Team ID	**PNT2022TMID45386**
Date	**17 November 2022**
Project Title	**IoT Based Safety Gadget for Child Safety Monitoring and Notification**

Sprint 2 is about **LOGIN and NOTIFICATION** of the IoT device in Parent’s Web Application for getting information about Child’s Status.

LOGIN:

This Coding is to build login page of parent’s application to get information about child’s condition. **Coding:**

```
<!DOCTYPE html>
<html> <head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<title> Login Page </title>
<style>
Body {
  font-family: Calibri, Helvetica, sans-serif;
  background-color: #9FE2BF;
 }
button {
      background-color: #9FE2BF;
```

```
       width: 100%; color:
        black; padding:
        15px; margin: 10px
        0px;border: none;
        cursor: pointer;
          }
form {
        border: 3px solid #f1f1f1;
    }
input[type=text], input[type=password]
        { width: 100%;
        margin: 8px 0;
        padding: 12px 20px;
        display: inline-block;
        border: 2px white;
        box-sizing: border-box;
    }
button:hover {
        opacity: 0.7;
    }
 .cancelbtn {
        width: auto; padding:
        10px 18px;margin:
        10px 5px;
    }
.container {
        padding: 25px;
        background-color: #CCCCFF;
    }
</style> </head>
<body>
    <center> <h1> Login Form </h1> </center>
    <form>
        <div class="container">
        <label>Device ID/Number: </label>
            <input type="password" placeholder="Enter Password" name="password"
            required> <label>E-Mail : </label>
            <input type="text" placeholder="Enter Username" name="username"
            required> <label>Password : </label>
            <input type="password" placeholder="Enter Password" name="password"
            required> <button type="submit">Login</button>
            <button class="loginBtn loginBtn--facebook">Login with
            Facebook.</button> <button class="loginBtn loginBtn--google">Login with
            Google.</button>
            <input type="checkbox" checked="checked"> Remember
            me <button type="button" class="cancelbtn">
            Cancel</button> Forgot <a href="#"> password? </a>
        </div>
    </form>
</body>
</html>
```

NOTIFICATION:

This coding will make connection between IoT Device & Parent's application. When the child cross across the geofence message will be notified on parent's application.

