



Digital Light

BH-1750 วัดความเข้มแสง

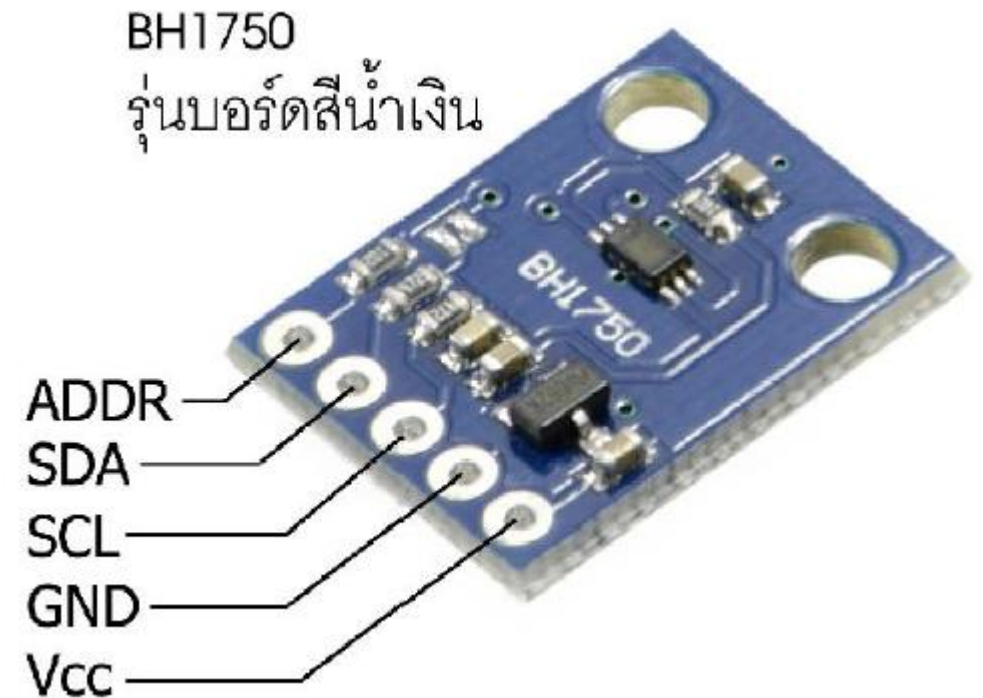
BH-1750

โฟโต้ไดโอด ต่อกับวงจรขยายสัญญาณ
วงจรแปลง Analog to Digital
วงจรเชื่อมต่อบัส I²C

ใช้ไฟเลี้ยง +3V ถึง +5V

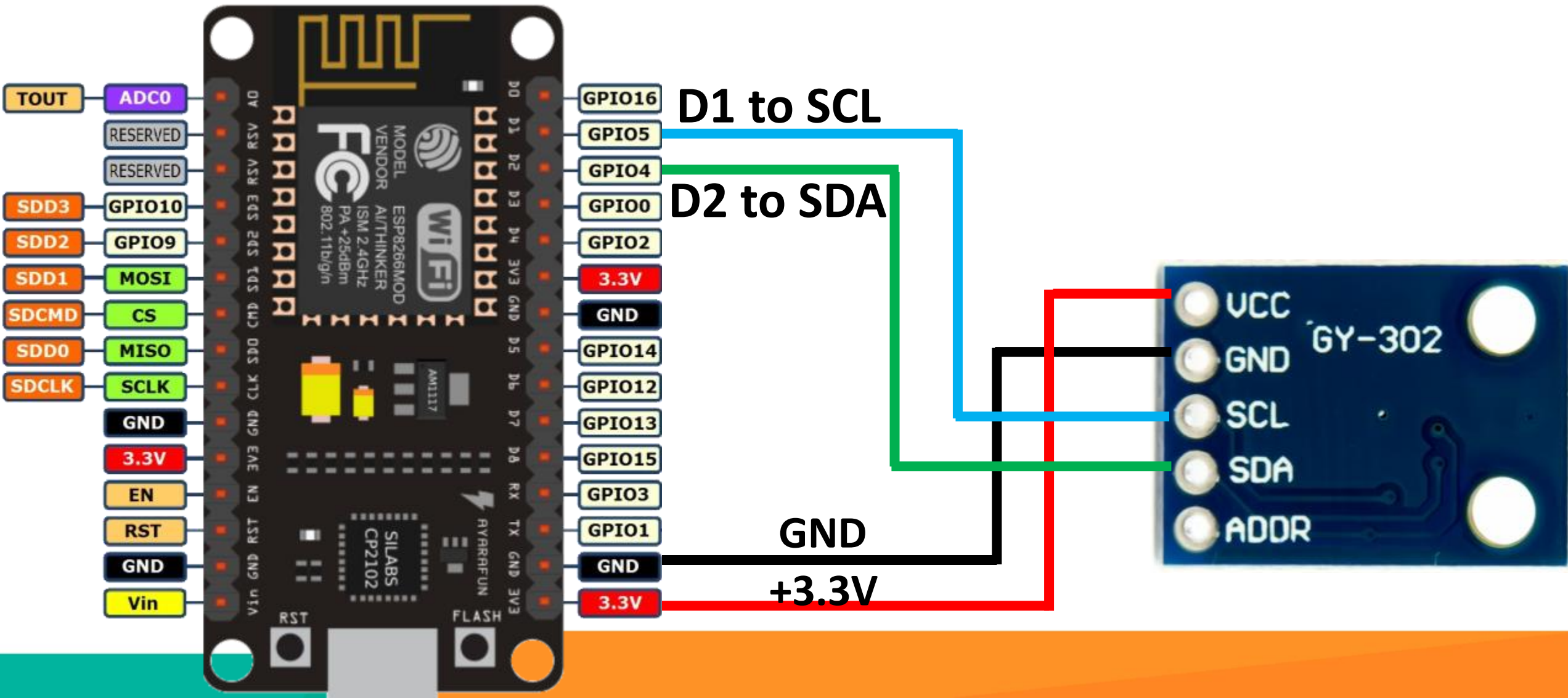
ย่านวัดความเข้มแสง 1 ถึง 65,535 ลักซ์

Error 20%



would need enough Energy Balance to clone your Project.

ต่อเข้ากับ NodeMCU



រូបភាព digitalLightSensor_BH1750-OLED-test.ino

digitalLightSensor_BH1750-OLED \$

```
1 #include <Wire.h>           // Include library
2 #include <SPI.h>
3 #include <Adafruit_GFX.h>
4 #include <Adafruit_SSD1306.h>
5 #define OLED_RESET -1
6
7
8 void BH1750_Init(int address) ;
9
10 Adafruit_SSD1306 OLED(OLED_RESET); // New object OLED
11
12 int BH1750address = 0x23;      // Set BH1750 address
13 byte buff[2];
14 void setup()
15 {
16     OLED.begin(SSD1306_SWITCHCAPVCC, 0x3C);
17     BH1750_Init(BH1750address);
18 }
```

```
void loop()
{
    uint16_t val = 0;
    BH1750_Init(BH1750address);           // Initial BH1750
    delay(200);
    if (2 == BH1750_Read(BH1750address)) // Read and check data from BH1750
    {
        val = ((buff[0] << 8) | buff[1]) / 1.2;
        OLED.clearDisplay();              //Clear display
        OLED.setTextColor(WHITE);        //Set text color
        OLED.setCursor(0, 0);             //Set display start position
        OLED.setTextSize(1);              //Set text size x1
        //OLED.println("BH1750");         //Type message
        OLED.setCursor(0, 0);             //Set display position
        OLED.println(String(val) + " lx"); // Show result value
        OLED.display();                   //Enable display
    }
    delay(150);
}
```

