# MICROMOUSE

## TEAM ID: MC-221429

# ABSTRACT SUBMISSION


## Team Members:

**Nishant Garg(Team leader)**

**Mahak Garg**

## Working Principle:

The bot works by keeping track of the distance it covers through encoder. The bot makes a virtual map of the maze in the exploration phase and uses a flood fill algorithm to find the shortest path to the end. The bot uses IR pairs to detect the walls and avoid itself from bumping into walls using an PID error correction algorithm.

- **Wall Following:**
  Wall following is achieved using feedback from encoders and correcting the movement using IR pairs placed on both sides at 90 degree angle. PID error correction algorithm is used to achieve this.

- **Exploration Round:**
  In this phase of the round the bot will follow walls and make a virtual map of the maze traversing from each cell to cell. The direction to turn will be decided by the flood fill algorithm. This phase ends when the mouse reaches back to the start point after traversing the middle of the maze.

- **Final Round:**
  Based on the path computed by the flood fill algorithm during the exploration phase, the mouse will be following the path to the end point from the given start point at higher speed.

## Components Used:

| S.No. | Components |
|---|---|
| 1. | Arduino Nano Microcontroller |
| 2. | Micro N20 geared motors |
| 3. | Encoders |
| 4. | Chassis |
| 5. | N20 motor compatible wheels |

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|---|---|
| 6. | L293D motor driver |
| 7. | 7805 voltage regulators |
| 8. | Buck Convertor |
| 9. | IR Sensor Pair |
| 10. | MOSFET |
| 11. | Resistors |
| 12. | Battery(12V) and switch |
| 13. | Perforated board |

## Pictures: