Jin Jeon
Info C262

Lab 7: DC Motors Output

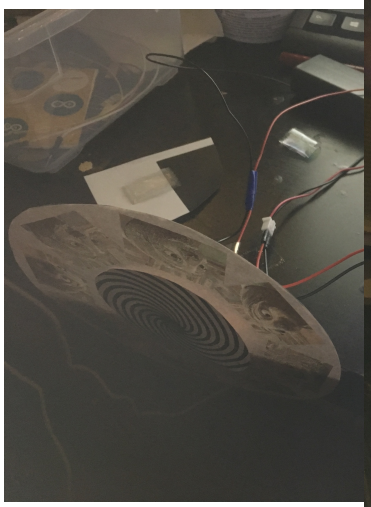
Description

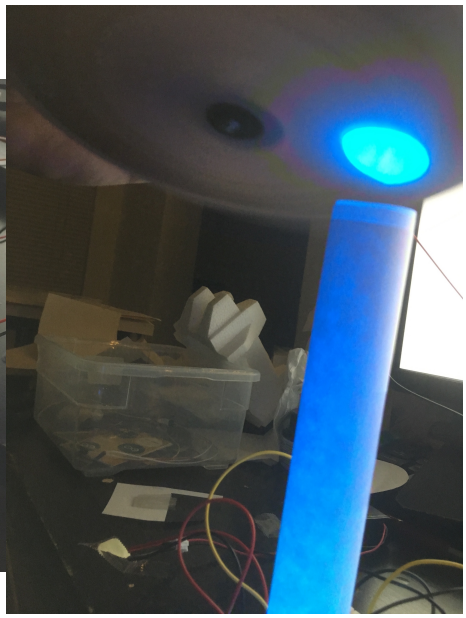
In this lab, I tried creating a strobotop, which is a visual illusion in which different frame rates of light and circular motion create static images to appear as if actually moving. Also, because I am affiliated with the vision science lab at Berkeley, I thought it was worth creating a work that is related and interesting to me.

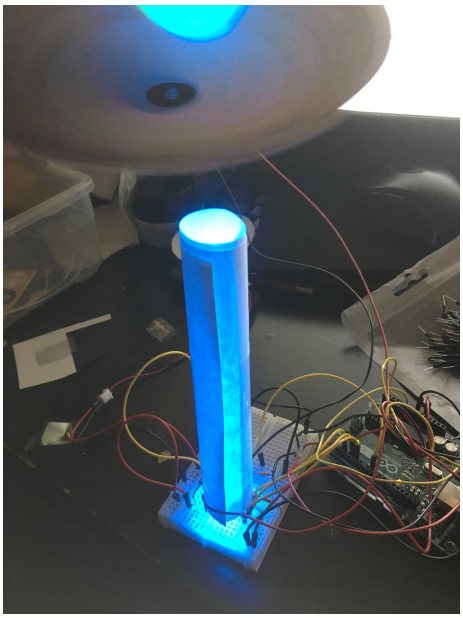
I first created a wheel with different static images using MATLAB code that I previously had from past work. From any GIF file, I am able to cut down the frames and create this certain image. I used the sloth from Zootopia, which I thought was cute.

I then set three LED lights to change their blinking speed depending on the potentiometer. I used a paper to create light to be emitted as a dot on the circular paper.

Under dark setting, with variation in speed of the motor and LED blinks, it is supposed to create the illusion of the sloth constantly moving and laughing, but for some reason, I have not been able to perfect it.

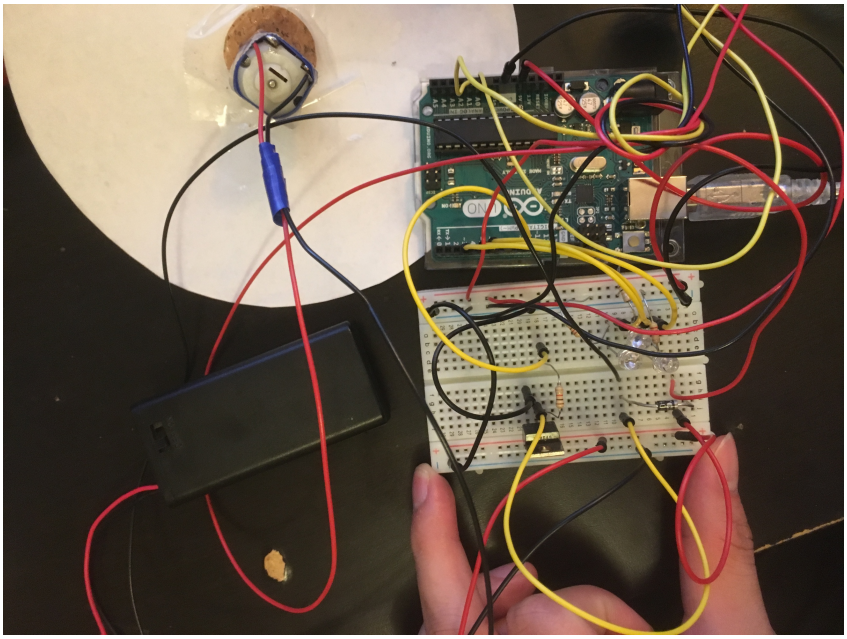






Components

1 Arduino
3 LED (red, green, blue)
1 DC motor
1 diode (1N4004)
1 TIP120 Transistor
3 Resistors
1 Breadboard
2 Potentiometer
1 Battery
9 Jumper wires



Arduino Code

```
// Jin Jeon
//Info C262 Lab 7

int motorPin = 9;
int potPin = A0;
int sensorPin_P1 = A1;   // Analogue input for Pot 0 that controls blinking
speed
int blink_rate = 0;  // variable to store the value coming from the sensor
int potVal = 0;
int motorCtrlVal = 0;
int ledPin_G = 3;
int ledPin_R = 5;
int ledPin_B = 6;

void setup() {
  pinMode(ledPin_R, OUTPUT);
  pinMode(ledPin_B, OUTPUT);
  pinMode(ledPin_G, OUTPUT);
  pinMode(potPin, INPUT);
  pinMode(motorPin, OUTPUT);
  Serial.begin(9600);
}

void loop() {
  potVal = analogRead(potPin);
  Serial.print("potVal: ");Serial.println(potVal);
  motorCtrlVal = map(potVal, 0, 1024, 0, 255);
  Serial.print("motorCtrlVal: ");Serial.println(motorCtrlVal);
  analogWrite(motorPin, motorCtrlVal);

  blink_rate = analogRead(sensorPin_P1);
  analogWrite(ledPin_R, 255);
  analogWrite(ledPin_G, 255);
  analogWrite(ledPin_B, 255);
  delay(blink_rate);
  analogWrite(ledPin_R, 0);
  analogWrite(ledPin_G, 0);
  analogWrite(ledPin_B, 0);
  delay(blink_rate);
}
```