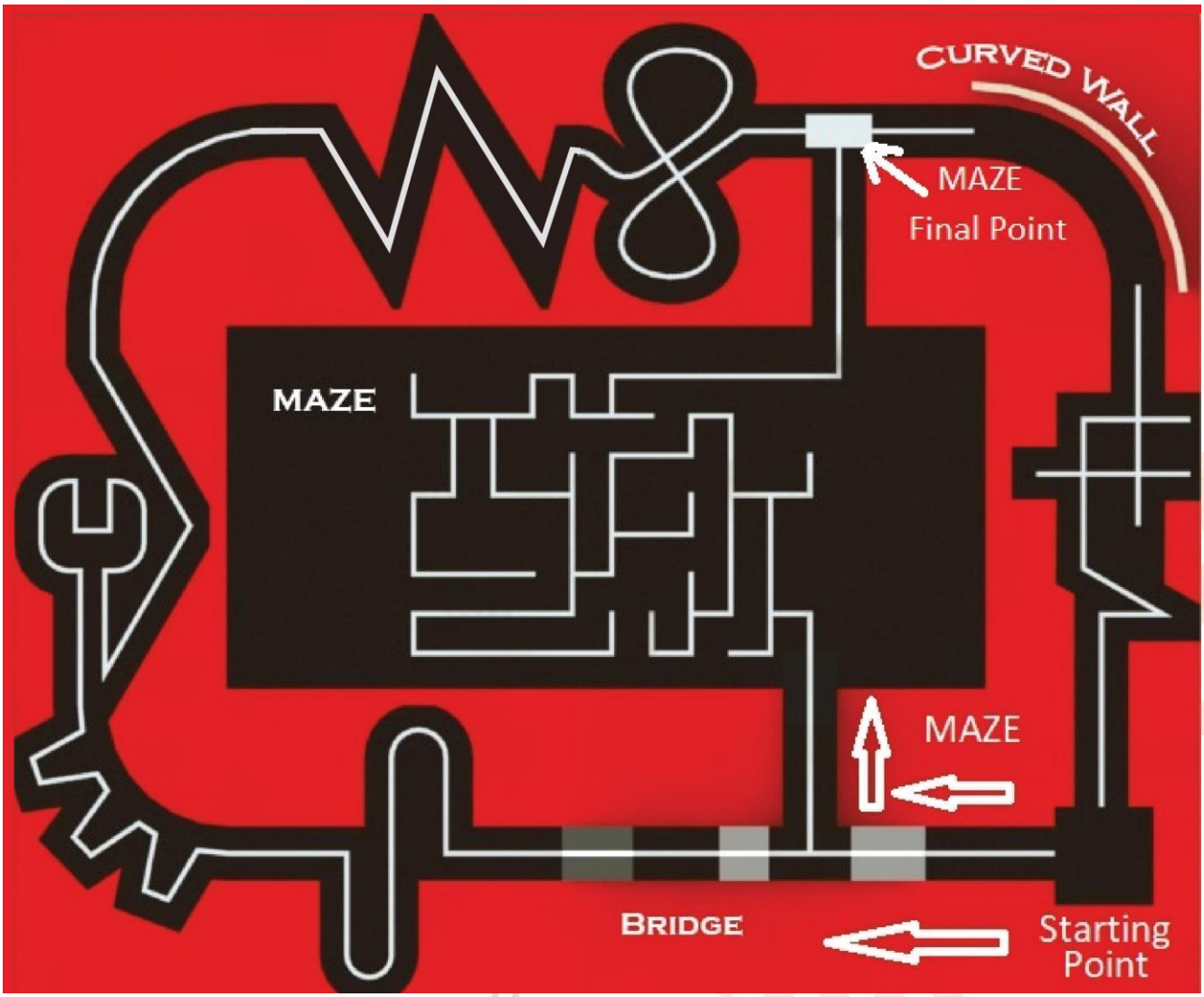
In the 2nd round the bots will either chose to complete the LFR track or solve a maze. In both cases, the bot has to reach the finishing point (the black box is the starting point as well as the finishing point)

In case of solving the maze

-The bots will start from a common starting point & advance towards the bridge and then has to take the right turn. After ascending to the bridge the bots will have to enter the MAZE track and will go to the maze final point.(Mapping).Then the bot has to return to the starting point by the shortest path.

