

ARDUINO WORKSHOP

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Contents

- 1x Arduino Nano
- 3x 300-ohm resistor
- 2x LED (Red & Green)
- 1x Tactile Button
- 1x Servo
- 4x White Wires
- 3x Red Wires
- 3x Black Wires

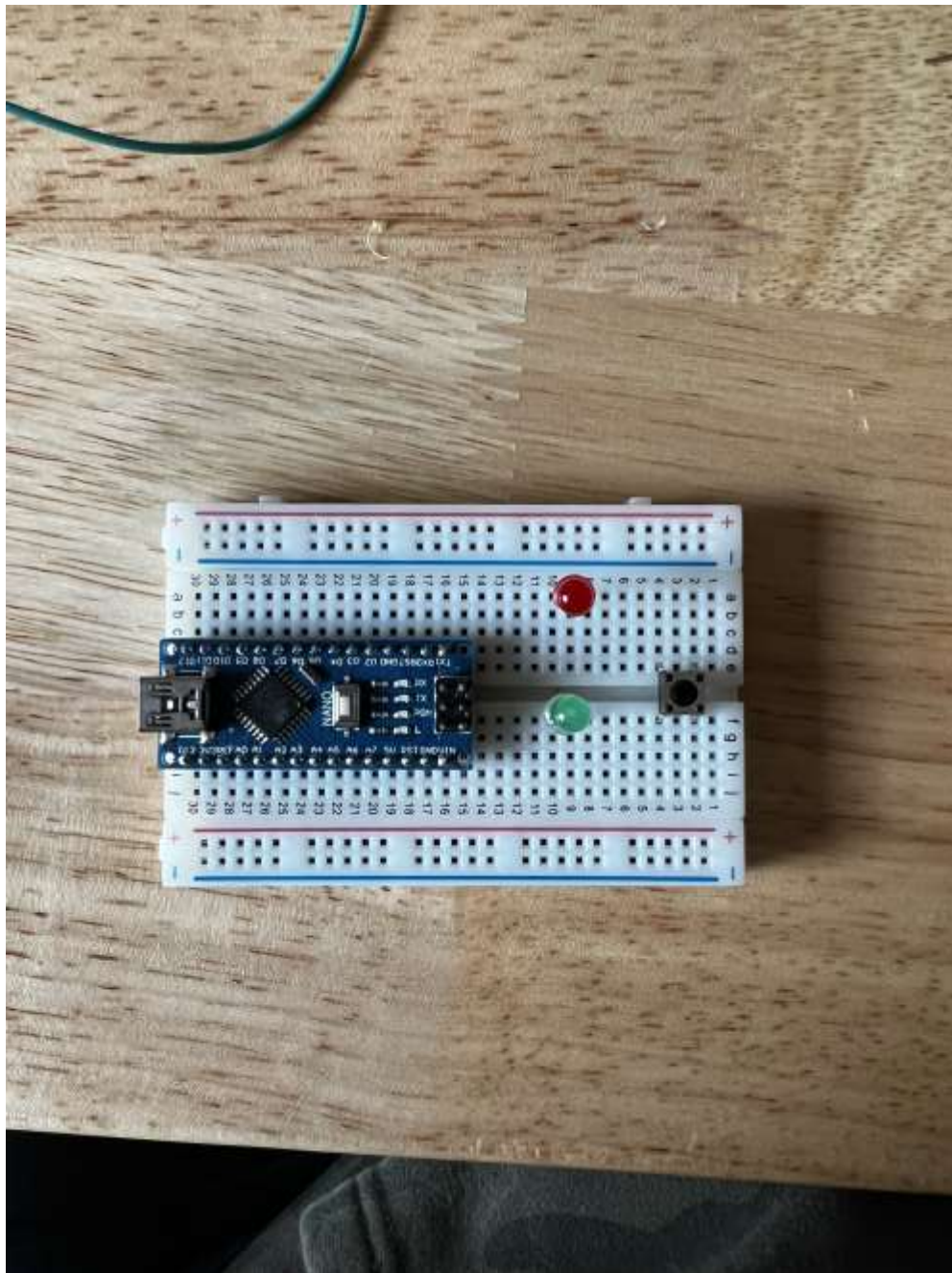
Step 1- Placing Components

R_LED - Anode b8, Cathode b10

G_LED - Anode g8, Cathode g10

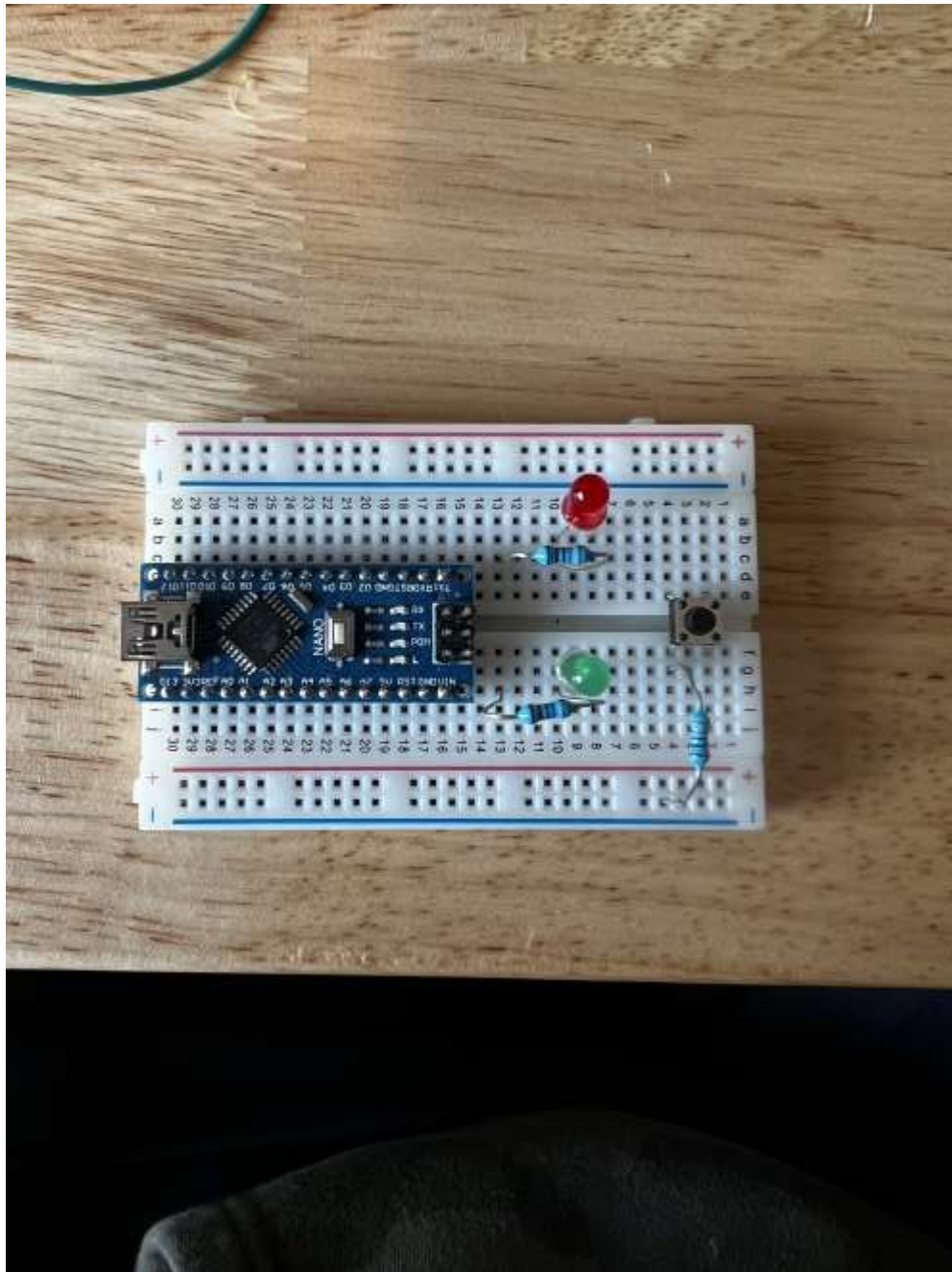
Arduino - d30-16, g30-16 (Be sure USB faces out)

Button – Top (e2 – e4) Bottom (f2 – f4)



