

Sprint -3

Device simulation code:

```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQTT
#include <LiquidCrystal_I2C.h>
#include "DHT.h"// Library for dht11
#define DHTPIN 15    // what pin we're connected to
#define DHTTYPE DHT11 // define type of sensor DHT 11
#define LED 2
DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and type of dht
connected
void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);

//-----credentials of IBM Accounts-----

#define ORG "kizp10"//IBM ORGANIZATION ID
#define DEVICE_TYPE "IOTdevice"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "1234567890"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "1234567890" //Token
String data3="";
int buzz= 13;

//----- Customise the above values -----
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event
perform and format in which data to be send
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT command
type 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
LiquidCrystal_I2C lcd(0x27,16,2);

//-----
WiFiClient wifiClient; // creating the instance for wifiClient
PubSubClient client(server, 1883, callback ,wifiClient); //calling the predefined
client id by passing parameter like server id,port and wifiCredential
void setup()// configuring the ESP32
{
```

```

    Serial.begin(115200);
    pinMode(LED, OUTPUT);
    delay(10);
    Serial.println();
    wificonnect();
    mqttconnect();
}

void loop()// Recursive Function
{
    if (!client.loop()) {
        mqttconnect();
    }
}

/*.....retrieving to
Cloud.....*/

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 defination for wificonnect
{
    Serial.println();
    Serial.print("Connecting to ");

    WiFi.begin("Wokwi-GUEST", "", 6);//passing the wifi credentials to establish
the 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("Please take your medicines");
    if(data3 != "")
    {
        lcd.init();
        lcd.print("Its time for your medicine");

        digitalWrite(LED,HIGH);
        delay(20000);
        digitalWrite(LED,LOW);

    }

    else
    {
        digitalWrite(LED,LOW);

    }
    data3="";
}

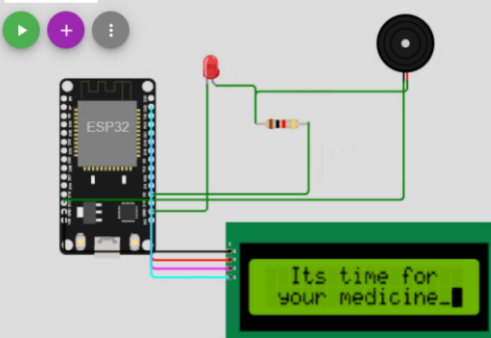
```

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25 char authMethod[] = "use-token-auth"; // authentication method
26 char token[] = TOKEN;
27 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
28 LiquidCrystal_I2C lcd(0x27,16,2);
29
30
31 //-----
```

Simulation



Connecting to
WiFi connected
IP address:
10.10.0.2
Reconnecting client to kizp10.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String