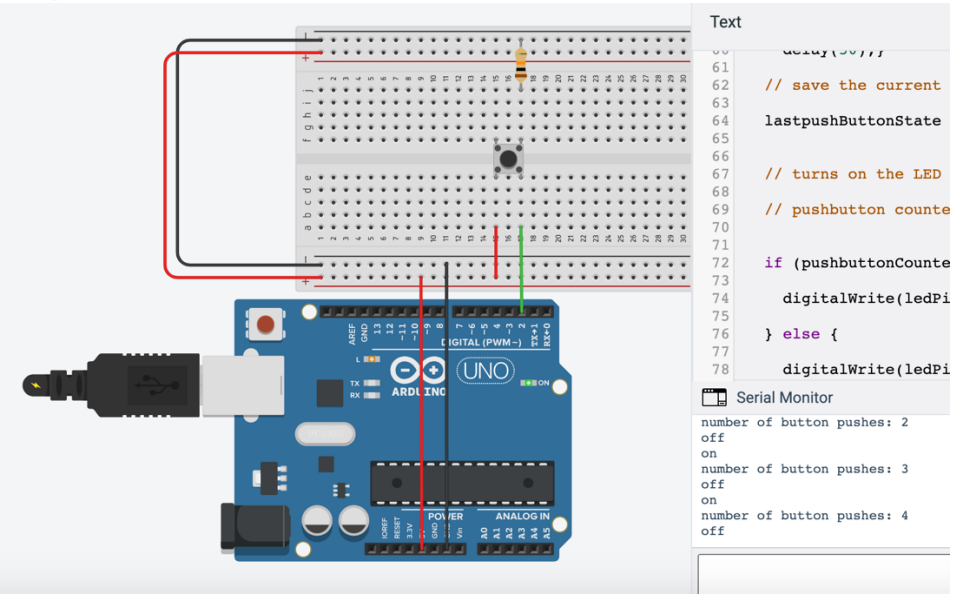
Week 2 Tuesday – Taibah Valley – Task 4
S. Y. Al-Kafrawi 20th of June 2020
Read Button States

```
const int  pushbuttonPin = 2;     // the pin for the pushbutton
const int ledPin = 13;       // the pin for LED
// Variables will change:
int pushbuttonCounter = 0;   // counter for the number of button presses
int pushbuttonState = 0;         // current state of the button
int lastpushButtonState = 0;     // previous state of the button
void setup() {
  // initialize the pushbutton pin as a input:
  pinMode(pushbuttonPin, INPUT);
  // initialize the LED as an output:
  pinMode(ledPin, OUTPUT);
  // initialize serial communication:
  Serial.begin(9600);}
void loop() {
  // read the pushbutton input pin:
  pushbuttonState = digitalRead(pushbuttonPin);
  // compare the pushbuttonState to its previous state
  if (pushbuttonState != lastpushButtonState) {
    // if the state has changed, increment the counter
    if (pushbuttonState == HIGH) {
      // if the current state is HIGH then the pushbutton went from off to
on:
      pushbuttonCounter++;
      Serial.println("on");
      Serial.print("number of button pushes: ");
      Serial.println(pushbuttonCounter); } else { // if the current state
is LOW then the button went from on to off:
  Serial.println("off");}
// Short delay to avoid bouncing
    delay(50);}
  // save the current state as the last state, for next time through the
loop
  lastpushButtonState = pushbuttonState;
  // turns on the LED every four button pushes by checking the modulo of
the
  // pushbutton counter.
  if (pushbuttonCounter % 4 == 0) { digitalWrite(ledPin, HIGH);} else
{digitalWrite(ledPin, LOW);}}
```



Force Sensor

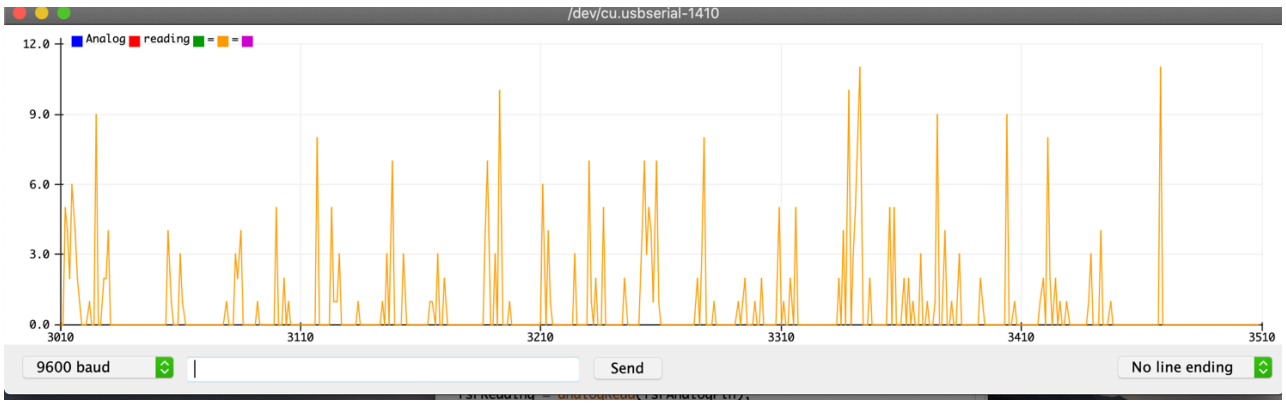
Code

```
int fsrAnalogPin = 0; // FSR is connected to analog 0
int LEDpin = 11;      // connect Red LED to pin 11 (PWM pin)
int fsrReading;      // the analog reading from the FSR resistor divider
int LEDbrightness;

void setup(void) {
  Serial.begin(9600);   // We'll send debugging information via the Serial
monitor
  pinMode(LEDpin, OUTPUT);
}

void loop(void) {
  fsrReading = analogRead(fsrAnalogPin);
  Serial.print("Analog reading = ");
  Serial.println(fsrReading);

  // we'll need to change the range from the analog reading (0-1023) down
to the range
  // used by analogWrite (0-255) with map!
  LEDbrightness = map(fsrReading, 0, 1023, 0, 255);
  // LED gets brighter the harder you press
  analogWrite(LEDpin, LEDbrightness);

  delay(100);
```

