

IBM-Cloud-ESP32-Beacon.ino

Date	14 November 2022
Team ID	PNT2022TMID03488
Project Name	Project - Hazardous Area Monitoring for Industrial Plant powered by IoT

```
#include
<WiFi.h>

#include <PubSubClient.h>
#include <DHT.h>

WiFiClient wifiClient;
String data3;

#define DHTTYPE DHT11
#define DHTPIN 4
#define MQTPIN 34
DHT dht(DHTPIN, DHTTYPE);


#define ORG "v6wg8x"
#define DEVICE_TYPE "projectFinal"
#define DEVICE_ID "FinalDeliverable"
#define TOKEN "A1ymH))p*JB&iMWNpY"
#define speed 0.034


void callback(char* topic, byte* payload, unsigned int payloadLength);


char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
```

```
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char topic[] = "iot-2/cmd/test/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, callback , wifiClient);
void publishData();
```

```
String command;
String data = "";
```

```
long duration;
float dist;
```

```
void setup()
{
  Serial.begin(115200);
  dht.begin();
  wifiConnect();
  mqttConnect();
}
```

```
void loop() {
  publishData();
  delay(500);
```

```
if (!client.loop()) {  
    mqttConnect();  
}  
}
```

```
void wifiConnect() {  
    Serial.print("Connecting to "); Serial.print("Wifi");  
    WiFi.begin("JerroldWi-Fi","75779901");  
    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(".");  
            delay(500);  
        }  
        initManagedDevice();  
        Serial.println();  
    }  
}
```

```
void initManagedDevice() {
```

```

if (client.subscribe(topic)) {
    Serial.println("IBM subscribe to cmd OK");
} else {
    Serial.println("subscribe to cmd FAILED");
}
}

```

```

void publishData()
{
    int sensorValue = analogRead(MQTPIN); //MQT 135 connected to GPIO 34 (Analog
ADC1_CH6)
    Serial.print("AirQua=");
    Serial.print(sensorValue, DEC);
    Serial.println(" PPM");
    float humid = dht.readHumidity();
    float temp = dht.readTemperature(true);
    String payload = "{\"Humidity\":";
    payload += humid;
    payload += "}";
    if (client.publish(publishTopic, (char*) payload.c_str())) {
        Serial.println("Publish OK");
    }
    payload = "{\"Temperature\":";
    payload += temp;
    payload += "}";
    if (client.publish(publishTopic, (char*) payload.c_str())) {
        Serial.println("Publish OK");
    }
    payload = "{\"AirQuality\":";
    payload += String(sensorValue);
    payload += "}";
}

```

```
if (client.publish(publishTopic, (char*) payload.c_str())) {  
    Serial.println("Publish OK");  
}  
  
void callback(char* subscribeTopic, byte* payload, unsigned int payloadLength) {  
    Serial.print("callback invoked for topic:");  
    Serial.println(subscribeTopic);  
    for (int i = 0; i < payloadLength; i++) {  
        dist += (char)payload[i];  
    }  
    Serial.println("data:" + data3);  
    if (data3 == "lighton") {  
        Serial.println(data3);  
    }  
    data3 = "";  
}
```