

Project Development **Phase**

Sprint - II

Team ID	PNT2022TMID29259
Project Name	Industry-Specific Intelligent Fire Management System

OUTPUT:

WOKWI OUTPUT

Wokwi project page for "esp32-firedetection.ino copy". The browser address bar shows "wokwi.com/projects/348816699284259410". The Wokwi interface includes a "SAVE" button, a "SHARE" button, and a "Docs" link. The project name "esp32-firedetection.ino copy" is displayed.

The code editor shows the following code:

```
1 #include <WiFi.h>//library for wifi
2 #include <PubSubClient.h>//library for MQTT
3 #include "DHT.h"// Library for dht11
4 #define DHTPIN 15 // what pin we're connected to
5 #define DHTTYPE DHT22 // define type of sensor DHT 11
6 #define LED 2
7 #define BUZZER 4
8 #define EXFAN1 13
9 #define EXFAN2 14
10 #define SPRKLR 12
11
12 #include <Wire.h>
13 #include <LiquidCrystal_I2C.h>
14
15 LiquidCrystal_I2C LCD = LiquidCrystal_I2C(0x27, 20, 4);
16
17 DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin number and sensor type
18
19 void callback(char* subscribetopic, byte* payload, unsigned int length) {
20
21 //-----credentials of IBM Accounts-----
22
23 #define ORG "pol6f4"//IBM ORGANITION ID
24 #define DEVICE_TYPE "ESP-32IoT"//Device type mentioned in ibm watson
25 #define DEVICE_ID "100100C40A24"//Device ID mentioned in ibm watson
26 #define TOKEN "EnuF+Tgx40@Y!wJWsQ" //Token
27 String data3;
28 float h, t, s, f, fan1=0, fan2=0, spr=0;
29
```

The simulation window shows a circuit diagram with an ESP32 microcontroller, a DHT22 temperature and humidity sensor, a buzzer, and a liquid crystal display (LCD). The LCD displays the following data:

Temp: -3.00 C
Humid: 49.50 %
Smoke: NO

The simulation controls include a "Simulation" button, a "Pause" button, and a "Publish ok" button. The simulation time is 00:31.502 and the progress is 100%.

The Windows taskbar at the bottom shows the search bar and various application icons.

IBM WATSON OUTPUT

The screenshot displays the IBM Watson IoT Platform web interface. The top navigation bar includes the platform name, a user profile icon, and the email address 422519104046@smartinternz.com with ID: m5zuh9. A left-hand sidebar contains various icons for navigation. The main content area is titled 'Browse' and shows a table of recent events. The table has four columns: Event, Value, Format, and Last Received. It lists five data points, each with a JSON string value and a timestamp of 'a few seconds ago'. The Windows taskbar at the bottom shows the search bar and several application icons.

