

App Inventor with LEGO NXT robot

CAVE Education



App Inventor 中文學 習網/檔案庫/3.pdf



時間	Day 2
主題	App Inventor基礎
8:10~8:30	報到
8:40~10:00	按鈕控制
10:15~11:50	語音辨識與機器人控制
中餐午休	
13:00~14:20	翻轉控制
14:35~15:20	使用 GPS 多點觸控
15:30~16:00	腦波控制



範例3：按鈕控制



Non-visible components

BluetoothClient NxtDriveB NxtDriveC NxtDirectCommands SoundBeep



```
when NXTList.BeforePicking
do
  set NXTList.Elements to BluetoothClient.AddressesAndNames
```

```
when Screen1.Initialize
do
  set Disconnect.Enabled to false
```

```
when NXTList.AfterPicking
do
  if test call BluetoothClient.Connect address NXTList.Selection
  then-do
    set NXTList.Enabled to false
    set ButtonForward.Enabled to true
    set ButtonBack.Enabled to true
    set ButtonLeft.Enabled to true
    set ButtonRight.Enabled to true
    set Disconnect.Enabled to true
    set ButtonStop.Enabled to true
    set ButtonBeep.Enabled to true
```

```
when Disconnect.Click
do
  call BluetoothClient.Disconnect
  set NXTList.Enabled to true
  set ButtonForward.Enabled to false
  set ButtonBack.Enabled to false
  set ButtonLeft.Enabled to false
  set ButtonRight.Enabled to false
  set Disconnect.Enabled to false
  set ButtonStop.Enabled to false
  set ButtonBeep.Enabled to false
```



```
when ButtonForward.Click
do
  call NxtDriveB.MoveForwardIndefinitely power number 100
  call NxtDriveC.MoveForwardIndefinitely power number 100
```

```
when ButtonBack.Click
do
  call NxtDriveB.MoveBackwardIndefinitely power number 100
  call NxtDriveC.MoveBackwardIndefinitely power number 100
```

```
when ButtonStop.Click
do
  call NxtDriveB.Stop
  call NxtDriveC.Stop
```

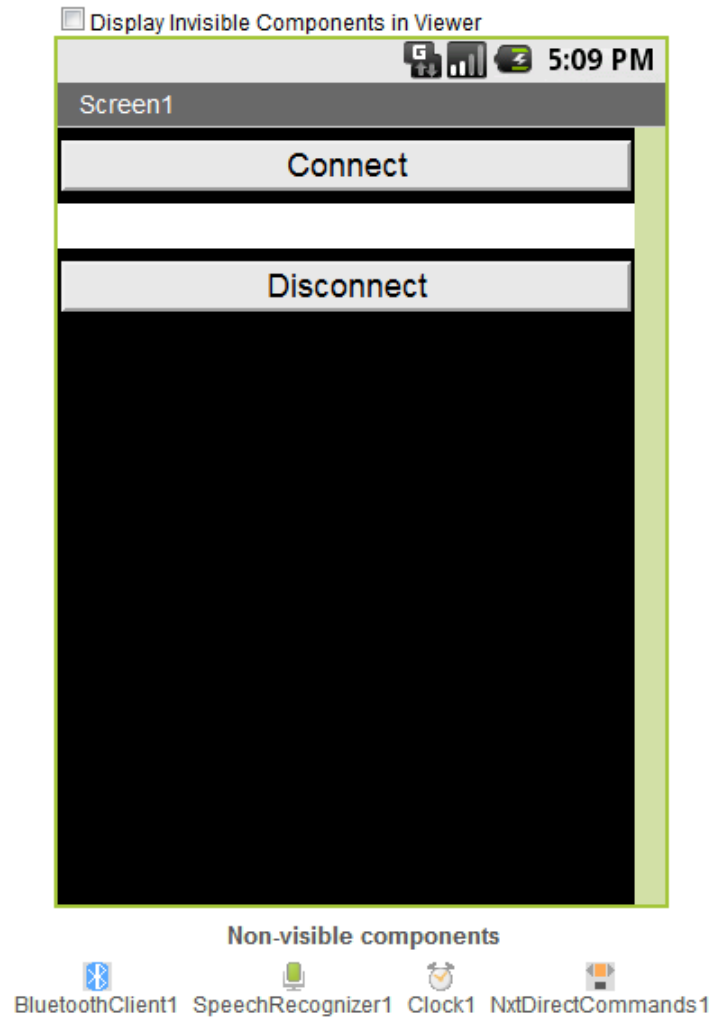
```
when ButtonLeft.Click
do
  call NxtDriveB.MoveForwardIndefinitely power number 100
  call NxtDriveC.MoveForwardIndefinitely power number 50
```

```
when ButtonRight.Click
do
  call NxtDriveB.MoveForwardIndefinitely power number 50
  call NxtDriveC.MoveForwardIndefinitely power number 100
```

```
when ButtonBeep.Click
do
  call NxtDirectCommands.PlayTone frequencyHz number 880
  durationMs number 300
```



