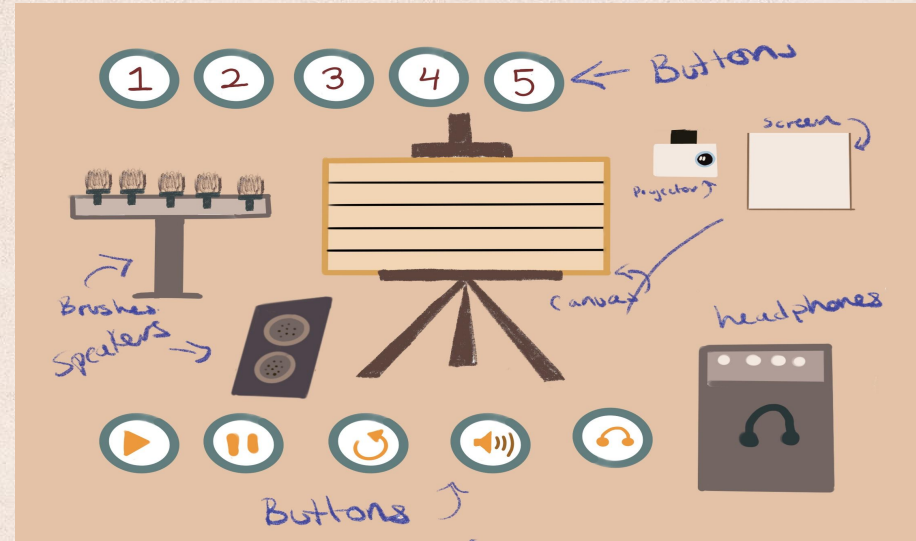# Paint Music

By: Karla Ramirez

What is Paint Music??

Paint music is a small interactive installation idea that I came up with during my Production Practices class. It's an Idea that I had with me for the past 2 years. As I started taking more physical computation classes I realized I can make that idea come to life.

I wanted to combine digital paint and music for users to create anything they desire regardless of their skill.

12/15/2020 Old Sketch
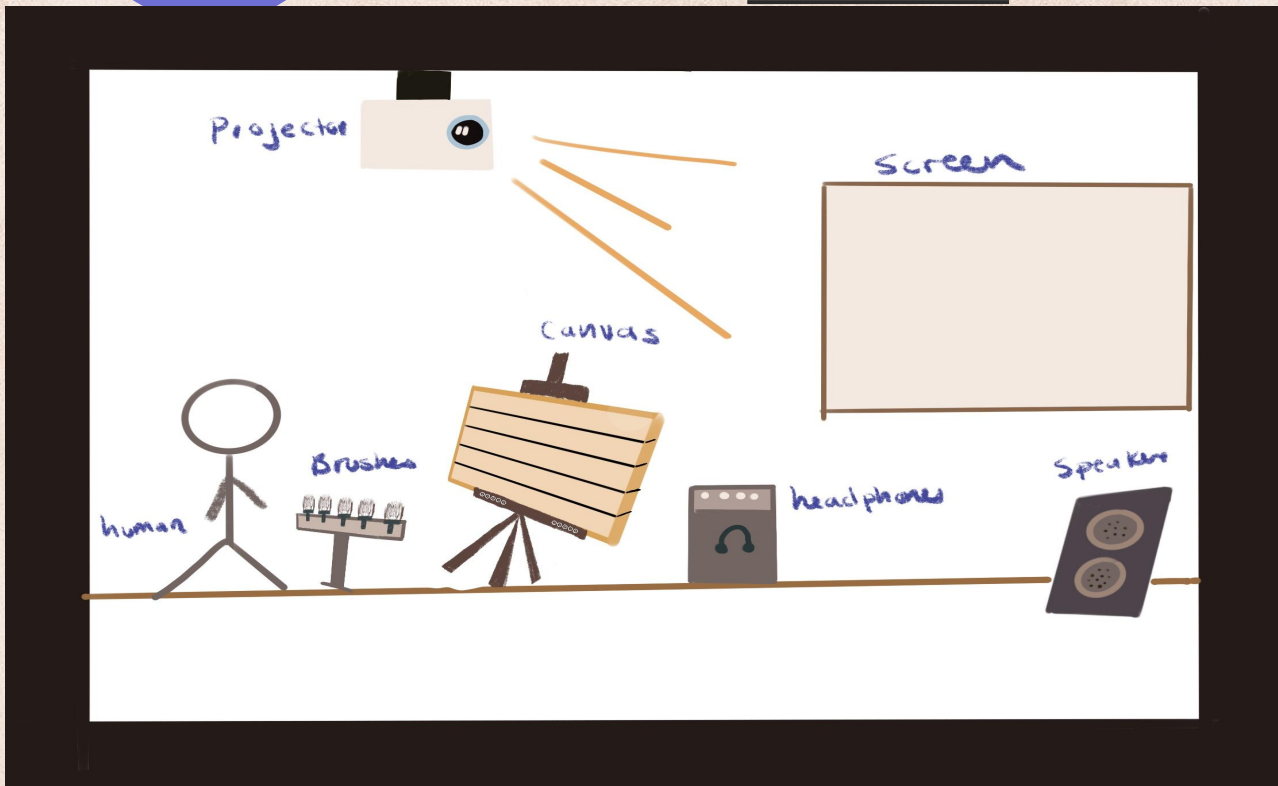
12/15/2020 Old Sketch

