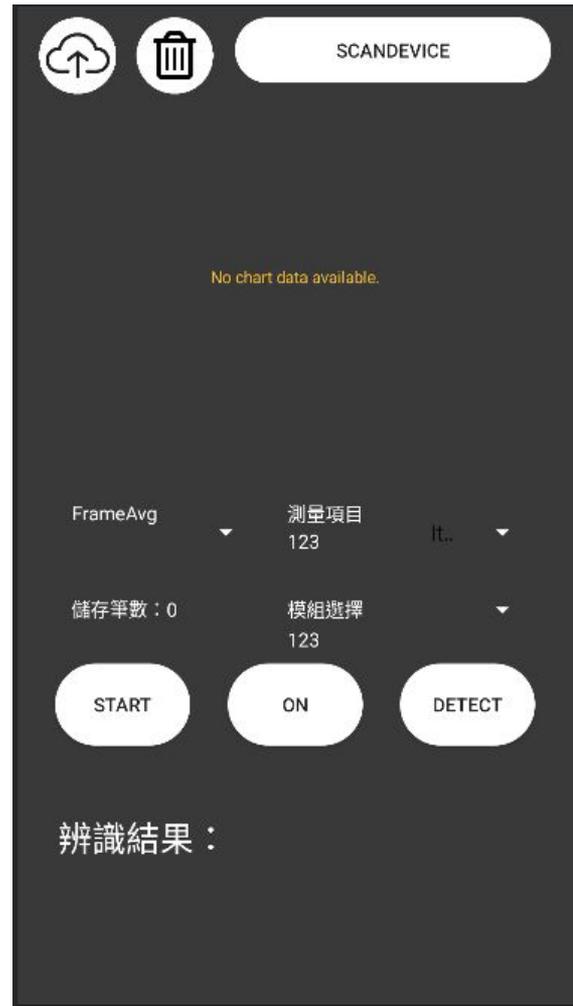
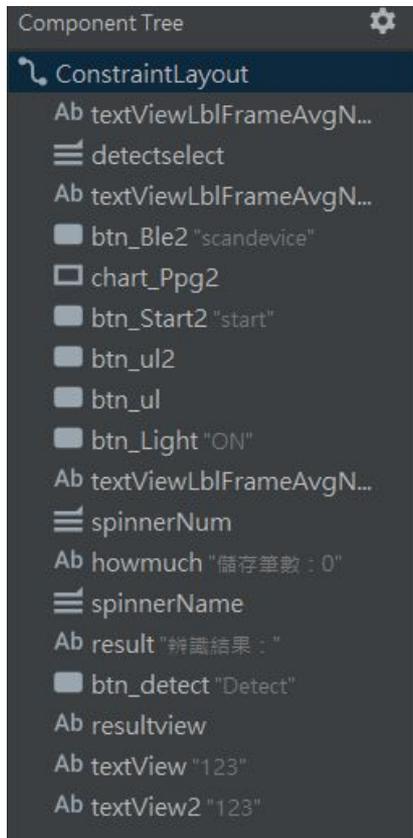


Component Tree



```
<Button
```

```
    android:id="@+id/btn_ul2"  
    android:layout_width="57dp"  
    android:layout_height="56dp"  
    android:layout_marginStart="14dp"  
    android:layout_marginTop="8dp"  
    android:layout_marginEnd="13dp"  
    android:layout_marginBottom="8dp"  
    android:background="@drawable/upload"  
    app:layout_constraintBottom_toTopOf="@+id/chart_Ppg2"  
    app:layout_constraintEnd_toStartOf="@+id/btn_Ble2"  
    app:layout_constraintHorizontal_bias="0.025"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.0"  
    tools:ignore="SpeakableTextPresentCheck" />
```



SCANDEVICE

No chart data available.

FrameAvg

測量項目
123

It..

儲存筆數：0

模組選擇
123

START

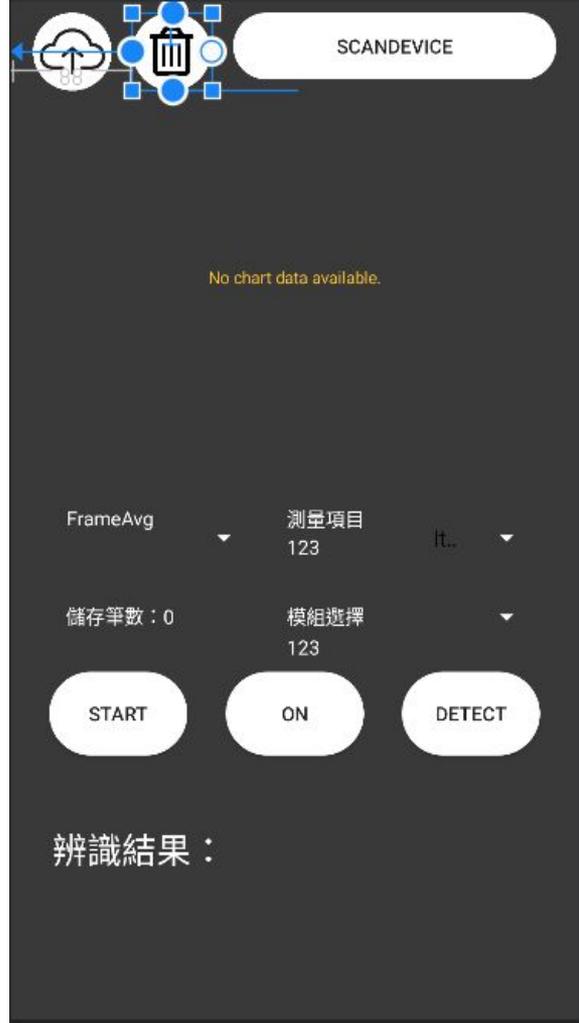
ON

DETECT

辨識結果：

<Button

```
android:id="@+id/btn_ul"  
android:layout_width="57dp"  
android:layout_height="56dp"  
android:layout_marginStart="88dp"  
android:layout_marginTop="8dp"  
android:layout_marginBottom="8dp"  
android:background="@drawable/clean"  
app:layout_constraintBottom_toTop0f="@+id/chart_Ppg2"  
app:layout_constraintStart_toStart0f="parent"  
app:layout_constraintTop_toTop0f="parent"  
app:layout_constraintVertical_bias="0.0"  
tools:ignore="SpeakableTextPresentCheck" />
```



```
<Button
```

```
    android:id="@+id/btn_Ble2"  
    android:layout_width="0dp"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="16dp"  
    android:layout_marginTop="8dp"  
    android:layout_marginEnd="16dp"  
    android:background="@drawable/button_corner"  
    android:text="scandevise"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="1.0"  
    app:layout_constraintStart_toEndOf="@+id/btn_ul"  
    app:layout_constraintTop_toTopOf="parent"  
    tools:ignore="HardcodedText" />
```



SCANDEVICE

No chart data available.

