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CECS 346 Section 03
Lab 2
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1 Introduction

The purpose of this lab is twofold: the first objective is to practice connecting external peripherals (devices such as switches and LEDs) to the TM4C123G Evaluation Kit Board ("LaunchPad" or "board"), and the second objective is to program the board to implement a simple program that flashes or toggles LEDs according to user input via switches.

2 Hardware

Although both software and hardware was designed and implemented concurrently, the hardware was the easiest part. One issue I had is the fact that the switches that I own are too big to fit inside breadboard holes that accommodate 22 gauge wire. Instead, I used a male-to-female dupont wire, forced the switch's pins into the female side, and used the male side to plug into the breadboard. Other than that, the hardware building was straightforward.

3 Software

The software was the trickiest part. Using the datasheet, I was quickly able to find the base registers for Ports B and E, and fill the blanks in. I copied most of the initialization function from Lab 1: Hello LaunchPad, modifying values whenever necessary. Before I got started on the logic to switch or flash the lights, I tested all three ports individually to see if the lights were hooked up properly, and to see if not too much current was flowing through the LED and therefore the board (if too much current was passing through the board, I would have set the appropriate register(s) (`GPIODR2R`, `GPIODR4R`, or `GPIODR8R`)). After verifying the connections, it was not much longer until I had a working program. I had some difficulties here and there with connections, like thinking a switch was connected properly when it wasn't, but other than that, everything went smoothly.

4 Media

- Link to YouTube video of demonstration: `https://youtu.be/AT8yb028zSw`
- Schematic diagram:

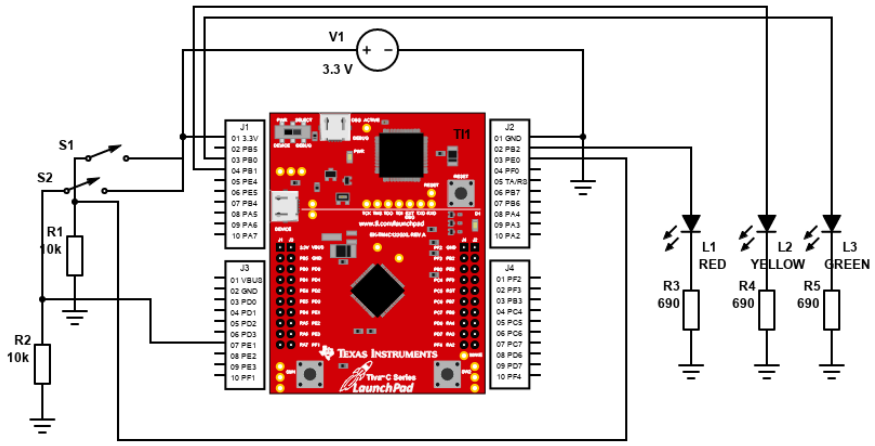

Figure 1: Schematic of project.

- Picture of hardware:

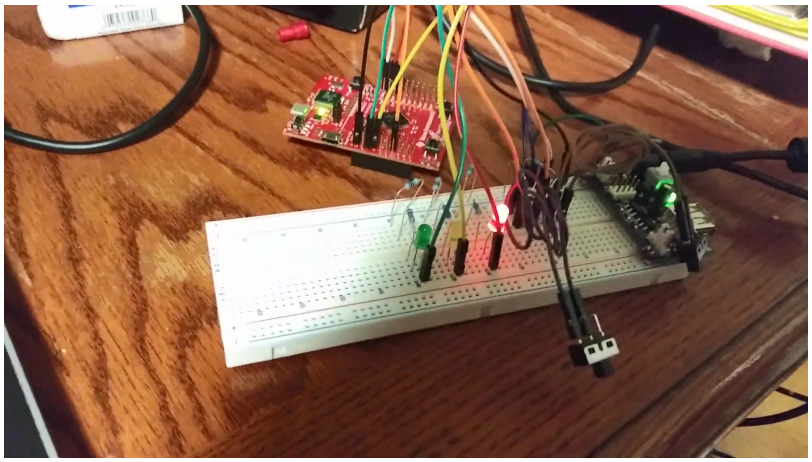

Figure 2: Hardware running on breadboard with LaunchPad in the background.