



Taipei Smart City

BeJo Li

GIoT:

Brace yourself

IoT ~~Winter~~ is coming



線上資源

Document and source code

<https://github.com/giot-tw>

Gitter.im

<https://gitter.im/giot-tw/public>





Outline

參與單位

- ▣ 台北市實驗場環境介紹
- ▣ GIoT's LoRa EcoSystem簡介
- ▣ 模組教學動手玩



Smart City - 台北市政府



臺北市IoT實驗平臺

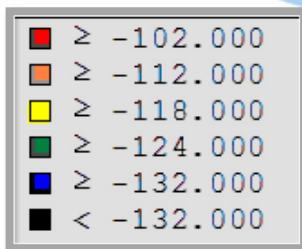
LoRa® 開發應用

城市串連 需要您加入+

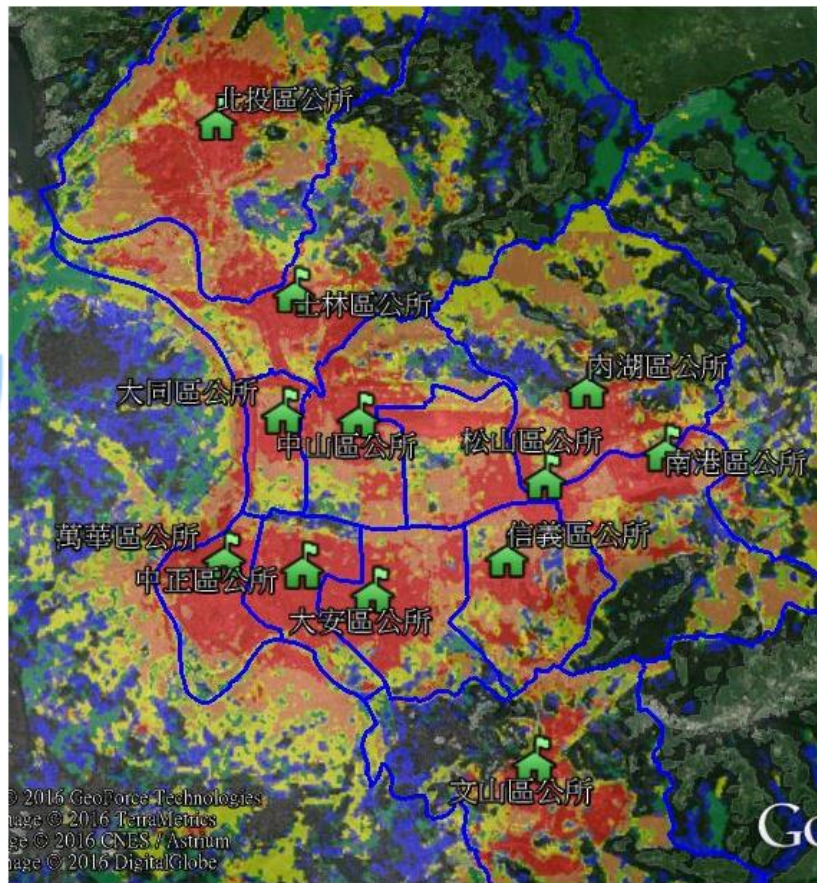




台北全區覆蓋



(最佳)  (差)





- ❑ 我們提供**基站?雲端?終端?應用?**
- ❑ 不僅如此... 我們提供的是**服務&解決方案**
 - ❑ 基地站台管理與監控
 - ❑ 訊息路由派送(Routing) - 送達資料到你手上
 - ❑ LoRa 模組當Modem, SIM Card



