

INTRODUCTION:

DEATH RACE: VOYAGE THROUGH FUTURE

Artificial intelligence now supersedes human intelligence. Welcome to the Year 2050: In a quest to conquer the world, humanity has come up with some of its greatest and powerful inventions, some boon some bane, Artificial intelligence being one of such. In this Era of spacefaring, evil born out of Artificial intelligence wants to dominate time travel for better or for WORSE. There's only one who can prevent this disaster, the "Winter Warrior ", resting peacefully under the profound layers of snow is the winter warrior, hibernating in a biological pause since the times of World War II. In the "No Man's Land" also known as "The Agora " rests the mysteries of time travel safely secured behind unfathomable avenues. Winter Warrior must now rise, reach Agora and save the past, the present and the future of this planet.

Your mission is to reach the pinnacle of "the Agora" where the time machine lies. You will have to cross rugged terrains , steep mountains and deep craters to reach "The Agora" , but from there , the journey only gets more arduous and thrilling. You have to overcome deathholes of land, the black waters, the excruciating flames and deathly wedges to reach the "Pinnacle".

Can you emerge from this race of death and reach the enigmatic time machine?

OBJECTIVE:

To build a manually controlled robot capable of competing against other robots in an elimination round and subsequently cover an arena constructed of concrete, ground, and plywood with various hurdles and obstacles placed along the course.

TEAM SPECIFICATIONS:

- A team may have **2-4 members**.
- There is no limit on the number of teams participating from an educational institution.
- Participants from different educational institutions may also form a team.
- A team can register as two separate teams using two different bots for the event.
- **A team cannot participate with two bots of the same design.**

BOT SPECIFICATIONS:

- The size of the bot must be within the range of [12cm x 12 cm x 10cm] - [30cm x 30cm x 18cm] (L*B*H).
- The size constraint doesn't include the remote used to control the bot.
- The bot may be wired or wireless. If it is wireless, it must be able to run on two different frequencies.
- The bot's adapter (if used) should be compatible with 220-240V AC source, 50Hz.
- Only an AC power source will be provided for the bot. The rest of the power requirements are expected from the team.
- The minimum length of the wire must be at least 6m long.
- The potential difference between any 2 points on the bot shouldn't exceed 24V.

NOTE: **NO LEGO PARTS OR HOLDING MECHANISMS ARE ALLOWED.**

RULES AND REGULATIONS:

- Each team must follow the specified bot dimensions, and if not followed, the team will be eliminated.
- The team member controlling the bot will be fixed throughout the event.
- The total time allotted for the event will be fixed; overshooting the time will lead to disqualification.
- Maximum 2 minutes of technical timeouts will be permitted twice to each team during the course.
- If the bot falls off the track, 5 points will be deducted and the bot will have to start from the last checkpoint.
- Only the operator and her/his companion helping him/her with the equipment will be allowed inside the arena from each team in the ongoing match. But, any contact with the arena or the bot will lead to a penalty of 20 points (unless technical time out).
- A team will be penalized for causing any minor damage to the arena based on the level of the damage, which is to be decided by the coordinators only, consequence might also result in disqualification of the team.
- Time measured and points calculated by the organizers will be considered as final and time measured by any other method will not be accepted.
- Bots will be blown with fire, so no explosive or inflammable materials are allowed.
- There should be proper insulation failing which might lead to disqualification.

- Physical contact or jostling between the bots is permitted; any damage taken or given will be the responsibility of the operator.
- Any sort of foul play or violation of above mentioned rules will lead to disqualification.
- The final decision will be of the coordinators.
- Any argument with the coordinators will result in direct disqualification from the event.

GAMEPLAY AND RULES:

- There will be 2 major rounds for the event.

ROUND 1:

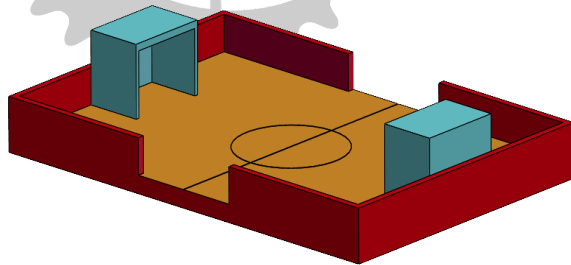
This round is divided into 3 parts as follows:

- Combat Arena
- Off Road Track
- Track

Combat Arena

- 2 teams entering the combat arena would be given 3 minutes to score as many goals as possible.
- After completing the combat arena, both teams would be placed at the starting point of the off-road track with various obstacles.

