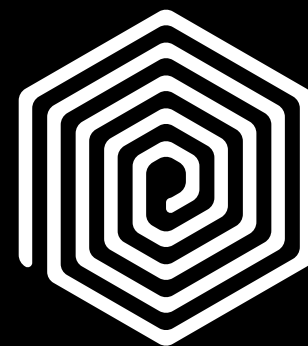




# Hex Entry Mirror



# Goals

Make entry/exit control station

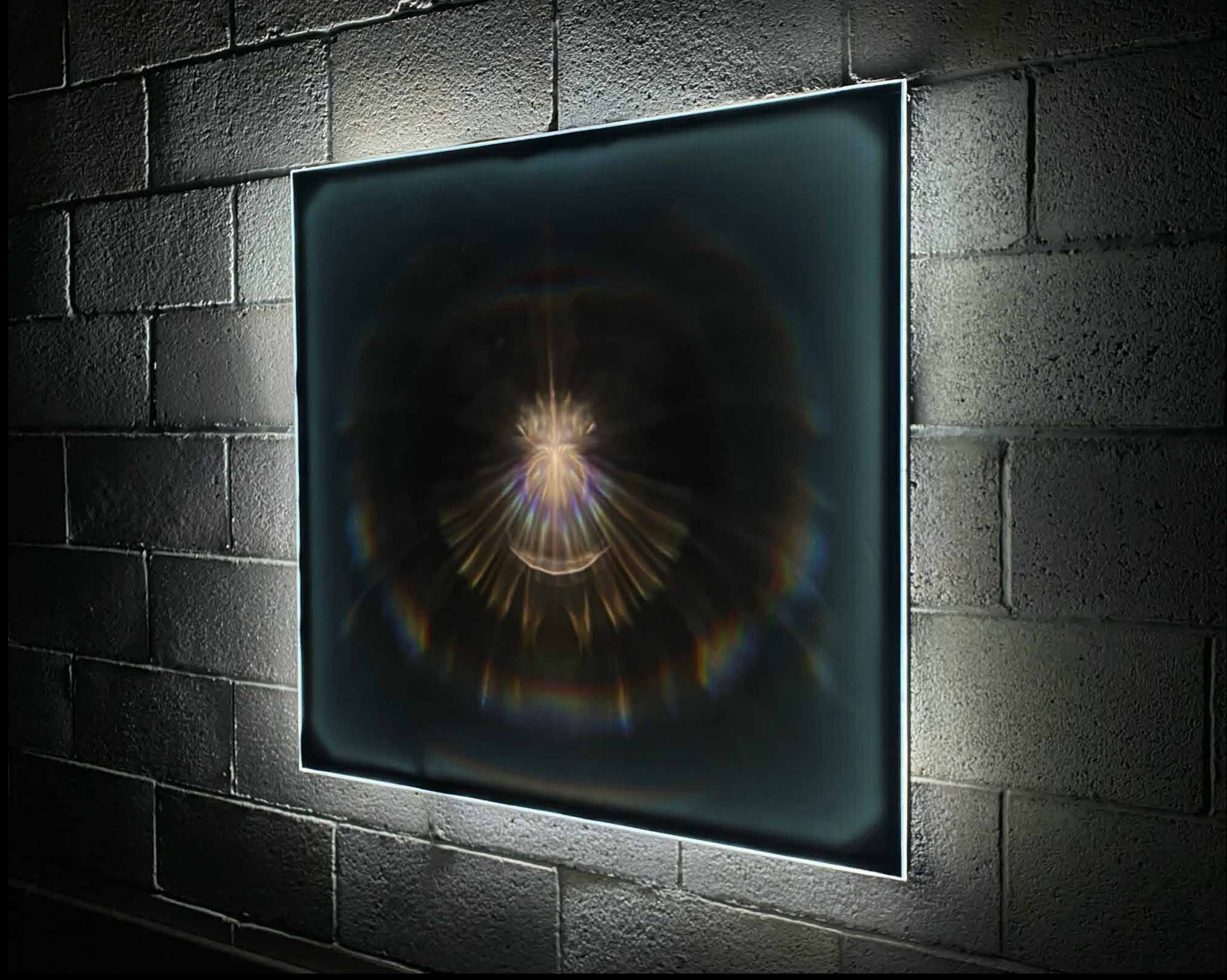
Make a non-square lightbox

