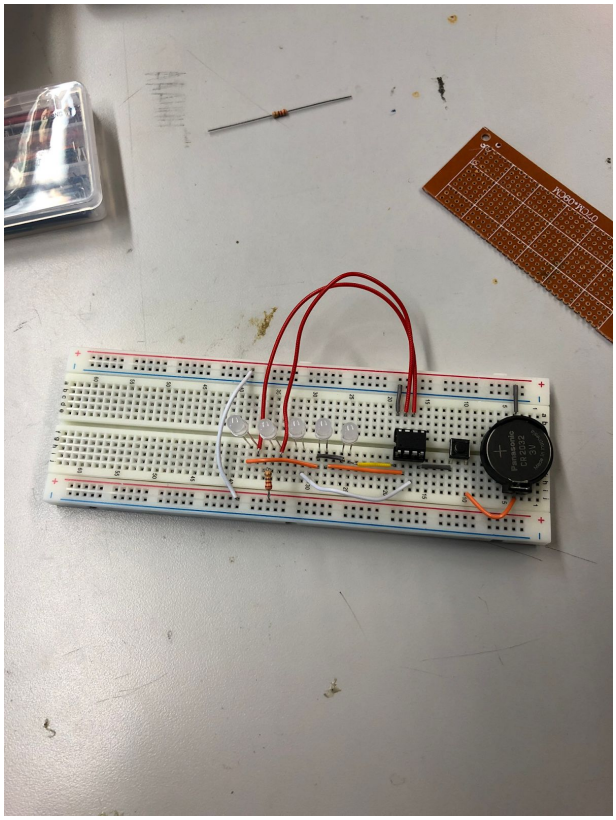
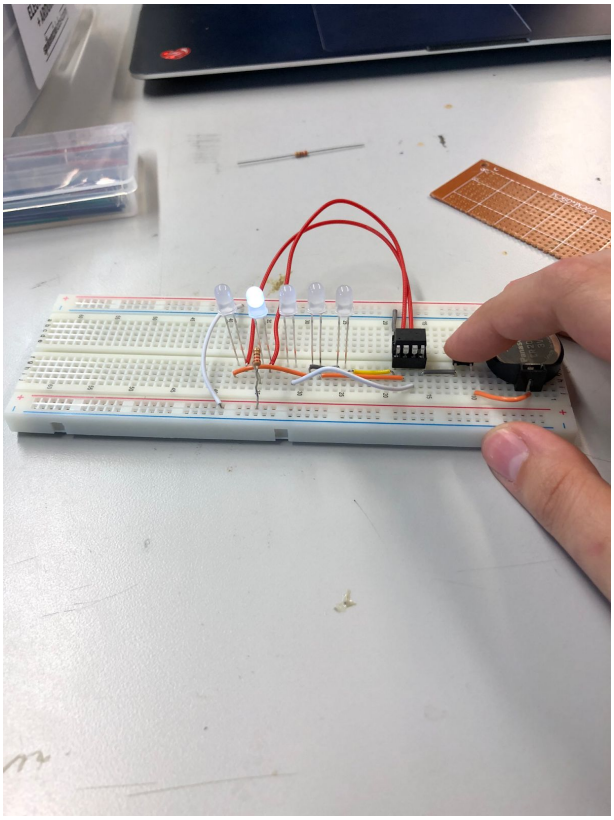
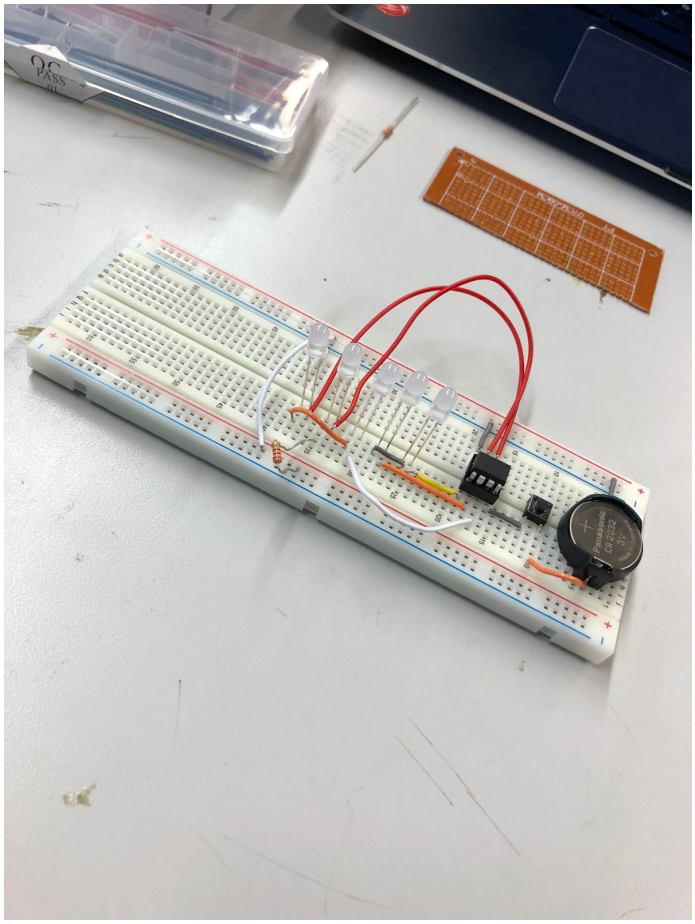
Jennifer Sevan
#40032585
CART 360 - Etude 2