SAMPLE IMAGE(subjected to change):



Off Road Track

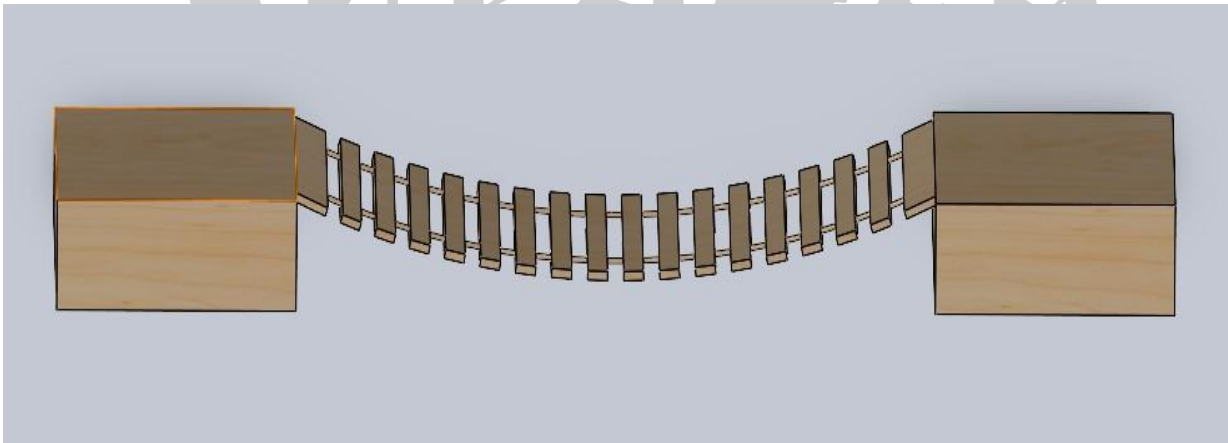
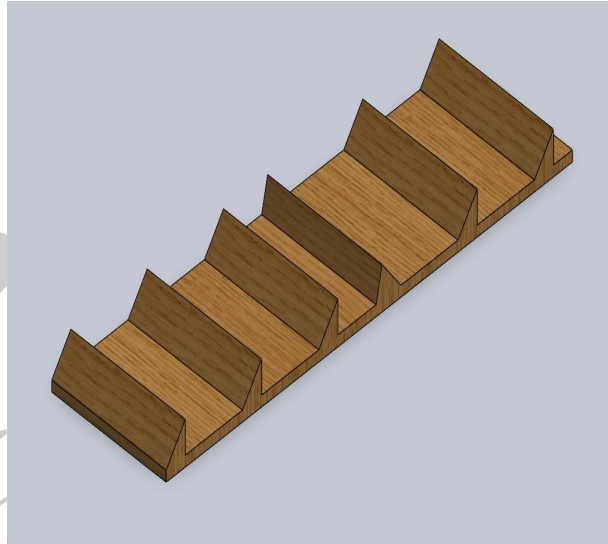
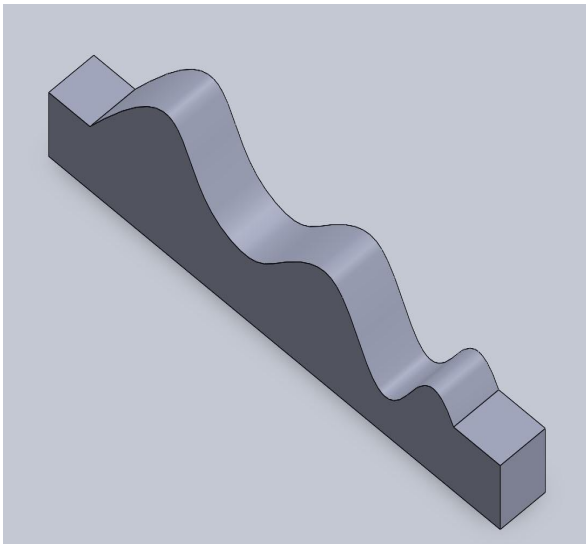
- Both the teams would race against each other on a rugged track made up of earthy materials.
- Time limit for this is 2 minutes.

Run Track

- Two bots will start off and cover the track peppered with various hurdles and obstacles.