Attempt backlit-etch print

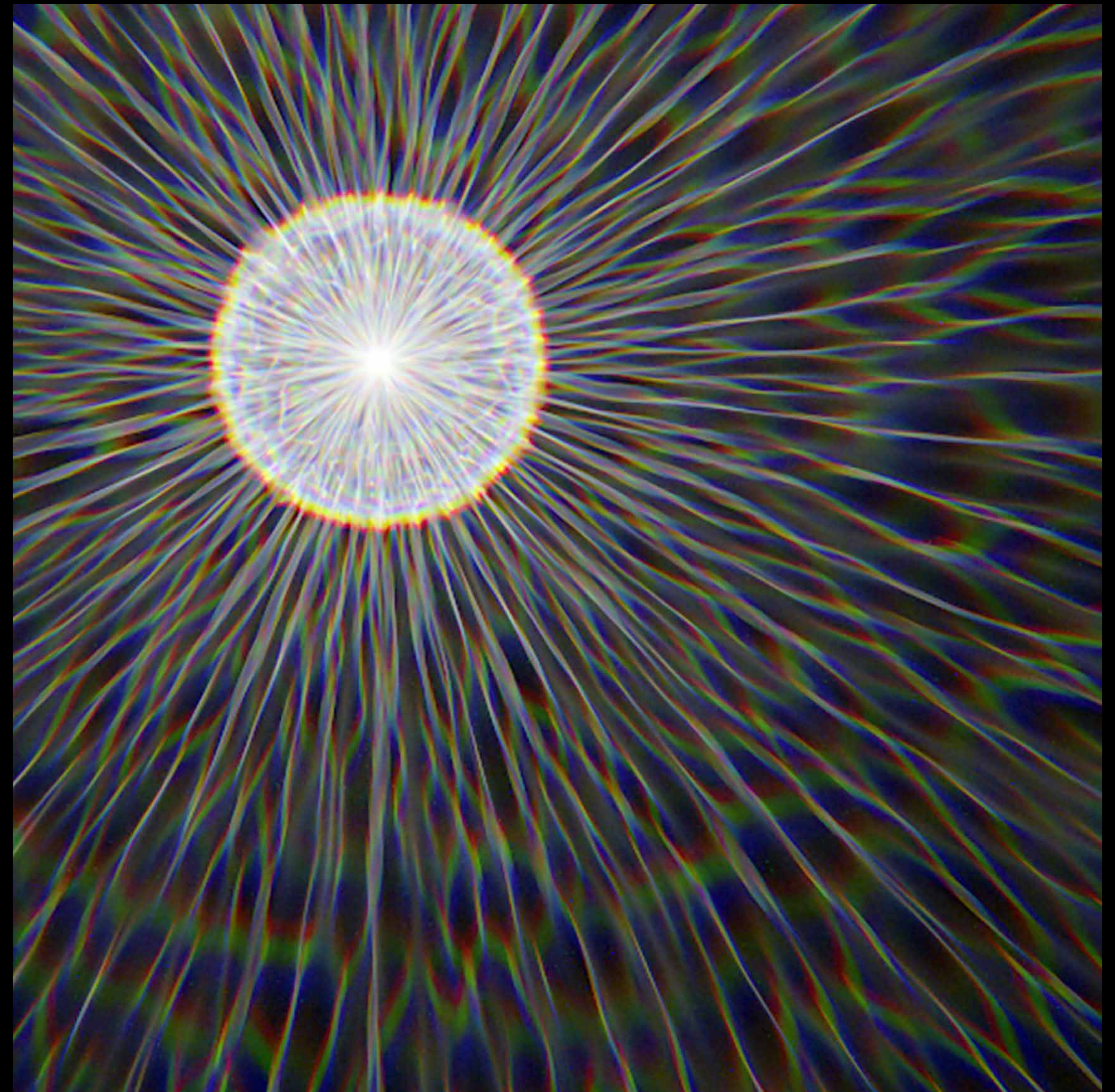
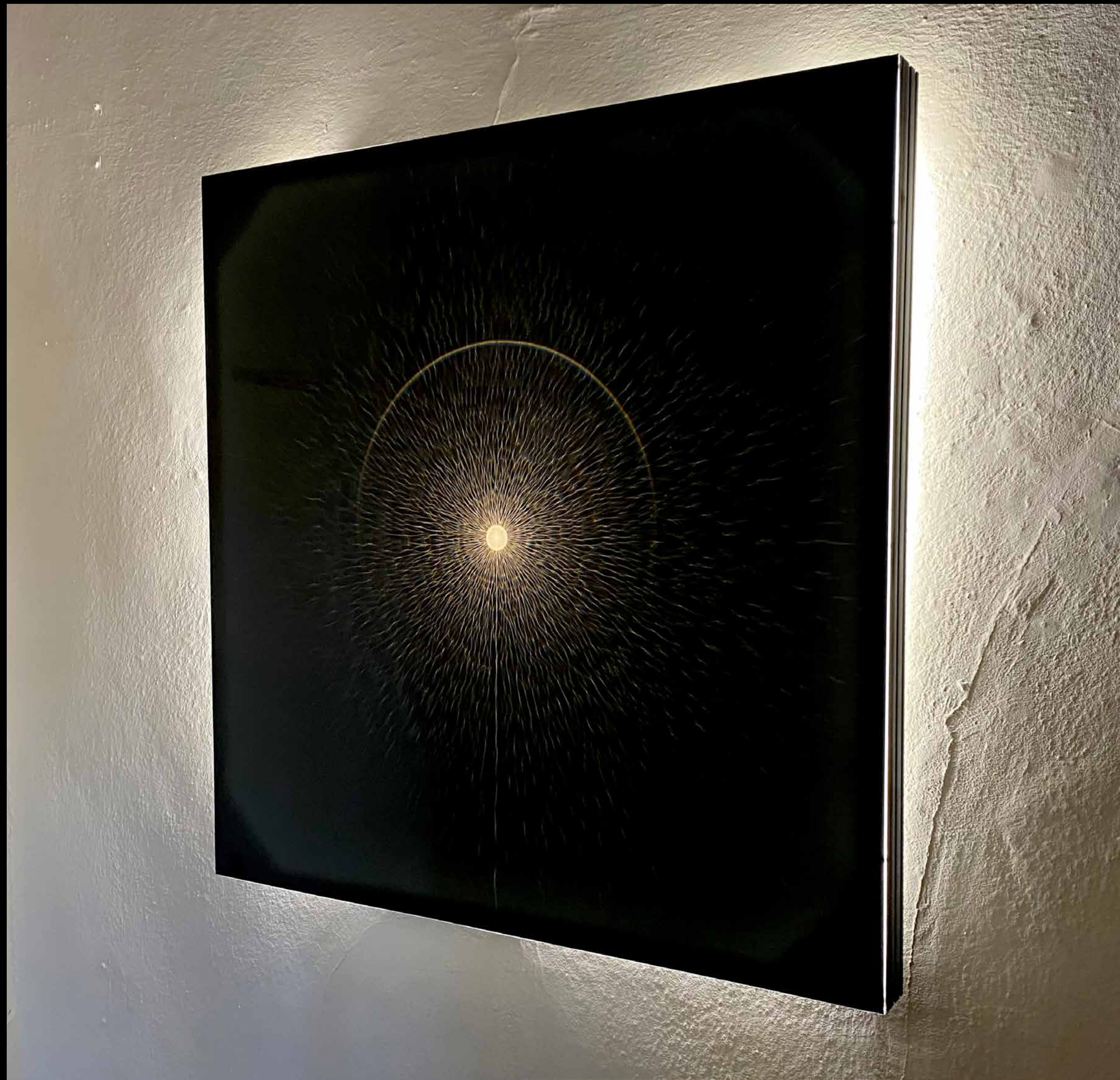
Learn to make custom NeoPixel animations