FrameAvg

測量項目

123

ft..

儲存筆數：0

模組選擇

123

START

ON

DETECT

辨識結果：

```
<com.github.mikephil.charting.charts.LineChart
    android:id="@+id/chart_Ppg2"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="16dp"
    android:layout_marginBottom="20dp"
    app:layout_constraintBottom_toTop0f="@+id/textViewLb1FrameAvgNum"
    app:layout_constraintEnd_toEnd0f="parent"
    app:layout_constraintStart_toStart0f="parent"
    app:layout_constraintTop_toBottom0f="@+id/btn_Ble2">

</com.github.mikephil.charting.charts.LineChart>
```



```
<TextView
```

```
    android:id="@+id/textViewLblFrameAvgNum"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="40dp"  
    android:layout_marginBottom="34dp"  
    android:gravity="center"  
    android:text="FrameAvg"  
    android:textColor="@color/white"  
    app:layout_constraintBottom_toTopOf="@+id/btn_Start2"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/howmuch"  
    tools:ignore="HardcodedText" />
```



SCANDEVICE

No chart data available.



測量項目
123

It..

儲存筆數：0

模組選擇
123

START

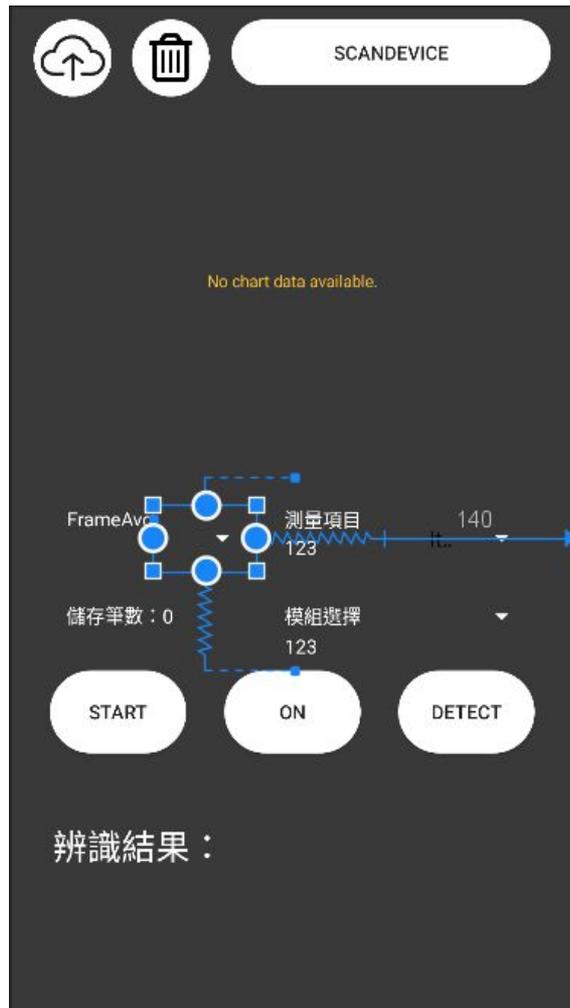
ON

DETECT

辨識結果：

<Spinner

```
android:id="@+id/spinnerNum"  
android:layout_width="75dp"  
android:layout_height="wrap_content"  
android:layout_marginTop="20dp"  
android:layout_marginEnd="140dp"  
android:layout_marginBottom="34dp"  
android:backgroundTint="@color/white"  
android:minHeight="48dp"  
app:layout_constraintBottom_toTopOf="@+id/btn_Light"  
app:layout_constraintEnd_toEndOf="parent"  
app:layout_constraintEnd_toStartOf="@+id/textViewLblFrameAvgNum2"  
app:layout_constraintHorizontal_bias="0.0"  
app:layout_constraintStart_toEndOf="@+id/textViewLblFrameAvgNum"  
app:layout_constraintTop_toBottomOf="@+id/chart_Ppg2"  
app:layout_constraintVertical_bias="0.0" />
```

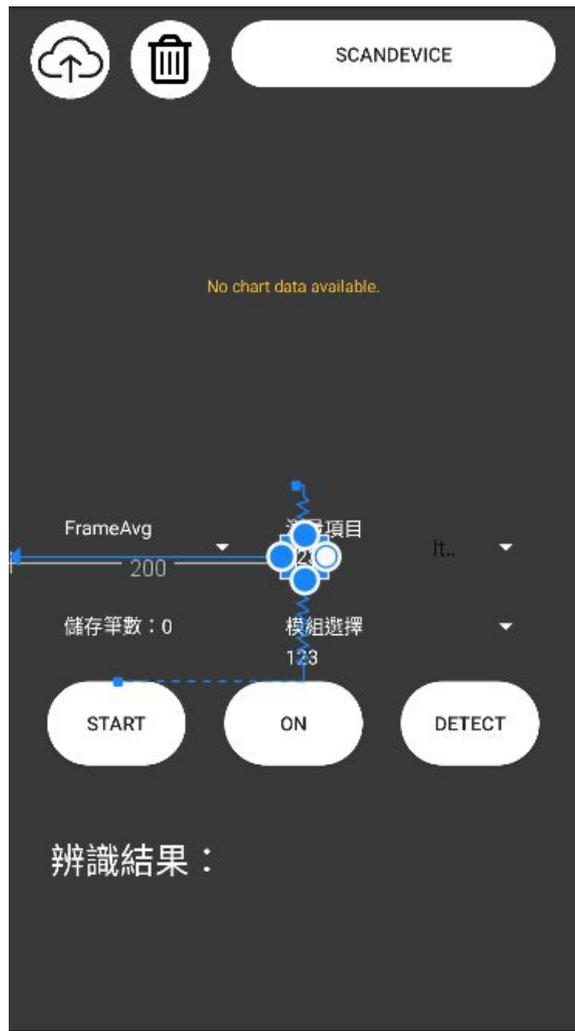


```
<TextView
```

```
    android:id="@+id/textViewLb1FrameAvgNum2"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="200dp"  
    android:layout_marginBottom="80dp"  
    android:gravity="center"  
    android:text="測量項目"  
    android:textColor="@color/white"  
    app:layout_constraintBottom_toTop0f="@+id/btn_Start2"  
    app:layout_constraintStart_toEnd0f="@+id/spinnerNum"  
    app:layout_constraintStart_toStart0f="parent"  
    app:layout_constraintTop_toBottom0f="@+id/chart_Ppg2"  
    tools:ignore="HardcodedText" />
```



```
<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="200dp"
    android:layout_marginBottom="80dp"
    android:gravity="center"
    android:text="123"
    android:textColor="@color/white"
    app:layout_constraintBottom_toTopOf="@+id/btn_Start2"
    app:layout_constraintStart_toEndOf="@+id/spinnerNum"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/chart_Ppg2"
    app:layout_constraintVertical_bias="1.0"
    tools:ignore="HardcodedText" />
```



