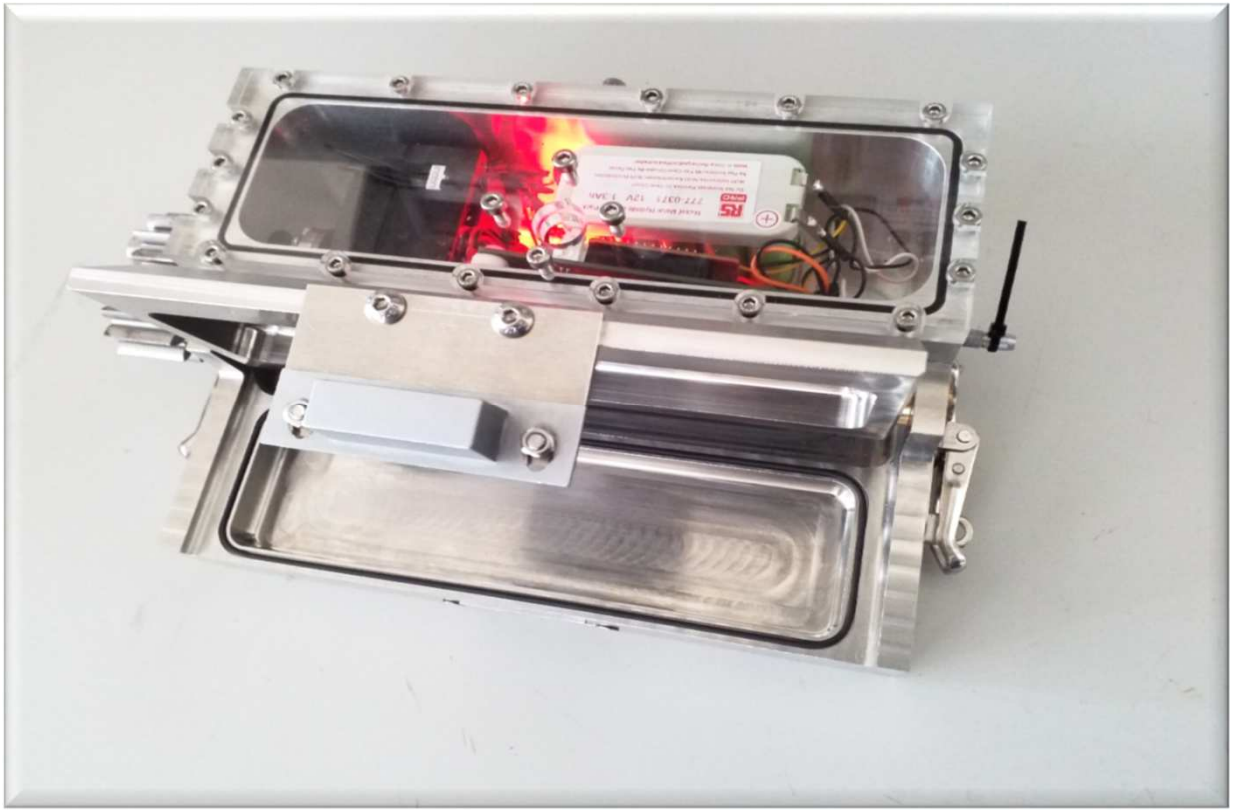
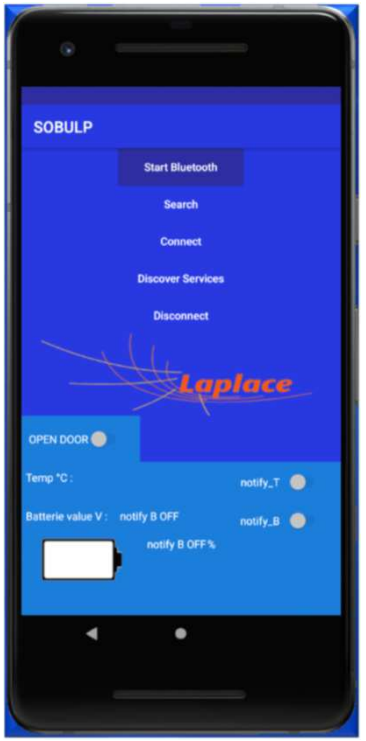
Boîte de transfert autonome

SOBULP : *Self-Opening Box Under Low Pressure*





SOBULP

1. Projet Scientifique
2. Projet Electronique
3. Elément du boitier SOBULP
4. Le microcontrôleur Cypress
5. La partie logicielle IHM avec Android Studio

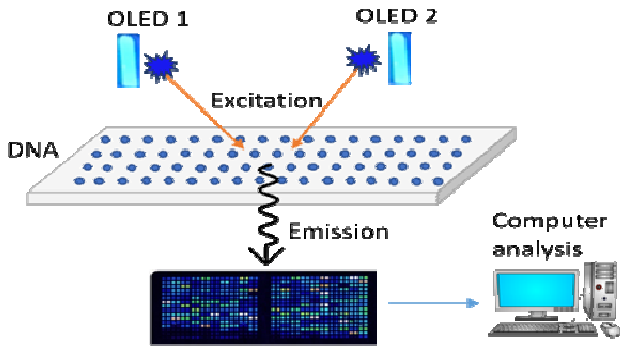
1.Le projet scientifique

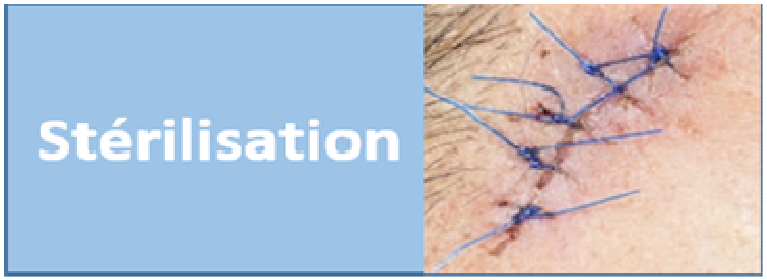
OLED : Organic Light Emitting Diode

- ✓Facilité de fabrication
- ✓Faible consommation d'énergie
- ✓Meilleure résolution
- ✓Applications flexibles

