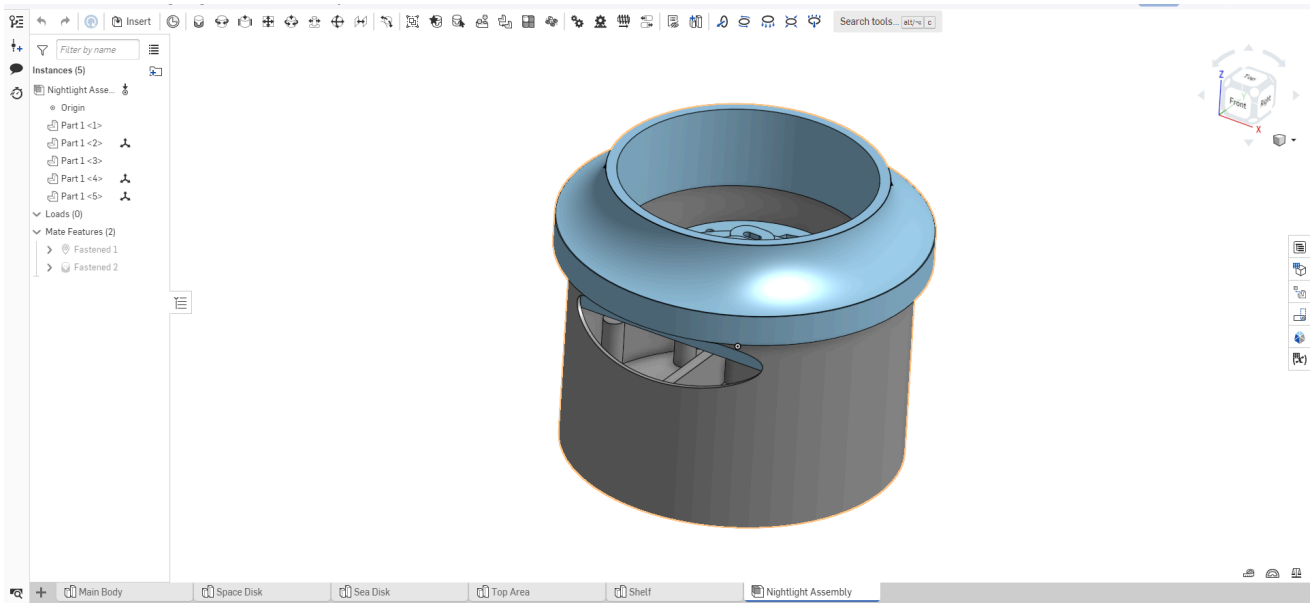
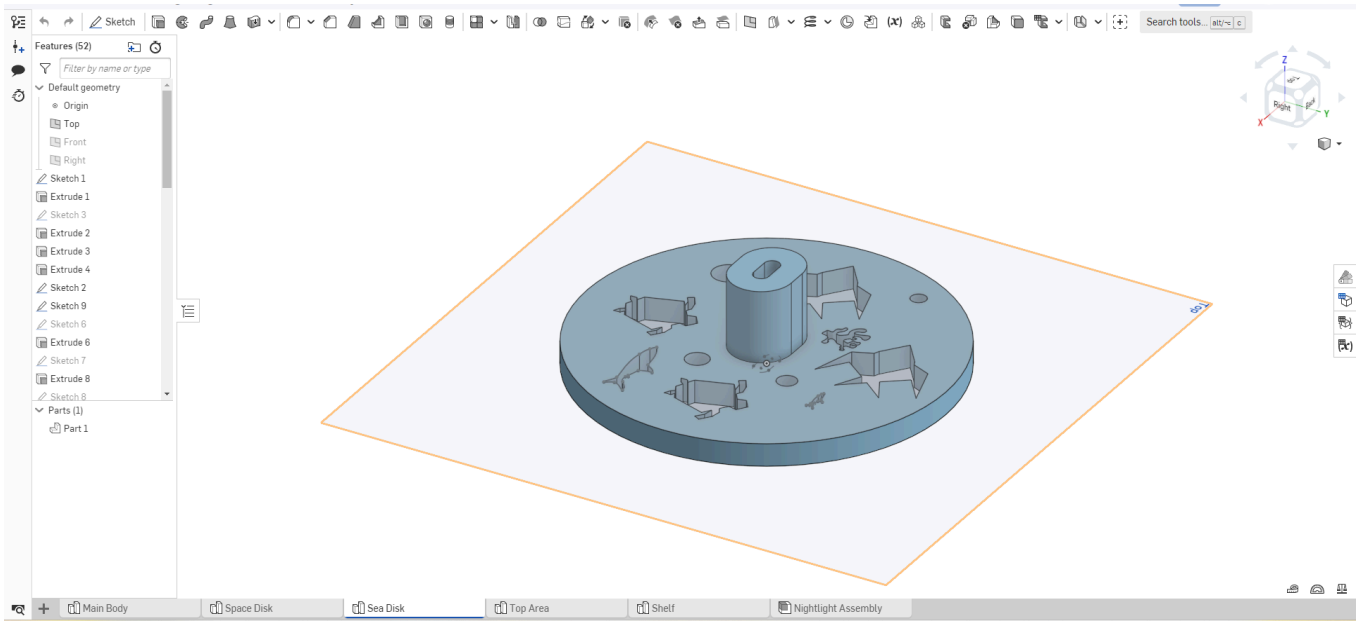
Engineering Design Project