<Spinner

```
android:id="@+id/detectselect"  
android:layout_width="85dp"  
android:layout_height="wrap_content"  
android:layout_marginTop="20dp"  
android:layout_marginBottom="32dp"  
android:backgroundTint="@color/white"  
android:minHeight="48dp"  
app:layout_constraintBottom_toTopOf="@+id/btn_Light"  
app:layout_constraintEnd_toEndOf="parent"  
app:layout_constraintHorizontal_bias="0.6"  
app:layout_constraintStart_toEndOf="@+id/textViewLblFrameAvgNum2"  
app:layout_constraintTop_toBottomOf="@+id/chart_Ppg2"  
app:layout_constraintVertical_bias="0.0"  
tools:ignore="DuplicateSpeakableTextCheck" />
```



SCANDEVICE

No chart data available.

FrameAvg

測量項目
123

儲存筆數：0

模組選擇
123

START

ON

DETECT

辨識結果：

```
<TextView
```

```
    android:id="@+id/howmuch"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="40dp"  
    android:layout_marginTop="50dp"  
    android:layout_marginEnd="220dp"  
    android:layout_marginBottom="10dp"  
    android:text="儲存筆數：0"  
    android:textColor="@color/white"  
    app:layout_constraintBottom_toTopOf="@+id/btn_Start2"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.0"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/textViewLblFrameAvgNum"  
    app:layout_constraintVertical_bias="0.0"  
    tools:ignore="HardcodedText" />
```



SCANDEVICE

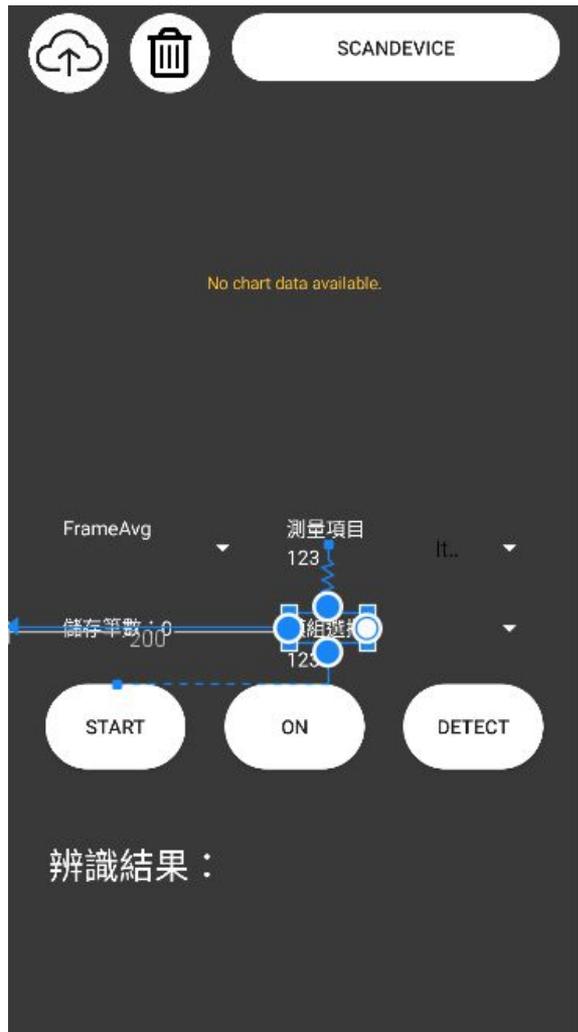
No chart data available.



辨識結果：

```
<TextView
```

```
    android:id="@+id/textViewLblFrameAvgNum3"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="200dp"  
    android:layout_marginTop="20dp"  
    android:layout_marginBottom="0dp"  
    android:gravity="center"  
    android:text="模組選擇"  
    android:textColor="@color/white"  
    app:layout_constraintBottom_toTopOf="@+id/btn_Start2"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/textViewLblFrameAvgNum2"  
    tools:ignore="HardcodedText" />
```



```
<TextView
```

```
    android:id="@+id/textView2"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginBottom="8dp"  
    android:gravity="center"  
    android:text="123"  
    android:textColor="@color/white"  
    app:layout_constraintBottom_toTopOf="@+id/btn_Start2"  
    app:layout_constraintStart_toStartOf="@+id/textViewLblFrameAvgNum3"  
    tools:ignore="HardcodedText" />
```



SCANDEVICE

No chart data available.

FrameAvg

測量項目

It..

