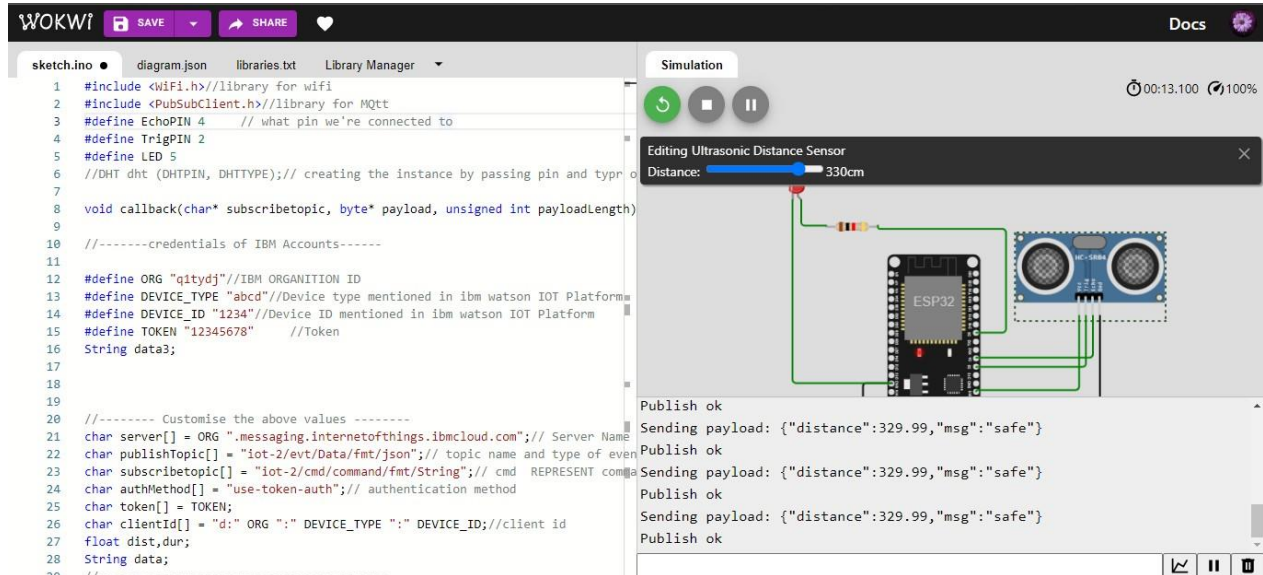


ASSIGNMENT 4

IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

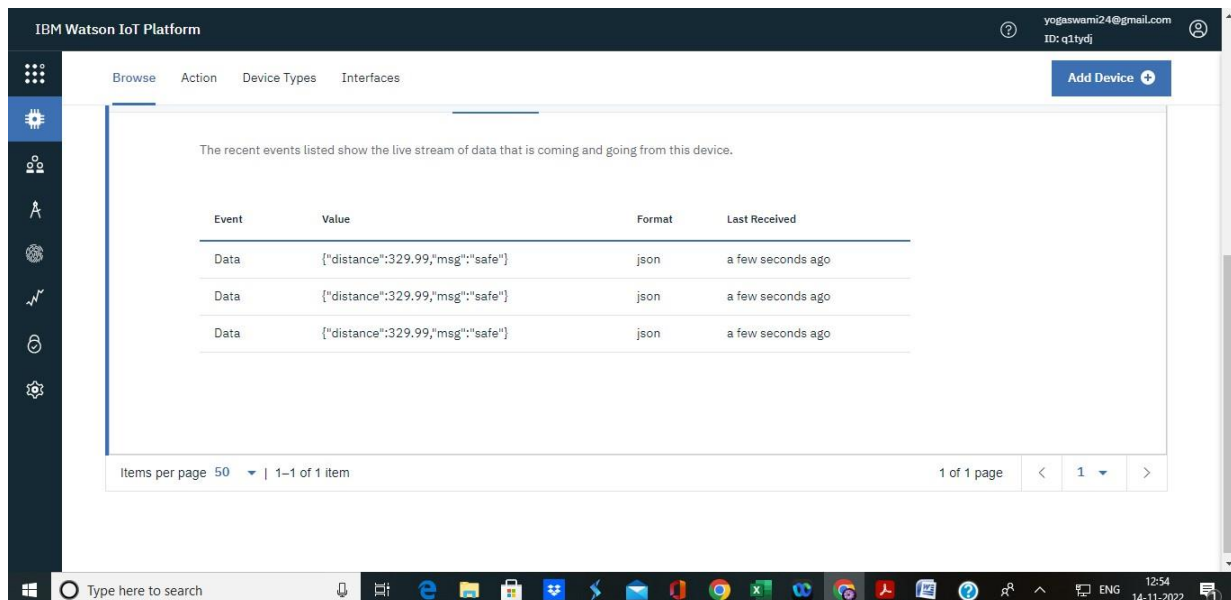
Wowki Link: <https://wokwi.com/projects/348452406650995282>

