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EECS 303  
Lab 6 Report

### **Assignment Statement**

Designing a one way traffic controller with and without a pedestrian crossing button.

### **Objective**

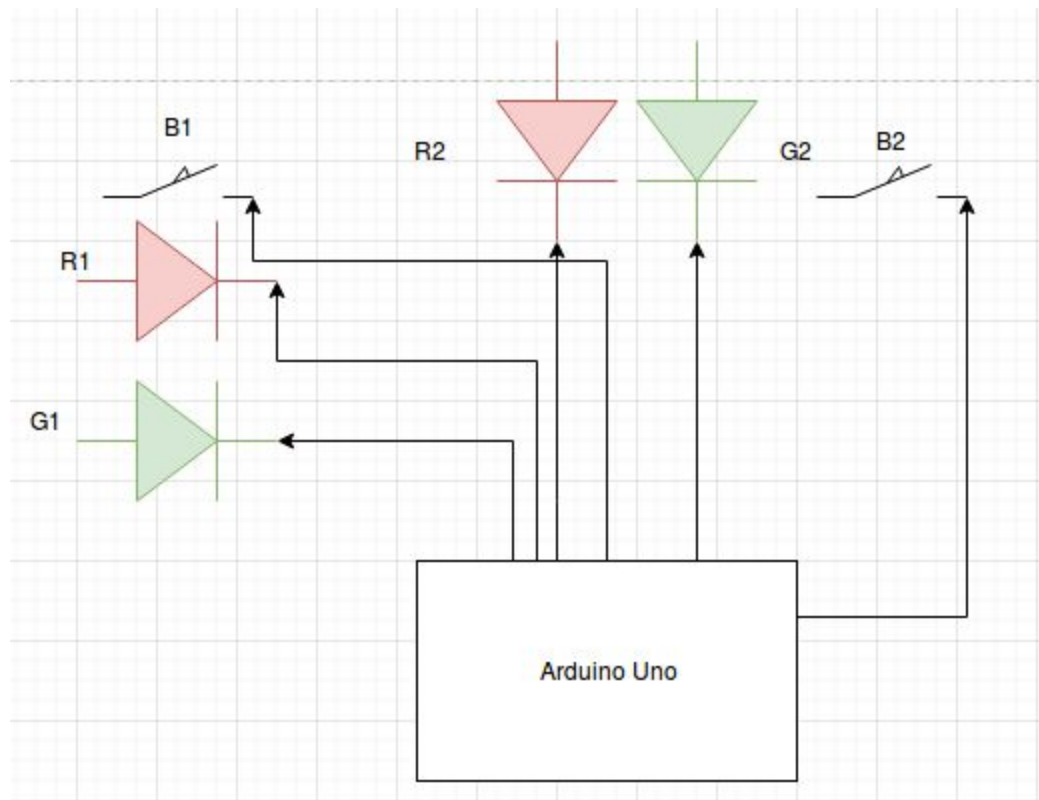
The purpose of this lab is to create an arduino script that will toggle LED's in accordance with a timing diagram. After this is complete we will have to use interrupts to adapt the timing diagram when a pedestrian needs to cross.

### **Approach**

To make the initial controller without the pedestrian crossing all we had to do is set the proper pins to the correct states on each part of the timing diagram. The one nuance was setting up the green LED on a pwm enabled pin so that we could dim the LED to indicate a 'yellow' light.

To make the pedestrian button traffic controller we split all the states on the timing diagram into different statements on a switch statement. We set the gpio interrupt on each button to toggle a flag. When the flag gets set the state machine will go to a different state that handles the pedestrian cross. Afterwards we will go back to the next logical state back in the normal sequence.

## Circuit Diagram



## Results

We were able to successfully get the traffic controller working as intended. An interesting bug we found in the arduino hardware is that when you set an interrupt handler to trigger low, the timer in charge of delay resets. So if you configure an interrupt this way and have the delays set up in the controller, every time you'd press the button would instantly move you forward a state because the timer reset.