IBM Watson IoT Platform

422519104046@smartinternz.com
ID: m5zuh9

Browse Action Device Types Interfaces

Add Device +

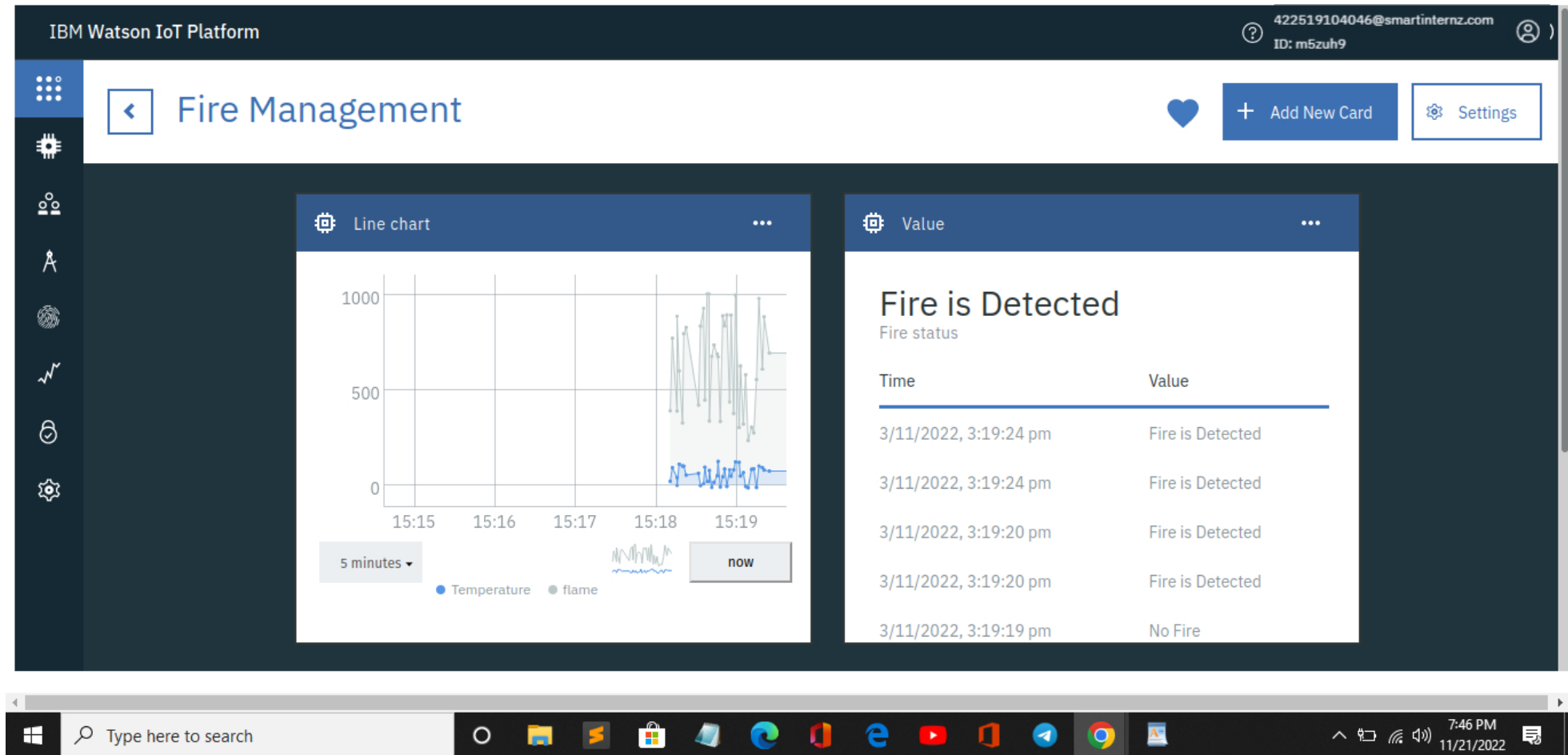
The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
data	{"gas":732,"temperature":79,"flame":1021,"fire_...	json	a few seconds ago
data	{"gas":972,"temperature":77,"flame":499,"fire_s...	json	a few seconds ago
data	{"gas":938,"temperature":88,"flame":302,"fire_s...	json	a few seconds ago
data	{"gas":284,"temperature":24,"flame":938,"fire_s...	json	a few seconds ago
data	{"gas":640,"temperature":58,"flame":346,"fire_s...	json	a few seconds ago

Type here to search

7:23 PM
11/21/2022

IBM WATSON DASHBOARD OUTPUT





Fire Management



+ Add New Card

Settings

● Temperature ● flame

3/11/2022, 3:19:24 pm

Fire is Detected

3/11/2022, 3:19:24 pm

Fire is Detected



Gauge



Value



Gas Leakage is Detected

Gas status

Time	Value
3/11/2022, 3:19:24 pm	Gas Leakage is Detected
3/11/2022, 3:19:24 pm	Gas Leakage is Detected
3/11/2022, 3:19:24 pm	Gas Leakage is Detected
3/11/2022, 3:19:24 pm	Gas Leakage is Detected
3/11/2022, 3:19:24 pm	Gas Leakage is Detected



Type here to search

7:53 PM
11/21/2022

CODE:

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

#define ORG "88653s"
#define DEVICE_TYPE "iot_device"
#define DEVICE_ID "wokwi_us"
#define TOKEN ")l(u!YYO)NmKr9sk(k"

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);
```

```
//seta 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 = "NotWor

```


//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();  
}
```