Process

Prototyping

Originally I wanted something physical. I wanted to create an interactive canvas, where I can design and build it from scratch.
I talked to my TA and he suggested to create a Capacitive Touch Sensing Grid. There was a tutorial that I followed. All I had to change some coding from the arduino to the touch board because theirs were different.

Materials

TouchBoard
Copper Tape
Wires
Cardstock

Cost = 0

Capacitive Touch Sensing Grid Tutorial
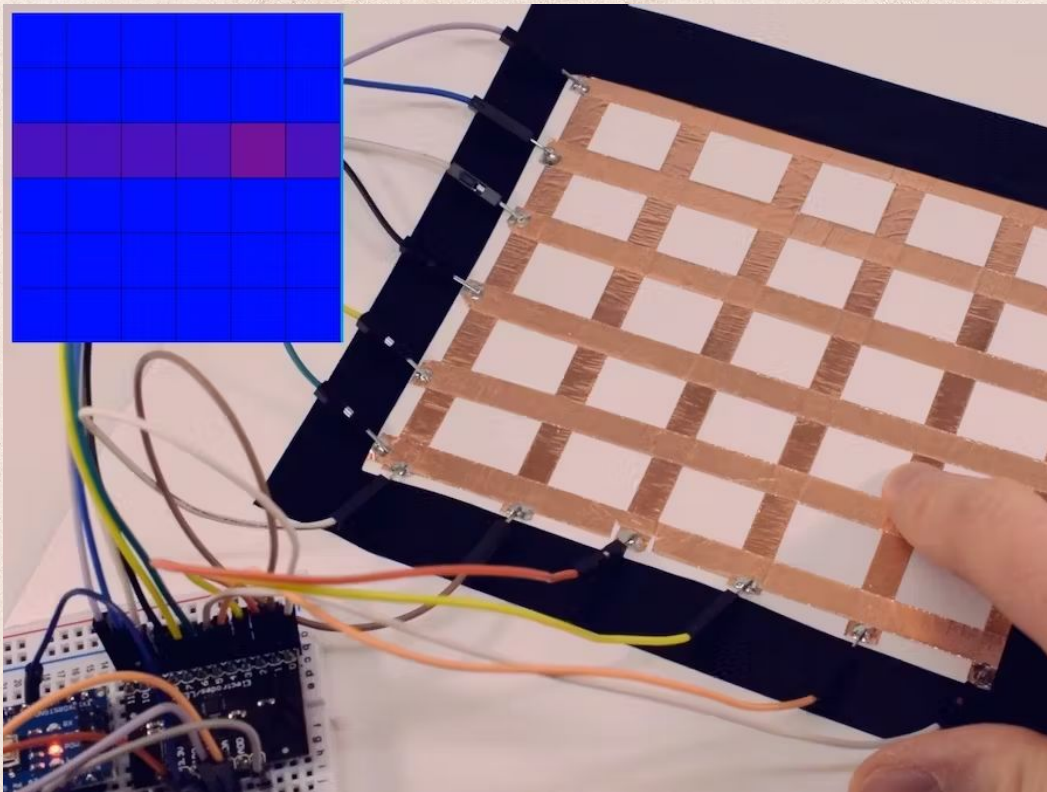
Prototyping
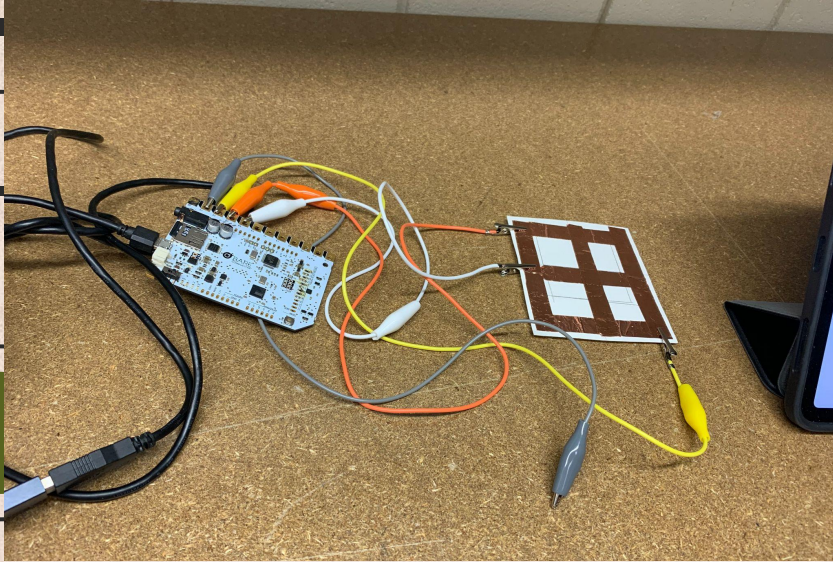
The beginning stages of prototyping.
I struggled with some of the coding and
Sometimes the board would not sense anything.
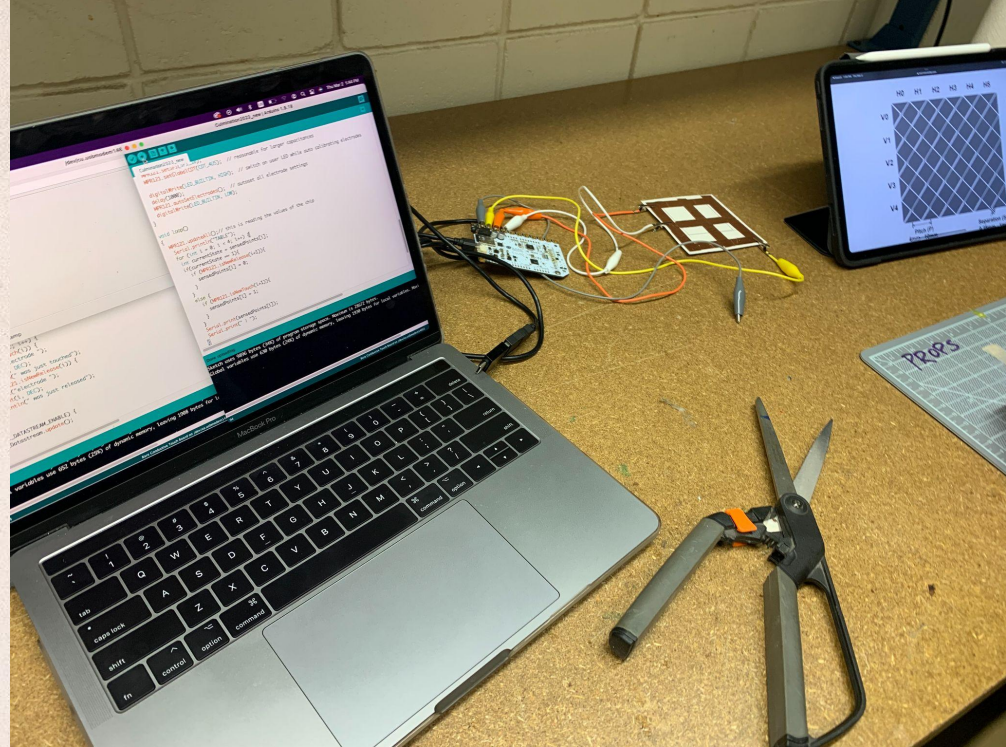
Downside

