

The background is a light beige, textured surface. It is decorated with various abstract geometric shapes: a thick black horizontal bar at the top left; a red circle with a black downward-pointing triangle at its bottom center at the top center; a blue triangle at the top right; a yellow circle on the left side; a red circle with a black downward-pointing triangle at its bottom center on the left side; a black triangle at the bottom left; a blue circle with a green dot on its left side at the bottom center; a red square at the bottom right containing a yellow circle and two yellow squares; and several other black lines and shapes scattered throughout.

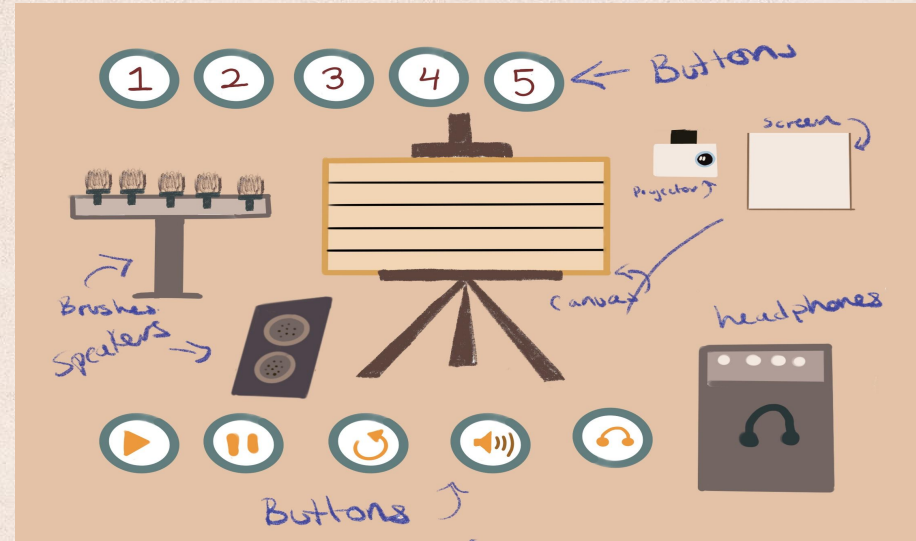
Paint Music

By: Karla Ramirez

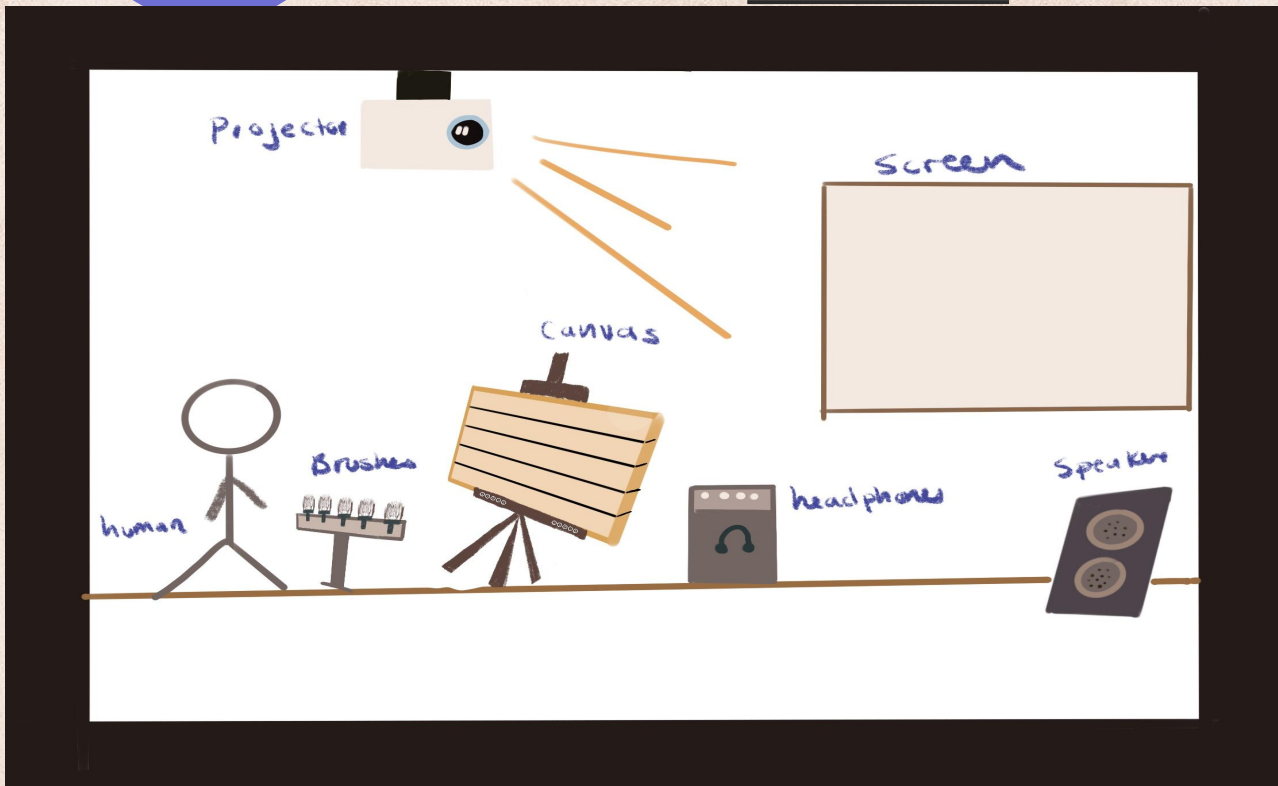
What is Paint Music??

