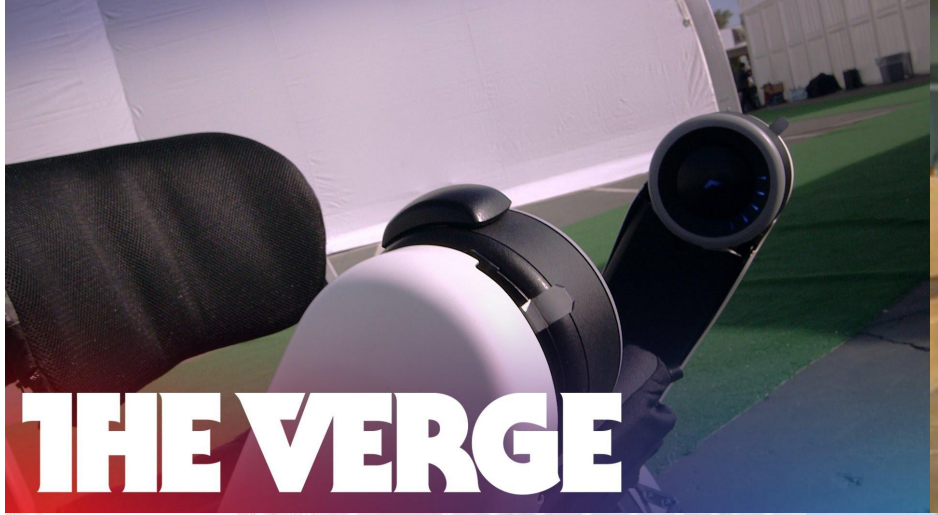
Enhanced Visibility

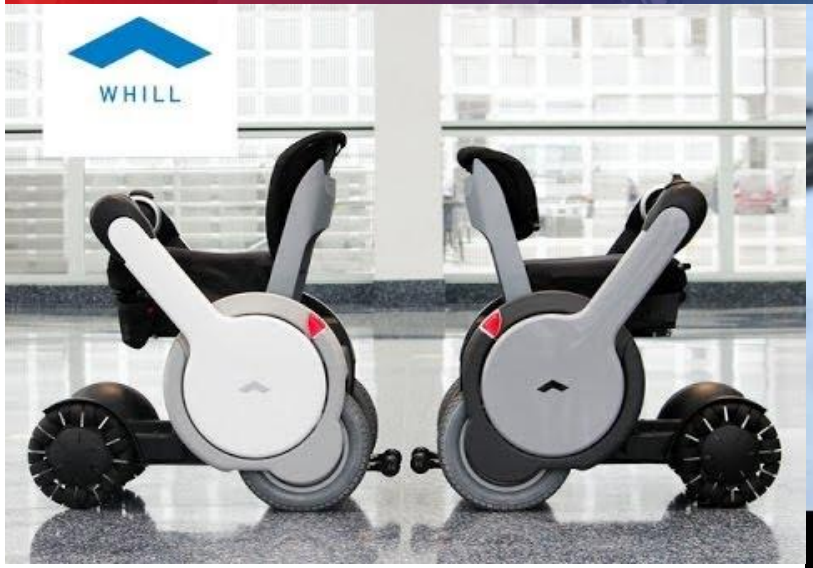
Joaquin, Justin, and Sarah

ENGR 110

Winter 2015

What is WHILL?


