

Jessica Filippelli
Cart 360 Final
Git Hub: <https://github.com/jessfillippelli/CART360.git>

The code that help me for button counter was this
<https://www.arduino.cc/en/Tutorial/StateChangeDetection>

The code for the LED light was an example from Arduino Library of example called adafruit_NeoPixel

Link to video 1: <https://www.youtube.com/watch?v=Ng1dVFI61gA>
Link to video 2: <https://www.youtube.com/watch?v=nDd29nWi5Bs>

12 images are at the end!

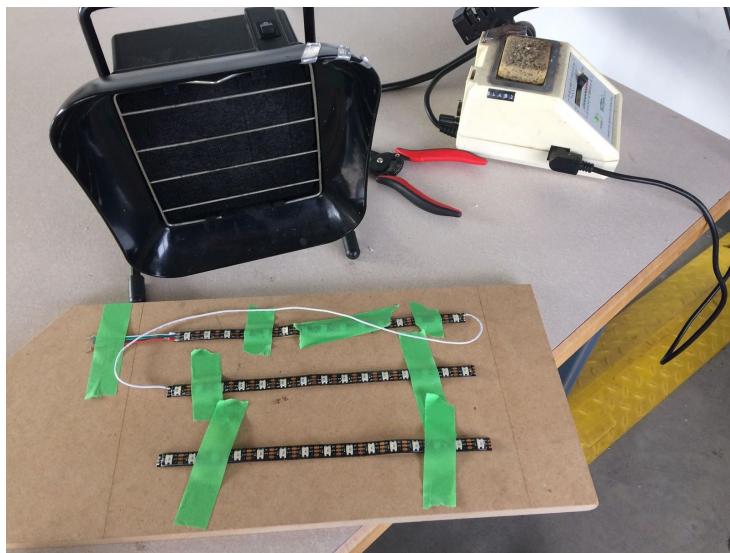
Insights & Future Development

If I had the chance to make future changes I would have liked to add the element where the pillow can somehow feel the way a user is feeling, I think maybe a heart sensor would be good, so it would be somewhat more natural the way the lights turn on. I think this will be good because now a user is telling the pillow how they are feeling and the user helps themselves (even though that was the whole purpose of the object), I do think that the object would have a better interaction effect with sensors that can sense how a person feels. I would like to redo the pillow. I should have invested in maybe a pillow layout template to help me put together the fabric. Because it is quite hard to make a pillow with four sides. I did not get one because i'm too stubborn, because I said it can't be that hard to build a pillow, I was mistaken. It is not hard to make a pillow with two side, however, it was quite hard to make one with four sides and to make it look good and not make a mess of it. I would have liked to have a nicer pattern on the fabric too. I wanted to make the pillow have a ugly doll style, however I think with more time I would have wished I could have made the pillow look more ugly and now that it is done, I would have liked the pillow to not be in the traditional shape of a rectangle or a square. I think sticking to the traditional shape was the safe thing to do. So, if there was any future development I would like to step away from the traditional form and create a funky shape. I would like to also have the pillow be less heavy because with the battery pack, the Arduino and the breadboard it is quite heavy. I would like the circuit to be fully soldered so it would be less heavy. It is heavy enough that it does not stand on its own, it has to be leaning on something. I think it would have also been nice to have LED lights all over the pillow, like on the sides and the back because I think that the message of the pillow that is helping you might be stronger. Because if you really look at the pillow there is not that much light. If there were more LED lights, then there would be more light shining on you, and

it might make the pillow have an even nicer effect. Than there could have been a nicer light show. Right now a user can only have the pillow face you a certain way and have light shine on you. Maybe with light on the back or sides, it will not matter what side the pillow will face you. I also wish that I had a different button, the button is sticking out of the ear because when it was covered it was hard to find it and even when the button is sticking out of the ear, it is on its side. So, I think the button could use some work and rethinking. I also think that where the ear and the sound sensor are, the fabric is not strong enough, that the ear is too heavy. That could use some rethinking as well. I add duct tape to try and hold it in place but it was still falling over. The pillow is also very flimsy at the top where the ear and sound sensor are, I think I should have cut the fabric to make it tighter would have been best. A week before it was due I short circuit my power supply and since then I was afraid to add batteries to my project so ive been using the big power supper you plug into the wall and I presented my project with it, maybe in the future I'll be brave enough to use the batteries. I also wish that where the openings are would be much cleaner, you can see the velcro poking out on some areas. I should have made like this fabric border to hide that. There are also some hot glue spills where you can see hot glue on top of the pillow and