Unfortunately I couldn't recreate the board from scratch. As we tested the prototype, we realized the problem was the copper tape. The problem with it was if we originally designed it as a grid, there would've been too much contact of the tape and the serial monitor wouldn't have a way to know which part of the grid is detected if there was too much data being received. Also the resolution wouldn't be the best either.

Possible solution would be to create a flower design, but I would have to precisely cut the copper tape as shown on the right. That would've taken too much time.
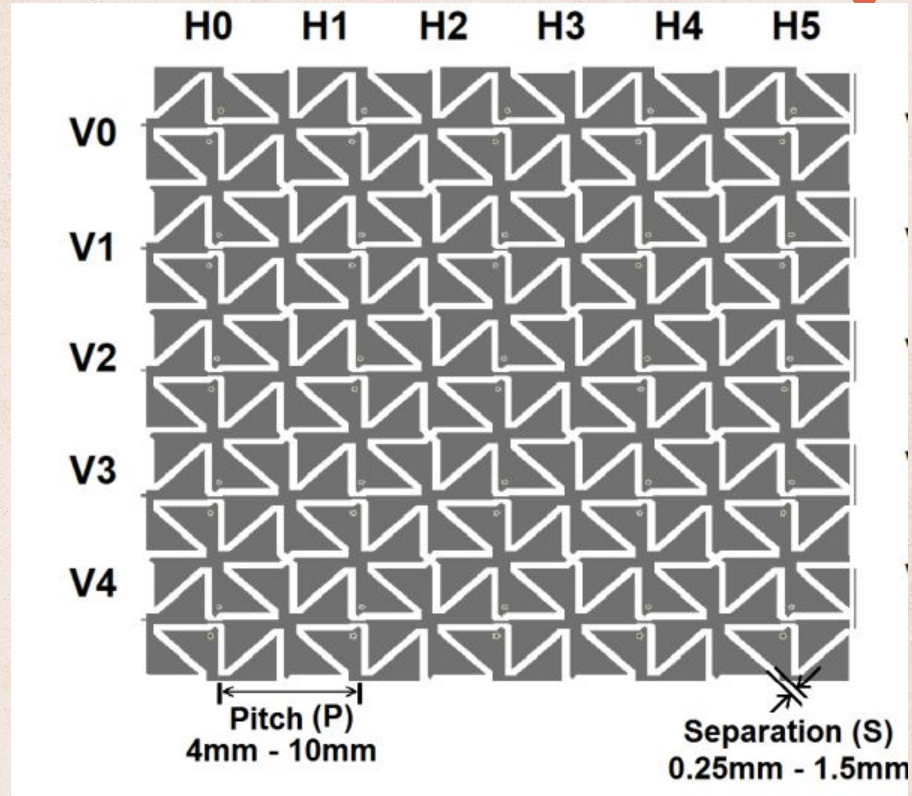
Flower design

What now??