THE VERGE


WHILL

The Problem

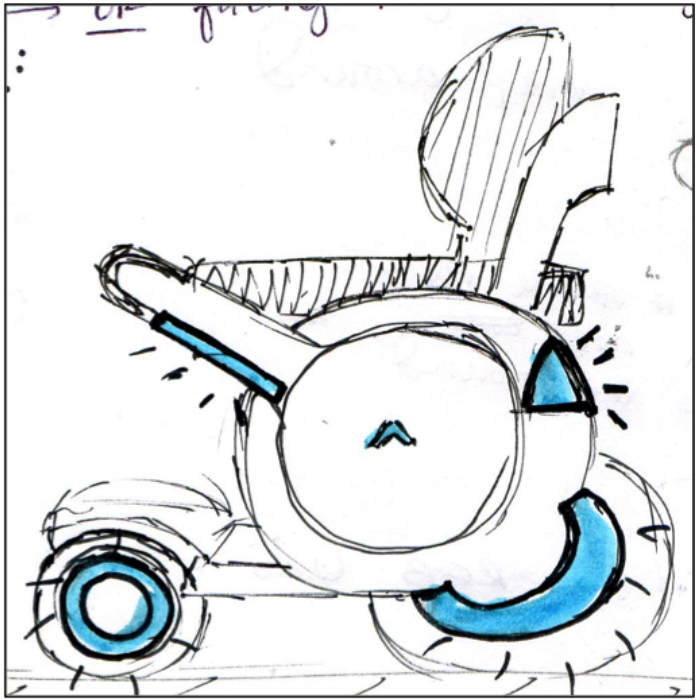
NEW THIS MORNING
6:51
CAR HITS MAN
SAN FRANCISCO
NBC
BAY AREA
RING BEGINS THIS MORNING FOR MAN ACCUSED OF KILLING FEDERAL CRIMINAL INVESTIGA

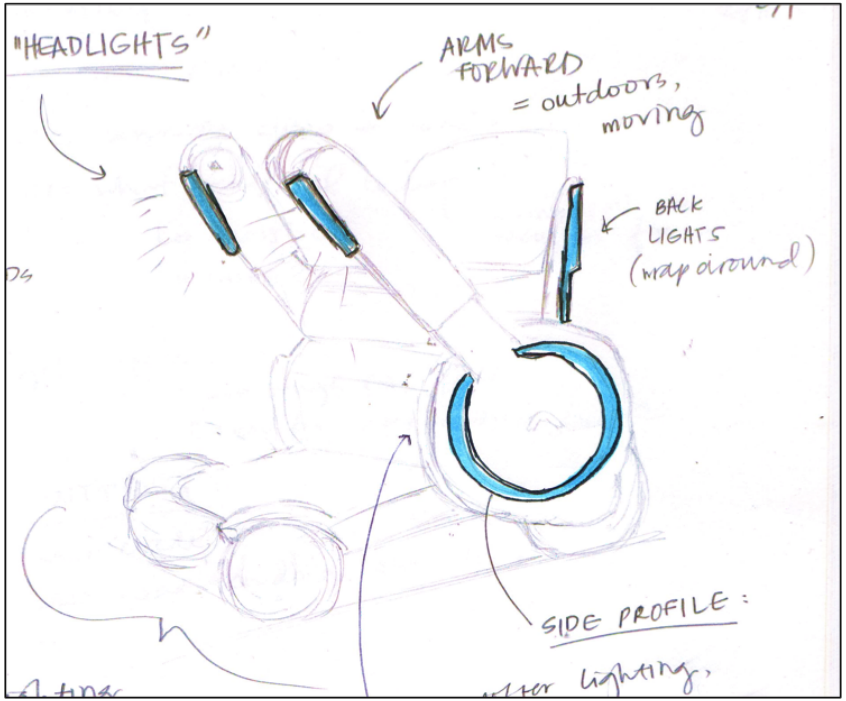
Needs:

Ensure wheelchair users can travel safely at night

Ensure drivers are able to see wheelchair users

Initial Brainstorming





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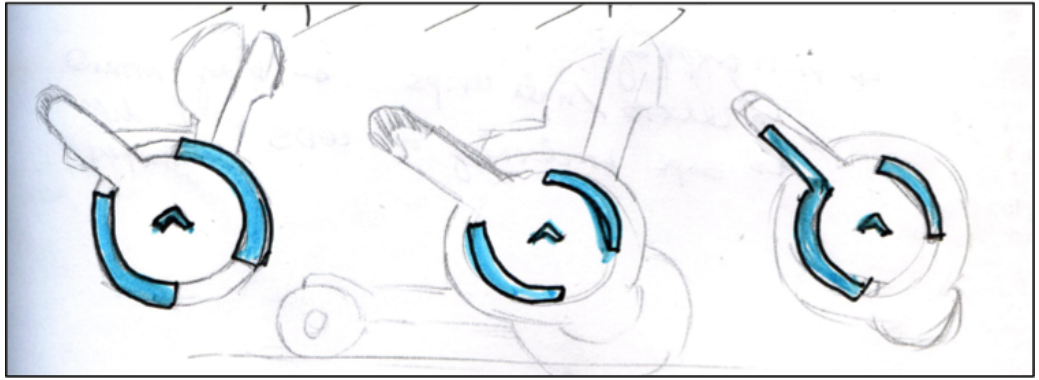

