

Programming for Interaction

Final Assignment Presentation

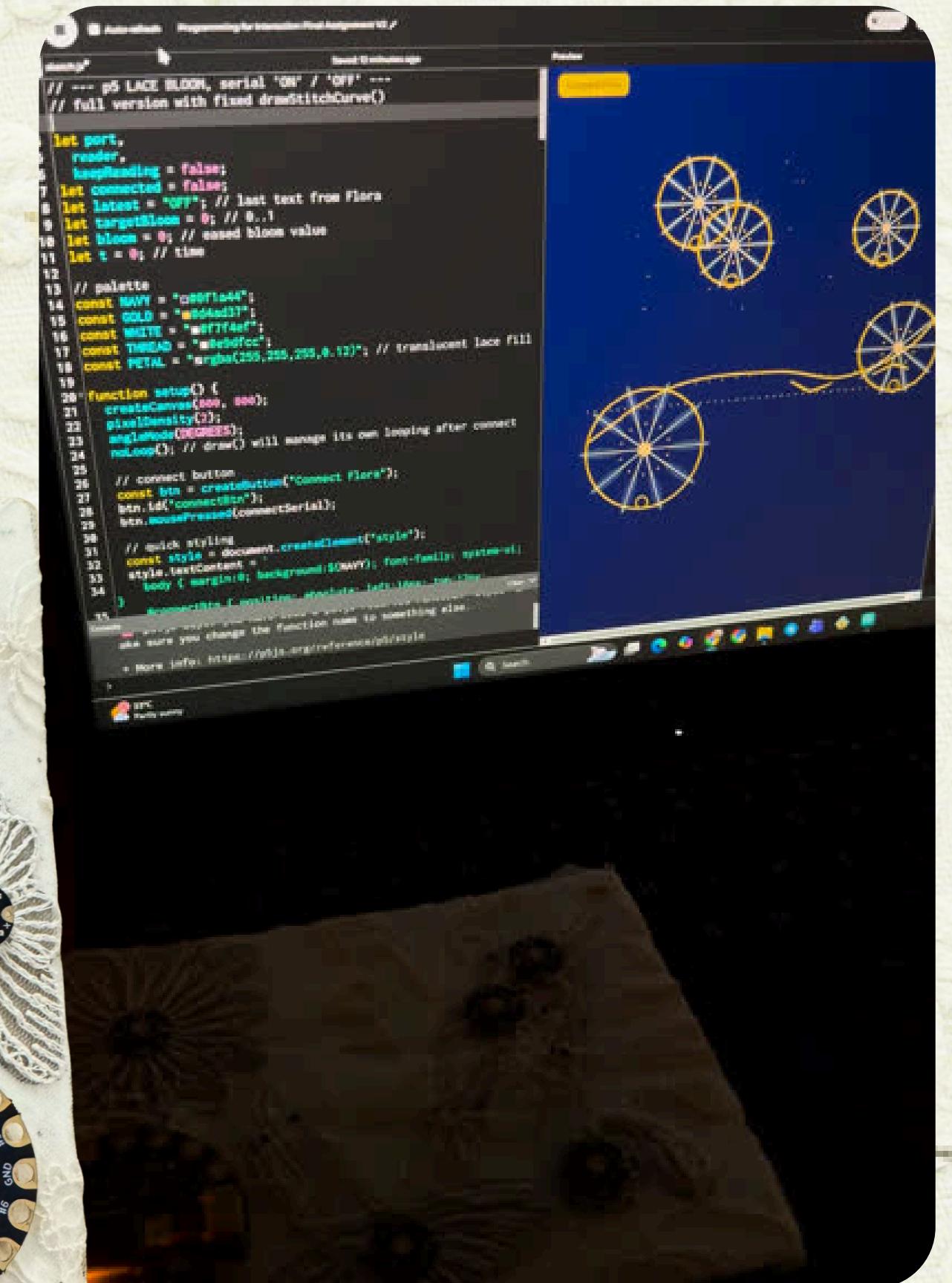
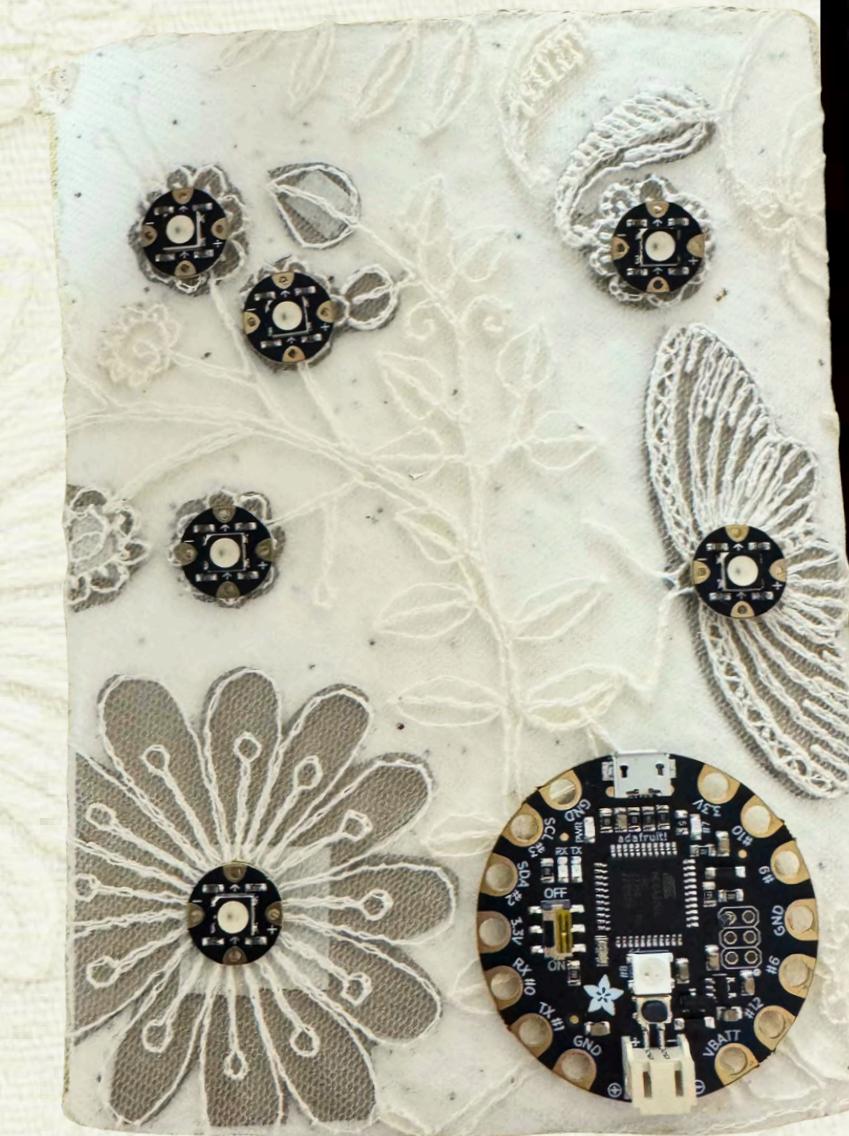
LIVING - *Garden*