IBM

資料處理好幫手 - 雲端

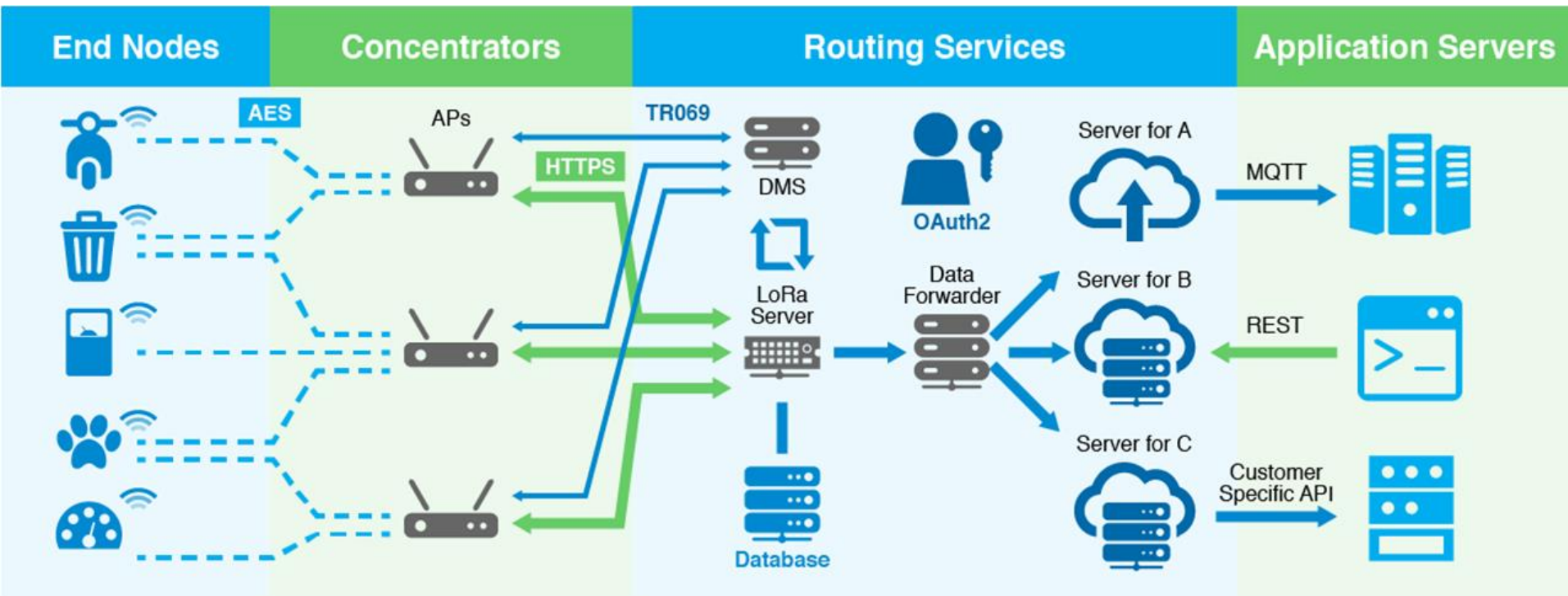
- ❑ Bluemix

- ❑ 下午場別錯過





GloT Network Architecture





LoRa 模組



■ General Features

- Castellated SMT package for sensor integration
- Supports UART, I2C, and SPI interfaces
- Supports RS485 and Modbus
- Single 3.3V operating voltage
- Castellated SMT package
- Optional version with pin header
- Separate versions for 915 MHz and 433 MHz
- High receiver sensitivity: down to -137.5 dBm
- Industrial grade

走 Ua

吃 3.3V

用AT command

■ Operational

- Single operating voltage at 3.3V
- Temperature range: -40°C to +85°C
- Low-power consumption