Use components I had

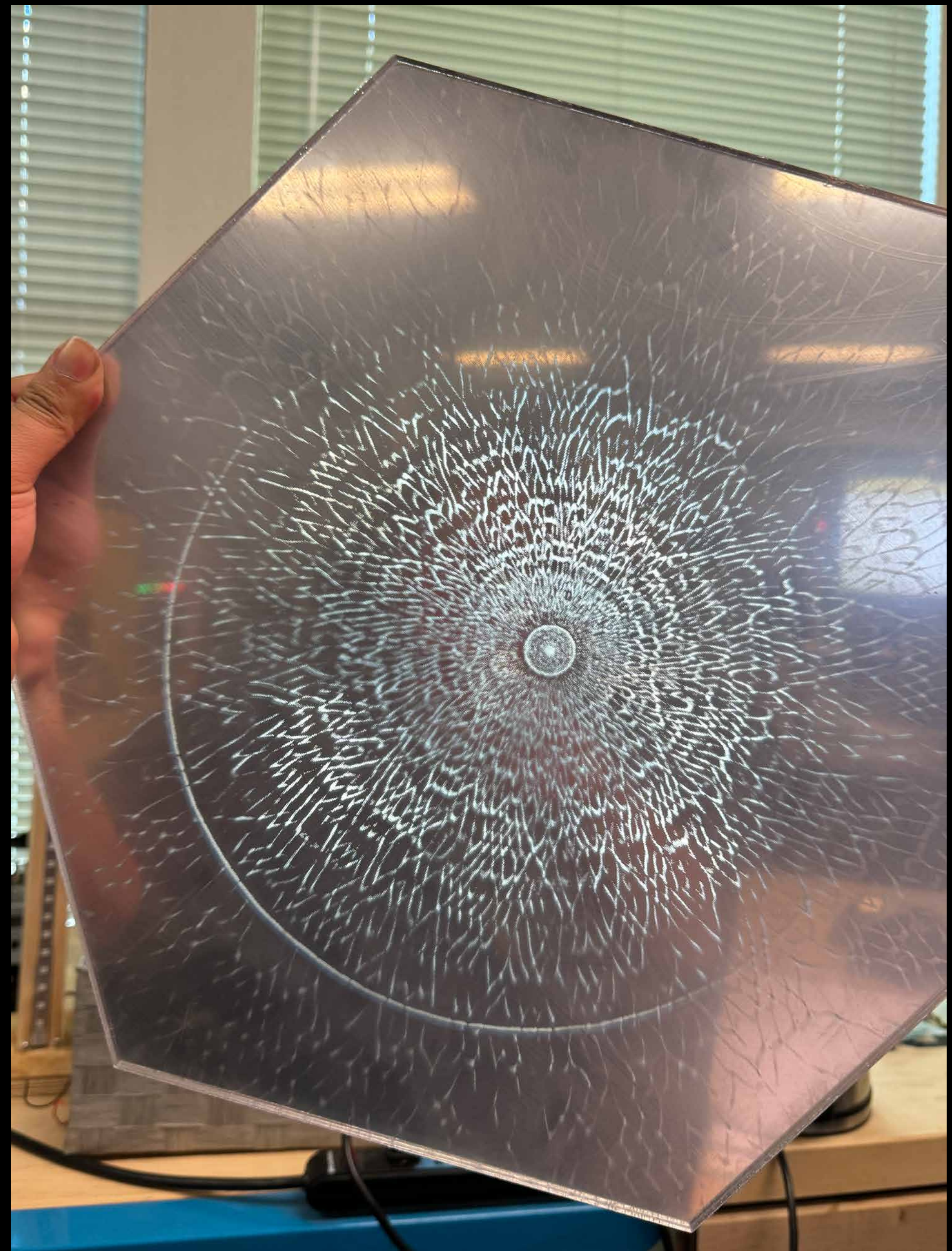