123

儲存筆數: 0

模型選擇

START

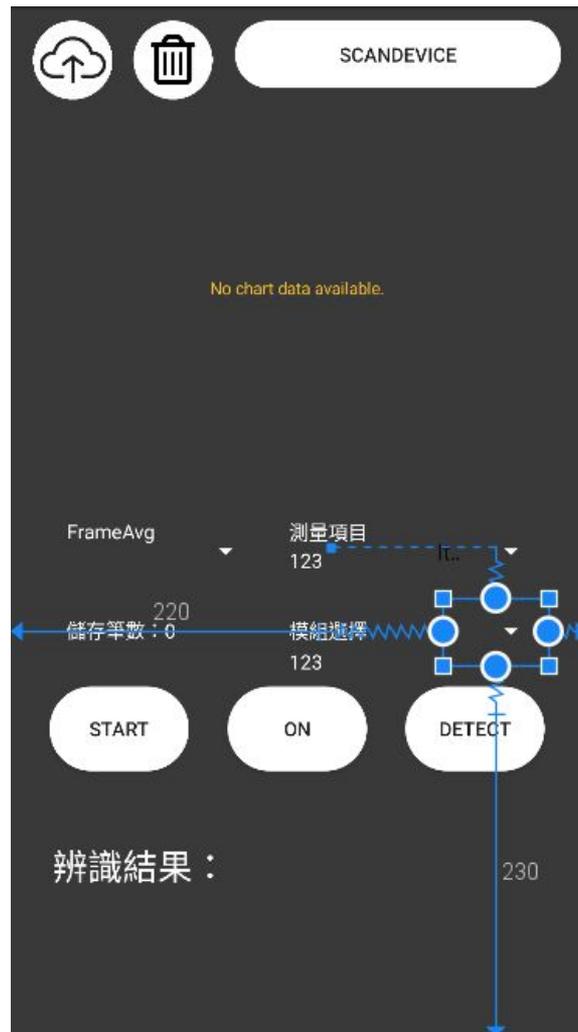
ON

DETECT

辨識結果：

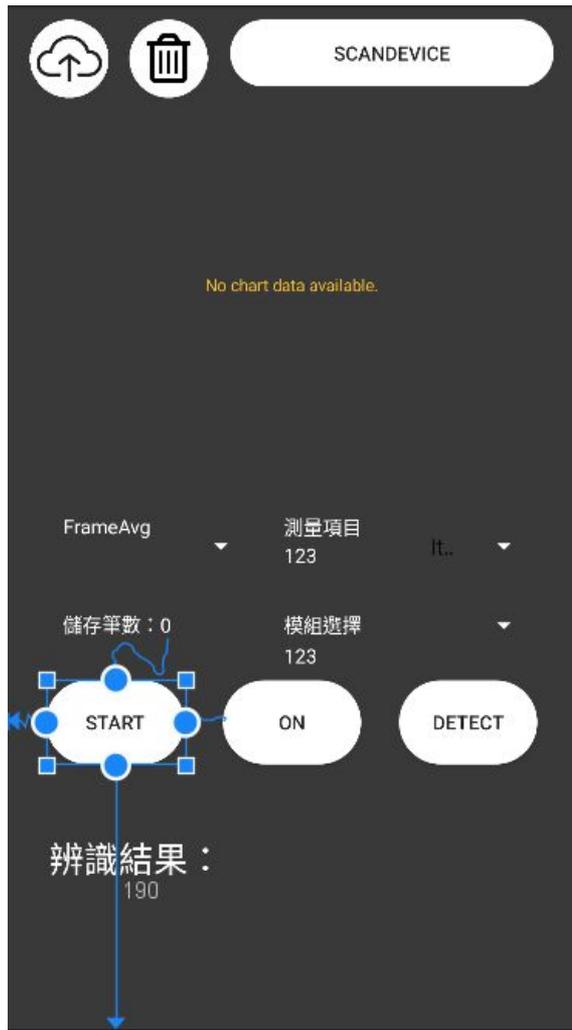
```
<Spinner
```

```
    android:id="@+id/spinnerName"  
    android:layout_width="75dp"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="220dp"  
    android:layout_marginTop="5dp"  
    android:layout_marginBottom="230dp"  
    android:backgroundTint="@color/white"  
    android:minHeight="48dp"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.758"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/textViewLblFrameAvgNum2"  
    app:layout_constraintVertical_bias="0.469" />
```



```
<Button
```

```
    android:id="@+id/btn_Start2"  
    android:layout_width="100dp"  
    android:layout_height="60dp"  
    android:layout_marginTop="20dp"  
    android:layout_marginBottom="190dp"  
    android:background="@drawable/button_corner"  
    android:text="start"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toStartOf="@id/btn_Light"  
    app:layout_constraintHorizontal_bias="0.263"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/howmuch"  
    tools:ignore="HardcodedText" />
```



<Button

```
android:id="@+id/btn_Light"  
android:layout_width="100dp"  
android:layout_height="60dp"  
android:layout_marginStart="0dp"  
android:layout_marginTop="30dp"  
android:layout_marginEnd="0dp"  
android:layout_marginBottom="195dp"  
android:background="@drawable/button_corner"  
android:text="ON"  
app:layout_constraintBottom_toBottomOf="parent"  
app:layout_constraintEnd_toStartOf="@+id/btn_detect"  
app:layout_constraintHorizontal_bias="1.0"  
app:layout_constraintStart_toEndOf="@+id/btn_Start2"  
app:layout_constraintTop_toBottomOf="@+id/howmuch"  
app:layout_constraintVertical_bias="0.0"  
tools:ignore="HardcodedText" />
```



SCANDEVICE

No chart data available.

FrameAvg

測量項目

lt..

123

儲存筆數: 0

模組選擇

123

START

DETECT

ON

辨識結果:

```
<Button
```

```
    android:id="@+id/btn_detect"  
    android:layout_width="100dp"  
    android:layout_height="60dp"  
    android:layout_marginStart="0dp"  
    android:layout_marginTop="30dp"  
    android:layout_marginBottom="190dp"  
    android:background="@drawable/button_corner"  
    android:text="Detect"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintStart_toEndOf="@+id/btn_Light"  
    app:layout_constraintTop_toBottomOf="@+id/howmuch"  
    tools:ignore="HardcodedText" />
```



SCANDEVICE

No chart data available.

FrameAvg

測量項目

123

It.

儲存筆數：0

模組選擇

123

START

ON

DETECT

辨識結果：

190

```
<TextView
```

```
    android:id="@+id/result"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="48dp"  
    android:layout_marginLeft="30dp"  
    android:text="辨識結果："   
    android:textColor="@color/white"  
    android:textSize="25sp"  
    app:layout_constraintTop_toBottomOf="@+id/btn_Start2"  
    tools:ignore="HardcodedText,RtlHardcoded,TextSizeCheck"  
    tools:layout_editor_absoluteX="0dp" />
```



SCANDEVICE

No chart data available.

FrameAvg

測量項目

123

It..

