

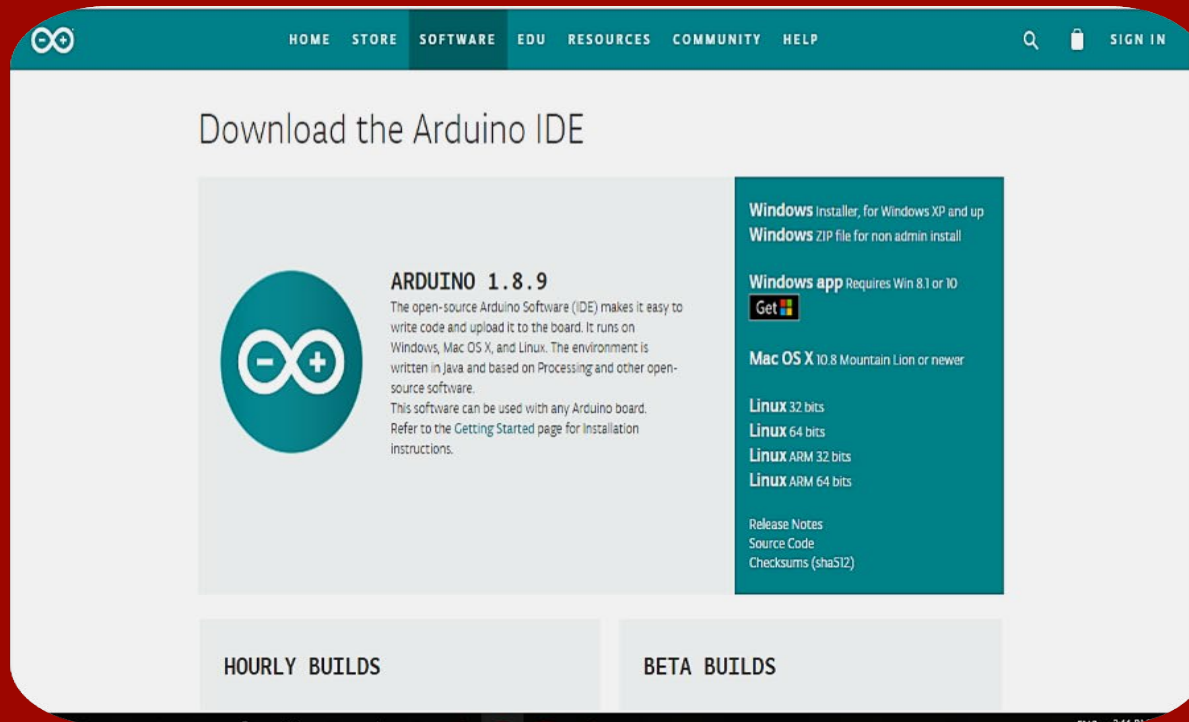


Arduino Skills

Serial Monitor and Plotter

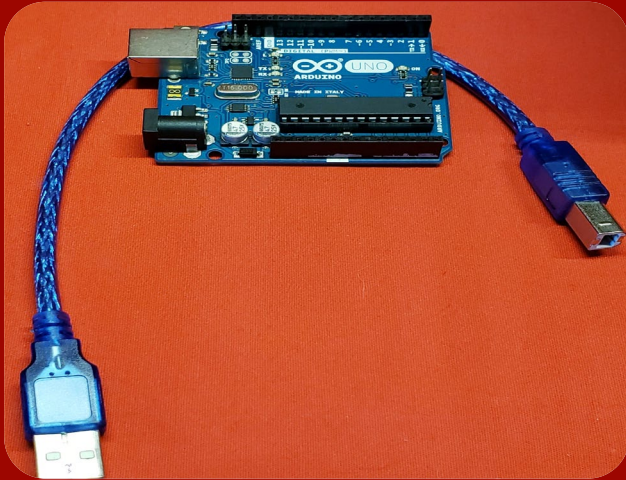
Introduction

The Arduino® IDE especially useful for STEAM projects. They are used to output data. Serial Monitor can output raw numbers and text while Plotter can create simple graphs.