Function BH1750_Read , BH1750_Init

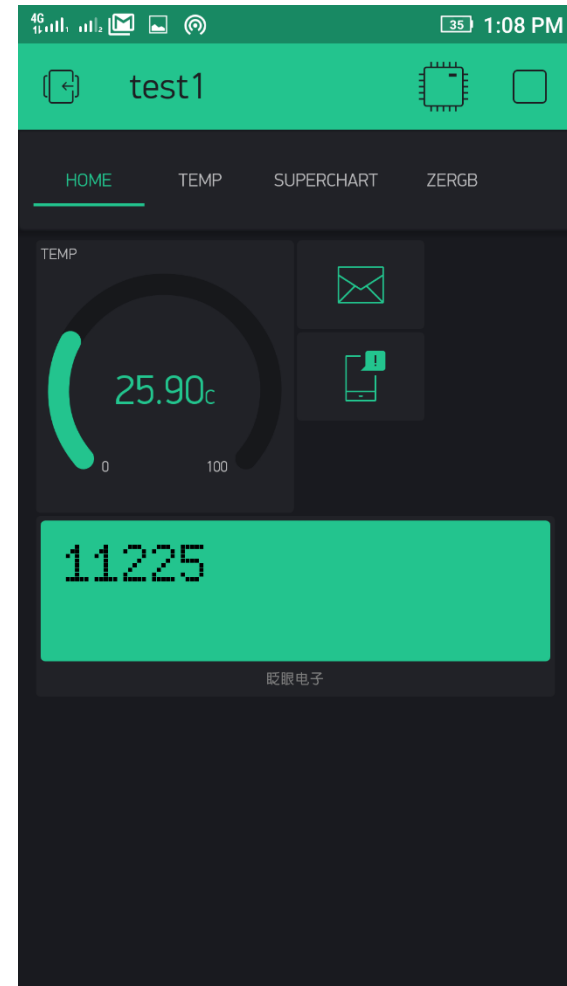
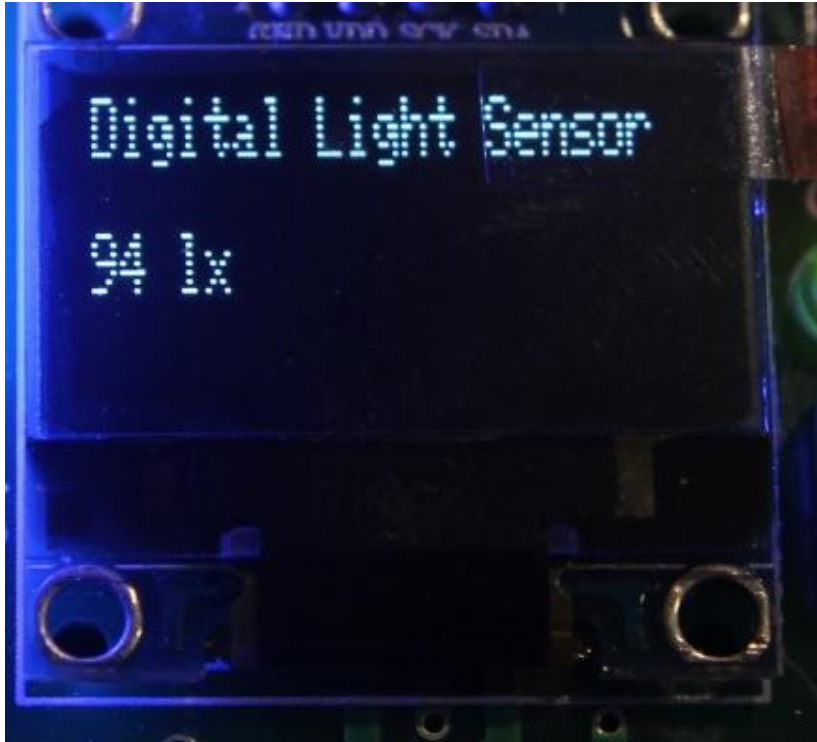
```
39 int BH1750_Read(int address)
40 {
41     int i = 0;
42     Wire.beginTransaction(address);
43     Wire.requestFrom(address, 2);
44     while (Wire.available())
45     {
46         buff[i] = Wire.read();
47         i++;
48     }
49     Wire.endTransmission();
50     return i;
51 }
```

```
52 void BH1750_Init(int address)
53 {
54     Wire.beginTransaction(address);
55     Wire.write(0x10);
56     Wire.endTransmission();
57 }
```


ทดสอบการทำงาน



ให้แสดงผลที่ Blynk ด้วย ทำอย่างไร ??