BY JERMAINE, QIAN QIAN & JANIS

FINAL Piece

What if fabric could feel alive?

We wanted to bring life to something quiet and familiar – lace. By combining traditional craft with technology, our goal was to make a textile that breathes and reacts to human touch. Living Garden is an interactive lace installation that bridges craft and technology. It's a piece that comes alive through touch – when you touch the fabric, the lights respond, and a digital garden blooms on screen.



Through-Hole
Resistors -
470 ohm 5%
1/4W

THE

4700uF 10v
Electrolytic Capacitor

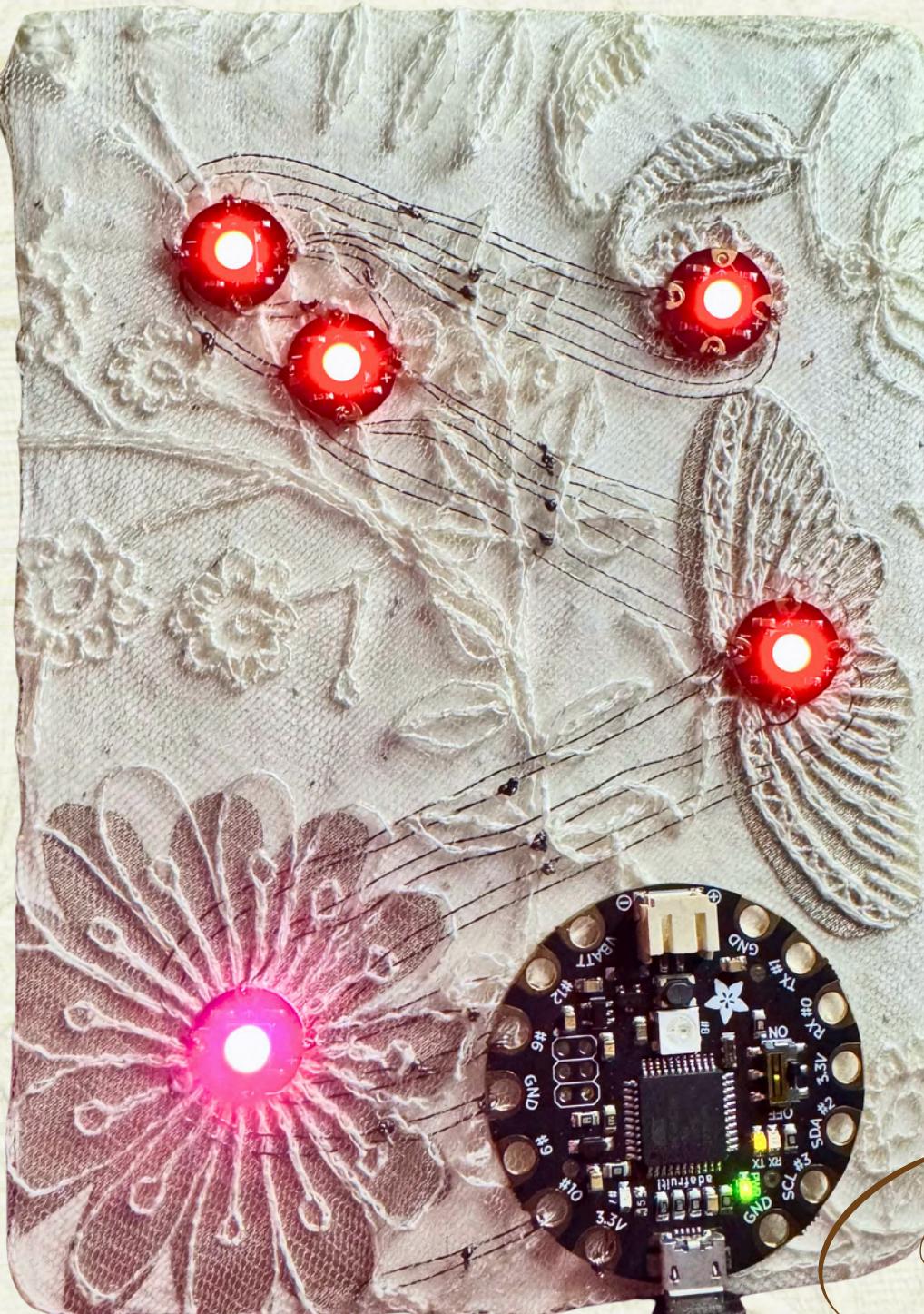


Small
Alligator
Clip Test
Lead

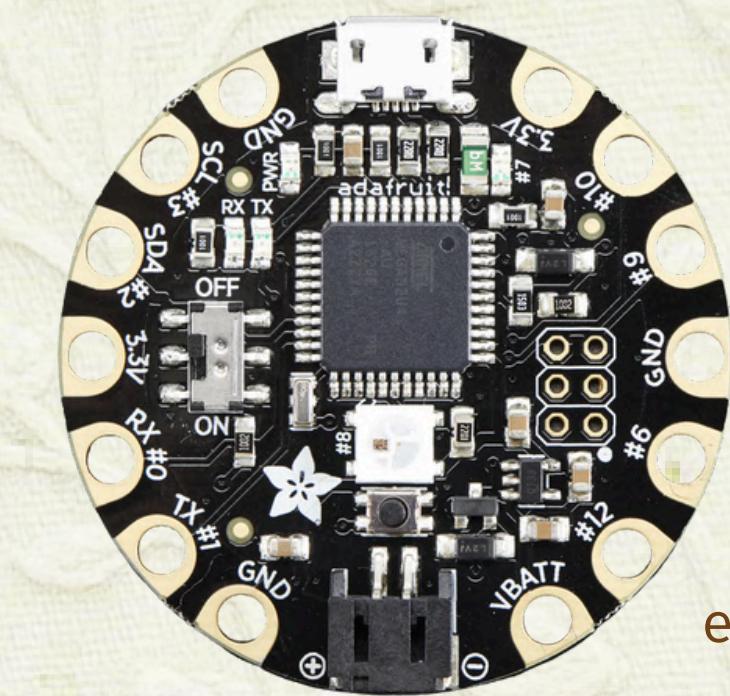


Nylon Fabric
Squares with
