

Project development phase

Sprint - II

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

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

OUTPUT:

WOKWI OUTPUT

IBM-Project-2847-1658484090/Sprint-

W sketch.ino - Wokwi Arduino and E x

New Issue · IBM-EPBL/IBM-Project-2847

wokwi.com/projects/348062828084593236

WOKWI

SAVE

SHARE

sketch.ino

Docs

sketch.ino

diagram.json

libraries.txt

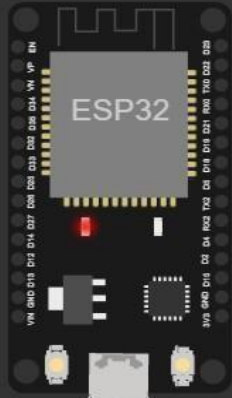
Library Manager

```
1 #include <time.h>
2 #include <WiFi.h>
3 #include <PubSubClient.h>
4
5 #define ORG "pq685h"
6 #define DEVICE_TYPE "NodeMCU"
7 #define DEVICE_ID "12345"
8 #define TOKEN "12345678"
9
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt/data/fmt/json";
12 char authMethod[] = "use-token-auth";
13 char token[] = TOKEN;
14 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
15
16 WiFiClient wifiClient;
17 PubSubClient client(server, 1883, wifiClient);
18
19 float temperature = 0;
20 int gas = 0;
21 int flame = 0;
22
23 String flame_status = "";
24 String Gas_status = "";
25 String exhaust_fan_status = "";
26 String sprinkler_status = "";
27
28
29 void setup() {
30   Serial.begin(99900);
31   wifiConnect();
```

Simulation

00:07.280 101%

ESP32



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

Type here to search

20:55

13-11-2022

2

IBM WATSON OUTPUT

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes tabs for 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains icons for various IoT functions. The main content area shows a list of devices, with one device (ID: 12345) selected. Below the device list, a panel displays 'Recent Events' for the selected device. The events are listed in a table with columns for Event, Value, Format, and Last Received. The events show a stream of data including gas, temperature, and flame status. At the bottom of the panel, it indicates '0 Simulations running'.

IBM Watson IoT Platform

mathavanvj15@gmail.com
ID: pq685h

Add Device +

Browse Action Device Types Interfaces

Device ID	Status	Device Type	Class ID	Date Added
12345	Connected	NodeMCU	Device	Nov 13, 2022 4:18 PM