來接線吧

☐ 3.3v

☐ TX → RX

☐ RX → TX

☐ GND

☐ Baud 9600

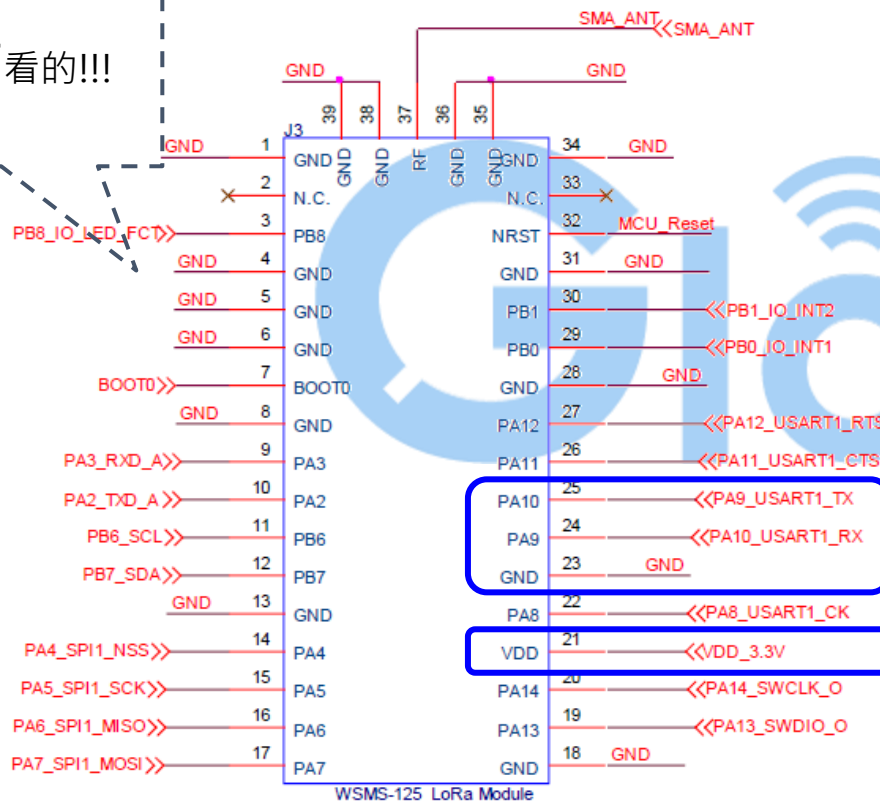
☐ 下載程式碼





四根 PINs

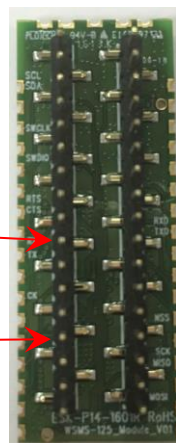
這是從**正面**看的!!!



1. 排針面向自己，注意左邊那排。
2. 由下數來第 8, 7, 6, 4

背面

正面





Demo

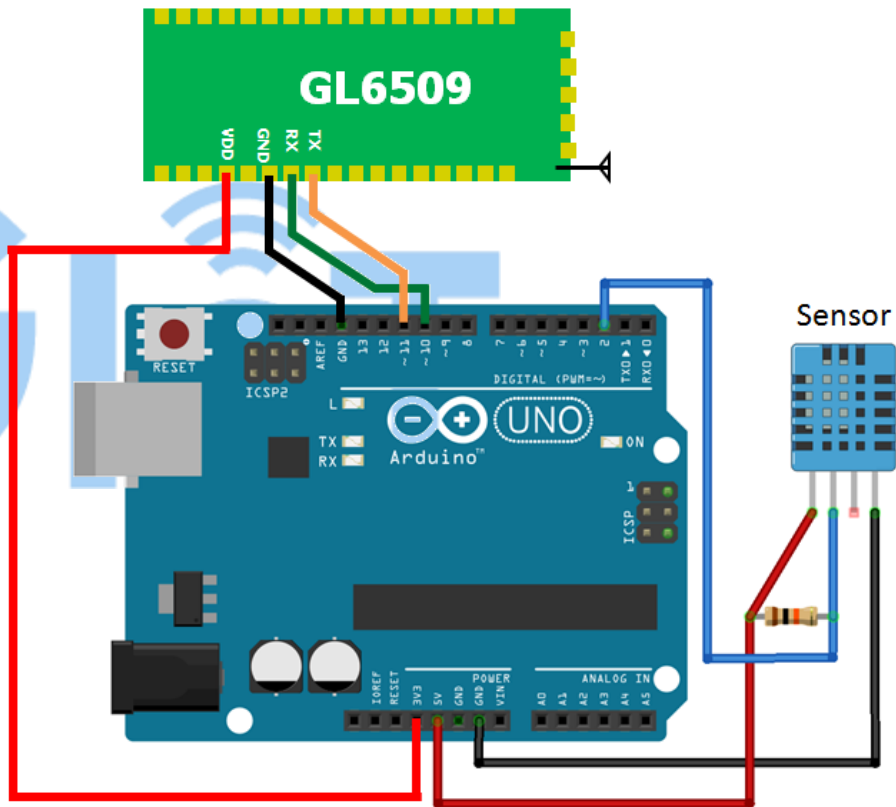
- AT
 - 喚醒LMU
- AT+ECHO=1
 - 開啟回呼
- AT&W
 - 儲存設定
- AT&H
 - 目前支援的指令集
- AT+SGMR?
 - 看韌體版號
- AT+DTX
 - AT+DTX=22, 0123456789abcdef012345