Monday, November 11th

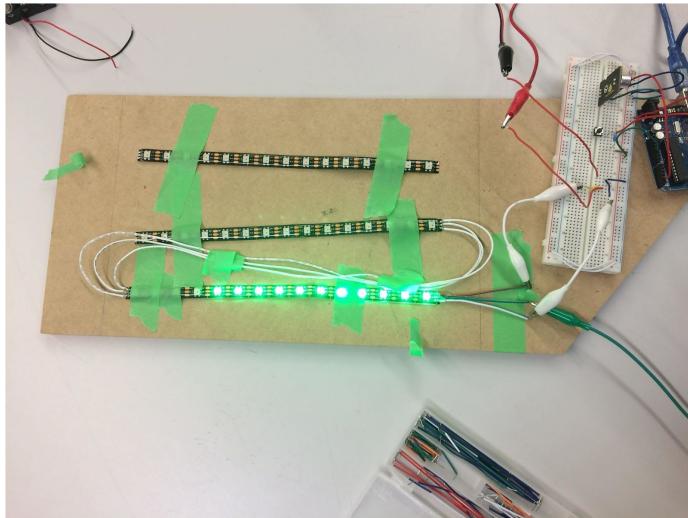
I cut the LED to make three lines of LED lights and I started soldering wires to connect the power, ground and signal to each of the separate LED strip to make one.



Tuesday, November 12th

Today I fixed my code for the sunset interaction of the project. I then tested that code with my LEDs I soldered on November 11th. I thought something was wrong, weather it was the

code, my soldering or the way the circuit was put together, but it was just because my batteries were dead. I was using the cheap Dollarama batteries, I need to get better ones.



Wednesday, November 13th

I did some research on how to build a pillow, because I did not like the way my prototype pillow looked like. I am leading towards a style like this:

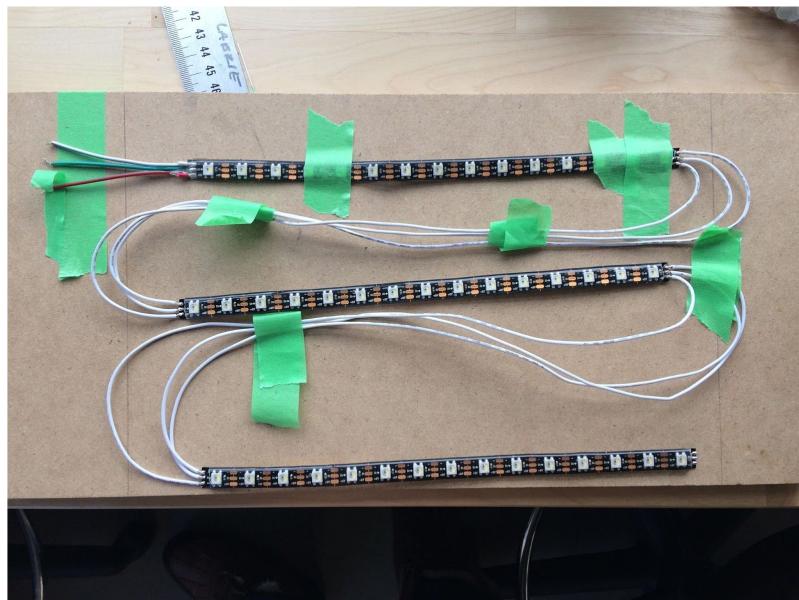


I found this youtube tutorial to see how a pillow is made.

<https://www.youtube.com/watch?v=6-QV3kA8WIM>

Thursday, November 14th

Today I finished soldering the wires of the LEDs.



Friday, November 15th

Today, I put together the second prototype on how I wanted my final object to look like.



