使用 App Inventor 2 操作 QuickBLE EVB

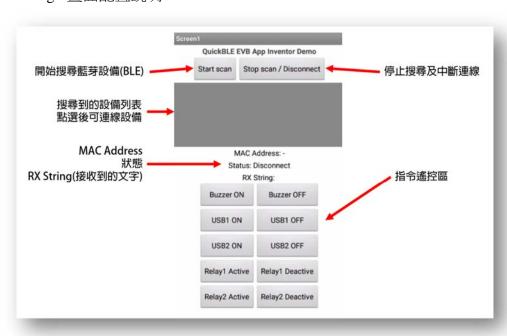
※QuickBLE EVB 使用教學請參閱 Github 內的說明文件※ https://github.com/VierMTech/QuickBLE_Nrf51822_Arduino_IDE

※App Inventor 2 使用教學請參考※ http://appinventor.mit.edu/explore/ai2/tutorials.html

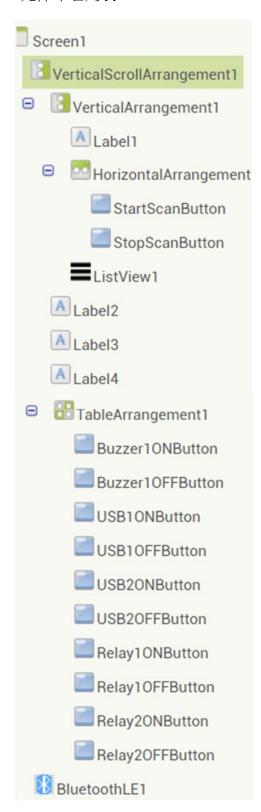
※App Inventor aix 範例檔案※ 請參閱 Github 上 AppInventor 目錄底下 edu.mit.appinventor.ble-20181124.aix

本篇教學說明如何使用 App Inventor 2 設計 Android 手機 APP, 透過 BLE 藍芽 通訊連線方式,透過命令控制 QuickBLE。教學部分參閱本文件。

- 1 原生 App Inventor 不具有 BLE 功能,需要下載外掛,並匯入插件後才可使用。
 - 1.1 外掛套件 edu.mit.appinventor.ble-20181124.aix http://iot.appinventor.mit.edu/#/bluetoothle/bluetoothleintro
 - 1.2 外掛匯入方式
 http://ai2.appinventor.mit.edu/reference/other/extensions.html
- 2 Design 畫面配置說明



3 元件命名列表



- 4 程式區塊說明
- 4.1 Start Scan Button 當開始搜尋按鈕按下,搜尋並顯示掃描結果呼叫 StartScanning,開始掃描藍芽。

當 DeviceFound 時,將掃描結果,以字串方式放入 ListView1

4.2 當清單上設備被按下時,連線的動作

呼叫停止掃描 StopScanning

判斷選擇項目的長度必須大於0

擷取選擇項目中 MAC Address 部分,從第 1 位擷取到第 17 位 呼叫 ConnectWithAddress,並傳入 MAC Address

```
when ListView1 .AfterPicking
do call BluetoothLE1 .StopScanning
               0 S length ListView1
                                              Selection •
                                          segment text ListView1
          set global TargetDeviceMAC v to
                                                                   Selection *
    then
                                                 start |
                                                       1
                                                length 17
          set Label2 . Text to poin
                                              " MAC Address: "
                                              get global TargetDeviceMAC *
          set Label3 . Text to
                                   ijoin
                                               Status: "
                                               Connecting...
          call BluetoothLE1 . ConnectWithAddress
                                                 get global TargetDeviceMAC
                                       address |
```

4.3 連線結果顯示

4.3.1 當連線成功時

註冊 BLE SSID RegisterForStrings

Service UUID 為 6E400001-B5A3-F393-E0A9-E50E24DCCA9E RX Characteristic UUID 為 6E400003-B5A3-F393-E0A9-E50E24DCCA9E

4.3.2 當連線失敗時 顯示失敗字樣

```
when BluetoothLE1 . ConnectionFailed

reason

do set Label3 . Text to join "Status: "

"ConnectedFailed, Reason"

get reason ...
```

4.3.3 當中斷連線時 顯示中斷連線字樣

```
when BluetoothLE1 · .Disconnected

do set Label3 · . Text · to [ is join ( is status: " is Disconnected " is Disconnecte
```

4.4 當收到字串時,顯示字樣在 Label4

```
when BluetoothLE1 · .StringsReceived

serviceUuid characteristicUuid stringValues

do set Label4 · . Text · to ( in join ( in the string in th
```

4.5 點選按鈕動作(本例子使用 Buzzer 1 ON)

Service UUID 為 6E400001-B5A3-F393-E0A9-E50E24DCCA9E
TX Characteristic UUID 為 6E400002-B5A3-F393-E0A9-E50E24DCCA9E

