Traffic Light Crossing

Members and Contributions:

Rafael Huang: Document, drawing the project diagram and commenting it.

Carlos Bolivar: Setting up the Arduino, drawing the project diagram and .asm file.

Henrique Baggio: Worked on the .asm file, setting up the Arduino and commenting it.

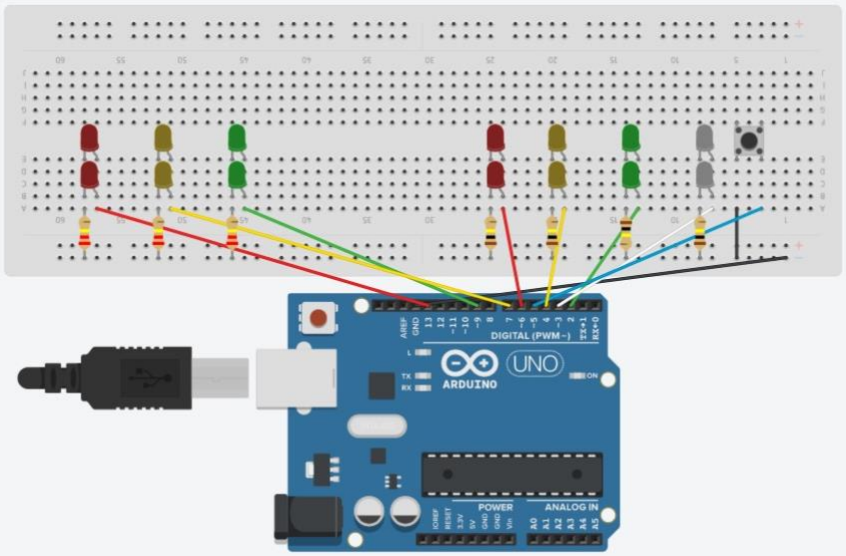
Charles Marsala: Worked on the .asm file and setting up the Arduino.

Challenges that were overcome:

- We had trouble with the computer labs since it was not saving the projects in it, and we could only rent computers for limited time.
- We had trouble setting up the virtual machine and connecting it with the Arduino, because we all were trying to run emulators on m2 macs, and the software was not working.
- We had trouble to setting up the button with the pedestrian lights.
- We had trouble distributing the energy to all the LED lights.

Project Description:

In this project, we build a traffic light simulator, that two traffic lights, "North-South" and "East-West," along with two white pedestrian lights. The program runs on a microcontroller ATMEGA328P and controls the state transitions and timings of the traffic lights. The program begins by setting up the necessary configurations and initializing the stack pointer. After that is done, the appropriate pins are set as output for the traffic lights and turns them off initially. The white pedestrian lights are also configured and turned off. The main logic of the program is implemented in the "**main_loop"** section. Which starts by the code running as normal, just like how two traffic lights would work, then when the button in clicked, it receives input and another condition will happen, which would simulate a person pushing the button so they can cross the street, so when the code receives the input from the button, an interrupt would occur making it look like a real life situation, where when the button is clicked, a short delay would occur, and then the white LED would turn on and the two traffic lights would act according to the input received.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