儲存筆數：0

模組選擇

123

START

ON

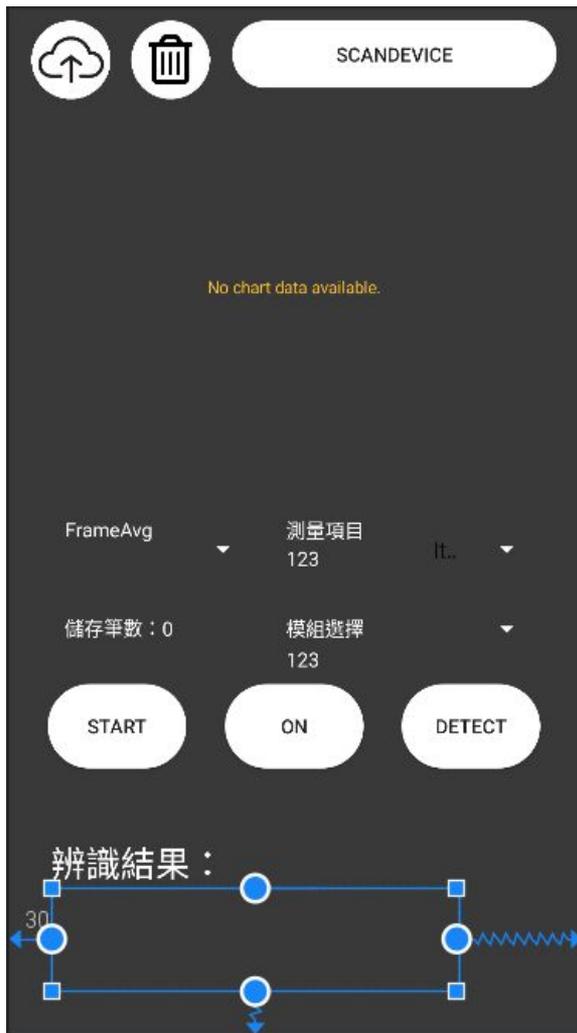
DETECT

辨識結果：

48

```
<TextView
```

```
    android:id="@+id/resultview"  
    android:layout_width="291dp"  
    android:layout_height="74dp"  
    android:layout_marginStart="30dp"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.0"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/result"  
    app:layout_constraintVertical_bias="0.0" />
```



MainActivity

定義變數

```
public class MainActivity extends AppCompatActivity {
    private static String MODEL_PATH = "modelA1ca.tflite";
    private com.example.specsdc.Classifier classifier;
    private final Executor executor = Executors.newSingleThreadExecutor();
    private TextView mresultview, text1, text2, mhowmuch;
    private static final int requestSelectDevice = 1;
    private static final int requestEnalbeBT = 2;
    private static final int REQUEST_PERMISSIONS = 4;
    private static final String DISCONNECT_CMD_STR = "disconnect";
    private float[] dataPointsSet;
    private static int time = 0;
    private Button mbtn_ul2, mbtn_Light, mdetect, mbtn_ul, mbtn_Ble2, mBtnStart;
    private LineChart mChartdataPoint;
    private Spinner mSpinnerFrameAvgNum, mdetectselect, mDataName;
    private NSP32 mNSP32;
    private short[] mWavelength = null;
    private boolean acqing = false;
    private boolean lighting = false;
    private com.example.specsdc.SpectrumTransferService mService = null;
    private BluetoothAdapter mBtAdapter = null;
    private List<Entry> mChartPoints;
    private LineDataSet mChartDataSetA;
    private List<ILineDataSet> mChartDataSets;
    private LineData mChartData;
    private StringBuilder data;
```

定義每50毫秒更新一次
mChartDataPoint

```
Handler guiUpdateHandler = new Handler();  
Runnable guiUpdateRunnable = new Runnable() {  
    @Override  
    public void run() {  
        mChartDataPoint.invalidate();  
        guiUpdateHandler.postDelayed(this, 50);  
    }  
};
```

```
// set initial UI state  
guiUpdateHandler.postDelayed(guiUpdateRunnable, 0);
```

寫在onCreat裡 初始化時執行

介面初始化

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    text1 = findViewById(R.id.text1);
    text1.setText(R.string.text1);
    text2 = findViewById(R.id.textView2);
    text2.setText(R.string.text2);
    mdetect = findViewById(R.id.btn_detect);
    mresultview = findViewById(R.id.resultview);
    mbtn_ul2 = findViewById(R.id.btn_ul2);
    mbtn_ul = findViewById(R.id.btn_ul);
    mbtn_Ble2 = findViewById(R.id.btn_Ble2);
    mbtn_Light = findViewById(R.id.btn_Light);
    mBtnStart = findViewById(R.id.btn_Start2);
    mChartdataPoint = findViewById(R.id.chart_Ppg2);
    mChartdataPoint.getXAxis().setPosition(XAxis.XAxisPosition.BOTTOM);
    mChartdataPoint.getXAxis().setTextColor(Color.WHITE);
    mChartdataPoint.getDescription().setEnabled(false);
    mChartdataPoint.getAxisLeft().setTextColor(Color.WHITE);
    mChartdataPoint.getAxisRight().setTextColor(Color.WHITE);
    mChartdataPoint.getLegend().setTextColor(Color.WHITE);
    mBtAdapter = BluetoothAdapter.getDefaultAdapter();
    mSpinnerFrameAvgNum = findViewById(R.id.spinnerNum);
    mhowmuch = findViewById(R.id.howmuch);
    mdetectselect = findViewById(R.id.detectselect);
    SetSpinnerEntries(mSpinnerFrameAvgNum, 1, 41, 39);
    mDataName = findViewById(R.id.spinnerName);
    SetSpinnerEntries2(mdetectselect);
    SetSpinnerEntries3(mDataName);
    GetPermission();
}
```

定義mChartPoints&mChartDataSetA

```
ServiceInit();  
mChartPoints = new ArrayList<>();  
mChartPoints.add(new Entry(0, 0));  
mChartDataSetA = new LineDataSet(mChartPoints, "Spectrum");  
mChartDataSetA.setColor(Color.WHITE);  
mChartDataSetA.setCircleColor(Color.WHITE);  
mChartDataSets = new ArrayList<>();  
mChartDataSets.add(mChartDataSetA);  
mChartData = new LineData(mChartDataSets);  
mChartData.setDrawValues(false);  
mChartdataPoint.setData(mChartData);  
mChartDataSetA.setDrawFilled(true);  
data = new StringBuilder();  
dataPointsSet = new float[121];
```

定義mbtn_Light 點擊事件