PART ONE: Perceptron-P



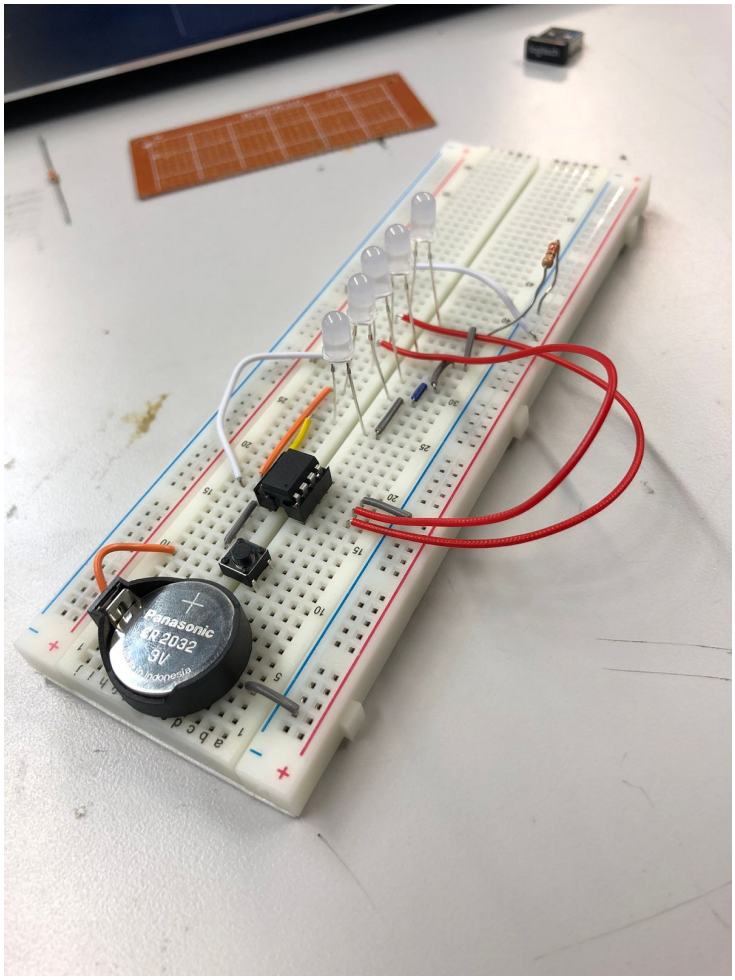


ATtiny85 was in the wrong direction. The 3rd light from the left wasn't grounded.