Example Arduino

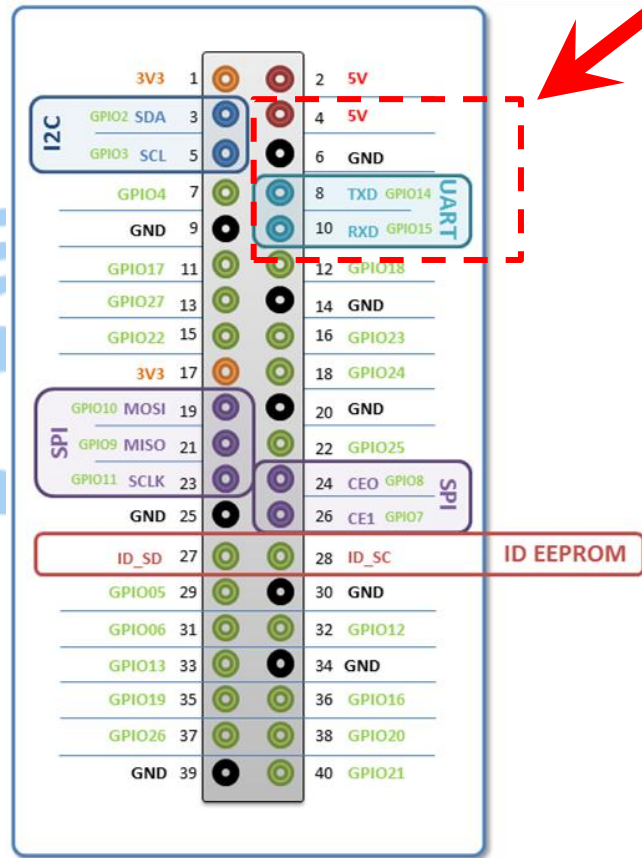
- ❑ Host
 - ❑ Arduino
- ❑ Interface
 - ❑ UART to LPWAN Module
 - ❑ P10, 11
 - ❑ RX/TX
 - ❑ 3.3v power support
 - ❑ P1/G
 - ❑ VDD/G
- ❑ Source code
 - ❑ Lab01_giot_AT-DTX





