**電通四甲微處理器實驗 實驗結報**

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| **實驗名稱** | **Lab 09—Bluetooth low energy(BLE)** | | |
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1. **實驗步驟**
2. **由手機 App 看到自己的 7697 iBeacon**
3. **由手機 App 看到自己的 7697 EddyStone URL Beacon**
4. **由手機 App 控制 7697 LED**
5. **Check Point 1程式碼**

#include <LBLE.h>

#include <LBLEPeriphral.h>

void setup() {

//Initialize serial and wait for port to open:

Serial.begin(9600);

// Initialize BLE subsystem

Serial.println("BLE begin");

LBLE.begin();

while (!LBLE.ready()) {

delay(100);

}

Serial.println("BLE ready");

// configure our advertisement data as iBeacon.

LBLEAdvertisementData beaconData;

// This is a common AirLocate example UUID.

LBLEUuid uuid("E2C56DB5-DFFB-48D2-B060-D0F5A71096E0");

beaconData.configAsIBeacon(uuid, 24, 21, -40);

Serial.print("Start advertising iBeacon with uuid=");

Serial.println(uuid);

// start advertising it

LBLEPeripheral.advertise(beaconData);

}

void loop() {

delay(3000);

}

1. **Check Point 2程式碼**

#include <LBLE.h>

#include <LBLEPeriphral.h>

void setup() {

//Initialize serial and wait for port to open:

Serial.begin(115200);

// Initialize BLE subsystem

Serial.println("BLE begin");

LBLE.begin();

while (!LBLE.ready()) {

delay(100);

}

Serial.println("BLE ready");

LBLEAdvertisementData beaconData;

beaconData.configAsEddystoneURL(EDDY\_HTTPS, "05052421", EDDY\_DOT\_COM);

Serial.print("Start advertising Eddystone-URL");

1. **Check Point 3程式碼**

#include <LBLE.h>

#include <LBLEPeriphral.h>

LBLEService ledService("05052421-E8F2-537E-4F6C-D104768A1214");

LBLECharacteristicInt switchCharacteristic("19B10011-E8F2-537E-4F6C-D104768A1214", LBLE\_READ | LBLE\_WRITE);

void setup() {

// Initialize LED pin

pinMode(LED\_BUILTIN, OUTPUT);

digitalWrite(LED\_BUILTIN, LOW);

//Initialize serial and wait for port to open:

Serial.begin(9600);

// to check if USR button is pressed

pinMode(6, INPUT);

// Initialize BLE subsystem

LBLE.begin();

while (!LBLE.ready()) {

delay(100);

}

Serial.println("BLE ready");

Serial.print("Device Address = [");

Serial.print(LBLE.getDeviceAddress());

Serial.println("]");

// configure our advertisement data.

// In this case, we simply create an advertisement that represents an

// connectable device with a device name

LBLEAdvertisementData advertisement;

advertisement.configAsConnectableDevice("yty");

// Configure our device's Generic Access Profile's device name

// Ususally this is the same as the name in the advertisement data.

LBLEPeripheral.setName("yty");

// Add characteristics into ledService

ledService.addAttribute(switchCharacteristic);

// Add service to GATT server (peripheral)

LBLEPeripheral.addService(ledService);

// start the GATT server - it is now

// available to connect

LBLEPeripheral.begin();

// start advertisment

LBLEPeripheral.advertise(advertisement);

}

void loop() {

delay(1000);

Serial.print("conected=");

Serial.println(LBLEPeripheral.connected());

if (digitalRead(6))

{

Serial.println("disconnect all!");

LBLEPeripheral.disconnectAll();

}

if (switchCharacteristic.isWritten()) {

const char value = switchCharacteristic.getValue();

switch (value) {

case 1:

digitalWrite(LED\_BUILTIN, HIGH);

break;

case 0:

digitalWrite(LED\_BUILTIN, LOW);

break;

default:

Serial.println("Unknown value written");

break;

}

}

1. **實驗結果及分析**

**Check point1**

**把Major和Minor改成學號**

**Check point2**

**把網址改成學號**

**Check point3**

**當輸入1時,LED亮**

**當輸入0時,LED不亮**