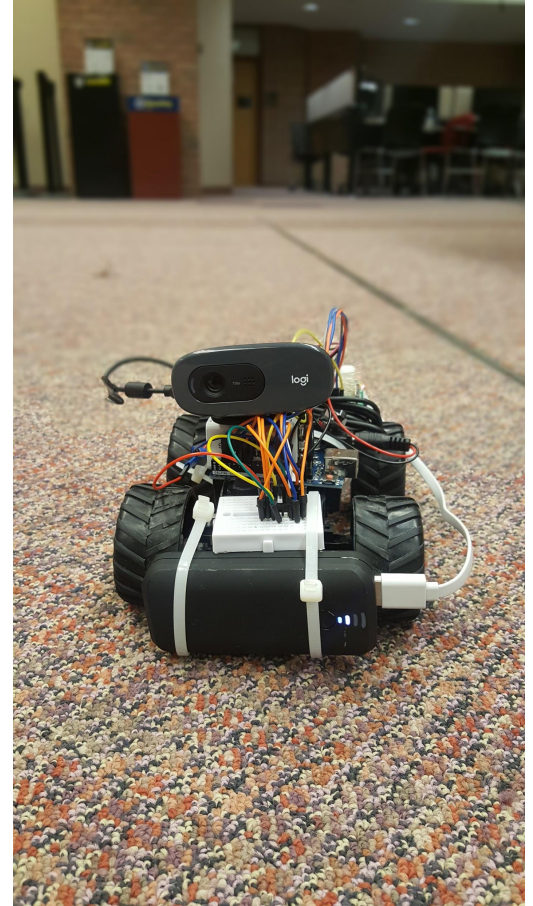# PROJECT 'AUTOCAR'

By: Aditya, Chintan, Fuhu, and Adam
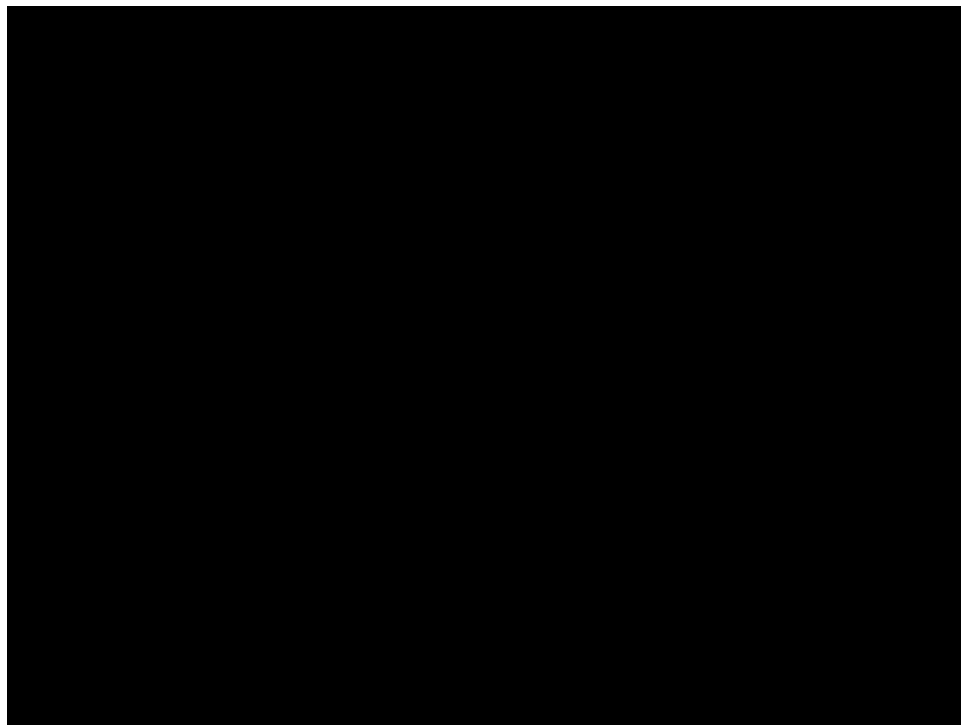
Overview

Electronics Used:

- Raspberry Pi Model 3
- Arduino
- Several 9 volt Batteries, Powerbank
- Logitech Webcam
- Ultrasonic Sensor
- Breadboard
- State of the art RC Car Chassis
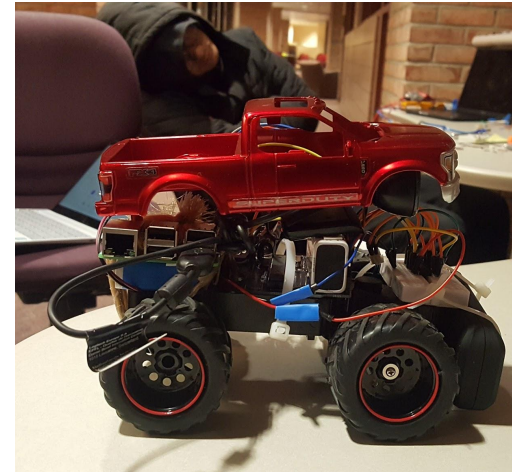
Car in Action!