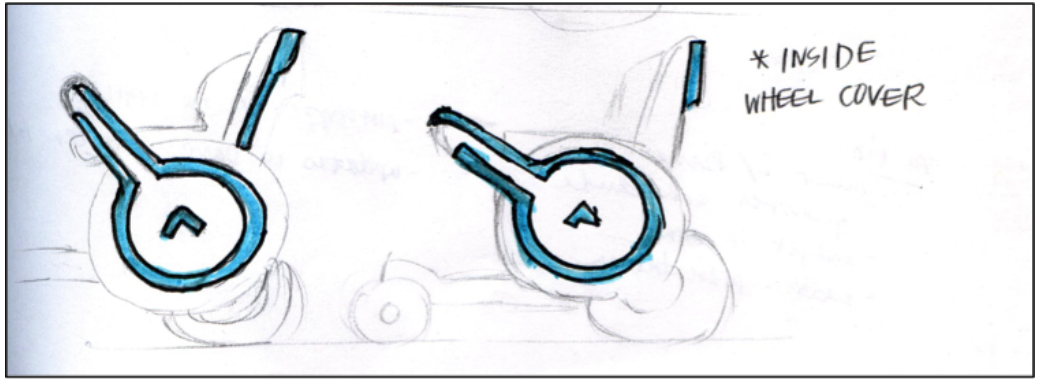

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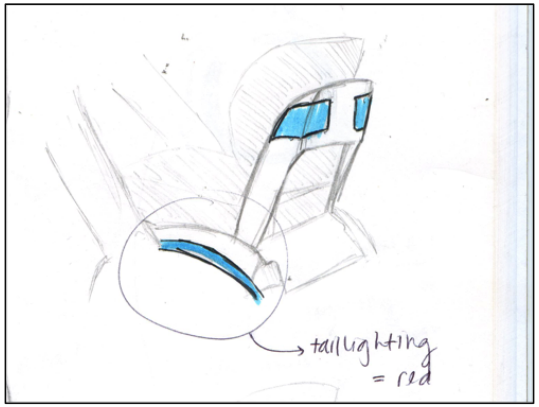
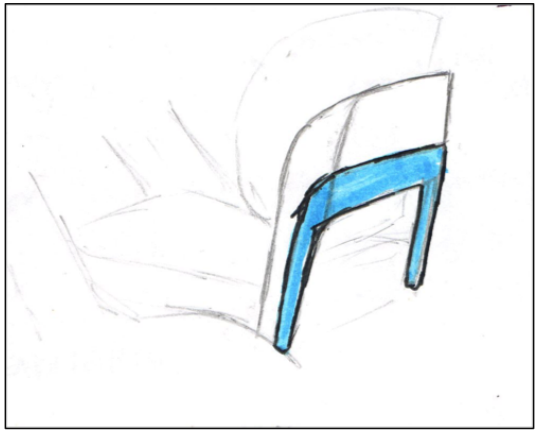
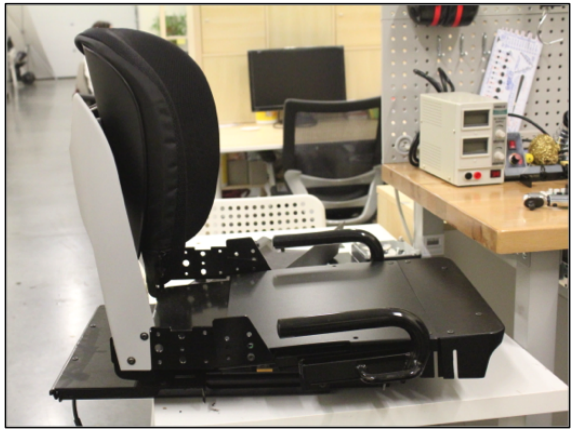
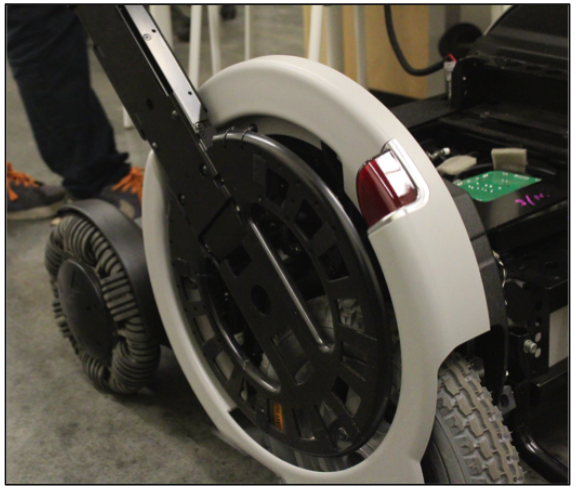




Visit to WHILL





Design Goals

1.Illumination

-Mostly forward illumination

-“Headlights” placed on wheelchair arms enable user to see immediate foreground and several feet ahead

Design Goals

2. Visibility

-For safety/comfort of user, as well as other people on the road or sidewalk

-Form outline on sides of wheelchair

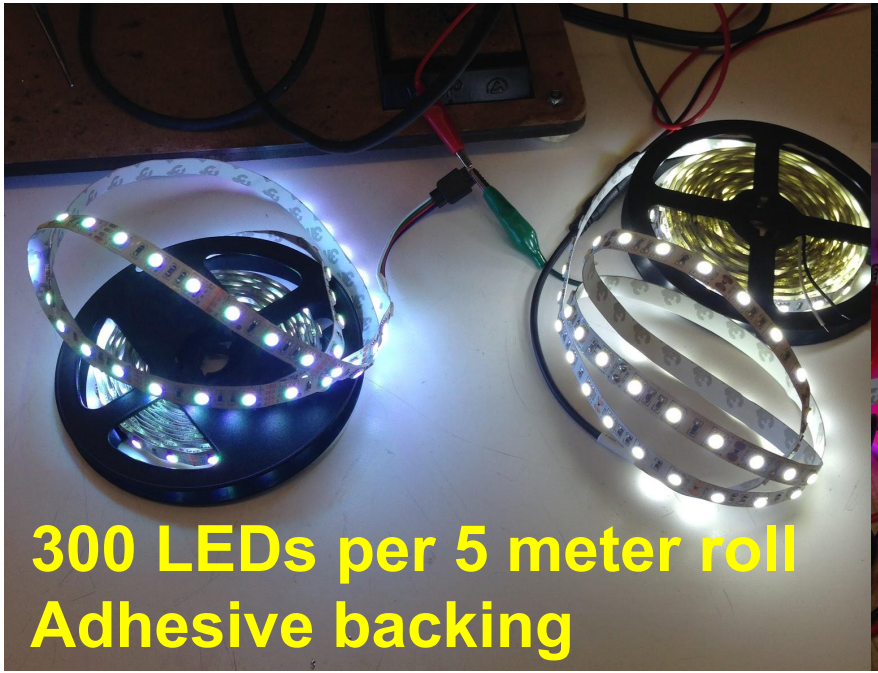
-Futuristic (but still recognizable) design