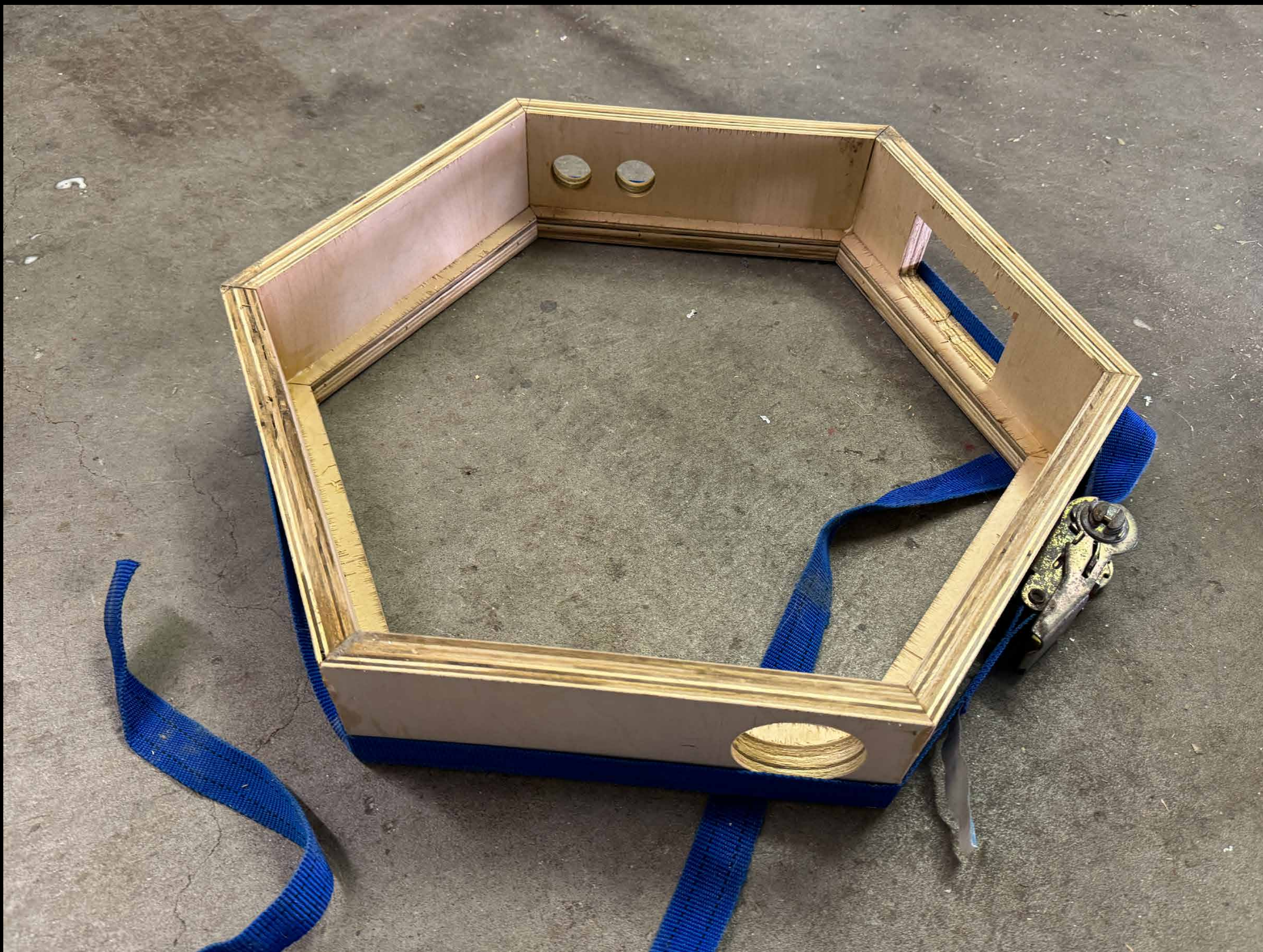