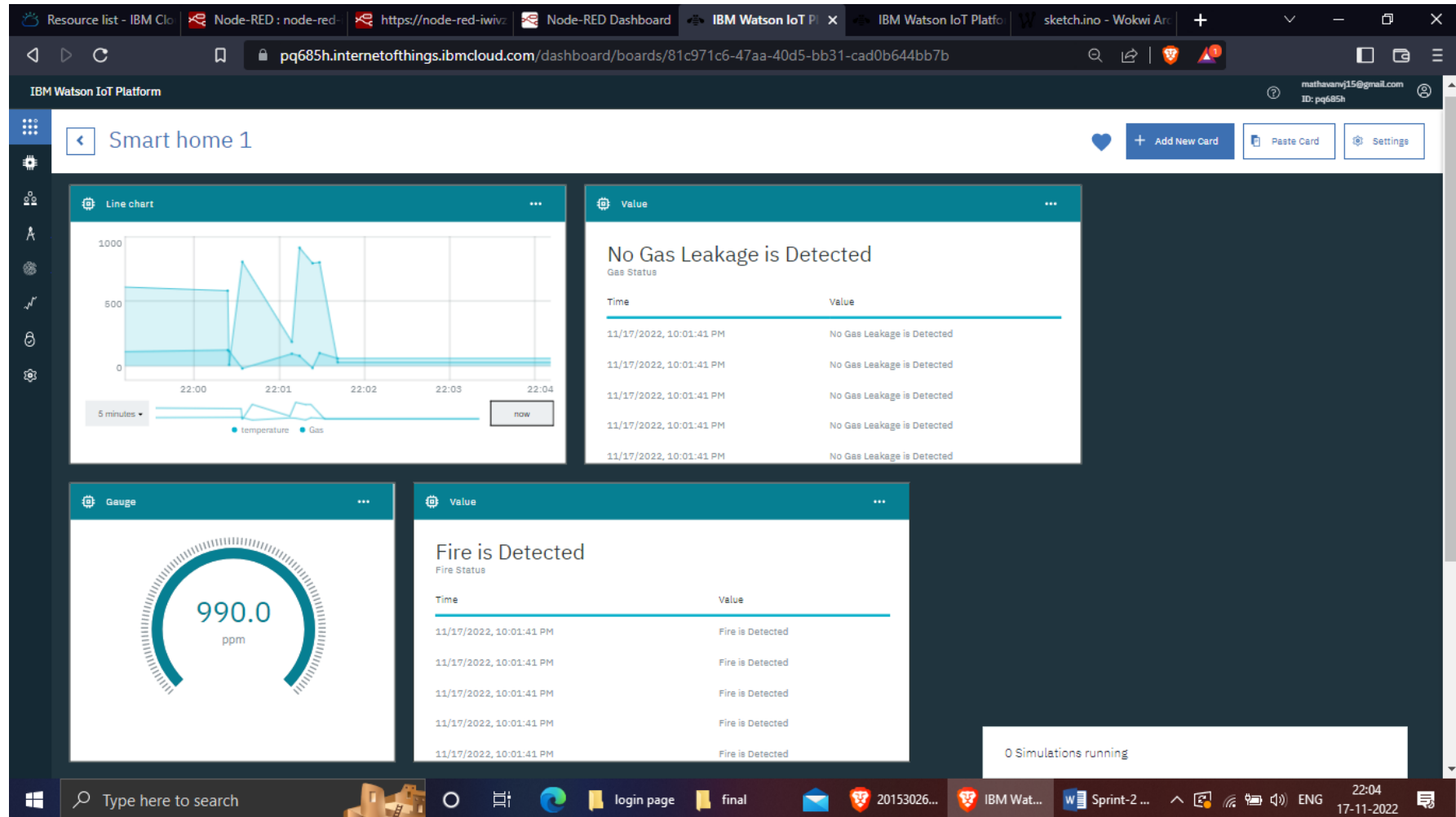
Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
data	{"gas":664,"temperature":-4,"flame":839,"fire_st...	json	a few seconds ago
data	{"gas":91,"temperature":5,"flame":215,"fire_stat...	json	a few seconds ago
data	{"gas":441,"temperature":103,"flame":285,"fire_...	json	a few seconds ago
data	{"gas":918,"temperature":114,"flame":841,"fire_...	json	a few seconds ago
data	{"gas":91,"temperature":5,"flame":995,"fire_stat...	json	a few seconds ago

0 Simulations running

IBM WATSON DASHBOARD OUTPUT



Resource list - IBM CloNode-RED : node-red-https://node-red-iiwvNode-RED DashboardIBM Watson IoT PI xIBM Watson IoT Platf sketch.ino - Wokwi Arc

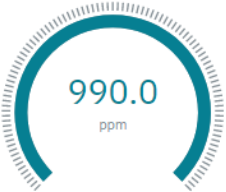
pq685h.internetofthings.ibmcloud.com/dashboard/boards/81c971c6-47aa-40d5-bb31-cad0b644bb7b

mathavanj15@gmail.comID: pq685h

IBM Watson IoT Platform

Smart home 1

Gauge



990.0
ppm

Value

Fire is Detected

Fire Status

Time	Value
11/17/2022, 10:01:41 PM	Fire is Detected
11/17/2022, 10:01:41 PM	Fire is Detected
11/17/2022, 10:01:41 PM	Fire is Detected
11/17/2022, 10:01:41 PM	Fire is Detected
11/17/2022, 10:01:41 PM	Fire is Detected

