ROBOTICS CLUB
IIT (BHU) VARANASI

SNTC
SCIENCE AND TECHNOLOGY COUNCIL
IIT (BHU) VARANASI

MAZEX '23

MoonQuest

Greetings, space adventurers! Welcome to your first event under Robotics Club, "Mazex" . We introduce you to this year's theme “MoonQuest”.Get ready to guide your autonomous robot, codenamed "Bharat," on an interstellar adventure to locate the Vikram lander on the Moon's surface while discovering valuable energy sources along the way.

MISSION BRIEF

In this year's MoonQuest mission, your autonomous rover, Bharat, has a dual objective. Your rover must first navigate through the lunar terrain, braving its craters, rocky landscapes, and regolith-covered areas.
The ultimate goal is to locate the lost Vikram lander, a precious relic of space exploration in the minimum time due to fuel constraints in the “Bharat” rover .

ARENA ADVENTURE

The lunar maze is a 270cm x 270cm square-shaped arena with a distinctive lunar terrain design. The maze is divided into grids of 27 cm each, with a black strip measuring 30mm wide. Your line-following rover, Bharat, must diligently follow this black path to navigate the lunar terrain.
Bharat must cross simulated lunar rivers and bridges to reach its destination.

GAMEPLAY

The gameplay unfolds in two phases:

1. Exploration Run :

In this run, the bot must start from the ‘Start’ and find its way to reach the ‘End’ of the arena. The bot has to give a signal by glowing an LED as soon as it senses the black box below it at the end. The bot has to follow an algorithm to find its path to reach ‘End’ and the bot can store the turns in its memory to explore the shortest path during the second part of the journey. You must try to cover all checkpoints during this run to gain points.

2. The Lunar Quest Run :

The second part is the “Actual Run.” In this run, the bot has to restart from the ‘Start’ again and find its way to the ‘End’ through the best possible path by following the path that was stored in the first run. The timer will be set to zero as the “Actual Run” begins.

3. A total of 4 minutes will be provided to complete the dry run.

4. A total of 3 minutes will be provided to complete the actual run.

5. If the bot takes more than 4 minutes to complete the dry run, then the extra time taken will be deducted from the timing of the actual run, which is 3 mins.

ROVER SPECIFICATIONS

- Bharat must fit within a box of dimensions 220mm x 220mm x 220mm.
- Bharat must be equipped with an LED light that can be used to signal its success.
- The rover must not cause any damage to the arena, or leave residue, or markings. Damage or rule violations lead to disqualification.
- An internal power source with a voltage rating exceeding 24V is not allowed.
- The Machine cannot be constructed using readymade ‘Lego Kits’ or any ready-made mechanism, but they can make use of readymade gear assemblies.
- Image of Sample Arena will be shared with you all in MazeX’23 (WhatsApp Group).

RULES AND SCORING METHODS

- Shortest Path Calculation Algorithm: 30 points
- Covering checkpoints : 3 checkpoints (15 points / checkpoint)
- Rover Construction: 30 points
- Time Points: 120 x (remaining time / 3 min)

TEAM SPECIFICATIONS

Teams can consist of up to 4 members(including team leader), and can include members from different branches.

CERTIFICATION POLICY

- The top three teams will receive prizes along with certificates of excellence.
- All participating teams from will receive certificates of participation.

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ALL THE BEST !!!!

FOR MORE INFORMATION

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