Les applications

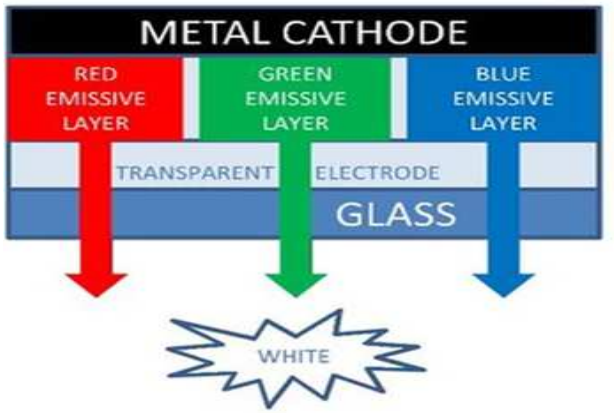
✓ **Source d'excitation pour analyser des biopuces d'ADN hautement sensible.**



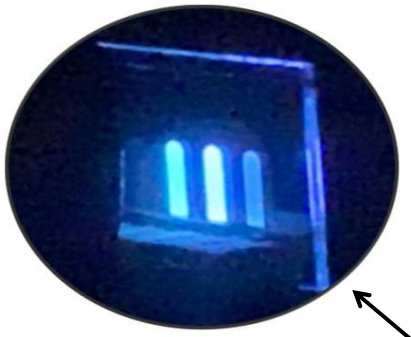


✓ **Stérilisation des tissus sans endommager les cellules cicatrisantes.**

✓**Ecran d'affichage et OLEDs blanches (RGB).**



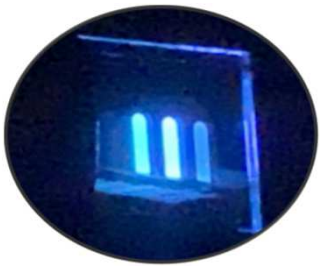
Fabrication et caractérisation d'OLEDs



Echantillon OLED

- Conception d'OLEDs par évaporation
- Caractérisation des OLEDs (sous atmosphère Azote, sensible à l'oxygène et à l'humidité)

SOBULP



Echantillon OLED

Boîte de transfert

Encapsulation par dépôt de Parylène

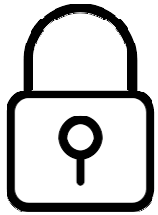
EN ROUTE VERS LA PLATEFORME 3DPHI

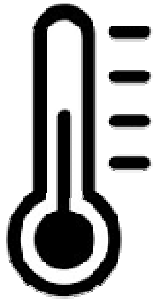
2.Projet Electronique

Le cahier des charges

Fonctionnalités des contrôles et des commandes à distance attendues :

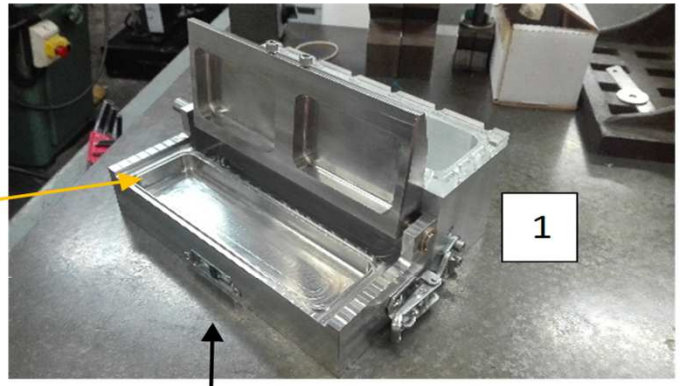
- Commande ouverture / fermeture du **capot du coffret**
- Déclenchement de l'ouverture de la **gâche**
- Mesure du niveau de **charge de la batterie**
- Lecture de la **température** dans le coffret



3.Elément du boitier SOBULP

Coffret complet

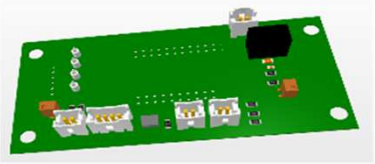


1

2

Liaison UART

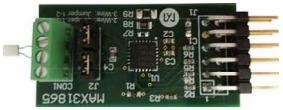
3

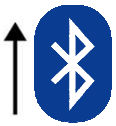


4

Liaison SPI

6





7

Mobile ou tablette

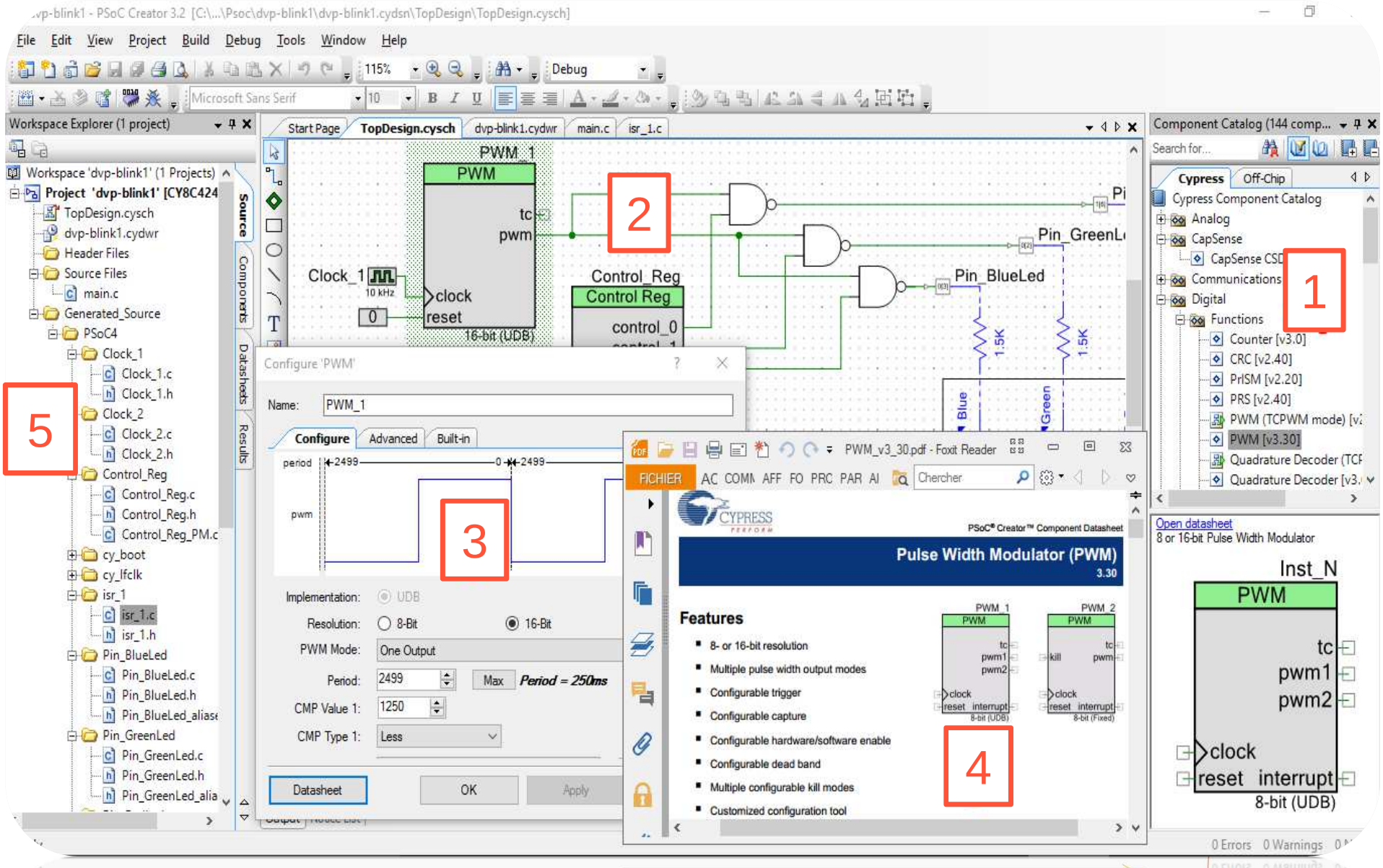
4.Le microcontrôleur Cypress

Kit PSoC 4 Cypress (Infineon)

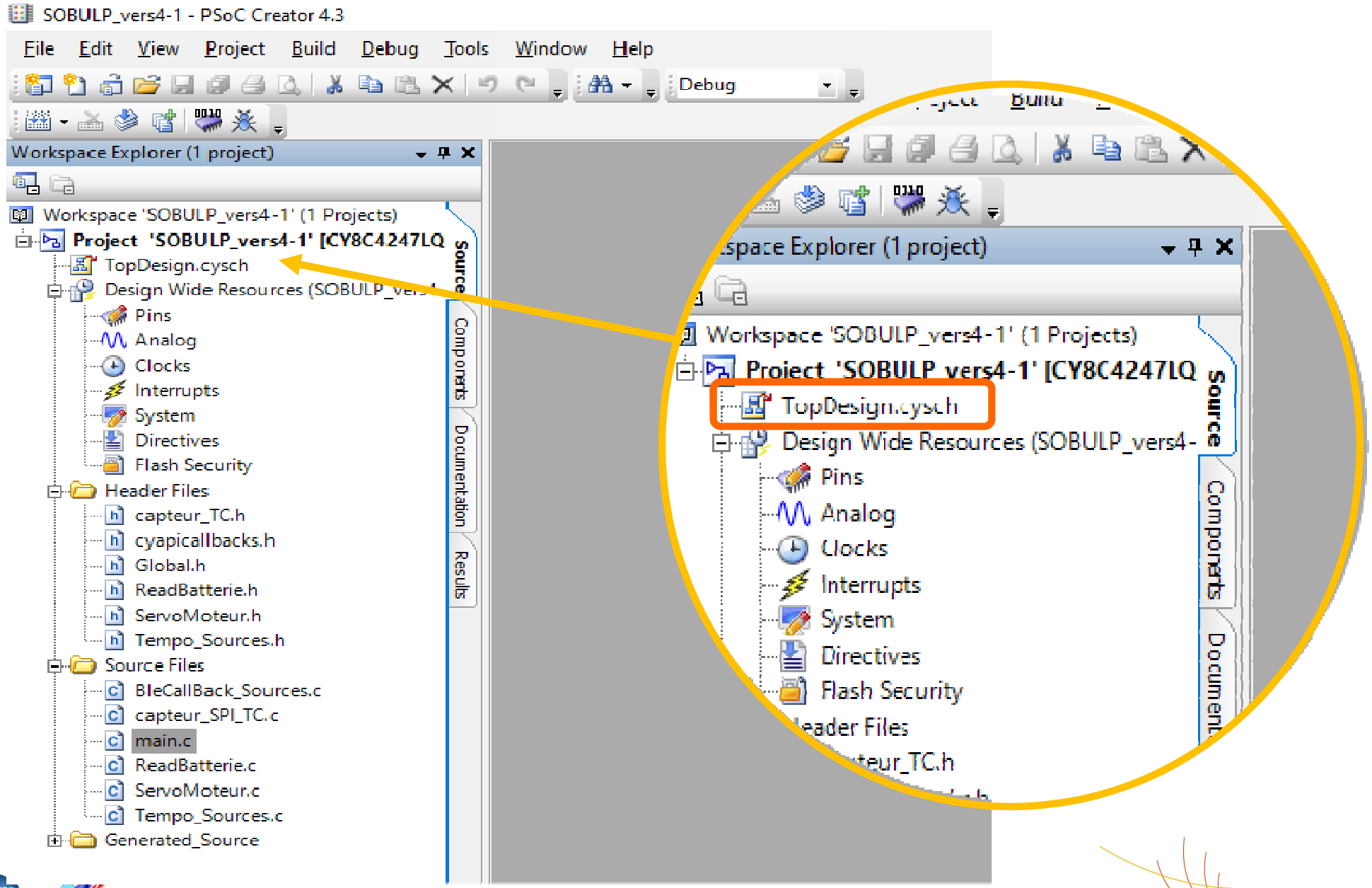
Prix du Kit:
Radiospare ***48 € HT***
Farnell ***41 € HT***