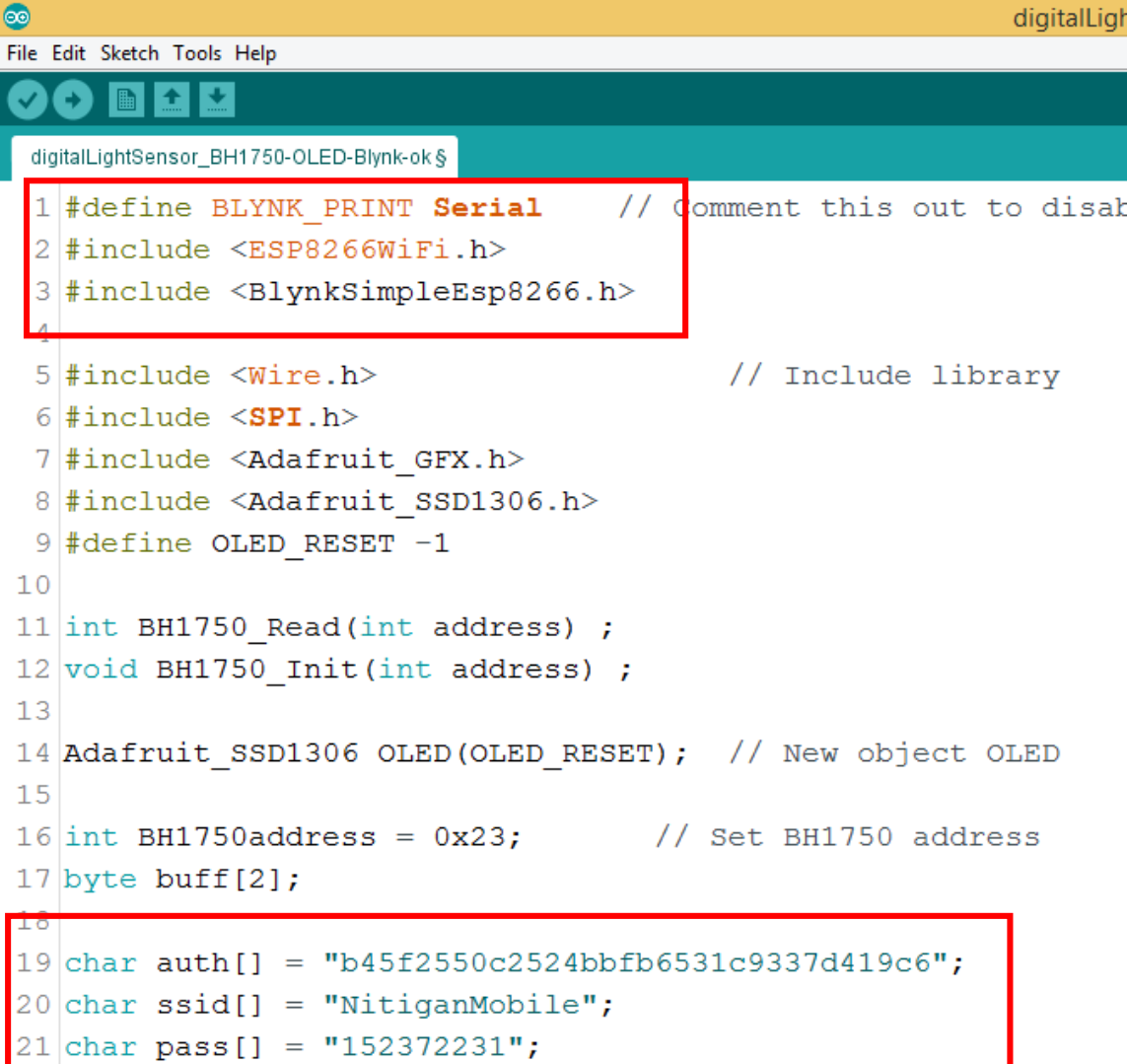
เพิ่ม Code เพื่อเชื่อมต่อกับ Blynk

เพิ่มส่วนที่ต้อง **Define** และ **Include** เพื่อเชื่อมต่อกับ **Blynk**

```
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
```

เพิ่มส่วนที่ต้อง เชื่อมต่อกับ **WiFi**

```
char auth[] = "    ";
char ssid[] = "    ";
char pass[] = "    ";
```



```
digitalLightSensor_BH1750-OLED-Blynk-ok $
1 #define BLYNK_PRINT Serial // Comment this out to disable
2 #include <ESP8266WiFi.h>
3 #include <BlynkSimpleEsp8266.h>
4
5 #include <Wire.h> // Include library
6 #include <SPI.h>
7 #include <Adafruit_GFX.h>
8 #include <Adafruit_SSD1306.h>
9 #define OLED_RESET -1
10
11 int BH1750_Read(int address) ;
12 void BH1750_Init(int address) ;
13
14 Adafruit_SSD1306 OLED(OLED_RESET); // New object OLED
15
16 int BH1750address = 0x23; // Set BH1750 address
17 byte buff[2];
18
19 char auth[] = "b45f2550c2524bbfb6531c9337d419c6";
20 char ssid[] = "NitiganMobile";
21 char pass[] = "152372231";
```


မူလ Code ခု Setup

void setup()