```
mbtn_Light.setOnClickListener(new View.OnClickListener() {
    @SuppressWarnings("SetTextI18n")
    @Override
    public void onClick(View v) {
        if (!lighting) {
            mNSP32.SetLedIntensity((byte) 0xDD, 15, 15);
            lighting = true;
            mbtn_Light.setText("OFF");
        } else {
            mNSP32.SetLedIntensity((byte) 0xDD, 0, 0);
            lighting = false;
            mbtn_Light.setText("ON");
        }
        Toast.makeText(MainActivity.this, "Lighting Mode : " + lighting, Toast.LENGTH_SHORT).show();
    }
});
```

定義mdetectselect 點擊事件

```
mdetectselect.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {  
    @Override  
    public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {  
        String selectedItem;  
        selectedItem = parent.getItemAtPosition(position).toString();  
        String selected = selectedItem;  
        String[] showSelected = selected.split("_");  
        text1.setText(showSelected[1]);  
        MODEL_PATH = mdetectselect.getSelectedItemId().toString();  
        if (MODEL_PATH.equals("測量項目_鈣")) {  
            MODEL_PATH = "1105_A1_Ca_re.tflite";  
            initTensorFlowAndLoadModel();  
            Log.i("1", "data");  
        } else if (MODEL_PATH.equals("測量項目_血糖")) {  
            MODEL_PATH = "1105_A1_AC_re.tflite";  
            initTensorFlowAndLoadModel();  
            Log.i("1", "data");  
        }  
    }  
});
```

以此類推



初始化 TensorFlow 模型 & 加載模型

```
private void initTensorFlowAndLoadModel() {
    executor.execute(new Runnable() {
        @Override
        public void run() {
            try {
                Log.d("tflite initialing", "initialing");
                classifier = com.example.specsdc.TensorFlowMilkClassifier.create(getAssets(), MODEL_PATH);
            } catch (final Exception e) {
                throw new RuntimeException("Error initializing TensorFlow!", e);
            }
        }
    });
}
```

定義mdetectselect初始值

```
mdetectselect.setSelection(0, false);

mDataName.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
    @Override
    public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {
        String selectedItem;
        selectedItem = parent.getItemAtPosition(position).toString();
        Toast.makeText(parent.getContext(), selectedItem, Toast.LENGTH_LONG).show();

        text2.setText(selectedItem);
    }

    @Override
    public void onNothingSelected(AdapterView<?> parent) {

    }
});

mDataName.setSelection(0, false);
```

定義mDateName &點擊事件

定義mDateName初始值

定義mdetect點擊事件

定義二維陣列 default1f

```
mdetect.setOnClickListener(v -> {
    float[][] inputData = new float[1][121];
    double[][] default1 = {{10.0395355, 6.945428, 2.7471135, 0, 0, 0, 0, 0, 0, 3.3516917, 6.715445, 11.4
    float[][] default1f = new float[10][121];
    String outData = "";
    for (int i = 0; i < 10; ++i) {
        for (int j = 0; j < 121; ++j) {
            float a = (float) default1[i][j];
            default1f[i][j] = a;
        }
    }

    float max, min, scaled;
    if (dataPointsSet.length != 0) {
        for (int i = 0; i < 121; ++i) {
            max = dataPointsSet[i];
            min = dataPointsSet[i];
            for (int j = 0; j < 10; ++j) {
                max = Math.max(max, default1f[j][i]);
                min = Math.min(min, default1f[j][i]);
            }
            scaled = (dataPointsSet[i] - min) / (max - min);
            System.out.println("max: " + max);
            System.out.println("min: " + min);
            System.out.println("dataPointsSet[i]: " + dataPointsSet[i]);
            System.out.println("scaled: " + scaled);
            System.out.println("final data: " + inputData[0][0]);
            inputData[0][i] = scaled;
            outData = outData + "," + scaled;
        }
        System.out.println("inputData: " + inputData[0][0]);
    }
}
```

定義mdetect點擊事件

```
if (MODEL_PATH == "1105_A1_Ca_re.tflite") {
    final float[][] results = classifier.recognizeFreshness(inputData, 1);
    String freshness;
    if ((results[0][0] > 8.8) && (results[0][0] < 10.2)) {
        freshness = "正常";
    } else {
        freshness = "異常";
    }
    mresultview.setText("鈣:" + String.format("%.1f", results[0][0]) + " mg/dL");
    if (freshness == "正常") {
        mresultview.setTextColor(Color.rgb(0, 255, 0));
    } else {
        mresultview.setTextColor(Color.rgb(255, 0, 0));
    }
    mresultview.setTextSize(20);
} else if (MODEL_PATH == "1105_A1_AC_re.tflite") {
    final float[][] results = classifier.recognizeFreshness(inputData, 1);
    System.out.println("results[0][0]:" + results[0][0]);

    String freshness;
    if ((results[0][0] > 70) && (results[0][0] < 100)) {
        freshness = "正常";
    } else {
        freshness = "異常";
    }
    mresultview.setText("血糖:" + String.format("%.5f", results[0][0]) + " mg/dL");
    if (freshness == "正常") {
        mresultview.setTextColor(Color.rgb(0, 255, 0));
    } else {
        mresultview.setTextColor(Color.rgb(255, 0, 0));
    }
}
```

定義mbtn_Ble2點擊事件

```
mbtn_Ble2.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        if (!mBtAdapter.isEnabled()) {  
            Intent enableIntent = new Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);  
            startActivityForResult(enableIntent, requestEnableBT);  
        } else {  
            if (mbtn_Ble2.getText().equals("scandevic")) {  
                Intent newIntent = new Intent(MainActivity.this, DeviceListActivity.class);  
                startActivityForResult(newIntent, requestSelectDevice);  
            } else {  
                mService.disconnect();  
            }  
        }  
    }  
});
```

定義mbtn_Start 點擊事件

```
mBtnStart.setOnClickListener(new View.OnClickListener() {  
    @SuppressWarnings("SetTextI18n")  
    @Override  
    public void onClick(View v) {  
        if (acqing) {  
            mBtnStart.setText("Start");  
            for (int i = 0; i < 121; ++i) {  
                data.append(String.valueOf(dataPointsSet[i])).append(",");  
            }  
            data.append("\n");  
            time = time + 1;  
            mhowmuch.setText("儲存筆數：" + String.valueOf(time));  
            acqing = false;  
            mNSP32.Standby((byte) 0);  
        } else {  
            mBtnStart.setText("Stop");  
            AcqSpectrum();  
        }  
    }  
});
```

定義mbtn_ul1
點擊事件

