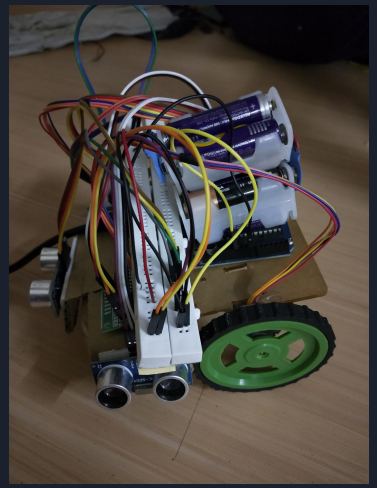
# Micro Mouse Maze

By Team MiniMouse

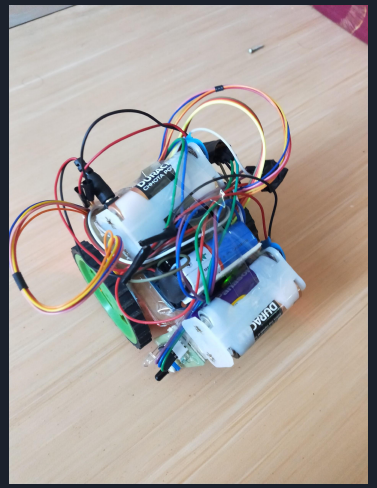
# Overview

We had an amazing time in solving the PS. The size was an interesting constraint and unfortunately, initially, we underestimated it . Late, we improved came up with the finalized working bot.

First Design:



Final Design:



# Understanding the design

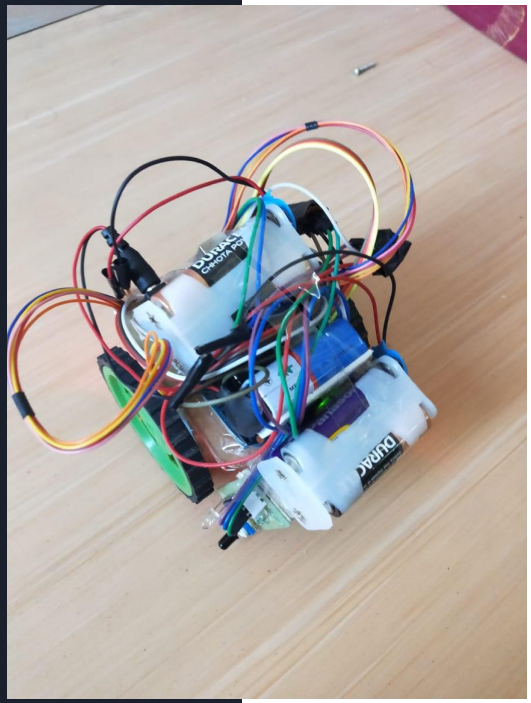
01 An acrylic chassis of 7cmx10cm dimensions with Arduino UNO, powered by a 9V battery.

02 Two 5V stepper motors motors, each powered by 4x1.5V batteries.

03 Three IR sensors powered from the Arduino.

# Distinguishing Features

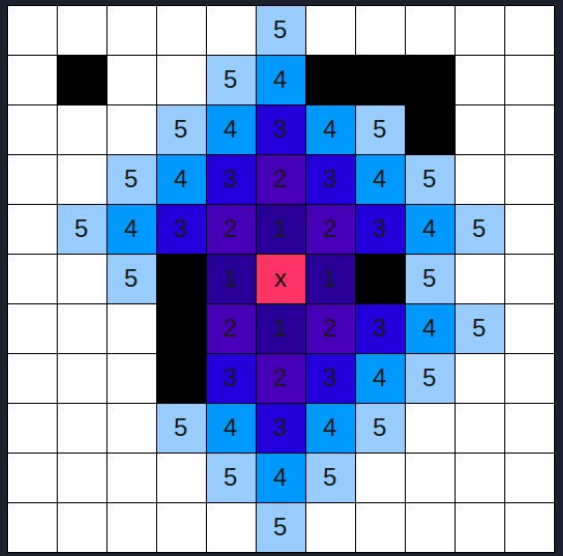
Using stepper motors to improve the accuracy of the movements.



Using IR sensors over Ultrasonic sensor to overcome the space constraints.

# Algorithm

We are using **Flood-Fill** algorithm to solve the maze, where each cells is numbered according to the distance from the target cell and those numbers are used to find a path.



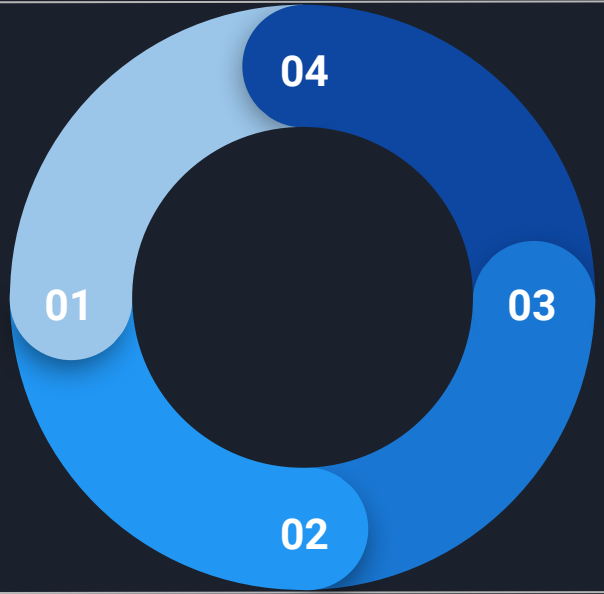
# How the algorithm works

## Exploring

The bot explores the maze and ranks the cell according to the distance of it from the center.

## Reaching the center

After exploring the maze, the bot reaches the center of the maze.




## Return

By remembering the maze, the bot reaches the starting point.

## Fastest route

From the initial point, the bot reaches the centre by moving to a numerically less ranked cell every move.

Thank you!