Step 2- Placing Components

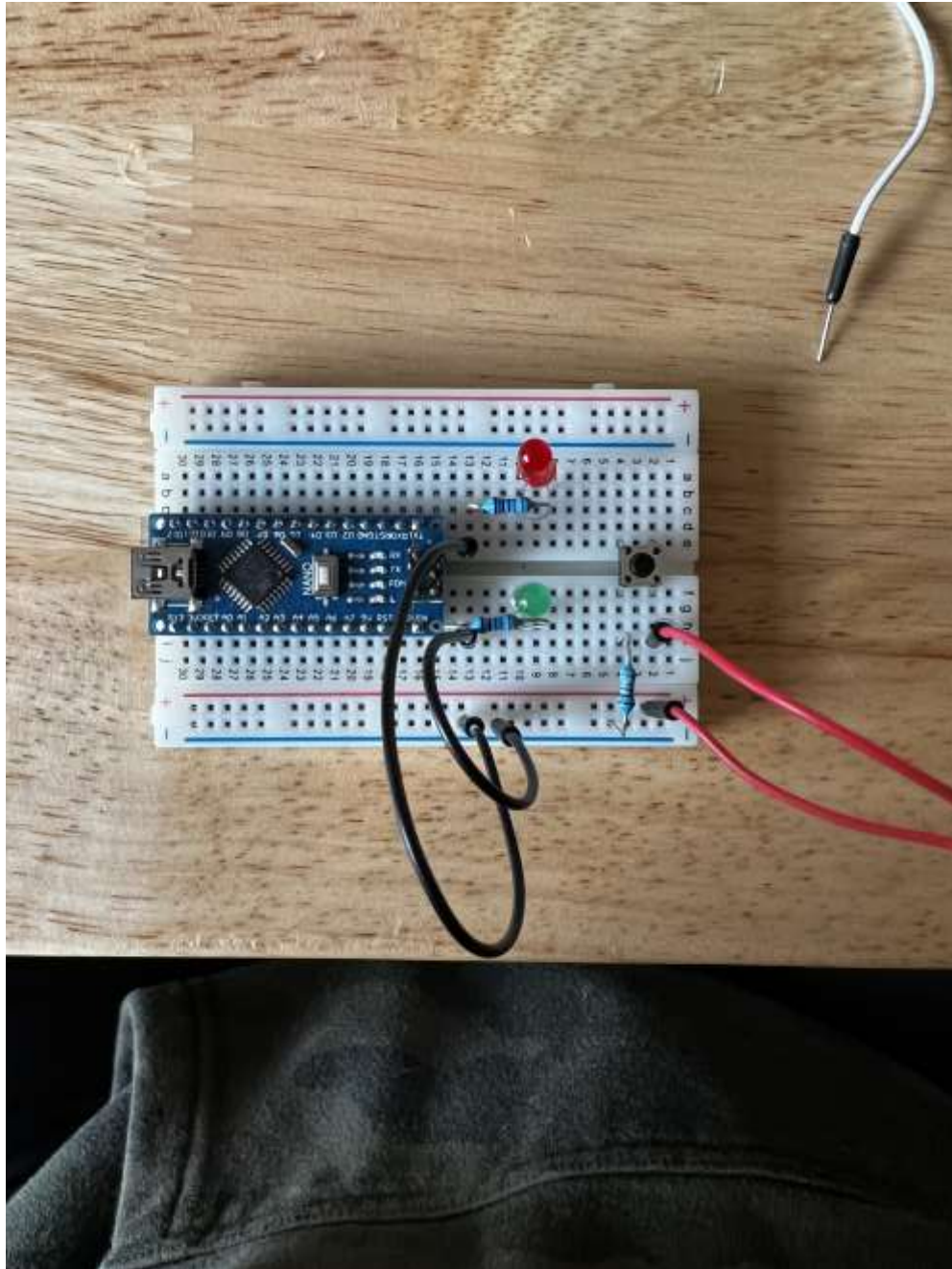
300-ohm resistors (c10, c13) (g4, g13) (g4, ground)



Step 3- Placing Components

Ground Wires - (e13, ground) (i13, ground)