```
mbtn_ul.setOnClickListener(new View.OnClickListener() {  
    @SuppressWarnings("SetTextI18n")  
    @Override  
    public void onClick(View view) {  
        try {  
  
            data.delete(0, data.capacity());  
            time = 0;  
            mhowmuch.setText("儲存筆數：" + time);  
  
        } catch (Exception e) {  
            e.printStackTrace();  
        }  
    }  
});
```

定義mbtn_ul2 點擊事件

```
mbtn_ul2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        try {
            Log.d("data", data);
            DateTimeFormatter dtf = DateTimeFormatter.ofPattern("MM_dd");
            String fileTime = dtf.format(LocalDateTime.now());
            String dataName = new String();
            dataName += fileTime;
            dataName += '_' + mDataName.getSelectedItem().toString();
            //saving the file into device
            FileOutputStream out = openFileOutput("data.csv", Context.MODE_PRIVATE);
            out.write((data.toString()).getBytes());
            out.close();
            data.delete(0, data.capacity());
            time = 0;
            //exporting
            Context context = getApplicationContext();
            File filelocation = new File(getFilesDir(), "data.csv");
            Uri path = FileProvider.getUriForFile(context, "com.example.specsdc.fileprovider", filelocation);
            Intent fileIntent = new Intent(Intent.ACTION_SEND);
            fileIntent.setType("text/csv");
            fileIntent.putExtra(Intent.EXTRA_SUBJECT, dataName);
            fileIntent.addFlags(Intent.FLAG_GRANT_READ_URI_PERMISSION);
            fileIntent.putExtra(Intent.EXTRA_STREAM, path);
            startActivity(Intent.createChooser(fileIntent, "Send mail"));
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
});
```

對照投影片25建立 mSpinnerFrameAvgNum

```
private void SetSpinnerEntries(Spinner spinner, int startIdx, int endIdx, int selectedIdx) {  
    ArrayAdapter<String> dataAdapter = new ArrayAdapter<>(this, android.R.layout.simple_spinner_item, new ArrayList<String>());  
    dataAdapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);  
    for (int i = startIdx; i < endIdx; ++i) {  
        dataAdapter.add(String.valueOf(i));  
    }  
    spinner.setAdapter(dataAdapter);  
    spinner.setSelection(selectedIdx);  
}
```

對照投影片25 建立 mdetectselect

```
private void SetSpinnerEntries2(Spinner spinner) {  
    ArrayAdapter<String> dataAdapter2 = new ArrayAdapter<>(this, android.R.layout.simple_spinner_item, new ArrayList<String>());  
    dataAdapter2.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);  
    dataAdapter2.add("測量項目_血糖");  
    dataAdapter2.add("測量項目_白血球");  
    dataAdapter2.add("測量項目_紅血球");  
    dataAdapter2.add("測量項目_血色素");  
    dataAdapter2.add("測量項目_血比容");  
    dataAdapter2.add("測量項目_平均血球容積");  
    dataAdapter2.add("測量項目_平均紅血球血紅素量");  
    dataAdapter2.add("測量項目_平均紅血球血紅素濃度");  
    dataAdapter2.add("測量項目_紅血球分布寬度");  
    dataAdapter2.add("測量項目_血小板");  
    dataAdapter2.add("測量項目_單核球");  
    dataAdapter2.add("測量項目_淋巴球");  
    dataAdapter2.add("測量項目_嗜中性白血球");  
    dataAdapter2.add("測量項目_嗜酸性白血球");  
    dataAdapter2.add("測量項目_嗜鹼性白血球");  
    dataAdapter2.add("測量項目_血液尿素氮");  
    dataAdapter2.add("測量項目_肌酸酐");  
    dataAdapter2.add("測量項目_鈣");  
    dataAdapter2.add("測量項目_磷");  
    dataAdapter2.add("測量項目_鈉");  
    dataAdapter2.add("測量項目_鉀");  
    dataAdapter2.add("測量項目_總蛋白量");  
    dataAdapter2.add("測量項目_白蛋白");  
    dataAdapter2.add("測量項目_球蛋白");  
    dataAdapter2.add("測量項目_鹼性磷酸酵素");  
    spinner.setAdapter(dataAdapter2);  
}
```

對照投影片25建立mDataName

```
private void SetSpinnerEntries3(Spinner spinner) {  
    ArrayAdapter<String> dataAdapter2 = new ArrayAdapter<>(this, android.R.layout.simple_spinner_item, new ArrayList<String>());  
    dataAdapter2.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);  
    dataAdapter2.add("m_a1");  
    dataAdapter2.add("m_a2");  
    dataAdapter2.add("m_a3");  
    dataAdapter2.add("f_a1");  
    dataAdapter2.add("f_a2");  
    dataAdapter2.add("f_a3");  
    spinner.setAdapter(dataAdapter2);  
}
```

取得ACCESS_CROSS_LOCATION權限

```
private void GetPermission() {
    // check if required permissions are granted
    if (ContextCompat.checkSelfPermission(MainActivity.this, Manifest.permission.ACCESS_COARSE_LOCATION) != PackageManager.PERMISSION_GRANTED) {
        // ActivityCompat.shouldShowRequestPermissionRationale will return true if the user rejects permissions at the first time
        if (ActivityCompat.shouldShowRequestPermissionRationale(MainActivity.this, Manifest.permission.ACCESS_COARSE_LOCATION)) {
            // tell user why the permissions are required
            new AlertDialog.Builder(MainActivity.this)
                .setMessage("This app requires Bluetooth to function well. Please grant 'access location' permission for Bluetooth.")
                .setTitle(Html.fromHtml("<b>" + "Permission Settings" + "</b>")).setPositiveButton("OK", (dialog, which) -> {
                    // send request
                    ActivityCompat.requestPermissions(MainActivity.this, new String[]{Manifest.permission.ACCESS_COARSE_LOCATION}, REQUEST_PERMISSIONS);
                }).setNegativeButton("No", new DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialog, int which) {
                    }
                }).show();
        } else {
            // send request
            ActivityCompat.requestPermissions(MainActivity.this, new String[]{Manifest.permission.ACCESS_COARSE_LOCATION}, REQUEST_PERMISSIONS);
        }
    }
}
```

初始化mNSP32並設定其為待機模式

```
// do some initialization when a new data channel session is connected
private void OnDataChannelConnected() {
    // reset status
    mWavelength = null;
    // create a new NSP32 instance
    mNSP32 = new NSP32(mDataChannel, mReturnPacketReceivedListener);
    mNSP32.GetSensorId((byte) 0);
    mNSP32.GetWavelength((byte) 0);
    mNSP32.Standby((byte) 0);
}
```

設定光譜