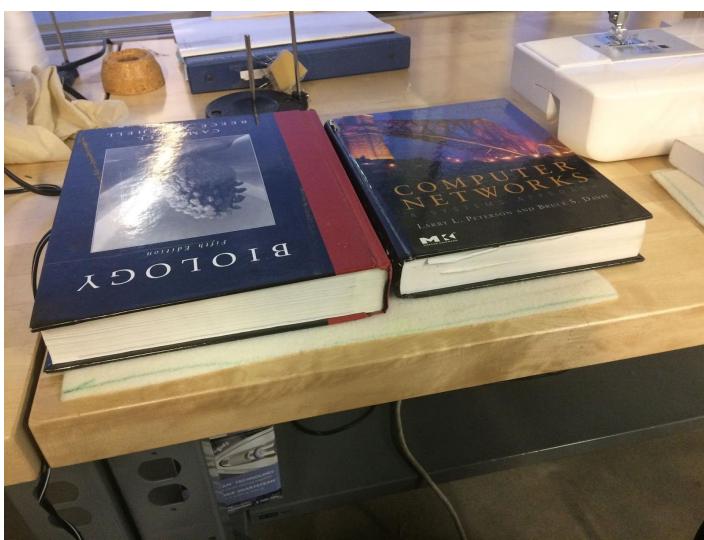
This is the front view. It is made out of a pillowcase, where the lights will shine through.



This is the back of the pillow as of November 15th.

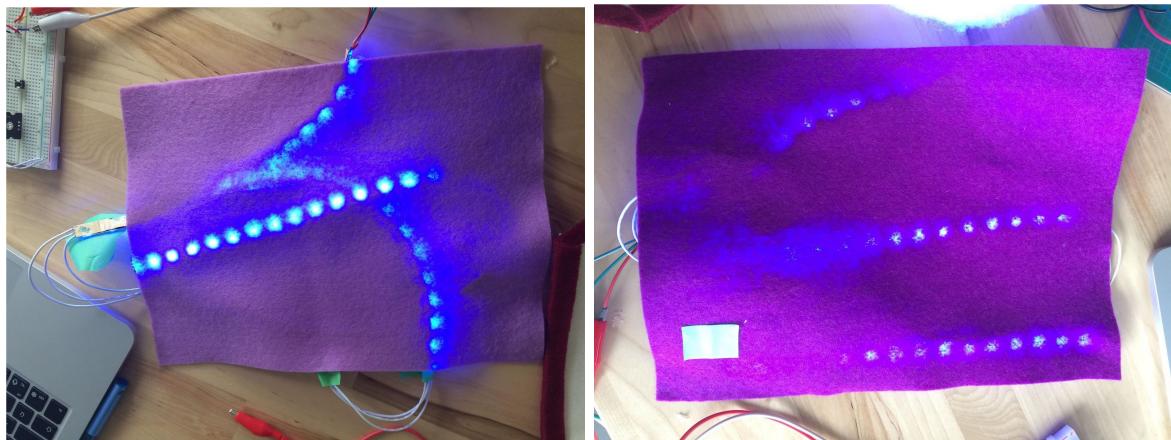


I also cut out the semi soft surface that I will have my lights, to the size I want. I am using some books as weights to flatten it.



Monday, November 18th

Today, I tested if you can see the light through the fabric and to see which fabric makes the lights look the best.

