## **ASSIGNMENT-IV**

## QUESTION:

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.

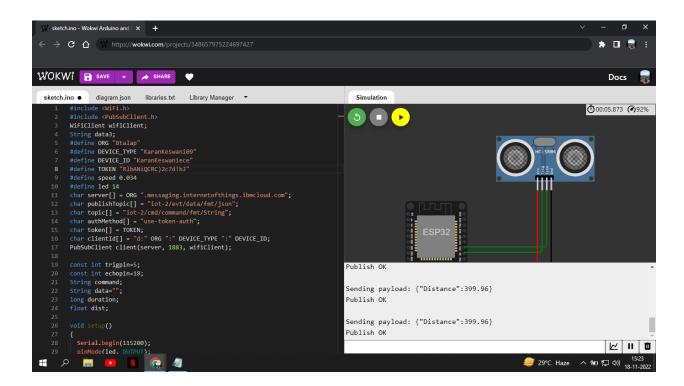
## CODING:

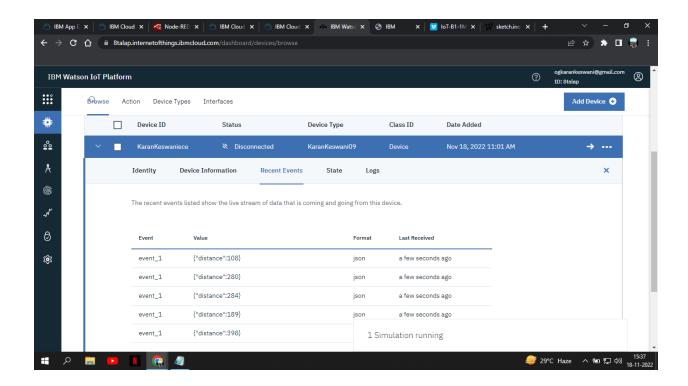
```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "8talap"
#define DEVICE TYPE "KaranKeswani09"
#define DEVICE ID "KaranKeswaniece"
#define TOKEN "RlbANiQCRC)2c7d!hJ"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/data/fmt/json";
char topic[] = "iot-2/cmd/command/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) {</pre>
 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");
    }
```

```
}
```





WOKWI LINK:-https://wokwi.com/projects/348657975224697427