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Arduino Learning Module

Block F

9/4/18

Initial Proposal

By the end of our Arduino Learning Module we hope to have a basic understanding of how Arduinos work and what they can be used for. We hope that we will have a good base understanding of what can be done with these devices. For our first attempt we will just do something simple like make some lights blink, and eventually connect some buttons and buzzers, and or make a distance sensor. For resources we will use the linked videos as well as others found on YouTube and some other useful websites. In order to cover as much as we can, we had Logan look more into the electronics and Aiden look into the coding aspects of the Arduino.

Final Write Up

For our, Logan and Aiden's, Arduino Learning Module we made a "backup sensor" like the ones found on vehicles and autonomous rc cars. We found a sample code on how to get the ultrasonic sensor working and added on to it with lights and a speaker. We included one red, one yellow, and one green light. The green light flashes in sequence with the speaker when the object is greater than 60 cm away, the yellow light flashes faster in sequence with the speaker when it's between 60 and 20 cm, and the red light flashes the fastest in sequence with the speaker when the object is between 20 and 5 cm. We also have the red light on constantly along with the speaker when the object is within 5 cm. We had an issue with the red light being

on after jumping straight to the green or yellow light. We figured out that we needed a line of code after the green light's code and red light's code that says to turn off the red light. When working with an Arduino we suggest doing a simple yet comprehensive project that will make use of many of the parts so you can understand how everything works. For example we used resistors, a speaker, light bulbs, and an ultrasonic sensor that we had to code. We really loved working with our Arduino and suggest that others have this as their first learning module as well.

Daily Log

9/4 - We started our Initial Proposal and watched the linked Arduino video

9/6 - We've finished our Initial Proposal, hooked up our Arduino, figured out how to wire it, and made some lights work with buttons

9/7 - We looked at some example code for the arduino, and are figuring out the code. We also were trying to wire the a button to turn on a light and a buzzer.

9/8 - Logan took the arduino home and wired 4 buttons to 4 lights and 1 buzzer, so when a button is pressed, it triggers its corresponding light and plays the buzzer. Initially it didn't work because the buzzer played constantly, because it was wired in a way that completed its own circuit. To fix that we the circuit flow through all the lights and switches then to one row where the buzzer the buzzer would connect and then complete the circuit by going to the negative ports.

9/10 - Moved onto a new idea to create a "backup sensor" using an Ultrasonic sensor. We played around with the sensor and got it to measure values.

9/11 - We hooked up a set of red yellow and green lights and coded them to light up when in a specific distance.

9/12 - We connected the buzzer to the system and coded it to ring faster at different distances.

We also made the red light and the buzzer stay constant when an object gets to close.

9/13 - We had an issues with the red light staying on after the object moves away past 5 cm. To fix that, at the top of each distance method we had the red light turn off.

9/14 - We worked on the final report.