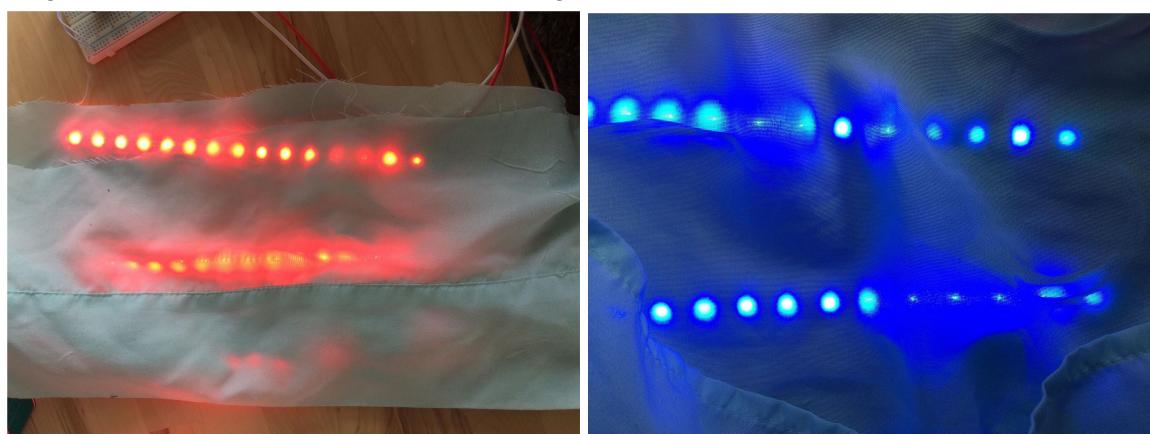


Light and dark purple fabric with blue light

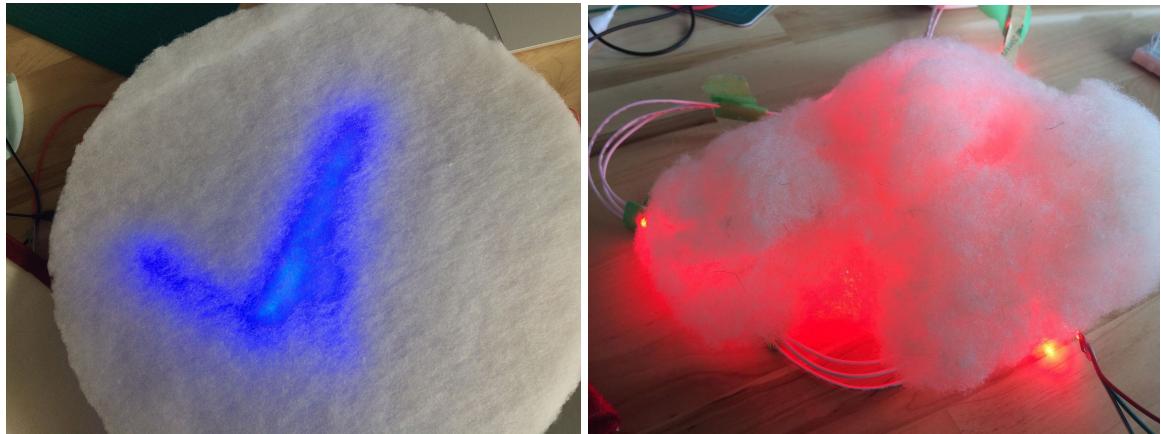


Above is Light Blue fabric with blue light

A light blue pillow case with red and blue light.



I also tested to see how the light would shine through some puffing white cotton stuffing.



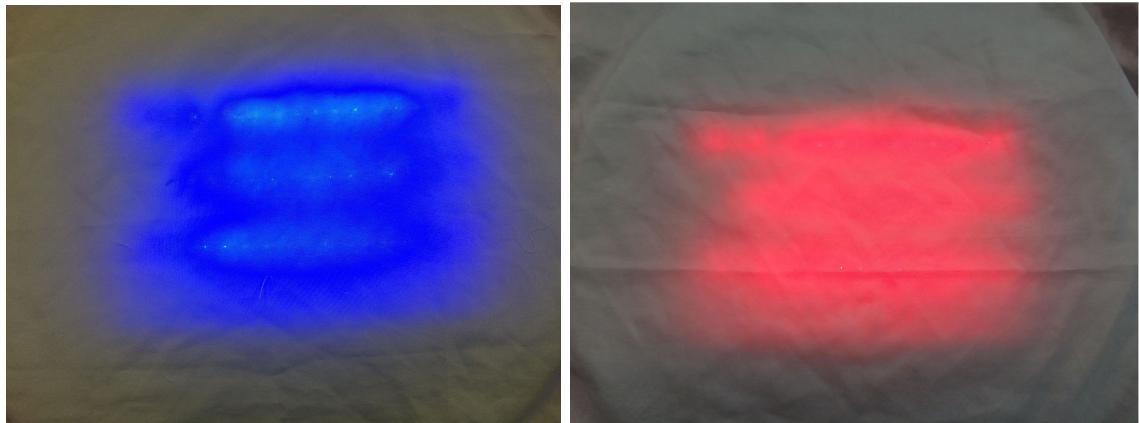
I then started on the 3rd prototype on what the pillow will look like. This is the back and the ear where the button will be on.



