Smart Farmer-IOT Enabled Smart Farming Application

**IBM NALAIYATHIRAN**

# Project development -Delivery of sprint-1

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| **TITLE** | **Smart Farmer-IOT Enabled Smart Farming Application** |
| **DOMAIN NAME** | INTERNET OF THINGS |
| **TEAM ID** | PNT2022TMID03166 |

**Programming NodeMCU for Smart Agriculture System**

#include <ESP8266WiFi.h>

#include <DallasTemperature.h>

#include <OneWire.h>

#include "DHT.h"

#include "Adafruit\_MQTT.h"

#include "Adafruit\_MQTT\_Client.h"

#include <ArduinoJson.h>

const char \*ssid = "Wi-Fi Name";

const char \*pass = "Wi-Fi password";

#define MQTT\_SERV "io.adafruit.com"

#define MQTT\_PORT 1883

#define MQTT\_NAME "Adafruit IO Username"

#define MQTT\_PASS "AIO Key"

Adafruit\_MQTT\_Client mqtt(&client, MQTT\_SERV, MQTT\_PORT, MQTT\_NAME, MQTT\_PASS);

Adafruit\_MQTT\_Publish Moisture = Adafruit\_MQTT\_Publish(&mqtt,MQTT\_NAME "/f/Moisture");

Adafruit\_MQTT\_Publish Temperature = Adafruit\_MQTT\_Publish(&mqtt,MQTT\_NAME "/f/Temperature");

Adafruit\_MQTT\_Publish Humidity = Adafruit\_MQTT\_Publish(&mqtt,MQTT\_NAME "/f/Humidity");

Adafruit\_MQTT\_Publish SoilTemp = Adafruit\_MQTT\_Publish(&mqtt,MQTT\_NAME "/f/SoilTemp");

Adafruit\_MQTT\_Subscribe LED = Adafruit\_MQTT\_Subscribe(&mqtt, MQTT\_NAME "/f/LED");

Adafruit\_MQTT\_Subscribe Pump = Adafruit\_MQTT\_Subscribe(&mqtt, MQTT\_NAME "/f/Pump");

void setup()

{

Serial.begin(9600);

delay(10);

dht.begin();

sensors.begin();

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}

**Code Explanation**

 Start the code by including the required libraries files. Then enter the Wi-Fi and Adafruit IO credentials that you copied from the Adafruit IO server. These will include the MQTT server, Port No, User Name, and AIO Key. Then set up the Adafruit IO feeds for storing the sensor data and controlling LED and water pump. In my case, I have defined four feeds to store different sensor data namely: Soil Temperature, Temperature, Humidity and Moisture, one feed for displaying Weather data and two feeds to control LED Strip & Water Pump.  inside the **setup()** function, initialize the Serial Monitor at a baud rate of 9600 for debugging purposes. Also Initialize the DHT sensor, and DS18B20 sensor with the **begin()** function.