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

The background is a dark charcoal grey. It is decorated with various abstract geometric elements: a green circle outline in the top left; a white horizontal bar with a thin white line below it in the top left; a small yellow circle in the middle left; a green square in the middle left; a large orange circle in the bottom left containing a yellow square and a black rectangle; a yellow circle outline with a blue dot on its top edge in the bottom center; a blue square in the top right containing a green square, a green rectangle, and a red circle; a yellow triangle pointing down and to the right in the middle right; a white triangle pointing down and to the right in the middle right; a white horizontal bar with three thin white lines below it in the middle right; and a white horizontal bar in the bottom right.




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.

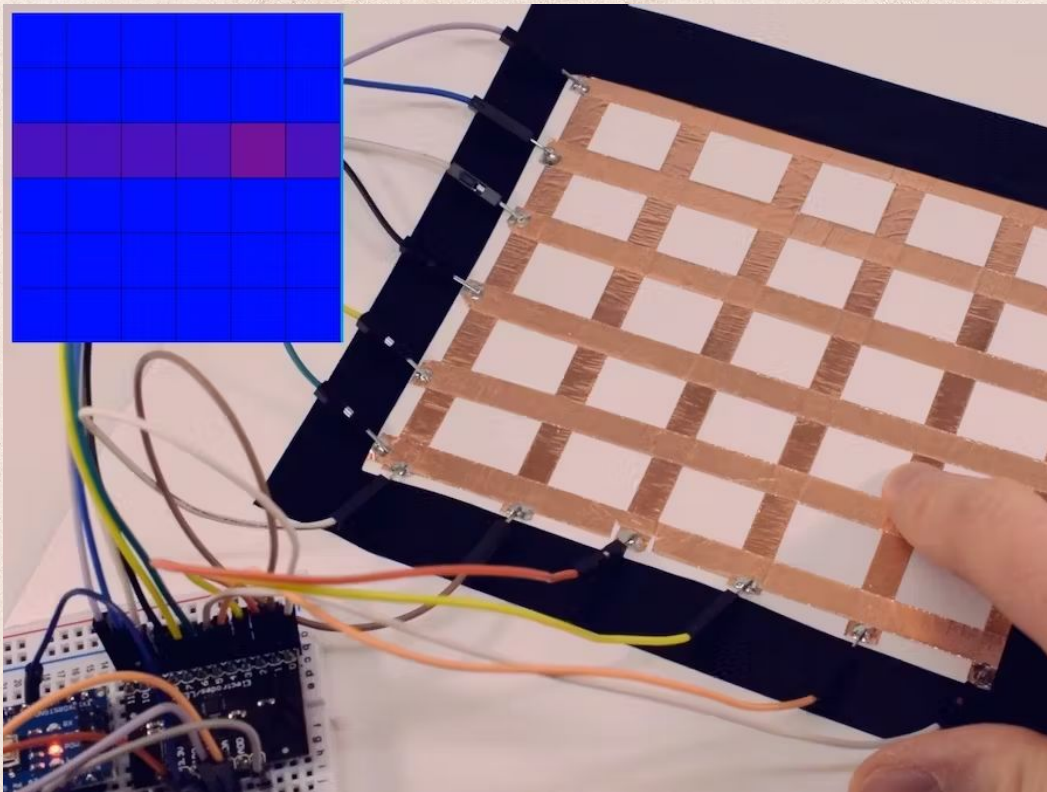


Materials

TouchBoard
Copper Tape
Wires
Cardstock

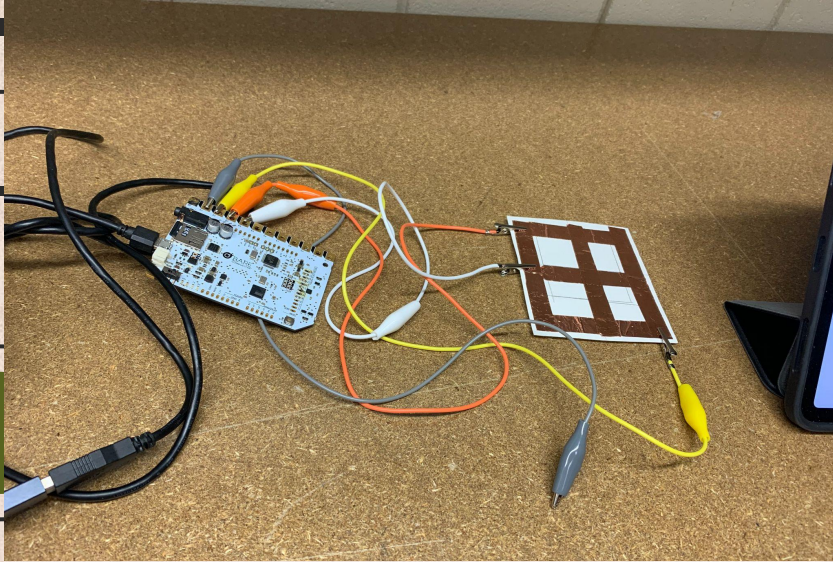
Cost = 0

Capacitive Touch Sensing Grid Tutorial

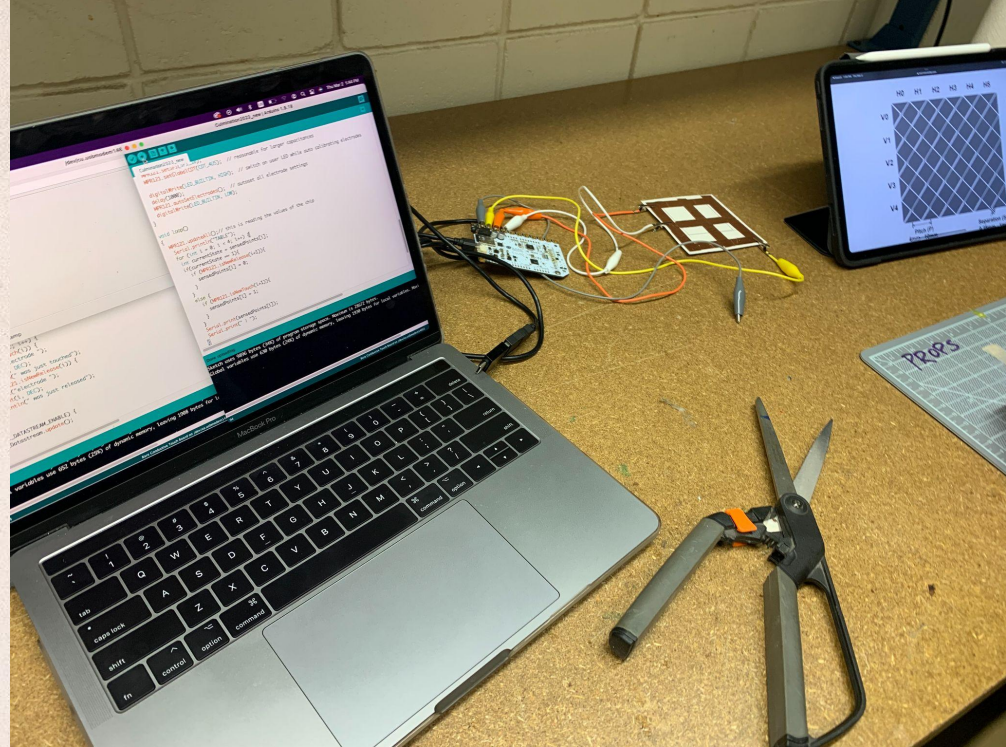


<https://www.hackster.io/gatoninja236/capacitive-touch-sensing-grid-f98144>

Prototyping



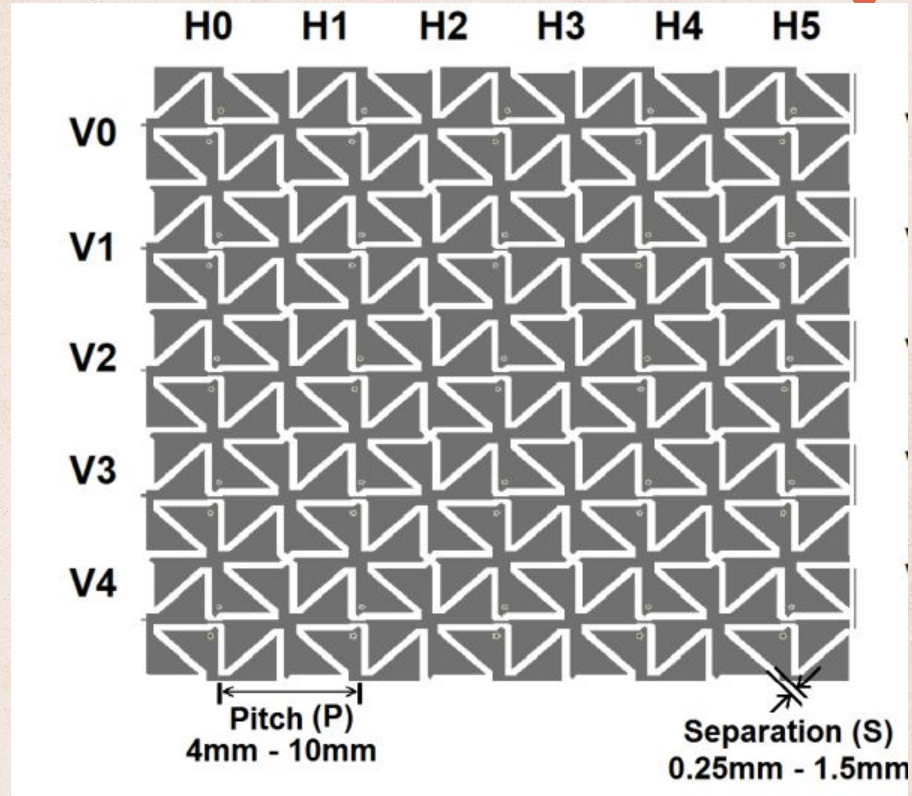
The beginning stages of prototyping. I struggled with some of the coding and Sometimes the board would not sense anything.