As we realized the upcoming complications we had to come up with something different and efficient.

So my T.A gave me a couple ideas.

Possible Solutions

1. Go with a flower design, so the grid can be easier to detect the brush strokes.
2. Download an app called touchosc -that has a lot of cool tools, like the midi and other items.

Final Ideation

Solution

Since building the project from scratch wasn't the best idea I decided to download TouchOsc.

Which is a modular control surface toolkit for designing and constructing custom controllers that can be used on a multitude of operating systems and devices.

Materials

Touch Osc - $10

Stylus - $25

Cost = 35

Connecting Touch OSC to Processing

Connecting Touch OSC to Processing

Connections   Done

✓ Connection 1	UDP ▼	⌃

Host: `192.168.0.188`   Browse

Send Port: `12000`

Receive Port: [   ] ⓘ

☐ Connection 2	UDP ▼	⌃

Host: `10.2.198.145`   Browse

Send Port: `12000`

Receive Port: [   ] ⓘ
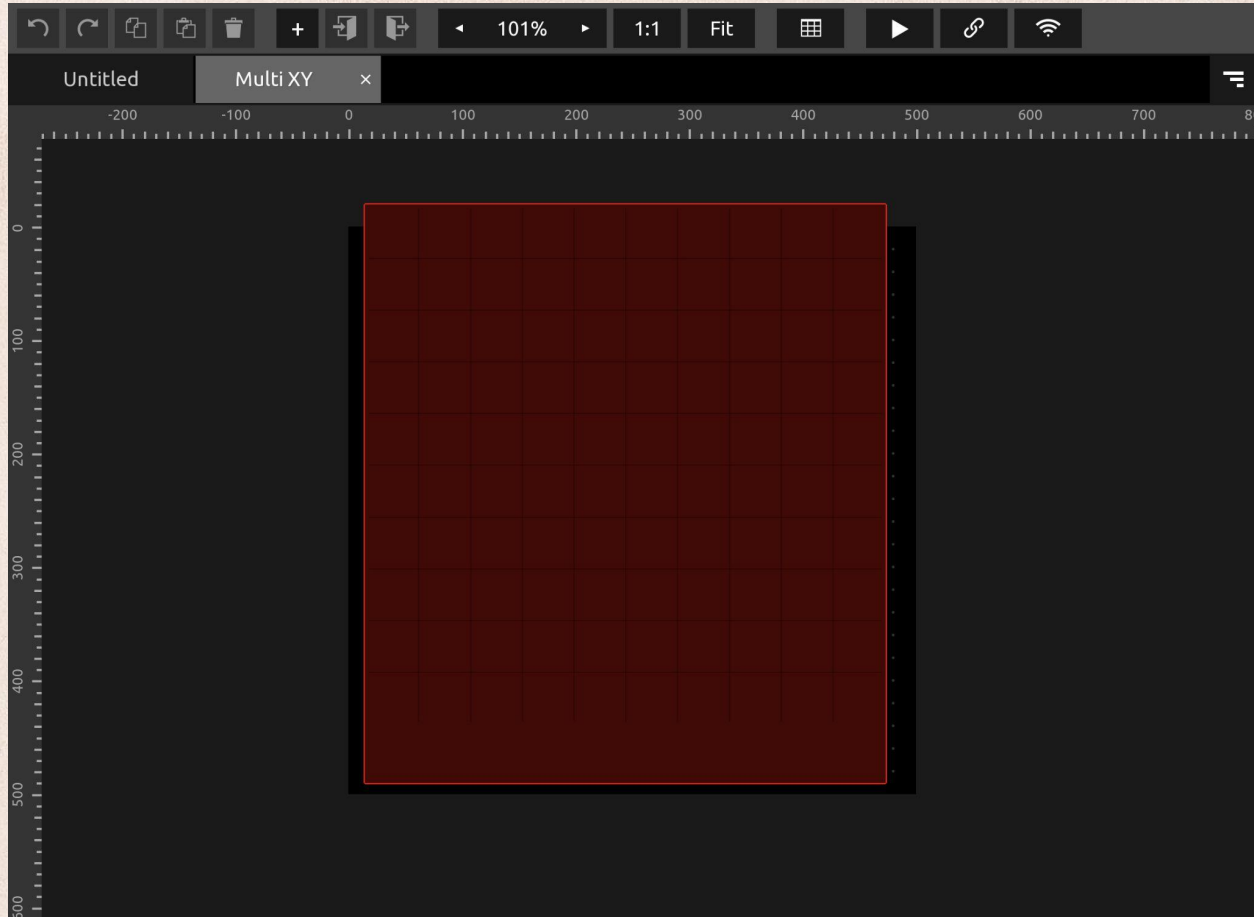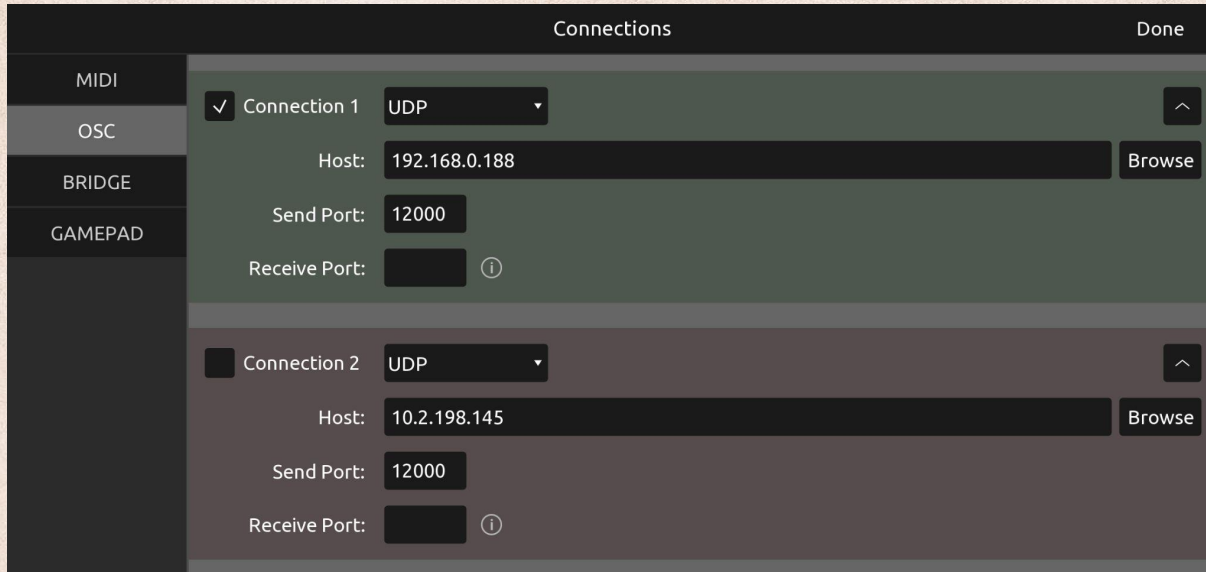
- Used UDP connection
- Host IP address as the destination to send messages
- Send port to send messages

```
265.71573, 279.9946, 265.71573, 279.9946
265.71573, 279.9946, 265.71573, 279.9946
265.71573, 279.9946, 265.71573, 279.9946
265.71573, 279.9946, 265.71573, 279.9946
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265.71573, 279.9946, 265.71573, 279.9946
265.71573, 279.9946, 265.71573, 279.9946
265.71573, 279.9946, 265.71573, 279.9946
```

>_ Console   ⚠ Errors

Processing

Processing is a digital sketchbook where you can create visuals and sounds with code.