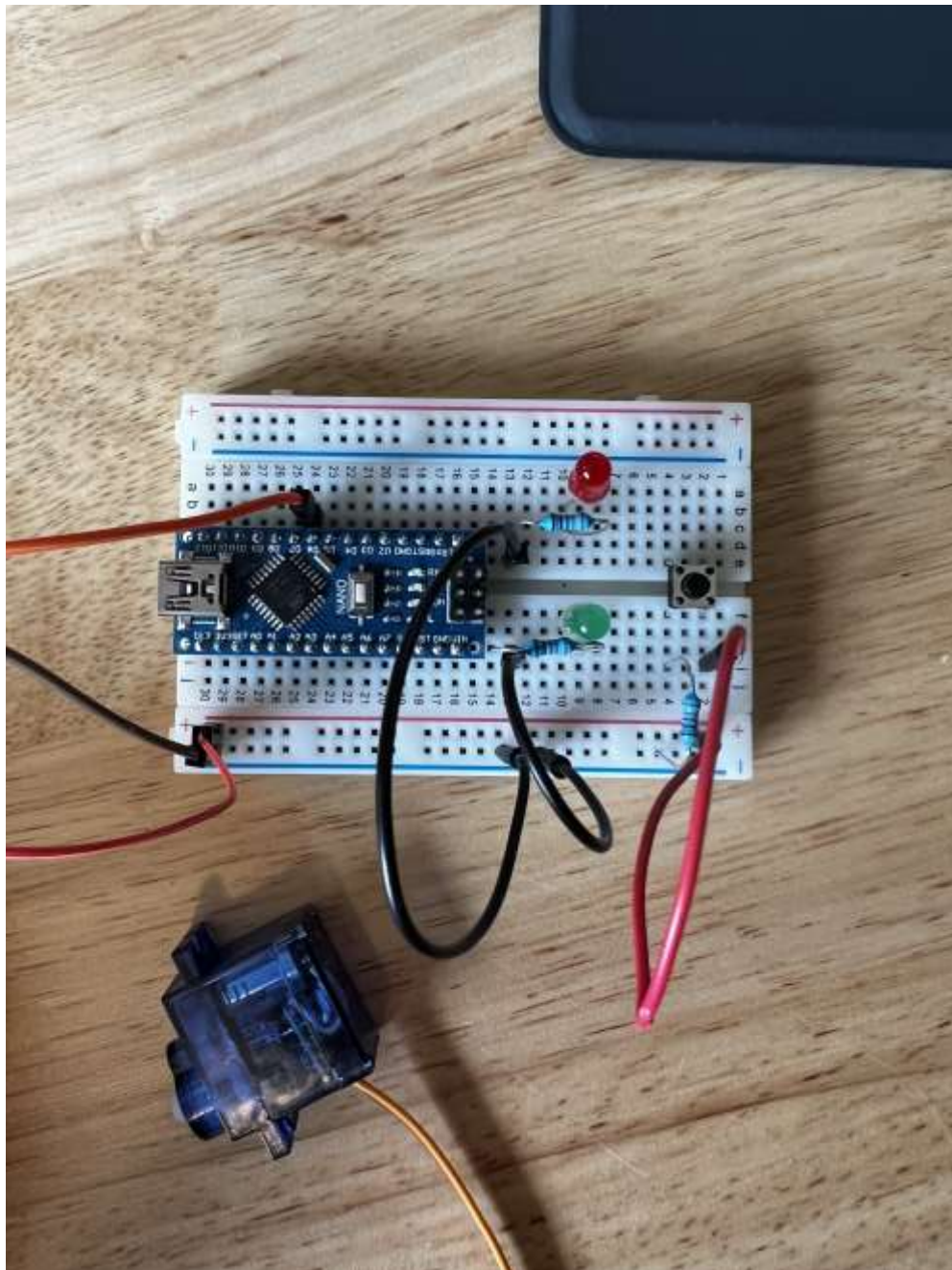
5v Wires – (i2, red channel)



Step 4- Placing Components

Connect three male to male wires to servo header. Red is voltage in, brown is ground, orange is digital signal in.