命令清單

指令	動作
buzzerON	開啟蜂鳴器
buzzerOFF	關閉蜂鳴器
usb1ON	開啟 USB1
usb1OFF	關閉 USB1
usb2ON	開啟 USB2
usb2OFF	關閉 USB2
relay1ON	開啟 Relay1
relay10FF	關閉 Relay1
relay2ON	開啟 Relay2
relay2OFF	關閉 Relay2
DO1HIGH	腳位6 輸出5V
DO1LOW	腳位6 輸出0V
DO2HIGH	腳位7 輸出5V
DO2LOW	腳位7 輸出0V
Pin1State	腳位1 狀態為 5V,回應 "PIN1 is HIGH" 腳位1 狀態為 0V,回應 "PIN1 is LOW"
Pin2State	腳位2 狀態為 5V,回應 "PIN2 is HIGH" 腳位2 狀態為 0V,回應 "PIN2 is LOW"
Pin3State	腳位3 狀態為 5V,回應 "PIN3 is HIGH" 腳位3 狀態為 0V,回應 "PIN3 is LOW"

完整按鈕功能區塊

```
when Buzzer1ONButton - Click
                                                                              when Buzzer10FFButton - Click
  call BluetoothLE1 . WriteStrings
                                                                              do call BluetoothLE1 .WriteStrings
                                6E400001-B5A3-F393-E0A9-E50E24DCCA9E
                                                                                                               8E400001-B5A3-F393-E0A9-E50E24DCCA9E
                               • 6E400002-85A3-F393-E0A9-E50E24DCCA9E
                                                                                               utf16 ( false -
                                                                                                       utf16 (false -
                        values buzzerON
                                                                                                       values buzzerOFF
when USB1ONButton - .Click
                                                                              when USB1OFFButton . Click
do call BluetoothLE1 - .WriteStrings
                                                                              do call BluetoothLE1 .WriteStrings
                                 * (8E400001-B5A3-F393-E0A9-E50E24DCCA9E) *
                    serviceUuid
                serviceUuid (8E400001-B5A3-F393-E0A9-E50E24DCGA9E) (8E400002-B5A3-F393-E0A9-E50E24DCCA9E)
                                                                                                               * 6E400001-B5A3-F393-E0A9-E50E24DCCA9E | *
                                                                                                   serviceUuid
                                                                                               utf16 (false -
                                                                                                        utf16 false
                       values "USOTON"
                                                                                                      values usb10FF
 when USB2ONButton - .Click
                                                                               when USB2OFFButton . Click
do call BluetoothLE1 .WriteStrings
                                                                              do call BluetoothLE1 .WriteStrings
                               * (6E400001-B5A3-F393-E0A9-E50E24DCCA9E) * (6E400002-B5A3-F393-E0A9-E50E24DCCA9E) *
                     serviceUuid
                                                                                                   serviceUuid
                                                                                                               6E400001-B5A3-F393-E0A9-E50E24DCCA9E
                                                                                               characteristicUuid ** (8E400002-B5A3-F393-E0A9-E50E24DCCA9E) **
                 characteristicUuid
                          utf16 false
                                                                                                        utf16 false
                         values usb20N
                                                                                                    values USb2OFF
when Relay1ONButton - Click
                                                                               when Relay1OFFButton - .Click
do call SilvetoothLE1 .WriteStrings
                                                                              do call EluetoothLE1 - .WriteStrings
                                  * 6E400001-B5A3-F393-E0A9-E50E24DCCA9E |
                     serviceUuid
                                                                                                    serviceUuid
                                                                                                                6E400001-B5A3-F393-E0A9-E50E24DCCA9E
                                6E400002-B5A3-F393-E0A9-E50E24DCCA9E
                                                                                                              * (8E400002-B5A3-F393-E0A9-E50E24DCCA9E) *
                 characteristicUuid
                                                                                               characteristicUuid
                          utf16 ( false -
                                                                                                        utf16 false -
                         values relay10N
                                                                                                      values relay10FF
 when Relay2ONButton - Click
                                                                               when Relay2OFFButton - . Click
do call Bluetooth E1 . WriteStrings
                                                                              do call BluetoothLE1 .WriteStrings
                     serviceUuid
                                 6E400001-B5A3-F393-E0A9-E50E24DCCA9E
                                                                                                                6E400001-B5A3-F393-E0A9-E50E24DCCA9E
                 characteristicUuid ** (8E4000023B5A34F393FE0A9FE50E24DCCA9E) **
                                                                                                              - (8E400002-B5A3-F393-E0A9-E50E24DCCA9E) *
                                                                                               characteristicUuid
                                                                                                       utf16 | false -
                         utf16 | false -
                        values relay20N
                                                                                                       values relay20FF
```