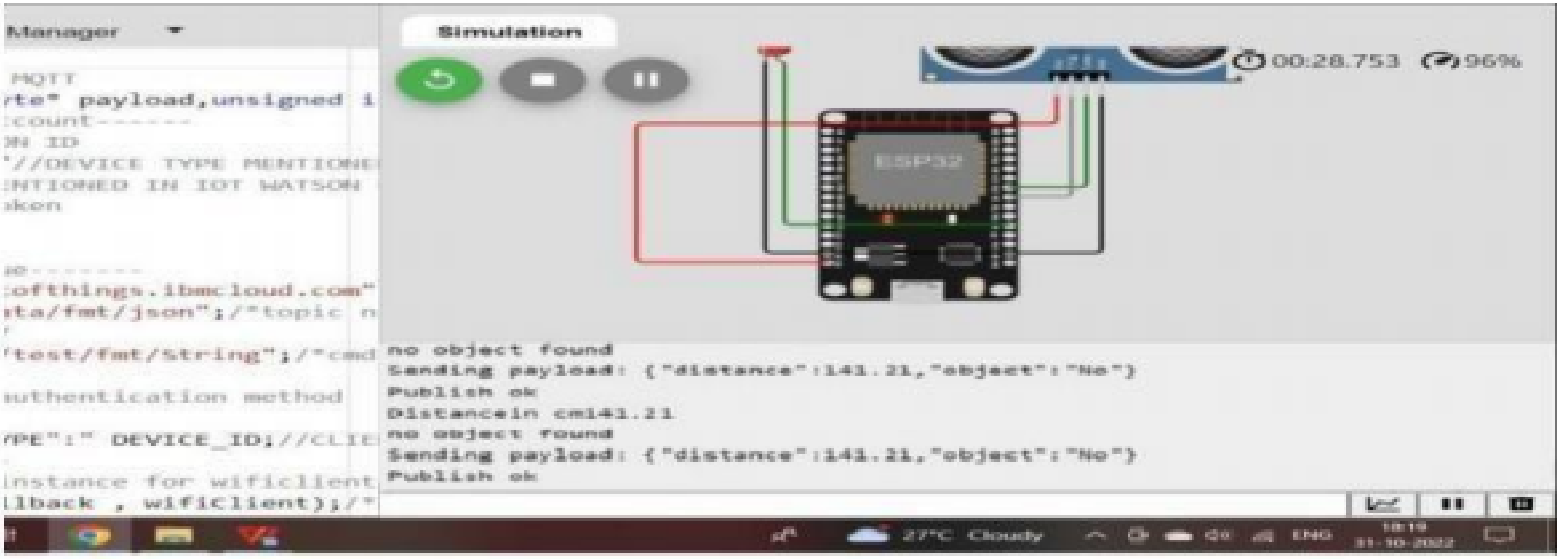
Coding:

```
#include<WiFi.h>//library for wifi

#include<PubSubClient.h>//library for MQTT

void callback(char* subscribetopic, byte* payload,unsigned int payloadlength);

//---------------credentials of IBM Account------

#define ORG "45z3o2"// IBM ORGANIZATION ID

#define DEVICE_TYPE "ESP32_Controller"//DEVICE TYPE MENTIONED IN IOT WATSON PLATFORM #define

DEVICE_ID "bme2"//DEVICE ID MENTIONED IN IOT WATSON PLATEFORM

#define TOKEN "OKZ+q@JfPWDOd6wBTj"//Token

String data3;

float dist;

//------------customize the above value-------

char server[]=ORG ".messaging.internetofthings.ibmcloud.com";//server name

char publishtopic[]="ultrasonic/evt/Data/fmt/json";/*topic name and type of event performand

  format in which data to be send*/

char subscribetopic[]="ultrasonic/cmd/test/fmt/string";/*cmd REPRESENT Command tupe and

COMMAND IS TEST OF FORMAT STRING*/
char authMethod[]="use-token-auth";//authentication method char

token[]=TOKEN;
```

```
char clientid[]="d:" ORG ":" DEVICE_TYPE":" DEVICE_ID;//CLIENT ID
//
WiFiClient wifiClient;// creating an instance for wificlient
PubSubClient client(server, 1883 , callback , wifiClient);/*calling the predefined client idby passing
parameter like server id,portand wificredential*/
int LED =4;
int trig =5;
int echo=18;
void setup(){
    Serial.begin(115200);
   pinMode(trig,OUTPUT);
   pinMode(echo,INPUT);
   pinMode(LED,OUTPUT);
    delay(10);
    Serial.println();
    wificonnect();
    mqttconnect();
 }
void loop() {
    digitalWrite(trig,LOW);
    digitalWrite(trig,HIGH);
    delayMicroseconds(10);
    digitalWrite(trig,LOW);
    float dur=pulseIn(echo,HIGH);
    float dist=(dur * 0.0343)/2;

    Serial.print("distance in cm");

    Serial.println(dist);

    PublishData(dist); delay(1000);

    if (!client.loop()){

      mqttconnect();

     }

 }
/*..............................................retriving to cloud.................................................... */ void PublishData(float dist){

mqttconnect();//function

    call for connecting to ibm

   /*creating the string in form of JSON to update the data to ibm cloud*/String

    object;
    if(dist<100)

     {

       digitalWrite(LED,HIGH);

       Serial.println("no object is near");

       object="Near";

     }

    else

     {

       digitalWrite(LED,LOW);

       Serial.println("no object found");
    object="No";
  }
  String payload="{\"distance\":";
  payload +=dist;
  payload +="," "\"object\":\"";
  payload += object;
  payload += "\"}";

  Serial.print("Sending payload: ");
  Serial.println(payload);
  if(client.publish(publishtopic, (char*) payload.c_str())){
    Serial.println("Publish ok");/* if its sucessfully upload data on the cloud then it will print publish ok in serial monitor or
    else it will print publish failed*/
  } else{
    Serial.println("Publish failed");
  }
 }
void mqttconnect(){
  if(!client.connected()){
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while(!!!client.connect(clientid,authMethod, token)){
      Serial.print(".");
```