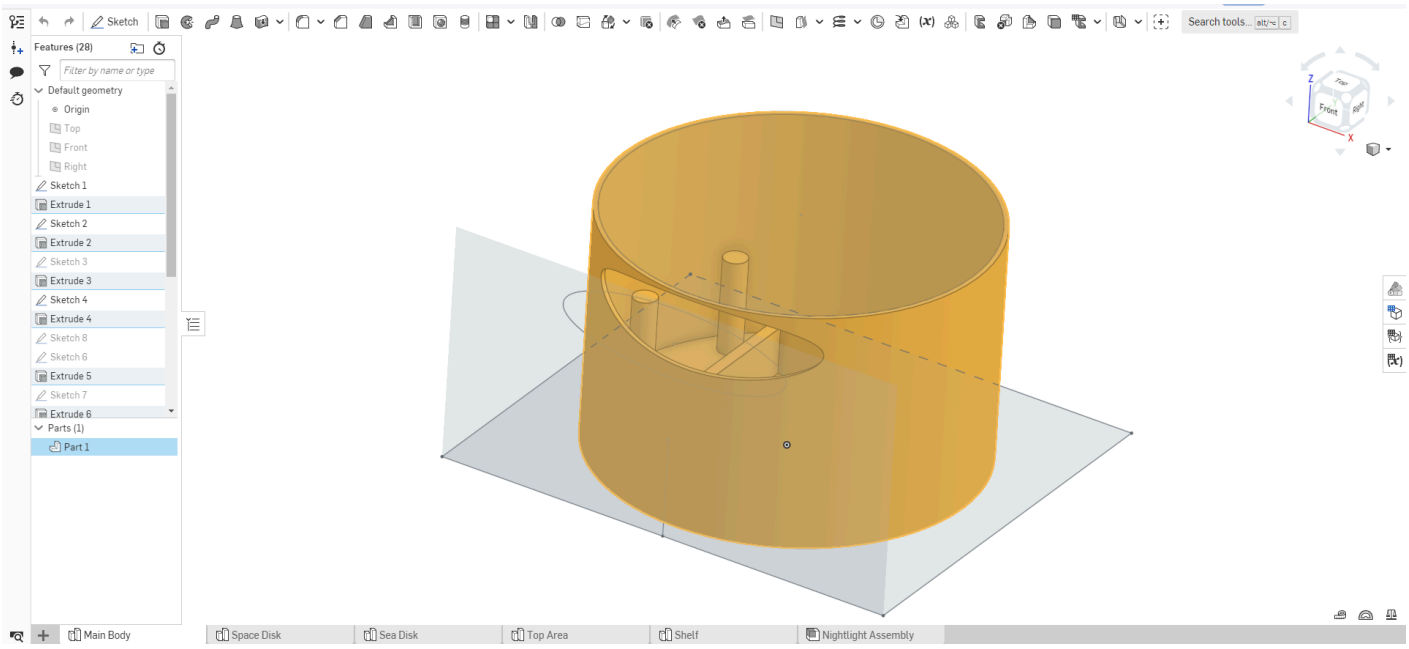
This project was a projector essentially that spun a motor to display moving images, all fabricated, coded, and designed from scratch with circuit design help from friends for an engineering showcase. These are snapshots from stages of my project and ultimately how we built the product that is sitting on my shelf.