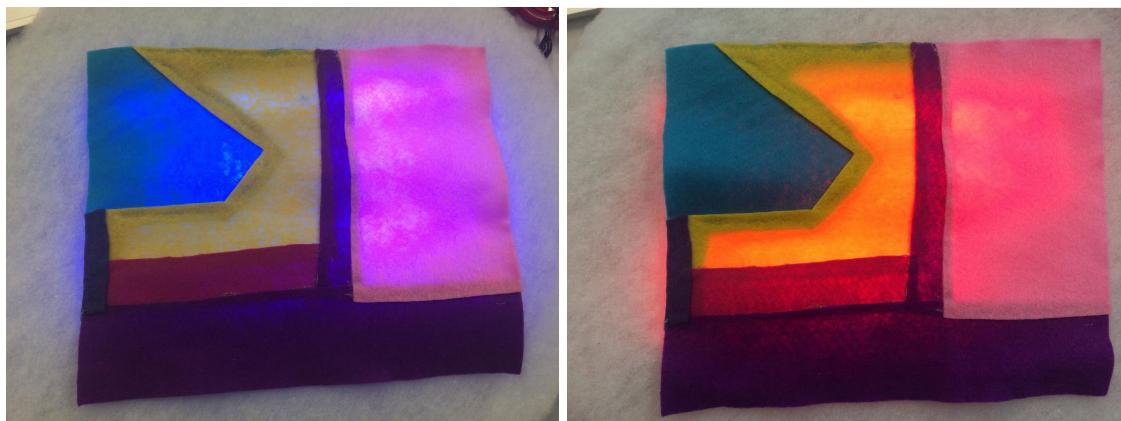
Tuesday, November 19th

Today, I tested to see how the blue and red light will look like with the puffing white cotton stuffing and the fabric on top of it.

This is the pillowcase and the puffing white cotton stuffing



This is the art craft fabric and the puffing white cotton stuffing.



I then worked on the pillow. I made the bottom and the left side.



I also made the loop that someone can hold the pillow with.



Wednesday, November 20th

Today I worked on the pillow. I hot glued the front of the pillow to the back and bottom and I glued the other side to the rest of the pillow.



The front



This side that is connected to the back with velcro.

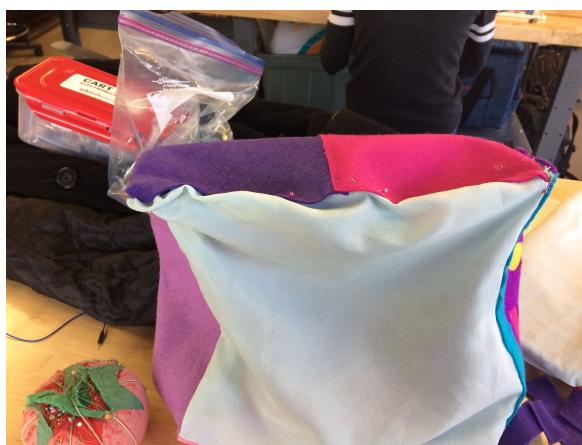


Friday, November 22nd

Today I soldered wires to my button so I can have the button in one of the corners of the pillow which is on the ear and have my circuit inside of the pillow.



I then finished putting together the pillow. This is how the pillow looks with the top glued to the rest of the pillow. There are some pins because it is not fully glued because I might put some velcro instead of fully gluing it.



This is where I want the ear to be.



The last thing I did was glue the loop holder to one of the sides, so I person can hold it.



Monday, November 25th

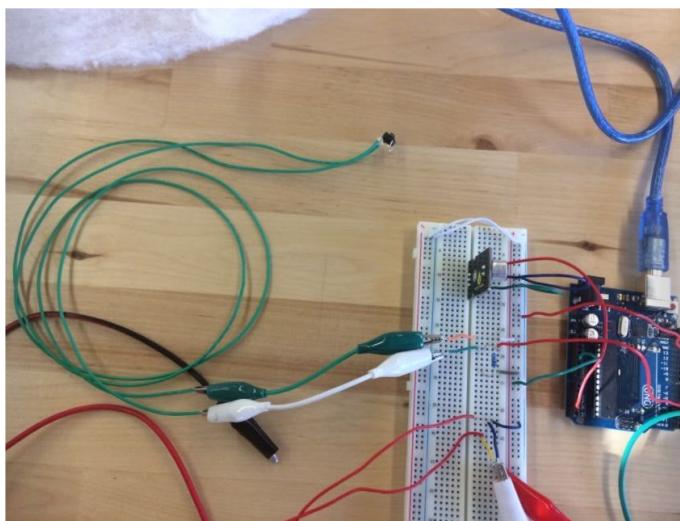
Today I added velcro to the rest of the top. But I only did half, the rest of it is put together by a hot glue. It is half and half because I think it will help to put the circuit and the puffing white cotton stuffing in the pillow. I also cut the puffing white cotton stuffing to the size of the pillow.



