

## Assignment -4

### Wowki & IBM Cloud

<b>Assignment Date</b>	27 October 2022
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<b>Maximum Marks</b>	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[] = "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");

}

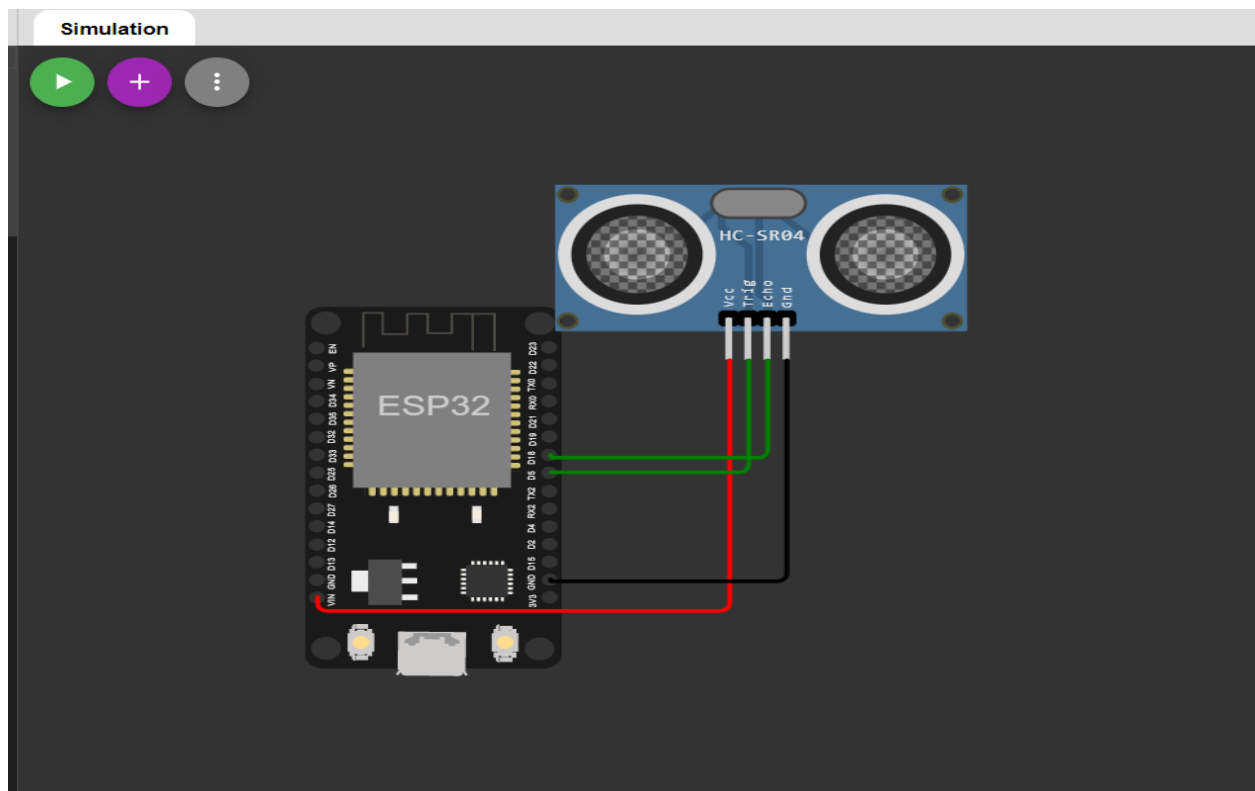
}

}

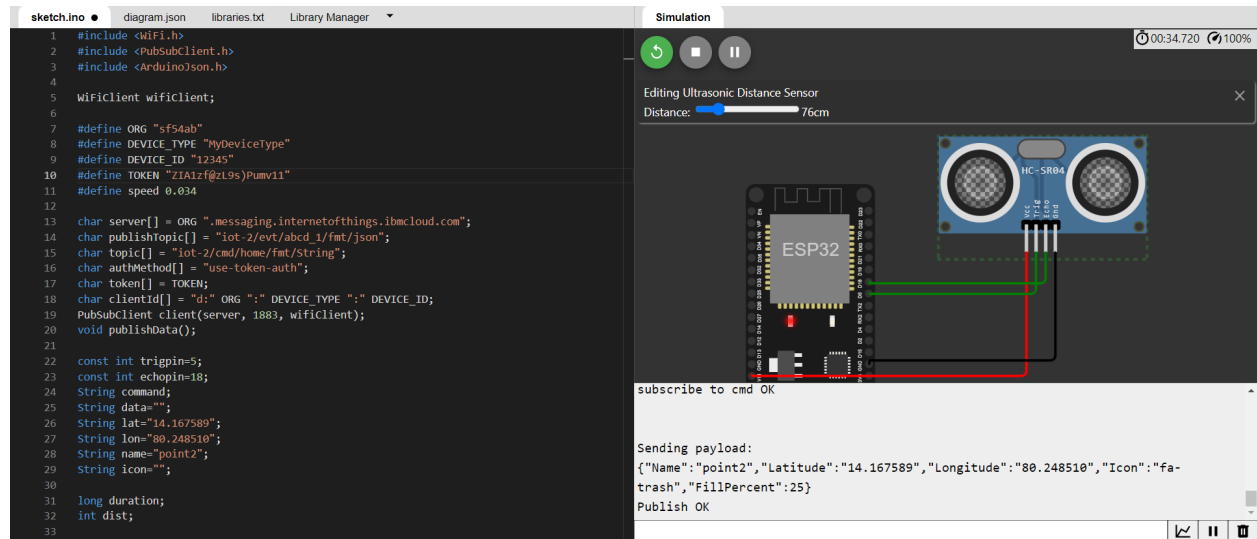
}

```

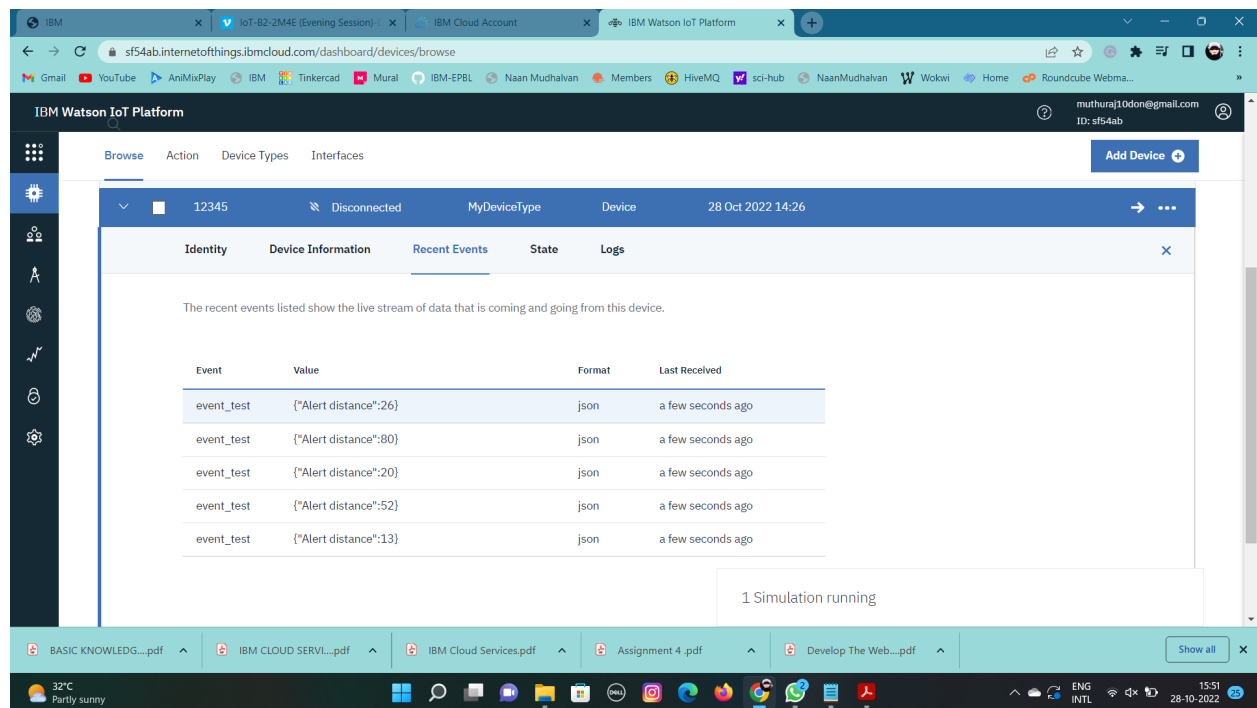
## Connections:



## Output:



## Output:(IBM Cloud)



Link : <https://wokwi.com/projects/346858583508386388>