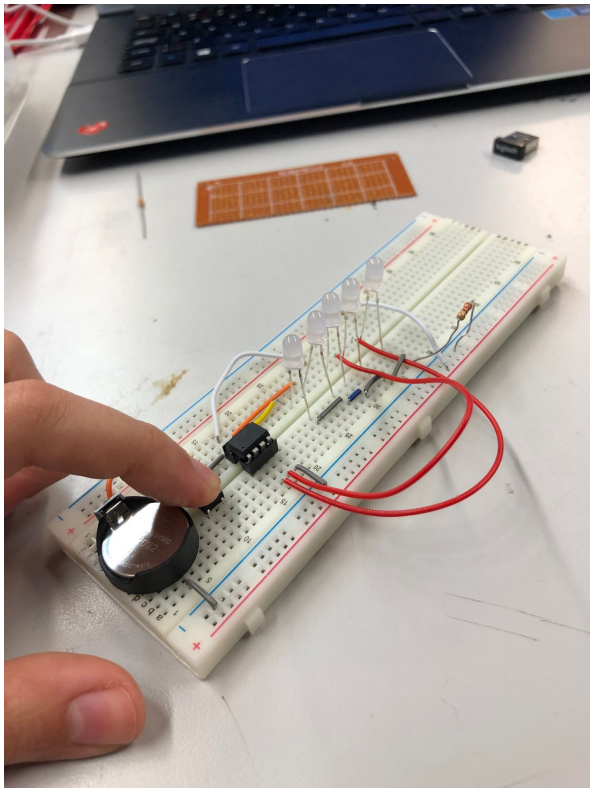
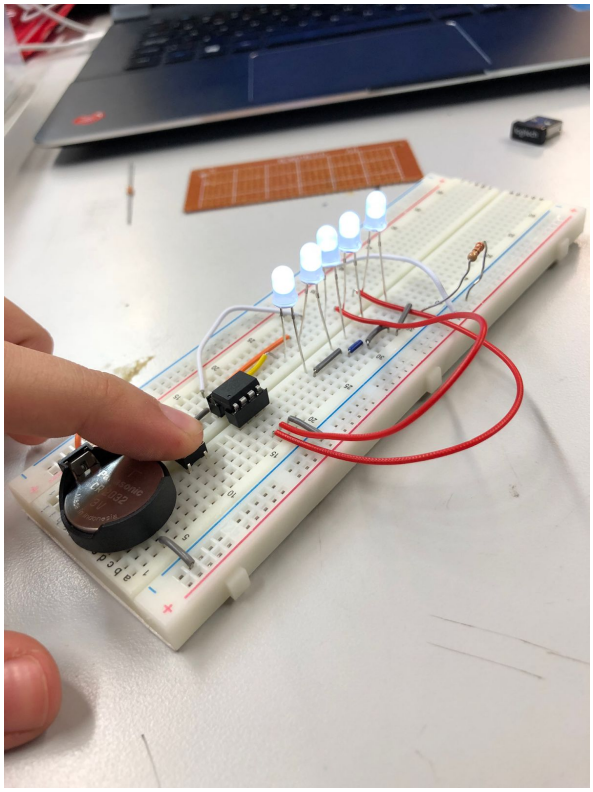


ATtiny 85 in the right direction.

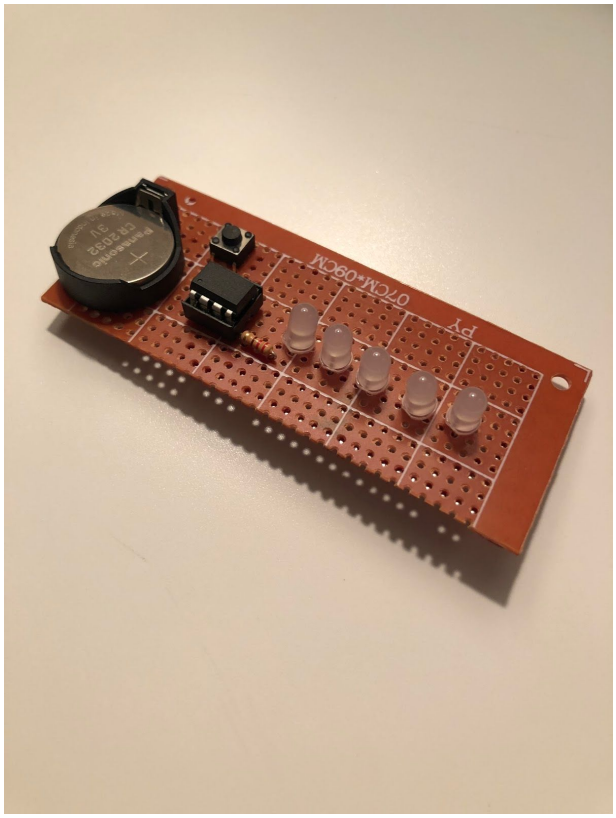
Placed the lights in parallel and grounded them.