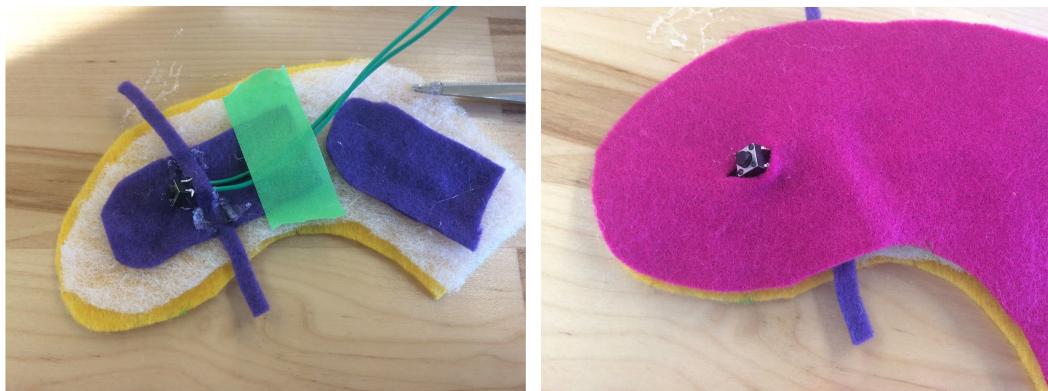
This is the pillow standing up with the puffing white cotton stuffing inside it.



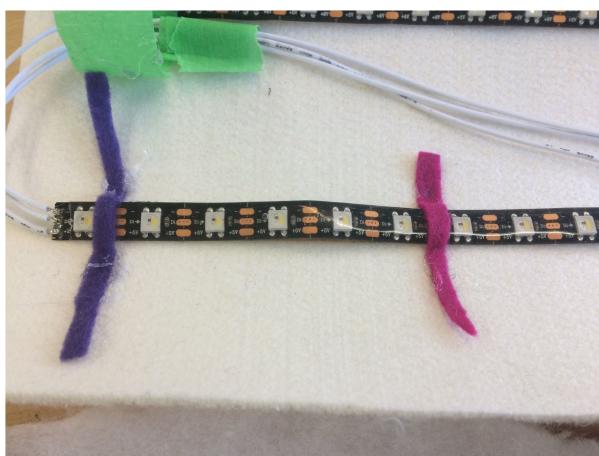
I also tested the lights with the button that I soldered.



I started putting together the ear that will hold the button. I put some puffing white cotton stuffing inside it and some fabric under the button because the button would get stuck in the cotton. There is a piece of fabric to keep the button in place.

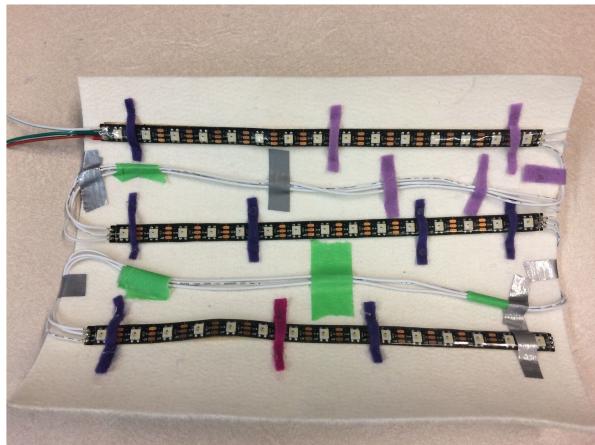


The last thing I did was I started making loops around my lights so they stick to the board that is holding them. I just hot glue with some leftover fabric.



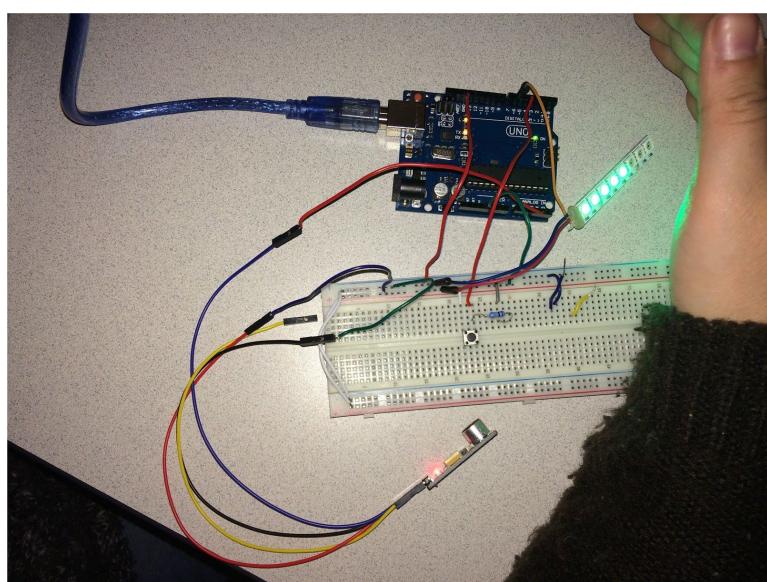
Tuesday, November 26th

Today all I did was sew my ear together and finish my loops.