MODULE BLUETOOTH
Prix : RS 10 € HT

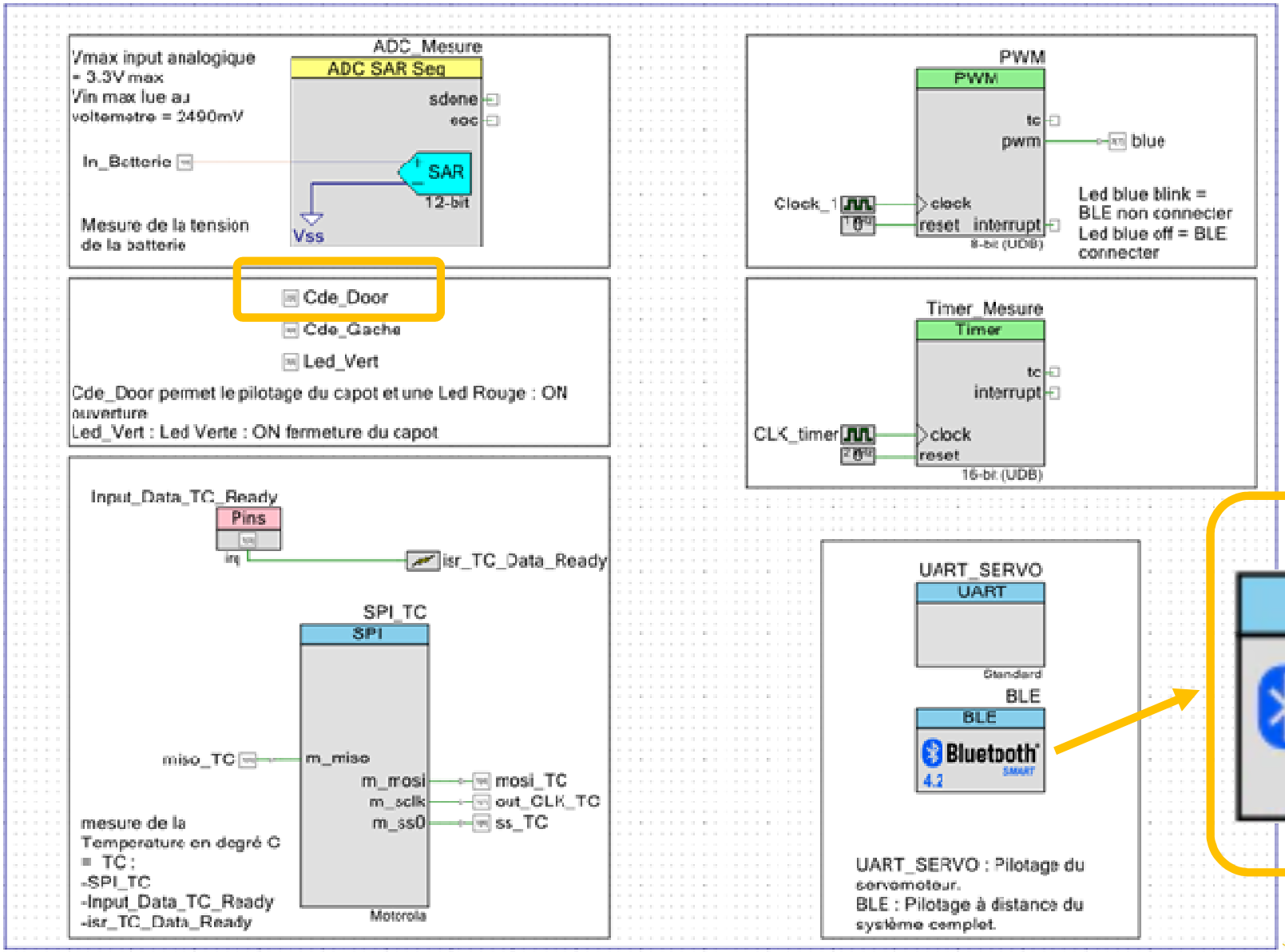
Programmation, le logiciel : PSoC Creator 4.3



