EEE 402 : Control System 1 Lab Project

Maze Solver Robot with PID control

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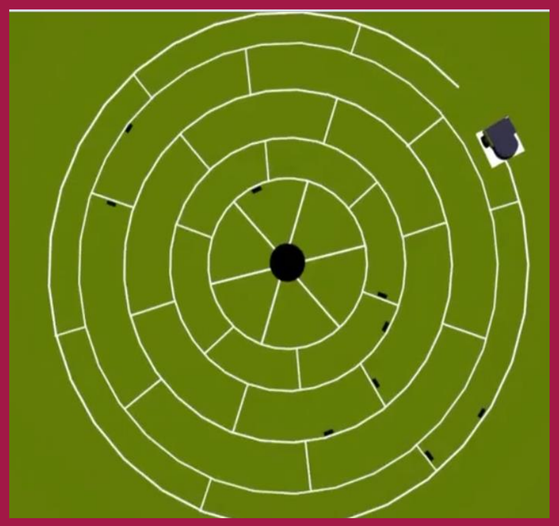
Abstract

This project aims to develop a maze-solver robot which solves a circular maze . The robot which we have built follows line-both straight and circular. The electronic controller in the robot is implemented with PID algorithm. This controller provides smooth cruise control. The robot also tackles the challenge of detecting three colors on its track- black, white and green.

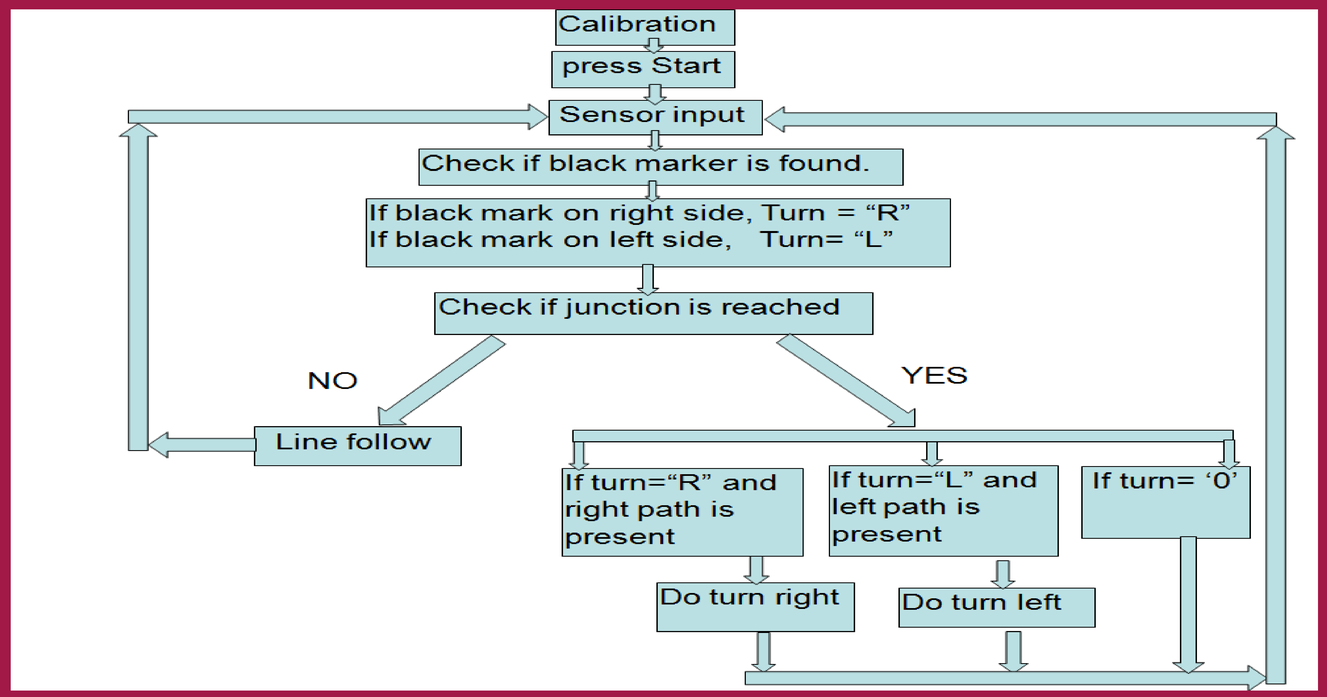
Theme

To build a robot which can follow line, solve maze upon directional instruction and practical implement ion of the PID controller.

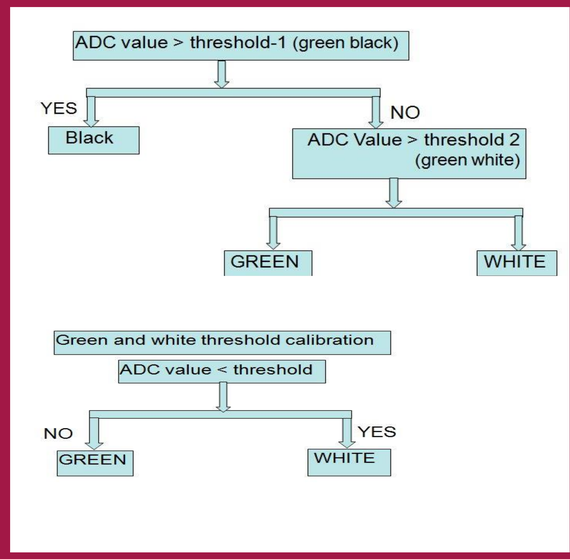
Track/ Maze



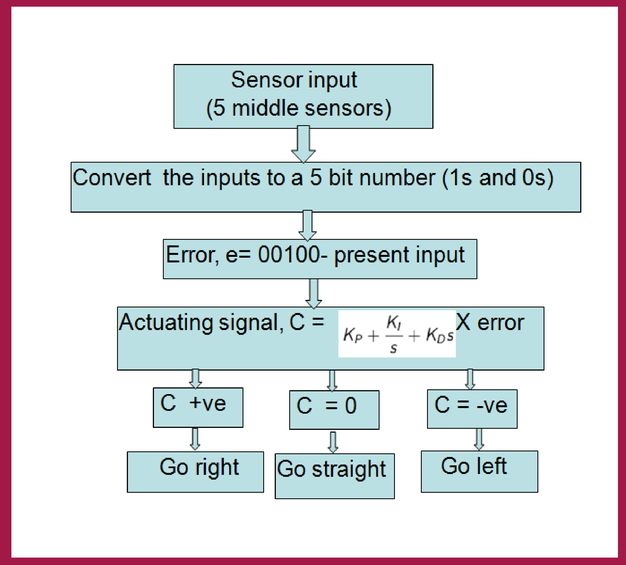
Main Algorithm



Algorithm for color detection



Algorithm for PID implementation



Our Achievements

→By constructing this robot we have gained experience in mechanical construction.
→We have gained practical knowledge on PID controller which has wide applications.
→We have learnt some valuable ways to solve mazes and incorporate it into intelligent systems.

Future Work

→Mechanical construction needs improvement.
→ We can incorporate more complex control algorithms.

Conclusion

Our maze-solver robot incorporates PID controller which keeps it on track and provides smooth running while solving the maze. We have achieved practical knowledge in robot design-both in electrical and mechanical ways. If we can improve the mechanical design further, our robot can be quiet promising. We hope to explore further the arena of robotics and control theory which EEE 402 course-project has instilled in us. We thank our course instructors for their valuable suggestions and guidance.