

ASSIGNMENT-4

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Team ID	PNT2022TMID51073
Project Name	SmartFarmer – Iot Enabled Smart Farming Application

CODE:

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "w6vkok"
#define DEVICE_TYPE "abirami"
#define DEVICE_ID "01012002"
#define TOKEN "k*0aJ+0L-HdUebqANd"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/data/fmt/json";
char topic[] = "iot-2/cmd/led/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);

const int trigpin=5;
const int echopin=18;
String command;
String data="";

long duration;
float dist;

void setup()
{
  Serial.begin(115200);
  pinMode(led, OUTPUT);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
  mqttConnect();
}
```

```

void loop() {
    bool isNearby = dist < 100;
    digitalWrite(led, isNearby);

    publishData();
    delay(500);

    if (!client.loop()) {
        mqttConnect();
    }
}

void wifiConnect() {
    Serial.print("Connecting to "); Serial.print("Wifi");
    WiFi.begin("Wokwi-GUEST", "", 6);
    while (WiFi.status() != WL_CONNECTED) {
        delay(500);
        Serial.print(".");
    }
    Serial.print("WiFi connected, IP address: ");
    Serial.println(WiFi.localIP());
}

void mqttConnect() {
    if (!client.connected()) {
        Serial.print("Reconnecting MQTT client to "); Serial.println(server);
        while (!client.connect(clientId, authMethod, token)) {
            Serial.print(".");
            delay(500);
        }
        initManagedDevice();
        Serial.println();
    }
}

void initManagedDevice() {
    if (client.subscribe(topic)) {
        // Serial.println(client.subscribe(topic));
        Serial.println("IBM subscribe to cmd OK");
    } else {
        Serial.println("subscribe to cmd FAILED");
    }
}

void publishData()
{
    digitalWrite(trigpin, LOW);
    digitalWrite(trigpin, HIGH);
}

```

```

delayMicroseconds(10);
digitalWrite(trigpin,LOW);
duration=pulseIn(echopin,HIGH);
dist=duration*speed/2;
if(dist<100){
    String payload = "{\"Alert Distance\":\"";
    payload += dist;
    payload += "\"}";

    Serial.print("\n");
    Serial.print("Sending payload: ");
    Serial.println(payload);
    if (client.publish(publishTopic, (char*) payload.c_str())) {
        Serial.println("Publish OK");
    }
}

if(dist>100){
    String payload = "{\"Distance\":\"";
    payload += dist;
    payload += "\"}";

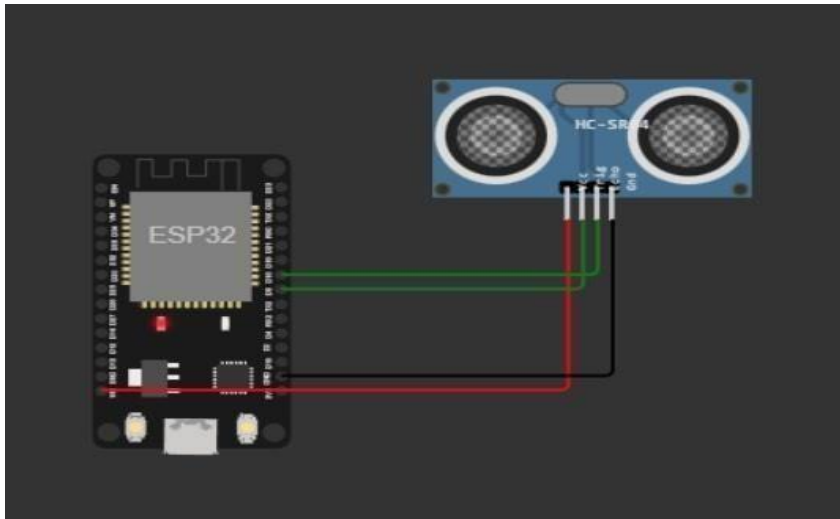
    Serial.print("\n");
    Serial.print("Sending payload: ");
    Serial.println(payload);
    if(client.publish(publishTopic, (char*) payload.c_str())) {
        Serial.println("Publish OK");
    }else {
        Serial.println("Publish FAILED");
    }
}

}

}

```

CONNECTIONS:



OUTPUT:

WOKWI SAVE SHARE esp32-dht22.ino by urish Docs

esp32-dht22.ino diagram.json libraries.txt Library Manager

```

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17 PubSubClient client(server, 1883, wifiClient);
18
19 const int trigpin=5;
20 const int echopin=18;
21 String command;
22 String data="";
23
24 long duration;
25 float dist;
26
27 void setup()
28 {

```

Simulation 01:00.445 38%

Publish OK

Sending payload: {"Distance":399.96}

Publish OK

Sending payload: {"Distance":399.96}

Publish OK

IBM Watson IoT Platform 953619106002@ritrjpm.ac.in ID: w6vkok

Browse Action Device Types Interfaces

Identity Device Information **Recent Events** State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
data	{"Distance":399.96}	json	a few seconds ago
data	{"Distance":399.94}	json	a few seconds ago
data	{"Distance":399.96}	json	a few seconds ago
data	{"Distance":399.92}	json	a few seconds ago
data	{"Distance":399.94}	json	a few seconds ago

0 Simulations running

WOKWI LINK:

<https://wokwi.com/projects/347143384265130579>