

Sprint-(2)

Team ID	PNT2022TMID02546
Project Name	Smart waste management system for metropolitan cities

Bin 1:

The WOKWI simulation environment displays an ESP32 microcontroller connected to an HC-SR04 ultrasonic sensor. The code on the left configures the sensor and publishes distance data to a topic. The simulation window on the right shows the sensor's output and the published payload.

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4 WiFiClient wificlient;
5 #define ORG "799tra"
6 #define DEVICE_TYPE "Bin1"
7 #define DEVICE_ID "Pnpur"
8 #define TOKEN "P12345678"
9 #define speed 0.034
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt/status1/fmt/json";
12 char topic[] = "iot-2/cmd/home/fmt/String";
13 char authMethod[] = "use-token-auth";
14 char token[] = TOKEN;
15 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
16 PubSubClient client(server, 1883, wificlient);
17 void publishData();
18 const int trigpin=5;
19 const int echopin=19;
20 String command;
21 String data="";
22 String latitude="13.0382";
23 String longitude="80.1565";
24 String icon="";
25 long duration;
26 int dist;
27 void setup()
28 {
29   Serial.begin(115200);
30   pinMode(trigpin, OUTPUT);
31   pinMode(echopin, INPUT);
32   wificlient.connect();
33   mqttconnect();
```

Sending payload:
{\"Latitude\":\"13.0382\",\"Longitude\":\"80.1565\",\"Distance\":5,\"Status\":\"Bin is full\"}
Publish OK

Sending payload:
{\"Latitude\":\"13.0382\",\"Longitude\":\"80.1565\",\"Distance\":5,\"Status\":\"Bin is full\"}
Publish OK

Event	Value	Format	Last Received
status1	{\"Latitude\":\"13.0382\",\"Longitude\":\"80.1565\",\"Di...	json	a few seconds ago
status1	{\"Latitude\":\"13.0382\",\"Longitude\":\"80.1565\",\"Di...	json	a few seconds ago
status1	{\"Latitude\":\"13.0382\",\"Longitude\":\"80.1565\",\"Di...	json	a few seconds ago
status1	{\"Latitude\":\"13.0382\",\"Longitude\":\"80.1565\",\"Di...	json	a few seconds ago

>	<input type="checkbox"/>	Thandalam	Disconnected	Bin2	Device	Nov 18, 2022 9:28 PM
>	<input type="checkbox"/>	Vadapalani	Disconnected	Bin3	Device	Nov 18, 2022 9:35 PM

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Bin 2:

esp32-dht22.ino

```

1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4 WiFiClient wificlient;
5 #define ORG "7j9tra"
6 #define DEVICE_TYPE "Bin2"
7 #define DEVICE_ID "thandalam"
8 #define TOKEN "112345678"
9 #define speed 0.034
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt/status1/fmt/json";
12 char topic[] = "iot-2/cmd/home/fmt/String";
13 char authMethod[] = "use-token-auth";
14 char token[] = TOKEN;
15 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
16 PubSubClient client(server, 1883, wificlient);
17 void publishData();
18 const int trigpin=5;
19 const int echopin=19;
20 String command;
21 String data="";
22 String latitude="13.0473";
23 String longitude="80.0945";
24 String icon="";
25 long duration;
26 int dist;
27 void setup()
28 {
29   Serial.begin(115200);
30   pinMode(trigpin, OUTPUT);
31   pinMode(echopin, INPUT);
32   wificlient();
33   mqttconnect();

```

Simulation

subscribe to cmd OK

Sending payload:

{ "Latitude": "13.0473", "Longitude": "80.0945", "Distance": 399, "Status": "Bin is not full" }

Publish OK

Browse

Action

Device Types

Interfaces

Add Device

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
status1	{ "Latitude": "13.0473", "Longitude": "80.0945", "D...	json	a few seconds ago

>

☐

Vadapalani

Disconnected

Bin3

Device

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1

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Bin3

