

ASSIGNMENT4

WOKWI PROGRAM

ASSIGNMNET DATE	23 OCTOBER 2022
STUDENT NAME	SHEEBA G
STUDENT ROLL NUMBER	110519106021
MAXIMUM NUMBER	2 MARKS
TEAM ID	PNT2022TMID36201

CODE :

```
#include <WiFi.h>

#include <PubSubClient.h>

void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);

#define ORG "ry71x7"

#define DEVICE_TYPE "sheeba"

#define DEVICE_ID "1123"

#define TOKEN "BHERCtutP(LXnhH2(9"

String data3;


char server[]= ORG ".messaging.internetofthings.ibmcloud.com";

char publishTopic[]="iot-2/evt/sheeba/fmt/json";

char subscribeTopic[]="iot-2/cmd/test/fmt/String";

char authMethod[]="use-token-auth";

char token[]=TOKEN;

char clientID[]="d:"ORG":"DEVICE_TYPE":"DEVICE_ID";
```

```
WiFiClient wifiClient;  
PubSubClient client(server,1883,callback,wifiClient);
```

```
#define ECHO_PIN 12
```

```
#define TRIG_PIN 13
```

```
#define led 14
```

```
void setup() {
```

```
    // put your setup code here, to run once:
```

```
    Serial.begin(115200);
```

```
    pinMode(led, OUTPUT);
```

```
    pinMode(TRIG_PIN, OUTPUT);
```

```
    pinMode(ECHO_PIN, INPUT);
```

```
    wificonnect();
```

```
    mqttconnect();
```

```
}
```

```
float readDistanceCM() {
```

```
    digitalWrite(TRIG_PIN, LOW);
```

```
    delayMicroseconds(2);
```

```
    digitalWrite(TRIG_PIN, HIGH);
```

```
    delayMicroseconds(10);
```

```
    digitalWrite(TRIG_PIN, LOW);
```

```
    int duration=random(1,200);
```

```
//Serial.println(duration);  
//duration = pulseIn(ECHO_PIN, HIGH);  
return duration ;  
//Serial.println(duration);  
  
}
```

```
void loop() {  
    float distance = readDistanceCM();  
    //Serial.println(distance);
```

```
    bool isNearby = distance < 100;  
    digitalWrite(led, isNearby);
```

```
    Serial.print("Measured distance: ");  
    Serial.println(distance);  
    if(distance<100){  
        PublishData2(distance);
```

```
    }else{  
        PublishData1(distance);  
  
    }
```

```
    //PublishData(distance);
```

```
delay(1000);
  if(!client.loop()){
mqttconnect();
  }

  //delay(2000);
}
void PublishData1(float dist){
mqttconnect();

  String payload= "{\"distance\":\"";
  payload += dist;
  payload+="}";

  Serial.print("Sending payload:");
  Serial.println(payload);

  if(client.publish(publishTopic,(char*)payload.c_str())){
Serial.println("publish ok");
  } else{
Serial.println("publish failed");
  }
}

void PublishData2(float dist){
mqttconnect();
```

```
String payload= "{\\\"ALERT\\\":";
```

```
payload += dist;
```

```
payload+="}";
```

```
Serial.print("Sending payload:");
```

```
Serial.println(payload);
```

```
if(client.publish(publishTopic,(char*)payload.c_str())){
```

```
Serial.println("publish ok");
```

```
  } else{
```

```
Serial.println("publish failed");
```

```
  }
```

```
}
```

```
void mqttconnect(){
```

```
  if(!client.connected()){
```

```
Serial.print("Reconnecting to");
```

```
Serial.println(server);
```

```
while(!!!client.connect(clientID, authMethod, token)){
```

```
Serial.print(".");
```

```
delay(500);
```

```
  }
```

```
initManagedDevice();
```

```
Serial.println();
```

```
}
```

```
}
```

```
void wificonnect(){
```

```
Serial.println();
```

```
Serial.print("Connecting to");
```

```
WiFi.begin("Wokwi-GUEST","",6);
```

```
while(WiFi.status()!=WL_CONNECTED){
```

```
delay(500);
```

```
Serial.print(".");
```

```
}
```

```
Serial.println("");
```

```
Serial.println("WIFI CONNECTED");
```

```
Serial.println("IP address:");
```

```
Serial.println(WiFi.localIP());
```

```
}
```

```
void initManagedDevice(){
```

```
if(client.subscribe(subscribeTopic)){
```

```
Serial.println((subscribeTopic));
```

```
Serial.println("subscribe to cmd ok");
```

```
}else{
```

```
Serial.println("subscribe to cmd 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++){  
    data3 += (char)payload[i];  
  }  
  Serial.println("data:" + data3);  
  if(data3=="lighton"){  
    Serial.println(data3);  
    digitalWrite(led,HIGH);  
  }else{  
    Serial.println(data3);  
    digitalWrite(led,LOW);  
  }  
  data3="";  
}
```

