

PROJECT DEVELOPMENT PHASE

SPRINT 4

Date	19 November 2022
Project Title	Gas Leakage Monitoring and Alerting System
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In Sprint 4, the gas percentage value detected by the sensor is displayed on the dashboard.

CODE:

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

WiFiClient wifiClient;

#define ORG "mz6rat"
#define DEVICE_TYPE "ESP8266"
#define DEVICE_ID "12345"
#define TOKEN "123456789"
#define speed 0.034

char server[] = ORG
".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/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=18;
String command;
String data="";
String lat="13.356563";
String lon="80.141428";
String name="point1";
String icon="fa-fire";

long duration;
int dist;

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(".");
            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");
    }
}

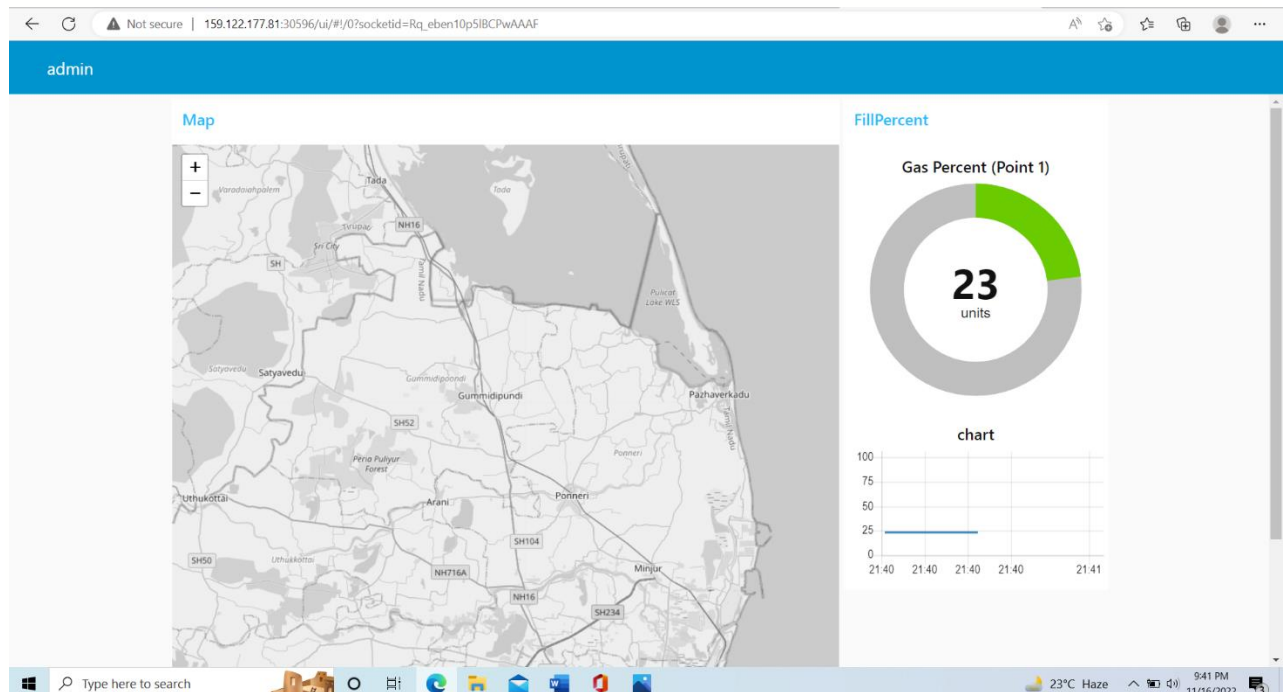
void publishData()
{
    digitalWrite(trigpin, LOW);
    digitalWrite(trigpin, HIGH);
    delayMicroseconds(10);
    digitalWrite(trigpin, LOW);
    duration=pulseIn(echopin, HIGH);
    dist=duration*speed/2;
    dist=dist/4;
    dist=100-dist;
    if(dist>80){
        lat="13.356563";
        lon="80.141428";
    }else{
        lat="0.000000";
        lon="0.000000";
    }
}

```

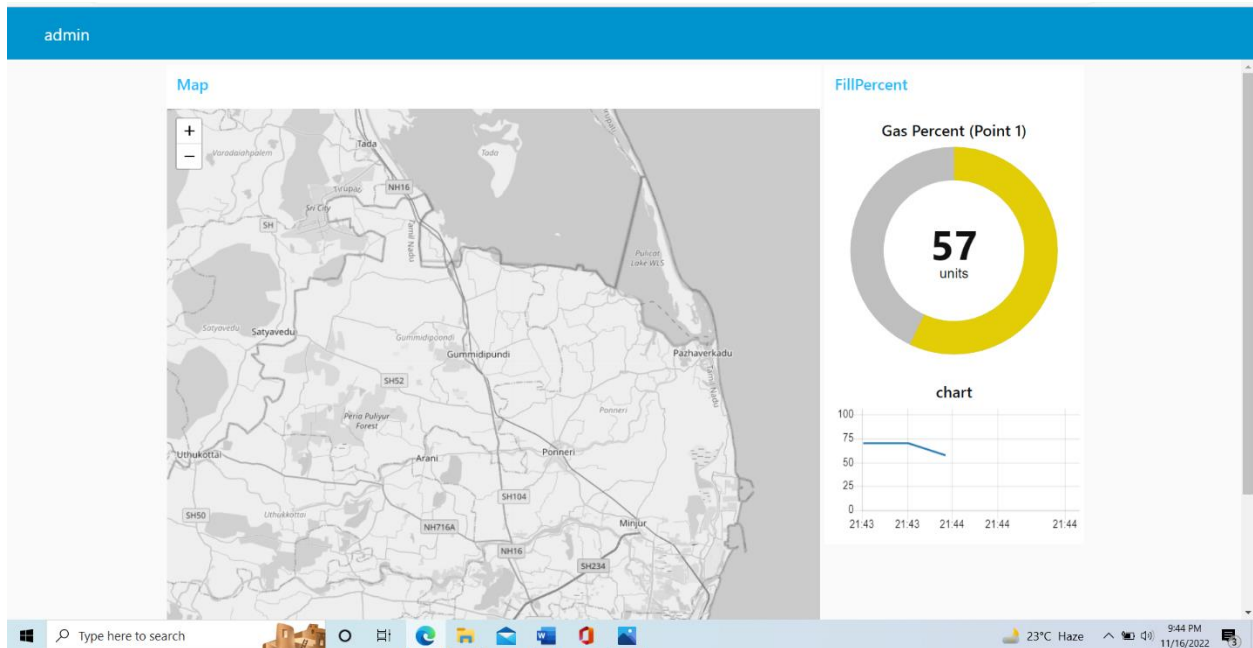
```