Conductive Adhesive

Stainless Thin
Conductive
Thread - 2 ply



Flora
RGB Smart
NeoPixel
version 3



Adafruit
Micro-Lipo
Charger for
LiPo/LiIon Batt

FLORA -
Wearable
electronic
platform



Sewable Snaps
- 5mm
Diameter



Lithium Ion
Polymer Battery -
3.7V 420mAh

Pieces

DEVELOPMENTS

Living Garden

(1) Machine embroidered custom lace

Made a custom pattern to convert
to p5js later on.



(2) Mounted on A6 Handmade Paper

Used masking tape to hold lace
in place, on top of paper made
with poppy and mint seeds.

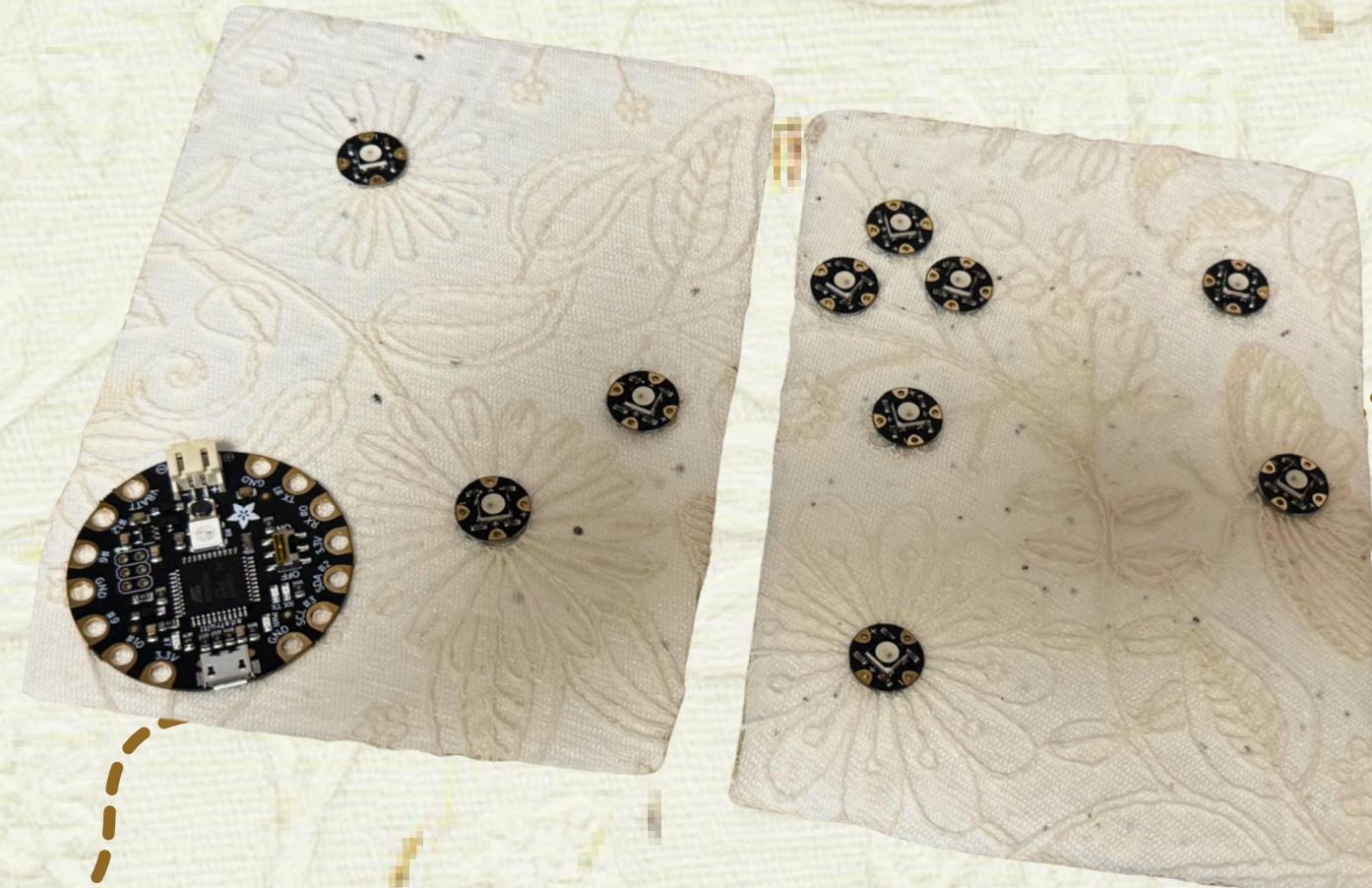


DEVELOPMENTS

Living Garden

(3) Plotting the Flora and Neopixels

Placing the Flora on an empty space and Neopixels on flowers and the butterfly.