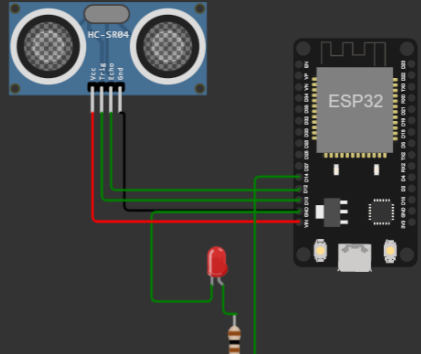
OUTPUT :

WOKWI SAVE SHARE sketch.ino copy Docs SIGN IN

sketch.ino diagram.json libraries.txt Library Manager

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 void callback(char* subscribtopic,byte* payload,unsigned int payloadLength);
4 #define ORG "ry7lx7"
5 #define DEVICE_TYPE "sheeba"
6 #define DEVICE_ID "1123"
7 #define TOKEN "BHERCtutP(LXnhH2(9"
8 String data3;
9
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt/sheeba/fmt/json";
12 char subscribeTopic[] = "iot-2/cmd/test/fmt/String";
13 char authMethod[] = "use-token-auth";
14 char token[] = TOKEN;
15 char clientID[] = "d:" + ORG + ":" + DEVICE_TYPE + ":" + DEVICE_ID;
16
17 WiFiClient wificlient;
18 PubSubClient client(server,1883,callback,wificlient);
19
20 #define ECHO_PIN 12
21 #define TRIG_PIN 13
22 #define led 14
23
24 void setup() {
25 // put your setup code here, to run once:
26 Serial.begin(115200);
27 pinMode(led, OUTPUT);
28 pinMode(TRIG_PIN, OUTPUT);
29 pinMode(ECHO_PIN, INPUT);
30 }
```

Simulation



Measured distance: 100.00
Sending payload:{"distance":100.00}
publish ok

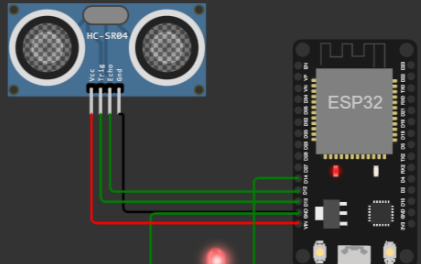
AQI 100.92 ENG 03:46 PM

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sketch.ino diagram.json libraries.txt Library Manager

```
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```

Simulation



01:23.733 46%

publish ok
Measured distance: 141.00
Sending payload:{"distance":141.00}
publish ok
Measured distance: 10.00
Sending payload:{"ALERT":10.00}
publish ok

AQI 100.92 ENG 03:50 PM

IP address:

10.10.0.2

Reconnecting tory7lx7.messaging.internetofthings.ibmcloud.com

iot-2/cmd/test/fmt/String

subscribe to cmd ok

Measured distance: 104.00

Sending payload:{"distance":104.00}

publish ok

Measured distance: 19.00

Sending payload:{"ALERT":19.00}

publish ok

Measured distance: 177.00

Sending payload:{"distance":177.00}

publish ok

Measured distance: 108.00

Sending payload:{"distance":108.00}

publish ok

Measured distance: 99.00

Sending payload:{"ALERT":99.00}

publish ok

Measured distance: 96.00



29°C Sunny



ENG

02:15 PM



IBM CLOUD OUTPUT :

IBM Watson IoT Platform

110519106022@smartinternz.com
ID: ry7lx7

← Back

Device Drilldown - 1123

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Connection Information

Basic connection information about this device.

Device ID

1123

Device Type

sheeba

Date Added

Nov 5, 2022 7:11 PM

Added By

110519106022@smartinternz.com

Connection Status

Connected

Connection Time: Nov 9, 2022 3:01 PM

Client Address: 50.31.197.64 Insecure

Recent Events

IBM Watson IoT Platform

110519106022@smartinternz.com
ID: ry7lx7

← Back

Device Drilldown - 1123

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Recent Events

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

Event	Value	Format	Last Received
sheeba	{"distance":112}	json	a few seconds ago
sheeba	{"distance":129}	json	a few seconds ago
sheeba	{"ALERT":95}	json	a few seconds ago
sheeba	{"distance":119}	json	a few seconds ago
sheeba	{"ALERT":66}	json	a few seconds ago