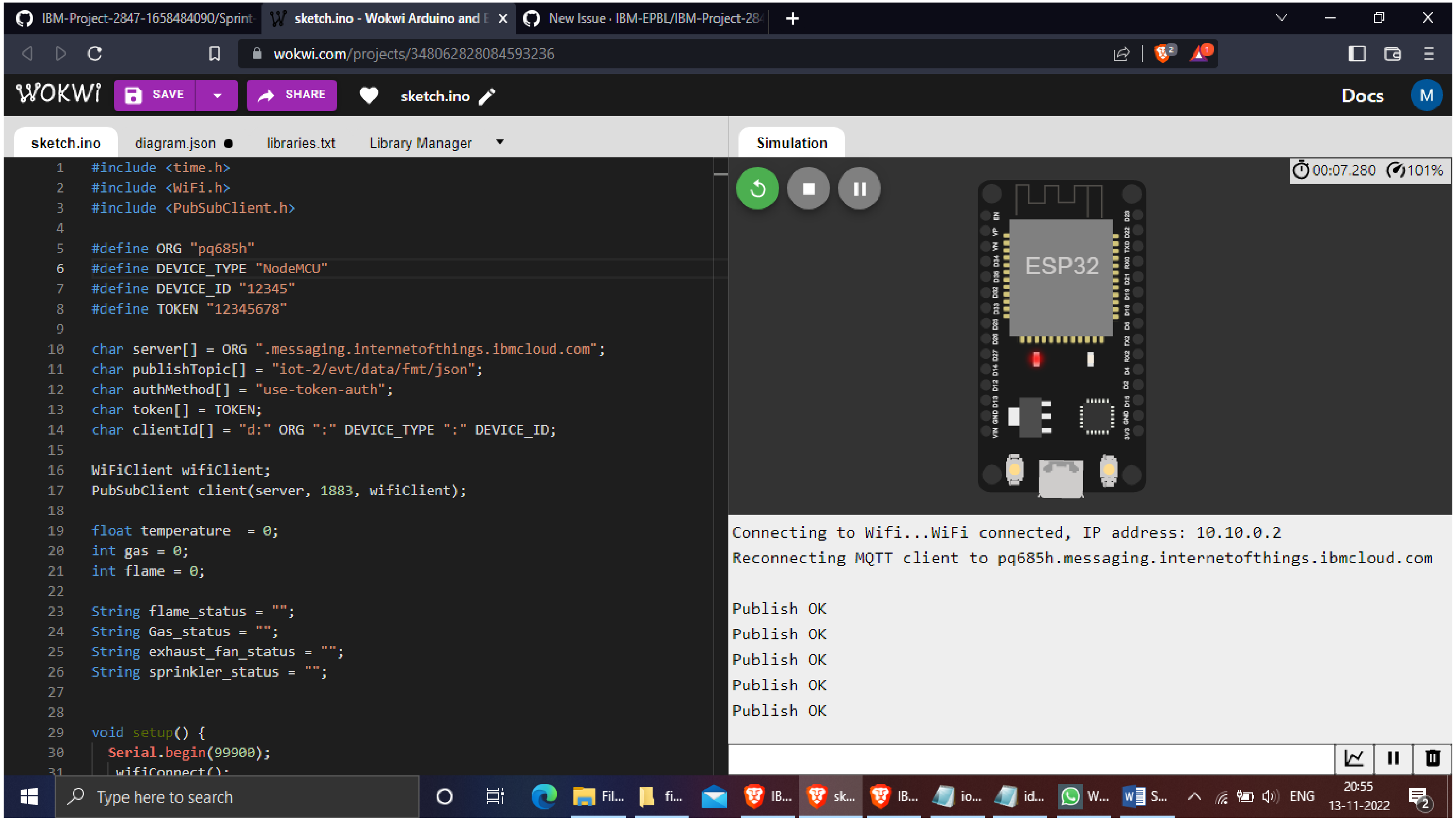
Project development phase
Sprint - II

Date	04 November 2022
Team ID	PNT2022TMID13566
Project Name	Project - Industry-specific intelligent fire management system
Maximum Marks	20 marks

LINK: https://wokwi.com/projects/348062828084593236

OUTPUT:



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

#define ORG "pq685h"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "12345"
#define TOKEN "12345678"

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/data/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, wifiClient);

float temperature  = 0;
int gas = 0;
int flame = 0;

String flame_status = "";
String Gas_status = "";
String exhaust_fan_status = "";
String sprinkler_status = "";


void setup() {
  Serial.begin(99900);
  wifiConnect();
```

```
Connecting to Wifi...WiFi connected, IP address: 10.10.0.2
Reconnecting MQTT client to pq685h.messaging.internetofthings.ibmcloud.com

Publish OK
Publish OK
Publish OK
Publish OK
Publish OK
```

CODE:

```
#include <time.h>
#include <WiFi.h>
#include <PubSubClient.h>
#define ORG "wt19pm"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "12345"             #define TOKEN "12345678"
char server[] = ORG
".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/data/fmt/json";
char authMethod[] = "use-token-auth";                                       char
token[] = TOKEN;  char clientId[] = "d:" ORG ":" DEVICE_TYPE
":" DEVICE_ID;
WiFiClient wifiClient;
PubSubClient client(server, 1883, wifiClient);     float
temperature  = 0; int gas = 0; int flame
= 0; String flame_status = "";
String Gas_status = "";
String exhaust_fan_status = "";
String sprinkler_status = ""; void
setup() {   Serial.begin(99900);
wifiConnect();     mqttConnect();
```

```
}
void loop() {   srand(time(0));
    //initial variables and random generated data
temperature = random(-20,125);     gas =
random(0,1000);     int flamereading = random(200,1024);
flame =
map(flamereading,200,1024,0,2);
//set  a  flame  status          switch
(flame)    {                     case    0:
flame_status      =      "No      Fire";
break;    case 1:        flame_status
= "Fire is Detected";          break;
    }
    //send the sprinkler status     if(flame==1){
sprinkler_status
= "Working";
    }     else{
sprinkler
_status
= "Not
Working
";
    }
    //toggle the fan according to gas reading
if(gas > 100){
        Gas_status = "Gas Leakage is Detected";
        exhaust_fan_status = "Working";

    }
    else{
        Gas_status = "No Gas Leakage is Detected";
        exhaust_fan_status = "Not Working";
    }
    //json format for IBM Watson      String payload = "{";
payload+="\"gas\":";      payload+=gas;      payload+=",";
payload+="\"temperature\":";
payload+=(int)temperature;                        payload+=",";
payload+="\"flame\":";               payload+=flamereading;
payload+=",";
payload+="\"fire_status\":\""+flame_status+"\",";
payload+="\"sprinkler_status\":\""+sprinkler_status+"\",";
payload+="\"Gas_status\":\""+Gas_status+"\",";
payload+="\"exhaust_fan_status\":\""+exhaust_fan_status
+"\"}";      if(client.publish(publishTopic, (char*)
payload.c_str()))
    {
        Serial.println("Publish OK");
    }    else{
Serial.printl
```

```
n("Publish
failed");
    }
    delay(1000);
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(500);
    }

    Serial.println();
  } }
```