

Assignment -4 Wowki & IBM Cloud

Assignment Date	04 October 2022
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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 "wlrpm4"

#define DEVICE_TYPE "Testdevicetype"

#define DEVICE_ID "14325"

#define TOKEN "XE5FU_vMX2LsFIFLoR"

#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[] =
"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");

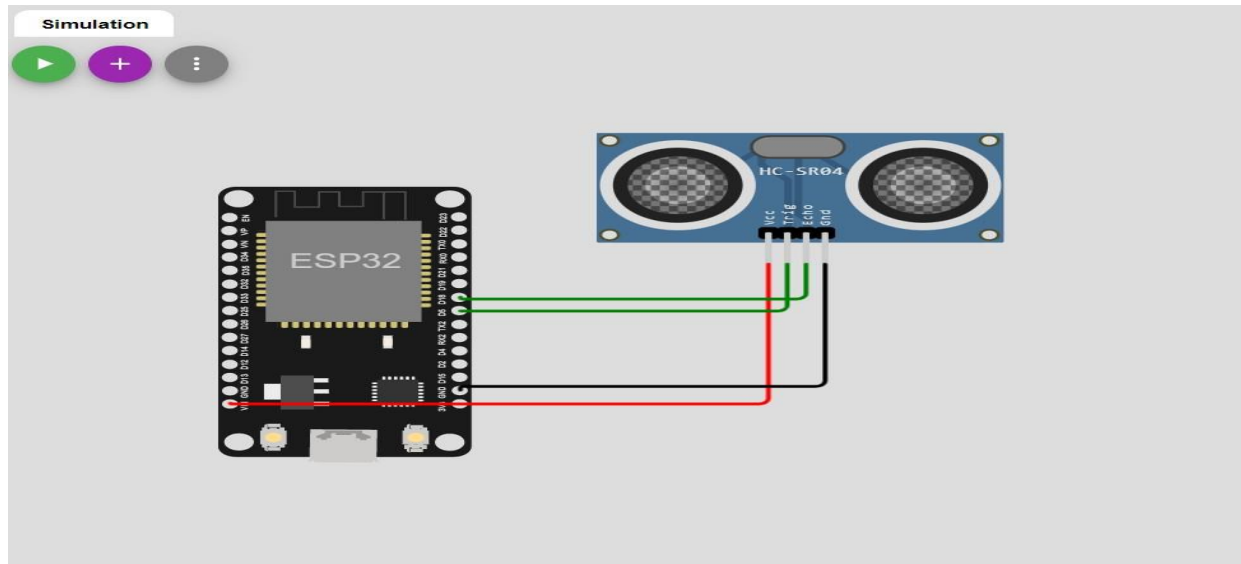
}

}

}

```

Connections:



Output:

WOKWI

SAVE

SHARE

Ultra sonic sensor copy

Docs

SIGN UP

sketch.ino

diagram.json

libraries.txt

Library Manager

```

1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4
5 WiFiClient wificlient;
6
7 #define ORG "wlrpm4"
8 #define DEVICE_TYPE "Testdevicetype"
9 #define DEVICE_ID "14325"
10 #define TOKEN "XE5FU_vM0QLsF1LoR"
11 #define speed 0.034
12
13 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
14 char publishTopic[] = "iot-2/evt/abcd_1/fmt/json";
15 char topic[] = "iot-2/cmd/home/fmt/String";
16 char authMethod[] = "use-token-auth";
17 char token[] = TOKEN;
18 char clientId[] = "d:" ORG ":" DEVICE_ID;
19 PubSubClient client(server, 1883, wificlient);
20 void publishdata();
21
22 const int trigpin=5;
23 const int echopin=18;
24 String command;
25 String data="";
26 String lat="14.167589";
27 String lon="80.248510";
28 String name="point2";
29 String icon="";
30

```

Simulation

02:18.770 100%

Sending payload:

{
 "Name": "point2",
 "Latitude": "14.167589",
 "Longitude": "80.248510",
 "Icon": "fa-trash-o",
 "FillPercent": 0
}

Publish OK

Sending payload:

Output:(IBM Cloud)

IBM Watson IoT Platform

310819106071@smartinternz.com
ID: wlrpm4

Browse Action Device Types Interfaces

Search by Device ID

Device Simulator

Add Device

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
14325	Disconnected	Testdevicetype	Device	Nov 5, 2022 5:33 AM	

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
event_1	{"type":"Buffer","data":[]}	json	a few seconds ago
event_1	{"type":"Buffer","data":[]}	json	2 minutes ago
event_1	{"type":"Buffer","data":[]}	json	2 minutes ago

1 Simulation running

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Link : <https://wokwi.com/projects/347461296556343892>