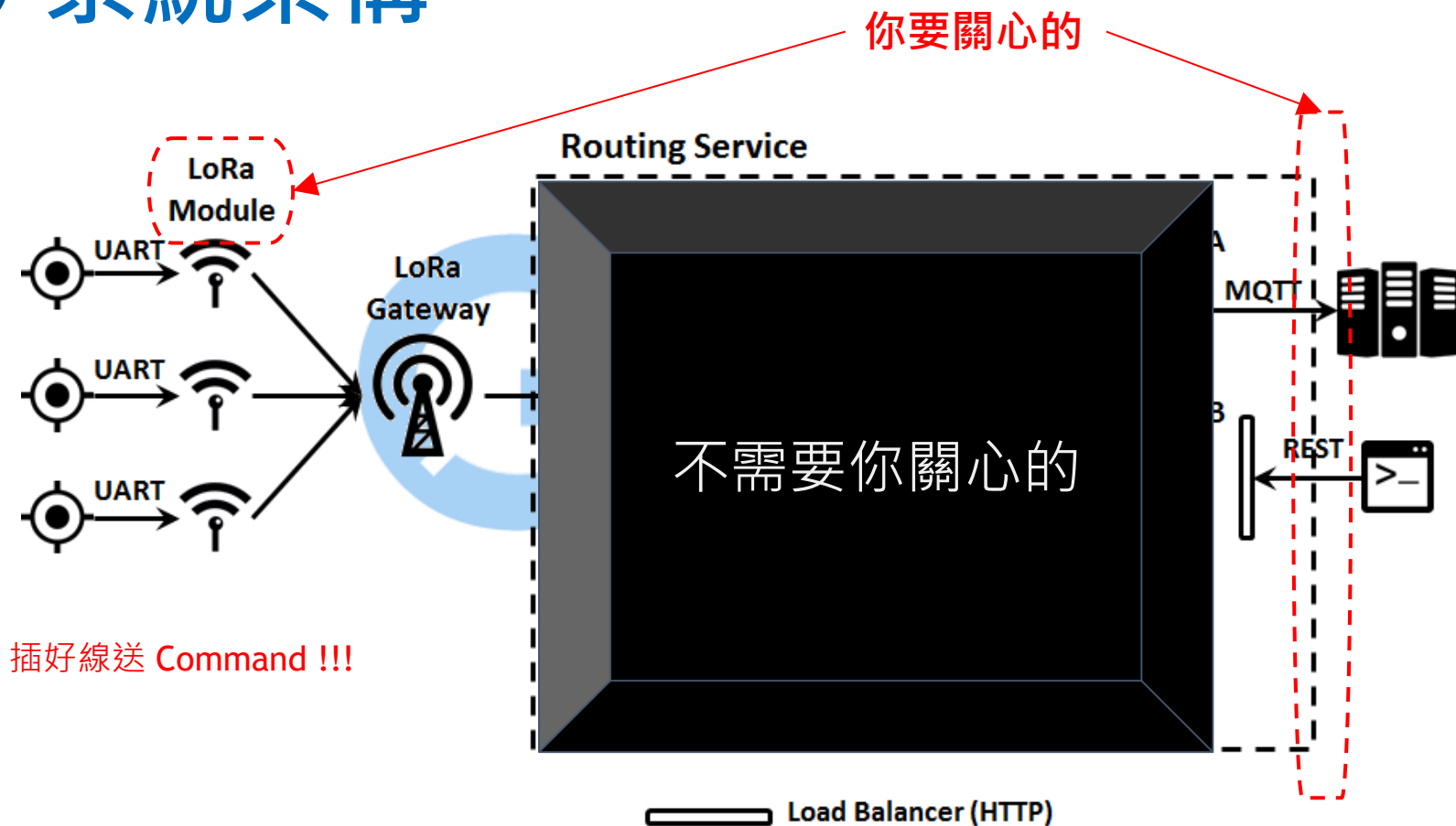
Example - Raspberry

- ❑ Host
 - ❑ Raspberry pi B+
- ❑ Interface
 - ❑ UART to LPWAN Module
 - ❑ P8,10
 - ❑ RX/TX
 - ❑ 3.3v power support
 - ❑ P1/G
 - ❑ VDD/G
- ❑ Source code





系統架構





MQTT 訂閱帳號

- ❑ 每桌各有一個測試帳號,

1workshop@gemteks.com~24workshop@gemteks.com

- ❑ <https://cust00-01.giotgateway.com/giot-mqtt>

❑ MQTT (Example)

- ❑ "host": "52.193.146.103",
- ❑ "port": "80",
- ❑ "topic": "client/200000033/200000033-GIOT-MAKER",
- ❑ "clientId": "200000033-generic-service",
- ❑ "username": "200000033",
- ❑ "password": ""

- ❑ `mosquitto_sub -h 52.193.146.103 -p 80 -t client/200000033/200000033-GIOT-MAKER -I 200000033-generic-service -u 200000033 -P <PASSWORD>`





模組特性

- Module is like a SIM card
 - AES key support
 - Identity - LoRa mac address (IEMI)
 - 11 bytes of user-assigned payload
 - Max length is 11 Ascii or 22 Hex
- 60s 冷卻時間
- SF 10 - Default
- 資料你產生，訊息GIoT 幫你使命必達

11 bytes example:

Index	Temperature	Battery level	GPS Latitude	GPS Longitude
0xff	0xff	0xff	0xffff ffff	0xffff ffff



Example - Data

Receive data

```
$ mosquitto_sub -h <Server_IP> -p 80 -t client/200000001/200000001-GIOT-MAKER -l 200000001-generic-service -u 200000001 -P PASSWORD
```

