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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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#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 "harsh"

#define WLAN\_PASS "0909"

#define AIO\_SERVER "[io.adafruit.com](http://io.adafruit.com/)"

#define AIO\_SERVERPORT 1883 // mqtt: 1883, secure-mqtt: 8883

#define AIO\_USERNAME "sayalidongre"

#define AIO\_KEY "aio\_kMkF70heBBCnNrIwHx9H1faOBGOk"

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/LDR"); // declare publisher

Adafruit\_MQTT\_Subscribe redbutton = Adafruit\_MQTT\_Subscribe(&mqtt, AIO\_USERNAME "/feeds/Red LED"); // declare subscriber

Adafruit\_MQTT\_Subscribe greenbutton = Adafruit\_MQTT\_Subscribe(&mqtt, AIO\_USERNAME "/feeds/Green LED"); // declare subscriber

Adafruit\_MQTT\_Subscribe bluebutton = Adafruit\_MQTT\_Subscribe(&mqtt, AIO\_USERNAME "/feeds/Blue LED"); // 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!");

}