(4) Inserted flower shaped Nylon Fabric

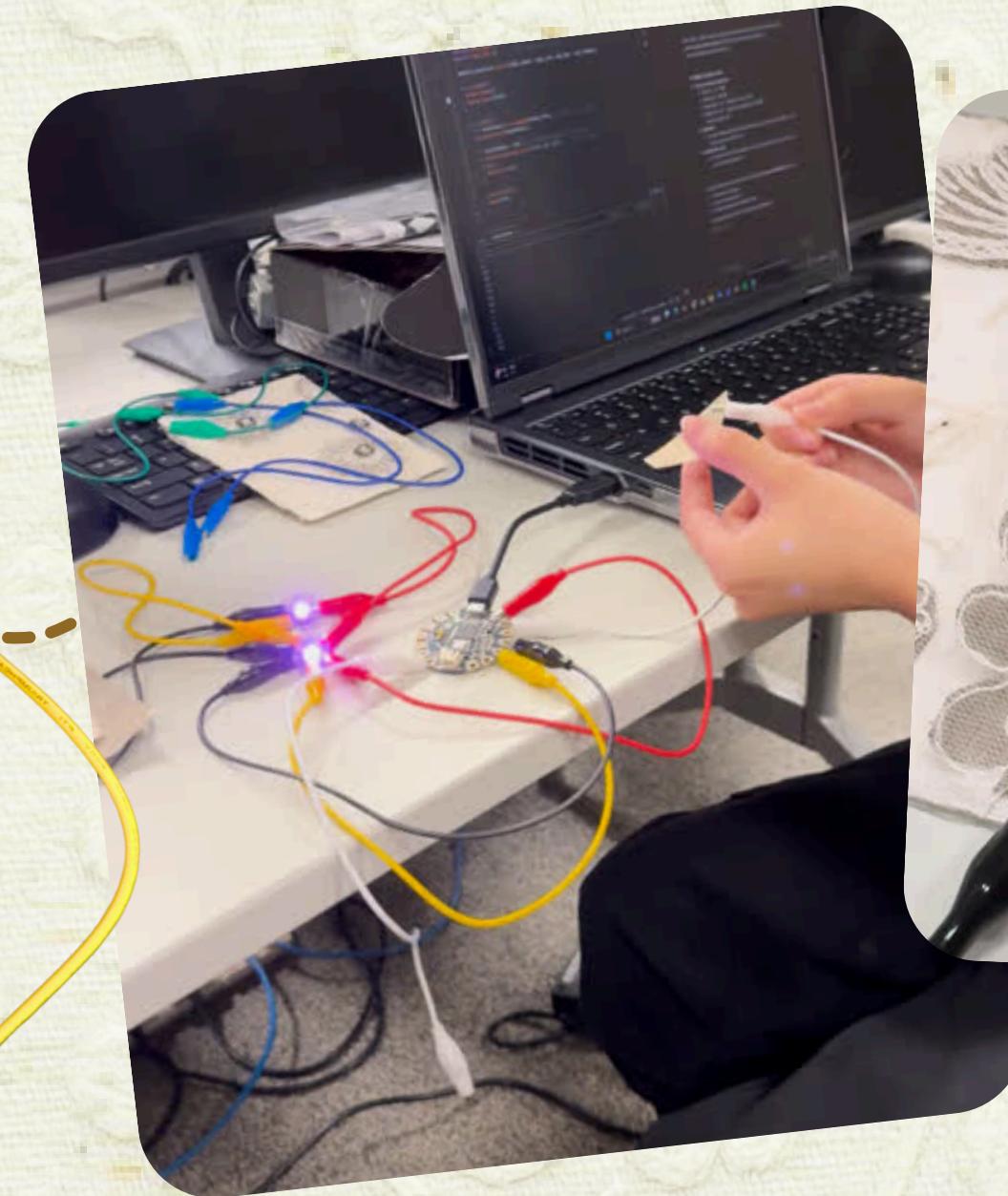
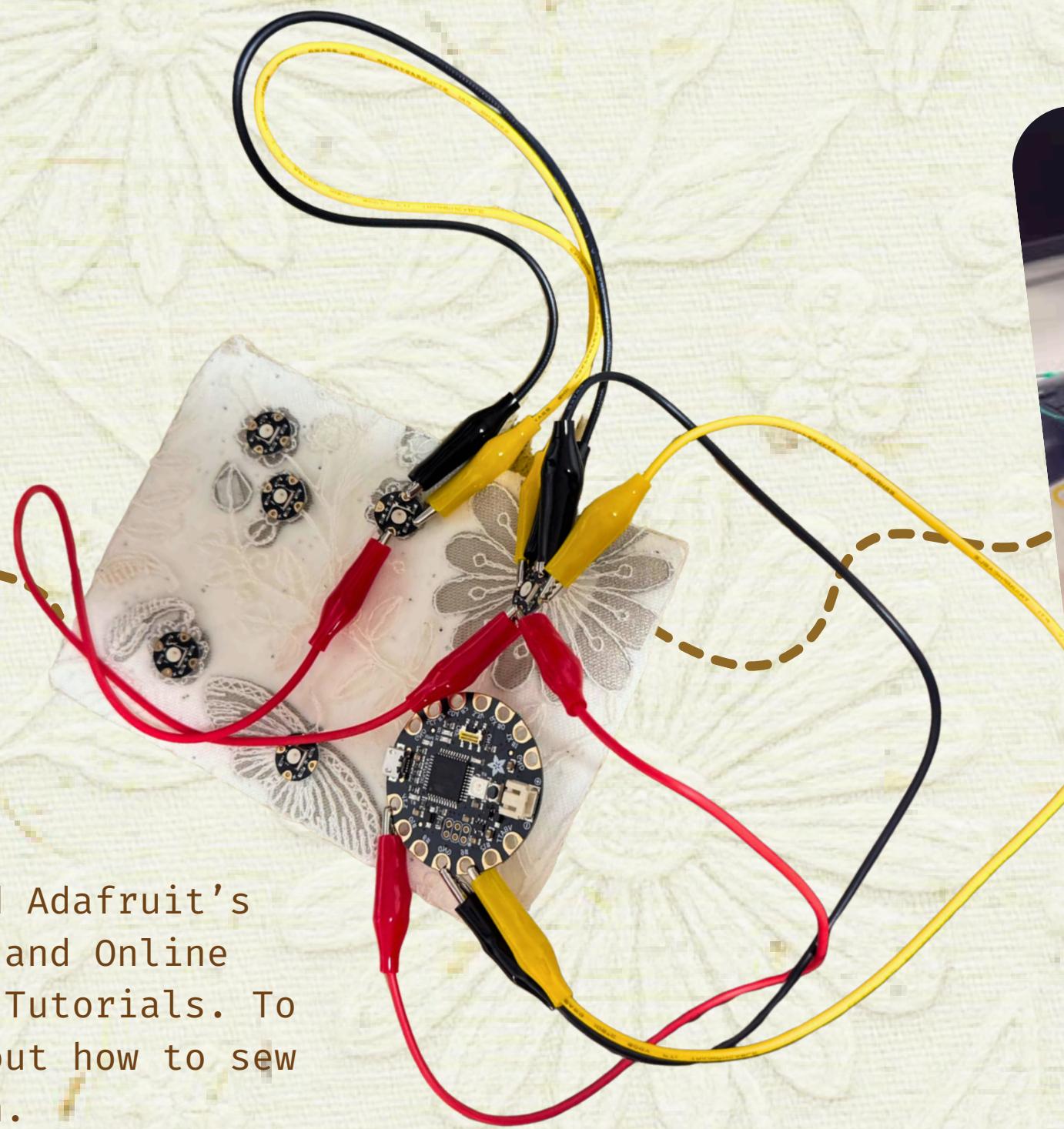
Cut the adhesive fabric to match the flower shapes, and placed them accordingly with masking tape.

