

ASSIGNMENT 4

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|---------------------|---|
| Date | 04 Nov 22 |
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| Team ID | PNT2022TMID42891 |
| Project Name | Smart Waste Management System For Metropolitan cities |

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.

Upload document with wokwi share link and images of ibm cloud

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar is present with the text 'Search by Device ID'. The main content area shows a table of devices. The first device listed is '12345', which is 'Disconnected' and of type 'ezhumalai'. Below the table, a detailed view of the selected device is shown, including its identity, device information, recent events, state, and logs. The device information section lists the following details:

- Device ID: 12345
- Device Type: ezhumalai
- Date Added: Nov 3, 2022 10:05 PM
- Added By: 712519104005.it@ppg.edu.in
- Connection Status: Disconnected
- Last Connected: Nov 3, 2022 10:18 PM
- Client Address: 145.40.94.93 Insecure
- Duration: a few seconds
- Data Transferred: 1.3 KB

The bottom of the image shows a Windows taskbar with various application icons and system status information, including the date and time (10:19 PM, 11/3/2022).

Device Event information

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The 'Recent Events' tab is selected, displaying a table of events. The table has columns for 'Event', 'Value', 'Format', and 'Last Received'. The events listed are all 'Data' events with the value '{"Alert distance":110.98}' in 'json' format, received 'a few seconds ago'.

| Event | Value | Format | Last Received |
|-------|---------------------------|--------|-------------------|
| Data | {"Alert distance":110.94} | json | a few seconds ago |
| Data | {"Alert distance":110.98} | json | a few seconds ago |
| Data | {"Alert distance":110.98} | json | a few seconds ago |
| Data | {"Alert distance":110.98} | json | a few seconds ago |
| Data | {"Alert distance":110.98} | json | a few seconds ago |

Wokwi project info

The screenshot shows the Wokwi project page for a project named 'sketch.ino'. The left pane displays the sketch code, which includes headers for WiFi and PubSubClient, and defines various constants and variables. The right pane shows the simulation of the circuit, which includes an ESP32 microcontroller and a buzzer. The simulation output shows the device successfully connecting to the IBM Watson IoT Platform and publishing data.

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "jx1bx1"
#define DEVICE_TYPE "ezhumalai"
#define DEVICE_ID "12345"
#define TOKEN "QZNzr8qgtvzaHrPd?b"
#define speed 0.034
#define led 12
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
void publishData();

const int trigpin=4;
const int echopin=2;
String command;
String data="";

long duration;
float dist;
```

Simulation output:

```
jx1bx1.messaging.internetofthings.ibmcloud.com
IBM subscribe to cmd OK

Sending payload: {"Normal Distance":65.98}
Publish OK
```

Node red connection Info

The screenshot displays the Node-RED web interface in a browser. The address bar shows the URL `127.0.0.1:1880/#flow/3829cf30ba10c0e5`. The interface includes a left sidebar with a search bar and a palette of nodes under 'common' and 'function' categories. The main workspace, titled 'Flow 1', contains a flow with two nodes: an 'IBM IoT' node (blue) and a 'debug 1' node (green). The 'IBM IoT' node is labeled 'connected'. The right sidebar features a 'debug' console showing a log of messages. The messages are as follows:

| Timestamp | Node | Message |
|------------------------|---------------|---|
| 11/3/2022, 10:32:51 PM | node: debug 1 | <code>iot-2/type/ezhumalai/id/12345/evt/Data/fmt/json : msg.payload : Object</code> |
| 11/3/2022, 10:32:52 PM | node: debug 1 | <code>{ Normal Distance: 65.98 }</code> |
| 11/3/2022, 10:33:28 PM | node: debug 1 | <code>iot-2/type/ezhumalai/id/12345/evt/Data/fmt/json : msg.payload : Object</code> |
| 11/3/2022, 10:33:28 PM | node: debug 1 | <code>{ Normal Distance: 65.98 }</code> |
| 11/3/2022, 10:33:29 PM | node: debug 1 | <code>iot-2/type/ezhumalai/id/12345/evt/Data/fmt/json : msg.payload : Object</code> |
| 11/3/2022, 10:33:29 PM | node: debug 1 | <code>{ Normal Distance: 65.98 }</code> |
| 11/3/2022, 10:33:48 PM | node: debug 1 | <code>iot-2/type/ezhumalai/id/12345/evt/Data/fmt/json : msg.payload : Object</code> |
| 11/3/2022, 10:33:48 PM | node: debug 1 | <code>{ Normal Distance: 47.97 }</code> |

The bottom of the image shows a Windows taskbar with various application icons and a system tray displaying the date and time as 10:34 PM on 11/3/2022.