PART ONE

Given that this was the first time that I soldered onto a perforation circuit board (PCB), the approach that best served was to copy the class example by Elio Bidinost. Pictures taken with the Iphone helped keep me on track throughout the experience.

Audrey and I began by setting up the sample provided in the handout onto the breadboard. At the same time we followed the guidelines for the Aduino IDE Setup in order to prepare to download the software onto the ATtiny chip with the help of the USB setup provided by Elio Bidinost. Once we had completed the Arduino setup, I changed the program code from "cart" to "love" with the intention that the light show will display the new word. The, compiled the program and uploaded it onto the ATtiny chip. Once the ATtiny chip was plugged into the p-dip on the breadboard I pushied the button activated the five LEDs (figures 1 and 2). Lots of blinking lights !

The next step was to study the sample that the professor had provided and convert the breadboard setup to better reflect the way that he designed his circuit board of the sample Perceptron-P. Once the new setup was working on the breadboard, I was ready to translate it to the PCB and prepare for soldering the components into place.

Taking baby steps, I followed the suggestions provided by the professor. The first step was to spot solder the coin 3V housing, the button and the p-dip into place. Subsequently, the five LEDs were lined up and soldered into place without cutting the stems. The 20-ohm resistor was next; trimmed the stems. Elio Bidinost, tested to be sure that the LEDs were functional before I soldering the LEDs to their appropriate pins on the ATtiny chip. At this point, I referred to the Electronic Schematic of Perceptron-P (build circuit) provided in the handout and used a

black permanent marker to draw onto the PCB where soldering was required. Following the strategy on the class sample and using the stems of the LEDs, I soldered the path to mimic the schematic provided (figures 3 and 4). The button is connected to the power (anode). All components are grounded and connected to the power (cathode).

Finally, when all the lights were working on the piece, I video recorded in a dark room the result (see love.mov) .

Here is the summary of the ATtiny pins:

Pin number	connected to
1 Reset	
2	LED 2
3	LED 1
4 ground	anode side of the resistor
5	LED 5
6	LED 4
7	LED 3
8 5V	button

PART TWO

The schematic of PART ONE has LEDs connected in series whereas the schematic in PART TWO has LEDs connected in parallel. The downside of a series connection is that if one LED fails then they all fail. The parallel setup will have the remaining LEDs still working.

On reflection, does this mean that Christmas lights are connected in series ?

To extend the Perceptron-P further, might I suggest turning it into a jog at night display. The hardware setup might include sensors to determine the jogging velocity of the person wearing the Perceptron-P which will display messages that are readable at the speed of the jogger. Why not, install an alarm sensor to trigger if somebody comes too close while you are jogging.