DEVELOPMENTS

Living Garden

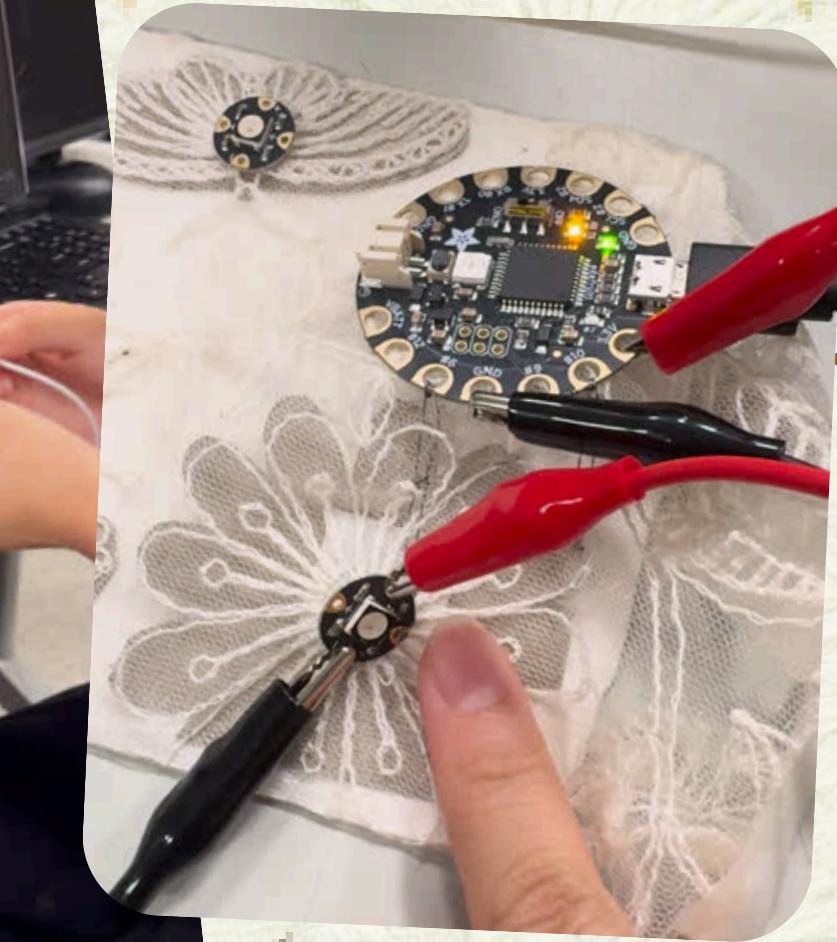
Followed Adafruit's
Youtube and Online
Article Tutorials. To
figure out how to sew
later on.

(5) Testing with Alligator Clips



(6) Testing with a small piece first

Took a scrap of conductive fabric and
thread to test the Neopixels.



