ShoppingCart+ System

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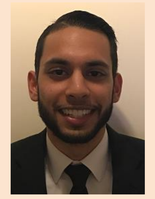


Abstract

Have you ever encountered a busy parking lot and the one spot you found has a shopping cart blocking the parking space? This project is solving the problem of abandoned shopping carts in undesirable locations in parking lots. The ShoppingCart+ is a prototype system that will allow a shopping cart to become self-guided. The ShoppingCart+ will identify its own geographical location and then drive itself to the assigned coordinates all, and while avoiding obstacles and collisions on its way to the specified coordinates.

Introduction

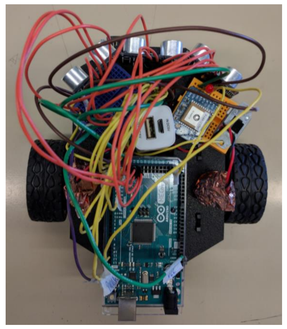
Abandon shopping carts causes congestion, frustration, and traffic related problems.
A parking lot has traveling pedestrians, cars, and employees collecting shopping carts; which all take place simultaneously. This project will be dealing with a shopping cart that will be avoiding obstacles, traveling from one location to another with little assistance.

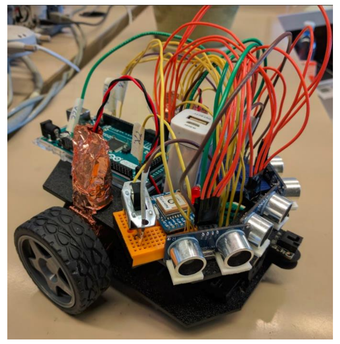
Objectives

- To Identify the shopping carts geographical location through the coordinate system.
- The cart must avoid obstacles while in the transition from its initial location to the assigned coordinates.
- To reach the desired destination of the cart safely.

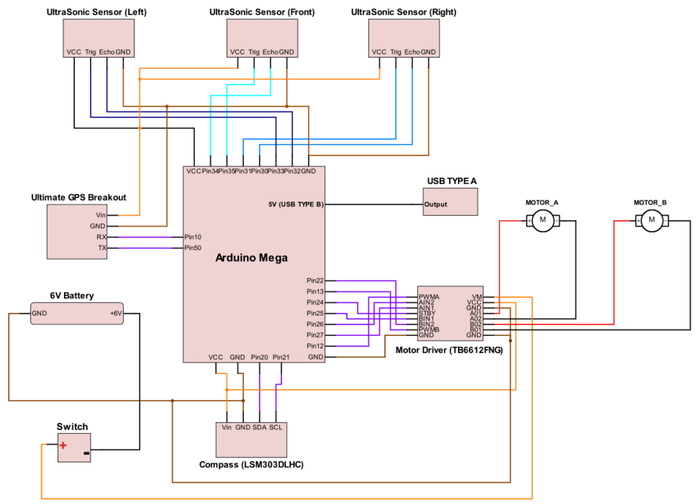
Components

- Arduino Mega 2560
- Ultimate GPS Breakout
- Dual TB6612FNG Motor Driver
- HMC5883 Magnetometer
- HCSR04 Ultrasonic Sensor (3)
- DC Motors (4)
- 6-Volt Battery
- 5-Volt USB power supply

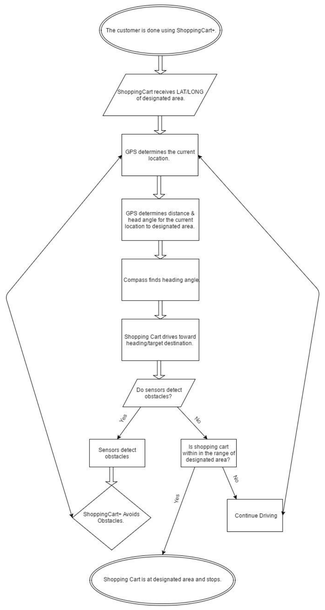




Schematic Diagram



Flow Chart



Conclusion

Due to high-risk challenges, the decision to scale down the self-guided shopping cart was the most feasible option. The cart will travel to a designated area; this is done by sending coordinates of the designated area through a laptop. The cart will avoid obstacles during its journey to the designated coordinates.

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