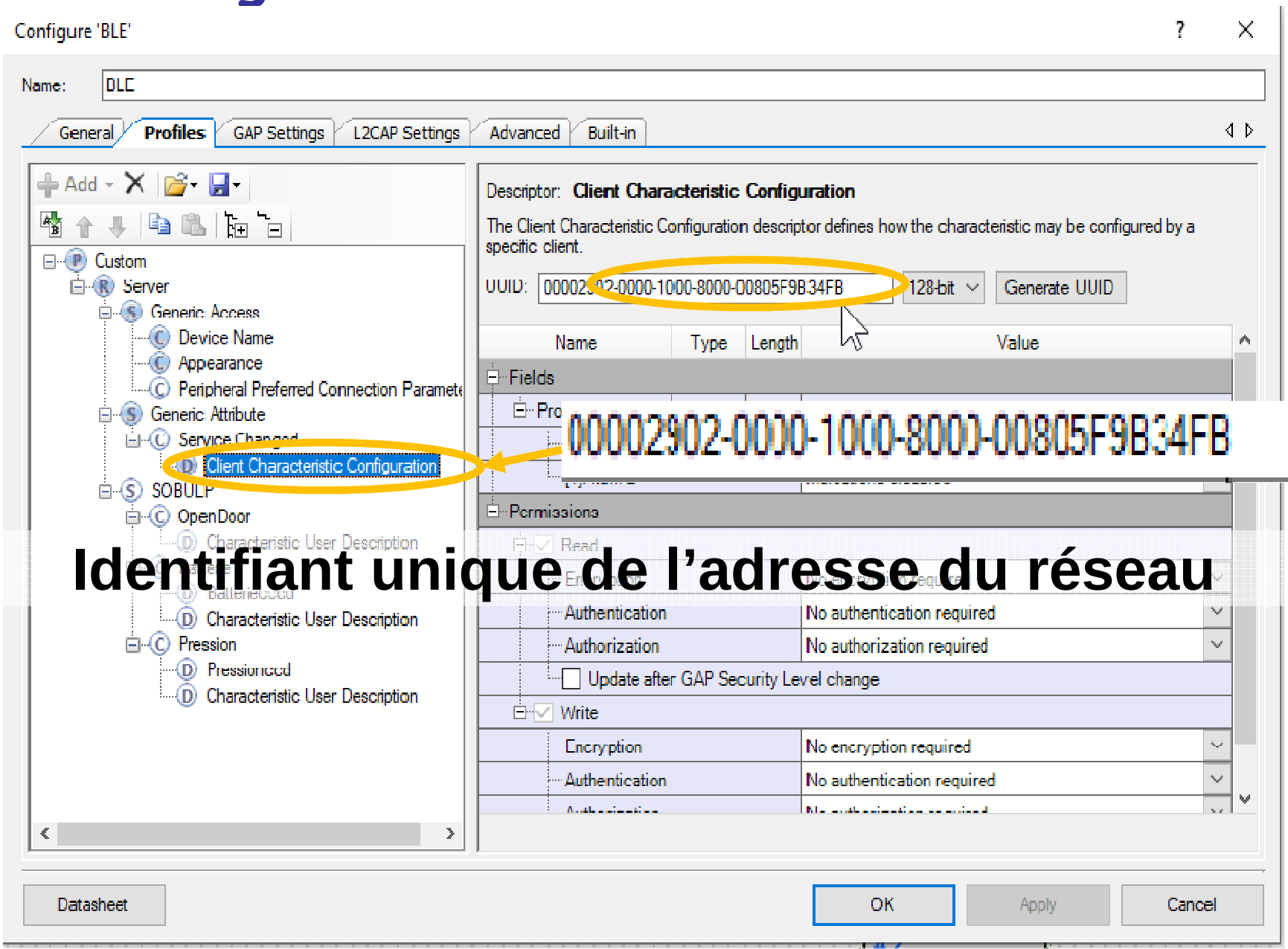
Ouverture de mon TopDesign

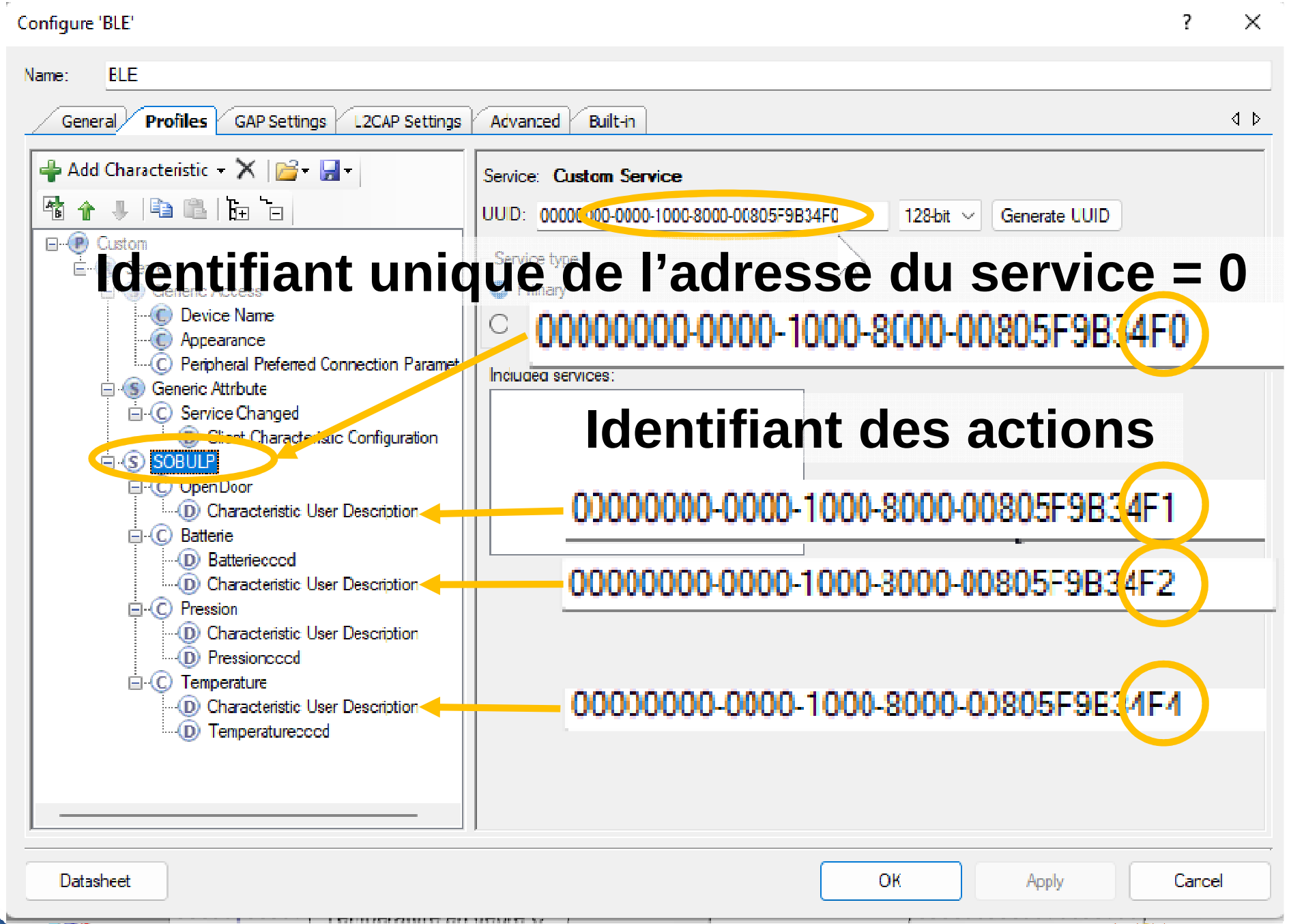


TopDesign.cysch

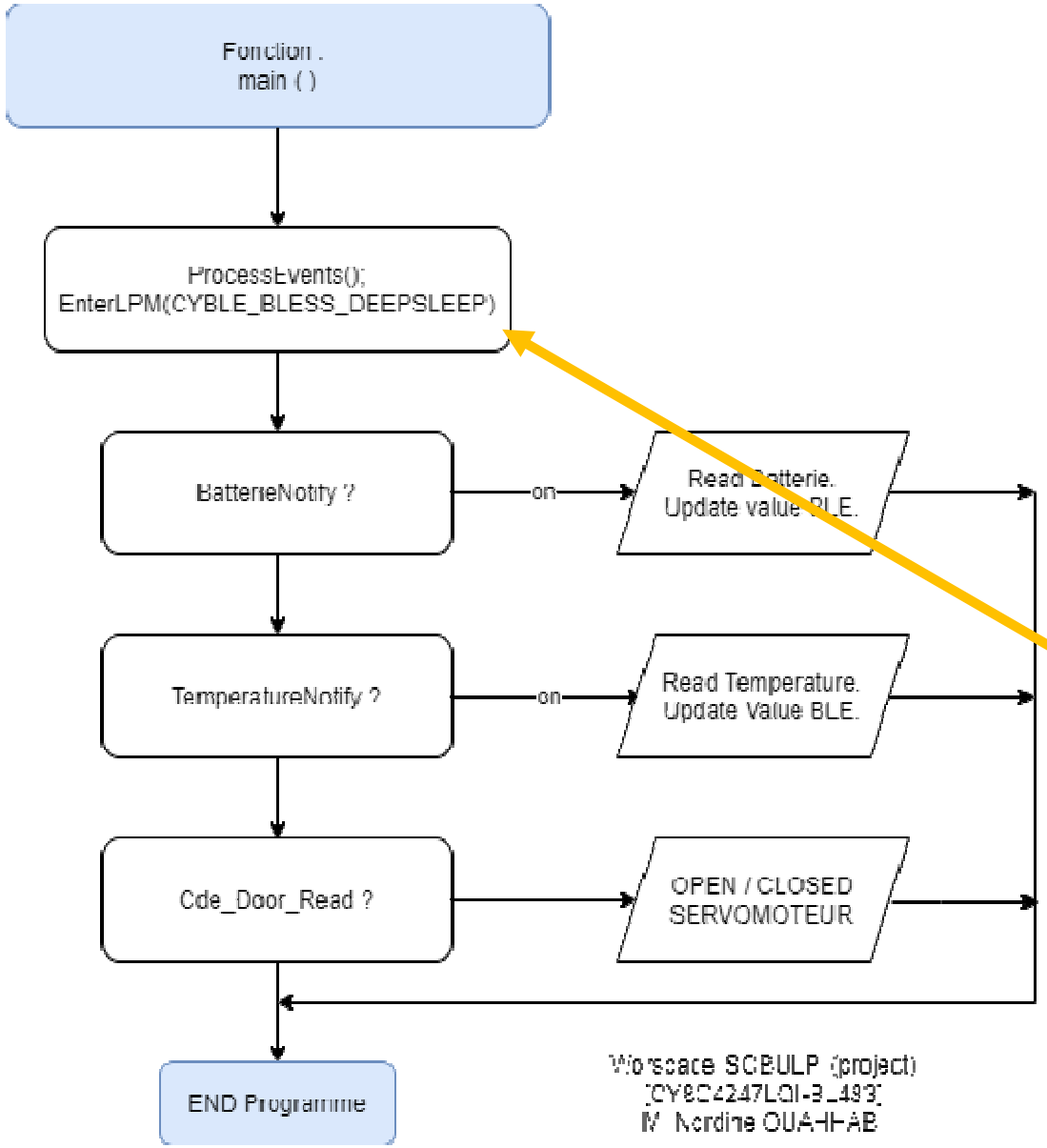


Configuration du module Bluetooth




Configure 'BLE'
Name: BLE
General
Profiles
GAP Settings
L2CAP Settings
Advanced
Built-in
Add Characteristic
Service: Custom Service
UUID: 00000000-0000-1000-8000-00805F9B34F0
128-bit
Generate UUID
Identifiant unique de l'adresse du service = 0
00000000-0000-1000-8000-00805F9B34F0
Included services:
Identifiant des actions
Device Name
Appearance
Peripheral Preferred Connection Paramet
Generic Attribute
Service Changed
SOBULP
OpenDoor
Characteristic User Description
00000000-0000-1000-8000-00805F9B34F1
Batterie
Batteriecccd