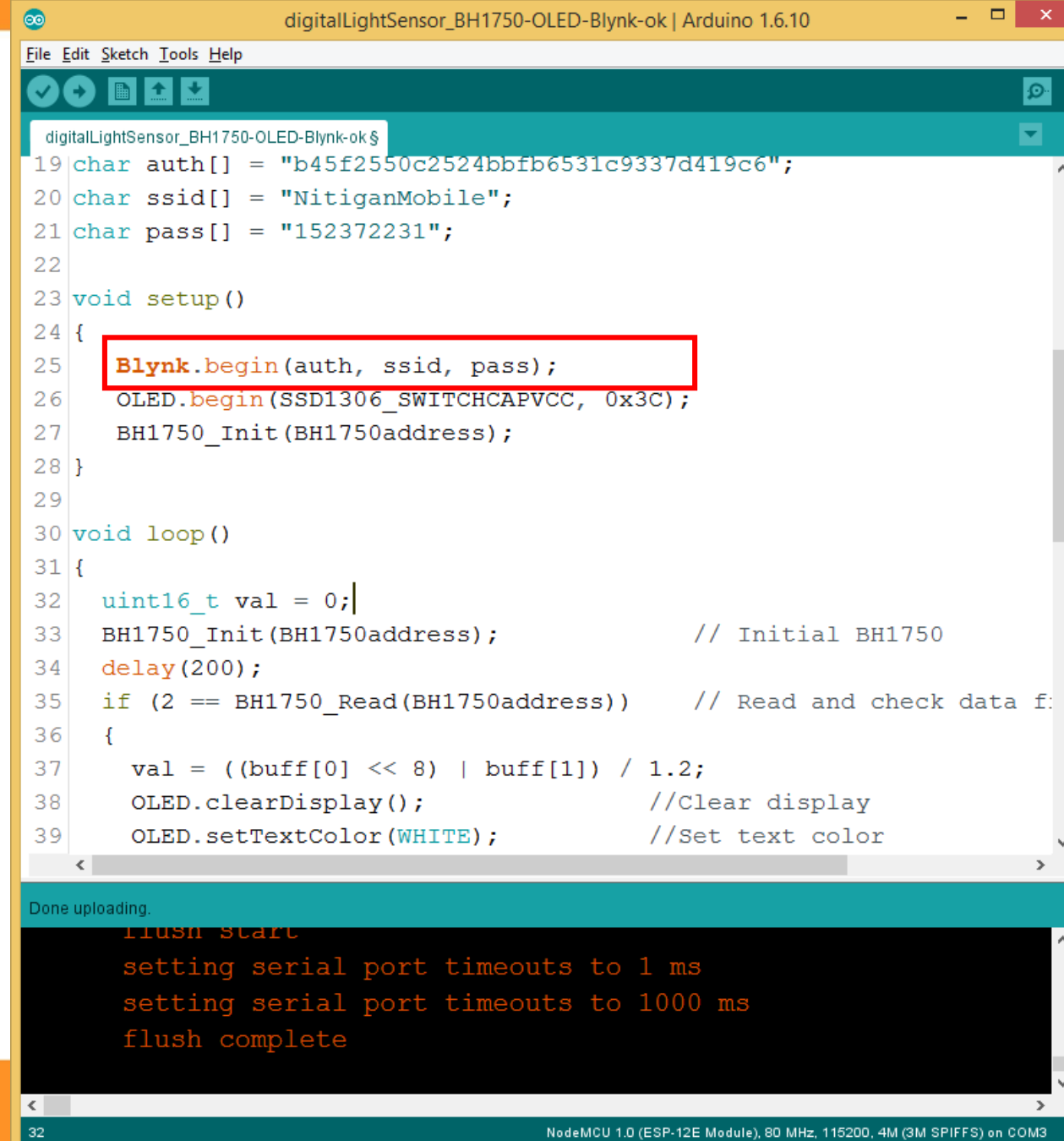
{

Blynk.begin(auth, ssid, pass);

OLED.begin(SSD1306_SWITCHCAPVCC, 0x3C);

BH1750_Init(BH1750address);

}



```
digitalLightSensor_BH1750-OLED-Blynk-ok $
19 char auth[] = "b45f2550c2524b5fb6531c9337d419c6";
20 char ssid[] = "NitiganMobile";
21 char pass[] = "152372231";
22
23 void setup()
24 {
25   Blynk.begin(auth, ssid, pass);
26   OLED.begin(SSD1306_SWITCHCAPVCC, 0x3C);
27   BH1750_Init(BH1750address);
28 }
29
30 void loop()
31 {
32   uint16_t val = 0;
33   BH1750_Init(BH1750address);           // Initial BH1750
34   delay(200);
35   if (2 == BH1750_Read(BH1750address)) // Read and check data f
36   {
37     val = ((buff[0] << 8) | buff[1]) / 1.2;
38     OLED.clearDisplay();                //Clear display
39     OLED.setTextColor(WHITE);          //Set text color

```

Done uploading.

```

flush start
setting serial port timeouts to 1 ms
setting serial port timeouts to 1000 ms
flush complete

```

32 NodeMCU 1.0 (ESP-12E Module), 80 MHz, 115200, 4M (3M SPIFFS) on COM3

เพิ่ม Code ใน Loop

void loop()

