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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();
```

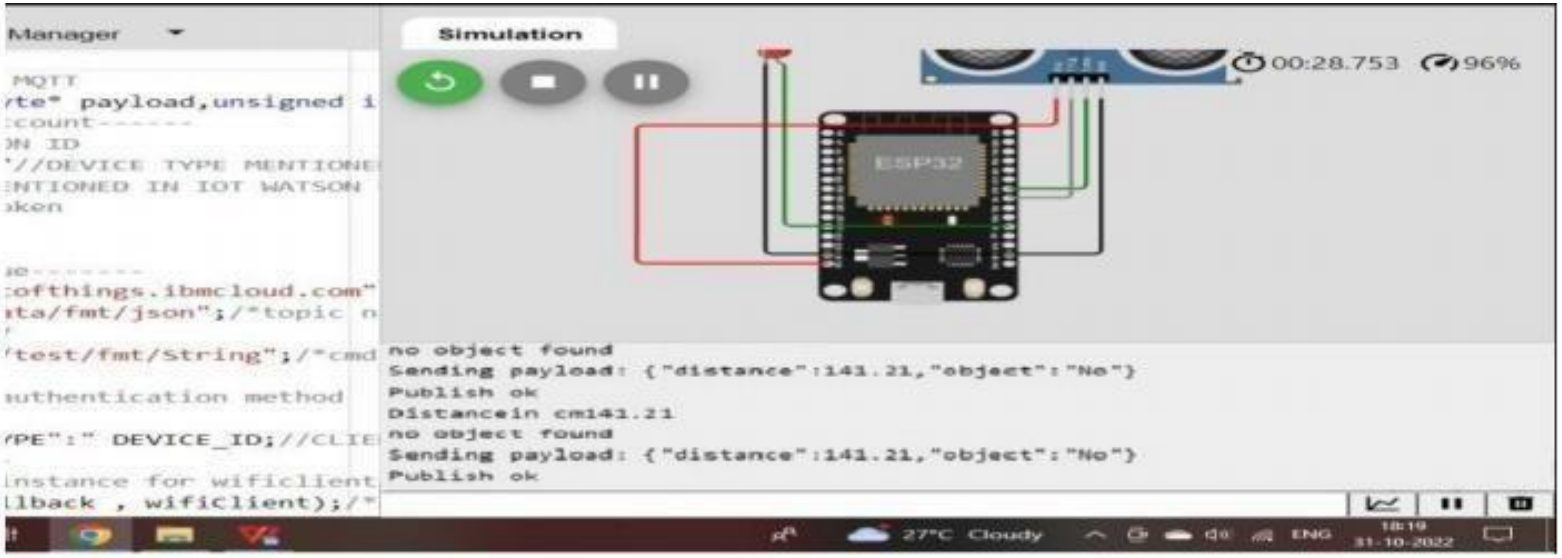
```
    }
}

/*.....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;
```

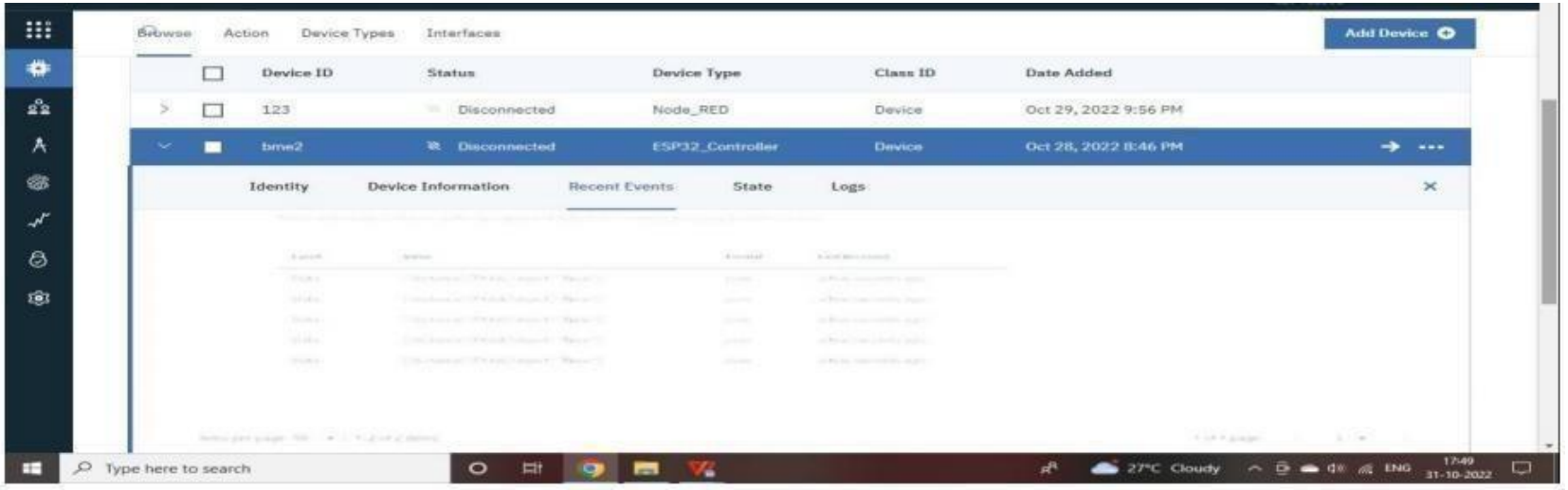
```
    payload += "\"}";

    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  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
MQTT
rte" payload,unsigned i
:count------
)N ID
'//DEVICE TYPE MENTIONE
:NTIONED IN IOT WATSON
)ken
:ofthings.ibmcloud.com"
)ta/fmt/json";/*topic n
/test/fmt/String";/*cmd
uthentication method
/PE":" DEVICE_ID;//CLIE
nstance for wificlient
llback , wificlient);/*
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