Characteristic User Description
00000000-0000-1000-8000-00805F9B34F2
Pression
Characteristic User Description
Pressionccccd
Temperature
Characteristic User Description
00000000-0000-1000-8000-00805F9B34F4
Temperaturecccd
Datasheet
OK
Apply
Cancel

Organigramme du programme principal: main.c




```
/*========================================
 *
 *brief          SOBULP
 *version        4-1
 *date           15/01/2021
 *author         N.OUAHHABI
 *Laboratoire    LAPLACE - Toulouse
 *file           main.c
 *
 *Début projet   03/11/2018
 *Version        PSoC Creator 4.3
 *Device         CY8C4247LQI-BL483
 *========================================
*/
```

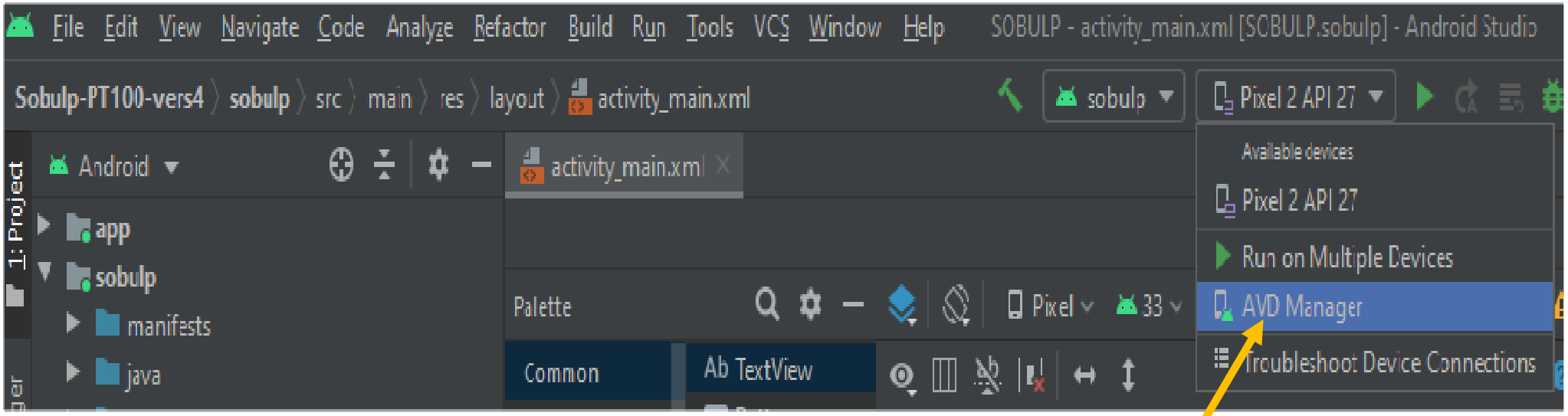
ProcessEvents();
EnterLPM(CYBLE_BLESS_DEEPSLEEP)

