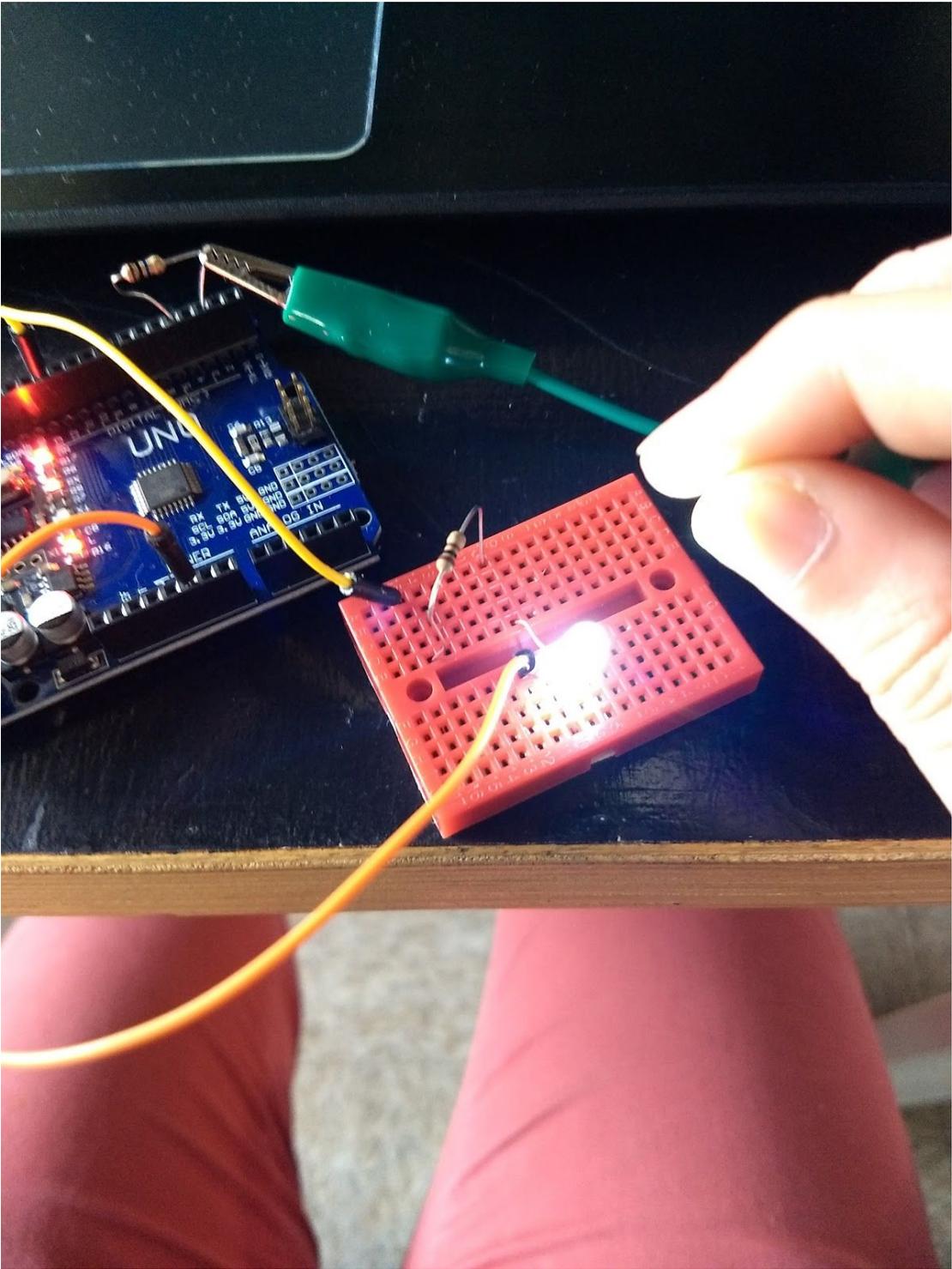
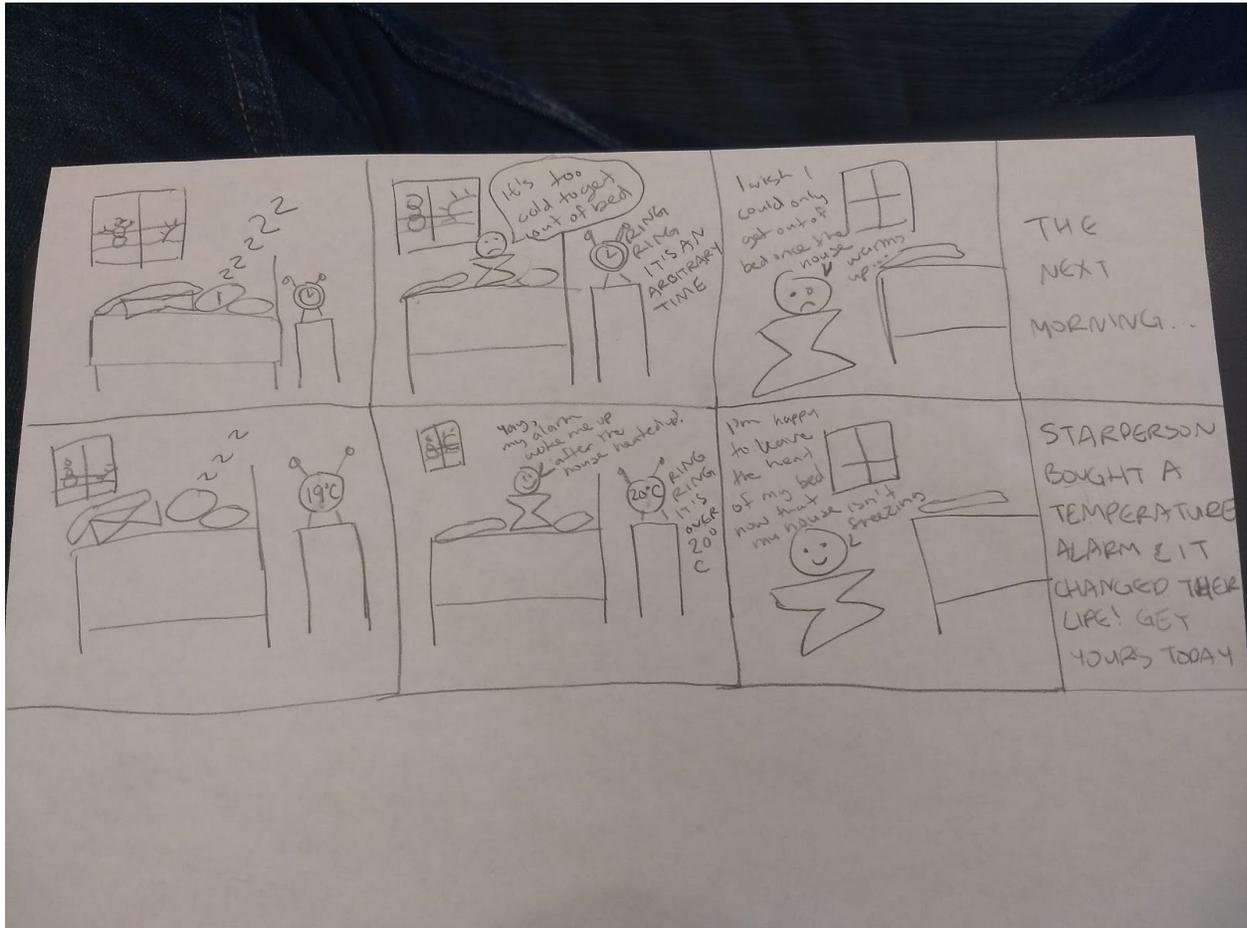


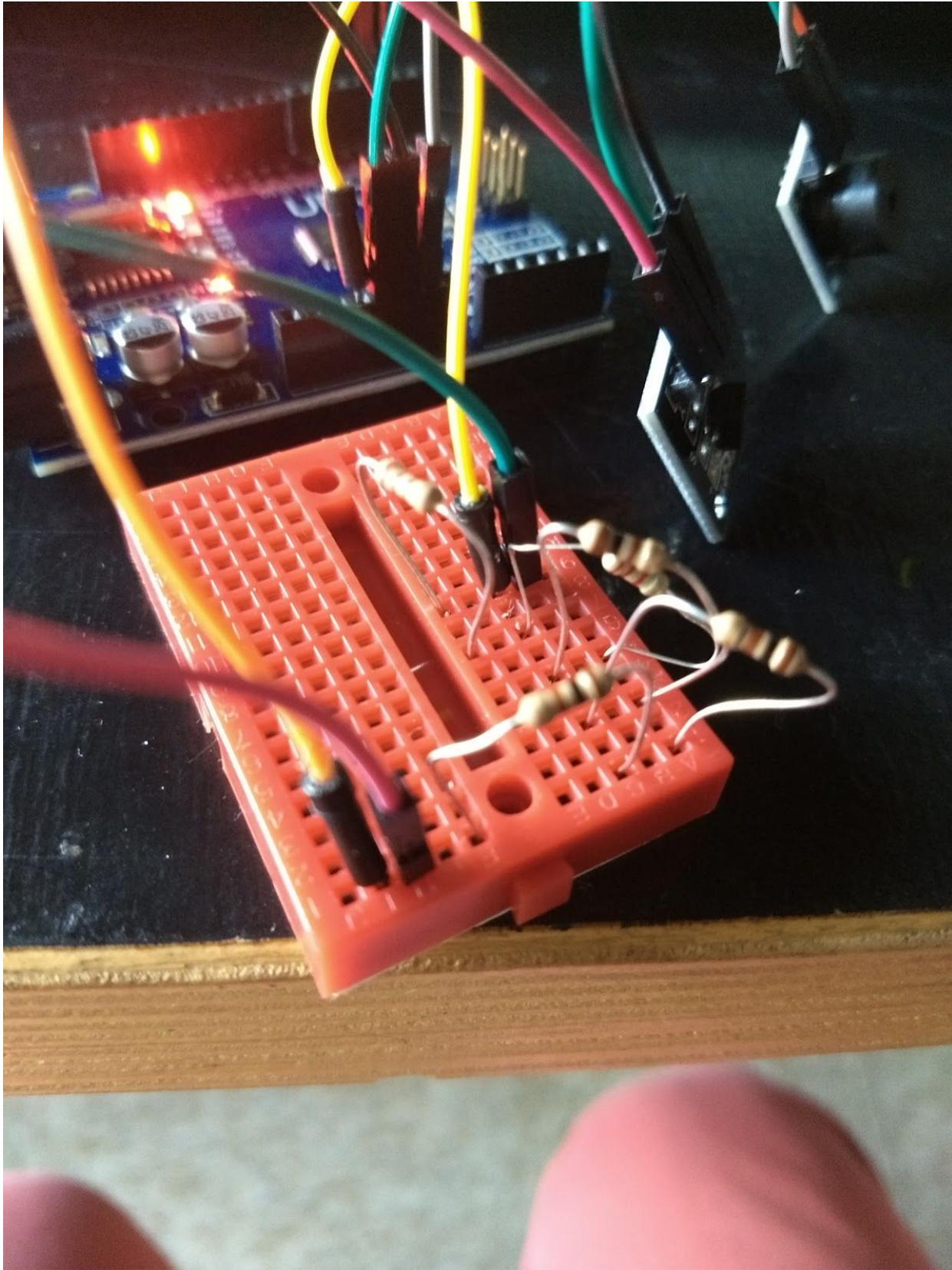
In class, we made an LED blink SOS and a touch sensor. I didn't get a picture of my LED SOS, but here's a picture of my touch sensor:



For my project, I made a temperature-based alarm clock. I find that in the winter, I often wake up to a cold house, which makes it hard to leave my nice warm bed. Thus I had the idea for an alarm which would only wake you up once the temperature in your room reaches a certain threshold, being either warmed by sunlight in the morning or by a smart heating system in your house which would turn up the heat at a certain time in the morning. Here is my storyboard:



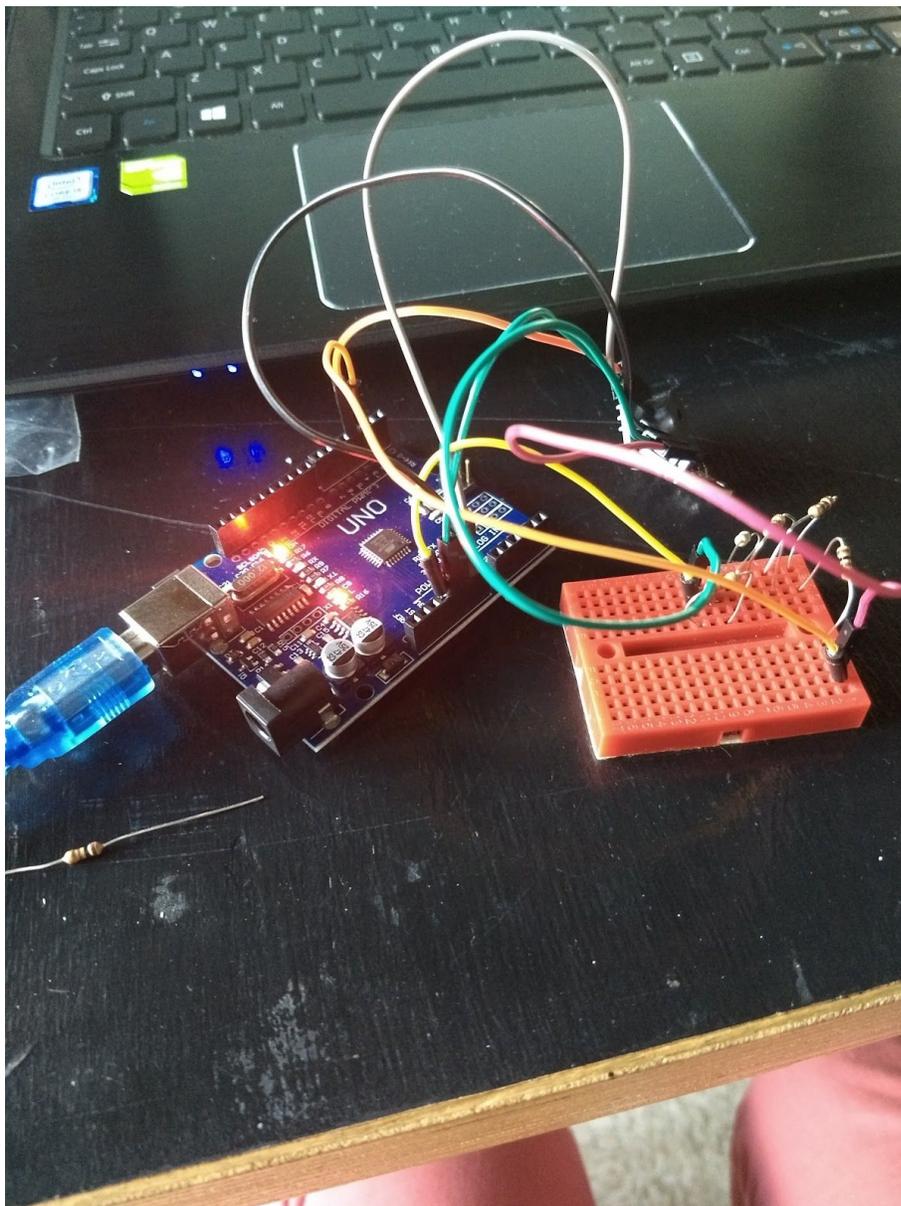
I used the DS18B20 digital temperature sensor and followed [this tutorial](#) online to wire it up. The tutorial called for a 4.7k ohm resistor, which we did not have in the lab. I first tried two 2.2k ohm resistors in series, since I thought 4.4k might be close enough. When that failed, I added three 100 ohm resistors, also in series, to make it up to 4.7k, and this worked.

