

/*

Experiment No. : 16

Statement : MQTT protocol with ESP8266 Witty Cloud
Development Board and Adafruit IO

Date of Exp. : xx/xx/xxxx

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*/

Code:

```
#include <ESP8266WiFi.h>           //library file for esp8266

#include "Adafruit_MQTT.h"          // library included through Adafruit
IO Arduino

#include "Adafruit_MQTT_Client.h" // library included through Adafruit
IO Arduino

// pinout for wittyBoard

#define led 2 // debug LED, tiny blue

#define red 15 // RGB LED red

#define green 12 // RGB LED green

#define blue 13 // RGB LED blue

#define ldr A0 // LDR

#define WLAN_SSID "OPPO A5 2020"

#define WLAN_PASS "12345678"

#define AIO_SERVER "io.adafruit.com"

#define AIO_SERVERPORT 1883        // mqtt: 1883, secure-mqtt: 8883
```

```

#define AIO_USERNAME "hariharanm009"

#define AIO_KEY "aio_rlFZ964ZBPOXaJwwcQWmAuLUhc5P"

WiFiClient client; // declare client

Adafruit_MQTT_Client mqtt(&client, AIO_SERVER, AIO_SERVERPORT,
AIO_USERNAME, AIO_KEY); // declare MQTT client

Adafruit_MQTT_Publish lightintensity = Adafruit_MQTT_Publish( &mqtt,
AIO_USERNAME "/feeds/Lux-meter"); // declare publisher

Adafruit_MQTT_Subscribe redbutton = Adafruit_MQTT_Subscribe(&mqtt,
AIO_USERNAME "/feeds/Red"); // declare subscriber

Adafruit_MQTT_Subscribe greenbutton = Adafruit_MQTT_Subscribe(&mqtt,
AIO_USERNAME "/feeds/Green"); // declare subscriber

Adafruit_MQTT_Subscribe bluebutton = Adafruit_MQTT_Subscribe(&mqtt,
AIO_USERNAME "/feeds/Blue"); // declare subscriber

void MQTT_connect(); // bug fixes

void setup() {

// put your setup code here, to run once:

pinMode(led, OUTPUT);

pinMode(red, OUTPUT);

pinMode(green, OUTPUT);

pinMode(blue, OUTPUT);

Serial.begin(115200);

delay(10);

Serial.println(F("Adafruit MQTT demo"));

// Connect to WiFi access point.

Serial.println();

Serial.print("Connecting to ");

Serial.println(WLAN_SSID);

```

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WiFi.begin(WLAN_SSID, WLAN_PASS);

while (WiFi.status() != WL_CONNECTED) {

  delay(500);

  Serial.print(".");

}

Serial.println();

Serial.println("WiFi connected");

Serial.println("IP address: ");

Serial.println(WiFi.localIP());

// Setup MQTT subscription for onoff feed.

mqtt.subscribe(&redbutton);

mqtt.subscribe(&greenbutton);

mqtt.subscribe(&bluebutton);

}

void loop() {

  // put your main code here, to run repeatedly:

  MQTT_connect();

  Adafruit_MQTT_Subscribe *subscription;

  while ((subscription = mqtt.readSubscription(5000))) {

    if (subscription == &redbutton) {

      Serial.print(F("Got: "));

      Serial.println((char *)redbutton.lastread);

      if(strcmp((char*)redbutton.lastread, "ON"))

        digitalWrite(red, LOW);

      else

```

```

digitalWrite(red, HIGH);

}

if (subscription == &greenbutton) {

Serial.print(F("Got: "));

Serial.println((char *)greenbutton.lastread);

if(strcmp((char*)greenbutton.lastread, "ON")) d

igitalWrite(green, LOW);

else

digitalWrite(green, HIGH);

}

if (subscription == &bluebutton) {

Serial.print(F("Got: "));

Serial.println((char *)bluebutton.lastread);

if(strcmp((char*)bluebutton.lastread, "ON"))

digitalWrite(blue, LOW);

else

digitalWrite(blue, HIGH);

}

}

Serial.print(F("\nSending light val "));

Serial.print(analogRead(ldr));

Serial.print("...");

if (! lightintensity.publish(analogRead(ldr)))

Serial.println(F("Failed"));

else

```

```

Serial.println(F("OK!"));

}

// Function to connect and reconnect as necessary to the MQTT server.

void MQTT_connect() {

  int8_t ret;

  // Stop if already connected

  if (mqtt.connected()) {

    return; }

  Serial.print("Connecting to MQTT... ");

  uint8_t retries = 3;

  while ((ret = mqtt.connect()) != 0) { // connect will return 0 for
    connected

    Serial.println(mqtt.connectErrorString(ret));

    Serial.println("Retrying MQTT connection in 5 seconds...");

    mqtt.disconnect();

    delay(5000); // wait 5 seconds

    retries--;

    if (retries == 0) {

      // basically die and wait for WDT to reset me

      while (1);

    }

  }

  Serial.println("MQTT Connected!");

}

```