Paint Music

by: Karla Ramirez

Paint Music

is a small installation that combines digital painting and music. Using Processing and Touch Osc creates visual patterns or designs that would trigger different musical notes or sounds through the MIDI controllers. There are a few components that trigger this experience, an Ipad, and a digital paintbrush stylus. Paint Music is supposed to encourage people to paint and create what they desire regardless of their skill.

Images

HOW TO USE

1. Grab the Paint Brush

2. Paint on the Ipad

3. Key Press numbers 1-3 for different Brushes

4. KeyPress "r" to reset your canvas.

5. Have fun painting :)

Brushes

I created the brushes through processing. I made a line brush, ellipse and flower brush.

```
void brush4(){


    if(true){
        B3 = loadImage("p1.png");

    print(oscX);
    print(", ");
    print(oscY);
    print(", ");
    print(pOscX);
    print(", ");
    println(pOscY);
    //fill(r,g,b,a);
    // noStroke();
    r = random(255);
    g = random(255);
    b = random(255);
    a = random(255);
     tint(r, g, b);
    if(oscX != 0 || oscY != 0 ){
      //rect(oscX, oscY, pOscX/3, pOscY/3);
       image(B3,oscX, oscY, pOscX/3, pOscY/3);
    }
    if(pOscX != oscX)
    pOscX = oscX;
    if(pOscY != oscY)
```

```
void brush(){
  if(true){
    print(oscX);
    print(", ");
    print(oscY);
    print(", ");
    print(pOscX);
    print(", ");
    println(pOscY);
    fill(color(15));
    strokeWeight(20);
    stroke(20);
    if(oscX != 0 || oscY != 0 ){ // cant draw if pos is at 0,0
      line(oscX, oscY, pOscX, pOscY);
    }

    if(pOscX != oscX)
    pOscX = oscX;
    if(pOscY != oscY)
    pOscY = oscY;
  }
  music();
}

void brush2(){
```

PaintMusic | Processing 4.2

PaintMusic

PaintMu

Libraries

oscP5

oscP5 is a library written by <u>Andreas Schlegel</u> for the programming environment <u>processing</u>. Last update, 12/23/2012.
oscP5 is an OSC implementation for the programming environment <u>processing</u>.

SoundCipher

SoundCipher provides an easy way to create music in the <u>Processing</u> development environment. With the SoundCipher library added to Processing you can write software programs that make music to go along with your graphics and you can add sounds to enhance your Processing animations or games.

DEMO

Challenges

Original Idea

During the beginning I wouldn't have the materials I need for the first prototype. Second, I had to give up creating an interactive canvas. Third, I had to figure out the code from the tutorial and change it to the touch board file.

Code

I'm not the best coder, so I had to ask a lot of help.. But I managed to figure out what I needed by looking back to old projects I've made as a reference and change it .

Ways to Improve

UI/UX

I would improve the experience by adding a record button or screenshot button, for them to save their work. Also clarify anything that confuses them

More Features

I would try to add a record button to save the user work.

Music

I would enhance the music experience by allowing the user to use two brushes simultaneously to make different beats.

Add More Brushes

I would create more Brushes and make the brushes not expand as the sound increases.

THANK YOU

Josh Corn
Allison Berkoy
Bian & Chris

References

oscP5 - https://sojamo.de/libraries/oscp5/
SoundCipher - http://explodingart.com/soundcipher/
Capacitive Grid - https://www.hackster.io/gatoninja236/capacitive-touch-sensing-grid-f98144
TouchBoard - https://www.bareconductive.com/products/touch-board
TouchOSC -   https://hexler.net/touchosc/manual/getting-started-midi
Stylus-
https://www.amazon.com/dp/B06WD4TPNN?ref_=cm_sw_r_apin_dp_E6J39ACQ8DAR4V0CA8TY

Repo - https://github.com/Karlar14/PaintMusic