Project Development Phase

Sprint-2

Team Id:	**PNT2022TMID26599**
Project Name:	**IoT Based Safety Gadget for Child Safety Monitoring & Notification**
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Sprint-2 Requirements:

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*/
```

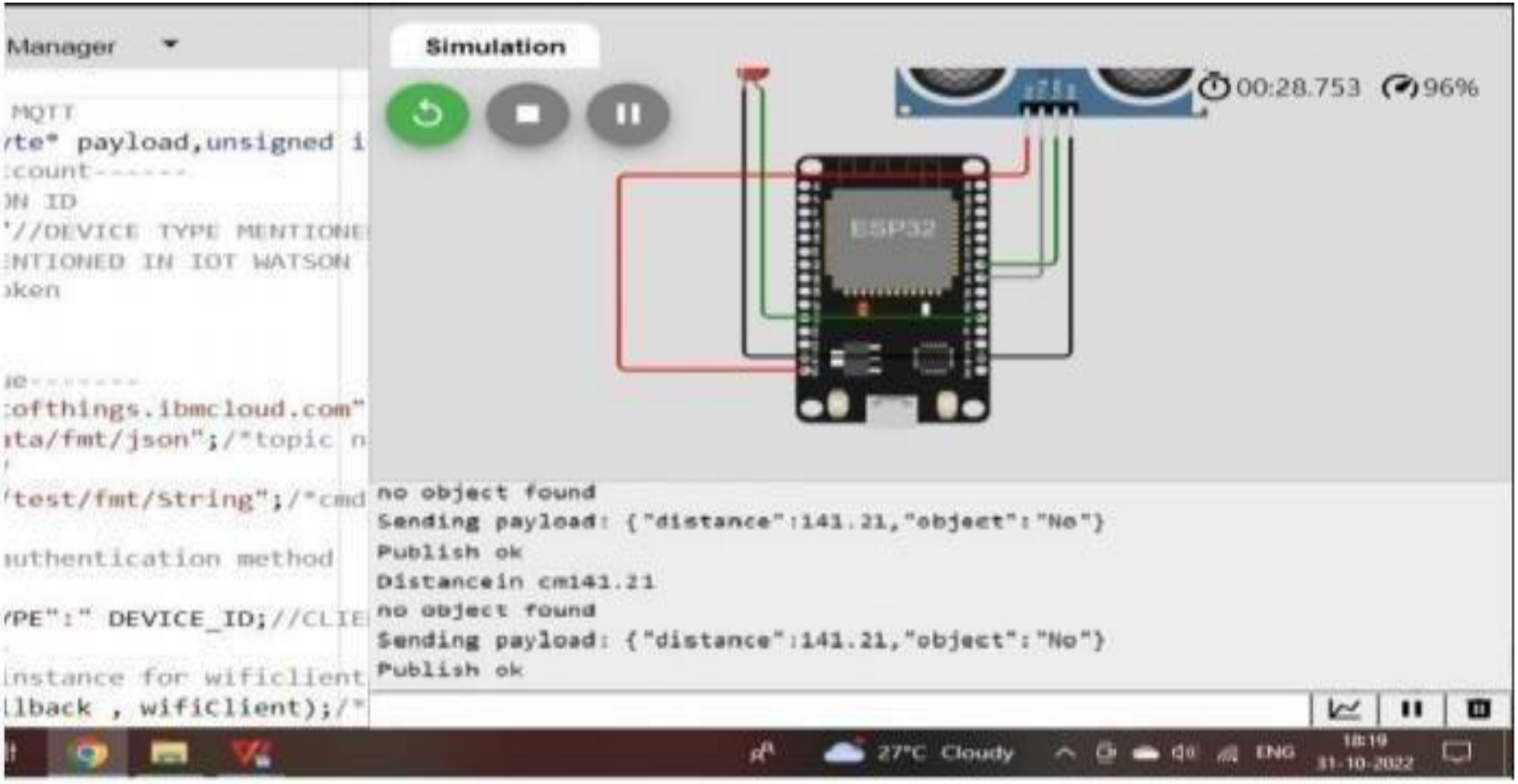
```
String object;


