

/*

Experiment No. : 16

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

Date of Exp. : / /

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*/

```
#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       "POCO X2"
#define WLAN_PASS       "7890123456"
```

```
#define AIO_SERVER      "io.adafruit.com"
#define AIO_SERVERPORT  1883                // mqtt: 1883,
secure-mqtt: 8883
#define AIO_USERNAME    "pawanps55"
#define AIO_KEY         "aio_GOZb5808u1IY1lHwhhFxZvjfdu8Z"
```

```
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/Light
Intensity ");    // 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);

    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"))
        digitalWrite(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!"));
}

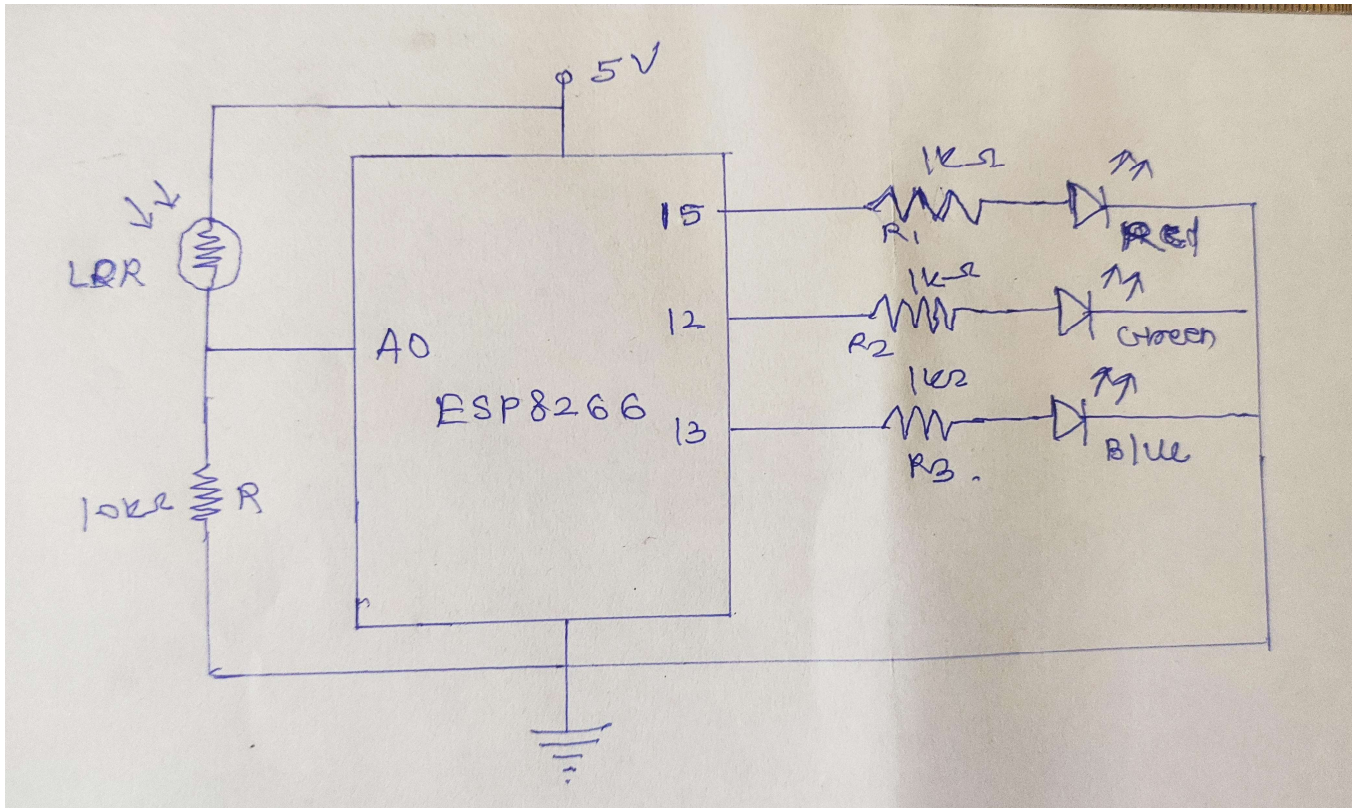
// Function to connect and reconnect as necessary to the MQTT
server.
void MQTT_connect() {
    int8_t ret;

    // 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!");
}
/*

```



```

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.....
WiFi connected
IP address:
192.168.100.247
Connecting to MQTT... MQTT Connected!

Sending light val 99...OK!

Sending light val 140...OK!

Sending light val 145...OK!
Got: OFF
Got: ON
Got: OFF
Got: ON
Got: OFF
Got: ON

Sending light val 450...OK!

Sending light val 449...OK!

Sending light val 447...OK!

Sending light val 442...OK!

Sending light val 961...OK!

```

