

Sprint-(1)

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

BIN 2:-

```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "7j9tra"
#define DEVICE_TYPE "Bin2"
#define DEVICE_ID "Thandalam"
#define TOKEN "T12345678"
#define speed 0.034
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/status1/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=5;
const int echopin=19;
String command;
String data="";
String latitude="13.0437";
String longitude="80.0945";
long duration;
int dist;
String icon;
void setup()
{
  Serial.begin(115200);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
  mqttConnect();
}
void loop() {
  publishData();
  delay(500);
  if (!client.loop()) {
    mqttConnect();
```

```

}
}
void wifiConnect() {
  Serial.print("Connecting to ");
  Serial.print("Wifi");
  WiFi.begin("Wokwi-GUEST", "", 6);
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());
}
void mqttConnect() {
  if (!client.connected()) {
    Serial.print("Reconnecting MQTT client to "); Serial.println(server);
    while (!client.connect(clientId, authMethod, token)) {
      Serial.print(".");
      Serial.print("*");
      delay(1000);
    }
    initManagedDevice();
    Serial.println();
  }
}
void initManagedDevice() {
  if (client.subscribe(topic)) {
    Serial.println(client.subscribe(topic));
    Serial.println("subscribe to cmd OK");
  }
  else {
    Serial.println("subscribe to cmd FAILED");
  }
}
void publishData()
{
  digitalWrite(trigpin, LOW);
  digitalWrite(trigpin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigpin, LOW);
  duration=pulseIn(echopin, HIGH);
  dist=duration*speed/2;
  if(dist<20){
    icon="Bin is Full";
  }
  else{
    icon="Bin is not Full";
  }
}
DynamicJsonDocument doc(1024);

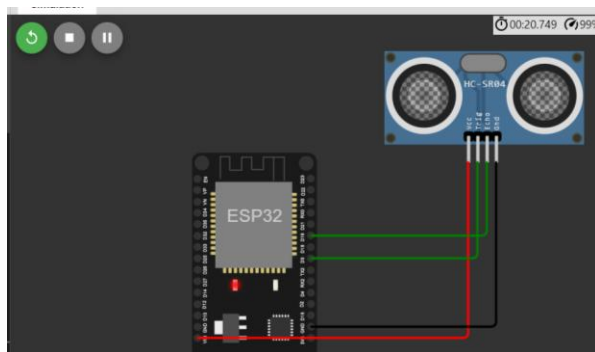
```

```

String payload;
doc["Latitude"]=latitude;
doc["Longitude"]=longitude;
doc["Distance"]=dist;
doc["Bin Status"]=icon;
serializeJson(doc, payload);
delay(3000);
Serial.print("\n");
Serial.print("Sending payload: ");
Serial.println(payload);
if (client.publish(publishTopic, (char*) payload.c_str())) {
Serial.println("Publish OK");
}
else {
Serial.println("Publish FAILED");
}
}
}

```

Circuit:



OUTPUT:7j9tra

WOKWI

SAVE

SHARE

esp32-dht22.ino copy

Docs

SIGN UP

esp32-dht22.ino

diagram.json

libraries.txt

Library Manager

```

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 "handalam"
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   wifiConnect();
33   mqttconnect();

```

Simulation

00:07.850 100%

subscribe to cmd OK

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

Publish OK