

PROJECT DEVELOPMENT PHASE

SPRINT-4

Team ID	PNT2022TMID53632
Project Name	Hazardous Area Monitoring for Industrial Plant powered by IOT

Code:

```
#include <DHT.h>

WiFiClient wifiClient;

String data3;

#define DHTTYPE DHT11

#define DHTPIN 4

#define MQTPIN 34

DHT dht(DHTPIN, DHTTYPE);

#define ORG "22h49t"

#define DEVICE_TYPE "NodeMCU"

#define DEVICE_ID "NodeMCU"

#define TOKEN "12345678" #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 = "";  
}
```