實驗 2 Node-Red 控制 ESP32 LED ，LED 控制的訊息儲存於 SQLite 資料庫

（實驗 2-1 、實驗 2-2、實驗 2-3）Arduino 都是相同的

實驗 2 的目的是學習 Node-Red 與 SQLite

Arduino 需修改地方與注意的點

```
1  #include <WiFi.h>
2  #include <PubSubClient.h>
3  #include <SPI.h>
4  #include "MFRC522.h"
5
6  const int RST_PIN = 22; // Reset pin
7  const int SS_PIN = 21; // Slave select pin
```

<PubSubClient.h> 的下載點

http://www.mediafire.com/file/ndfqkgl45m0m3lb/pubsubclient-master.rar/file

修改WiFi的ssid，password

```
20 //const char *ssid = "PTS-2F";
21 //const char *pass = "PTS6662594";
22 const char *ssid = "alex9ufo";
23 const char *pass = "alex9981";
24
```

WiFi SSID 與 Password 修改成自己的帳密

設定Hive MQTT的帳號與密碼

```
32
33 #define MQTTid                ""
34 #define MQTTip                "broker.mqtt-dashboard.com"
35 #define MQTTport              1883
36 #define MQTTuser              "alex9ufo"
37 #define MQTTpsw               "alex1234"
38 //#define MQTTuser            "your username"
39 //#define MQTTpsw             "your password"
40 #define MQTTpubQos            2
41 #define MQTTsubQos            1
```

修改 broker.mqtt-dashboard.com Broker 的帳號與密碼

```
78
79  // Once connected, publish an announcement...
80  client.publish("alex9ufo/outTopic/RFID/json", jsonChar1, MQTTpubQos, true);
81  // Once connected, publish an announcement...
82  client.publish("alex9ufo/led/led_status", jsonChar2, MQTTpubQos, true); //
83  // ... and resubscribe
84  client.subscribe("alex9ufo/inTopic/led/led_event", MQTTsubQos);
85
```

修改發行到HiveMQTT的Topic

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修改 訂閱HiveMQTT的Topic

修改 ESP32 與 Node-RED 控制 LED 的發行與訂閱

```
if (s == "OFF") {
    digitalWrite(BUILTIN_LED, LOW);
    // but actually the LED is on; thi
    Serial.println("Received OFF , Sen
    Flash = false;
    Timer = false;
    json ="OFF";
    Send = true ;
  } // if (s == "OFF")

  if (s == "ON") {
```

ESP32 向 HiveMQTT Broker 訂閱 client.subscribe("alex9ufo/inTopic/led/led_event", MQTTsubQos); 中主題的內容中 ON , OFF , FLASH , TOGGLE ,TIMER 如何動作

```
240   if (Send) {
241     // Convert JSON string to character array
242     json.toCharArray(jsonChar2, json.length()+1);
243     if  (client.connected()) {
244             Serial.print("Publish message: ");
245             Serial.println(json);
246             // Publish JSON character array to MQTT topic
247            client.publish("alex9ufo/led/led_status",jsonChar2);
248         }
249     Send = false;
250   }
```

ESP32 中LED的狀態 發行到HiveMQTT 給Node-Red

ESP32 發行 LED 狀態到 HiveMQTT 主題為 alex9ufo/led/led_status

```
271
272         if  (client.connected()) {
273              Serial.print("Publish message: ");
274              Serial.println(json1);
275              // Publish JSON character array to MQTT topic
276             client.publish("alex9ufo/outTopic/RFID/json",jsonChar1)
277         }
278       } // if ((IDNo != IDNo_buf) || (now - lastMsg > 5000))
279   }  // if (mfrc522.PICC_IsNewCardPresent()
280
281 }   //Loop
282 //=======================================================
```

RFID MFRC522感應後將UID送到HiveMQTT

RFID 感應後將 UID 卡號送到 HiveMQTT 發行主題為 alex9ufo/outTopic/RFID/jso