Design Goals

3. ‘Cool’ Factor

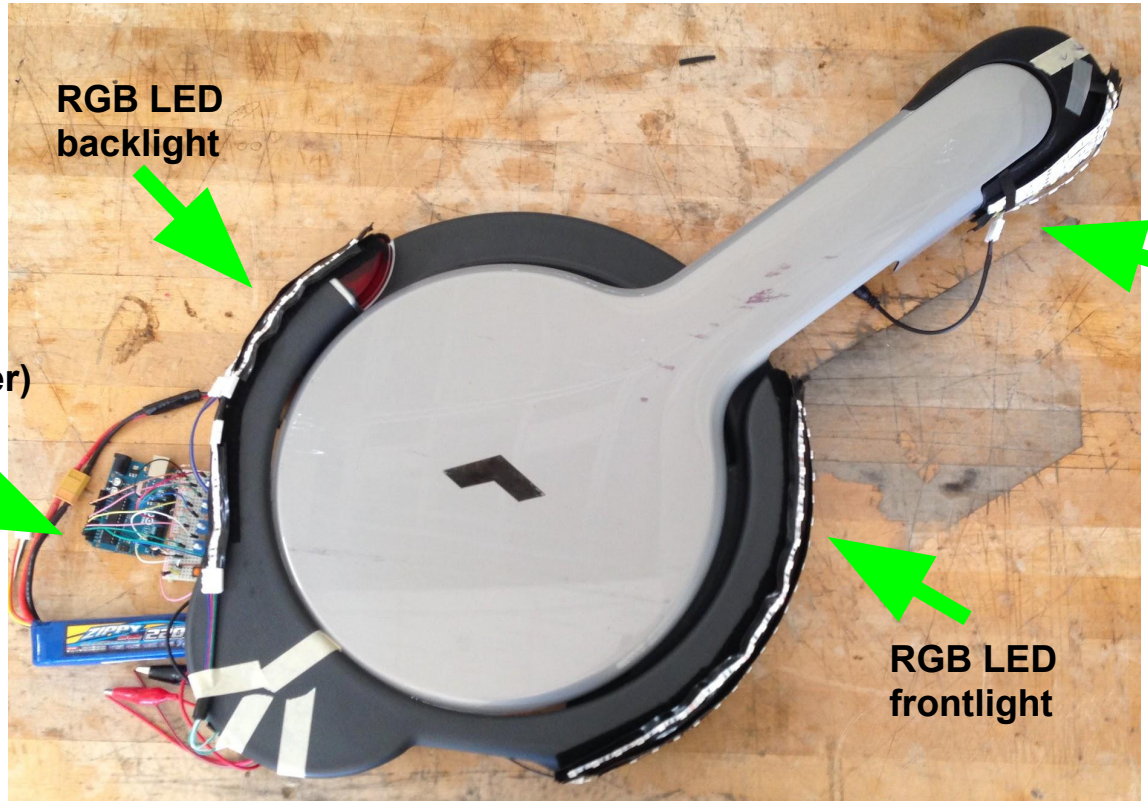
- Automatic light sensor as well as a manual override switch
- Integrated with WHILL’s unique design
- Light show!

