LINE FOLLOWING ROBOT
PATH DRAWN ON A REMOTE DEVICE

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Overview

Remotely Directed Line Follower is a "line following robot" which does not require the path to be marked along the desired route. **The path is drawn on an application** which can be loaded with the map and the application directs the robot along the path.

Problem and Solution

It is difficult to route multiple line followers when their paths intersect, especially when the routes are required to be changed frequently. Also it is not always desirable to have the routes marked all over the premises.

Solution

Virtualize the route

Gives rise to

Positioning issues

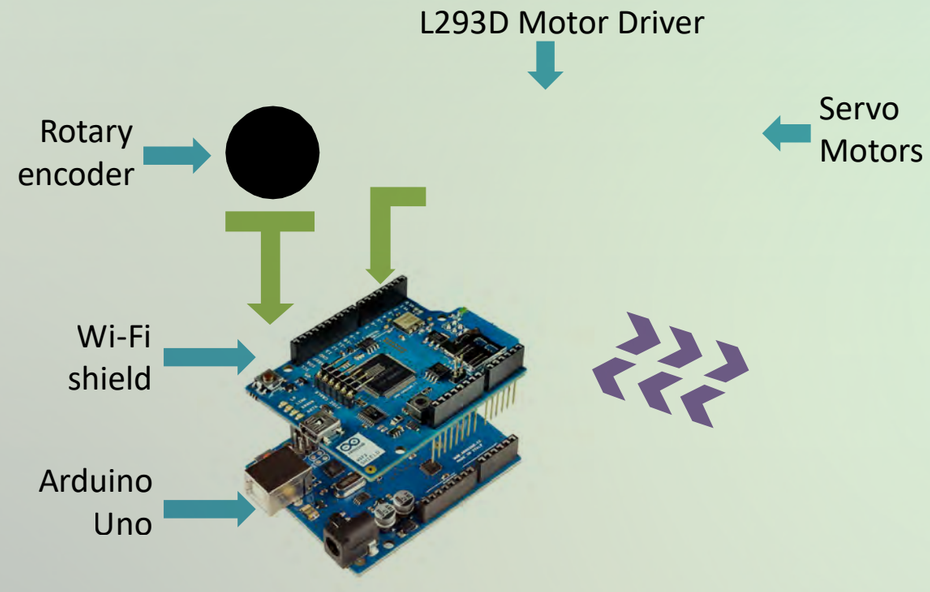
Solved

Sense the distance passed by the driven wheel (no slip)

Similar Projects

- 'T-Bot' by a group of undergraduates at Cornell University, USA
  - has a touch screen mounted on the robot to input the path by drawing on it.
  - Does not address the positioning problem
- 'Wirelessly Control A Robot Using Arduino and RF Modules' tutorial on www.instructables.com
  - has instructions on making a line following robot using Arduino and controlling it using a computer keyboard
  - Does not address the positioning problem

System Implementation



Features

- The application which runs on Android OS can:
  - accept the path from the user
  - convert the path to a series of commands in the designed protocol
- The protocol is versatile enough to handle almost any movement in 2D plane
- The robot can;
  - accept the commands and drive the wheels
  - count the rotations using driven wheels

Conclusion & Future work

- With our Remotely Directed Line Follower, we have tried to find an alternative to marking the route along the desired path.
- Virtualizing route gives rise to positioning problems which we have addressed with measuring the distance the driven wheels pass
- What next…?
  - Development of a collision prevention technique is possible
  - Improvements for the rotary encoder to ensure accuracy

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