Assignment -4 Wowki & IBM Cloud

Assignment Date	04 October 2022
Student Name	Naveen kumar.k
Student Roll Number	310819106056
Maximum Marks	2 Marks

Question-1:

Write code and connections in wowki for the ultrasonic sensor.
Whenever the distance is less than 100cms sent "alert" to IBM cloud and display in device recent events.
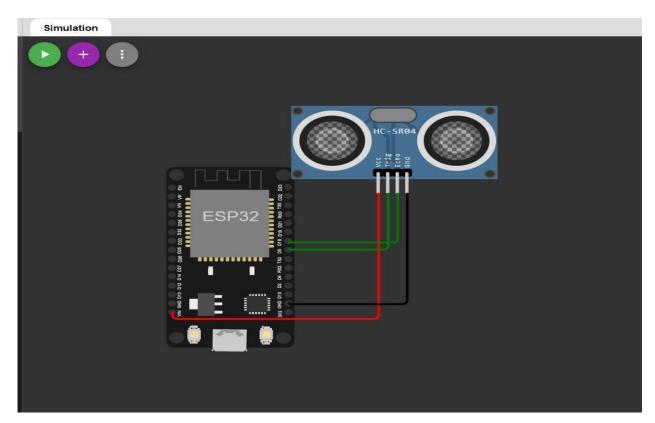
Code:

```
#include <WiFi.h>

#include <PubSubClient.h>

#include <ArduinoJson.h>

WiFiClient wifiClient; String

data3;

#define ORG "sf54ab"

#define DEVICE_TYPE "MyDeviceType"

#define DEVICE_ID "12345"

#define TOKEN "ZIA1zf@zL9s)Pumv11"

#define speed 0.034 #define led 14 char server[] = ORG

".messaging.internetofthings.ibmcloud.com"; char publishTopic[]

= "iot-2/evt/shreedharen/fmt/json";

char topic[] = "iot-2/cmd/led/fmt/String"; char authMethod[] =
```
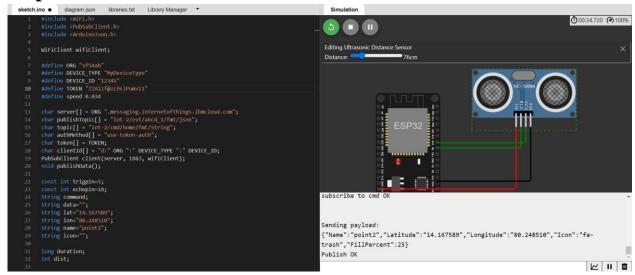
```cpp
"use-token-auth"; char token[] = TOKEN; char clientId[] = "d:"
ORG ":" DEVICE_TYPE ":" DEVICE_ID;

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: ");
```

```cpp
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){
```
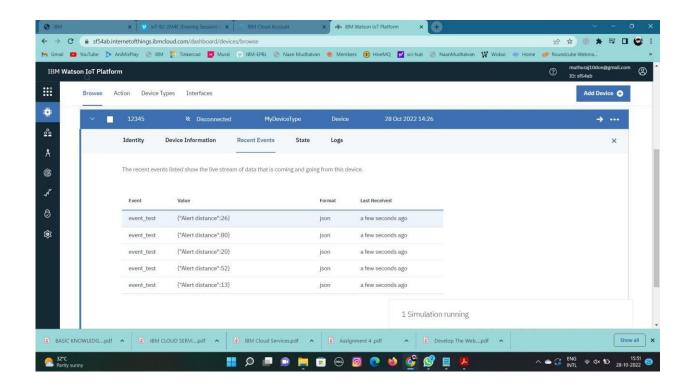
```
String payload = "{\"Distance\":";

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:

Output:(IBM Cloud)

Link : https://wokwi.com/projects/346587874175484499