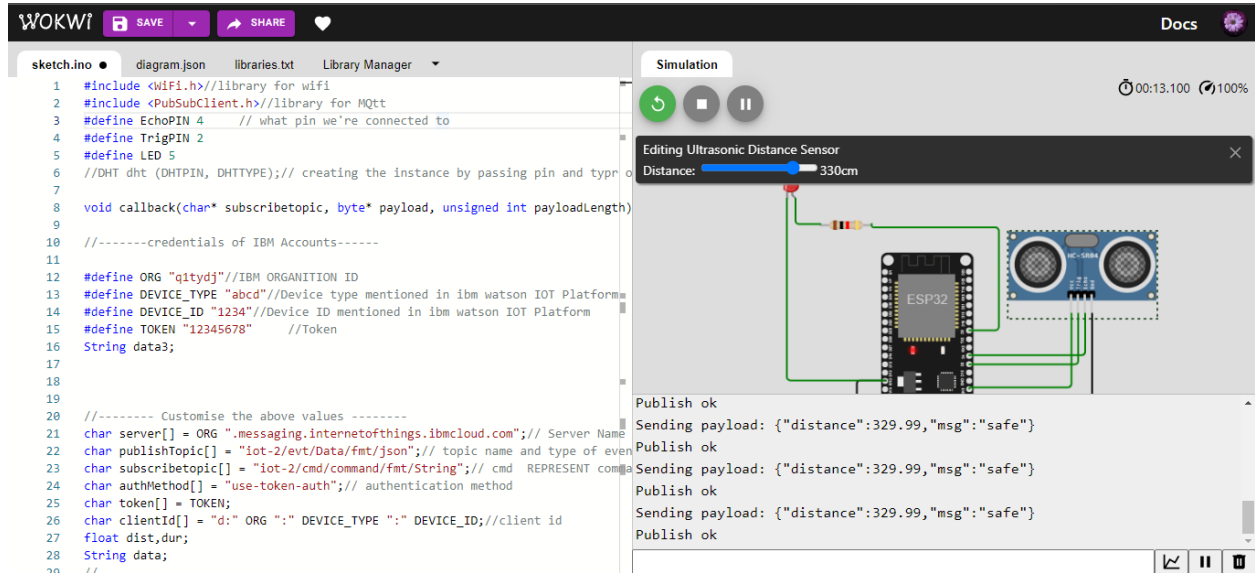


## ASSIGNMENT 4

### IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

Wowki Link: <https://wokwi.com/projects/347118572579848787>

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

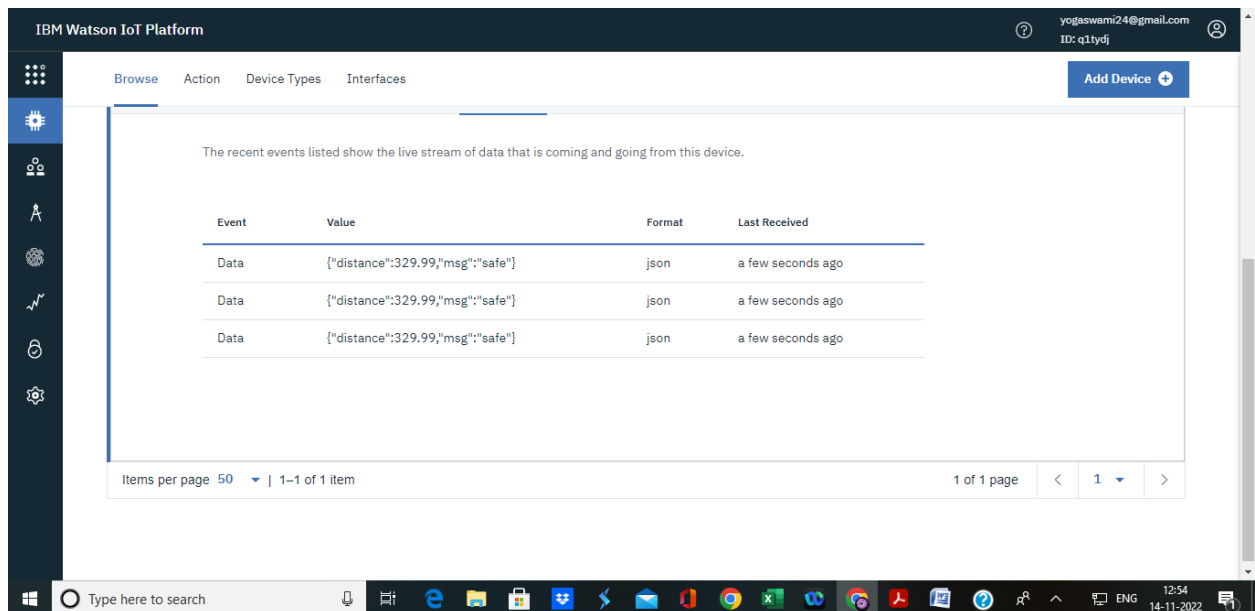


The screenshot shows the Wokwi IDE interface. On the left, the sketch.ino file is open, displaying the following code:

```
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* topic, 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
30 //-----
```

On the right, the simulation window shows an ESP32 microcontroller connected to an ultrasonic sensor. The sensor's distance is displayed as 330cm. Below the simulation, the console shows the following output:

```
Publish ok
Sending payload: {"distance":329.99,"msg":"safe"}
Publish ok
Sending payload: {"distance":329.99,"msg":"safe"}
Publish ok
Sending payload: {"distance":329.99,"msg":"safe"}
Publish ok
```



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:

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

At the bottom, there is a pagination control showing "Items per page 50" and "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* topic, 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 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 //-----
```

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 >