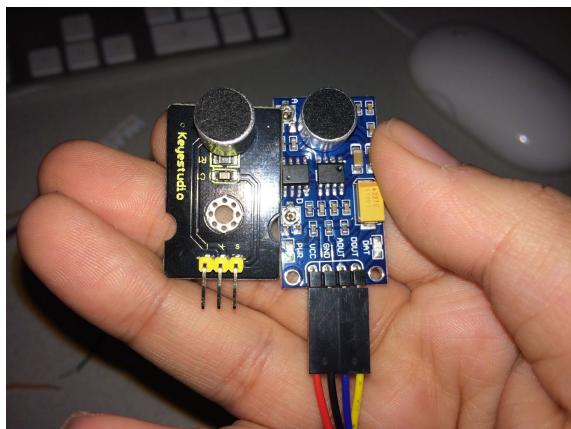


Wednesday, November 27th

Today I switched the sound sensor I borrowed from the teacher with the one that I bought and I tested it with the mini Neopixel.



Mine is on the right.



I also finished sewing the ear.



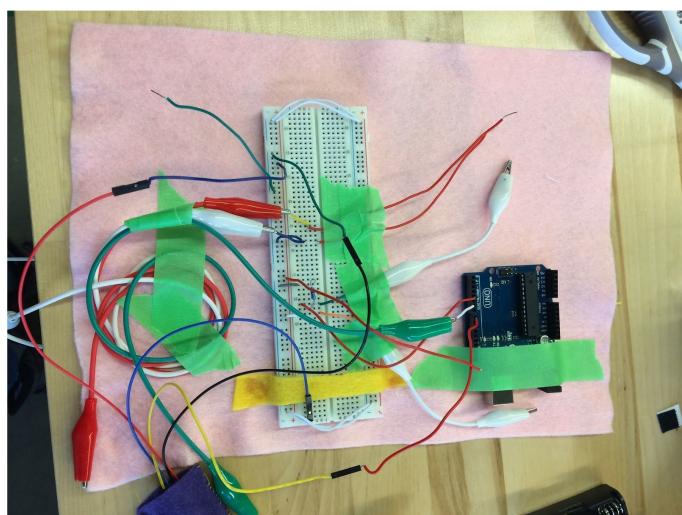
I sewed it with green because I think it is ugly and that is the look I am going with. I also made a little sound sensor pocket because I want the sound sensor to stick out like a tail so it will be easy to talk to.



Friday, November 29th

There was a little trouble with sound sensor when I tested the sensor with the lights. So a counterMicro was created to help.

I was feeling quite brave and decided to make a circuit pouch to put all the components inside. My thought process was that I feel that this pouch will be helpful to easily slide the components in and out of the pillow, and it is. There will be a cover to the pouch of course but there is no photo of it. I hot glued the bottom and on the sides there is velcro and the top is open so I can easily go inside the pouch if I need to and I need a way to have the wires poke out so I can connect them to the light and the ear and sound sensor etc.



I also short circuit my barriers during the pouch making - good thing they were not plugged into anything. I put the barriers in side the power pack but I didn't see that the power and ground wires were touching so I have to cut one of my wires shorter than the other of my power pack so i don't short circuit the barriers.

This is how the pouch looks like inside the pillow.



This is how the button and the sound sensor will look like. I do have to make the sound sensor cover longer to cover the wires.



December 3rd 2019

Today I put together my pillow and this is what it will look like. I also made the sound senor cover longer so it covers the wires.



This is what the pillow looks like from the back.



December 4th 2019

Today I have come to the conclusion that my ear that I wanted to be straight up is going to flop down and that's the way it is going to be. I've tried the green tape and masking tape hot glue and velcro nothing was working. The only thing I did not try was to sew it because sewing is hard to easily remove when you want to go inside pillow to fix something.



The light show from the pillow.