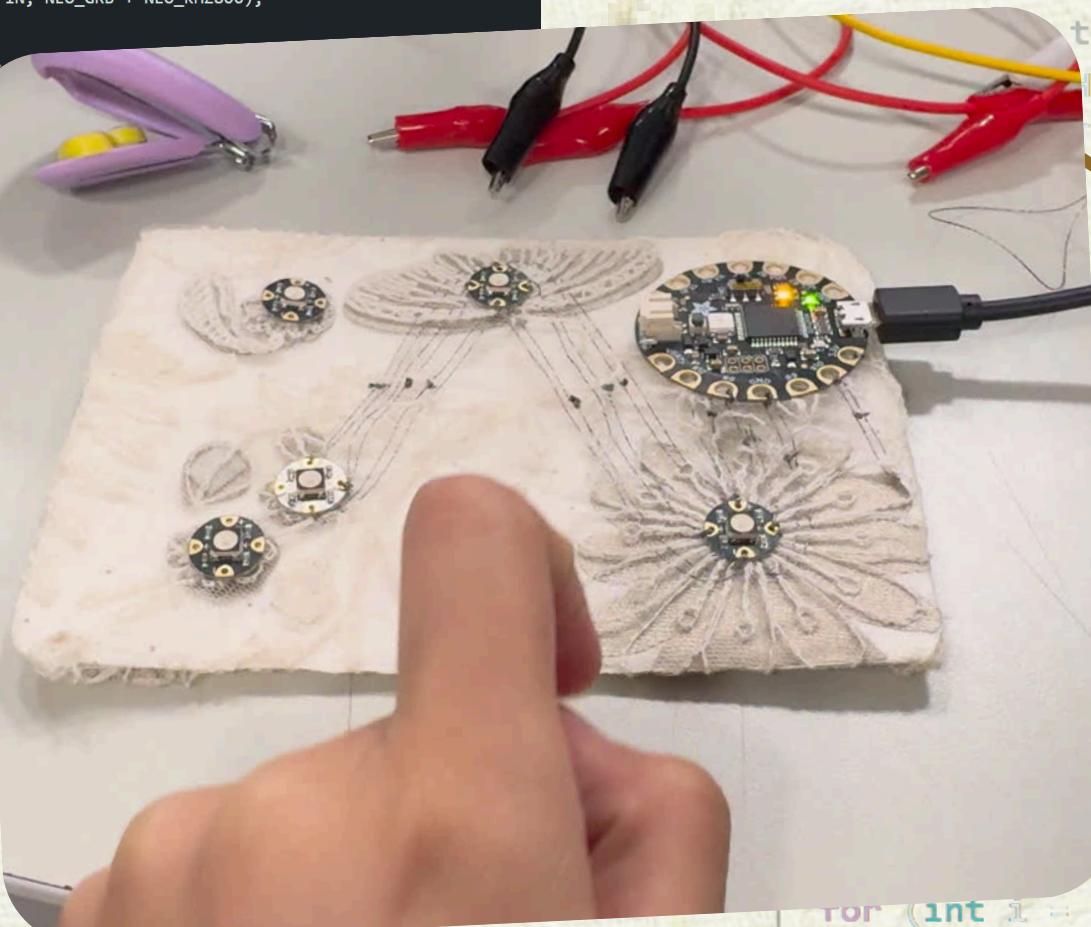
DEVELOPMENTS

Living Garden

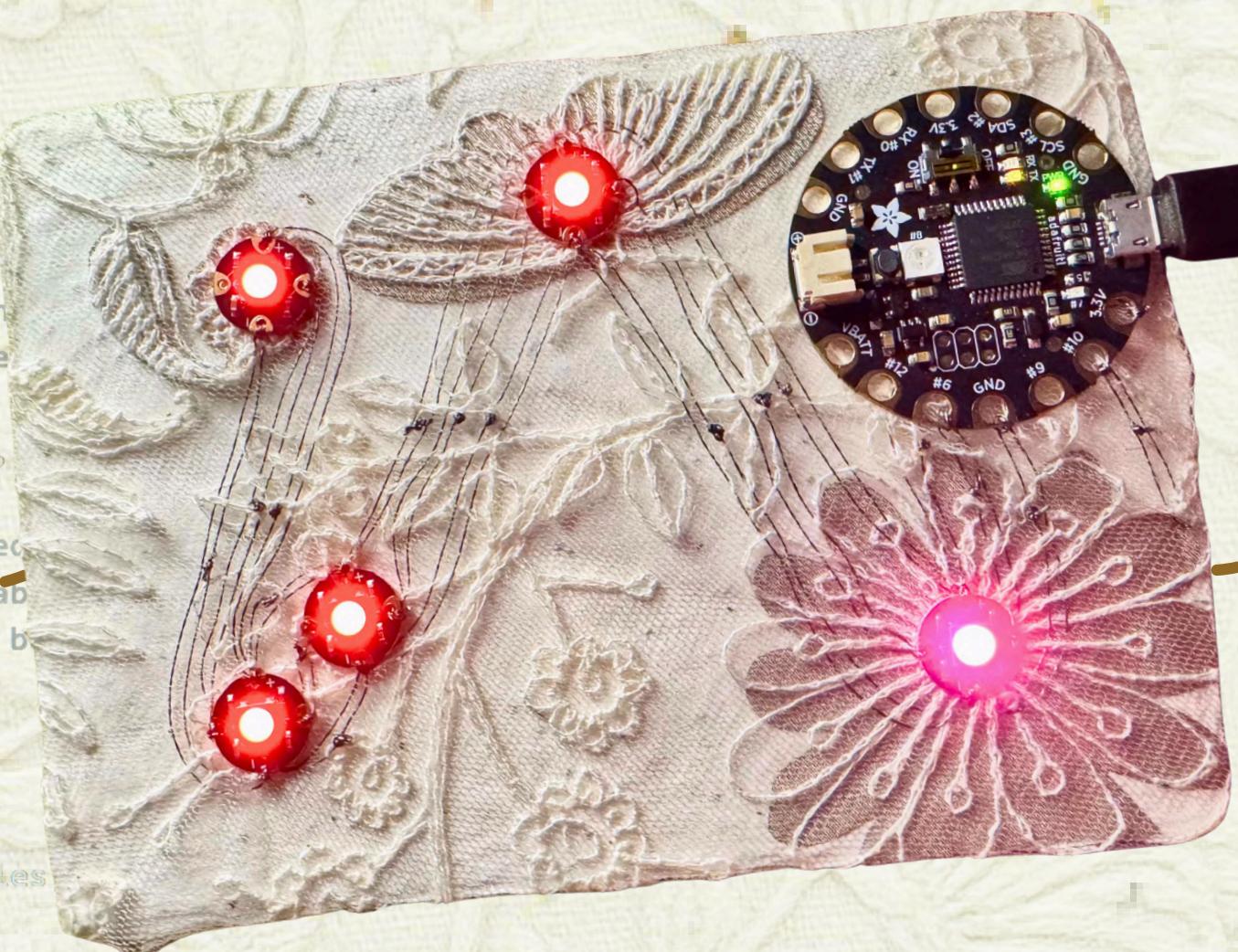
(7) Sewing and pairing with Arduino IDE

Placing the Flora on an empty space and Neopixels on flowers and the butterfly.

```
sketch_nov4a_v009_V3_copy_20251104105315.ino
1 #include <Adafruit_NeoPixel.h>
2
3 #define PIXEL_PIN 6 // Flora -> NeoPixel data
4 #define PIXEL_COUNT 5 // how many pixels you actually wired
5 #define TOUCH_PIN 10 // your metal fabric pad
6
7 Adafruit_NeoPixel pixels(PIXEL_COUNT, PIXEL_PIN, NEO_GRB + NEO_KHZ800);
8
9 // Hysteresis thresholds (tune if needed)
10 const int ON_THR = 340; // go ON above this
11 const int OFF_THR = 300; // go OFF below this
12
13 bool isOn = false;
14 bool wasOn = false;
15
16 int smoothRead(uint8_t pin, int samples =
17 long sum = 0;
18 for (int i = 0; i < samples; i++) {
19 sum += analogRead(pin);
20 delay(2);
21 }
22 return sum / samples;
23 }
24
25 void showAll(uint8_t r, uint8_t g, uint8_t b) {
26 for (int i = 0; i < PIXEL_COUNT; i++) pixels.setPixelColor(i, pixels.Color(r, g, b));
27 pixels.show();
28 }
29
30 void setup() {
31 pixels.begin();
32 pixels.clear(); // ensure OFF
33 pixels.show();
34 delay(20);
35
36 Serial.begin(115200); // if you'll
37 }