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

The background is a dark charcoal grey with various abstract geometric elements. In the top left, there is a green circle and a white horizontal bar. In the top right, there are two white vertical bars, a blue square containing a red circle and two green squares, and a yellow triangle with a white arrowhead pointing towards the center. On the left side, there is a small yellow circle and a green square. At the bottom left, there is a large red circle containing a yellow square and a black rectangle. At the bottom center, there is a yellow circle with a blue dot on its circumference. On the right side, there are three white horizontal bars and a white horizontal bar at the bottom.

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

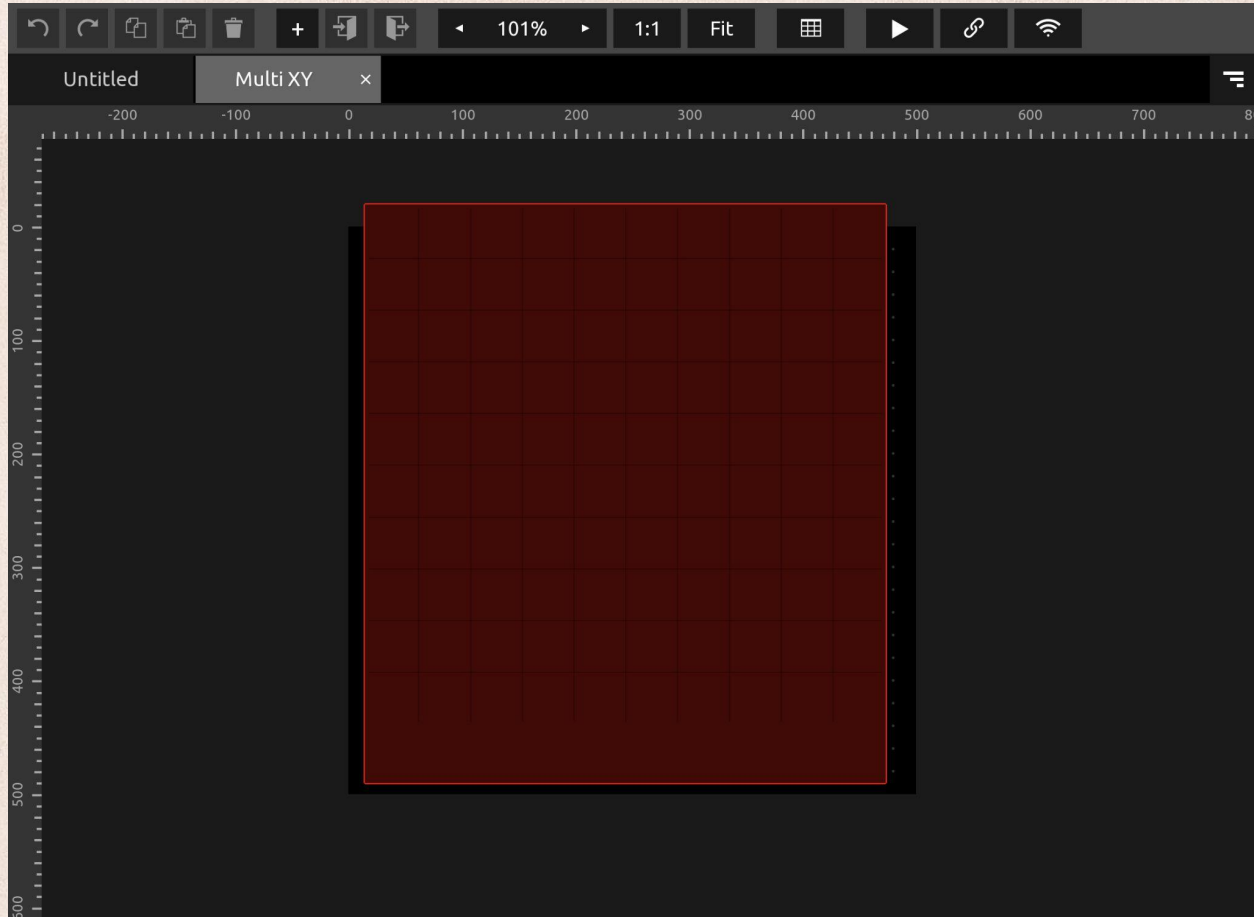
Touch Osc - \$10

Stylus - \$25

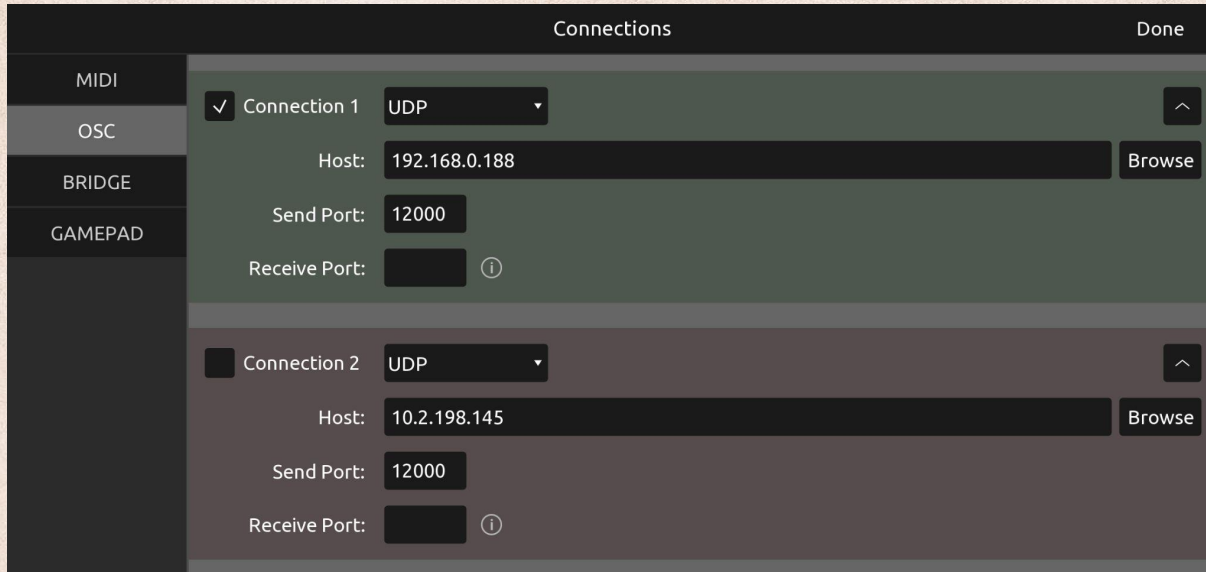
Cost = 35



Connecting Touch OSC to Processing



Connecting Touch OSC to Processing



- 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
```



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.

```
PaintMusic
void brush4(){
  if(true){
    B3 = loadImage("p1.png");
    print(oscX);
    print(" ");
    print(oscY);
    print(" ");
