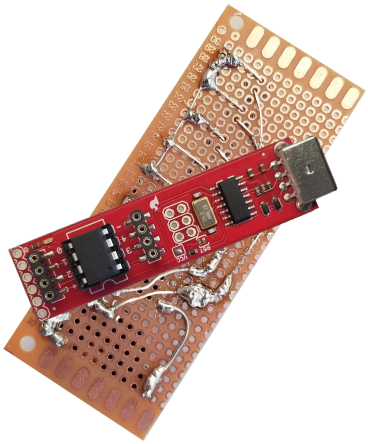
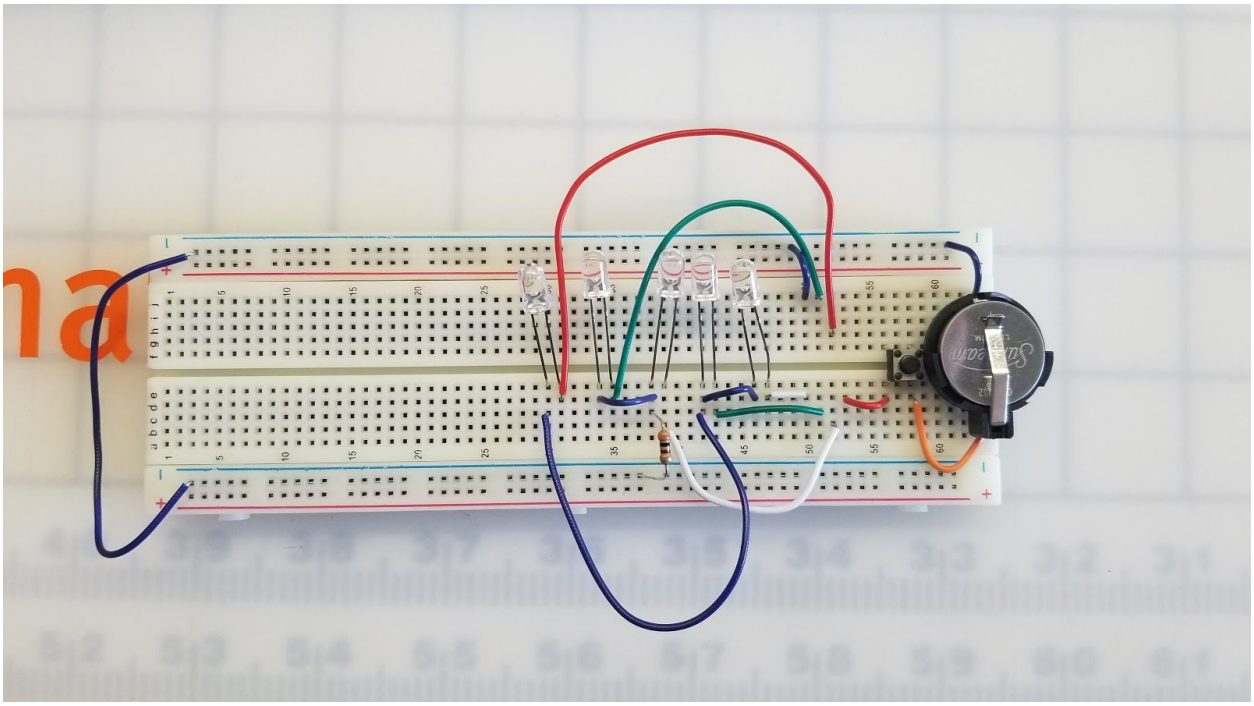
Yann-Maurice McNiven
CART 361
September 27, 2019



