

# HACK A MAZE

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# **HACK-A-MAZE**

## **TASK:**

- The team has to build an autonomous bot that can navigate through the maze.

## **PRE-GAME:**

- The bot is tested to check if it satisfies the dimensional requirements.
- Its functionality is examined by placing it in a trial maze, which might consist of simple obstacles.

## **GAMEPLAY:**

- The bot is placed on the **“START”** tile of the maze.
- The bot needs to navigate through Part A\* of the maze.
- Subsequently, it needs to solve Part B\* and cross the **“FINISH-LINE”** within the time limit.
- \* Check the “ARENA” for more details.

## **BOT SPECIFICATIONS:**

- The dimensions of the bot should be less than or equal to 180 mm X 180 mm X 180 mm (lxbxh) failing which the team will be disqualified from the competition. An error of (-5% ) is permitted.
- Participants must note that no bots can exceed the maximum limit of 180 mm (l or b or h). No positive error is tolerated.
- The bots must have an on-board power supply in any case.
- The bot must have all the sensors necessary to prevent it from crashing into the maze.
- The participants are required to have any additional sensors if they think it is required. No components are provided by the organisers.

## **ARENA:**

The maze-width (i.e the distance between 2 walls of the maze, measured perpendicularly to the path) is 250 mm.

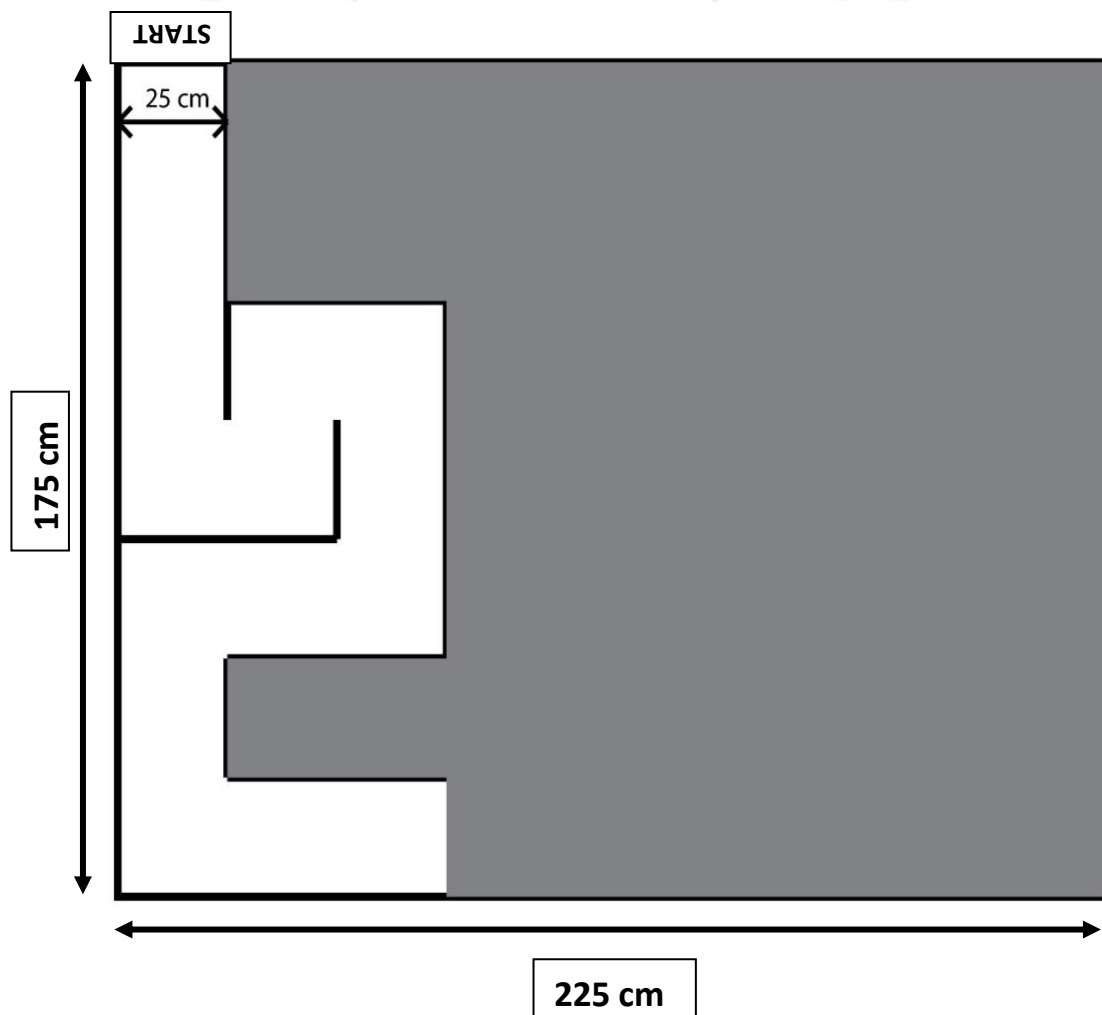
### Part A:

It is a continuous path without multiple decisions to make. The bot needs to navigate completely through this part to be qualified as a contestant for the prize.

### Part B:

The Part B is marked with solid grey colour in the diagram. It will be revealed on the day of the contest via our social media channels.

- This part consists of partition walls of twice or thrice the length of the width of the maze-path.
- It may have T and L and Z shaped partitions
- Any intersection, joints are 90 degrees apart.





## POWER SUPPLY:

- The participants should use an on-board electric or non-electric power supply i.e. the power source should be on the bot itself. The power source must be non-polluting and must satisfy the safety constraints determined by the organizers. In the case of the non-electric power supply, the participants must get it approved by the organizers beforehand via email. Organizers are not responsible for the inconvenience if the approval is not sought.
- In the case of an electric power supply, the voltage between any two points should be less than or equal to 24V DC at all times during the run.
- AC power supply will not be provided and cannot be used in the competition.
- Please get your own cell chargers, battery cells as it won't be provided by the organizers.

## GAME RULES:

- The bot is checked for safety and will be disqualified if found unsafe for other participants.
- The bot will be disqualified if it causes any damage to the arena.
- The team is given 6+4 minutes of time.
- Initial 6 minutes can be utilized for whatever reason participant thinks appropriate, without violating any of the rules. This round is not considered for the competition.
- The next 4 minutes is timed for competition.
- The bot starts at the **START** mark.
- The Team that takes the least time to solve the maze is declared the winner.
- The bot must solve the maze within the maximum number of minutes. In case it doesn't, the points are allotted based on the number of 'floor marks' (refer **POINTS ALLOCATION** section ), it has covered.
- The teams with the highest points are declared as consolatory winners.
- The points allotted to each floor mark will be released with part B of the arena on the day of the contest.

## **POINTS ALLOCATION:**

- Part B is marked with stickers and each sticker is allotted specific points based on the proximity to the finish line.
- The points allotted is a rough translation of time that the bot would have taken if it was allowed to continue in the same path with the assumption that it would not change the path.
- If the path has a possibility of diverging to multiple paths, the average of all paths will be taken.

## **TEAM SPECIFICATIONS:**

- A team may consist of 3 or 4 members.
- Students from different educational institutes can form a team.

## **ELIGIBILITY:**

- All students with a valid identity card of their respective educational institutes are eligible to participate.

## **CERTIFICATE POLICY:**

- Winner and runner teams are given the prize the same day.
- (The prizes given to the consolatory winners (if awarded) may vary from the actual prize)
- All participants are mailed with an e-certificate of participation shortly after the event.

**THE ORGANISERS RETAIN THE RIGHTS TO MODIFY ANY AND EVERY RULE IF FOUND NECESSARY. FOR ANY UPDATES ABOUT THE CHANGES OR MODIFICATIONS PARTICIPANTS ARE ASKED TO FOLLOW OUR INSTAGRAM CHANNEL @ieee.uvce.yantrik. IN THE CASE OF DISPUTES IEEE UVCE'S DECISION IS FINAL.**