**Line Follower Maze Solver**

**Introduction:**

Line follower Maze Solver is a solver of a maze which promises the shortest distance to get our ending point. Mazes can be of different kinds, like-without any loops, having loops, grid system or without grid system. Numerous methods and algorithms have been developed having their own merits and techniques such as flood fill algorithm, breadth first-search, Prim's algorithm, left or right hand rule etc. But they all need to know the position of the goal. So, they are not appropriate for solving mazes where the goal is unknown until discovering.

**Hardware:**

* Arduino
* Motor driver
* Motor
* IR sensor
* 9v battery
* Roll of black Electrical Tape
* White board (inexpensive white tile or hardboard panel), poster board, or foam board.

**Software**

* Proteus
* Arduino

**Features**

* Find different ways to get the destination.
* Choose the shortest path to get our destination.
* Using left hand rule to solve the problem.

**Solving process**

To solve the line maze there are many algorithm. Left hand rule and Right hand rule are two of them.

**Left Hand Rule**

The robot will always use the left hand rule, which means:

1. Always prefer a left turn over going straight ahead or taking a right turn.

2. Always prefer going straight over going right.

If the maze has no loops, this will always get you to the end of the maze.

**Right Hand Rule**

The right hand rule is just the opposite:

1. Always prefer a right turn over going straight ahead or taking a left turn.

2. Always prefer going straight over going left.

If the maze has no loops, this will always get you to the end of the maze.

We use one of them to solve line maze.

**Maze with no loops, there are only 8 possible situations that the robot can encounter.**

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**Fig:** 8 possible situations that the robot can encounter

**Conclusion**

Line follower Maze Solver will give to solve the puzzle at the shortest distance. After the project completion, we can go to the shortest path of the maze.