Embedded system

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Description
The goal of this embedded system, which was mounted on a 2 wheels, 2 ball-bearing base, was to accomplish a series of tasks. More specifically:

- Navigate a grid based map, following black duct tape assembled in a grid fashion
- Go from a point A to a point B on the grid which has the duct tape line (director) removed
- Detect magnets at every grid position and then solve the 8 queens problem (using the detected magnets as queens positions)
- Avoid a wall place on an adjacent row of the grid, using distance detector to tell if there's a hole in the wall we can go through
- Avoid a post on a certain grid coordinate, using distance detector
- Do rotations at a specific location, rotating at a specific angular velocity based on the proximity of a hand from the detector. Robot had to detect its grid orientation

This robot was using the following sensors/outputs to accomplish those tasks:

- Infrared detector
- LCD display
- Status LED
- Lynx Motion (line detector)
- Magnetic field sensor
- Motors
- Sonar
- Piezo electric sound emitter

Snippet

Options(features)

Overview