Value

Working

sprinkler_status

Time	Value
11/17/2022, 10:01:41 PM	Working
11/17/2022, 10:01:41 PM	Working
11/17/2022, 10:01:41 PM	Working
11/17/2022, 10:01:41 PM	Working
11/17/2022, 10:01:41 PM	Working

Value

Not Working

exhaust_fan_status

Time	Value
11/17/2022, 10:01:41 PM	Not Working
11/17/2022, 10:01:41 PM	Not Working
11/17/2022, 10:01:41 PM	Not Working
11/17/2022, 10:01:41 PM	Not Working
11/17/2022, 10:01:41 PM	Not Working

0 Simulations running

Type here to search

login pagefinal

20153026...IBM Wat...Sprint-2 ...

22:0517-11-2022

CODE:

```
#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();  
  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.println("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();  
}  
}
```

LOGIN PAGE OUTPUT:



FIRE MANAGEMENT

Login into your account

☐ Remember me

Login

[Forgot password?](#)

RESET PAGE OUTPUT:



Reset Your password

Please enter your email address and we will send you a password reset link.

Send Reset Link

LOGIN CODE:

```
<!DOCTYPE html>
<html>
<head>
  <title>Login</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <link href="style.css" rel="stylesheet" type="text/css">
  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/css/bootstrap.min.css">
  <link href="https://stackpath.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.min.css" rel="stylesheet"> <script
src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
</head>
<body>
  <div class="container-fluid">
    <div class="row ">
      <!-- IMAGE CONTAINER BEGIN -->
      <div class="col-lg-6 col-md-6 d-none d-md-block infinity-image-container"></div>
      <!-- IMAGE CONTAINER END -->

      <!-- FORM CONTAINER BEGIN -->
      <div class="col-lg-6 col-md-6 infinity-form-container">
        <!-- <h4 class = "test" style="color:#fa6903;">FIRE MANAGEMENT</h4> -->
        <div class="col-lg-9 col-md-12 col-sm-9 col-xs-12 infinity-form">
          <!-- Company Logo -->
          <div class="text-center mb-3 mt-5">
            <h4 class = "test" style="color:#fa6903;">FIRE MANAGEMENT</h4>
          </div>
          <div class="text-center mb-4">
            <h4>Login into your account</h4>
          </div>
        </div>
      </div>
    </div>
  </div>
</body>
</html>
```

```

</div>
<!-- Form -->
    <form class="px-3">
        <!-- Input Box -->
        <div class="form-input">
            <span><i class="fa fa-envelope-o"></i></span>
            <input type="email" name="" placeholder="Email Address" tabindex="10"required>
        </div>
        <div class="form-input">
            <span><i class="fa fa-lock"></i></span>
            <input type="password" name="" placeholder="Password" required>
        </div>
        <div class="row mb-3">
            <!-- Remember Checkbox -->
            <div class="col-auto d-flex align-items-center">
                <div class="custom-control custom-checkbox">
                    <input type="checkbox" class="custom-control-input" id="cb1">
                    <label class="custom-control-label text-black" for="cb1" style = >Remember me</label>
                </div>
            </div>
            </div>
            <!-- Login Button -->
            <div class="mb-3">
                <button type="submit" class="btn btn-block">Login</button>
            </div>
            <div class="text-right ">
                <a href="reset.html" class="forget-link">Forgot password?</a>
            </div>
        </form>
    </div>

```

```

        </div>
        <!-- FORM CONTAINER END -->
    </div>
</div>
</body>
</html>

```

RESET CODE:

```

<!DOCTYPE html>
<html>
<head>
    <title>Reset</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <link href="style.css" rel="stylesheet" type="text/css">
    <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/css/bootstrap.min.css">
    <link href="https://stackpath.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.min.css" rel="stylesheet"> <script
src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
</head>
<body>
    <div class="container-fluid">
        <div class="row">
            <!-- IMAGE CONTAINER BEGIN -->
            <div class="col-lg-6 col-md-6 d-none d-md-block infinity-image-container"></div>
            <!-- IMAGE CONTAINER END -->

            <!-- FORM CONTAINER BEGIN -->
            <div class="col-lg-6 col-md-6 infinity-form-container">

