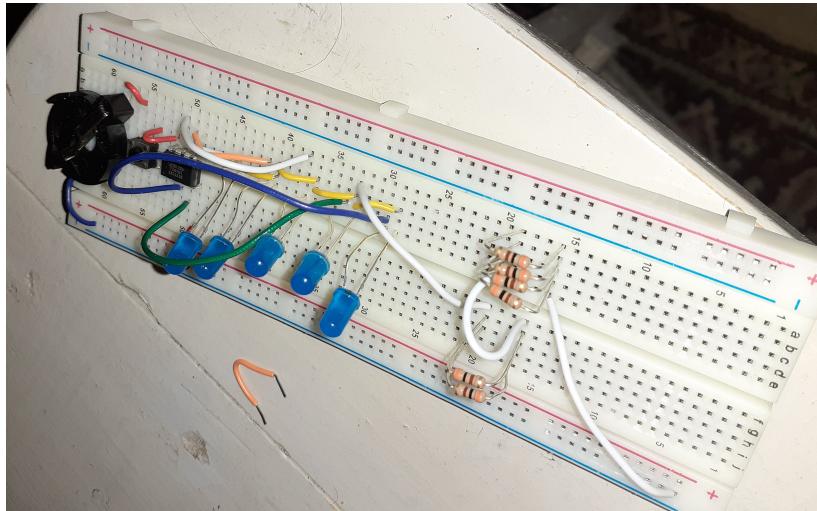


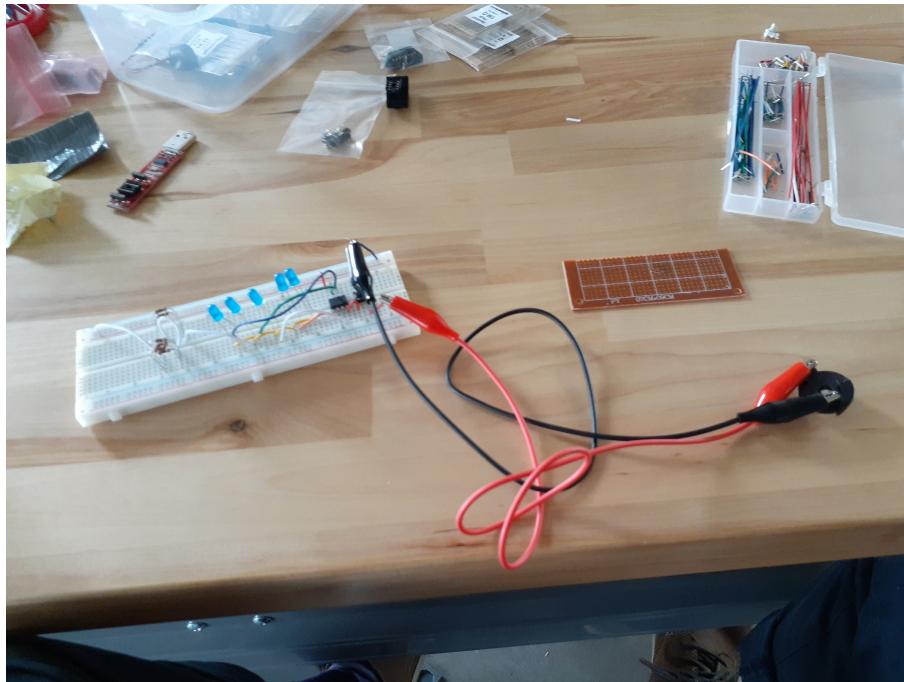
Samuel Paré-Chouinard
CART 360 Etude II
Perceptron-P

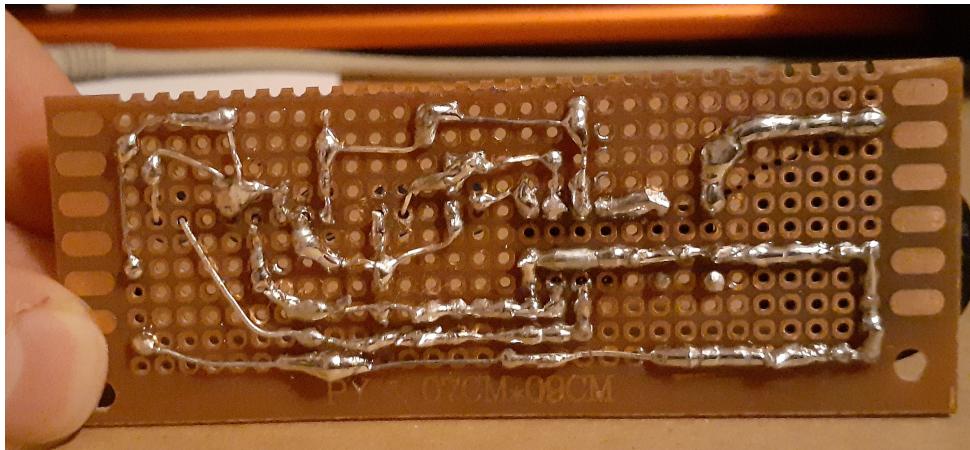
PART ONE – BUILDING PROCESS



ABOVE : I started by piecing together the circuit on my breadboard at home. I looked through my box for a 220 ohm resistor and couldn't find one so I thought i'd approximate that by placing 4 parallel 300 ohm resistors in series with 2 parallel 300 ohm resistors giving approximately 225 ohms. Turns out that wasn't necessary, but it was nice to apply the math.