Problem #1

HOW DO WE MAKE OUR "OWN" CAR/CAR CHASSIS THAT ENSURES THE SAFE-KEEPING OF ALL OF OUR HARDWARE COMPONENTS?

Options Considered:

- Making our own GearBox/Motor car system
- Buying our own RC Car
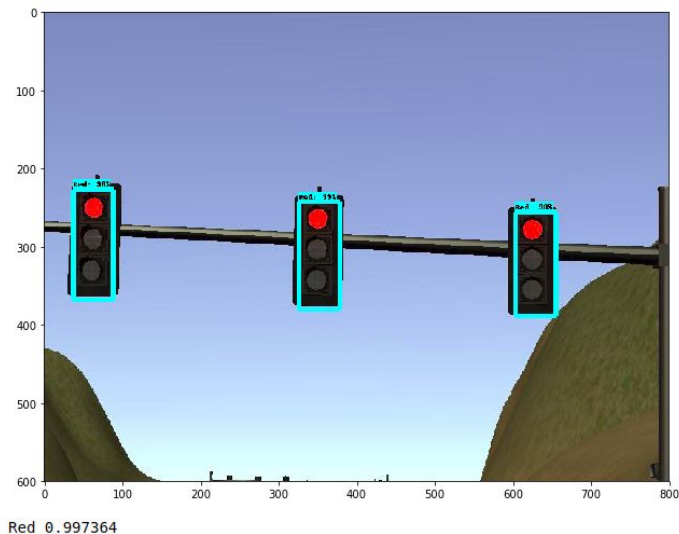- 3D printing a car
- Using the RC Car kit :(

Solution!

- <u>WALMART</u>!
- This store came in clutch for not only our RC Car needs, but also the WebCam that we would have to later purchase.
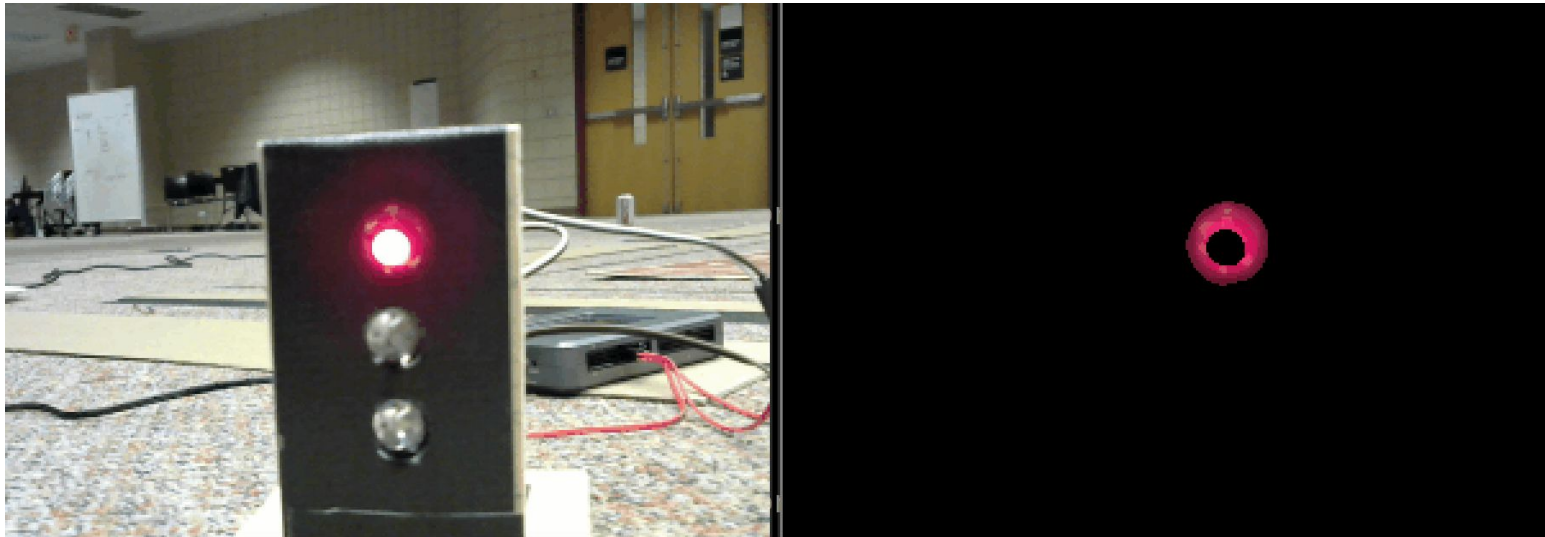
Problem #2

HOW DO WE GET OUR CAR TO STOP AND PROCEED AT STOP LIGHTS? &
HOW DO WE GET OUR CAR TO STAY WITHIN THE LANES?