```



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(8) Completed sewing and successful testing

Paired all five Neopixels, ensured that it all lights up when touched.

DEVELOPMENTS

Living Garden



```
sketch.js
Saved: 4 days ago

1 // --- p5 LACE BLOOM, serial 'ON' / 'OFF' ---
2 // full version with fixed drawStitchCurve()
3
4 let port,
5   reader,
6   keepReading = false;
7 let connected = false;
8 let latest = "OFF"; // last text from Flora
9 let targetBloom = 0; // 0..1
10 let bloom = 0; // eased bloom value
11 let t = 0; // time
12
13 // palette
14 const NAVY = "#0f1a44";
15 const GOLD = "#d4ad37";
16 const WHITE = "#f7f4ef";
17 const THREAD = "#e9dfcc";
18 const PETAL = "rgba(255,255,255,0.12)"; // translucent lace fill
19
20 function setup() {
21   createCanvas(800, 800);
22   pixelDensity(2);
23   angleMode(DEGREES);
24   noLoop(); // draw() will manage its own looping after connect
25
26   // connect button
27   const btn = createButton("Connect Flora");
28   btn.id("connectBtn");
29   btn.mousePressed(connectSerial);
30
31   // quick styling
32   const style = document.createElement("style");
33   style.textContent =
34     "body { margin:0; background:${NAVY}; font-family: system-ui; }"
35 }
```

