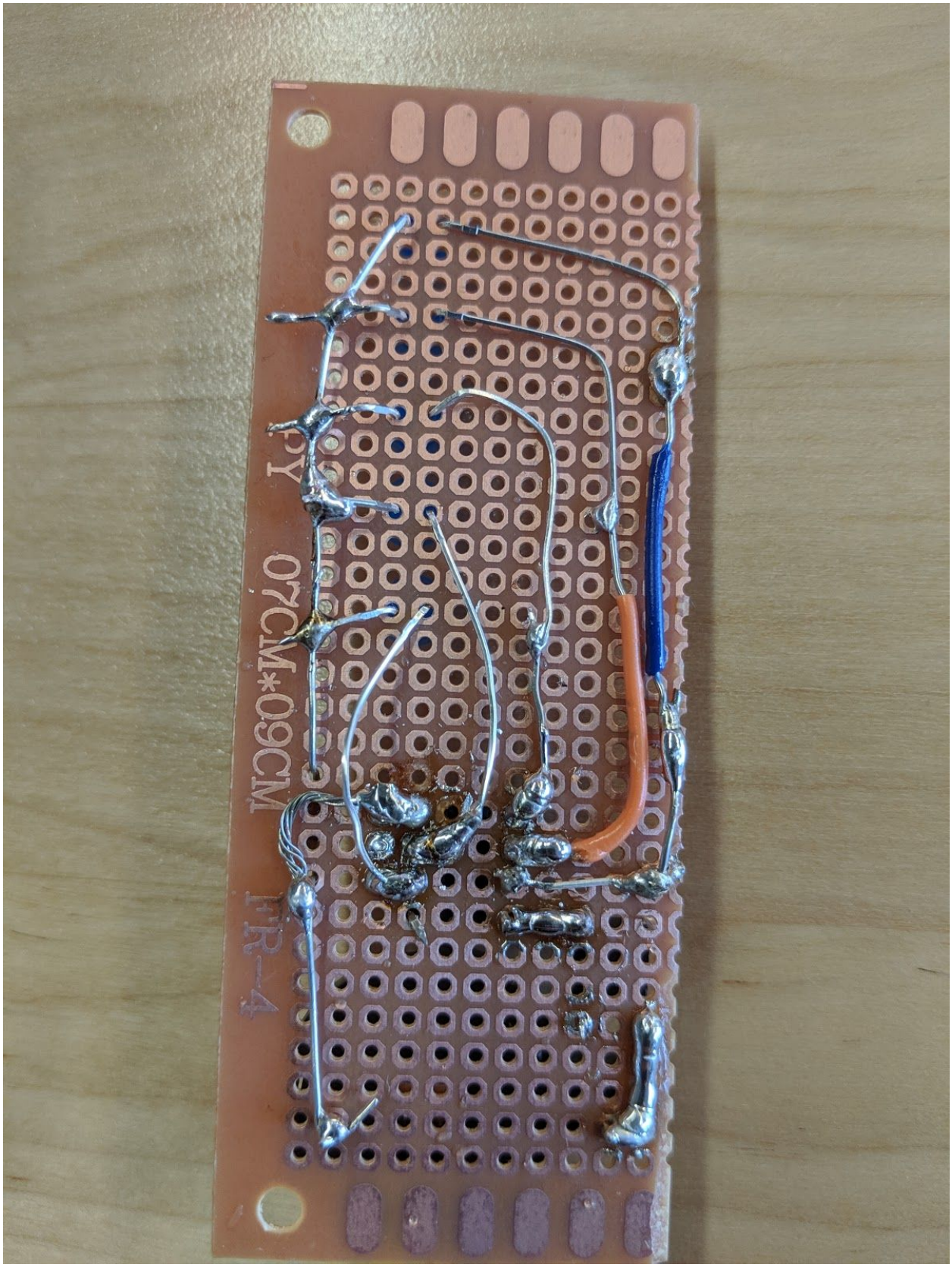
Macey McCormick

ETUDE 2
PERCEPTOTRON

I was not intimately familiar with all of the tools I was to be working with, so building the circuit proved to be a challenge. I do think in the future I will use circuit building apps first such as fritzing to plan it all out first. I wasn't fully aware of how power went through certain devices such as the button's diagonal, and so I accidentally attempted to do so much more linearly.

PY 07CM*09CM
CR2032


07CM*09CM
FR-4

I haven't soldered in quite awhile, so while it was slow going, this definitely got me intimately well acquainted again with the practice. I picked up and practiced the proper technique, solidified bonds, and had a few circuit mix ups I had to fix. In the end, I was unable to get the entire thing functioning. Two out of five LEDs worked, and I'm quite certain the breadboard was overworked by the time I was done.