{

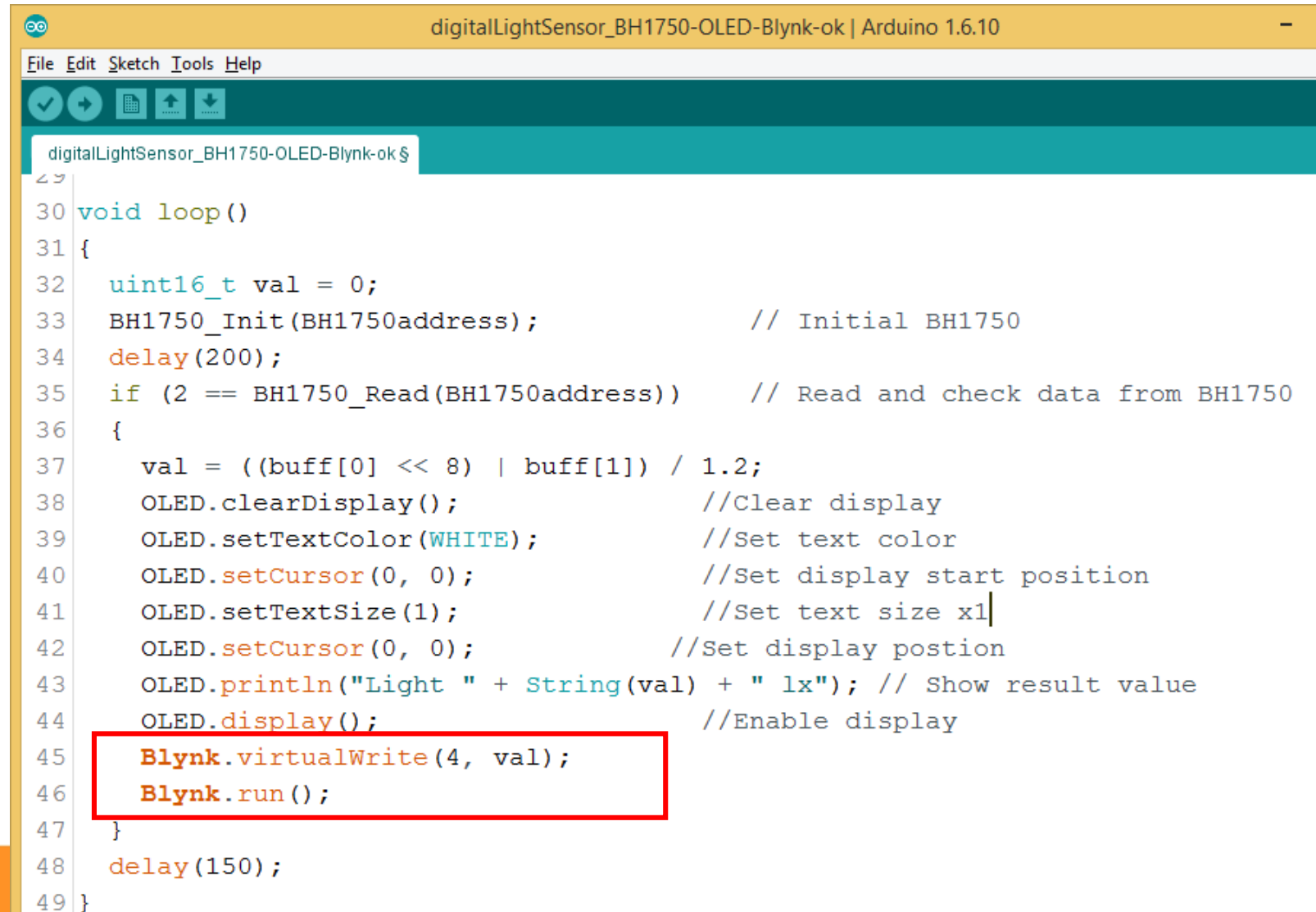
Code เดิม

เพิ่มเติม 2 บรรทัด

Blynk.virtualWrite(4, val);