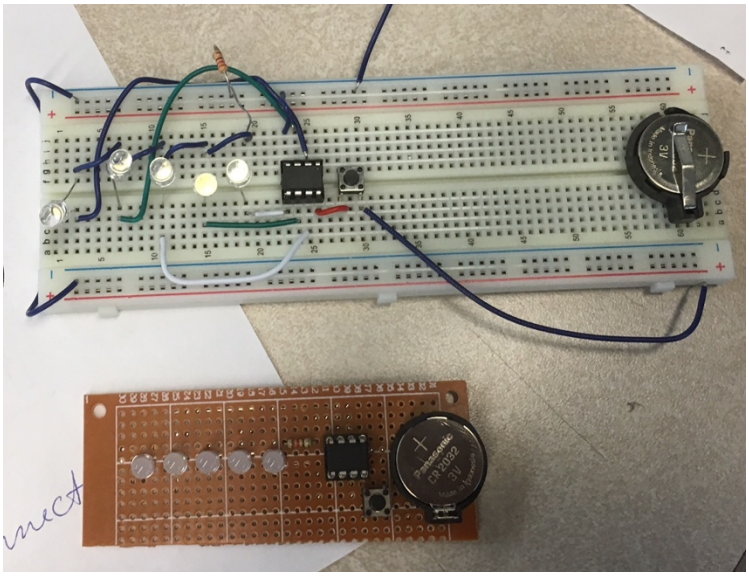

Figure 1- Breadboard setup to mimic class sample

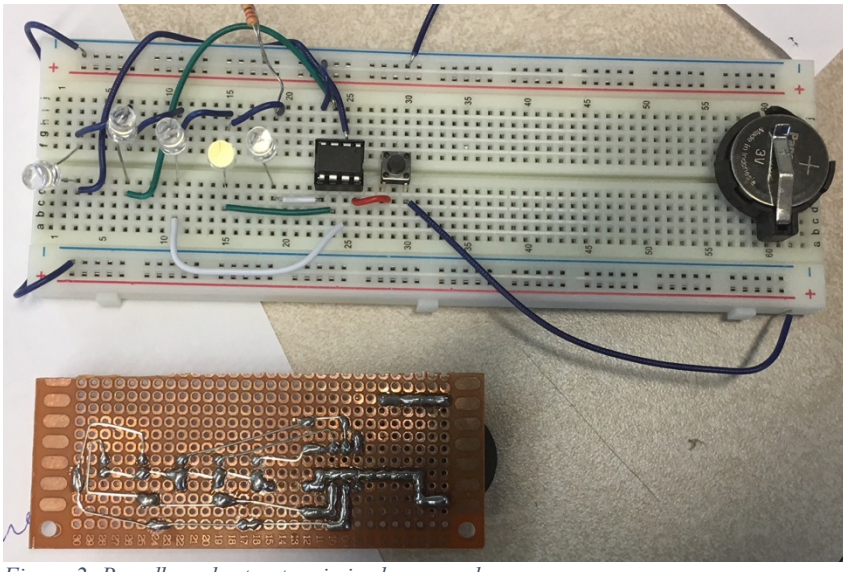

Figure 2- Breadboard setup to mimic class sample

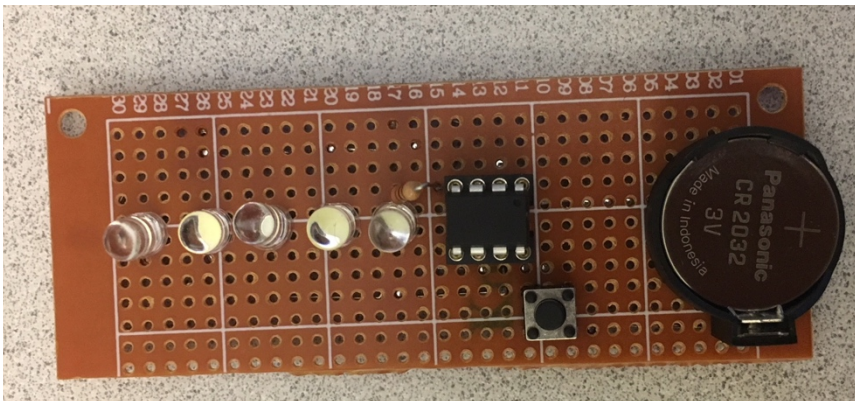

Figure 3 - PCB Top view of Perceptron-P for love

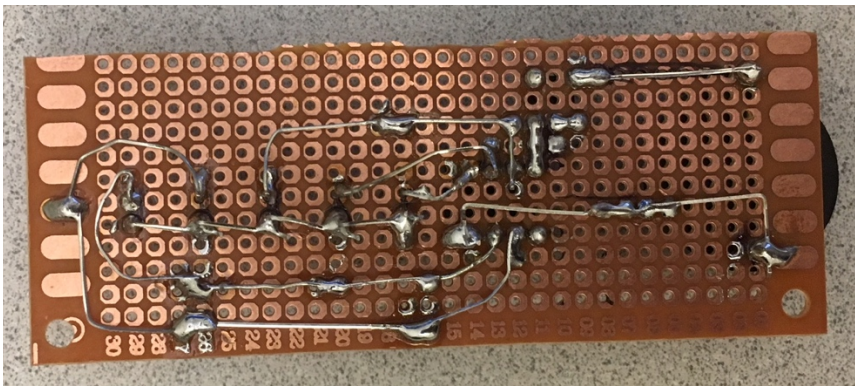

Figure 4 - Bottom view of Perceptron-P for love