- Points will be awarded for crossing each obstacle and penalties will be enforced for skipping each obstacle.
- A time limit of 5 minutes will be given for covering the track.
- Sample obstacles for this round-
 - Grease Tracks
 - Steep Inclines
 - Curved Tracks
 - Tracks with pits

SAMPLE IMAGES OF OBSTACLES:



- Both the bots have to traverse the whole arena of the death race.
- Two attempts will be provided to cross each obstacle, failing which the bot will be forced to move onto the next one along with a penalty.
- A penalty will be placed for skipping one obstacle, and keep on increasing consequently.

ROUND 2:

- The top X teams of the first round will be qualified for this round.
- This round will be a knockout round where two teams will face each other and depending upon the points and the team which finishes first will be qualified for the next knockout round of the tournament which is similar to this.
- However, if any bot or team completes the entire arena without skipping any of the obstacles irrespective of coming second they will be directly qualified for the next round.
- Bots will have to enter the combat arena and compete in order to move on to the obstacle course.
- Obstacles of this round will be revealed on the day of the event .
- Bots will take on the course two at a time and cover the obstacles, each of which carries different points. Three attempts will be allowed for each obstacle. Failure to cross after the third attempt will result in a penalty and the bot will be moved on to the next obstacle.
- Rules for jostling and pushing each other's bots remain the same as the first round.
- Penalties for falling down also remain the same.
- Penalties for skipping any obstacle remain the same.
- A time limit of 8 minutes will be enforced for covering the track.

SCORING

ROUND 1:

COMBAT ROUND:

- Points will be awarded for placing each ball in the goal post. 20 points for the first one, 10 for the second one , 5 for the goals that follow.
- Bots are not allowed to go beyond the boundary line of the arena. Doing so will attract a penalty of 5 points.
- Jostling and pushing are allowed. A bot is free to push its opponent out of the boundary line or hamper its progress in any way possible.

- A bot can't move out of the combat arena before the stipulated time.

OFF-ROAD TRACK:

- This entire track can be considered as a single obstacle, crossing this will give the team an extra edge to go on to the Run Track early along with a score advantage of 10 points.
- If a team is unable to cross it, after 2 minutes , it will get a penalty of 10 points .

RUN TRACK:

- Every checkpoint will have a different score for crossing it. The points for a particular checkpoint will be marked on it.
- A penalty of 10 points will be placed for skipping the first obstacle, 20 for the next, and so on.
- If a bot falls off the track (bot will be picked up by only volunteers), a penalty of 5 points will be imposed.
- A penalty of 20 points will be imposed if any member of a team comes in contact with the bot or the arena in any way during the race. (except technical timeout)
- On reaching the end of the arena, 30 points will be awarded.
- Final points will be evaluated according to the formula

$$\text{Final Points} = \text{Total score} - T \cdot (k + 5) - \text{penalty}$$

- Where T is the total time taken to cover the arena and k is the number of checkpoints/obstacles skipped.

ROUND 2:

- Scoring for this round will also be done in the similar way as of Round 1 (the individual checkpoint scores will differ accordingly).

RANKING CRITERIA:

- Top X bots based on total points scored in the first round will qualify for the second round.
- Value of X is to be decided by the coordinators only , depending on participation.
- If two teams end up scoring the same points, the team completing the track in less time will have a better rank.
- If a tie persists even after the above criteria, the team completing the maximum number of checkpoints will have a better rank.
- In case a tie still persists , the team with the better score in the “**Combat arena**” will have a better rank.

NOTES:

- Coordinators are not responsible for any kind of technical problems.
- Number of rounds is subject to participation.
- Some obstacles are kept hidden on purpose and will be revealed during the event directly. These are some special obstacles designed to test the capabilities of your Bot.
- The Course and Scoring are subject to changes. The final Arena and obstacles will be revealed on the day of the event only.
- For any queries and clarifications, contact the coordinators.
- The time limits might differ on the day of the event.

ANY DISPUTE OR DISCREPANCY IS SUBJECT TO THE JURISDICTION OF THE COORDINATORS. THEIR DECISION ON ANY SUBJECT SHALL BE CONSIDERED FINAL.

COORDINATORS:

Adyasha Jena: 7656814344
Pranav Miglani: 8930364488
Pratyush Mohanty: 8260798925
Pratik Kumar Khuntia: 7327094878
Sanjeet Patro: 8658532960