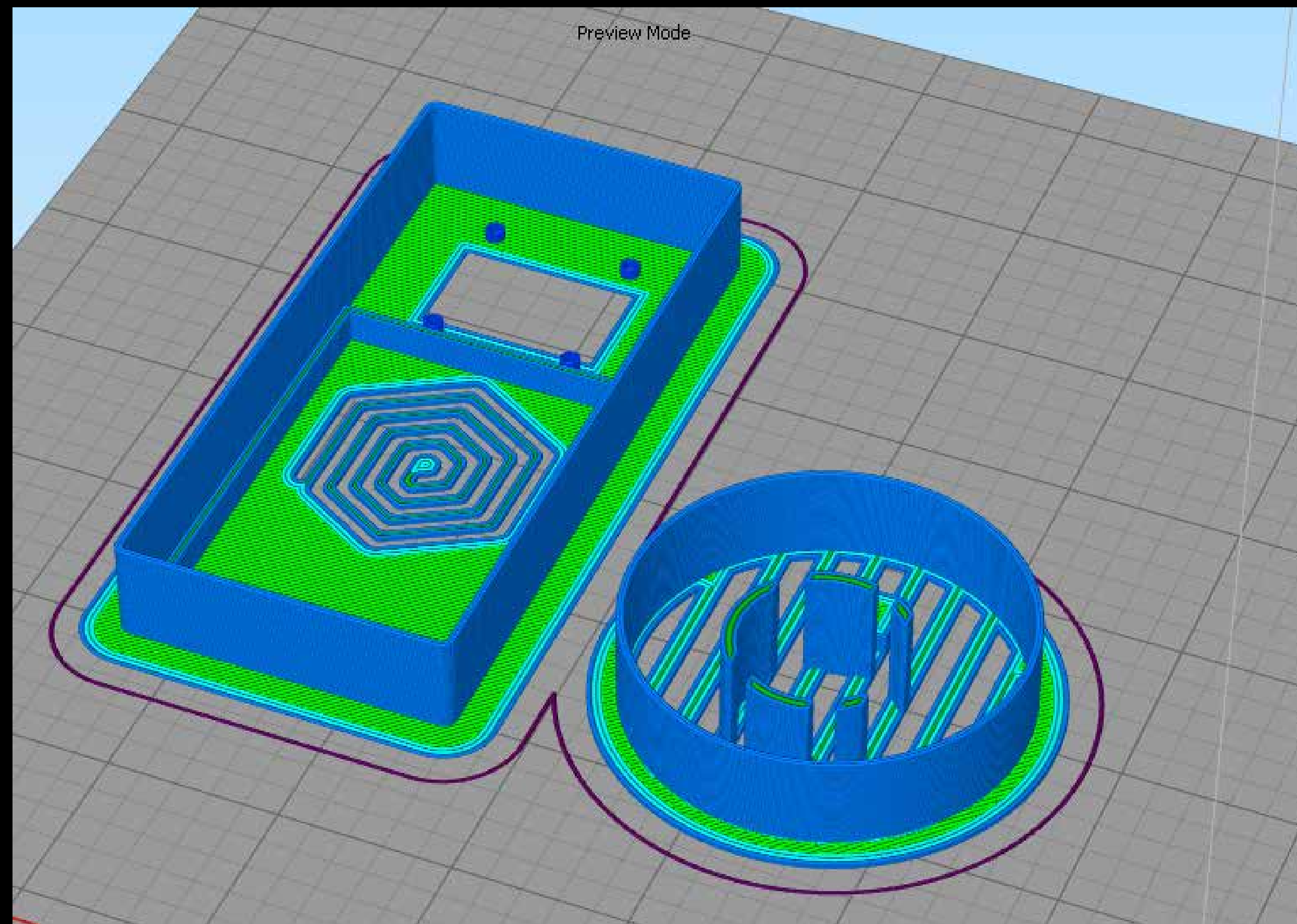
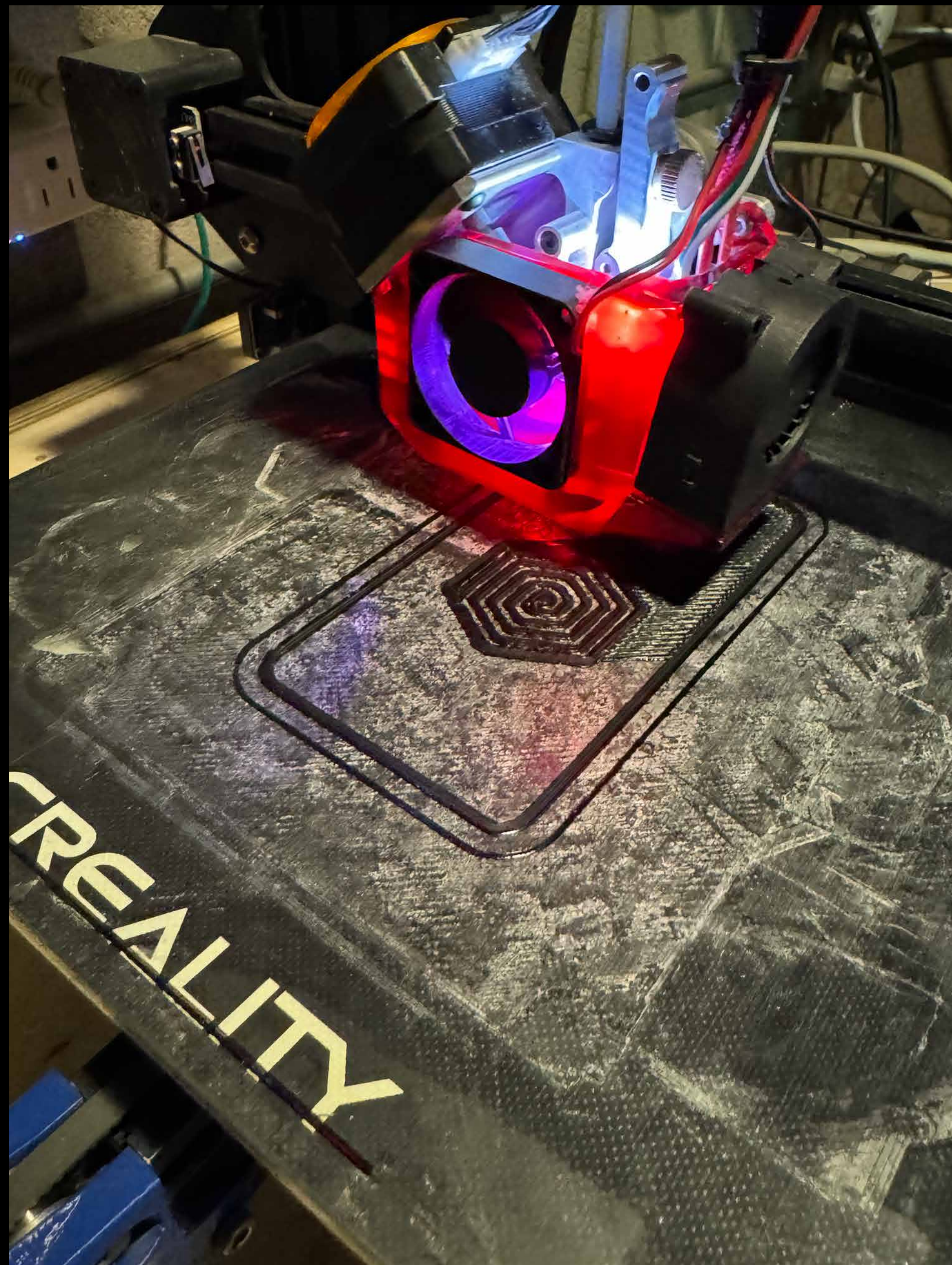