Design Mockups:

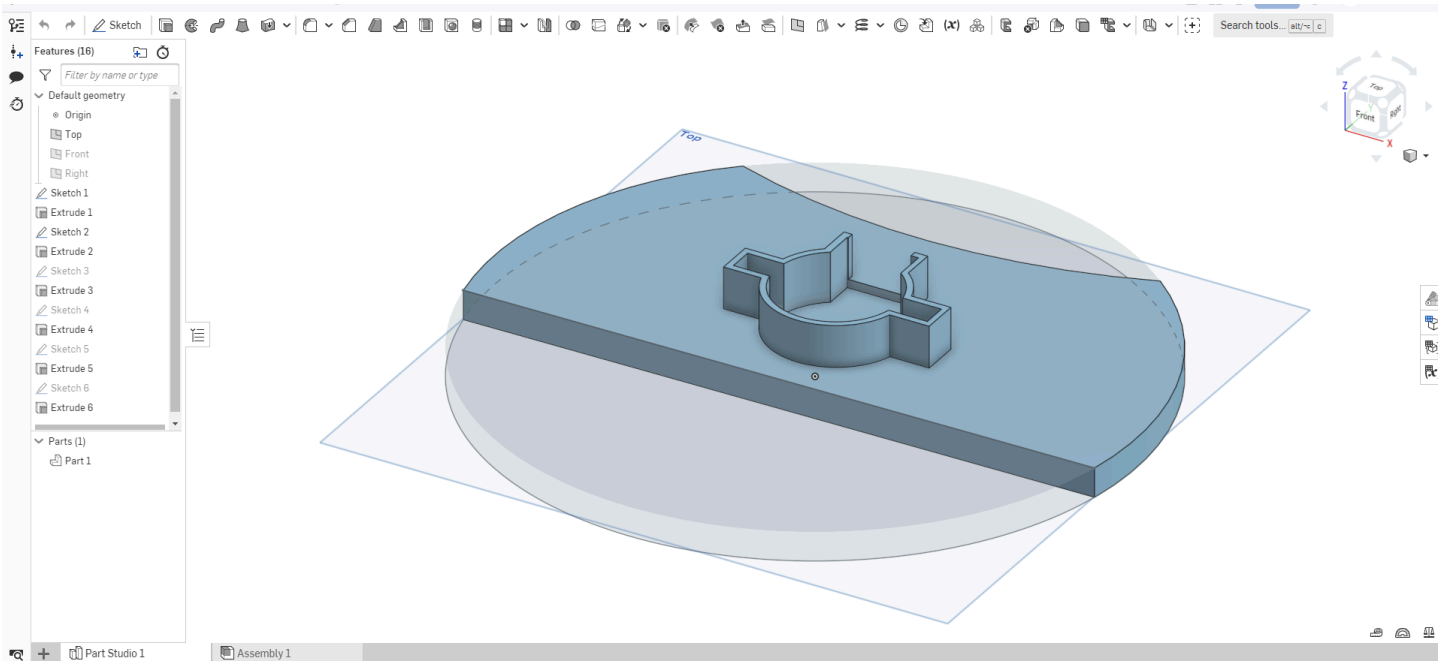


Spinning Disk schematic in closer detail

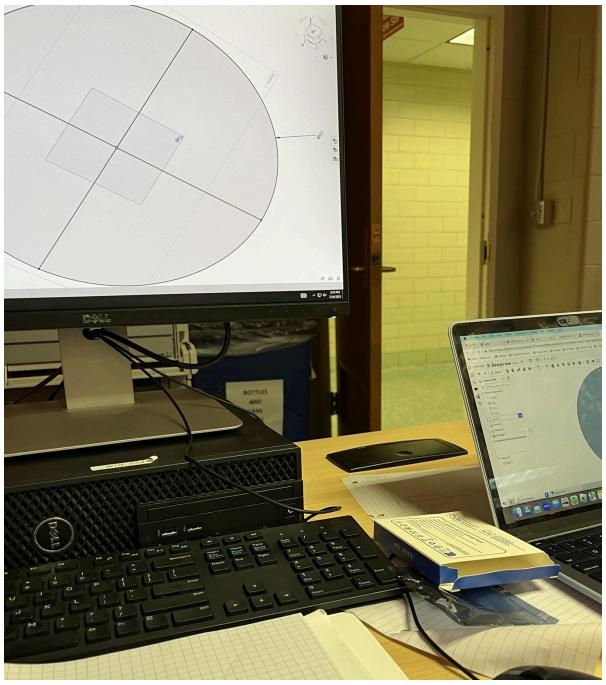


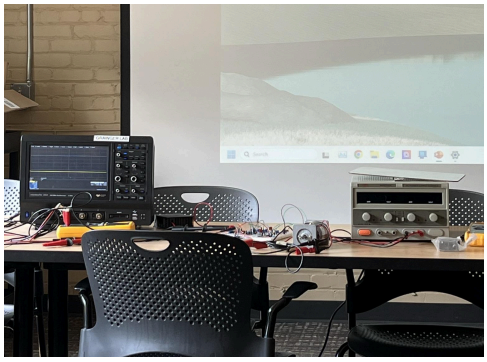


The shelf for holding Motor and opening for circuitry.



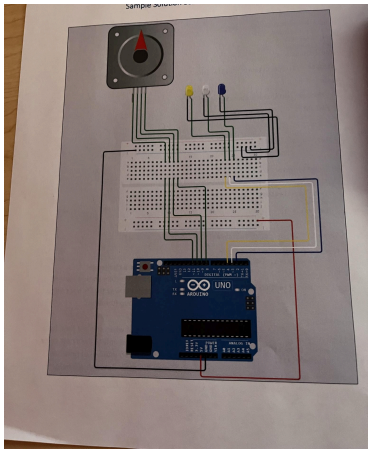