Distance when greater than 100cm-no alert sent to IBM CLOUD



The screenshot displays the Wokwi IDE interface. On the left, the sketch code is shown, which includes headers for WiFi and PubSubClient, defines pins for Echo, Trig, and LED, and sets up an MQTT client for IBM Watson IoT Platform. The code publishes distance data to the topic "iot-2/evt/Data/fmt/json". On the right, the simulation window shows an ESP32 board connected to an ultrasonic sensor. A dialog box indicates the sensor distance is 330cm. Below the simulation, the MQTT publish logs show successful transmissions of the distance data.

```
1 #include <WiFi.h> //library for wifi
2 #include <PubSubClient.h> //library for MQTT
3 #define EchoPIN 4 // what pin we're connected to
4 #define TrigPIN 2
5 #define LED 5
6 //DHT dht (DHTPIN, DHTTYPE); // creating the instance by passing pin and type
7
8 void callback(char* subscribtopic, byte* payload, unsigned int payloadLength)
9
10 //-----credentials of IBM Accounts-----
11
12 #define ORG "qitydj" //IBM ORGANITION ID
13 #define DEVICE_TYPE "abcd" //Device type mentioned in ibm watson IOT Platform
14 #define DEVICE_ID "1234" //Device ID mentioned in ibm watson IOT Platform
15 #define TOKEN "12345678" //Token
16 String data3;
17
18
19
20 //----- Customise the above values -----
21 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Server Name
22 char publishTopic[] = "iot-2/evt/Data/fmt/json"; // topic name and type of event
23 char subscribtopic[] = "iot-2/cmd/command/fmt/String"; // cmd REPRESENT command
24 char authMethod[] = "use-token-auth"; // authentication method
25 char token[] = TOKEN;
26 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
27 float dist,dur;
28 String data;
29
30 //-----
```



The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes "Browse", "Action", "Device Types", and "Interfaces". The main content area displays a table of recent events. The table has four columns: "Event", "Value", "Format", and "Last Received". The events are JSON payloads containing distance and message status, received at regular intervals.

Event	Value	Format	Last Received
Data	{"distance":329.99,"msg":"safe"}	json	a few seconds ago
Data	{"distance":329.99,"msg":"safe"}	json	a few seconds ago
Data	{"distance":329.99,"msg":"safe"}	json	a few seconds ago

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1 of 1 page

Distance when less than 100cm-no alert sent to IBM CLOUD

WOKWI SAVE SHARE Docs

sketch.ino • diagram.json libraries.txt Library Manager

```
1 #include <WiFi.h> //library for wifi
2 #include <PubSubClient.h> //library for MQTT
3 #define EchoPIN 4 // what pin we're connected to
4 #define TrigPIN 2
5 #define LED 5
6 //DHT dht (DHTPIN, DHTTYPE); // creating the instance by passing pin and type
7
8 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
9
10 //-----credentials of IBM Accounts-----
11
12 #define ORG "q1tydj" //IBM ORGANIZATION ID
13 #define DEVICE_TYPE "abcd" //Device type mentioned in ibm watson IOT Platform
14 #define DEVICE_ID "1234" //Device ID mentioned in ibm watson IOT Platform
15 #define TOKEN "12345678" //Token
16 String data3;
17
18
19
20 //----- Customise the above values -----
21 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Server Name
22 char publishTopic[] = "iot-2/evt/Data/fmt/json"; // topic name and type of event
23 char subscribetopic[] = "iot-2/cmd/command/fmt/String"; // cmd REPRESENT command
24 char authMethod[] = "use-token-auth"; // authentication method
25 char token[] = TOKEN;
26 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
27 float dist,dur;
28 String data;
29 //-----
```

Simulation 00:09.216 96%

Editing Ultrasonic Distance Sensor
Distance: 76cm

Publish ok
Sending payload: {"distance":75.99,"msg":"alert"}
Publish ok
Sending payload: {"distance":75.99,"msg":"alert"}
Publish ok
Sending payload: {"distance":75.99,"msg":"alert"}
Publish ok

IBM Watson IoT Platform yogaswami24@gmail.com ID: q1tydj

Browse Action Device Types Interfaces Add Device

1234 Connected abcd Device 14 Nov 2022 1:09 PM

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
Data	{"distance":75.99,"msg":"alert"}	json	a few seconds ago
Data	{"distance":75.92,"msg":"alert"}	json	a few seconds ago
Data	{"distance":75.99,"msg":"alert"}	json	a few seconds ago

Items per page 50 | 1-1 of 1 item 1 of 1 page < 1 >