(7) Pairing with p5js

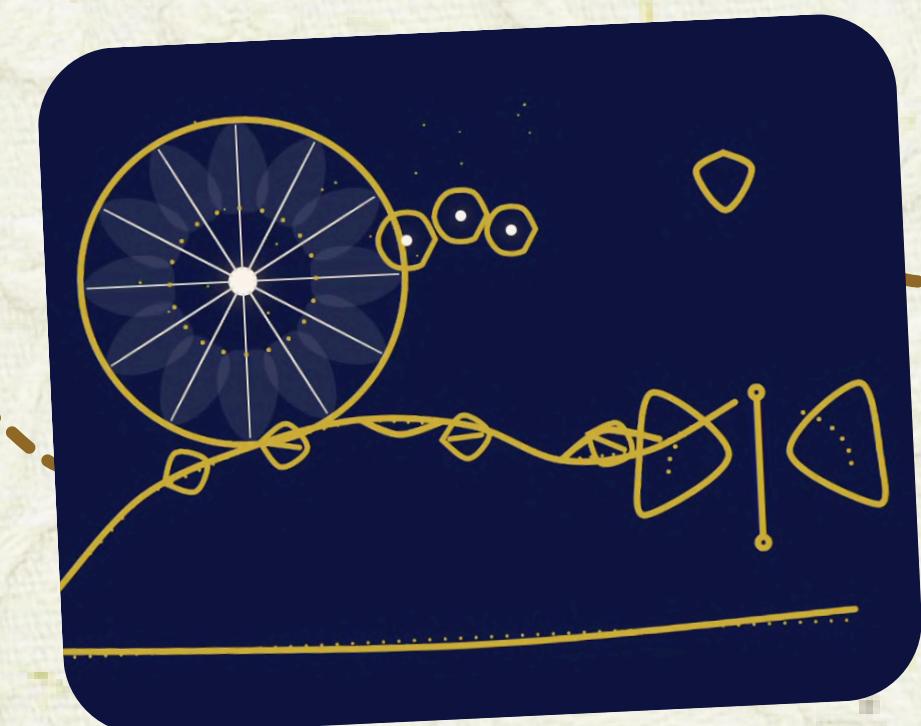
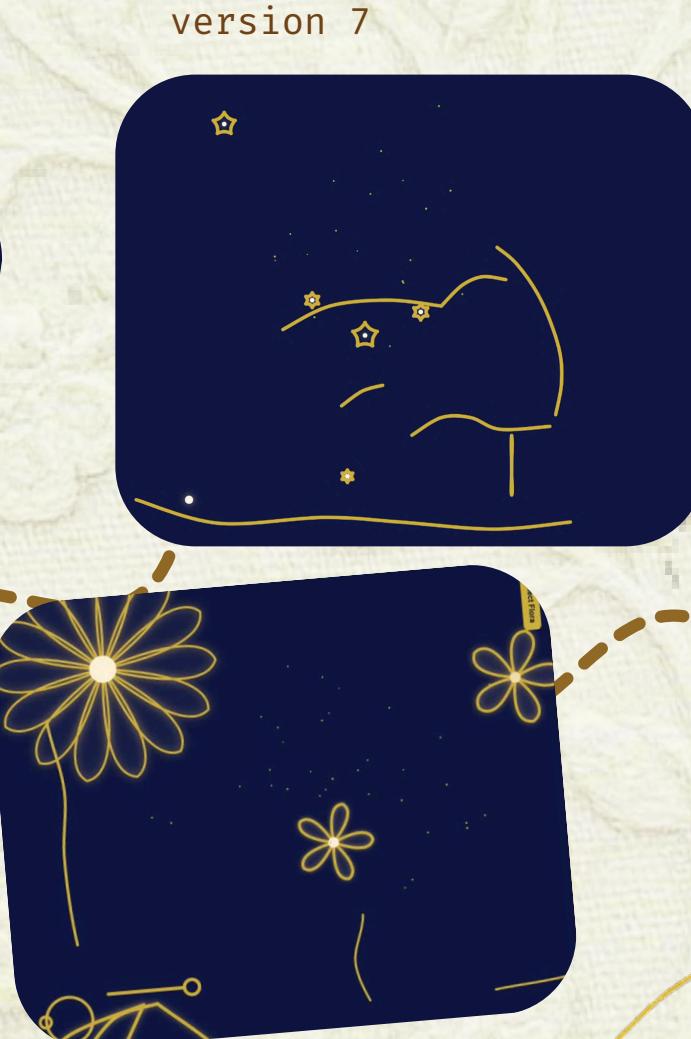
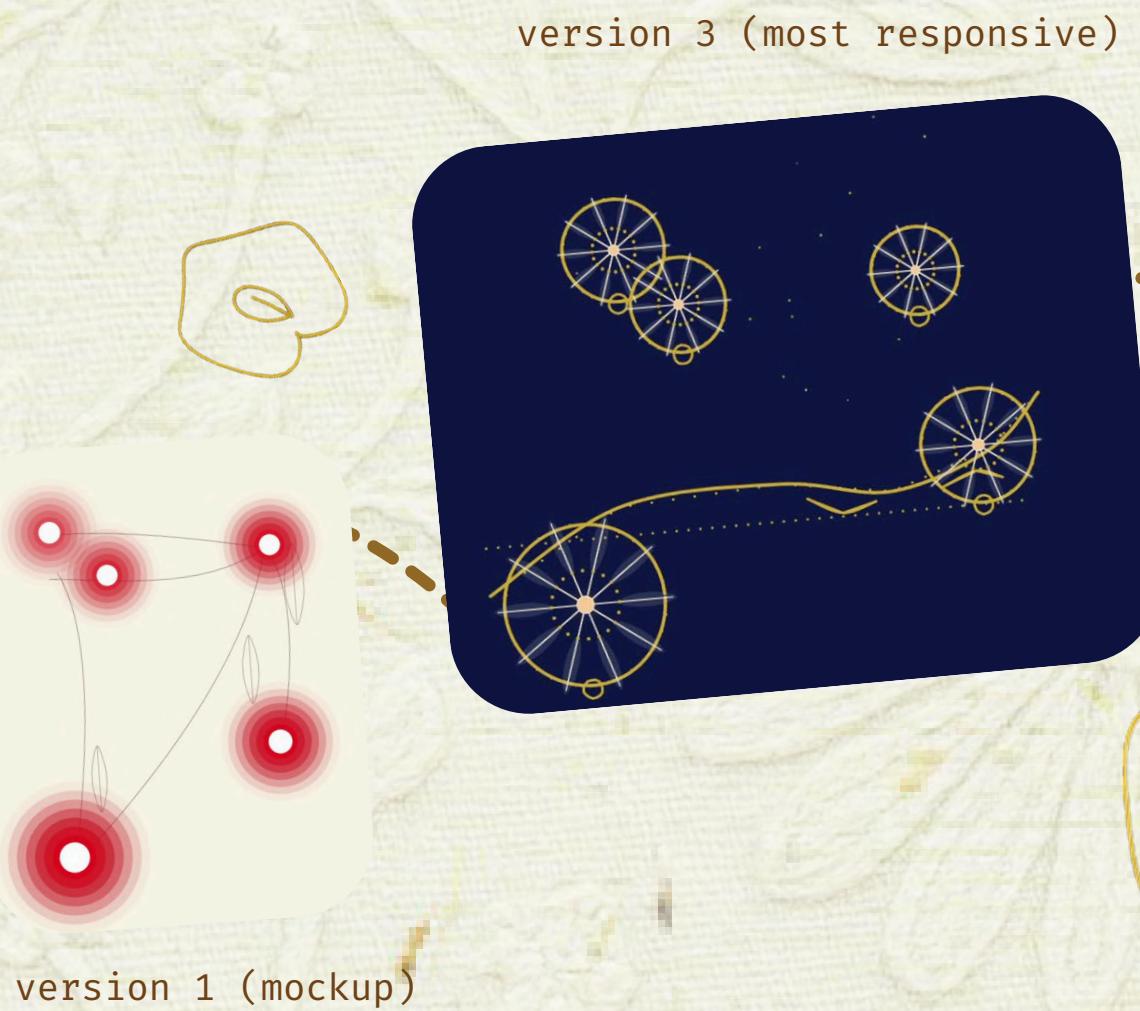
Connecting and experimenting
with p5js. Learnt alot here!



DEVELOPMENTS

(8) p5js visuals

made many many variations,
trying to get things right and
work.



Living Garden



FINAL Version

(8) p5js visuals

After 25 iterations, we got one that was reactive, and matches our visuals!

