Assignment-4

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Date	30-October 2022
Project Name	**Project -Smart farmer-IOT enabled smart Farming Application**

Question:

Write code and connections in wokwi for ultrasonic sensor.
Whenever distance is less than 100cm send "alert" to IBM cloud and display in device recent events. Upload document with wokwi share link and images of IBM cloud.

CODE:

```
#include <WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>

#define ORG "17lsro"
#define DEVICE_TYPE "MyDeviceType"
#define DEVICE_ID "12345"
#define TOKEN "GkatKdiUS?UVHKvnAD"
char server[] = ORG
".messaging.internetofthings.ibmcloud.com"; char pubTopic1[] =
"iot-2/evt/SURYA PRAKASH J /fmt/json"; char pubTopic2[] =
"iot-2/evt/status2/fmt/json"; char authMethod[] = "use-
tokenauth"; char token[] = TOKEN;  char clientId[] = "d:" ORG
":" DEVICE_TYPE ":" DEVICE_ID; const int DHT_PIN = 15;
WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL, wifiClient);

#define ECHO_PIN 12
#define TRIG_PIN 13

float readDistanceCM() ;
void setup() {
  Serial.begin(115200);
pinMode(15, OUTPUT);
pinMode(TRIG_PIN, OUTPUT);
pinMode(ECHO_PIN, INPUT);

  Serial.println();
    Serial.print("Connecting to ");
    WiFi.begin("Wokwi-GUEST", "", 6);
```

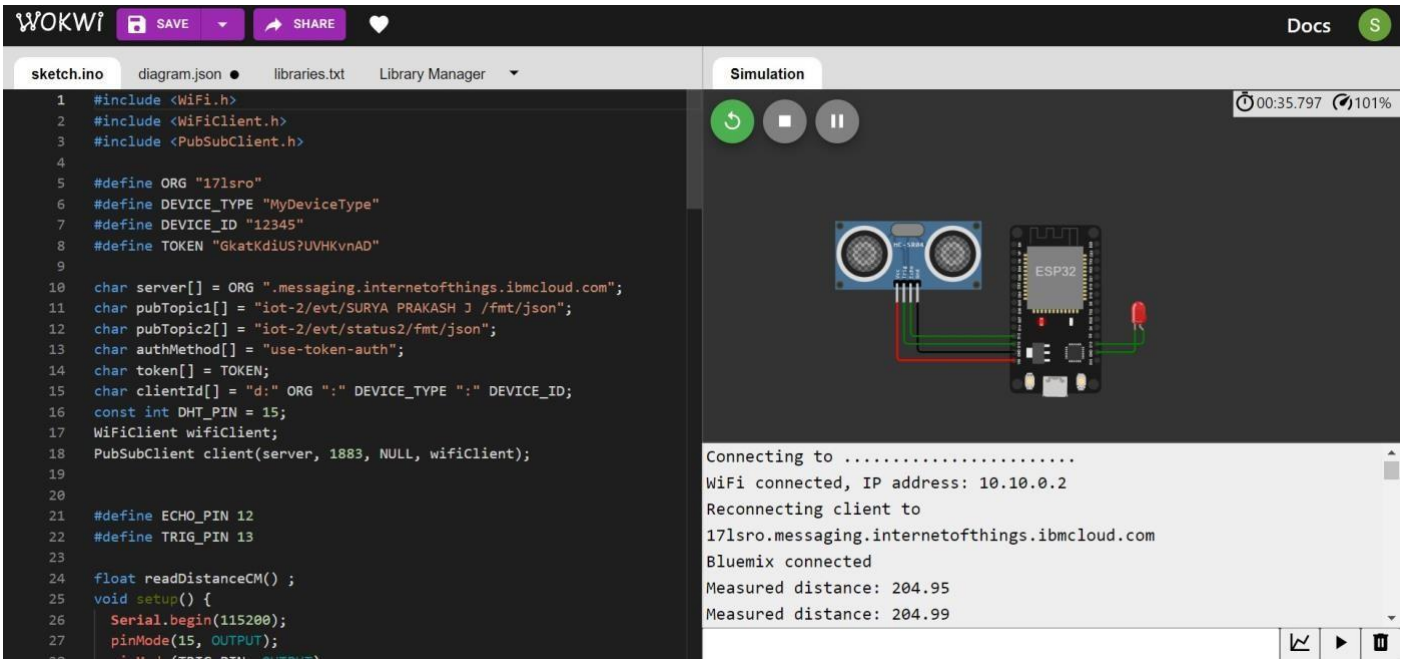
```
    while (WiFi.status() != WL_CONNECTED) {       delay(50);
      Serial.print(".");
    }
    Serial.println("");

    Serial.print("WiFi connected, IP address: ");
    Serial.println(WiFi.localIP());

    if (!client.connected()) {
        Serial.print("Reconnecting client to ");
Serial.println(server);          while
(!client.connect(clientId, authMethod, token))
{             Serial.print(".");             delay(500);
        }
        Serial.println("Bluemix connected");
}
}  float
readDistanceCM()
{   digitalWrite(TRIG_PIN, LOW);
delayMicroseconds(2);   digitalWrite(TRIG_PIN,
HIGH);   delayMicroseconds(10);
digitalWrite(TRIG_PIN, LOW);   int duration =
pulseIn(ECHO_PIN, HIGH);   return duration *
0.034 / 2;
} long lastMsg = 0; void loop() {    float distance = readDistanceCM();     bool
isNearby = distance < 100;//checking  whether the distance is less than 100
digitalWrite(15, isNearby);

  Serial.print("Measured distance: ");
  Serial.println(readDistanceCM());
   delay(100);    if(isNearby)//Whenever the distance is less than 100 cms send an "alert"
to the IBM cloud    {      client.loop();      long now = millis();      if (now - lastMsg >
3000) {         lastMsg = now;

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

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


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

        if (client.publish(pubTopic1, (char*) payload.c_str())) {
            Serial.println("Publish ok");
        } else {
            Serial.println("Publish failed");
}



    }
}
}
```