The design’s early stages in our school, using Desktops, laptops, and sketchbooks, and electronic tests



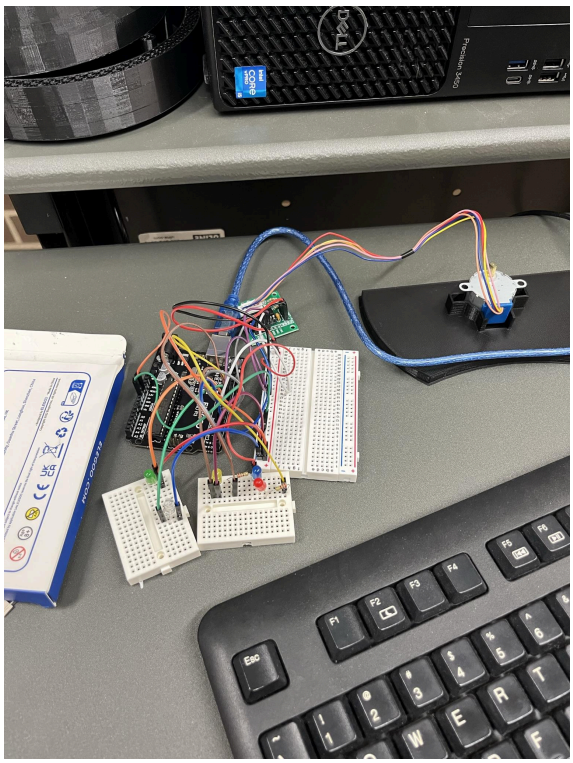


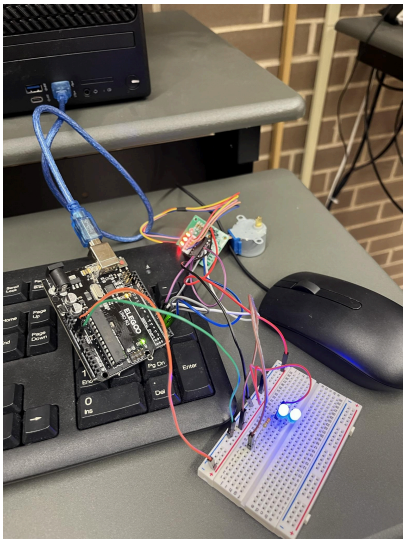
Some of my sample early code and schematics to test motor and system