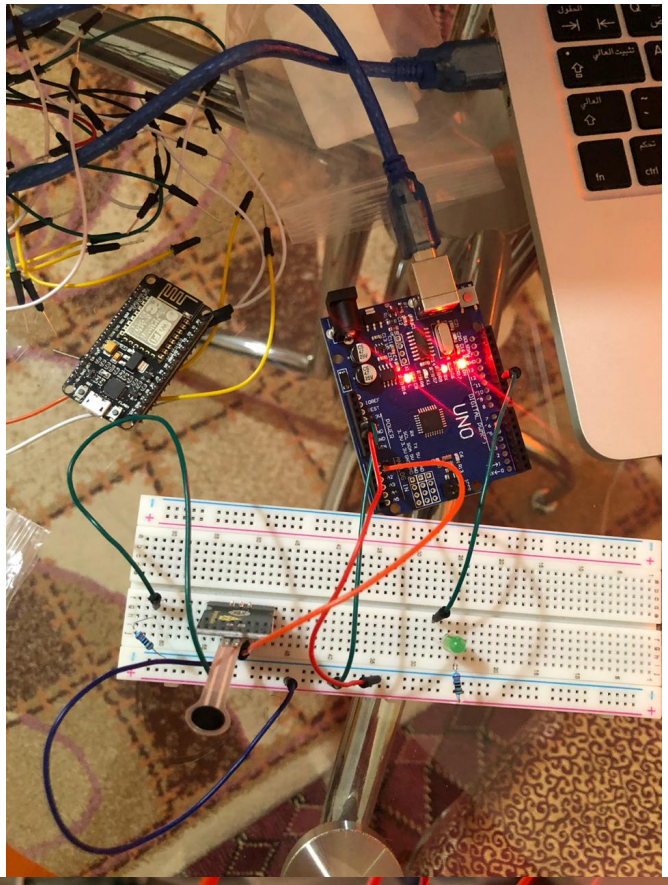
Serial Monitor

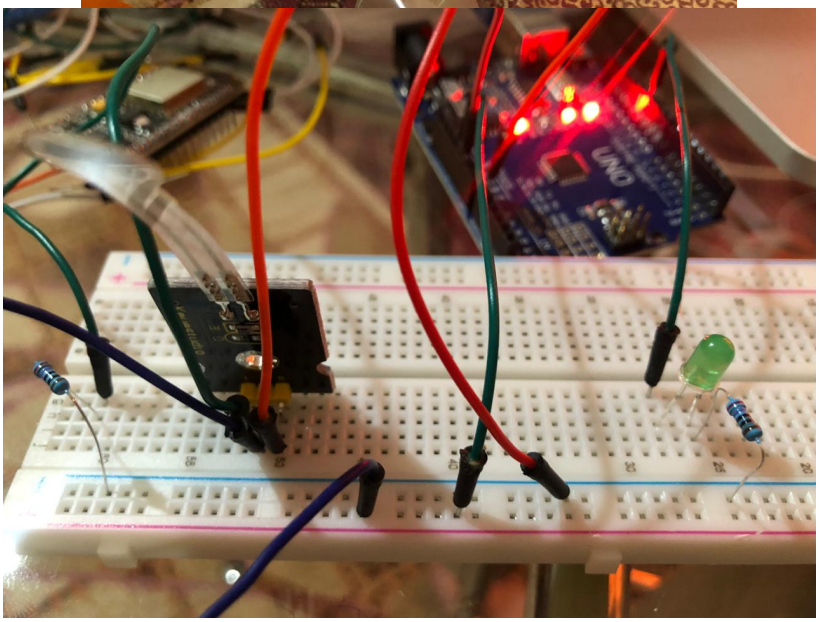
```
Analog reading = 0
Analog reading = 35
Analog reading = 0
Analog reading = 454
Analog reading = 300
Analog reading = 0
Analog reading = 0
Analog reading = 0
Analog reading = 36
Analog reading = 0
Analog reading = 0
Analog reading = 374
Analog reading = 532
Analog reading = 444
Analog reading = 0
Analog reading = 0
```

Serial plotter



Circuit





Demonstration video

https://youtu.be/OaUWqZshO5U