

BECE351E
Internet Of Things

***SOIL MOITURE AND
GAS SENSOR***

Prepared By:

Name: Geoffrey Anto

Register Number: 21BPS1388

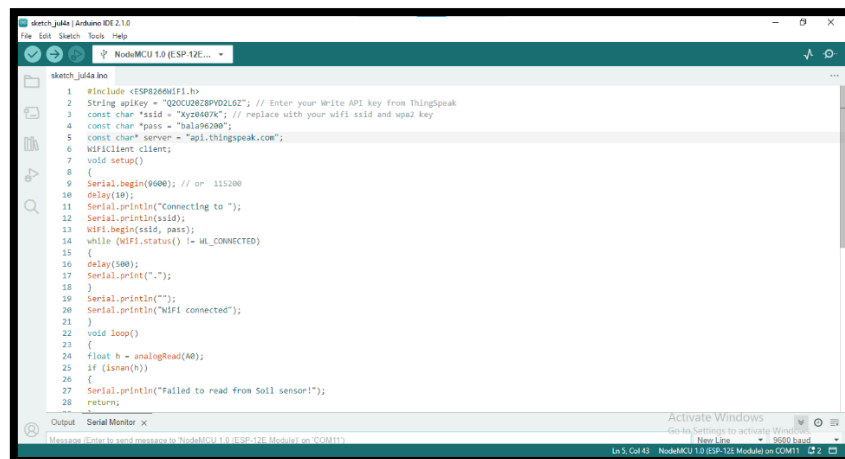
List Of Tasks

S.No	Date	Task	Page.No.
1	04/07	Soil Moisture Level Sensor	3
2	04/07	Gas/Air Monitor	5
3			
4			
5			
6			
7			
8			
9			

Task 1

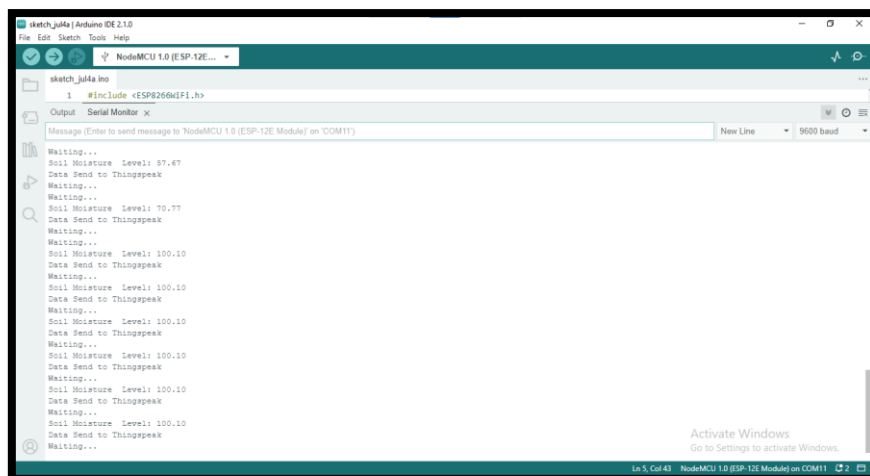
Soil Moisture Level Monitor

Arduino Code



```
sketch_jul4a.ino
1 #include <ESP8266WiFi.h>
2 String apiKey = "Q00CU2R28PVD2L6Z"; // Enter your Write API key from ThingSpeak
3 const char *ssid = "Kys84807K"; // replace with your wifi ssid and wpa2 key
4 const char *pass = "hala96200";
5 const char* server = "api.thingspeak.com";
6 WiFiClient client;
7 void setup()
8 {
9   Serial.begin(9600); // or 115200
10  delay(10);
11  Serial.println("Connecting to ");
12  Serial.println(ssid);
13  WiFi.begin(ssid, pass);
14  while (WiFi.status() != WL_CONNECTED)
15  {
16    delay(100);
17    Serial.print(".");
18  }
19  Serial.println("");
20  Serial.println("WiFi connected");
21 }
22 void loop()
23 {
24   float h = analogRead(A0);
25   if (isnan(h))
26   {
27     Serial.println("Failed to read from Soil sensor!");
28   }
29   return;
30 }
```