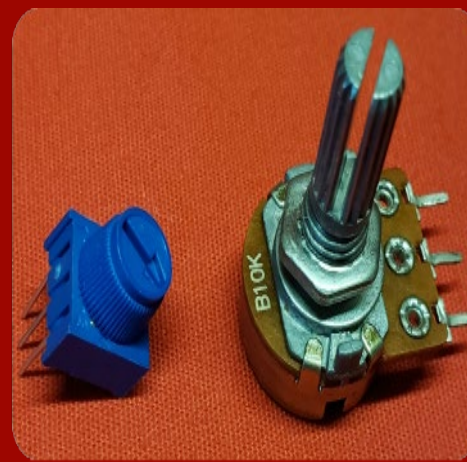
Materials

USB Cable

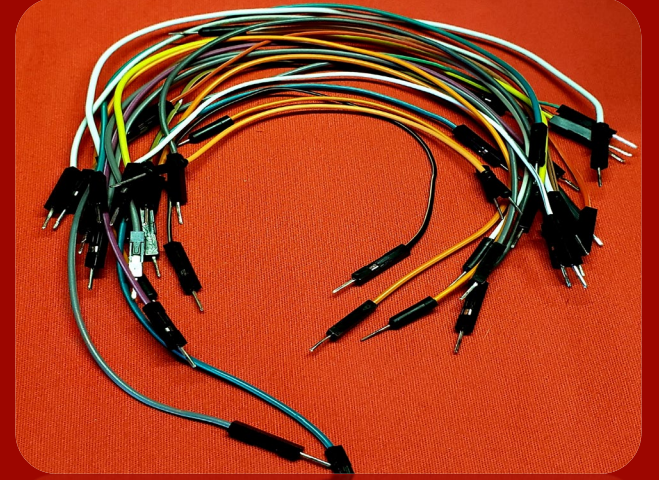


Microcontroller

Potentiometer



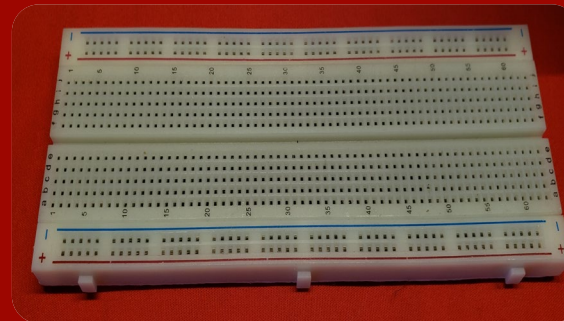
cables



Computer

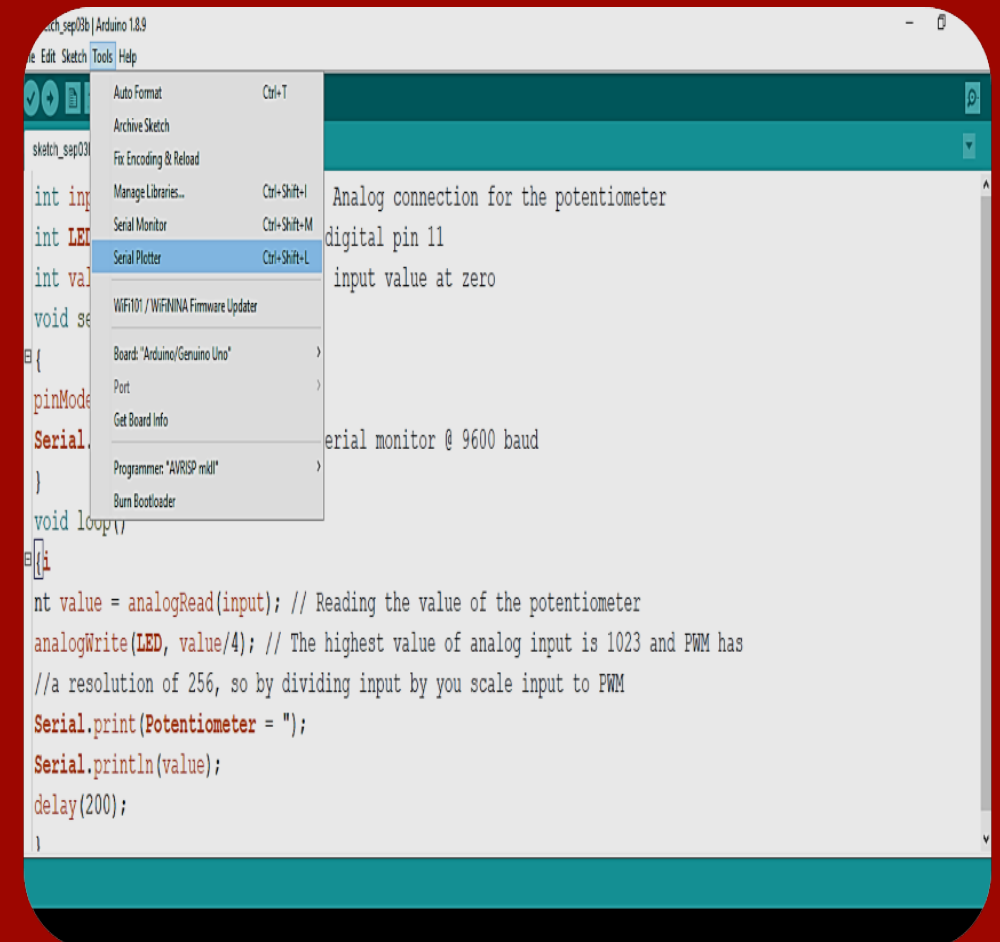
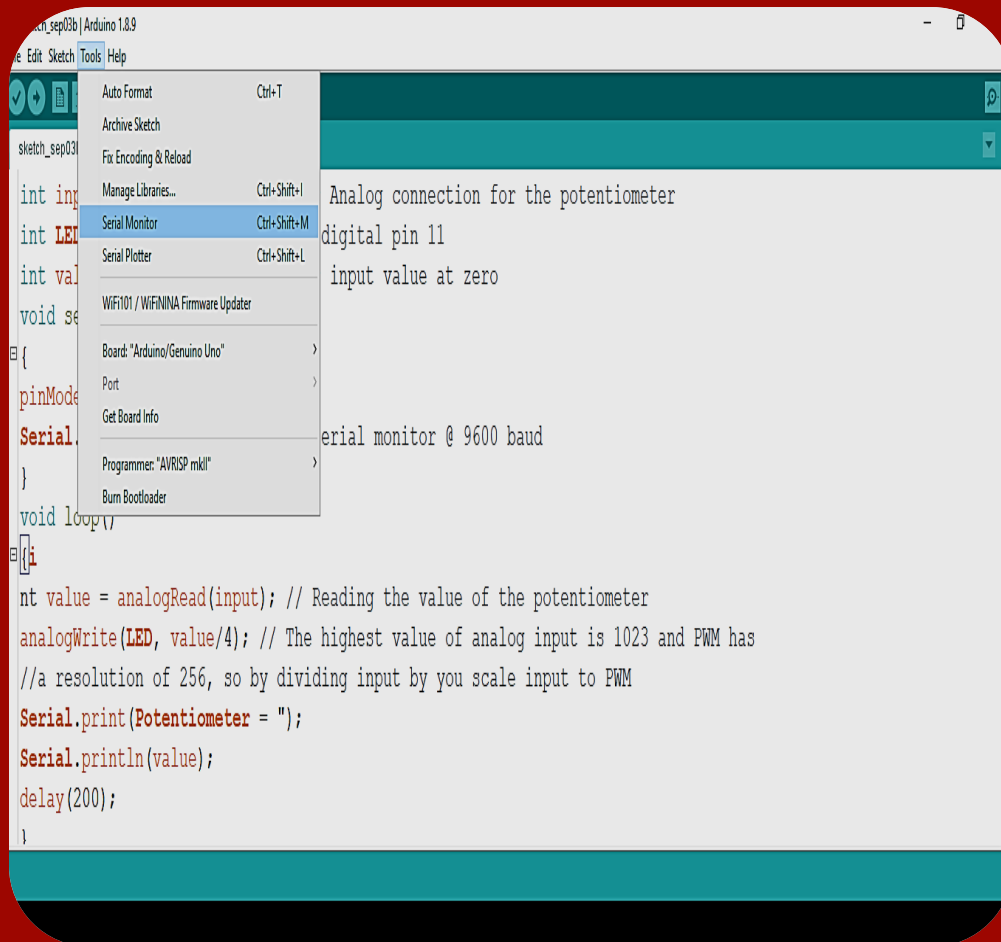