Red 0.997364

Solution!

- Python and OpenCV!
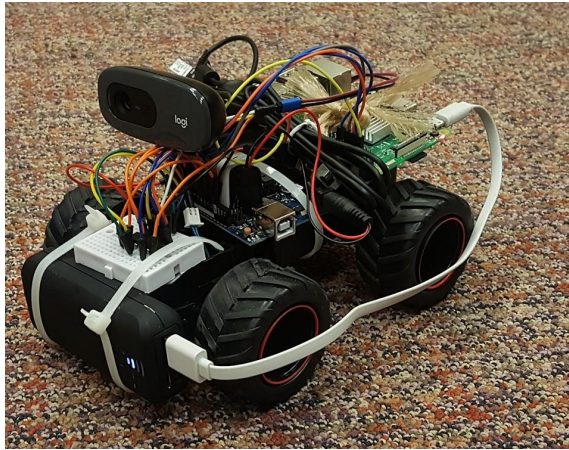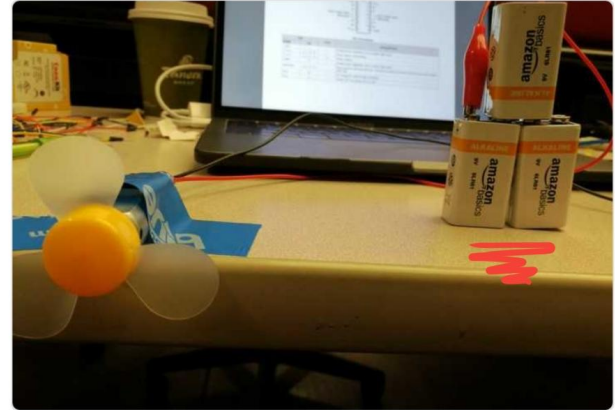- Red/Green Object Tracking:

Solution! (Part 2)

- Lane Tracking:

Problem #3

FIGURING OUT HOW OUR HARDWARE SHOULD BE SET UP/INTERCONNECTED FOR THE RESULTS THAT WE WANT AND HOW EVERYTHING SHOULD BE MOUNTED ON THE CAR.
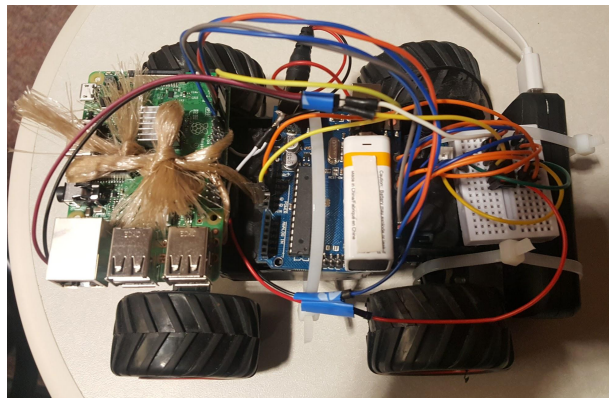

Fuhu Xiao 6:38 PM

just figured out a way to unlimitedly increase power

Solution!

- There was no simple work-around to this problem. It just involved making a lot of educated guesses at the beginning and then just seeing how components would begin to fit as we realized what we would need.
- This took a majority of our time as there was a lot of testing needed to ensure that wires, motors, etc. were all connected and functioning properly.

(And no, that's not someone's ponytail)

So you are probably wondering, what the hell went wrong?

1. TIME!!!
   a. OPENCV is a pain in the ass to work with
   b. We underestimated the amount of time it would take to setup the hardware and understand the nuances of the software
2. DEBUGGING
   a. There were bugs everywhere such as reversed wires allowing for reverse input/output, sometimes the hardware malfunctioning, weight management on car, etc….

Reflection

- Overall, while we all worked our asses off for the last 40+ hours and understand that sometimes things just don't go your way, but you live and you learn, and we can definitely say that we all learned a lot over this weekend.

- Thank you! (Feel free to take our Team Resume book)