}
DynamicJsonDocument doc(1024);
String payload;
doc["Name"]=name;
doc["Latitude"]=lat;
doc["Longitude"]=lon;
doc["Icon"]=icon;
doc["GasPercent"]=dist;
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");
}
}

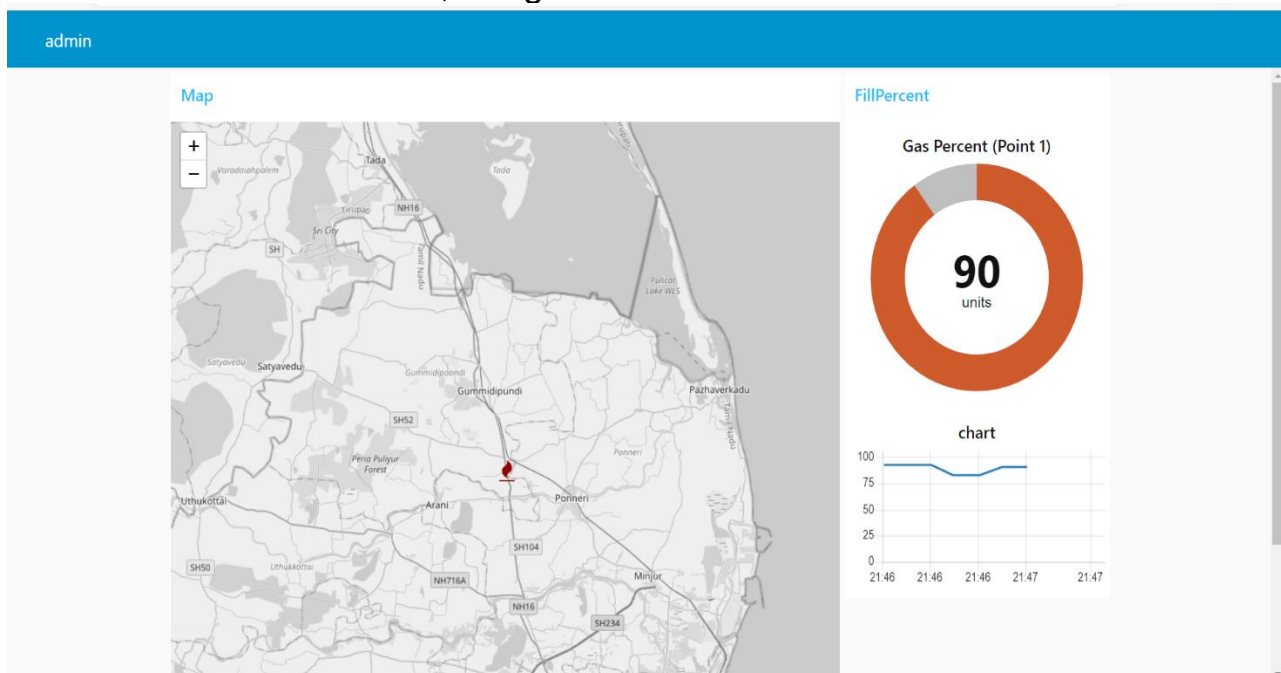
```



The green color indicates, the gas value is very below the threshold value, thus there is no harm.



The Yellow color indicates, the gas value is on threshold.



The red color denotes it crosses the threshold value, hence gas leakage is detected.

Thus Sprint 4 is successfully completed.