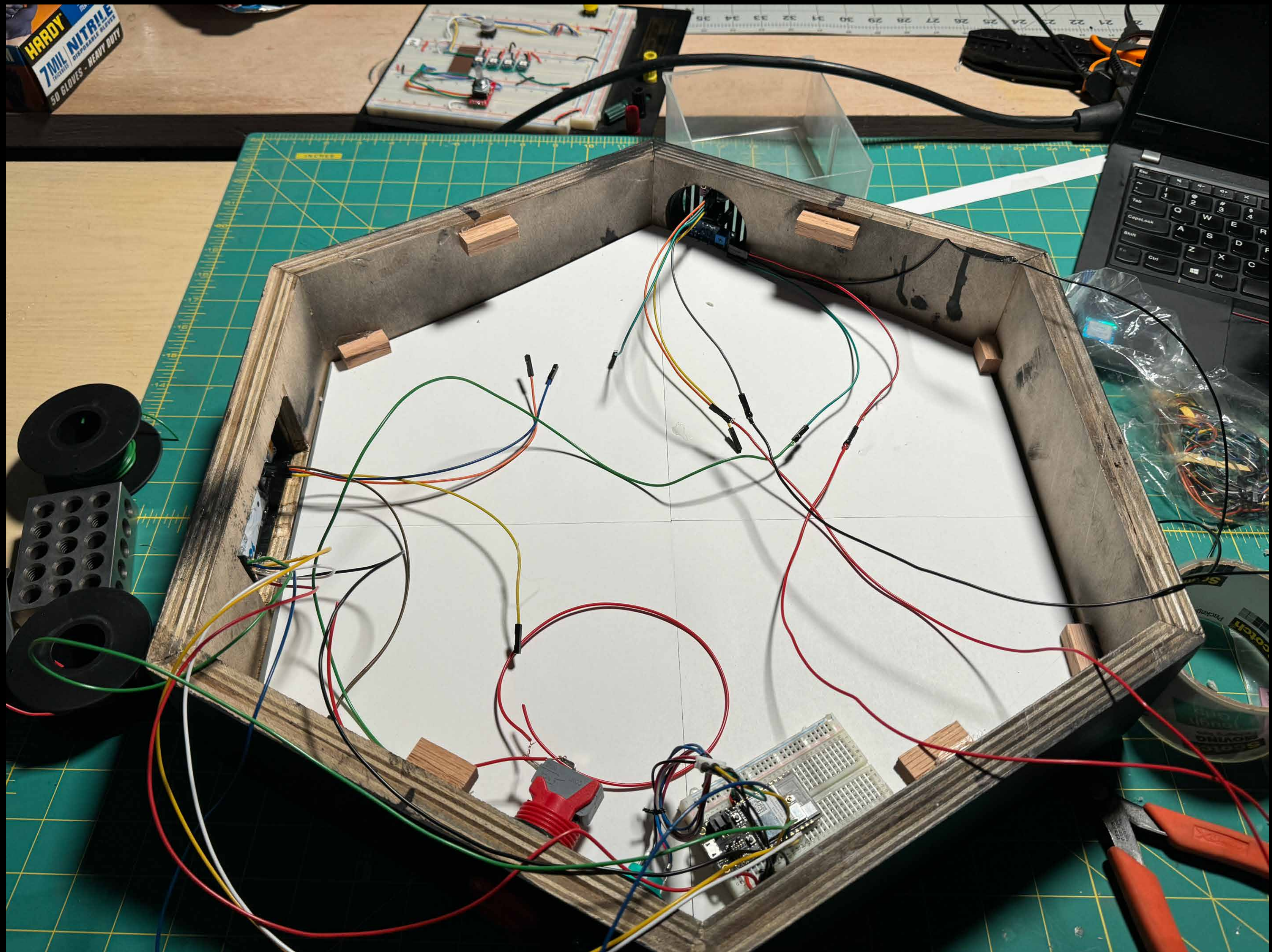








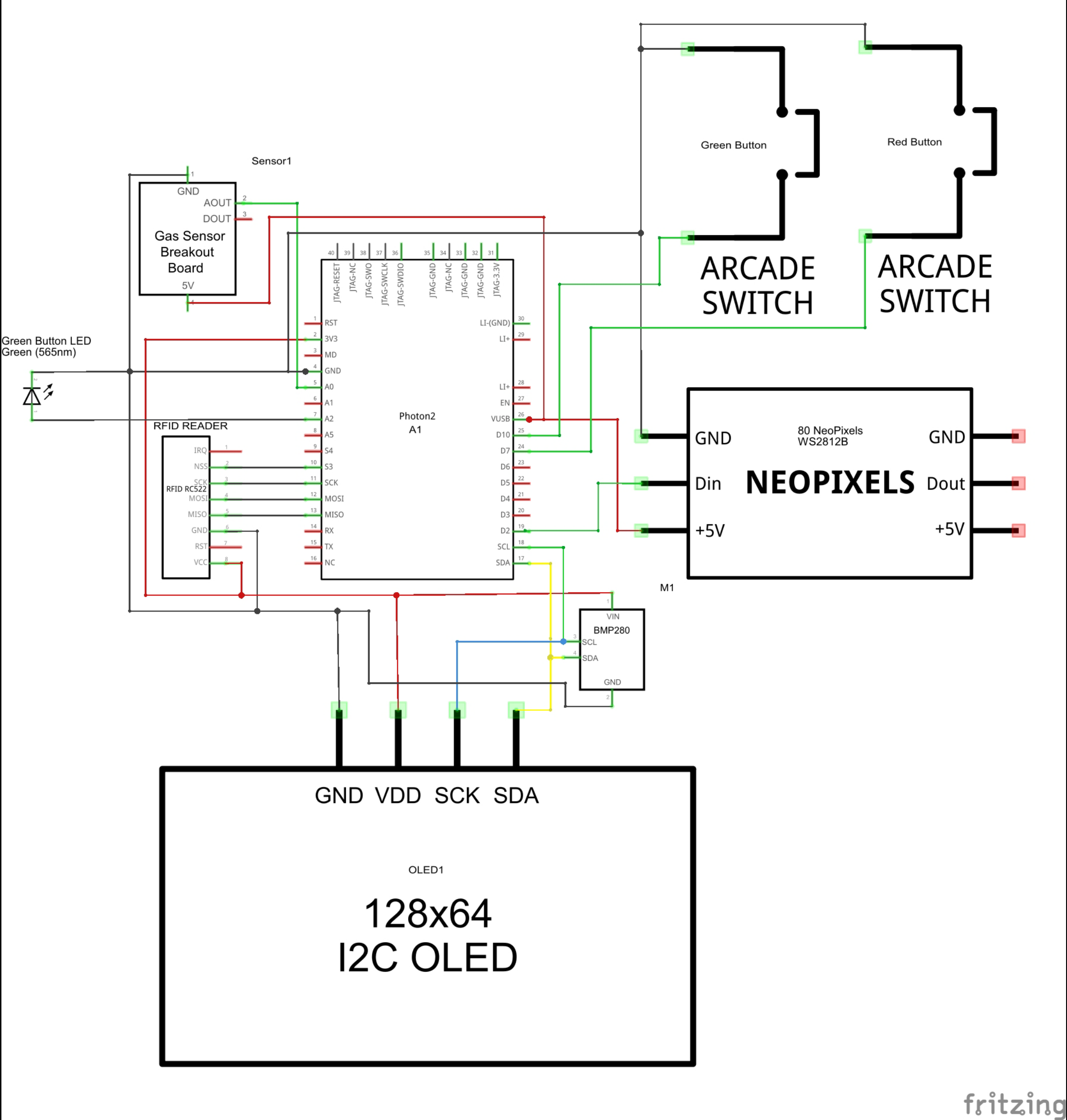




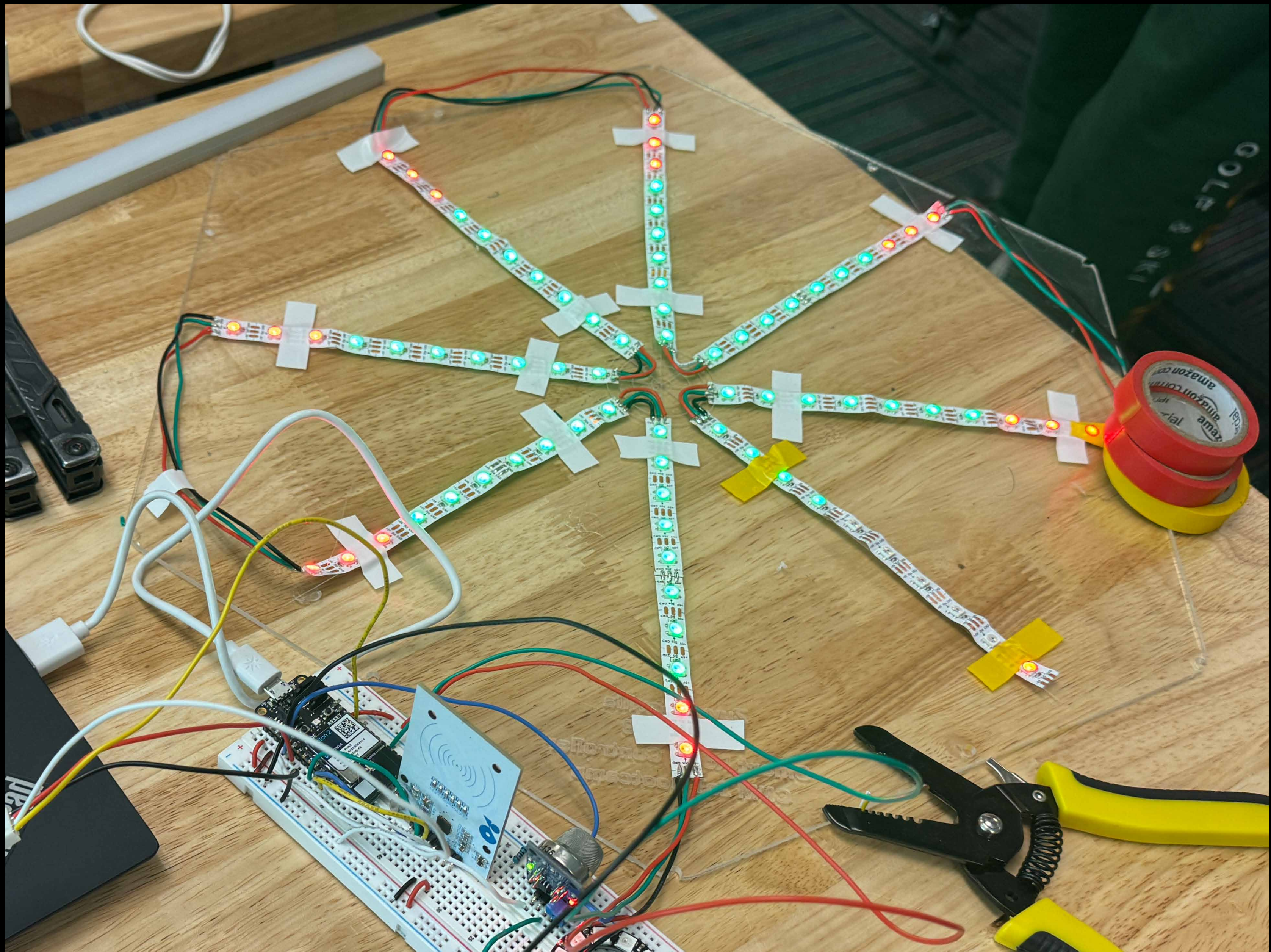














## Neopixels Array

```
71 //NeoPixels
72 int pixelCount=80;
73 int pixelArray[8][10]={
74     {0,1,2,3,4,5,6,7,8,9},
75     {19,18,17,16,15,14,13,12,11,10},
76     {20,21,22,23,24,25,26,27,28,29},
77     {39,38,37,36,35,34,33,32,31,30},
78     {40,41,42,43,44,45,46,47,48,49},
79     {59,58,57,56,55,54,53,52,51,50},
80     {60,61,62,63,64,65,66,67,68,69},
81     {79,78,77,76,75,74,73,72,71,70}
82 };
83 Adafruit_NeoPixel strip(pixelCount, SPI1, WS2812B);
```



# Neopixels Animation

```
341 void spiralRun(int stripAmount, int pixelAmount,int fillColor, int delayTime){
342     int pixelCounter, stripCounter;
343     for(pixelCounter=9;pixelCounter>=0;pixelCounter--){
344         for(stripCounter=0;stripCounter<8;stripCounter++){
345             pixelFill(pixelArray[stripCounter][pixelCounter], pixelArray[stripCounter][pixelCounter], fillColor);
346             delay(delayTime);
347         }
348     }
349 }
350 void outBurst(int stripAmount, int pixelAmount,int fillColor, int delayTime){
351     int pixelCounter, stripCounter;
352     for(pixelCounter=9;pixelCounter>=0;pixelCounter--){
353         for(stripCounter=0;stripCounter<8;stripCounter++)
354             pixelFill(pixelArray[stripCounter][pixelCounter], pixelArray[stripCounter][pixelCounter], fillColor);
355         delay(delayTime);
356     }
357 }
```



# Basic functions

```
165     if(greenButton.isClicked()) {
166         filterONoff = !filterONoff;
167     }
168
169     if (redButton.isClicked()) {
170         activeNeoPattern++;
171         if (activeNeoPattern > 3) {
172             activeNeoPattern = 0;
173         }
174     }
175     if (filterONoff == HIGH){
176         wemowrite(filterWemo, HIGH);
177         digitalWrite(greenButtonLED, HIGH);
178     }
179     else{
180         wemowrite(filterWemo, LOW);
181         digitalWrite(greenButtonLED, LOW);
182     }
183     while (checkID()){ //RFID Scanning
184         if (scannedID == cardUID){
185             RFIDflip =! RFIDflip;
186             READER.PICC_DumpToSerial(&(READER.uid));
187         }
188         else{
189             READER.PICC_DumpToSerial(&(READER.uid));
190         }
191     }
```