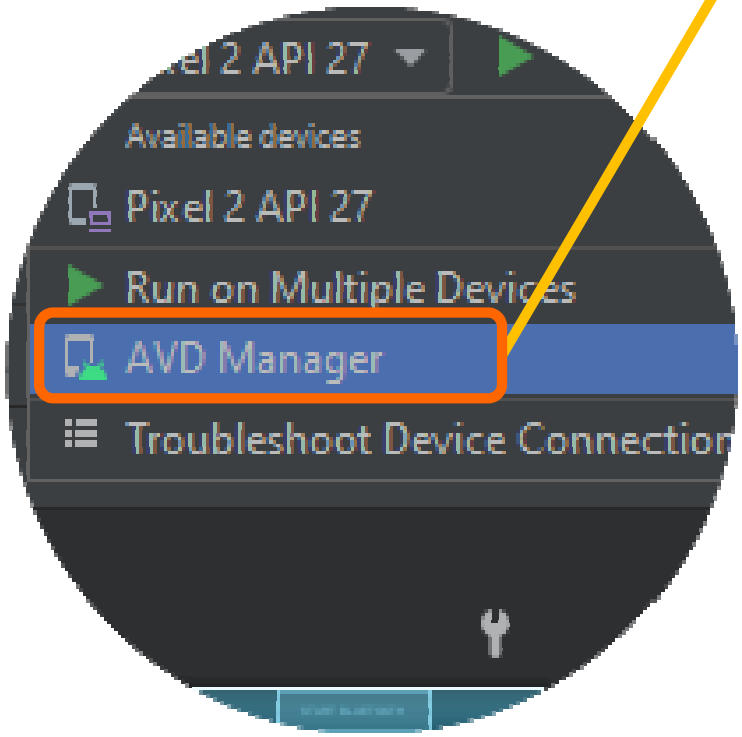
5.PARTIE CONCEPTION IHM

Développement ANDROID

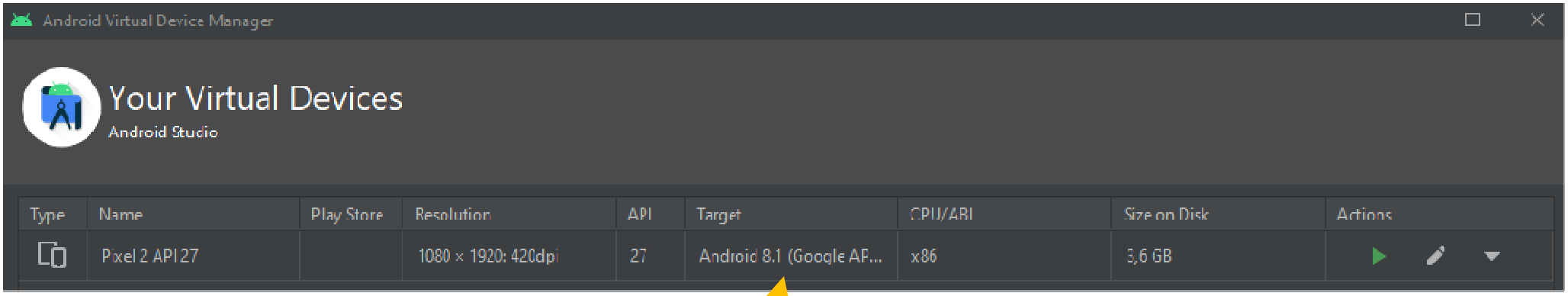
Android Studio Version 4.0.1

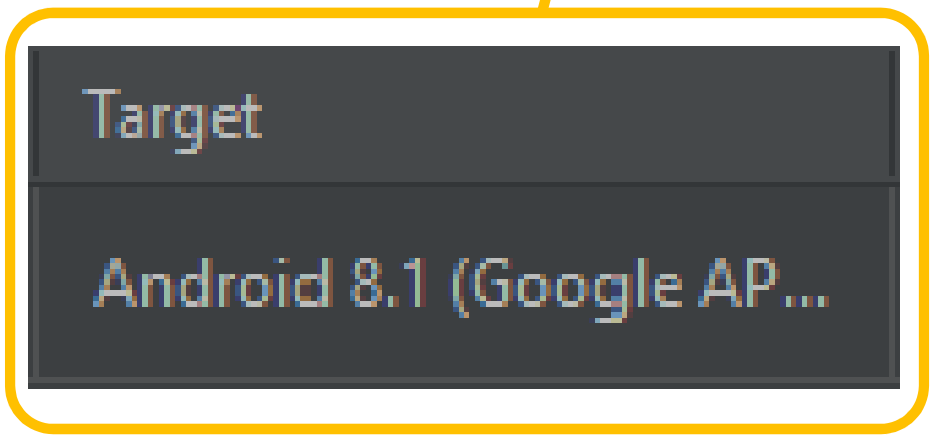
Choix du mobile à émuler



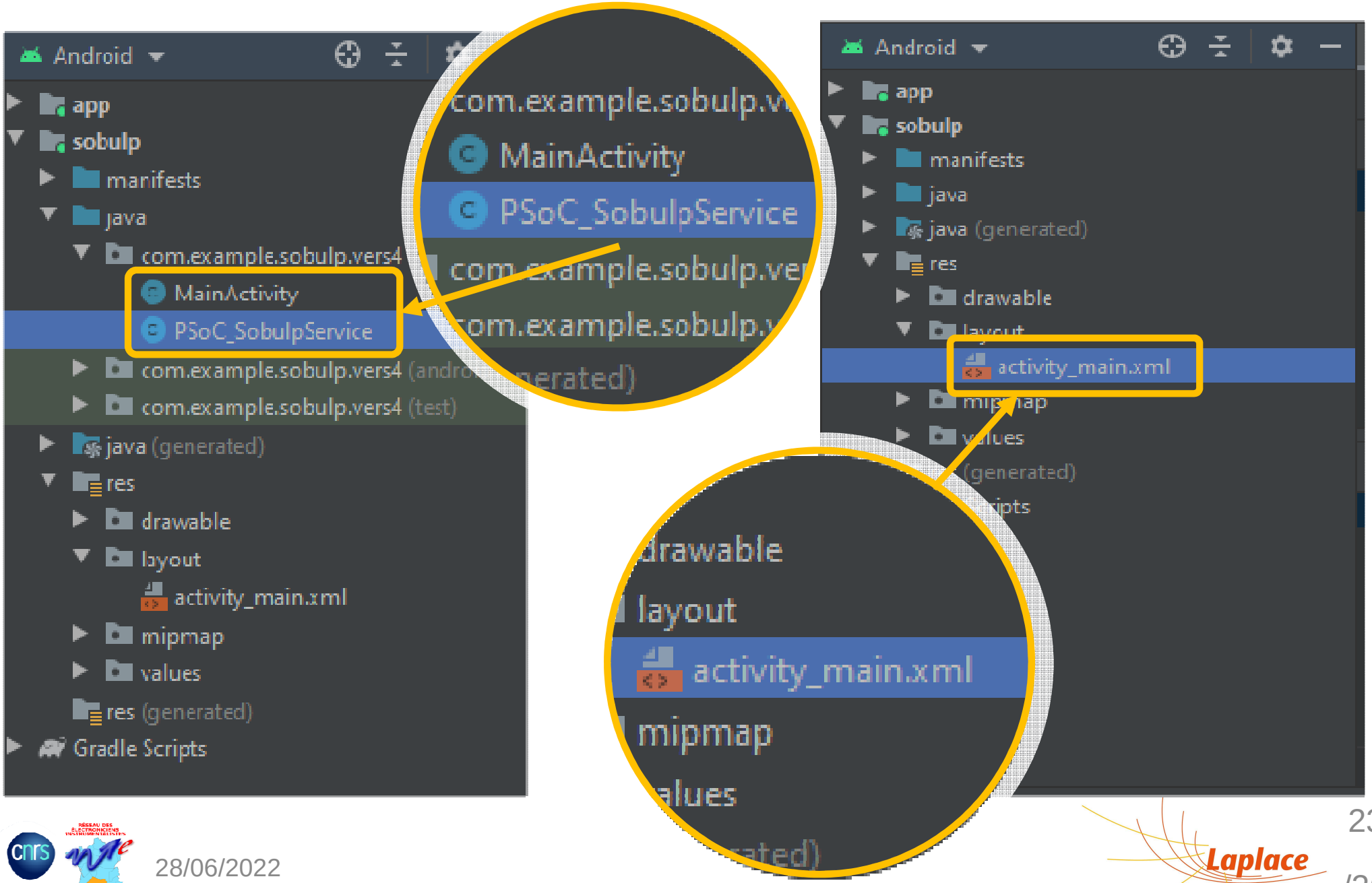


Choix du système d'exploitation à émuler



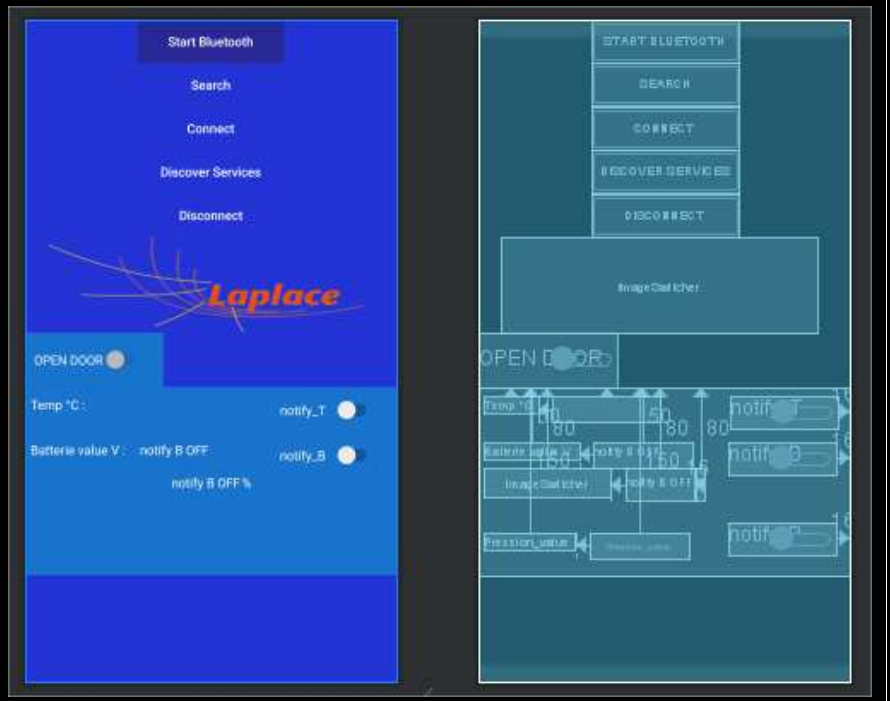


Les fichiers du projet android



« Form » de l'application

Code Split Design



Code Split Design

```
<Button
    android:id="@+id/start_button"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="125dp"
    android:layout_marginRight="125dp"
    android:background="@color/colorPrimaryDark"
    android:enabled="true"
    android:onClick="startBluetooth"
    android:text="Start Bluetooth"