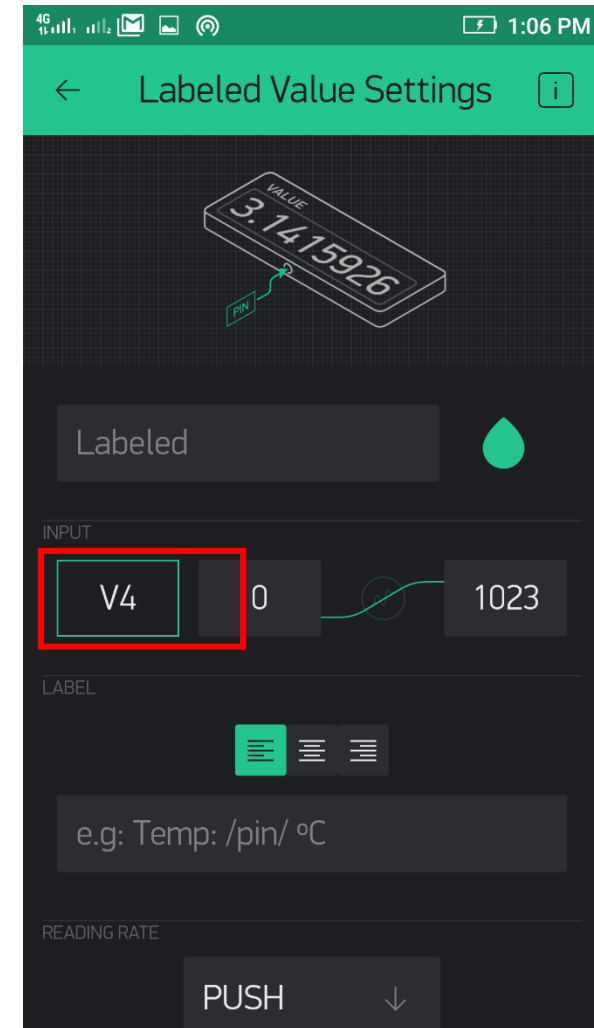
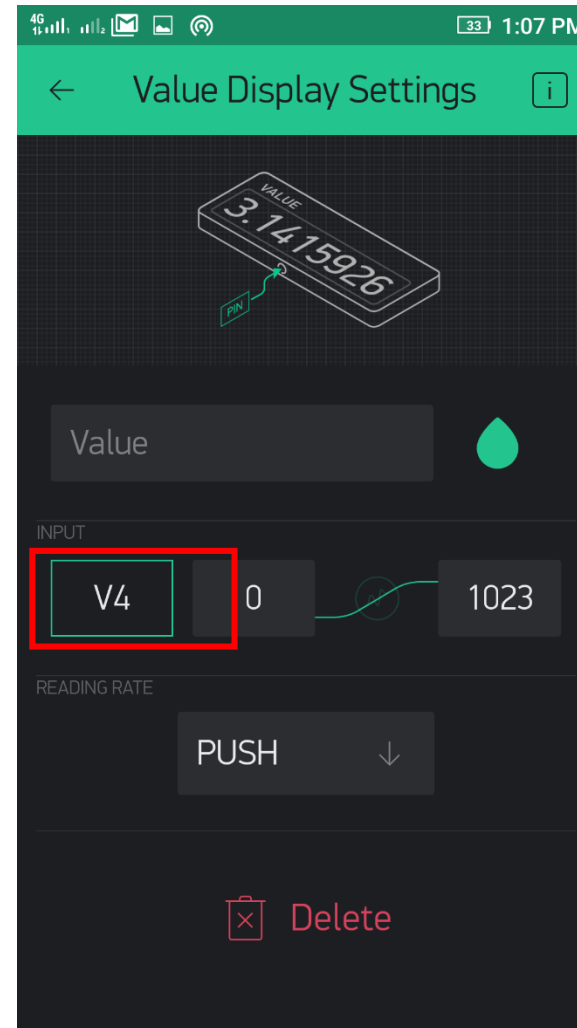