# RFID Checking

```
183 while (checkID()){ //RFID Scanning
184     if (scannedID == cardUID){
185         RFIDflip =! RFIDflip;
186         READER.PICC_DumpToSerial(&(READER.uid));
187     }
188     else{
189         READER.PICC_DumpToSerial(&(READER.uid));
190     }
191 }
```

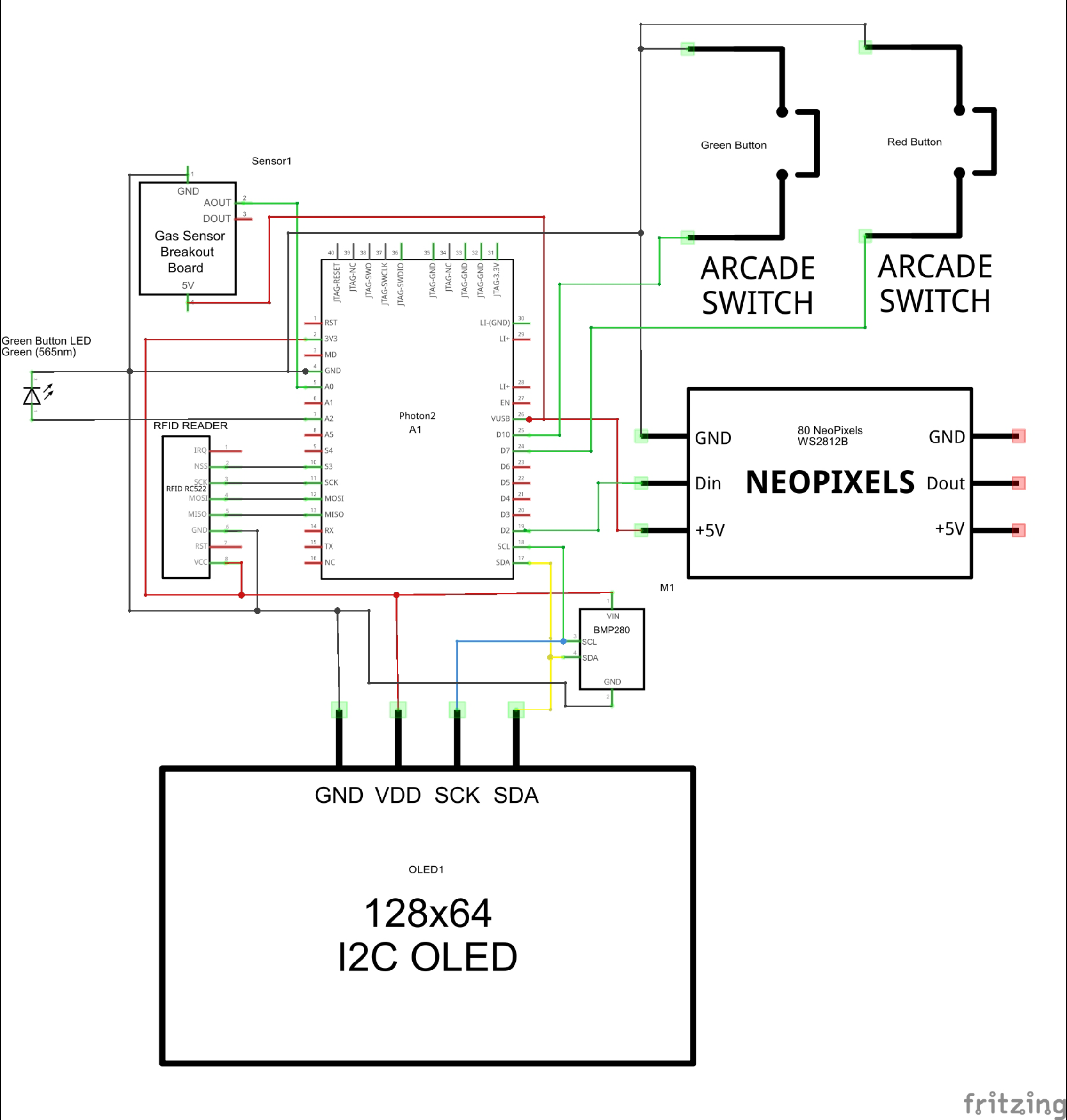
```
273 bool checkID(){ //RFID Key Checker
274     int i;
275     if( ! READER.PICC_IsNewCardPresent()){
276         return FALSE;
277     }
278     if( ! READER.PICC_ReadCardSerial()){
279         return FALSE;
280     }
281     scannedID = "";
282     for(i=0; i<4; i++){
283         readCard[i] = READER.uid.uidByte[i];
284         scannedID.concat(String(READER.uid.uidByte[i], HEX));
285     }
286     scannedID.toUpperCase();
287     READER.PICC_HaltA(); // Stop reading
288     return true;
289 }
```



# Scene Switch

```
    switch (activeNeoPattern) {  
case 0:  
    hueFill(1,hueCount,HueLightYellow,200, 15);  
    spiralRun(8,4,orange,4);  
    spiralRun(8,9,white,7);  
    break;  
case 1:  
    hueRainbowFill(1,hueCount);  
    outBurst(8,9, rainbow[neoRainbowIndex], 25);  
    neoRainbowIndex++;  
    if(neoRainbowIndex>7){  
        neoRainbowIndex=0;  
    }  
    break;  
case 2:  
    hueFill(1,hueCount,HueLightYellow,200, 15);  
    pixelFill(0,pixelCount, white);  
    break;  
    }  
}
```







## **Next Steps**

Implement more reliable reading/ more efficient code  
Use different RFID tags for different scenes  
Use RGBW strips for better color