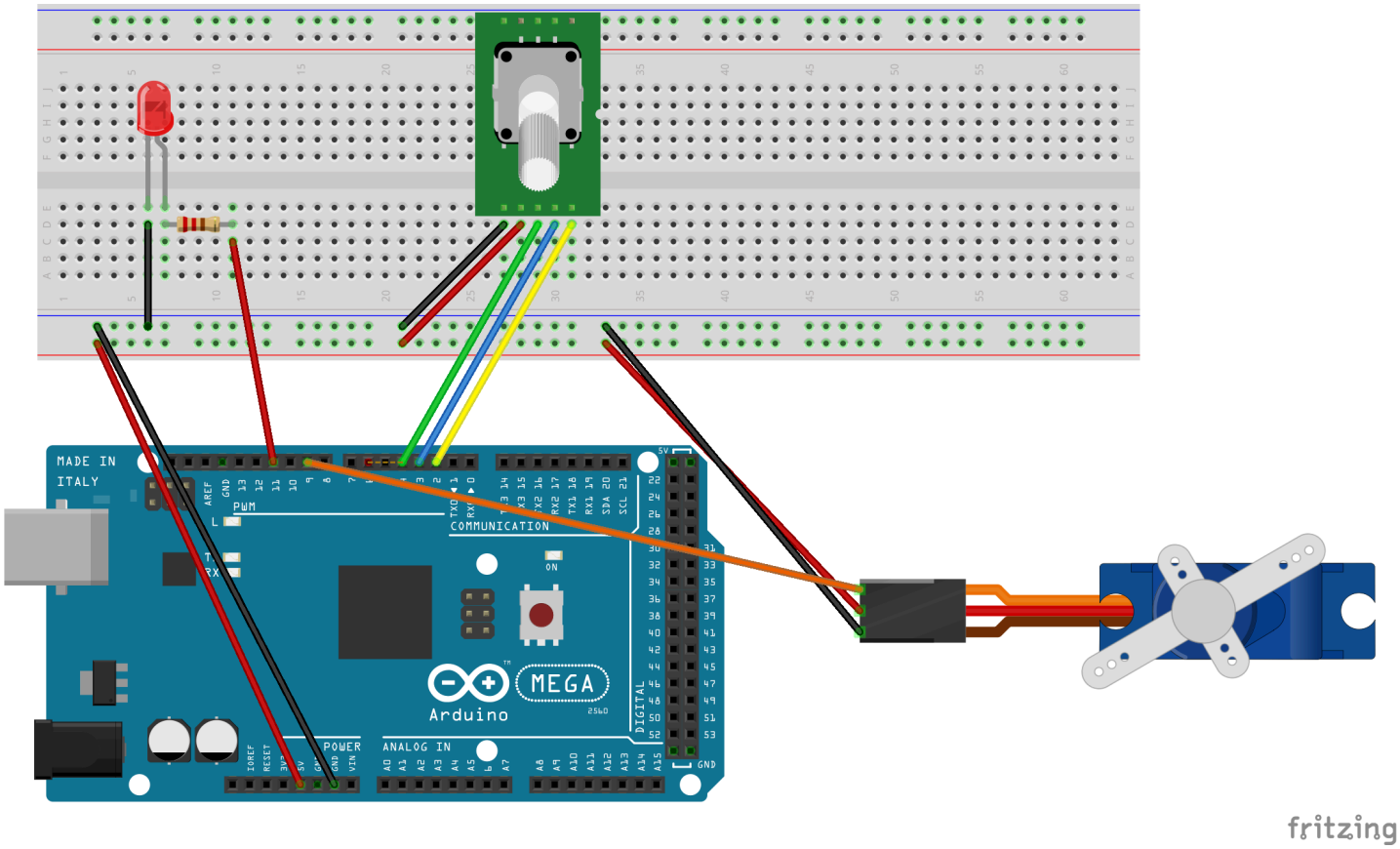
BUILD & CODE: ELEGOO ARDUINO STARTER KIT SERVO, LED, AND ENCODER PROJECT

This project will not only introduce the student, or new Arduino user, to micro servo control using a rotary encoder but also how to assemble a complete hardware and coding system using custom programming functions (subroutines).

Fritzing Construction

Use the image below to construct this project.



Bill of Materials (BOM)

Visit the link below for a complete bill of materials and links to purchase everything needed for this project from Amazon.

https://www.stevencombs.com/LINK

Arduino Code

Enter the code below into the Arduino IDE.

```
#include <Servo.h>
#define SW 4
#define CLK 3
#define DT 2

Servo servo;
int counter = 0;
int currentCLK;
int lastCLK;
int pinLED = 11;
int currentLED = true;
int lastSWpress = 0;

void setup() {
  pinMode(CLK,INPUT);
  pinMode(DT,INPUT);
  pinMode(SW,INPUT_PULLUP);
  servo.attach(9);
  servo.write(counter);
  lastCLK = digitalRead(CLK);
}

void loop(){
  buttonPress();
  if (currentLED == 0) {
   servoControl();
  }
}

void buttonPress() {
  lastCLK = currentCLK;
  int buttonState = digitalRead(SW);
  if (buttonState == LOW) {
    if (millis() - lastSWpress > 50) {
      digitalWrite(pinLED, currentLED);
      currentLED = !currentLED;
    }
    lastSWpress = millis();
  }
```

```
  delay(1);
}

void servoControl() {
  currentCLK = digitalRead(CLK);
  if (currentCLK != lastCLK  && currentCLK == 1){
    if (digitalRead(DT) != currentCLK) {
      counter --;
      if (counter<0)
        counter=0;
    } else {
      counter ++;
      if (counter>179)
        counter=179;
    }
    servo.write(counter);
  }
  lastCLK = currentCLK;
}
```