Arduino Output



```
sketch_jul4a.ino
1 #include <ESP8266WiFi.h>
Output Serial Monitor x
Message (Enter to send message to 'NodeMCU 1.0 (ESP-12E Module)' on 'COM11')
Waiting...
Soil Moisture Level: 97.67
Data Send to ThingSpeak
Waiting...
Soil Moisture Level: 70.77
Data Send to ThingSpeak
Waiting...
Soil Moisture Level: 100.10
Data Send to ThingSpeak
Waiting...
Soil Moisture Level: 100.10
Data Send to ThingSpeak
Waiting...
Soil Moisture Level: 100.10
Data Send to ThingSpeak
Waiting...
Soil Moisture Level: 100.10
Data Send to ThingSpeak
Waiting...
Soil Moisture Level: 100.10
Data Send to ThingSpeak
Waiting...
Soil Moisture Level: 100.10
Data Send to ThingSpeak
Waiting...
Soil Moisture Level: 100.10
Data Send to ThingSpeak
Waiting...
```

Thingspeak Configuration:

The screenshot shows the Thingspeak web interface for a channel named "IoT Based Air, Smoke and Gas Monitor". The channel ID is 2211208, the author is mwa000023952580, and the access is private. The "Channel Settings" tab is active, showing fields for Channel ID, Name, Description, and two custom fields (Field 1 and Field 2). Field 1 is named "field1" and is checked. The "Percentage complete" is 50%. A "Help" section on the right explains the "Percentage complete" metric and provides instructions for channel settings.

IoT Based Air, Smoke and Gas Monitor

Channel ID: 2211208
Author: mwa000023952580
Access: Private

IoT Based Air, Smoke and Gas Monitor using MQ2 and Thingspeak Platform

Private View Public View Channel Settings Sharing API Keys Data Import / Export

Channel Settings

Percentage complete 50%

Channel ID 2211208

Name IoT Based Air, Smoke and Gas Monitor

Description IoT Based Air, Smoke and Gas Monitor using MQ2 and Thingspeak Platform

Field 1 field1 ☒

Field 2 ☐

Help

Channels store all the data that a ThingSpeak application collects. Each channel includes eight fields that can hold any type of data, plus three fields for location data and one for status data. Once you collect data in a channel, you can use ThingSpeak apps to analyze and visualize it.

Channel Settings

- Percentage complete: Calculated based on data entered into the various fields of a channel. Enter the name, description, location, URL, video, and tags to complete your channel.
- Channel Name: Enter a unique name for the ThingSpeak channel.
- Description: Enter a description of the ThingSpeak channel.
- Fields: Check the box to enable the field, and enter a field name. Each ThingSpeak channel can have up to 8 fields.

Thingspeak Output:

The screenshot shows the Thingspeak web interface for the same channel, now displaying the "Channel Stats" page. The channel is created "about an hour ago", the last entry was "less than a minute ago", and there are 9 entries. A "Field 1 Chart" is displayed, showing a line graph of the data for "field1" over time. The graph shows a peak in the data around 13:03.

Channel Stats

Created: about an hour ago
Last entry: less than a minute ago
Entries: 9

Field 1 Chart

IoT Based Air, Smoke and Gas Monitor

field1

Date

13:00 13:01 13:02 13:03 13:04

100 75

ThingSpeak.com

Task 2

Gas/Air Monitor

Arduino Code

```
sketch_may19e.ino
1  #include <ESP8266WiFi.h>
2  String apiKey = "4HQDK891SEUBS5Y0"; // Enter your Write API key from Thingspeak
3  const char *ssid = "Xy08aeJK"; // replace with your wifi ssid and wpa2 key
4  const char *pass = "balao0200";
5  const char* server = "api.thingspeak.com";
6  WiFiClient client;
7
8  // ----- serial and wifi setup
9  void setup()
10 {
11   Serial.begin(9600);
12   delay(10);
13   Serial.println("Connecting to ");
14   Serial.println(ssid);
15   WiFi.begin(ssid, pass);
16   while (WiFi.status() != WL_CONNECTED)
17   {
18     delay(500);
19     Serial.print(".");
20   }
21   Serial.println("");
22   Serial.println("WiFi connected");
23 }
```

Output Serial Monitor x

Message (Enter to send message to 'NodeMCU 1.0 (ESP-12E Module)' on 'COM24')

New Line 9600 baud

Activate Windows
Go to Settings to activate Windows.

Ln:4, Col:30 NodeMCU 1.0 (ESP-12E Module) on 'COM24'

Thingspeak Output:

