ECEN 4730 Lab21 SBB circuits: smart LEDs

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1. Introduction

The purpose of this lab is to get comfortable programming the smart LEDs before incorporating them into my board4 design. At this time, a strip of smart LEDs will be used. In the actual board4 design, I can decide how I want to use the LEDs as indicators to show progress in the measurements or translate measurement values into colors, or just as a cool display between measurements.

Here is the strip I will be using.

2. How did I set up

Since the strip I get comes without the header, the first step is to solder the header to the pin “5V, Din and GND”. One important step is to be careful with the order of the LED strip when I solder the header to the Din pin. Making sure the digital signal will go in-order sequence.

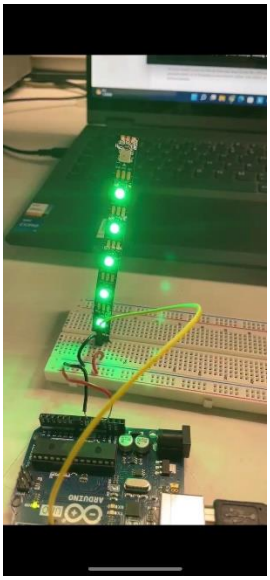
The second step is to plug into the solderless breadboard and have Arduino power the circuit with 5V.

The third step is to download the library from Adafruit, because there are easy examples in the library I can use.

The fourth step is to upload the example code to the LEDs strip from Arduino Pin7. (Default is D6, I switch to D7). In the example, the LED strip goes from top to bottom since the code has a “for” loop starting at 0.

3. Patterns I used

After I play around for a bit, I can change the color of the LEDs and also the order of display in lab time. I have the order of display going from bottom to top and have the Green LED running.


Here is the basic pattern I got from the lab time.

4. Future Plan

I am planning to have the LED blinking when it transmits the code from Arduino to the PC. In addition, different colors will be used when the measuring voltage is different. If the Arduino is in an idle state, some cool patterns will be displayed for fun.