

Sprints 2

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| Team ID | PNT2022TMID30760 |
| Project Name | IOT based safety gadget for child safety monitoring and notification |
| Date | 5 November 2022 |

Sprint 2 is about **LOGIN and NOTIFIACATION** of the IoT device in Parent's Web Application for getting information 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 CREDENTIALS 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%

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

MQTT
ite" payload,unsigned i
count-----
W ID
//DEVICE TYPE MENTIONED
ENTIONED IN IOT WATSON
aken

io-----
cofthings.ibmcloud.com"
ta/fmt/json";/"topic n
f
/test/fmt/String";/"cmd
authentication method
/PE":" DEVICE_ID;//CLIE
instance for wificlient
lback , wificlient);/*

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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 |
| bmw2 | Disconnected | ESP32_Controller | Device | Oct 28, 2022 8:46 PM |

Identity Device Information Recent Events State Logs

| Event | Message | Received | Event Description |
|--------|--|---------------------|-----------------------------------|
| Device | Disconnected (WiFi module) - Reason: 0 | 2022-10-29 18:19:56 | Device disconnected (WiFi module) |
| Device | Disconnected (WiFi module) - Reason: 0 | 2022-10-29 18:19:56 | Device disconnected (WiFi module) |
| Device | Disconnected (WiFi module) - Reason: 0 | 2022-10-29 18:19:56 | Device disconnected (WiFi module) |
| Device | Disconnected (WiFi module) - Reason: 0 | 2022-10-29 18:19:56 | Device disconnected (WiFi module) |
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