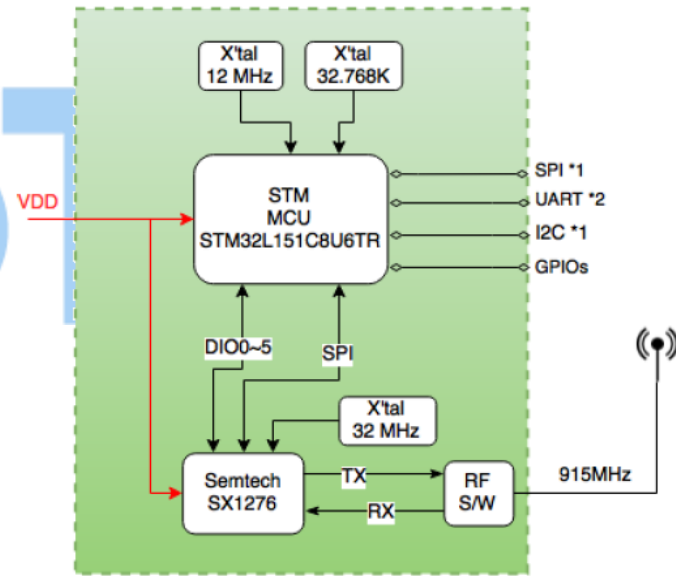
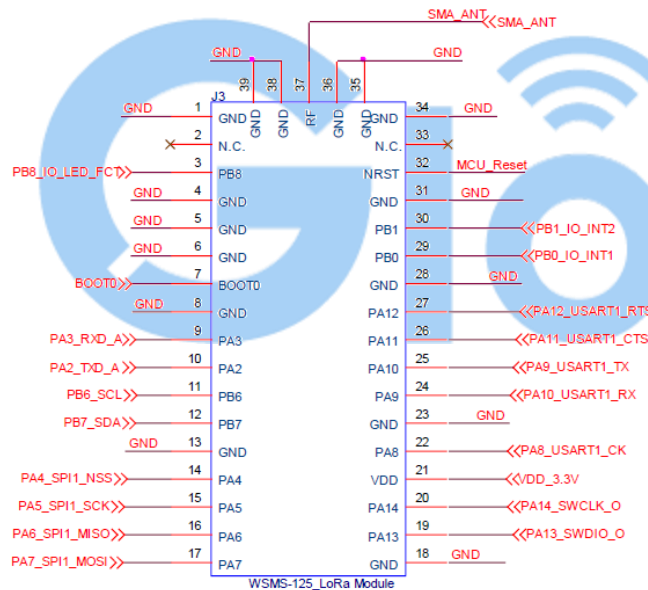
RECV:

```
{
  "id" : "e18a47a2-9c3c-4157-b61a-5131e34e6813", // Unique index for this message
  "macAddr" : "04000011", // Module ID
  "data" : "1459268303", // Your Data
  "buff" : "2016-03-09T09:18:56.310Z", // Cloud server receive timestamp
  "recv" : "2016-03-09T09:18:55.000Z", // LoRa Gateway receive timestamp
  "extra" : { // Lora Gateway which receive your data
    "gwip" : "192.168.1.110", // Lora Gateway Wan IP
    "gwid" : "00001c497b48db94", // Lora Gateway ID
    "repeater" : "00000000ffffffff", // Lora Repeater ID, if bypass
    "systype" : 4, // System ID for indicating service area
    "rssi" : -94, // RSSI when this frame is into Gateway
    "snr" : 93 // SNR when this frame is into Gateway
  }
}
```



其他腳位

PIN	Type	Remark
PB6	IRQ0	0/1
PB7	IRQ1	0/1
PB8	GPIO	0/1
PA11	GPIO	0/1
PA12	GPIO	0/1
PB0	ADC	12 bits
PB1	ADC	12 bits





如何購買

<http://tinyurl.com/buygiot>



**FreePP網路商城**
www.FreePP.com

Freepp 網路商城.
歡迎參觀選購~各式智慧型居家生活配備新上市，提供一系列網路電話和
家人也節省家庭的開銷囉!

本店購物車

商店首頁 商店滿意度 商店介紹 購物須知 商店客服 限時促銷活動(0)

消費者滿意度：**9.5**
平均服務品質
出貨速度：2.7 天
回信速度：0 天
缺貨率：0.0 %
近一週瀏覽次數：26

本店商品搜尋

☒ 商品名稱 ☐ 店家貨號
價格範圍

**GloT Module_GL6509**
工業等級
高靈敏度通用型 LoRa 模組
支援頻道 868MHz & 902-928MHz
網路價 ~~990元~~ **990元** 約
付款方式 中信卡・任刷兩筆免
刷卡可用信用卡紅利
• ATM轉帳 
• 信用卡 



Thank You!