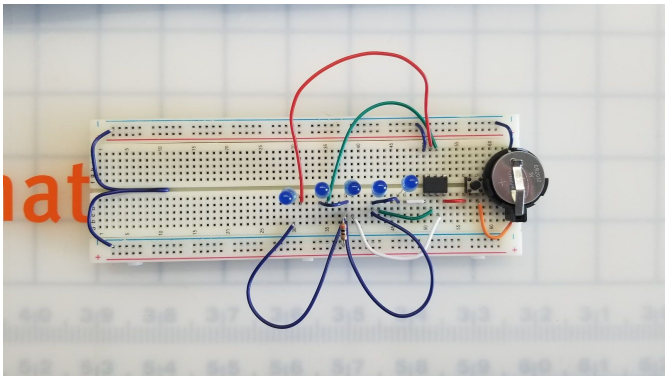
ETUDE TWO

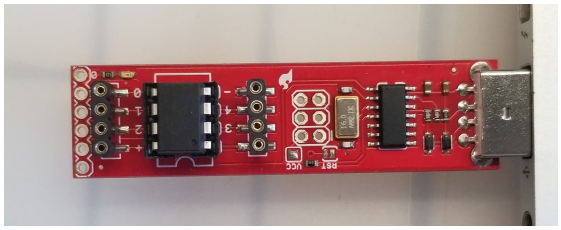
PERCEPTRON-P

Originally I had a very easy time making the perceptron-p with the breadboard, this was step one for me. This first process was getting me accustomed to electronic circuitry which before this I've had little to no experience with. So understanding that positive ends of the LED's are controlled by the microprocessor, and that all LEDs must be grounded I had completed a fully functioning perceptron-p circuitry on my breadboard.

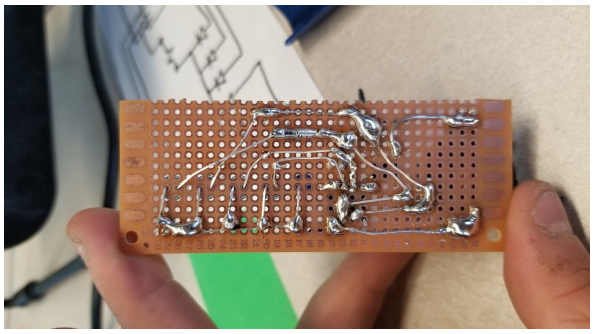


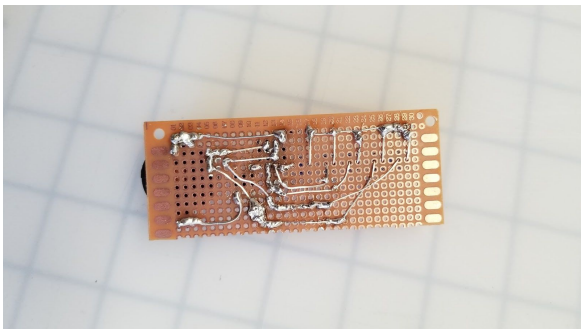
Afterwards I looked into programming my micro-processor, the code wasn't too complicated to understand and I had enough knowledge to easily code in my new custom character. The difficulty came when I put the microprocessor into the programmer. One fried processor and almost a second saved only by Elio who explained that I had shorted my last processor by putting it in the wrong direction. With the code uploaded and my processor fully functioning, I had the full perceptron-p on my breadboard.





I had a great deal of difficulty with the last part, the soldering, first of all this exercise seems entirely well suited to introducing us to the unwillingness of molten metal to settle where you want it to. Not only this but even with my fully finished circuitry no power was circulating through the board. I left it like this until the next visit to the sensor lab where Elio played with re-melting some of my soldering and suddenly my circuitry worked. I had issues with my fourth LED but after a bit more melting and remelting of my soldering work it all came together and my LEDs all worked although at a very low light. So in the end my perceptron-p is running but at a very low light.





To compare the circuitry we built with the circuitry presented in the etude, the principle difference is in the added resistors which are in parallel as opposed to the circuitry built. Series resistors lose efficiency with the number of components added to it, however in parallel there is no lose to the current. I would say that the alternate circuit is the more reliable of the two since less current is lost. My circuit is perhaps a good example of this and it would be interesting in my free time to perhaps build the alternate circuit.

With more time I would perhaps include a solar cell, since I think the best view of perceptron-p in action would be in the dark. This solar cell would inhibit the HIGH value of being sent to the LEDs if it was bright out but if it were dark would allow for the lights to be active. I think this would add to the hidden message nature of the flickering, as if only by night can the message be deciphered.