

## SPRINT 2

### Model Creation

Date	08 November 2022
Team ID	PNT2022TMID27080
Project Name	Project - Gas Leakage Monitoring and Alerting System for Industries.

### Model Creation:

- Pre-processed data are sent to the cloud in order to be processed, analysed, or modelled in order to build smart applications. Because IoT devices usually don't emit data at regular intervals, IoT time series data is highly irregular regarding their sampling rate within as well as across devices.

- Name: - Gas Leakage Monitoring and Alerting System for Industries.
- Device Type: Detecting the leakage of the gas in industry
- Kind: Sensor
- Producer: By the rate of leakage
- Frequency: Every time when the leakage is detected.

### Code:

```
#include <ESP8266WiFi.h>
```

```
#include <PubSubClient.h>
```

```
WiFiClient wifiClient;
```

```
//Enter your network credentials below in ssid and password
```

```
const char* ssid = " "; const char* password = " ";
```

```
//Provide your IBM IOT Platform credentials
```

```
#define ORG ""
```

```
#define DEVICE_TYPE ""
```

```
#define DEVICE_ID ""
```

```
#define TOKEN ""
```

```
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String"; // cmd REPRESENT command type AND COMMAND IS TEST
OF FORMAT STRING
char authMethod[] = "use-token-auth"; char token[] =
TOKEN; char clientId[] = "d:" ORG ":" DEVICE_TYPE ":"
DEVICE_ID;

void callback(char* topic, byte* payload, unsigned int payloadLength); PubSubClient
client(server, 1883, callback, wifiClient);

int publishInterval = 5000; // 30 seconds long
lastPublishMillis;
String data;

void setup()
{
  Serial.begin(9600);
  pinMode(D0, OUTPUT);
  wifiConnect();
  mqttConnect();
}

void loop() {
  if (millis() - lastPublishMillis > publishInterval)
  {
    publishData();
    lastPublishMillis = millis();
  }

  if (!client.loop()) {
```

```

    mqttConnect();

}

}

void wifiConnect() {
    Serial.print("Connecting to "); Serial.print(ssid);
    WiFi.begin(ssid, password); while
(WiFi.status() != WL_CONNECTED) {
        delay(500);
        Serial.print(".");
    }
    Serial.print("\nWiFi 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(client.subscribe(topic));
        Serial.println("subscribe to cmd OK");
    } else {

```

```
Serial.println("subscribe to cmd FAILED");

}

}

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

    Serial.print("callback invoked for topic: ");
    Serial.println(topic);

    for (int i = 0; i < payloadLength; i++) {
//Serial.print((char)payload[i]);   data
+= (char)payload[i];
    }

    Serial.println("Data: " + data );
    if (data == "lon") {
digitalWrite(D0, HIGH);
    }
    else if (data == "loff") {
digitalWrite(D0, LOW);
    }
    data = "";
}

void publishData()
{
    int a = 10;
    Serial.print("Sample Value: ");
    Serial.println(a);
}
```

```
String payload = "{\"d\":{\"data\"}";  
payload += a; payload += "}}";
```

```
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");  
}  
}
```