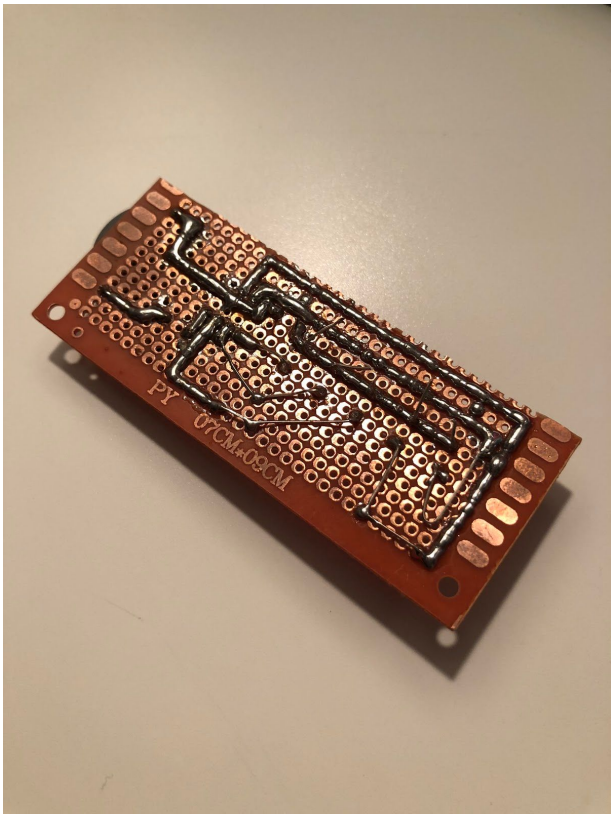


After preparing the Arduino, I placed the ATtiny 85 back in the micro controller to see if it’ll work.

Lights are blinking correctly. Now onto the perforated circuit board.