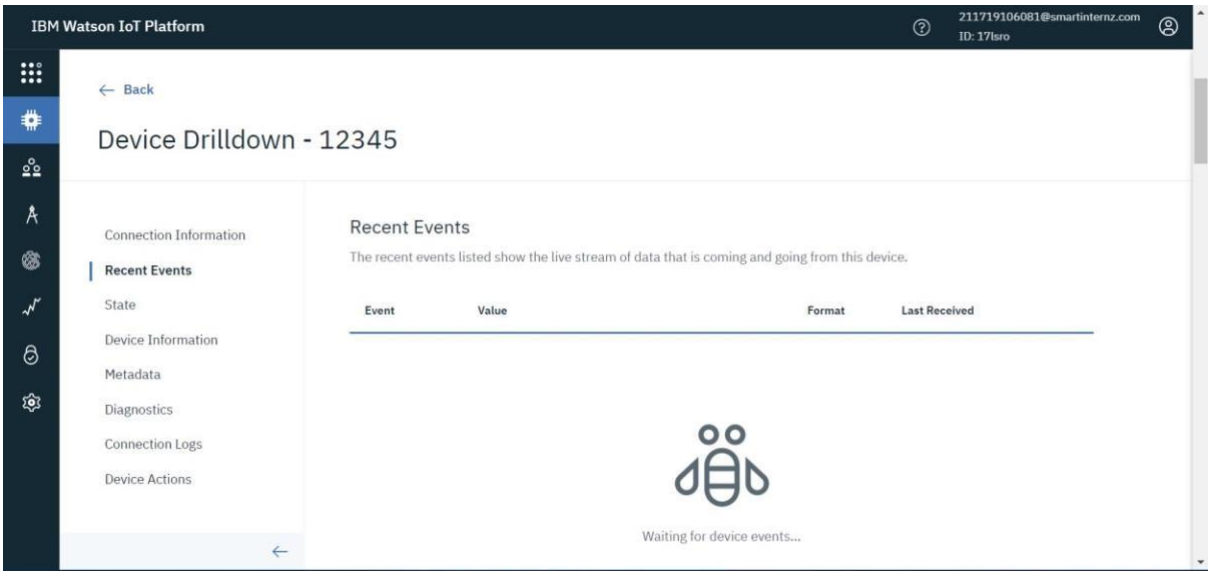
OUTPUT:

Case: 1

When Distance Is Above 100 Cm

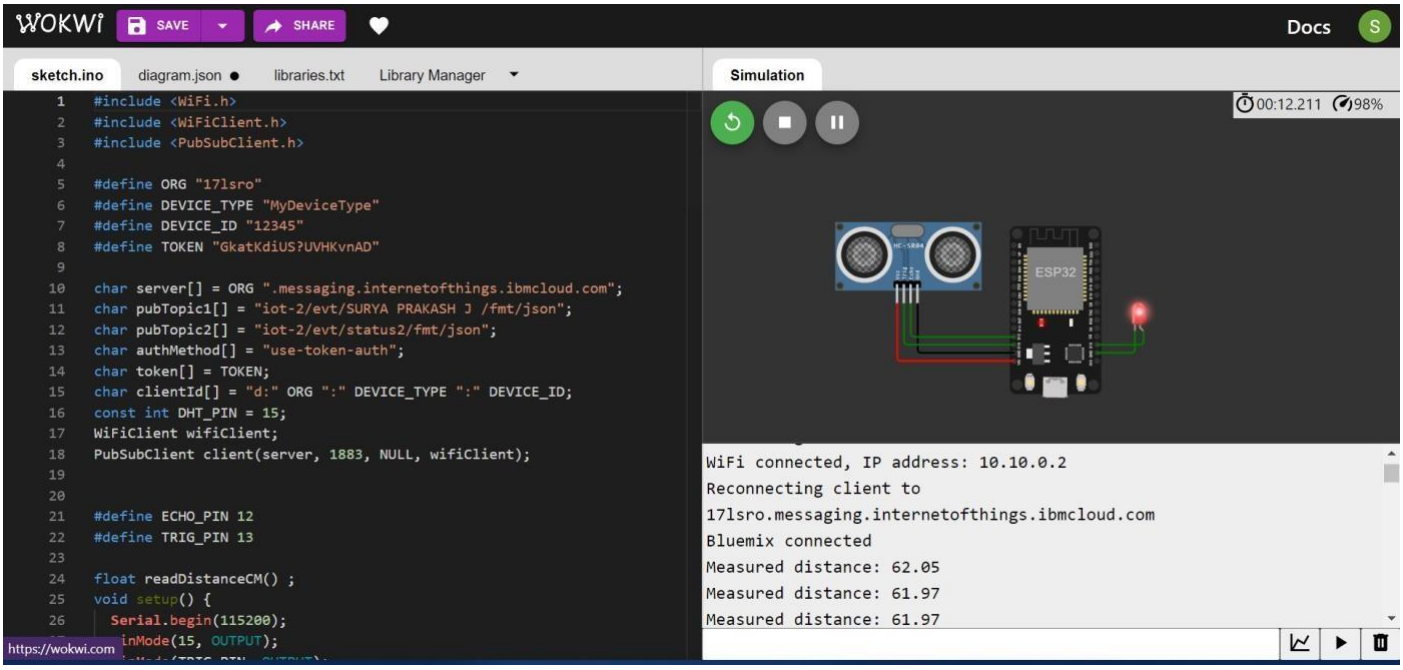


Data Is Not Send to IBM IOT PLATFORM If Distance Is Above 100 Cm

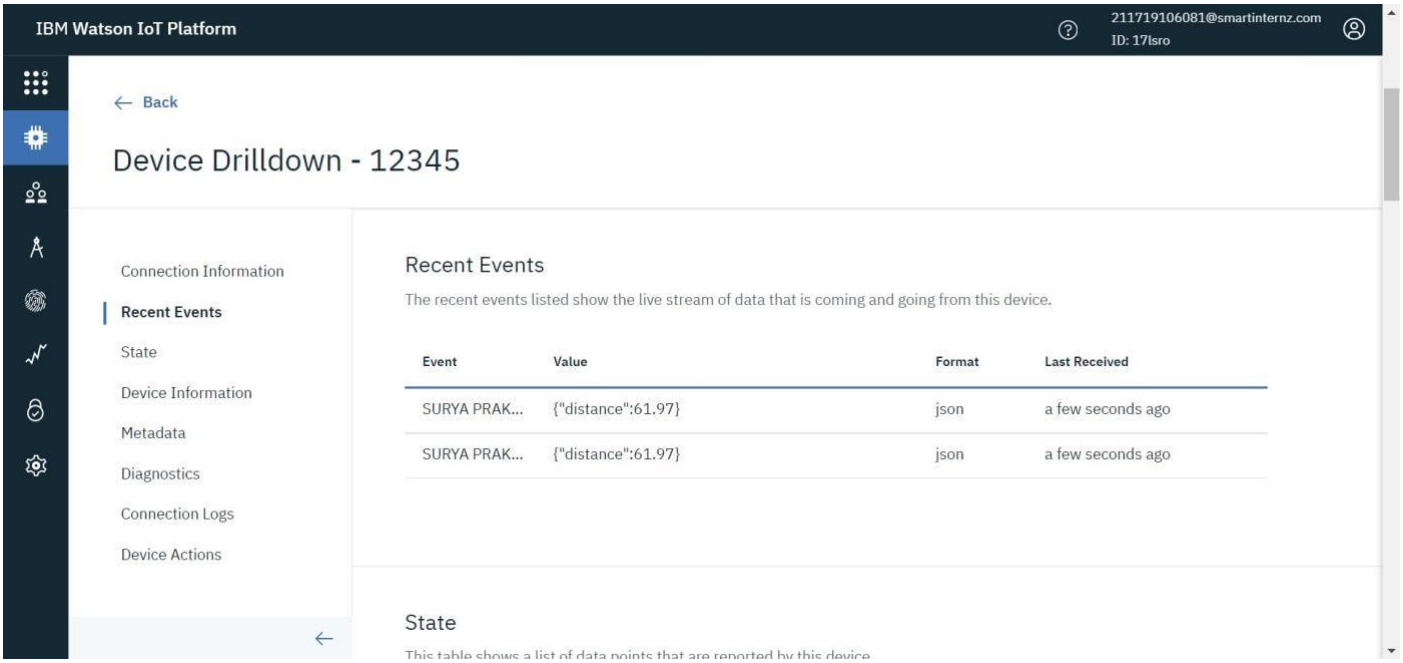


Case:2

When Distance Is Below 100 Cm



When The Distance Is Below 100Cm Data Is Sent To IBM Iot Platform


IBM Watson IoT Platform
211719106081@smartinternz.com
ID: 17lsro
Back
Device Drilldown - 12345
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
SURYA PRAK...
{"distance":61.97}
json
a few seconds ago
SURYA PRAK...
{"distance":61.97}
json
a few seconds ago
State
This table shows a list of data points that are reported by this device