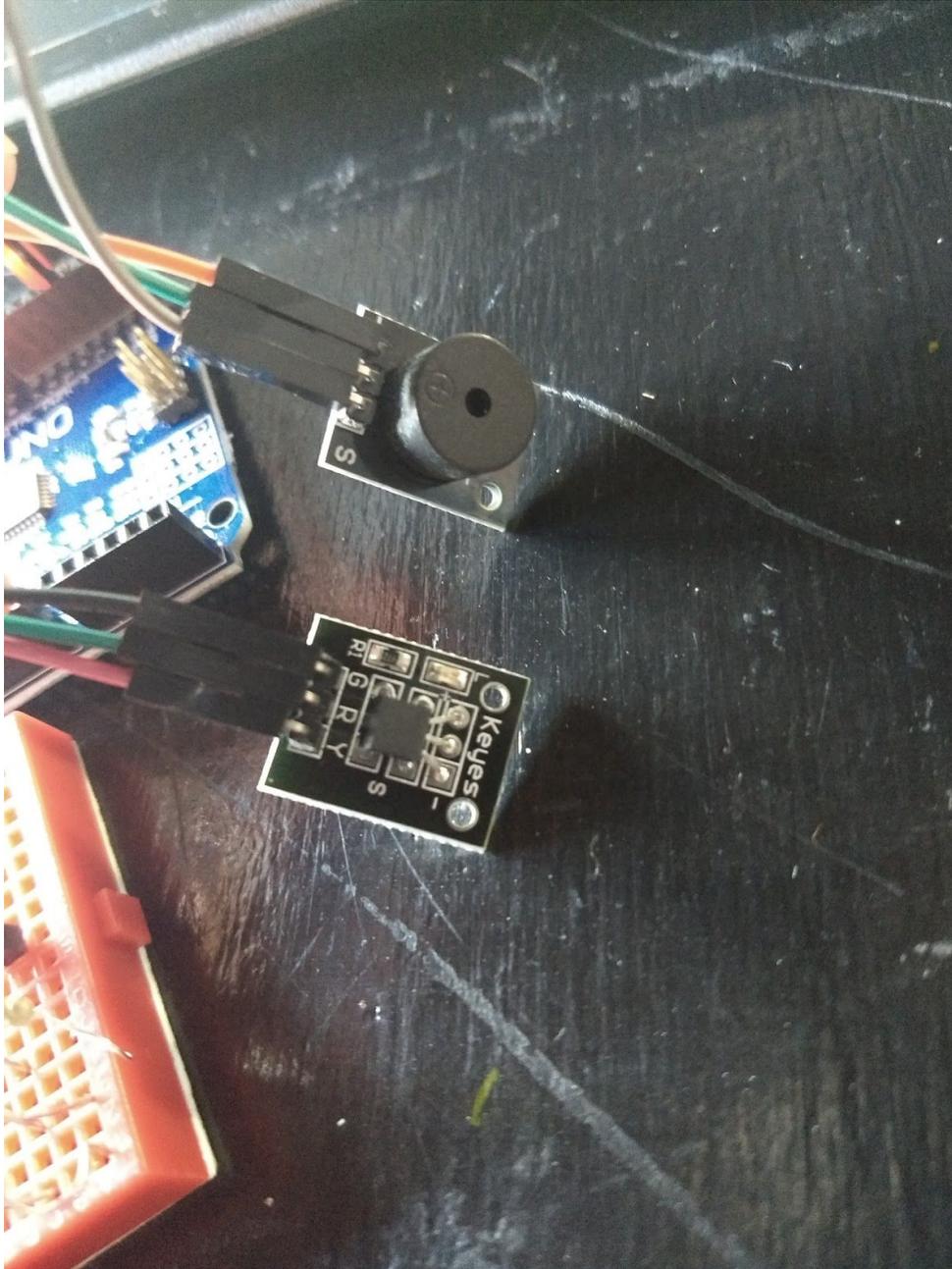


I tested the temperature sensor by holding it in between my hands to heat it up. I found that the warmest I could get reasonably get it with this method was about 96 degrees Fahrenheit, which was after rubbing my hands together for a minute to create additional heat. Special thanks to Jacob Pruiett for assisting with the testing!

I used a passive buzzer for the alarm, following [this tutorial](#) plus [this tutorial](#) for tips on the code.

To demo my alarm, I used a temperature of 30 degrees Celsius, triggered by holding the temperature sensor between my hands for a few seconds. As soon as the temperature passes the threshold, the buzzer sounds. It will continue to sound as long as the temperature is high enough to wake up. The alarm can be silenced by unplugging it.





This week's project was pretty straightforward since I've had prior experience with Arduino. If I were to change something, I would make it so that the alarm plays a sequence of tones either on repeat or just once every time the temperature increases past the threshold. However, I finished my prototype in class and didn't want to have to check out my sensors for such a small arbitrary code change.