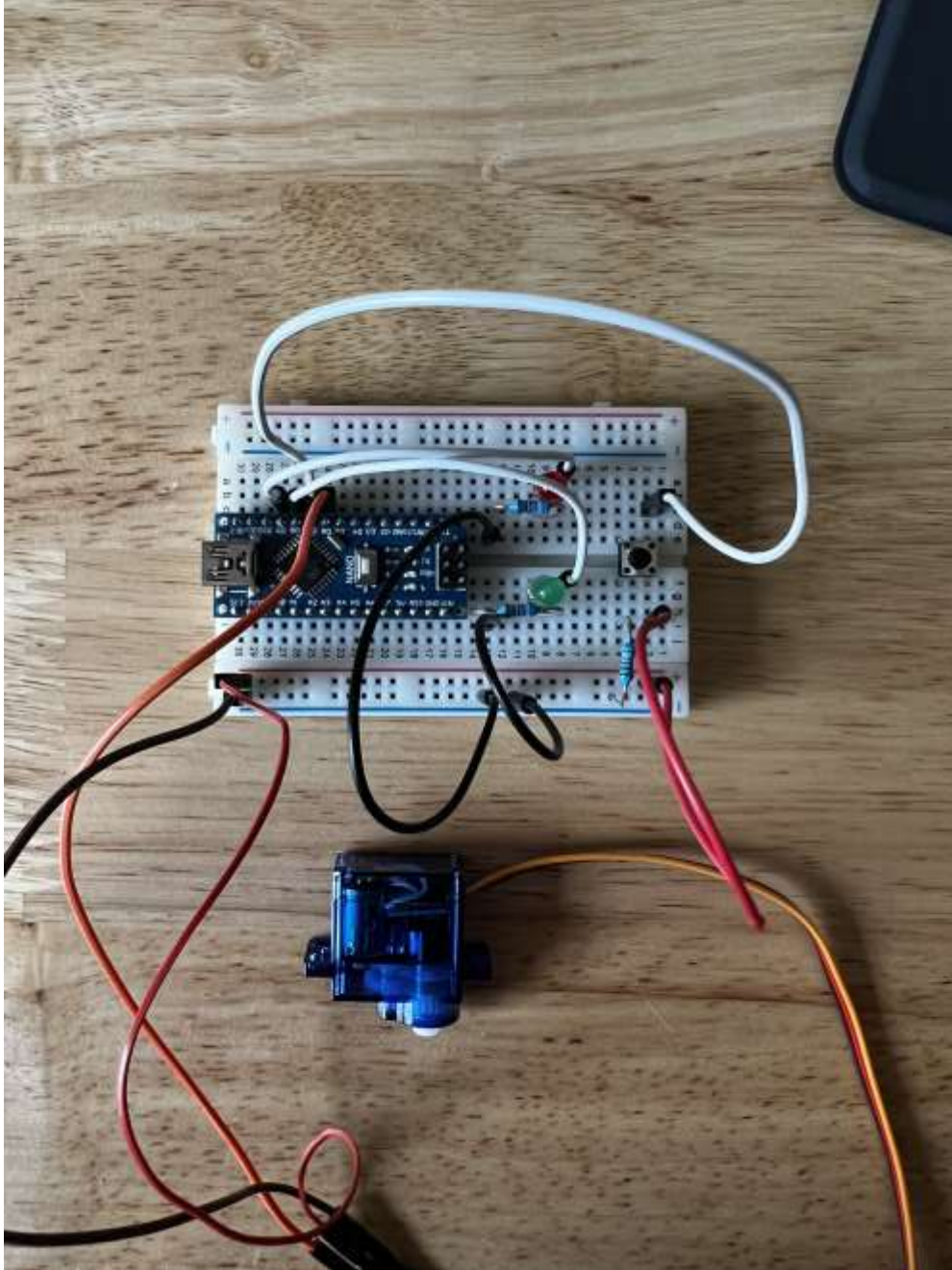
- Connect digital wire to D6
- Connect ground wire to ground channel
- Connect voltage wire to voltage channel