In case of the completing the LFR

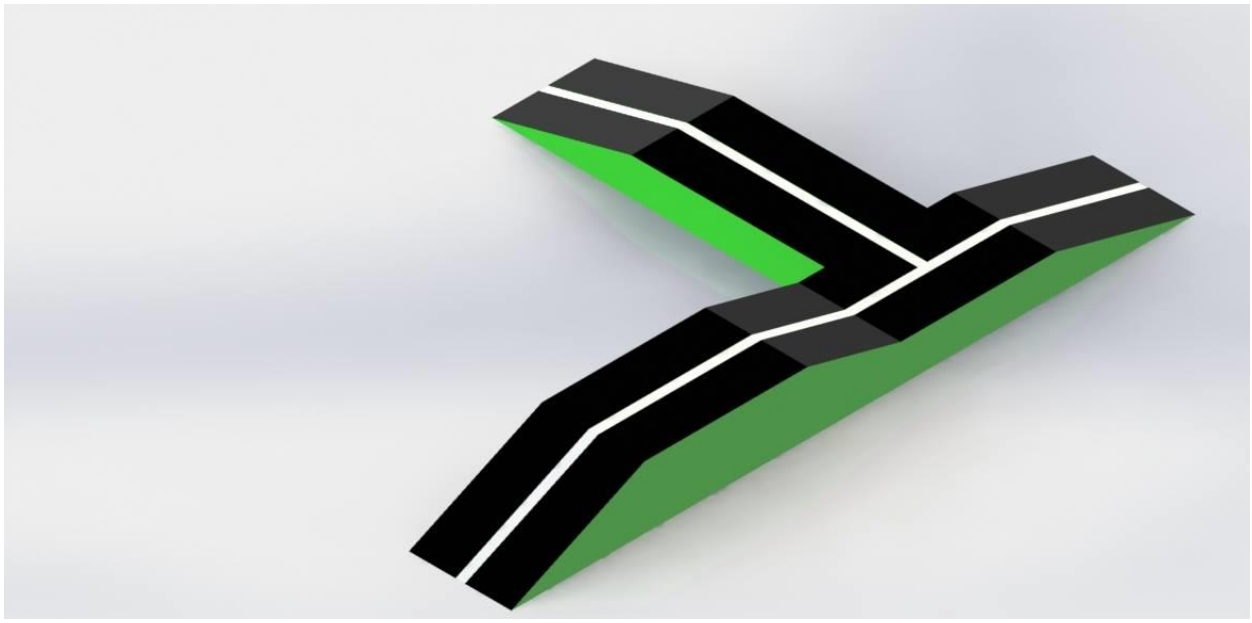
, the bots will start from the common starting point & advance towards a bridge,go straight to the LFR track and complete the track. If the bots enter the wrong track then it will be considered as 'out of track'.



