KSHITIJ 2016
THE TECHNO-MANAGEMENT FEST
21st – 24th JAN

EMBETRONIX

CHALLENGING QUEST IN EMBEDDED ELECTRONICS

IIT KHARAGPUR

Its war time! The enemies are slowly getting on you! Being a part of the Intelligence Division, you are supposed to deploy an autonomous bot which can traverse behind enemy lines and gather sufficient information for you. Beware! There are several enemy checkposts scattered all over their territory without your knowledge. Your robot has to avoid these checkposts and take an alternative path to reach the destination (base), gather information, and move to some other destination (base), and so on. And finally, it must return safely to your own territory with valuable information.

War has begun! Clock's ticking! Get your grey cells engine vrooming and get set GO!

Aim: -

Design and construct an autonomous robot which is capable of traversing the grid by principles of line following and completing the given task.

The Task: Reach a sequence of destined destinations (base) within the grid by avoiding the nodes and taking the bridges and then returning to the starting position.

Arena Specifications and Dimensions:

1. Arena will be black shaded with white lines and Black Square in the middle of the path acting as nodal points.
2. No. of grids would be 8x8.
3. Grid dimensions: 35x35 cm
4. Thickness of white lines: 3 cm
5. Thickness of bridge: 3 cm
6. Checkpost are colored in black at different positions.
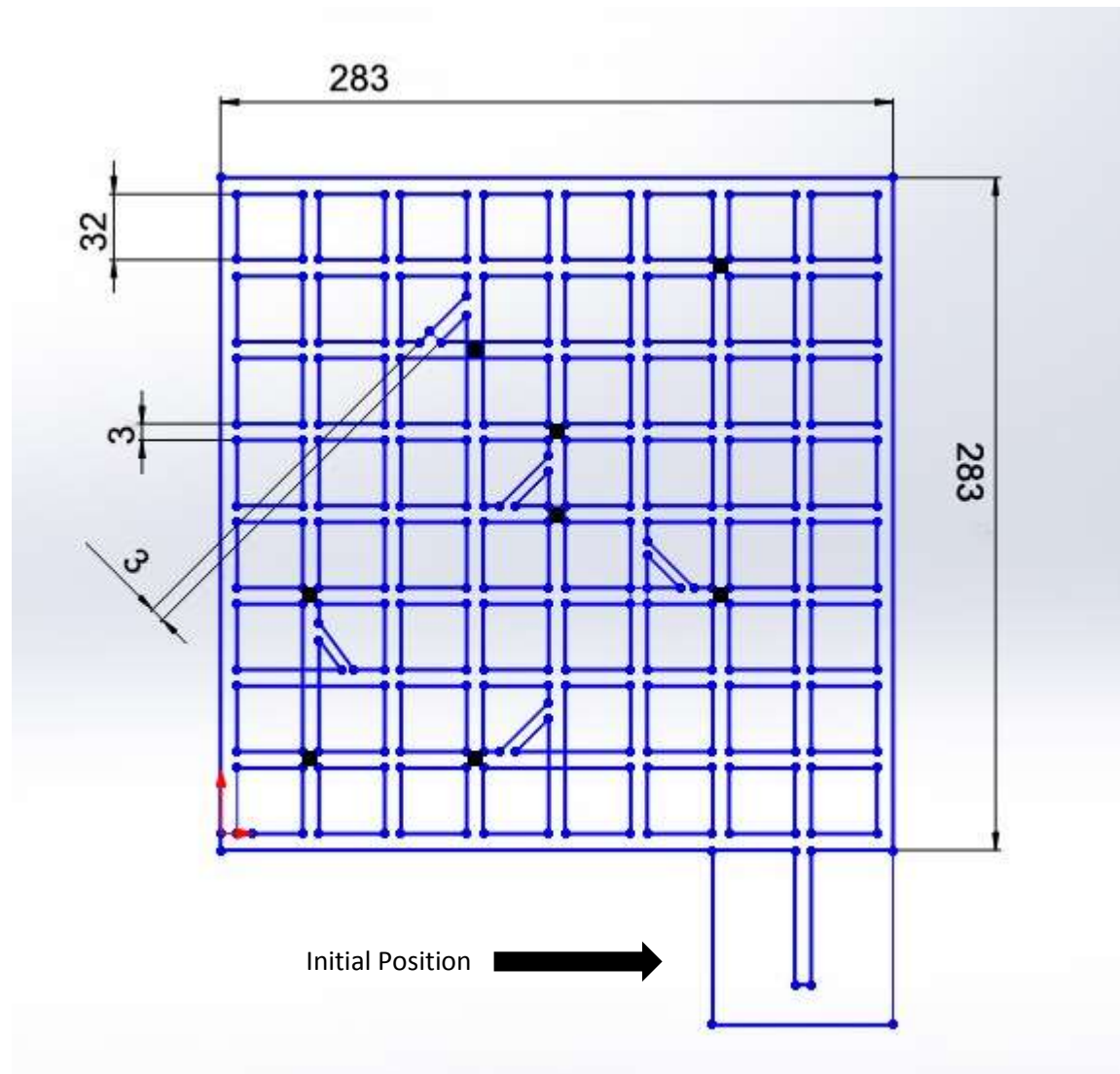7. The position of the checkpost may not be as shown in the arena below during the final event.

Arena:

All dimensions are in cm.

Initial Position

Event Structure:

The event will be conducted in two rounds.

1. **Round 1 (Elimination Round)**:- Information of base one base will be provided to the teams one day before the event. The team have to perform the compulsory task as mentioned below. Top 15 teams will qualify for the final round

2. **Round 2 (Final Round)**:- Information of three base will be provided to the teams after they had cleared first round. The team have to perform the compulsory task as mentioned below.

***The information of the base will be provided in terms of coordinates.

Compulsory Task:-

1. The bot must start from initial point and move to (0, 0) when the timer starts.
2. The bot then had to move to the assigned coordinates step by step avoiding the checkposts.
3. They have to use the bridge in order to avoid the checkposts.
4. After reaching the specified base, the bot had to stay there for 10 seconds and must blink a LED for the same time.
5. Similarly after conquering the first base, they have to move to other coordinates and repeat the same procedure again.
6. After conquering all the base, the bot had to move back to initial position avoiding the checkposts.

Eligibility Criteria:

1. The entries are restricted to the students currently pursuing education in recognized institute.
2. The participants may be asked to furnish supporting documents at any stage to prove the aforementioned condition.
3. Students from different colleges can form a team of maximum 5 participants.

Judging Parameters:

1. Task Accomplished:- 75%
2. Algorithm used:- 25%

Contact:-

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