```
private void AcqSpectrum() {  
    int integrationTime = 32;  
    int frameAvgNum = Integer.parseInt(mSpinnerFrameAvgNum.getSelectedItem().toString());  
    acqng = true;  
    mNSP32.AcqSpectrum((byte) 0, integrationTime, frameAvgNum, false);  
}
```

```
public void AcqSpectrum(byte var1, int var2, int var3, boolean var4) {  
    this.m_cmdBuf[4] = (byte)(var2 & 255);  
    this.m_cmdBuf[5] = (byte)(var2 >> 8 & 255);  
    this.m_cmdBuf[6] = (byte)var3;  
    this.m_cmdBuf[7] = (byte)(var4 ? 1 : 0);  
    this.m_cmdBuf[8] = 1;  
    this.QueueCmd(CmdCodeEnum.AcqSpectrum, var1);  
}
```

定義接口

```
// send data (commands) to NSP32 through BLE
private final DataChannel mDataChannel = new DataChannel() {
    public void SendData(byte[] data) {
        try {
            if (mService != null && mService.isConnected()) {
                mService.sendCommand(data);
            }
        } catch (Exception excp) {
        }
    }
};
```

定義圖表接收光譜資料

```
private final BroadcastReceiver UARTStatusChangeReceiver = new BroadcastReceiver() {
    public void onReceive(Context context, Intent intent) {
        String action = intent.getAction();
        if (action.equals(com.example.specsdc.SpectrumTransferService.ACTION_GATT_CONNECTED)) {
            runOnUiThread(new Runnable() {
                public void run() {
                    mBtnStart.setEnabled(true);
                    mbtn_Light.setEnabled(true);
                    mbtn_Ble2.setText("Disconnect");});}
        if (action.equals(com.example.specsdc.SpectrumTransferService.ACTION_GATT_DISCONNECTED)) {
            runOnUiThread() -> {
                mBtnStart.setEnabled(false);
                mbtn_Light.setEnabled(false);
                mbtn_Ble2.setText("scandevic");
                Toast.makeText(MainActivity.this, "錯誤操作", Toast.LENGTH_LONG).show();});}
        if (action.equals(com.example.specsdc.SpectrumTransferService.ACTION_GATT_SERVICES_DISCOVERED)) {
            mService.enableTXNotification();}
        if (action.equals(com.example.specsdc.SpectrumTransferService.ACTION_TX_NOTIFICATION_SET)) {
            runOnUiThread() -> onDataChannelConnected();}
        if (action.equals(com.example.specsdc.SpectrumTransferService.ACTION_DATA_AVAILABLE)) {
            byte[] data = intent.getByteArrayExtra(com.example.specsdc.SpectrumTransferService.EXTRA_DATA);
            if (java.util.Arrays.equals(DISCONNECT_CMD_STR.getBytes(), data)) {
                // if this is a disconnect admit from BLE peripheral, then disconnect
                mService.disconnect();
            } else {
                try {
                    // feed the received data to NSP32 API
                    mNSP32.OnReturnBytesReceived(data);} catch (Exception excp) {}
            }
        }
        if (action.equals(com.example.specsdc.SpectrumTransferService.DEVICE_DOES_NOT_SUPPORT_SPECTRUM_TRANSFER)) {mService.disconnect();}
```


初始化服務

```
private void ServiceInit() {  
    Intent bindIntent = new Intent(this, com.example.specsdc.SpectrumTransferService.class);  
    bindService(bindIntent, mServiceConnection, Context.BIND_AUTO_CREATE);  
    LocalBroadcastManager.getInstance(this).registerReceiver(UARTStatusChangeReceiver, makeGattUpdateIntentFilter());  
}
```

建立藍芽連接事件

```
private static IntentFilter makeGattUpdateIntentFilter() {  
    final IntentFilter intentFilter = new IntentFilter();  
    intentFilter.addAction(com.example.specsdc.SpectrumTransferService.ACTION_GATT_CONNECTED);  
    intentFilter.addAction(com.example.specsdc.SpectrumTransferService.ACTION_GATT_DISCONNECTED);  
    intentFilter.addAction(com.example.specsdc.SpectrumTransferService.ACTION_GATT_SERVICES_DISCOVERED);  
    intentFilter.addAction(com.example.specsdc.SpectrumTransferService.ACTION_TX_NOTIFICATION_SET);  
    intentFilter.addAction(com.example.specsdc.SpectrumTransferService.ACTION_DATA_AVAILABLE);  
    intentFilter.addAction(com.example.specsdc.SpectrumTransferService.DEVICE_DOES_NOT_SUPPORT_SPECTRUM_TRANSFER);  
    return intentFilter;  
}
```

關閉服務

```
@Override
public void onDestroy() {
    super.onDestroy();
    try {LocalBroadcastManager.getInstance(this).unregisterReceiver(UARTStatusChangeReceiver);}
    catch (Exception ignore) {}
    unbindService(mServiceConnection);
    mService.stopSelf();
    mService = null;
}
```

重新連線

```
@Override
public void onResume() {
    super.onResume();
    if (!mBtAdapter.isEnabled()) {
        Intent enableIntent = new Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);
        startActivityForResult(enableIntent, requestEnableBT);}
}
```

顯示所有可連接藍芽

顯示藍芽連線結果並顯示相應信息

```
@Override
public void onActivityResult(int requestCode, int resultCode, Intent data) {
    super.onActivityResult(requestCode, resultCode, data);
    switch (requestCode) {
        case requestSelectDevice:
            //When the DeviceListActivity return, with the selected device address
            if (resultCode == Activity.RESULT_OK && data != null) {
                String deviceAddress = data.getStringExtra(BluetoothDevice.EXTRA_DEVICE);
                mService.connect(deviceAddress);}
            break;
        case requestEnalbeBT:
            // When the request to enable Bluetooth returns
            if (resultCode == Activity.RESULT_OK) {
                Toast.makeText(this, "Bluetooth has turned on ", Toast.LENGTH_SHORT).show();} else {
                // User did not enable Bluetooth or an error occurred
                Toast.makeText(this, "Problem in BT Turning ON ", Toast.LENGTH_SHORT).show();
                finish();}
            break;
        default:
            break;
    }
}

@Override
public void onBackPressed() {
    finish();
}
```