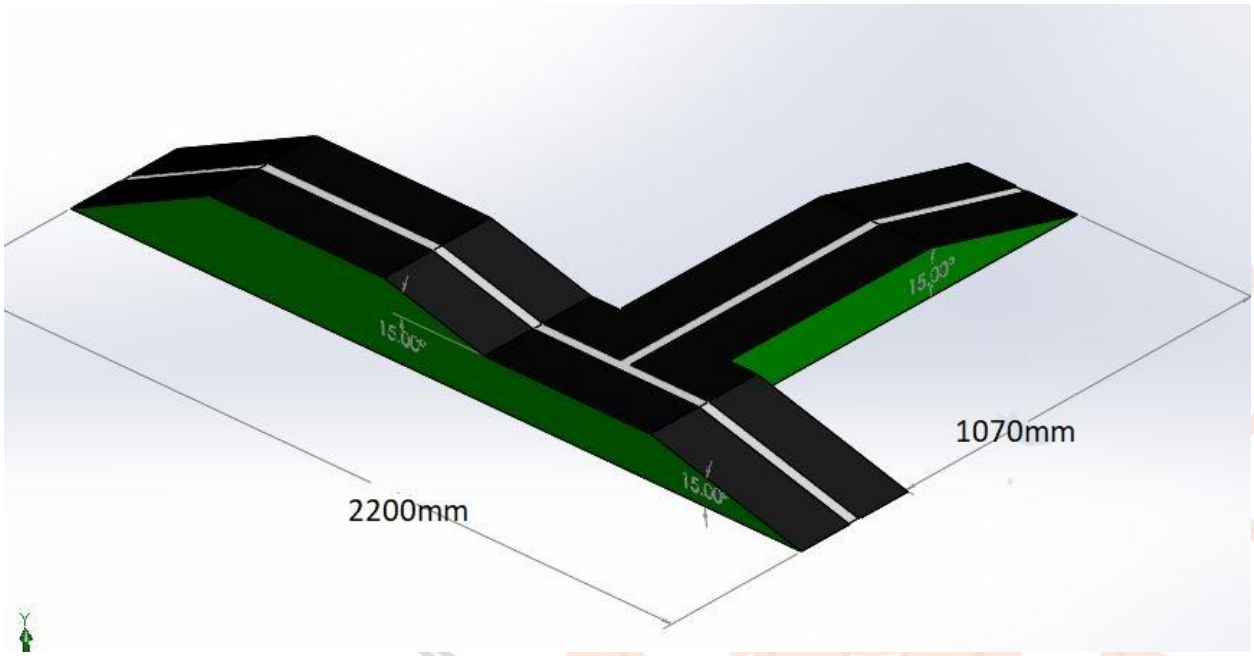
2nd round track: 2D View

Given Maze track is a demo track. Final track will be revealed after the first round.

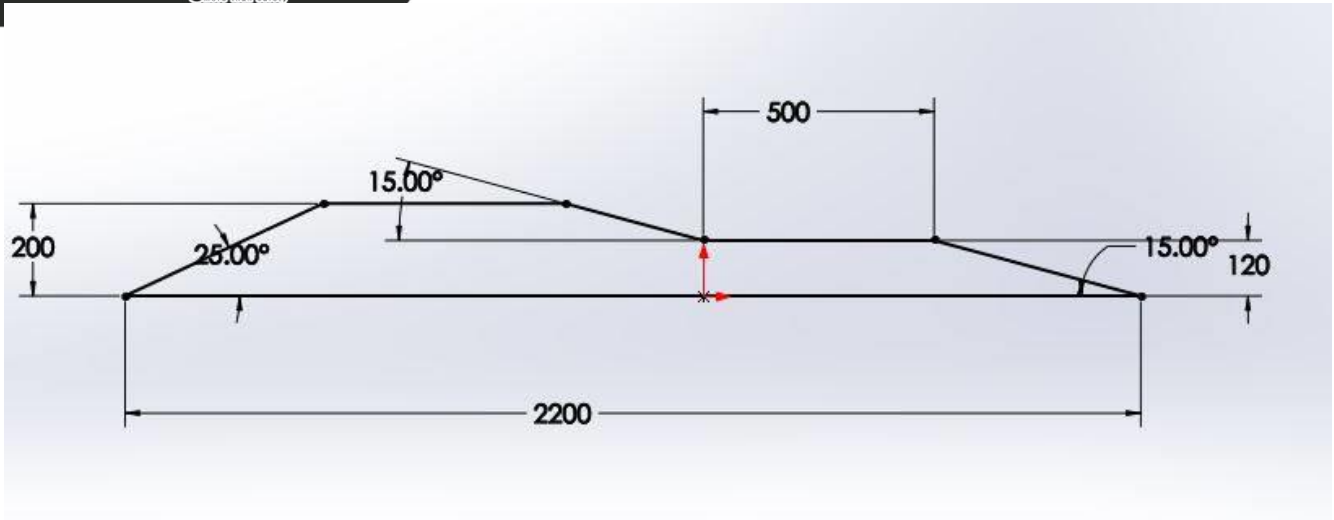
Bridge Details:



3D View

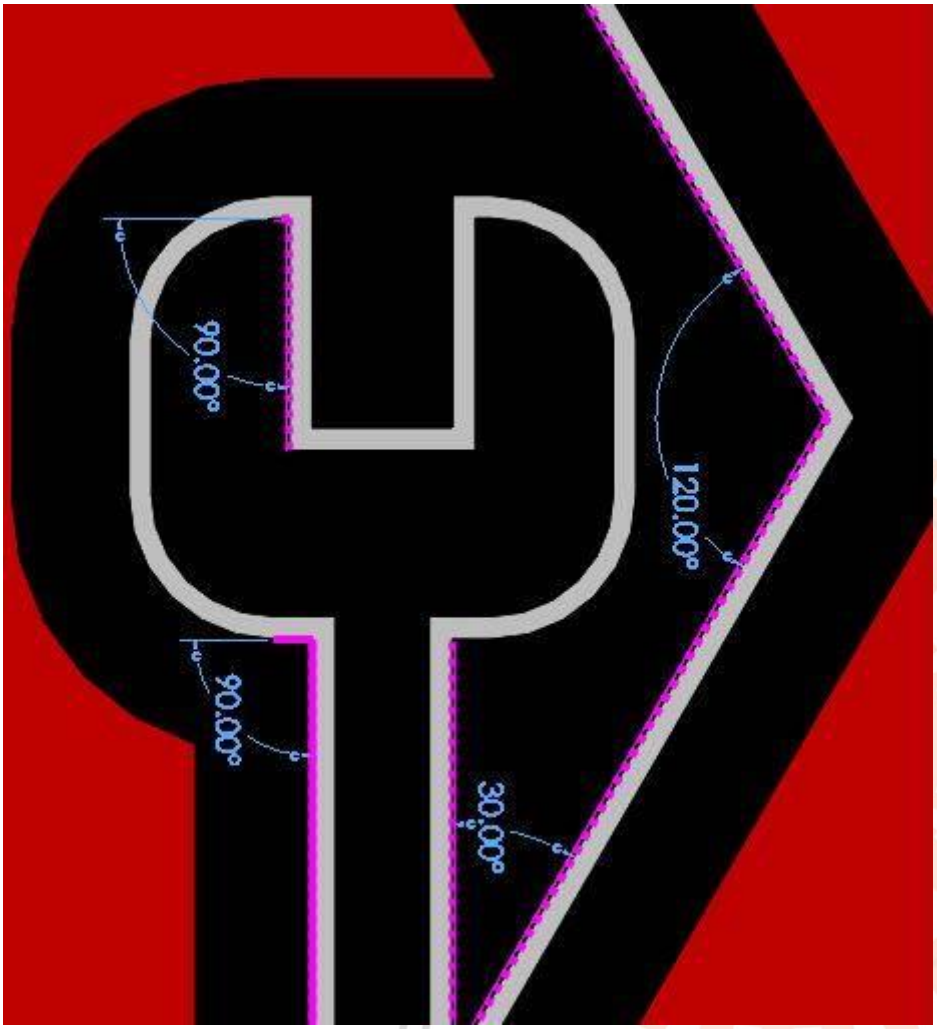


[*All dimensions are in mm]



