Team ID	**PNT2022TMID46901**
Date	**5 November 2022**
Project Title	**IoT Based Safety Gadget for Child Safety Monitoringand Notification**

Sprint 2 is about **LOGIN and NOTIFIACATION** of the IoT device in Parent's Web Application for gettinginformation about Child's Status.

LOGIN:

This Coding is to built 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 perform
 and 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 id
by 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;
```

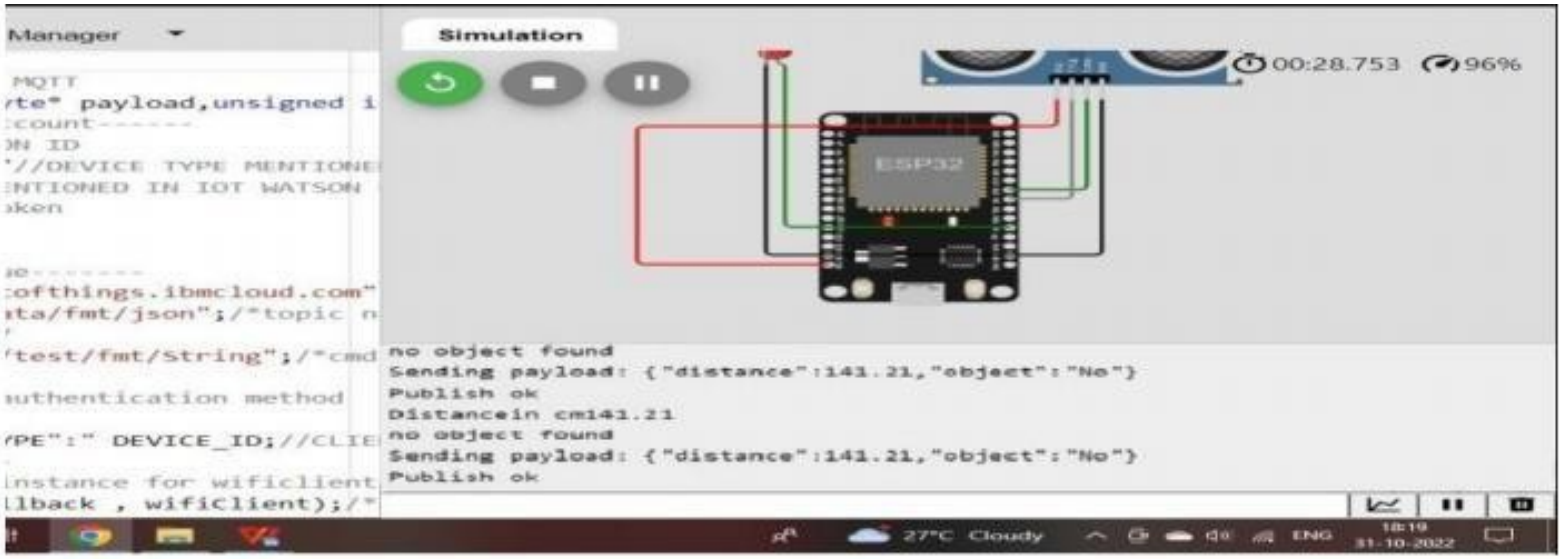
```
if(dist<100)
{
  digitalWrite(LED,HIGH);
  Serial.println("no object is near");
  object="Near";
}
else
{
  digitalWrite(LED,LOW);
  Serial.println("no object found");
  object="No";
}
String payload="{\"distance\":";
payload +=dist;
payload +="," "\"object\":\"";
payload += object;
payload += "\"}";

Serial.print("Sending payload:  ");
Serial.println(payload);
```

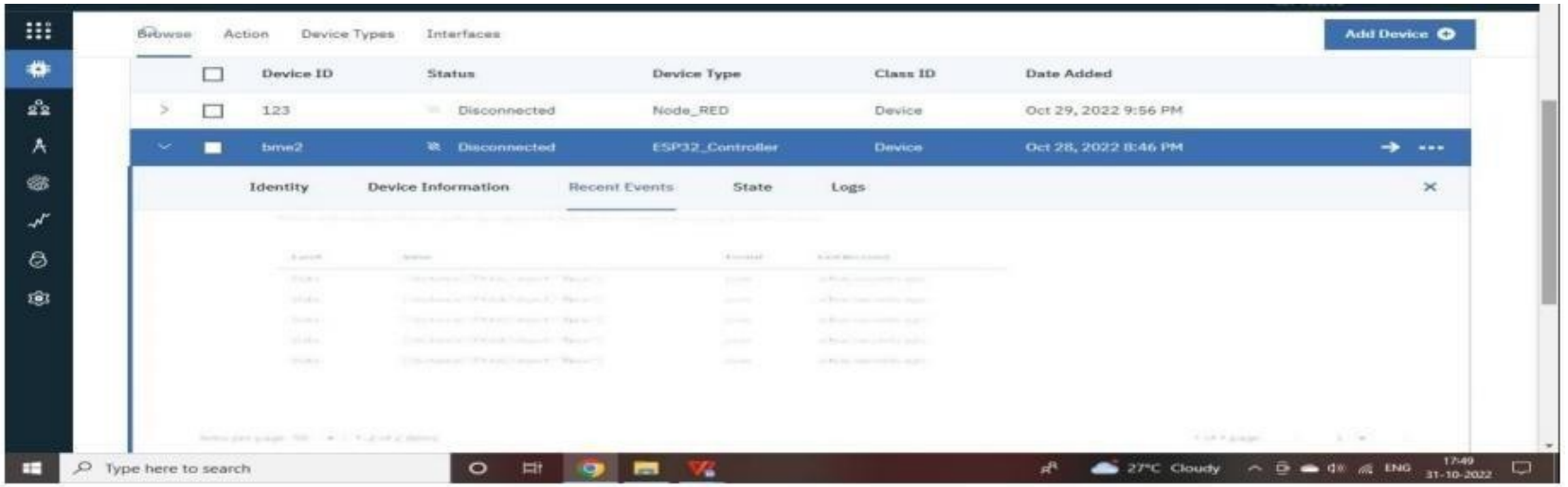
```
  if(client.publish(publishtopic, (char*) payload.c_str())){
    Serial.println("Publish ok");/* if its sucessfully upload data on the cloud then it will print
    publish ok in serial monitor or else it will print publish failed*/
  } else{
    Serial.println("Publish failed");
  }
}
void mqttconnect(){
  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:


Manager
Simulation
00:28.753
96%
ESP32
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
27°C Cloudy
ENG
18:19
31-10-2022


Browse
Action
Device Types
Interfaces
Add Device
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
Identity
Device Information
Recent Events
State
Logs
Type here to search
27°C Cloudy
ENG
17:49
31-10-2022