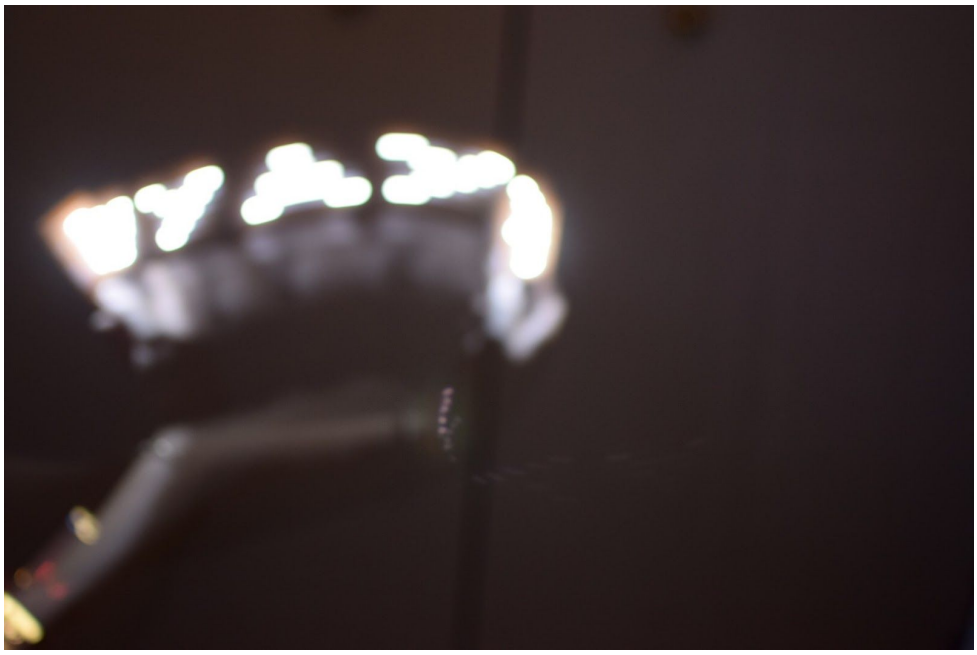


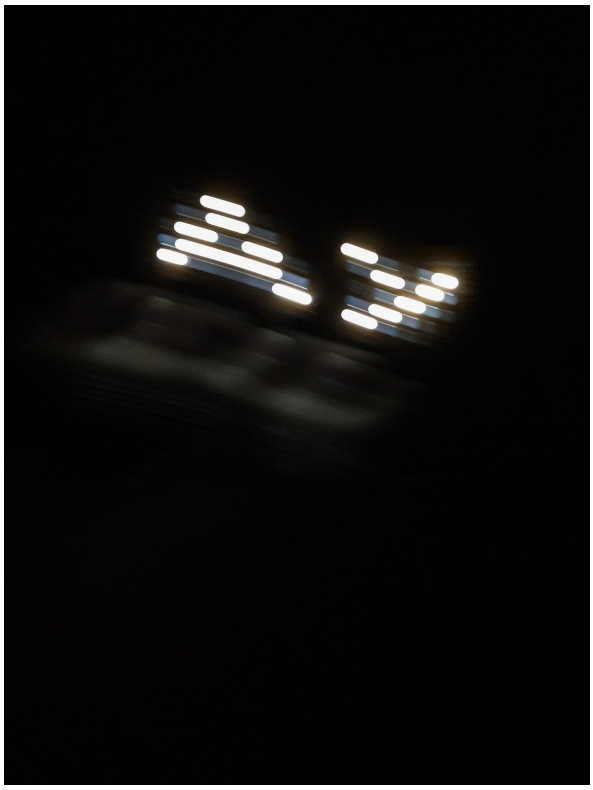


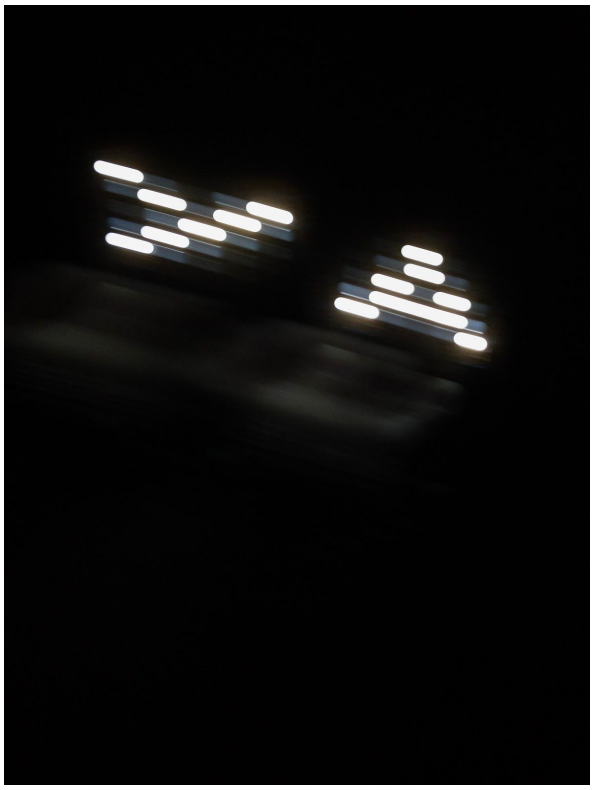
After testing it out with the breadboard first, I created the same design on the perforated circuit board. I soldered everything together and made sure nothing was touching that wasn't supposed to touch and that everything was connected where it should be. Even though the design and placement was good, I had certain issues.

When I finished soldering, I realized that my LEDs weren't lighting up when I was pressing on the button. Soon after, I found out that my button wasn't working properly due to the soldering. The heat might have caused this issue which made one LED light up only even when the button isn't pressed. This meant that the current was still passing through.

We changed the button but the lights weren't lighting up. We used an extra LED and placed it on the other side of the board to see if the LED was going to be lit up by checking out each current. All 5 of them were working except one of them made the other 4 LEDs blink quickly while the 5th one remained unharmed. This meant that current had a problem to which we thought the soldering seemed to damage it a bit. When we redid that current's path, all of the lights were blinking correctly.







Once I saw everything was working, I waved my board in a dark room and used a camera with a low shutter speed in order to take a picture of my work. The lights spelled out “yay” properly.

PART TWO: Perceptron-P

When distinguishing between the two circuits, we can see a difference. In the second one, there are resistors after each LED. This creates less voltage across all 5 LEDs because the current gets split up. While in the first circuit, there's only one resistor but with a higher voltage, hence V= I x R.

In my opinion, the second circuit would be more reliable because there's more control over the heat. With all 5 resistors, the current would generate less heat since it gets split up into 5.

The important area on the circuit is where all 5 LEDs are located because that's the part where the change happens when comparing it with the first circuit. The I would stay the same across each LED since there's a R connected to each LED. Which means there's a small voltage drop compared to the first circuit.

I don't think I would change anything. In my opinion, I believe keeping the second circuit as is with the Perceptron-P should be fine.