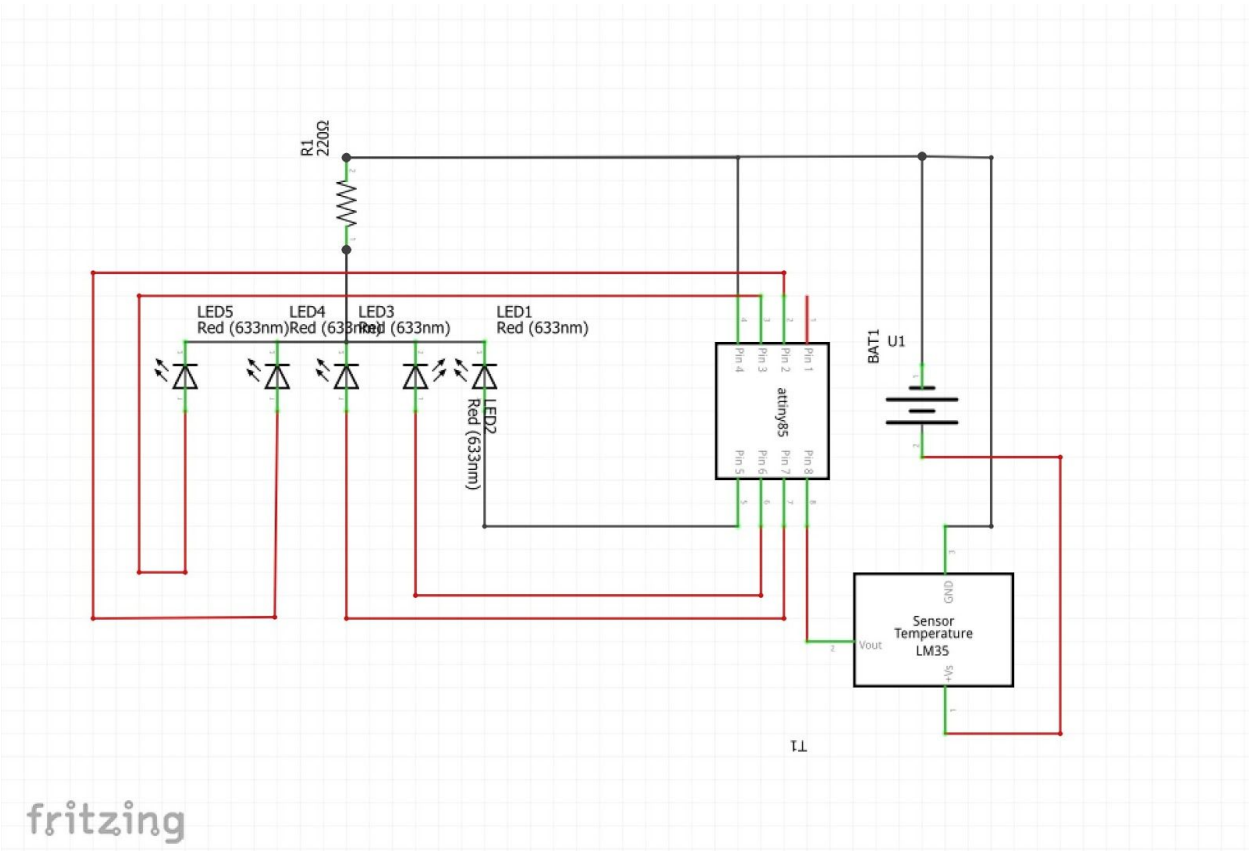
I do think next time I will spend much more time ascertaining and practicing the circuit before overworking the materials and risking compromising them. Soldering isn't a strong point, but I do hope to improve my skills over time.

PART TWO: Alternate Circuit

The main difference that I can see between the circuits is that while the built circuit has one resistor that all of the negative pins on the LEDs feed into, this alternate circuit has a resistor per LED, which is connected into Pin 4 and the battery. While this is likely safer at regulating the voltage if the LEDs themselves are producing a lot of voltage for some reason, if they aren’t producing a lot, it may also be overcautious.

Extending the Perceptron-P, as it is mostly a tool for displaying text as a banner, seems that something visual would aid in making the message more distinct and add to the banner’s possibilities, from symbolic colors to flag colors. Therefore, I proposed swapping in the LEDs for RGB LEDs. This of course immediately did not work, as when I considered putting all of the R, G, and B together separately, this means that the LEDs will not work in the way Perceptron-P was intended.

Instead, I introduced a temperature sensor. This would replace the button and display conditionally on a certain temperature reading, but also change what strings of text would be displayed upon certain ranges of temperature.


R1
220Ω
LED5
Red (633nm)
LED4
Red (633nm)
LED3
Red (633nm)
LED1
Red (633nm)
LED2
Red (633nm)
attiny85
Pin 1
Pin 2
Pin 3
Pin 4
Pin 5
Pin 6
Pin 7
Pin 8
BAT1
U1
GND
Sensor
Temperature
LM35
Vout
Vs+
fritzing