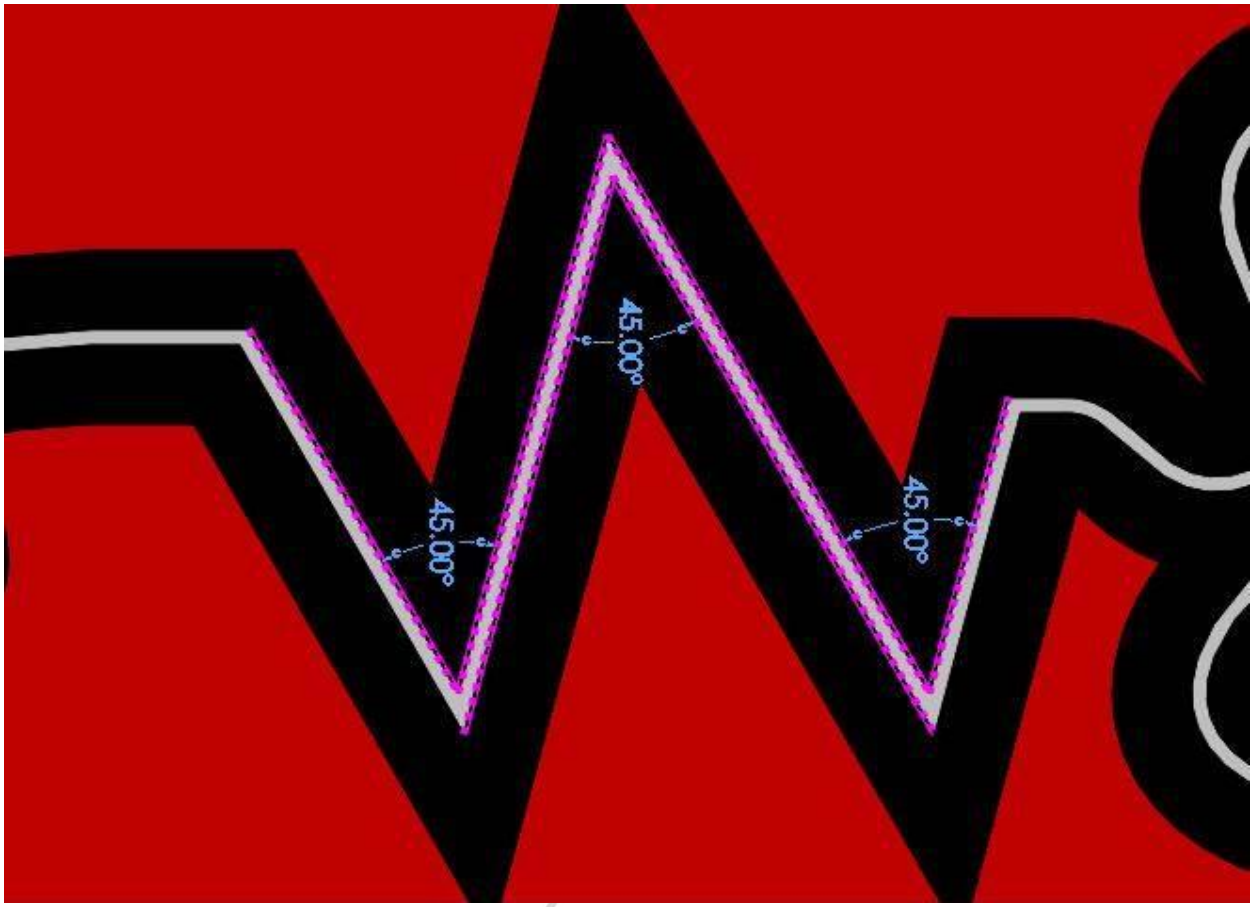
Length & inclination of bridge

[*All dimensions are in mm]