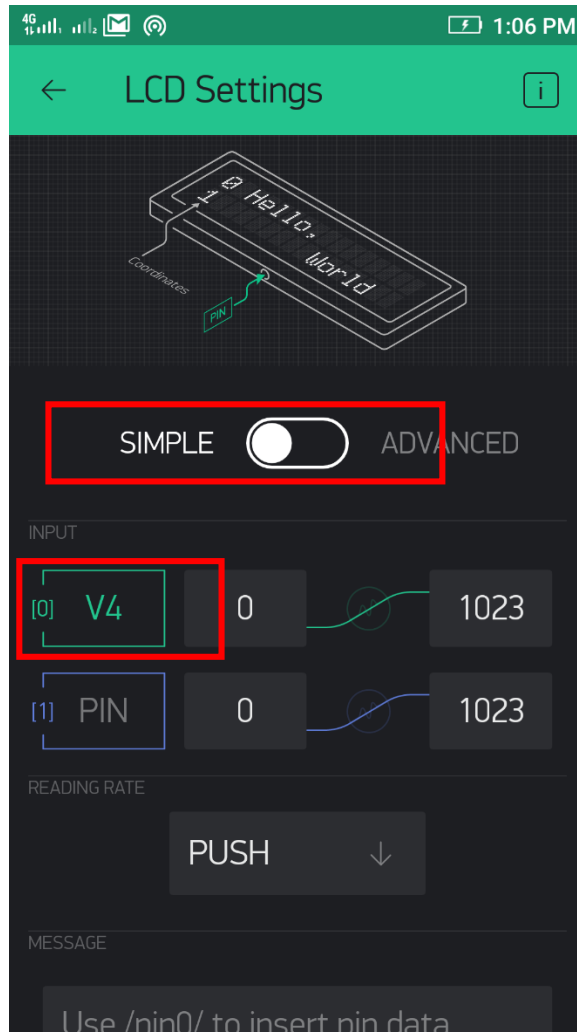
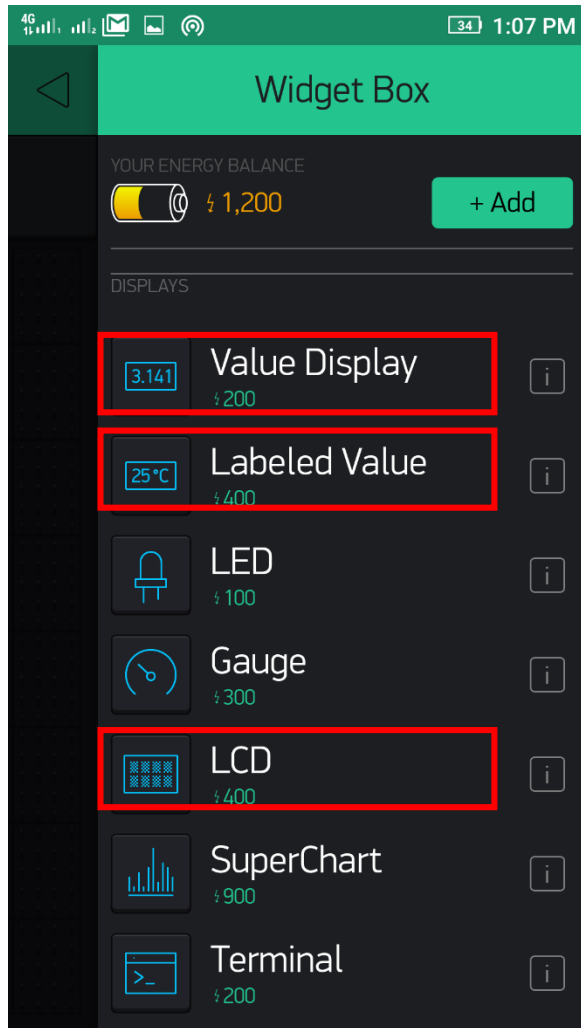
Blynk.run();