Step 5- Placing Components

Connecting Components to Digital Pins

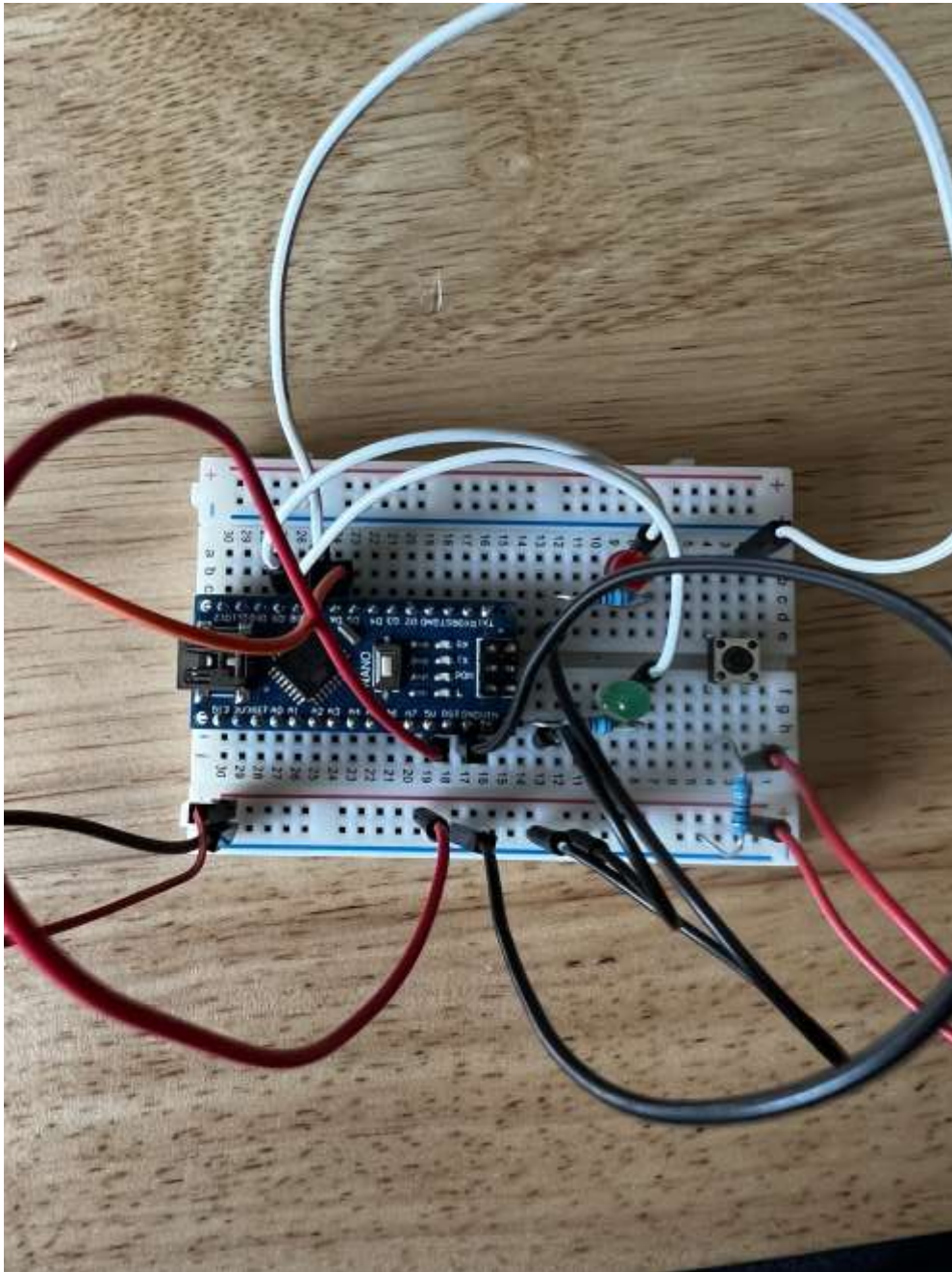
- (a8, c27) (f8, c26) (c2, c25)



Step 6- Placing Components

Connecting 5v and ground to their respective channels

- Red (i19, 5v channel)
- Black (i17, ground channel)



Step 7- Copy-pasting Code

Take the code below and paste it into the Arduino software on your PC

```
#include <Servo.h> // Depending on what components are being used for

#define OPEN 90 // #Define is a function that allows users to have a label in place of what the compiler actually reads
#define CLOSE 0 // For example, here we read the word close, but because of #define, the compiler will read CLOSE as the number 0

int button = 7; // These are declaration statement of variables
int green = 8; // Similar to define, they function as saved labels the compiler can read
int red = 9;
int laststate = 0;
Servo servo; // Servo is a function used to declar and name a servo. In this case, the servo label name is servo.

void setup() // void setup is where code prior to entering the loop is computed. For the most part, setup is used to
{
    // designate pins to i/o, along with the pre-loop state of the components.

    pinMode(green, OUTPUT); // pinMode is used to declare digital pins as either inputs or outputs
    pinMode(red, OUTPUT);
    pinMode(button, INPUT);
    servo.attach(6); // .attach is a function used to declare which pin a given component is set to
    servo.write(CLOSE); // .write is a function used to set an output to something. In this case we are setting the servo to 0 degrees. Note, CLOSE is
    defined as 0

    digitalWrite(red, HIGH); // The digitalWrite() function is used to write a HIGH or a LOW value to a given digital pin.
    digitalWrite(green, LOW); // In the case of an LED as such, HIGH is on, LOW is off.
}

void loop()
{
    if(digitalRead(button) == HIGH && laststate == 0) // an if statement only allows what happens within the {} to occur if the statement in () is true.
    {
        digitalWrite(green, HIGH);
        digitalWrite(red, LOW);
        laststate = 1;
        servo.write(OPEN);
        delay(500);
    }

    if(digitalRead(button) == HIGH && laststate == 1)
    {
        digitalWrite(green, LOW);
        digitalWrite(red, HIGH);
        laststate = 0;
        servo.write(CLOSE);
        delay(500);
    }
}
```