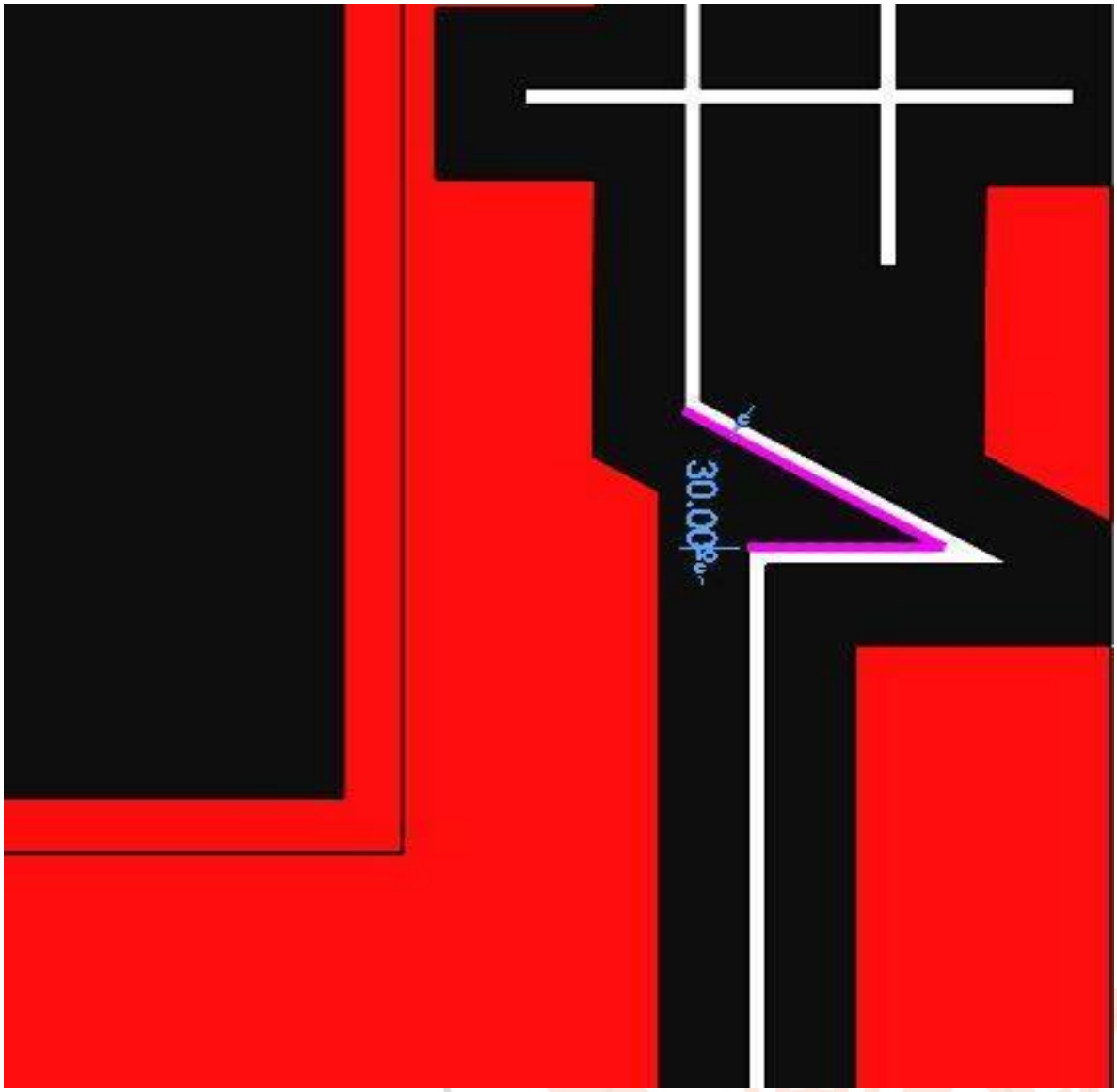


The Wrench

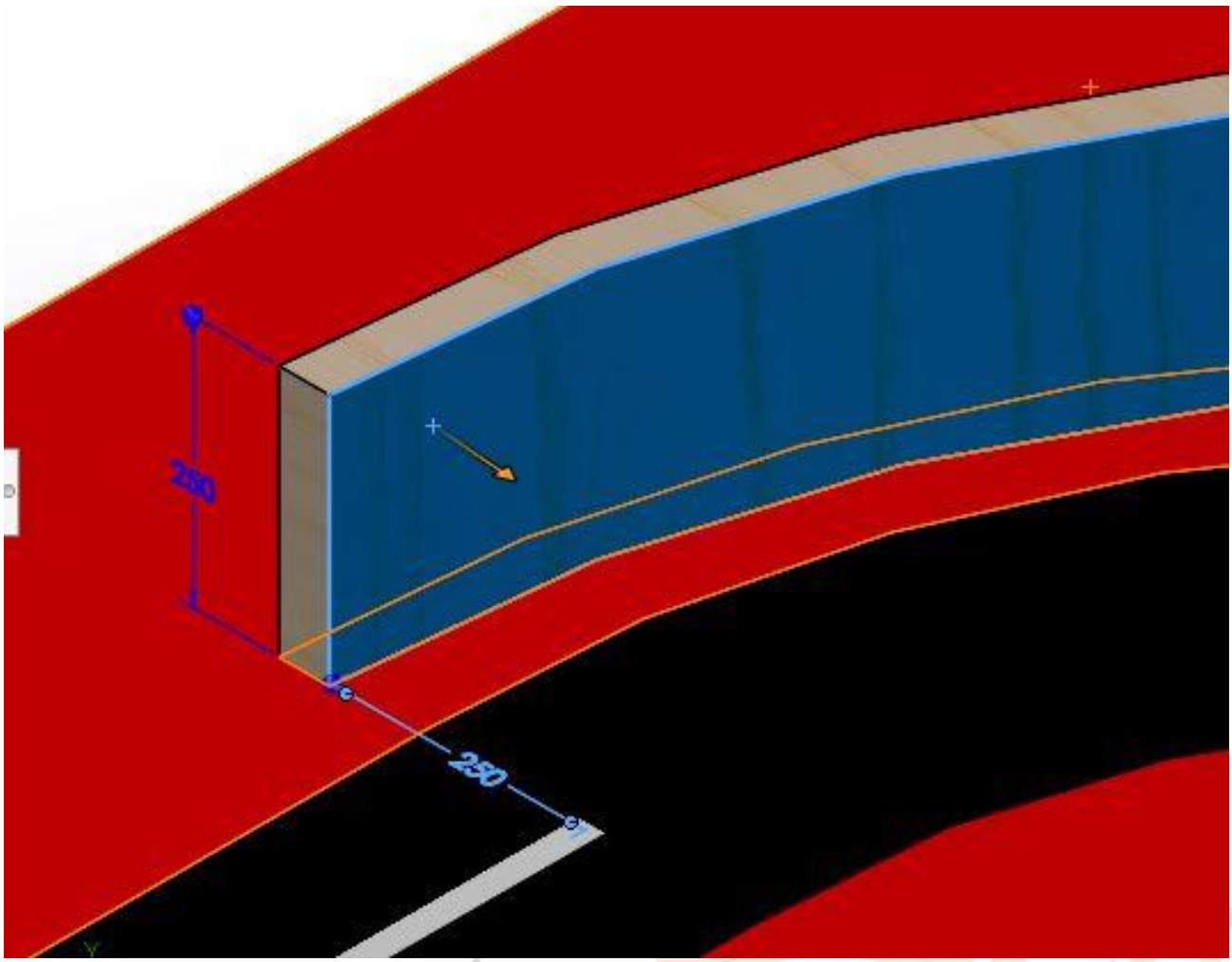
[*All dimensions are in degree]