Breadboard

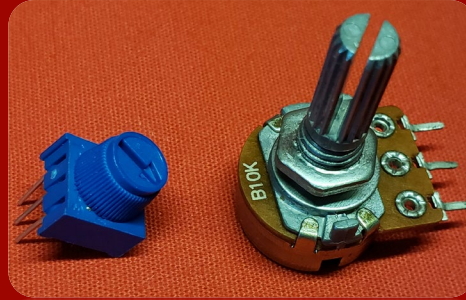


Objective

- Learning how to receive and send data through the Serial Monitor
- Learning how to create graphs using the Serial Plotter

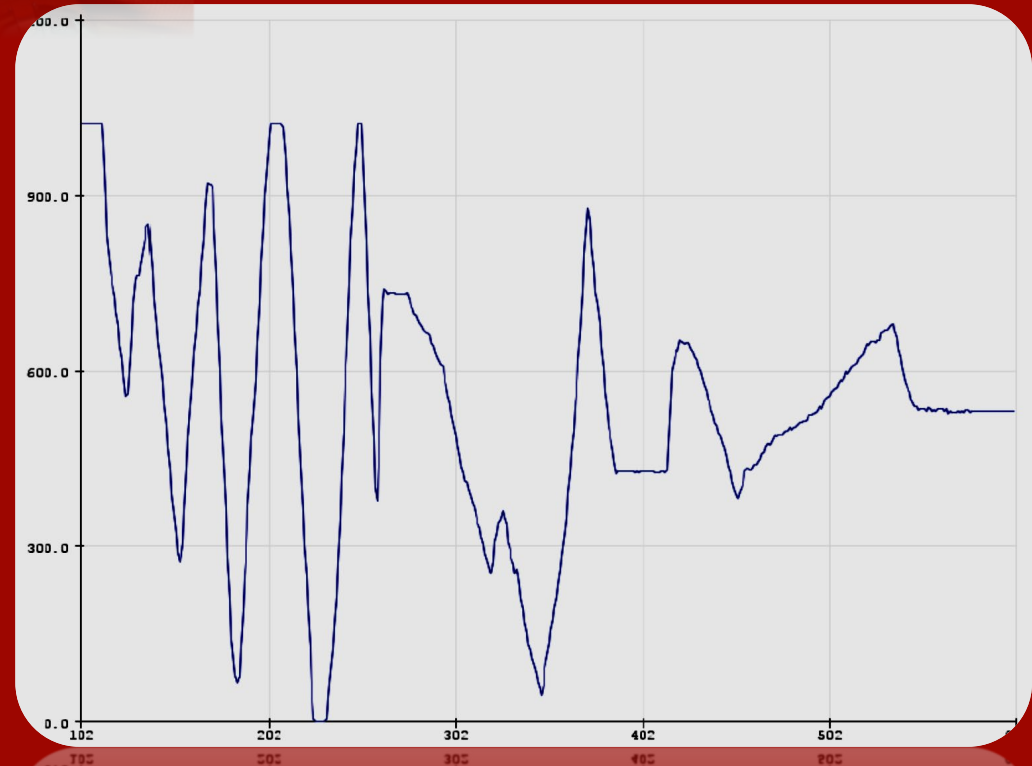


Application

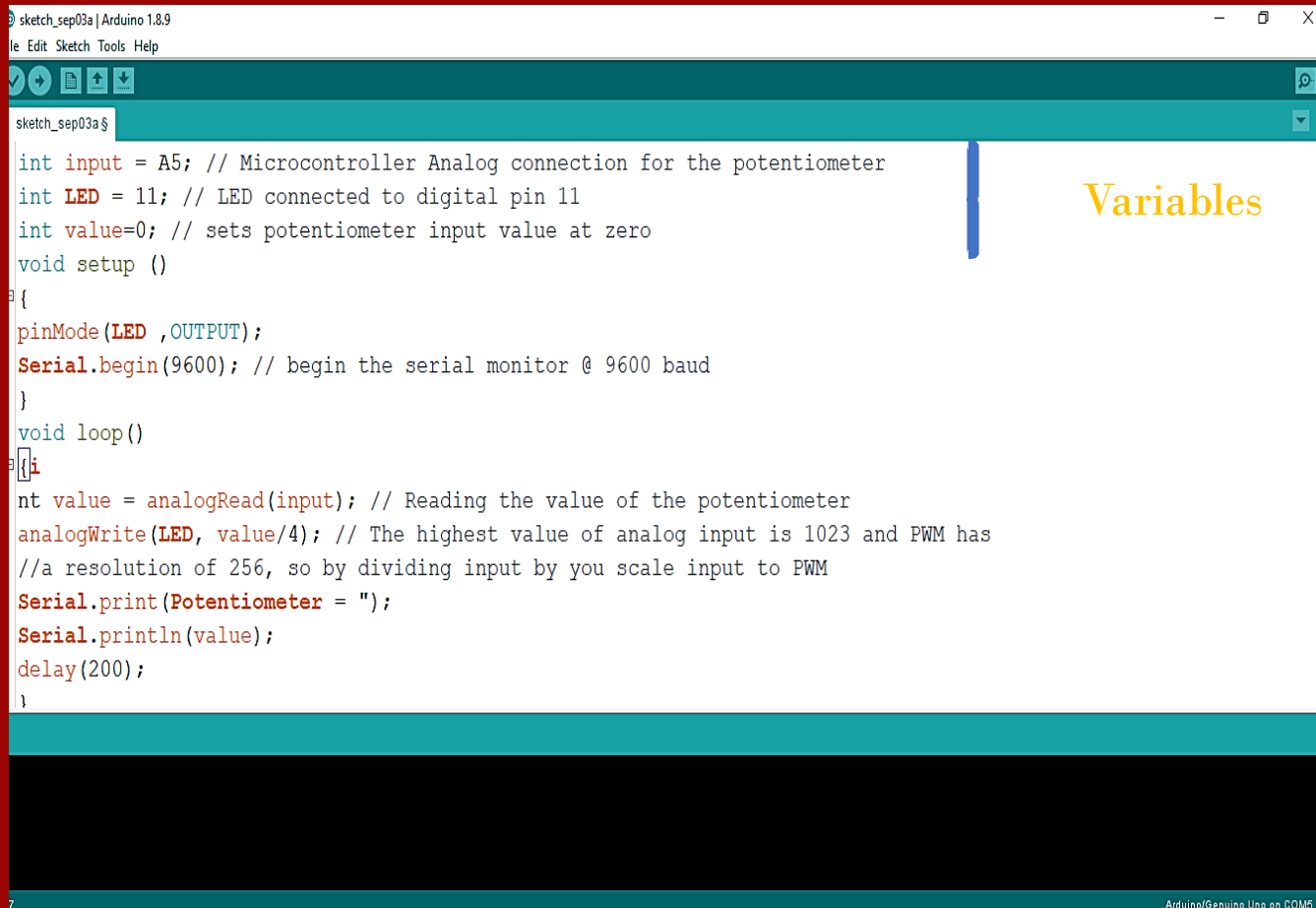


COM3 (Arduino/Genuino Uno)

```
Potentiometer = 1023  
Potentiometer = 1023  
Potentiometer = 1023  
Potentiometer = 1023  
Potentiometer = 850  
Potentiometer = 698  
Potentiometer = 666  
Potentiometer = 461  
Potentiometer = 220  
Potentiometer = 0  
Potentiometer = 0  
Potentiometer = 0  
Potentiometer = 0
```



Serial Monitor



```
sketch_sep03a | Arduino 1.8.9
File Edit Sketch Tools Help

sketch_sep03a $

int input = A5; // Microcontroller Analog connection for the potentiometer
int LED = 11; // LED connected to digital pin 11
int value=0; // sets potentiometer input value at zero
void setup ()
{
  pinMode(LED ,OUTPUT);
  Serial.begin(9600); // begin the serial monitor @ 9600 baud
}
void loop()
{
  int value = analogRead(input); // Reading the value of the potentiometer
  analogWrite(LED, value/4); // The highest value of analog input is 1023 and PWM has
  //a resolution of 256, so by dividing input by you scale input to PWM
  Serial.print(Potentiometer = ");
  Serial.println(value);
  delay(200);
}
```

Variables

Include:

Variables

Void setup

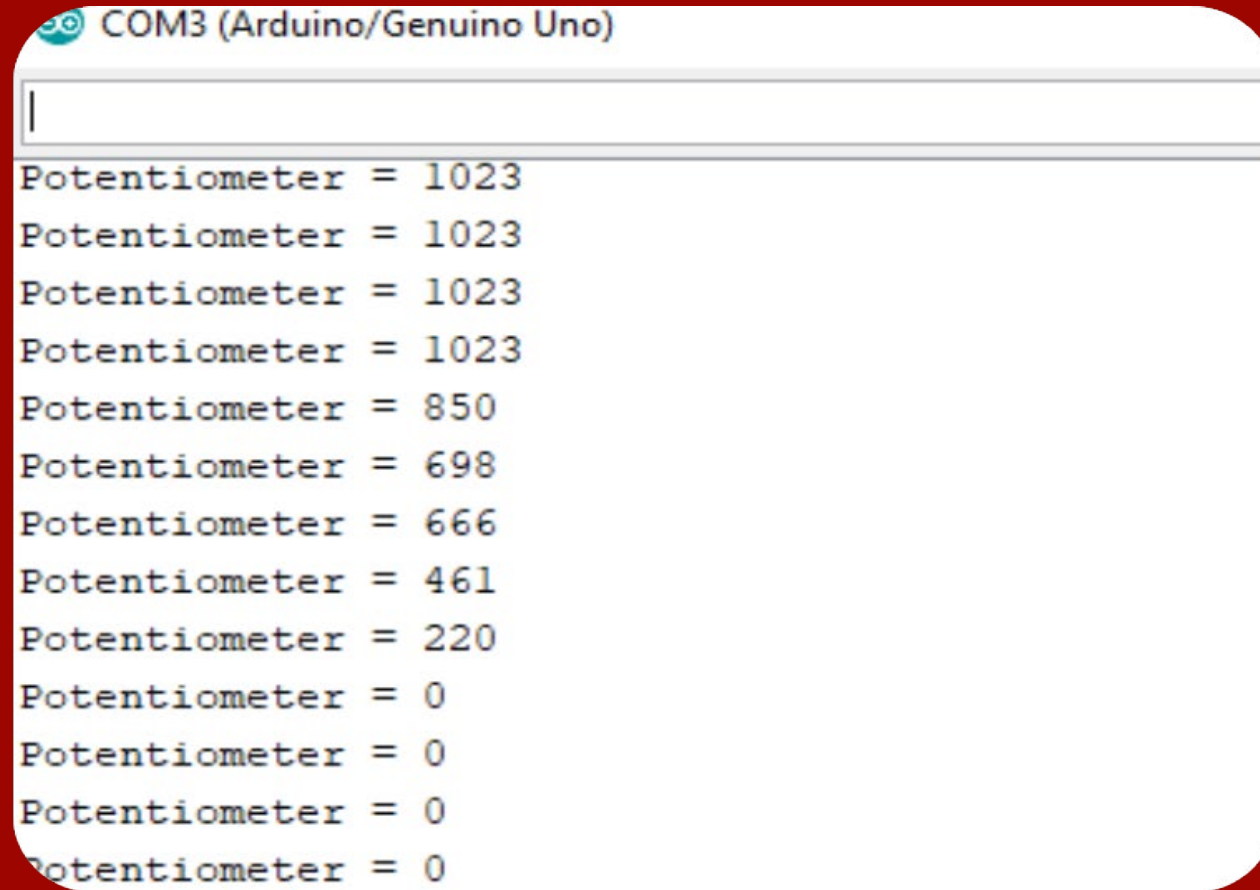
Serial.begin (9600);

void loop

Serial.print(Potentiometer = ");

Serial.println(value);

Serial Monitor displayed on Arduino IDE



The screenshot shows the Serial Monitor window in the Arduino IDE. The title bar indicates the connection is to 'COM3 (Arduino/Genuino Uno)'. The window contains a list of text messages received from the Arduino board, each representing a potentiometer reading. The values start at 1023, decrease to 850, 698, 666, 461, and 220, then drop to 0 and remain there for the last four lines shown.

```
COM3 (Arduino/Genuino Uno)  
  
Potentiometer = 1023  
Potentiometer = 1023  
Potentiometer = 1023  
Potentiometer = 1023  
Potentiometer = 850  
Potentiometer = 698  
Potentiometer = 666  
Potentiometer = 461  
Potentiometer = 220  
Potentiometer = 0  
Potentiometer = 0  
Potentiometer = 0  
Potentiometer = 0
```

Serial Plotter

Serial Plotter displayed on Arduino IDE