RGB LED Strips



Concept Exploration

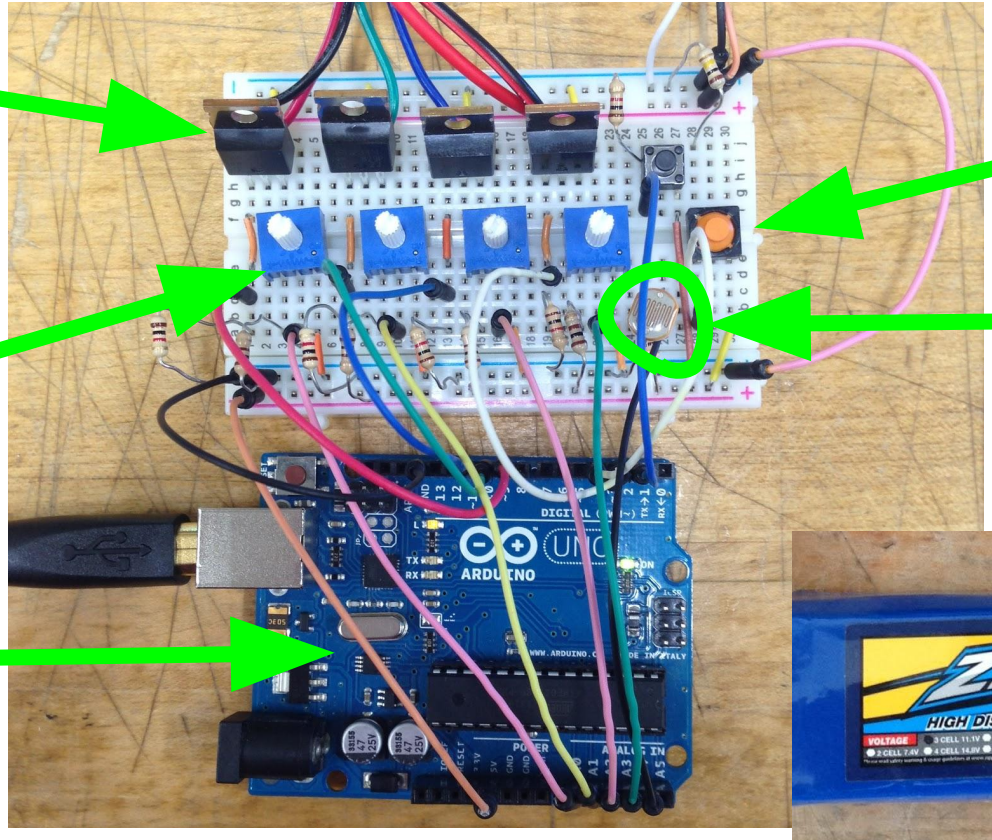
Prototyping Progress - Hardware



Hardware Continued

LEDs
attached to
velcro backing

Prototyping Progress - Electronics



Power Transistors

Manual On/OFF Override switch

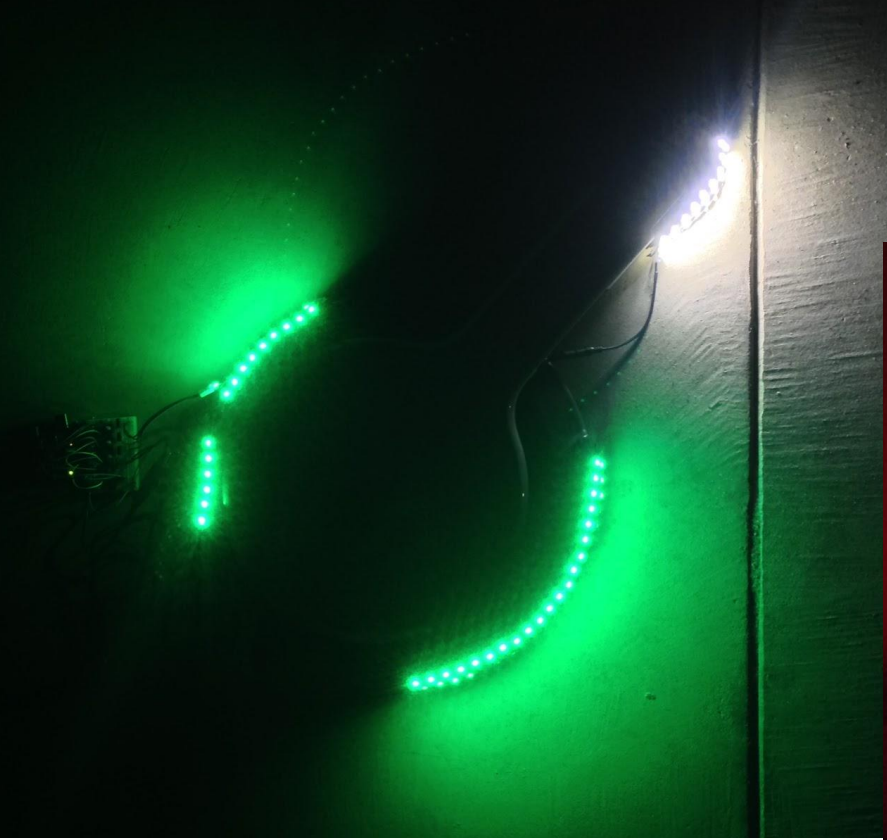
RGB Level Controls

Light Sensor

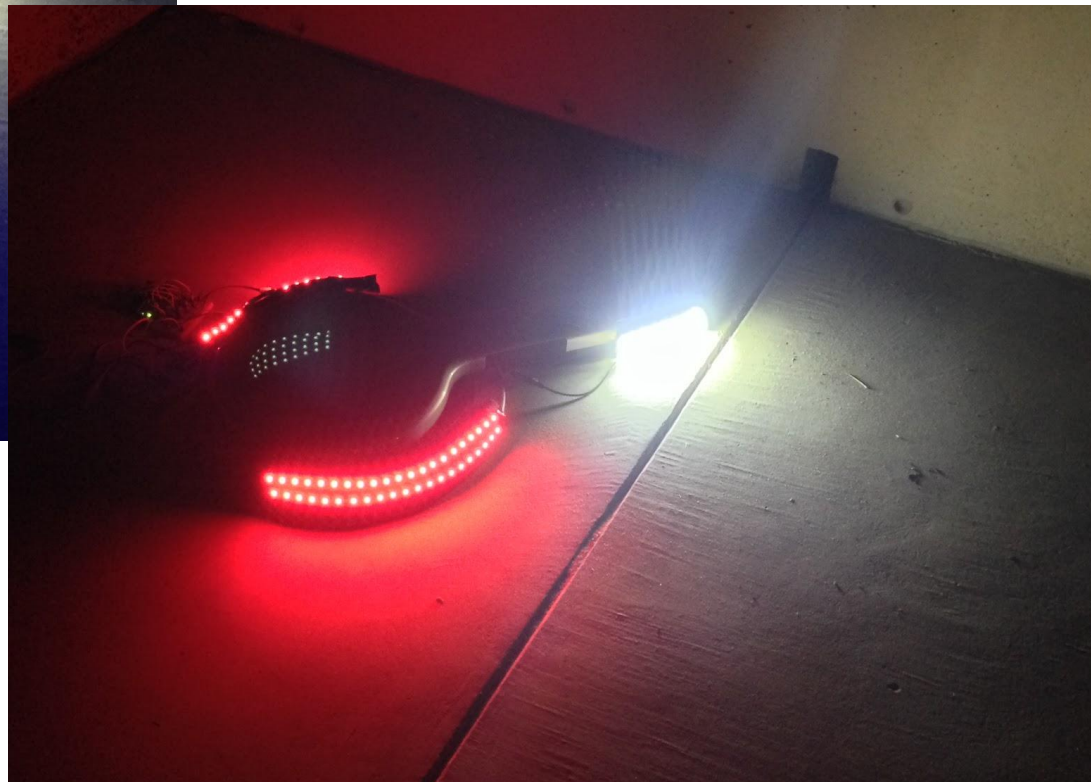
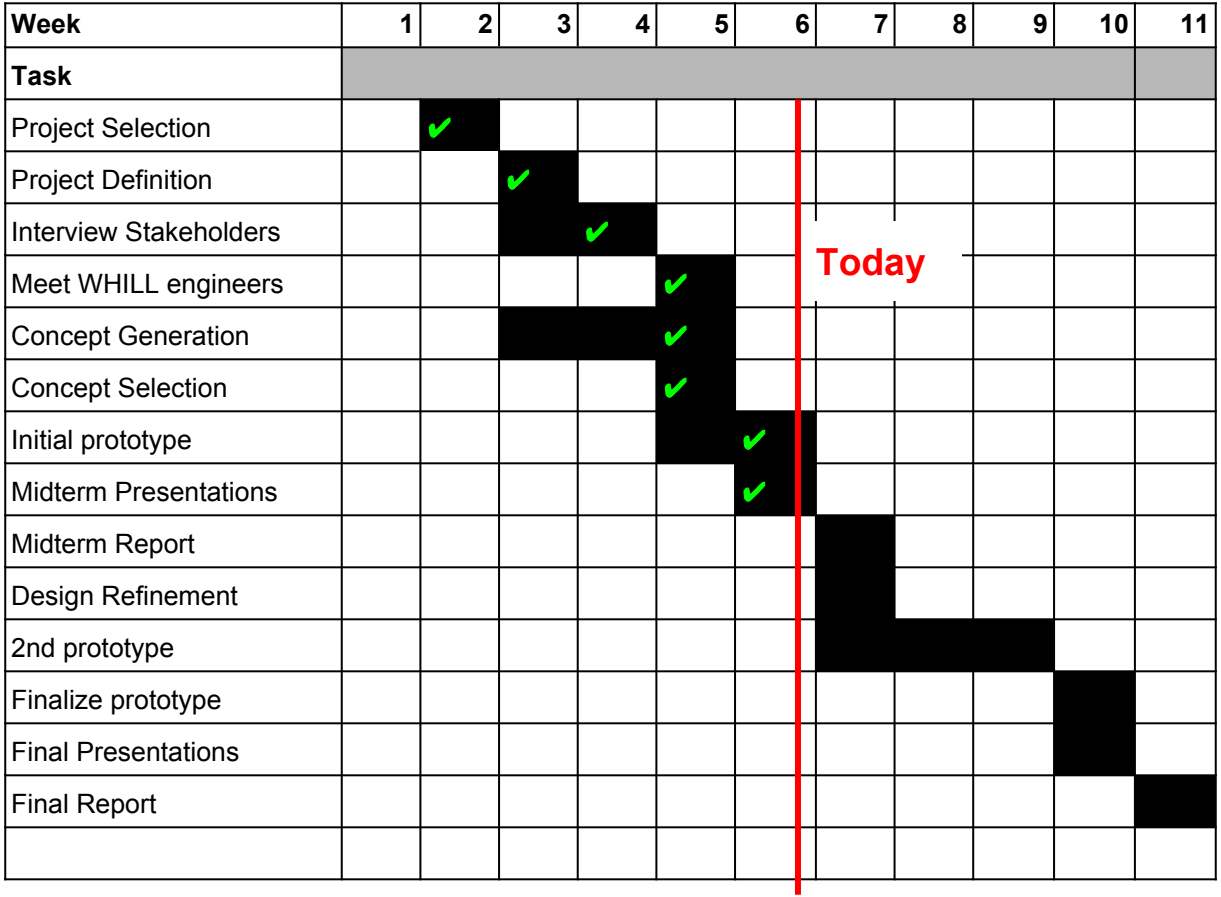
Lithium Polymer Battery (power source)

Arduino Microcontroller

At Night



More At Night



Project Schedule