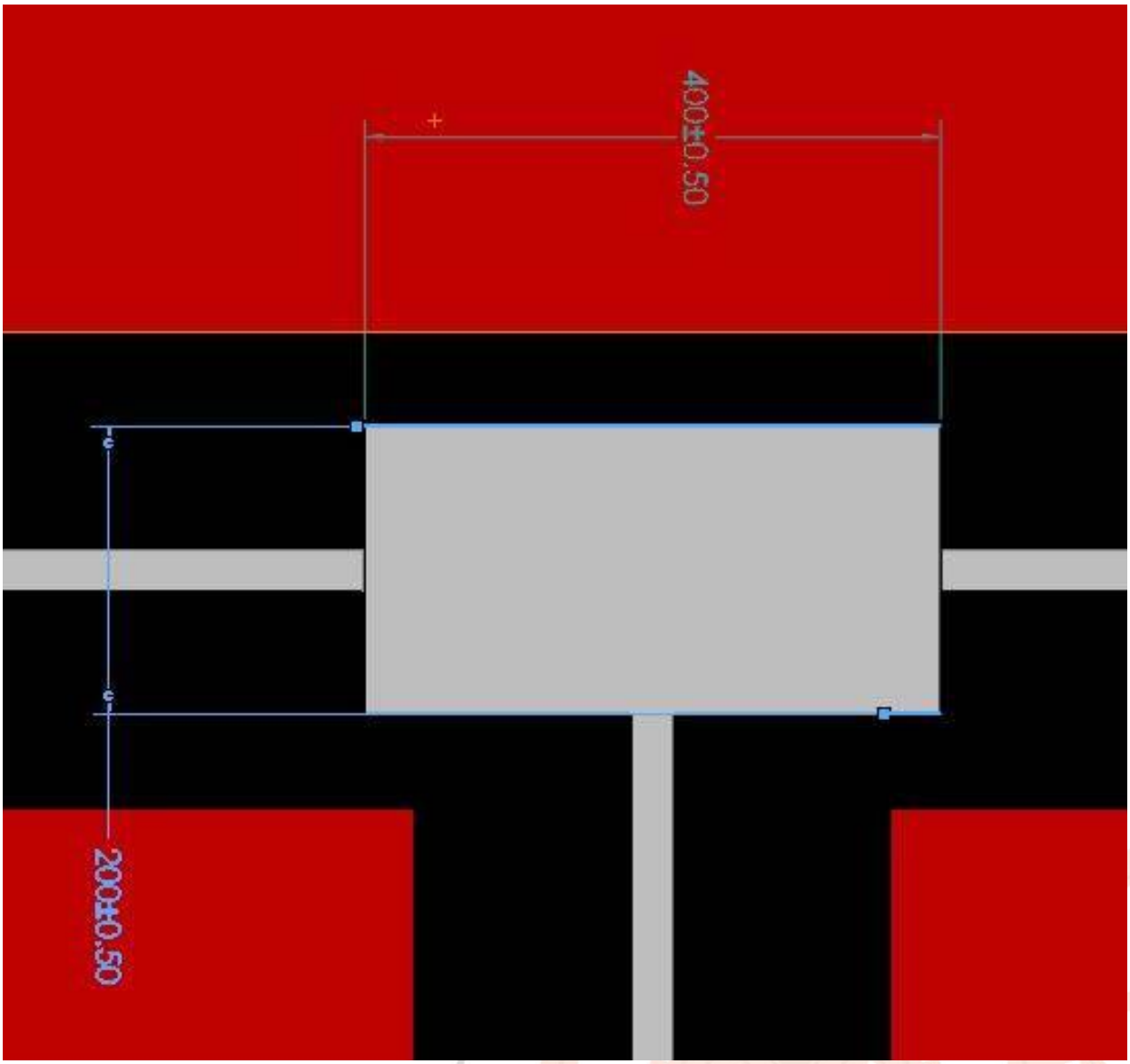
Zig-Zag
[*All dimensions are in degree]



