Go-Baby-Go Emergency Stop

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INSIGHT WISCONSIN

Background

"Design and build an emergency stop system with a range that allows parents to control a power wheel car from a few feet away."

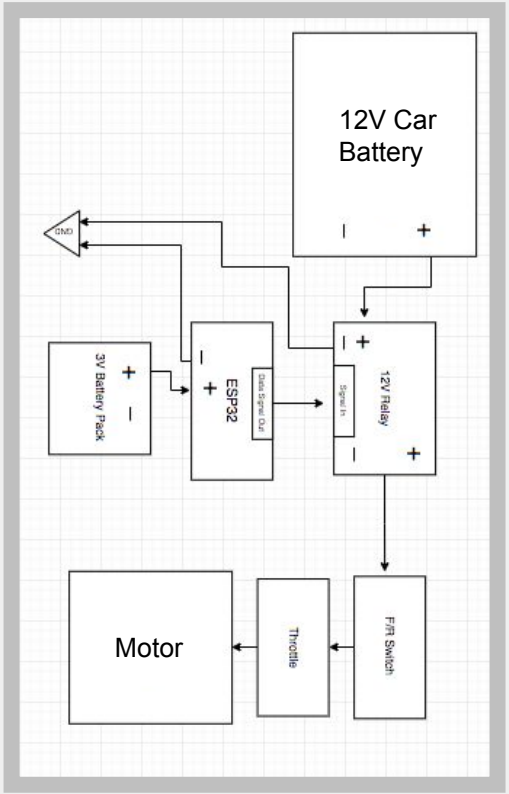
Go-Baby-Go is a non-profit that helps parents to modify their childrens' cars to accomodate children with various disabilities.

Design Phase

Factors to consider:

- Device must be simple enough for the parents to install and use
- Cars of different sizes/capabilities have batteries that range from 6V-12V
- Application must be compatible with both Apple and Android phones
- Communication to the device should be reliable (both in range and timing)
- Stops should be smooth, the car should not jerk around
- Some cars have throttles that allow the car to change speeds

Our Design



Prototype 1

ESP32 Arduino compatible bluetooth module, powered by a 3V CR2032 battery, is set up to communicate with an Arduino 12V relay array board.

The ESP32 was programmed using the Arduino IDE and acts as an intermediary communication device between an Android phone and the relay board.

We are currently still in the development phase of our custom application and are temporarily using the Arduino provided phone app until ours is complete.

Future Work

Improvements to this product:

- Install front camera and include view on phone app
- Add a sensor to front bumper with automatic stopping
- Send push notifications to parents (battery level, sensor readings, car statistics, etc)
- Extend device range

Taking it further:

- Bluetooth phone switch for home appliances

Acknowledgements

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