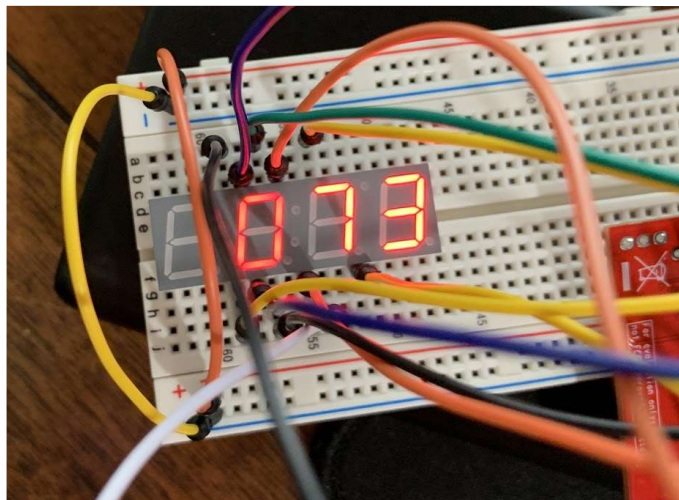
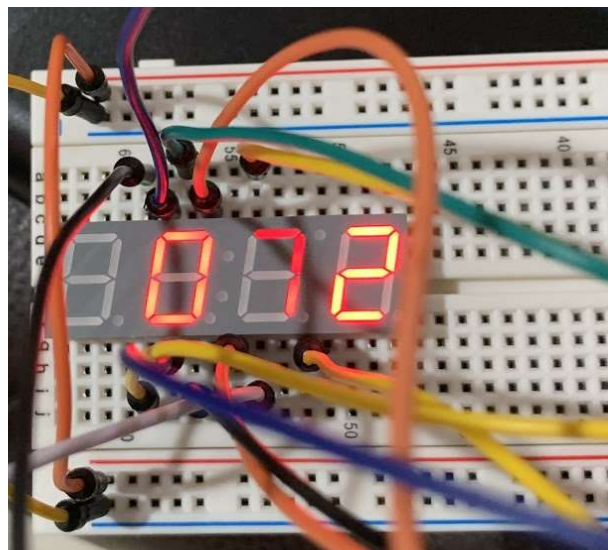


Notice: After switching the analog read pin to PD1, the 7-segment display stabilized and I was able to read the temperature. Due to this change, the values for registers GPIO_PORTD_AFSEL_R, GPIO_PORTD_DEN_R, GPIO_AMSEL_R, and ADC0_SSCTL3_R needed to be changed to |= 0x2 , \&= ~0x2 , |= 0x2 , and |= 0x6 , respectively.

- a. Since I wasn't able to get the circuit running during the lab session, the following temperature reading is from my room. I currently live in a garage with a dedicated A/C unit, so the temperature is typically around 70° F. I measured 73° F, but the temperature would regularly jump between a range of 66° F and 78° F. The time was around 3:55 PM, but I feel like this is irrelevant due to the A/C.

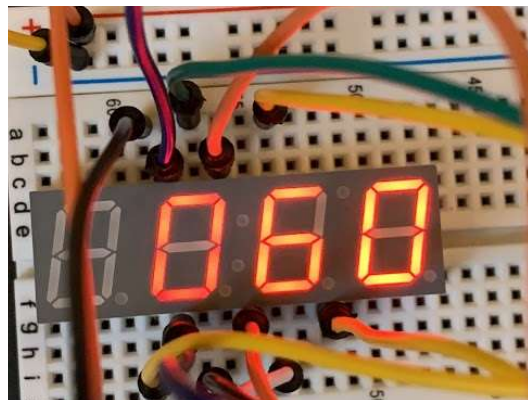


- b.
 - i. I measured the temperature in the lower living room of my house (my house has a heat pump and is set to 68° F), which is slightly colder than the rest of the house, but a fire was burning at the time of measuring so it's slightly warmer than



typical. I measured 72° F, but the temperature would regularly jump between a range of 68° F and 80° F. The time was around 4:00 PM, and again, I think the time is irrelevant due to the heat pump that's regulating the temperature.

- ii. I measured the temperature outside on the deck in the backyard. Looking at the weather app on my smartphone, the local temperature in University Place was 53° F. I realized that I would need to leave the circuit outside to let the sensor settle to an accurate reading, but I didn't want to wait 30 minutes or more, so I let it sit outside for 5 - 10 minutes. I got a reading of 60° F after this period of time, but like the previous readings, regular fluctuations in the temperature reading would happen. This time, it would bounce around a range of 60° F and 76° F. The time was around 4:10 PM, which would have an effect as it is getting colder outside. If left outside, I would expect the temperature reading to gradually decrease to the ambient temperature.



- c.
 - i. The LED's of the 7-segment display were connected to PORT B.
 - ii. The digit selection pins are connected to PORT E.
- d.
 - i. The temperature sensor's output is read by PD1 in PORT D.
 - ii. The registers for setting up PD1 to work with ADC is:
 - 1. `GPIO_PORTD_AFSEL_R |= 0x2;`
 - 2. `GPIO_PORTD_DEN_R &= 0x2`
 - 3. `GPIO_PORTD_AMSEL_R |= 0x2;`
- e.
 - i. We used the ADC0 module for this lab.
 - ii. `SYSCTRL_RCGCADC_R |= 0x01;`
- f.
 - i. We used SS3 for this lab.
 - ii. `ADC0_ACTSS_R |= 0x8;`
- g. `ADC0_EMUX_R &= ~0xF000;`
- h.
 - i. Since I was using PD1, channel 6 was used.

- ii. ADC0_SSMUX3_R
- i.
 - i. We collected one sample.
 - ii. ADC0_SSCTL3_R