Last Angle
[*All dimensions are in degree]



Curved wall
(dimensions are in mm)



Maze final point

[*All dimensions are in mm (400*200)]

Ratifications of robots:

• Every participating robot has to submit itself to the tests of ratification.
• The tests of ratification consist in verifying that the dimensions of the robot correspond to the technical specifications and the other specifications mentioned in "Robot Specification".
• Any robot not satisfying the tests of ratification will be excluded from the competition.
• The ratification will be realized on the day of the competition.

General Rules:

• The competition is open to all the students of college and undergraduate students of all universities.
• The participant team must register on the website of the competition.
• Each team will be recognized by its registered team name and registered team leader.
• The winning team is declared based on point rating and not on its racing time score.
• Judges decision will be final. So no objections shall be declared against the judge's decisions.
• Two team members can be within the arena for restart the robot or getting the robot in line.
• The team leader can present objections to the Committee, before the match is over, if there is any doubts.
• During the competitions, only the team leader is authorized to present the robot and to contact committee members for any claim or specific need.
• The following comportments could lead a team to be disqualified:
– Evidence of non-respect to other teams and competitors.
– Evidence of non-respect to security rules.
– Evidence of non-respect to competition judges.
• Competition judges are not part of the competition committee; they are assisted by the competition Committee members, but remain completely independent for their decisions.
• A team should agree all the above rules and present a written agreement to the homologation desk.
• The competition Committee reserve the right to change the rules as they deem fit.

Competition Rules (Lfr & Maze)

• Any one member from a particular Team should present the robot to the homologation desk.
• The Robot must follow a line from the beginning to the end as fast as it can within 10 minutes in the final stage.
• The robot will be placed at a pre-assigned starting point on each stage, and may be started by hand when directed by the judge.
• Time is measured from crossing the start line until the robot crosses the finish line. A robot is deemed to have crossed the line when the forward most part of the robot contacts or crosses over the line.

• Time will be measured via automatic time measurement device on the availability of equipment. The recorded time will be final.

• The Robot must follow the line fully autonomous without any human intervention.
• No wireless communication or external data feed to robot is allowed.
• A robot may use shortcut tactics to complete the course faster by following the line. But the robot must go through every check points. Otherwise the robot will be disqualified.
• In final competition only 6 attempts/restarts are authorized***.
• Any robot that loses the line must restart from the last check point. In this case, the timer will remain running during restart and a penalty will be pointed.
• The judges can ask for an explanation of any mechanism on the robot and there would be an immediate disqualification of defaulters of any kind.

Evaluation:

• The winning team will be decided based on a common point system.
• The robot which obtains the maximum point among the participants will be the winner.
• Scoring details will be published before 7 days of the event.

Flexibility of Rules:

• As long as the concept and fundamentals of the rules are observed, these rules shall be flexible enough to encompass the changes in the number of players and of the contents of matches.
• Modifications or abolitions of the rules can be made by the competition committee as long as they are published prior to the event, and are consistently maintained throughout the event.
• Participating teams are always responsible for the safety of their robots and are liable for any accidents caused by their team members or their robots.

Liability:

• The Mecceleration organization and the organizing team members will never be held responsible nor liable for any incidents and / or accidents caused by participating teams or their equipment.

Scoring details will be published 7 days before the event

Contact:

For any confusion/queries, please feel free to contact :

Mahmudul Hasan Pavel : 01676043805