    print(p0scX);
    print(" ");
    println(p0scY);
    //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, p0scX/3, p0scY/3);
      image(B3,oscX, oscY, p0scX/3, p0scY/3);
    }
    if(p0scX != oscX)
    p0scX = oscX;
    if(p0scY != oscY)
```

```
PaintMusic | Processing 4.2
PaintMusic
193
194 void brush(){
195   if(true){
196     print(oscX);
197     print(" ");
198     print(oscY);
199     print(" ");
200     print(p0scX);
201     print(" ");
202     println(p0scY);
203     fill(color(15));
204     strokeWeight(20);
205     stroke(20);
206     if(oscX != 0 || oscY != 0){ // cant draw if pos is at 0,0
207       line(oscX, oscY, p0scX, p0scY);
208     }
209
210     if(p0scX != oscX)
211     p0scX = oscX;
212     if(p0scY != oscY)
213     p0scY = oscY;
214   }
215   music();
216 }
217
218
219 void brush2(){
```




Libraries

oscP5

oscP5 is a library written by Andreas Schlegel for the programming environment processing. Last update, 12/23/2012.

oscP5 is an OSC implementation for the programming environment processing.

SoundCipher

SoundCipher provides an easy way to create music in the Processing 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_E6J39ACQ8DAR4VOCA8TY

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