```



```

<div class="col-lg-8 col-md-12 col-sm-8 col-xs-12 infinity-form">
  <div class="text-center mb-3 mt-5">
    
  </div>
<div class="reset-form d-block">
  <form class="reset-password-form px-3">
    <h4 class="mb-3" style="color:#fa6903">Reset Your password</h4>
    <p class="mb-3 text-black">
      Please enter your email address and we will send you a password reset link.
    </p>
    <div class="form-input">
      <span><i class="fa fa-envelope"></i></span>
      <input type="email" name="" placeholder="Email Address" tabindex="10"required>
    </div>
    <div class="mb-3">
      <button type="submit" class="btn" >Send Reset Link</button>
    </div>
  </form>
</div>

<div class="reset-confirmation d-none px-3">
  <div class="mb-4">
    <h4 class="mb-3">Link was sent</h4>
    <h6 class="text-white">Please, check your inbox for a password reset link.</h6>
  </div>

  <a href="login.html">
    <button type="submit" class="btn">Login Now</button>
  </a>
  <div>
</div>
</div>
<!-- FORM CONTAINER END -->

```

```

        </div>
    </div>

<script type="text/javascript">
    function PasswordReset() {
        $('form.reset-password-form').on('submit', function(e) {
e.preventDefault();    $('.reset-form')
        .removeClass('d-block')
        .addClass('d-none');
            $('.reset-confirmation').addClass('d-block');
        });
    }

    window.addEventListener('load', function() {
        PasswordReset();
    });
</script>

</body>
</html>

```

STYLE CODE:

```

.container-fluid{
    background-color: black;
}

.infinity-image-container{ background:
url('fire.jpg') center no-repeat;
background-size: cover;
height: 100vh;

```

```
}
```

```
.infinity-form-container{  
background: #fce7c9;  
display: flex; flex-direction:  
column; align-items:  
center;  
justify-content: center;  
}
```

```
.infinity-form{ display:  
flex; flex-direction:  
column; justify-  
content: center; min-  
height: 100vh;  
}
```

```
.infinity-form h4 { font-  
weight: bold; color:  
#ffbe6a; font-weight:  
bold;  
}
```

```
.infinity-form .form-input {  
position: relative;  
}
```

```
.infinity-form .form-input input {  
width: 100%; margin-  
bottom: 20px; height: 40px;  
border: none; border-radius:  
5px; outline: none;  
background: white;  
padding-left: 45px;  
}
```

```
.infinity-form .form-input span {  
position: absolute; top: 8px;  
padding-left: 20px; color:  
#777;  
}
```

```
.infinity-form .form-input input:focus, .infinity-form  
.form-input input:valid {  
border: 2px solid #fbae4e;  
}
```

```
.infinity-form input[type="checkbox"]:not(:checked) + label:before{  
background: transparent; border:2px solid #ffbe6a; font-  
weight: bol; width: 15px;  
height: 15px;  
}
```

```
.infinity-form .custom-checkbox .custom-control-input:checked ~ .custom-control-label::before {  
background-color: #feb449 !important; border:0px;  
}
```

```
.infinity-form button[type="submit"] {  
margin-top: 10px; border: none;  
cursor: pointer; border-radius:  
20px;  
background: linear-gradient(45deg, #f88702,#f88702); /*Button Color*/  
color: #fff; font-weight: bol; font-weight: bold;  
transition: 0.5s;  
}
```

```
.infinity-form button[type="submit"]:hover {  
background: linear-gradient(45deg, #FEB449, #feb449); /*Button color when hover*/  
}
```

```
.forget-link , .login-link , .register-link {  
color: #ffbe6a; font-weight: bold;
```

```
}
```

```
.forget-link:hover , .login-link:hover , .register-link:hover {  
color: #feb449; text-decoration: none;  
}
```