    android:textAllCaps="false"
    android:textColor="@android:color/white" />
```

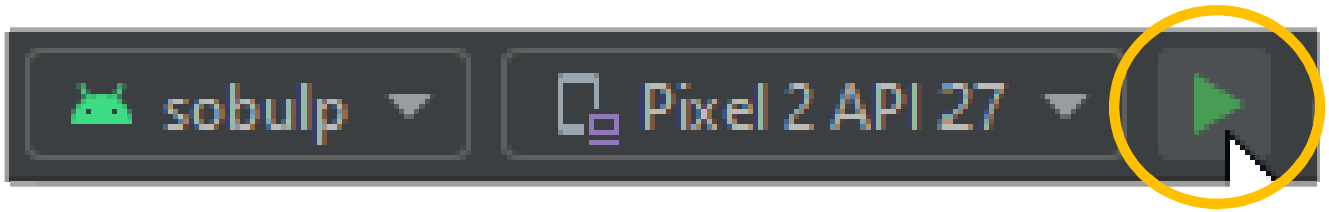
Adresse UUID du réseau et des services

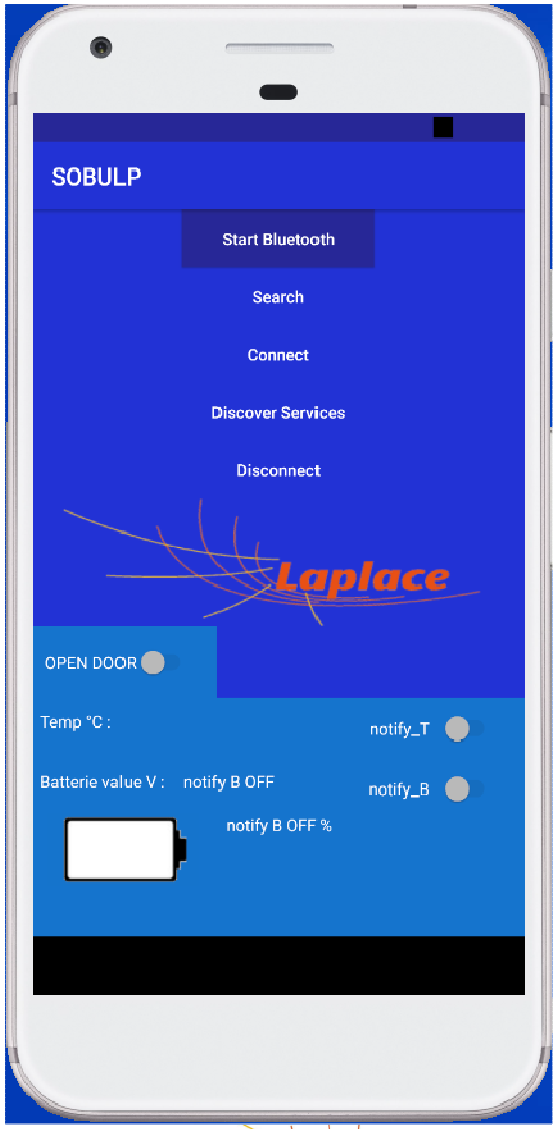
UUIDs for the service and characteristics that the custom SOBULP service uses

```
String baseUUID                 = "00000000-0000-1000-8000-00805F9B34F";
String Sobulp_ServiceUUID       = baseUUID + "0";
String DoorCharacteristicUUID   = baseUUID + "1";
String BatterieCharacteristicUUID = baseUUID + "2";
String CccdUUID                 = "00002902-0000-1000-8000-00805F9B34FB";
```

```
public double getTemperatureValue() { return mTemperatureValue; }
```

Virtual Device : RUN émulation





Installation de l'exécutable

Merci de votre attention!