

ASSIGNMENT-4

WOKWI PROGRAM

ASSIGNMENT DATE	26 OCT
STUDENT NAME	CHAMDRO S
STUDENT ROOL NUMBER	732319106002
MAXIMUM MARK	2 MARK

CODE

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "rh494z"
#define DEVICE_TYPE "CHANDRU"
#define DEVICE_ID "12345"
#define TOKEN "1234567890"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/CHANDRU/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
void publishData();

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 = "{\"Normal 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 > 101 ) {
        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("Warning crosses 110cm -- it automatically of the loop");
            digitalWrite(led, HIGH);
        } else {
            Serial.println("Publish FAILED");
        }
    }

}

}

void callback(char* subscribeTopic, byte* payload, unsigned int payloadLength)
{

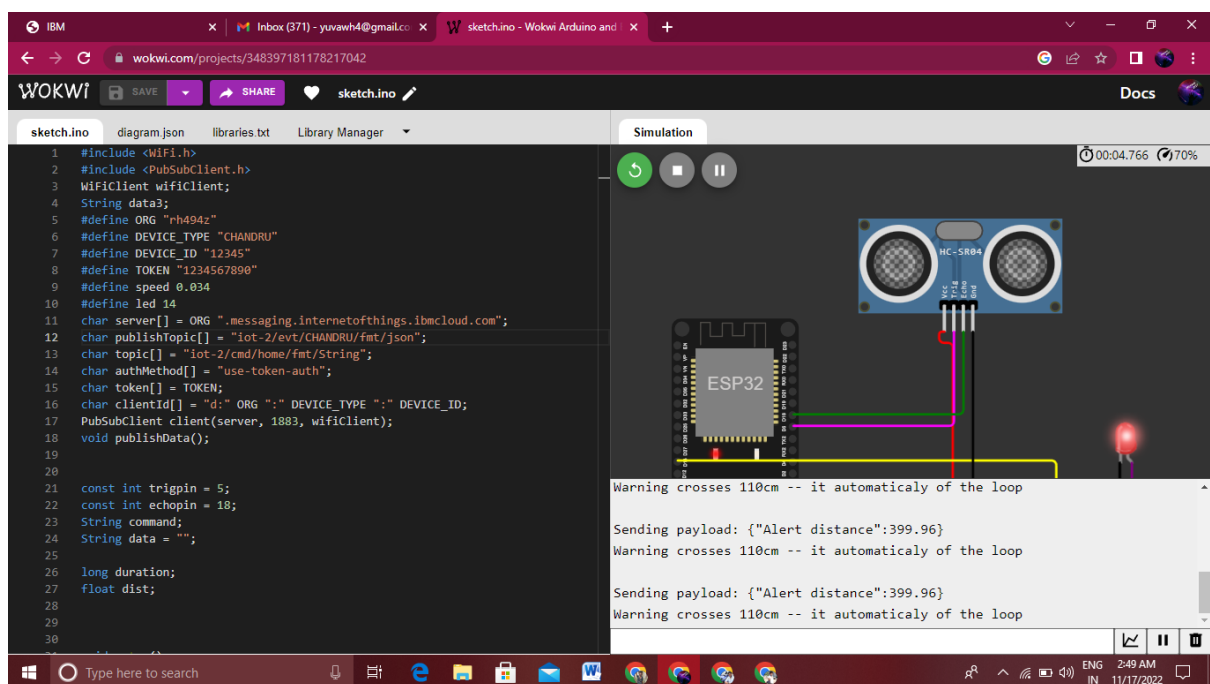
```

```

Serial.print("callback invoked for topic:");
Serial.println(subscribeTopic);
for (int i = 0; i < payloadLength; i++) {
    dist += (char)payload[i];
}
Serial.println("data:" + data3);
if (data3 == "lighton") {
    Serial.println(data3);
    digitalWrite(led, HIGH);
}
data3 = "";
}

```

OUTPUT



Thank you for installing our ext... Service Details - IBM Cloud IBM Watson IoT Platform Security alert - chandrudon08@ rh494z.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform 732319106002@smartinternz.com ID: rh494z

Browse Action Device Types Interfaces Add Device +

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
CHANDRU	{"Alert distance":399.96}	json	a few seconds ago
CHANDRU	{"Alert distance":399.96}	json	a few seconds ago
CHANDRU	{"Alert distance":399.57}	json	a few seconds ago
CHANDRU	{"Alert distance":399.96}	json	a few seconds ago
CHANDRU	{"Alert distance":399.98}	json	a few seconds ago

0 Simulations running

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1.LESS THAN 100

