Autonomous Toy Car

SE 101 Arduino Project Proposal
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Functionality

- User Control Mode
    - By phone app
    - Overrides automated mode in case of malfunction
- Automated Mode
    1. Object avoidance
    2. GPS navigation
    3. Stay within a track
    4. Recognize red, yellow and green lights and stop signs and act accordingly
    5. Turn signaling

Software

- Phone app to control the car
- Implement sensor data collection
- Implement camera data collection
- Neural network to recognize data collected and act upon it

Hardware

- Elegoo Uno R3
- Motor shield
- Toy RC car
- Ultrasonic or laser distance sensor
- Mini camera
- Bluetooth module
- LED lights

Challenges

- Connecting the RC car parts to the Arduino (how compatible are they?)
- Creating a neural network to detect and respond to objects, lights and signs
- Having response times quick enough for car to smoothly follow track

Prototype Plan

- Evolutionary - product will be built in the order listed in the functionality section