}

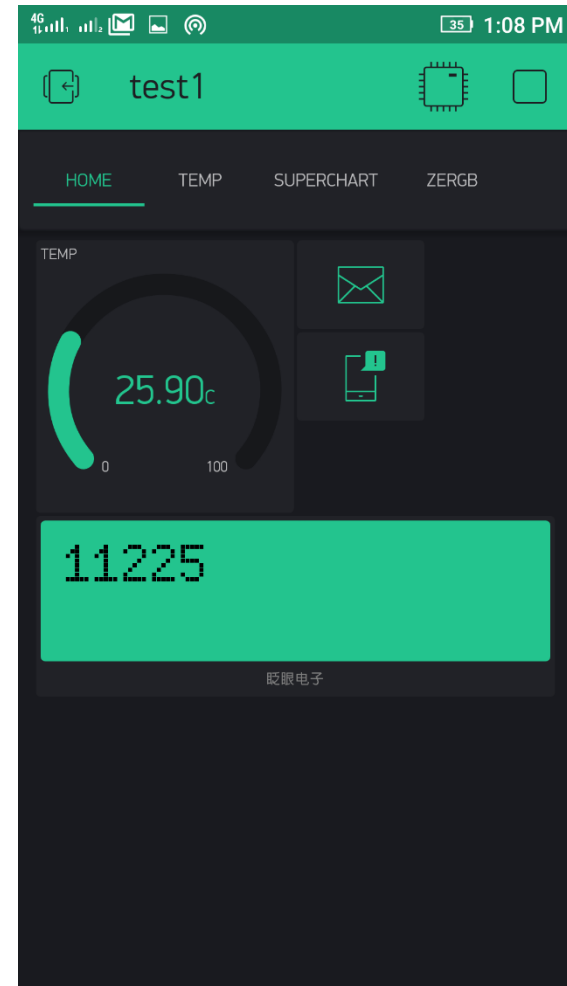
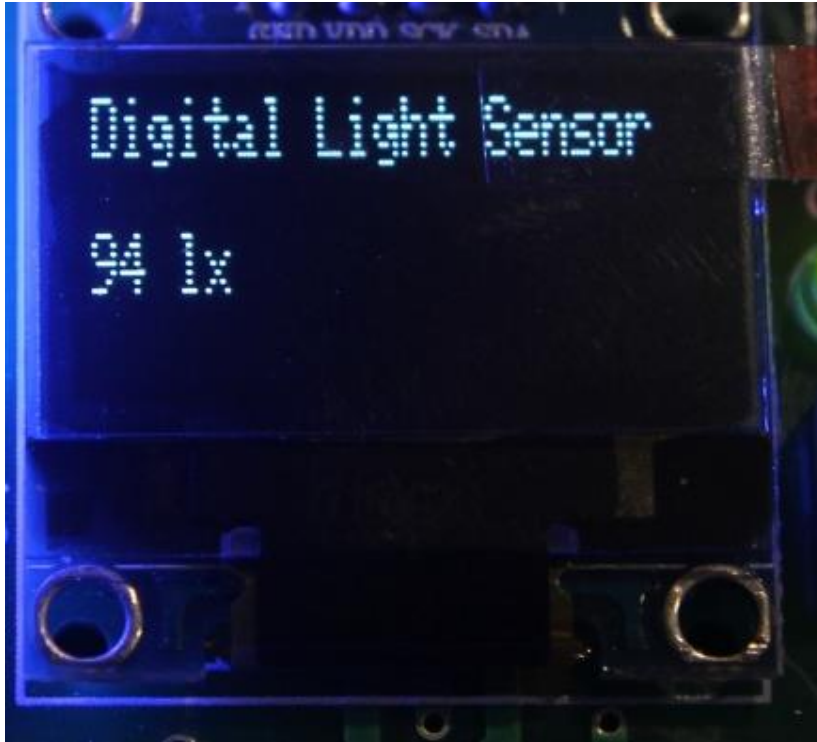


```
digitalLightSensor_BH1750-OLED-Blynk-ok | Arduino 1.6.10
File Edit Sketch Tools Help
digitalLightSensor_BH1750-OLED-Blynk-ok $
30 void loop()
31 {
32   uint16_t val = 0;
33   BH1750_Init(BH1750address);           // Initial BH1750
34   delay(200);
35   if (2 == BH1750_Read(BH1750address))  // Read and check data from BH1750
36   {
37     val = ((buff[0] << 8) | buff[1]) / 1.2;
38     OLED.clearDisplay();                 //Clear display
39     OLED.setTextCursor(WHITE);           //Set text color
40     OLED.setCursor(0, 0);                //Set display start position
41     OLED.setTextSize(1);                 //Set text size x1
42     OLED.setCursor(0, 0);                //Set display postion
43     OLED.println("Light " + String(val) + " lx"); // Show result value
44     OLED.display();                       //Enable display
45     Blynk.virtualWrite(4, val);
46     Blynk.run();
47   }
48   delay(150);
49 }
```

ให้แสดงผลที่ Blynk ด้วย LCD , Value Display , Labeled Value



ทดสอบการทำงาน แสดงผลที่ OLED และ Blynk ได้





Thank you