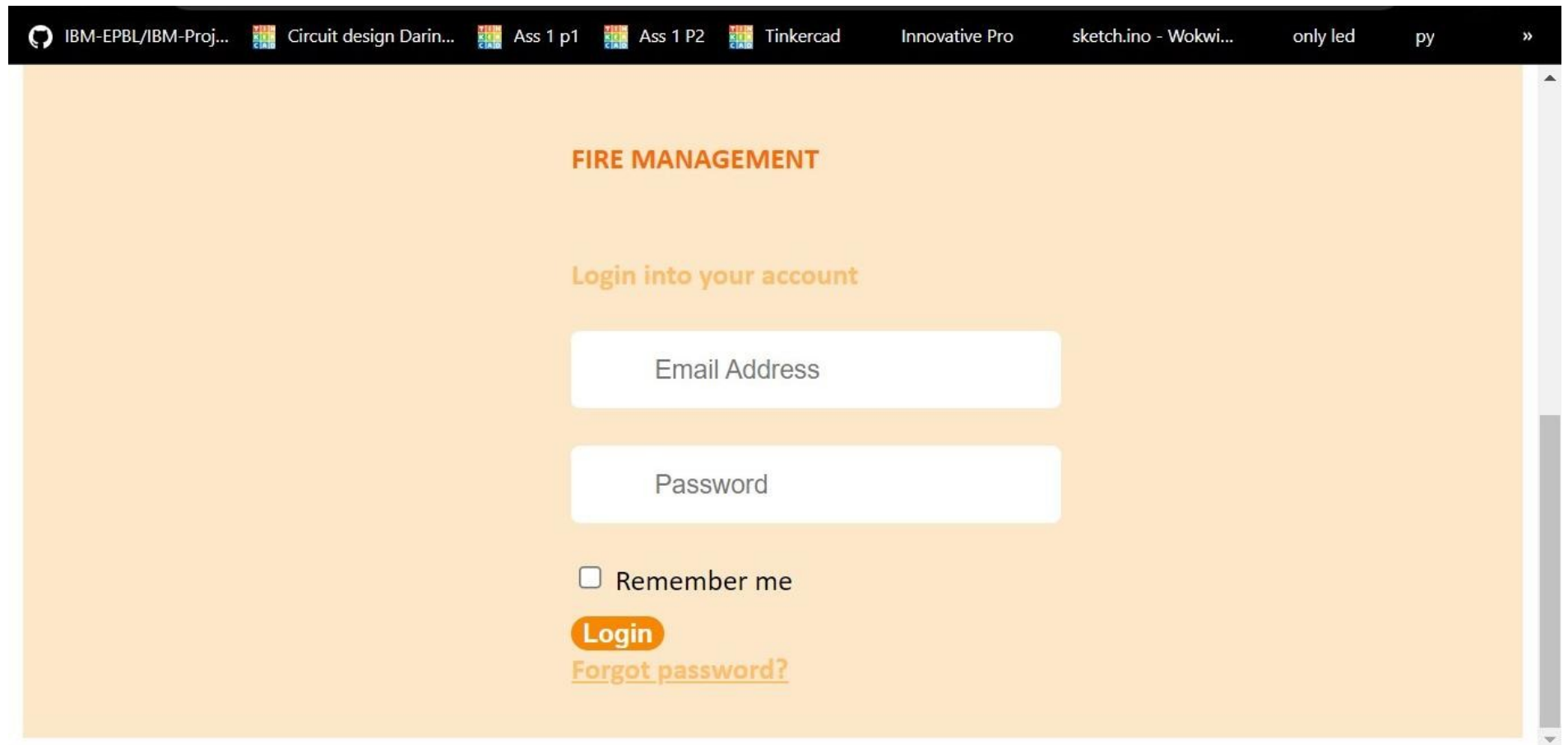
```
void wifiConnect()  
{  
  Serial.print("Connecting to ");  
  Serial.print("Wifi");  
  WiFi.begin("Wokwi-GUEST", "", 6);  
  while (WiFi.status() != WL_CONNECTED)  
  {  
    delay(500);  
    Serial.print(".");  
  }  
  Serial.print("WiFi connected, IP address: ");  
  Serial.println(WiFi.localIP());  
}
```

```
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:



The screenshot shows a web browser window with a dark header bar containing several tabs: 'IBM-EPBL/IBM-Proj...', 'Circuit design Darin...', 'Ass 1 p1', 'Ass 1 P2', 'Tinkercad', 'Innovative Pro', 'sketch.ino - Wokwi...', 'only led', and 'py'. The main content area has a light orange background. At the top, it says 'FIRE MANAGEMENT' in bold orange text. Below that, it says 'Login into your account' in orange text. There are two white input fields: the first is labeled 'Email Address' and the second is labeled 'Password'. Below the password field is a checkbox labeled 'Remember me'. At the bottom, there is an orange 'Login' button and a link that says 'Forgot password?' in orange text.

FIRE MANAGEMENT

Login into your account

Email Address

Password

☐ 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.

✉ Email Address

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: bold; 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:
#fffF; font-weight: bold; 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;  
}
```