BELOW : I brought the circuit to the sensor lab the next day and started looking through the patch to figure out how character displaying worked. I wrote some notes in the process that I can't get my hands on anymore. I added an arrow and wrote > HOME > . I loaded the code onto the attiny and tested it on the breadboard. With all lights flashing, I started soldering.

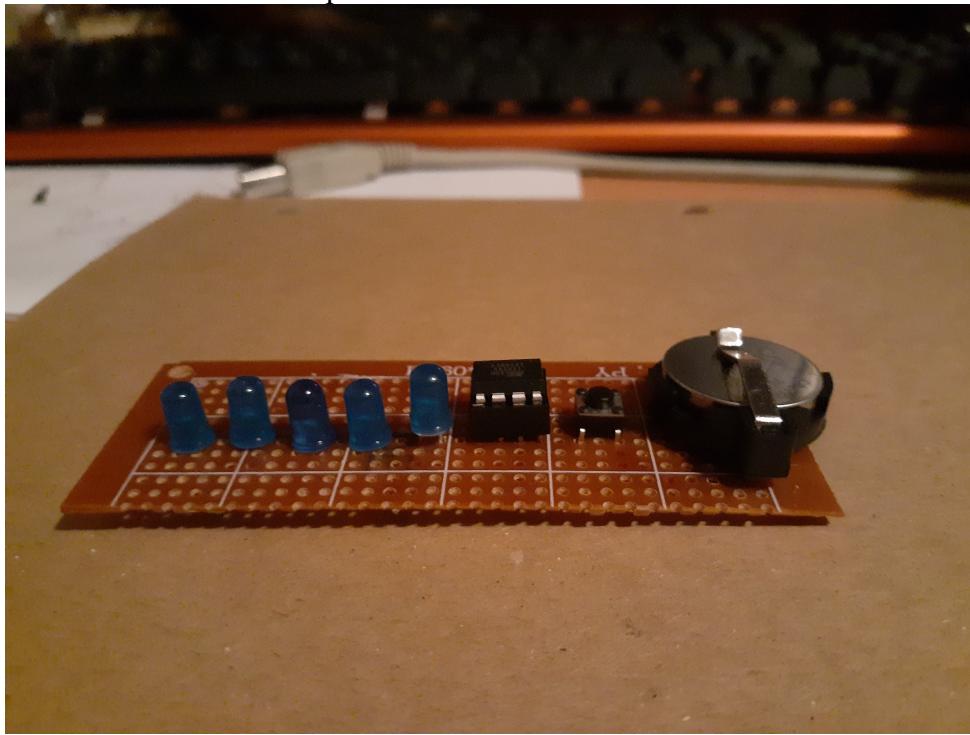




ABOVE : finished soldering job.

I don't have any photos of the soldering process, but certainly was a process. I used my breadboard circuit as reference and worked things out in a pretty arbitrary order, thus the entangled result. Would have probably helped to follow the circuit schematic instead or draw it out on paper first. I inverted pins 4 and 5 as well. My first draft didn't work and Elio pointed out my middle three LEDs were inverted. I cut them out and replaced them, only to find that one was faulty (after checking it with the voltmeter). I replaced the LED and all the lights were finally flashing.

BELOW : finished Perceptron-P.



My Perceptron-P *almost* works as intended : the middle LED doesn't light up all the time. Not entirely sure what the problem could be but it would be interesting to figure it out. Anyhow this was a long process but I certainly learned a lot from it.

PART TWO :

Compare and contrast the Electronic Schematics of the **Built Circuit** to the **Alternate Circuit**. Determine the feature(s) that distinguish these two circuits – what makes them different? Why? Which of the circuits presented would be more reliable circuit – Why? What is occurring with the V/ I / R in the area(s) that you have discerned as important? How would you further extend the Perceptron-P, what would you introduce to the Perceptron-P in order to make the experience more meaningful? Draw the modified circuit in Fritzing.

The built circuit and the alternate circuit are different in that the built circuit has one resistor in series with a group of LEDs in parallel, while in the alternate circuit each parallel LED has its own resistor in series. I think the alternate circuit would introduce more error margin into the circuit because of its having more parts. That would give less control over the current and might make the circuit less reliable.

One way to extend the perceptron-P would be to introduce a motor that spins the LEDs around so that one can see the message in real time. I suppose that might require more than 3V. The motor could be placed in series with the attiny, with a resistor to control the voltage passing into the attiny (resistance value would depend on motor/battery used).