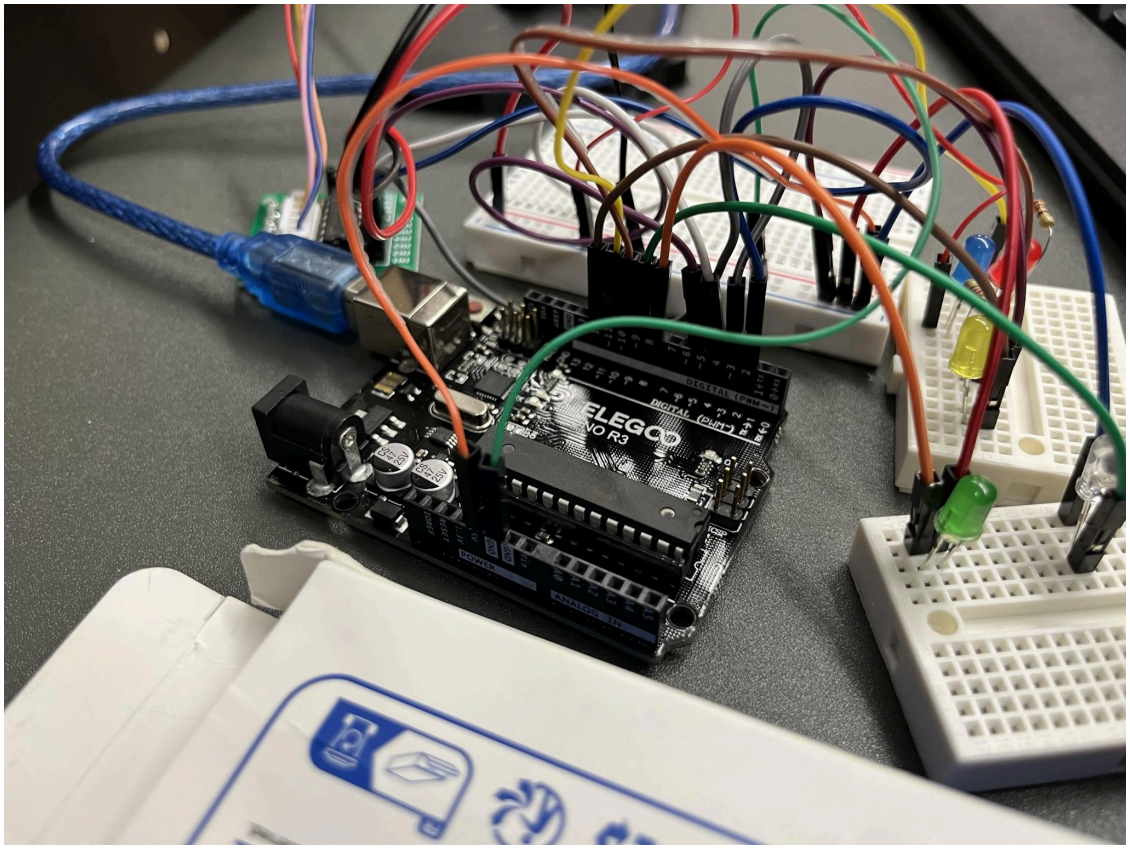
```
#include <Stepper.h>

int stepsPerRevolution = 200;
int stepperSpeed = 1;
int stepDelta = 1;

int timeDelay = 100;
int ledIndx = 2;

Stepper myStepper(stepsPerRevolution, 8, 9, 10, 11);

void setup() {
  myStepper.setSpeed(stepperSpeed);

  for (int i = 2; i <= 4; i++) {
    pinMode(i, OUTPUT);
  }

  Serial.begin(9600);
}

void lightToggle() {
  if (ledIndx < 4) {
    ledIndx = ledIndx + 1;
  } else {
    ledIndx = 2;
    Serial.println("Color Switch at: " + String(millis()));

    for (int i = 2; i <= 4; i++) {
      digitalWrite(i, LOW);
    }
  }
  digitalWrite(ledIndx, HIGH);
}

void loop() {
  lightToggle();
  myStepper.step(stepDelta);
  delay(timeDelay);
}
```



The actual development phase. Testing of circuits, refining Arduino code, and motor speed, fab parts







The final design right before the showcase! It turned out better than I could’ve imagined.