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);
```

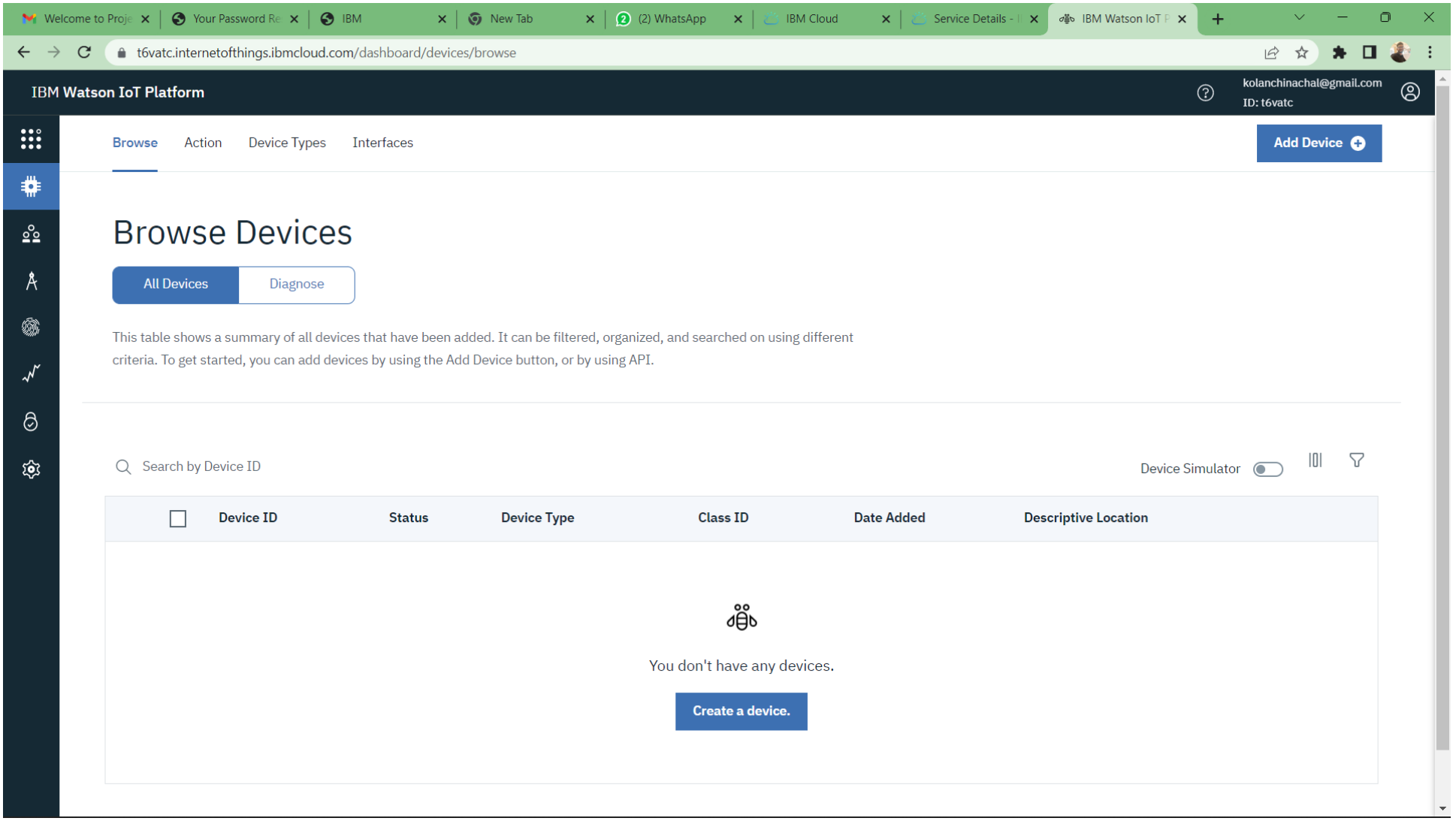
```
  if(client.publish(publishtopic, (char*) payload.c_str())){
    Serial.println("Publish ok");/* if its sucessfully upload data on the cloud then it will print
    publish ok in serial monitor or else it will print publish failed*/
  } else{
    Serial.println("Publish failed");
  }
}
void mqttconnect(){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


Welcome to Proje
Your Password Re
IBM
New Tab
(2) WhatsApp
IBM Cloud
Service Details -
IBM Watson IoT P
t6vatc.internetofthings.ibmcloud.com/dashboard/devices/browse
IBM Watson IoT Platform
kolanchinachal@gmail.com
ID: t6vatc
Browse
Action
Device Types
Interfaces
Add Device
Browse Devices
All Devices
Diagnose
This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.
Search by Device ID
Device Simulator
Device ID
Status
Device Type
Class ID
Date Added
Descriptive Location
You don't have any devices.
Create a device.