SPRINT 2
Model Creation

Date	03 November 2022
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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";
```

```cpp
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();

  }
```

```cpp
}


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");

  }
```

```cpp
}

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");

  }

}
```