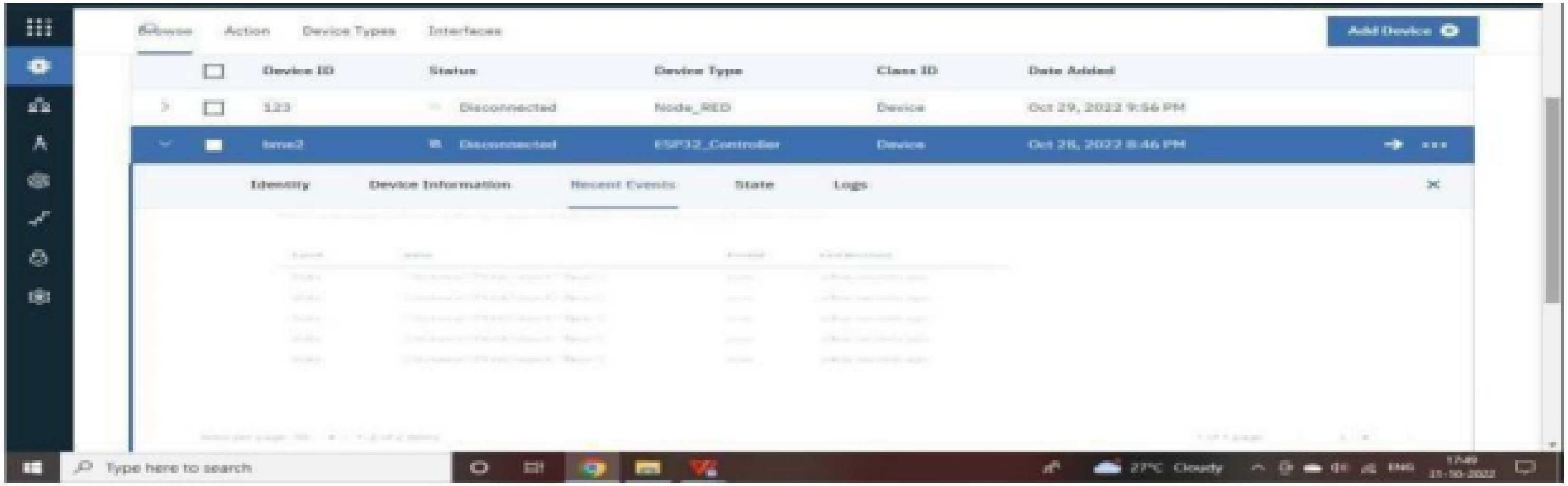
```
          delay(500);
         }
        initManagedDevice();
        Serial.println();
     }
  }
 void wificonnect()//function defenition for wificonnect
  {
    Serial.println();
    Serial.print("Connecting to ");
    WiFi.begin("vivo 1816", "taetae95",6);//passIng the wIfI credIdentIals to establIsh connectIon while
    (WiFi.status() !=WL_CONNECTED){
        delay(500);
        Serial.print(".");
     }
    Serial.println("");
    Serial.println("WiFi connected");
    Serial.println("IP address");
    Serial.println(WiFi.localIP());
  }
 void initManagedDevice(){
    if(client.subscribe(subscribetopic)){
        Serial.println((subscribetopic));
        Serial.println("subscribe to cmd OK");
  }else{
    Serial.println("subscribe to cmd failed");
  }
}
void callback(char* subscribetopic,byte*payload,unsigned int payloadLength) {
  Serial.print("callback invoked for topic: ");
  Serial.println(subscribetopic);
  for(int i=0; i< payloadLength; i++){
    //Serial.print((char)payload[i]);
    data3 +=(char)payload[i];
  }
  //Serial.println("dta: "+ data3);
  //if(data3=="Near")
  //{
  //Serial.println(data3);
  //digitalWrite(LED,HIGH);
  //}
  //else //{
  //Serial.println(data3);
  //digitalWrite(LED,LOW);//}
  data3="";
}
```

Output:



```
 MQTT
rte" payload,unsigned i
count-------
ON ID
"//DEVICE TYPE MENTIONE
ENTIONED IN IOT WATSON
oken


e--------
ofthings.ibmcloud.com"
ata/fmt/json";/"topic n
r
'test/fmt/string";/"cmd

authentication method

YPE":" DEVICE_ID;//CLIE

instance for wificlient
llback , wificlient);/"
```

```
no object found
Sending payload: {"distance":141.21,"object":"No"}
Publish ok
Distancein cm141.21
no object found
Sending payload: {"distance":141.21,"object":"No"}
Publish ok
```



	☐	Device ID	Status	Device Type	Class ID	Date Added
>	☐	123	Disconnected	Node_RED	Device	Oct 29, 2022 9:56 PM
⌄	■	bme2	Disconnected	ESP32_Controller	Device	Oct 28, 2022 8:46 PM