範例4：語音辨識與機器人控制



```
when ListPicker 1.BeforePicking
do
  set ListPicker 1.Elements to BluetoothClient 1.AddressesAndNames
```

```
when ListPicker 1.AfterPicking
do
  if test call BluetoothClient 1.Connect address ListPicker 1.Selection
  then-do call SpeechRecognizer 1.GetText
```




```
when SpeechRecognizer 1.AfterGettingText result
do
  set Label1.Text to result
  if test value result = text hello
  then-do
    call NxtDirectCommands 1.PlayTone
      frequencyHz number 440
      durationMs number 500
  call SpeechRecognizer 1.GetText
```

```
when Button 1.Click
do
  call BluetoothClient 1.Disconnect
```

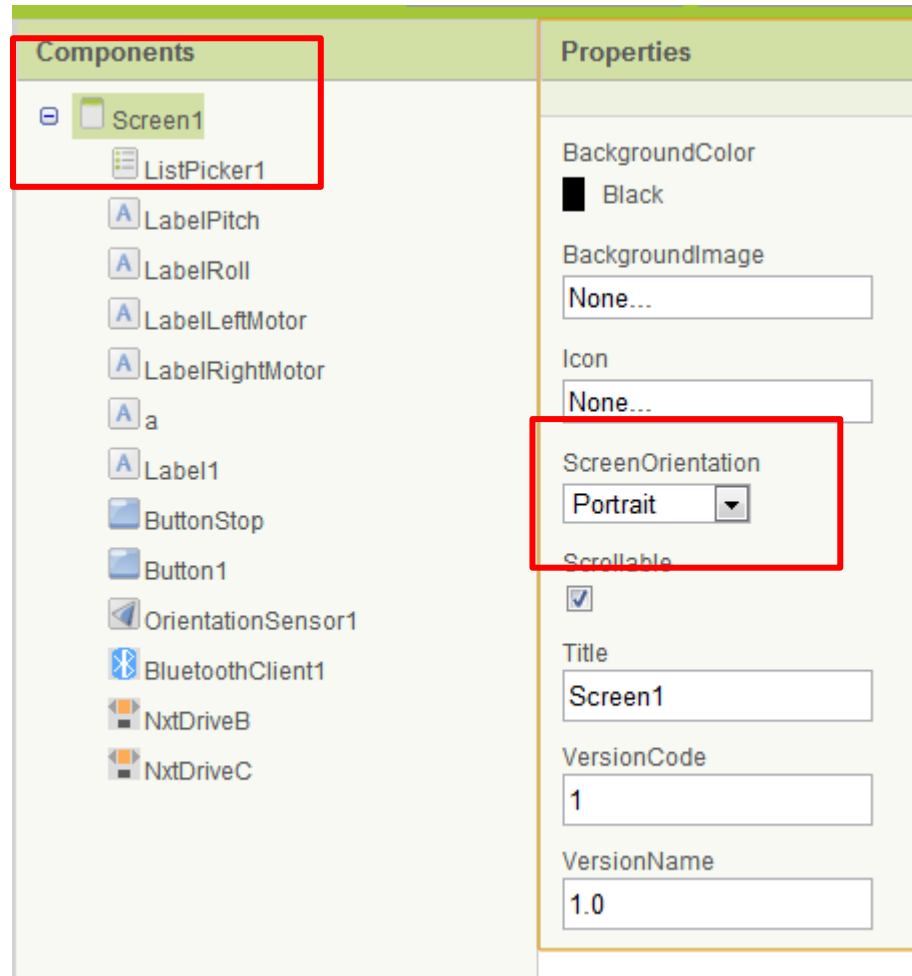


範例5：翻轉控制

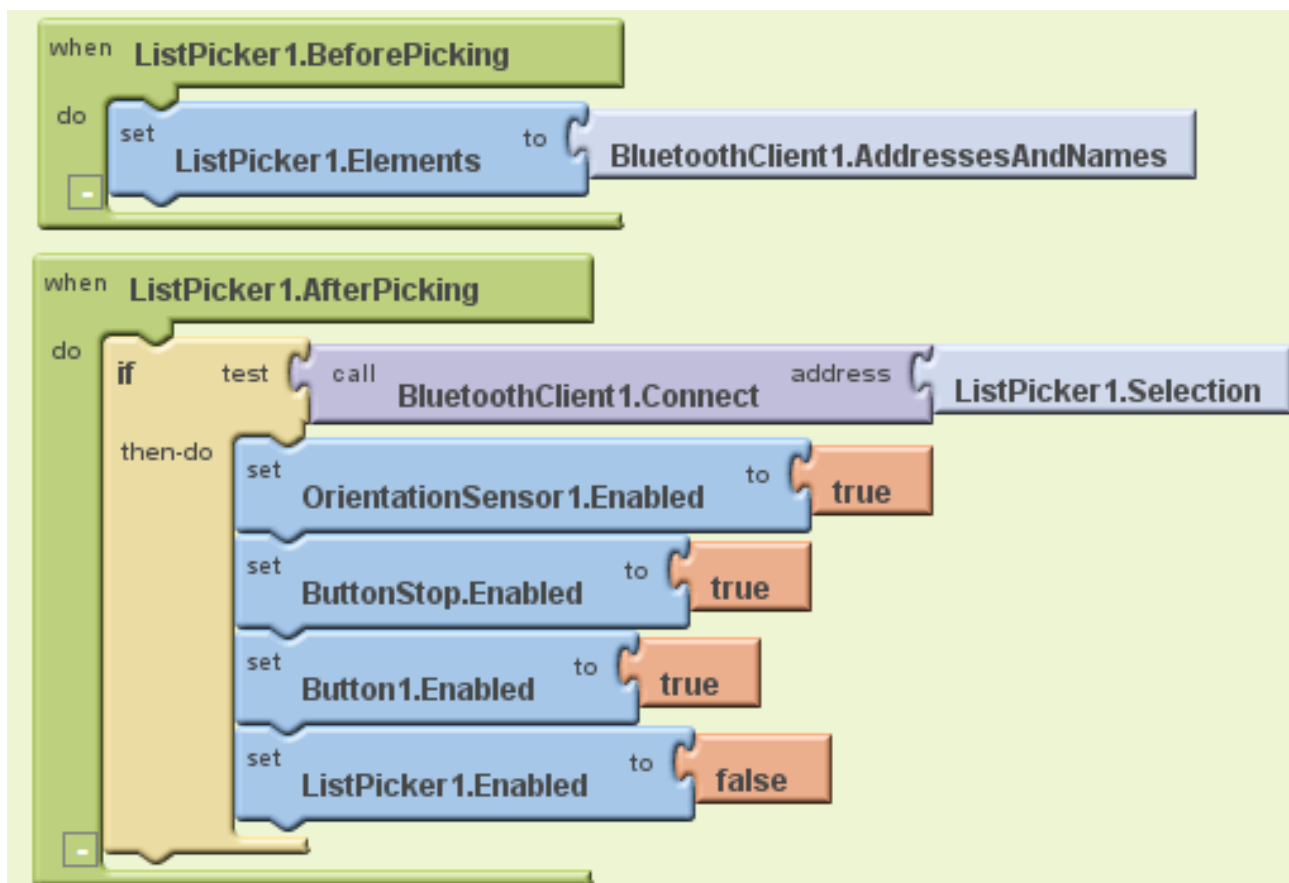
利用手機內的姿態感測器來控制機器人



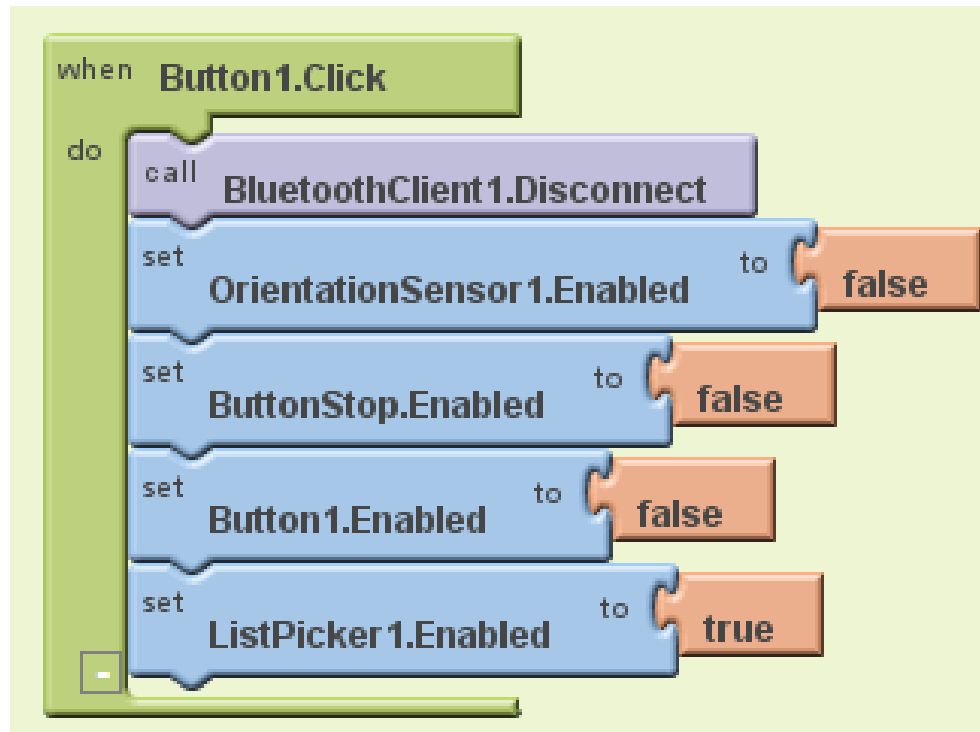
先設定防止畫面自動旋轉

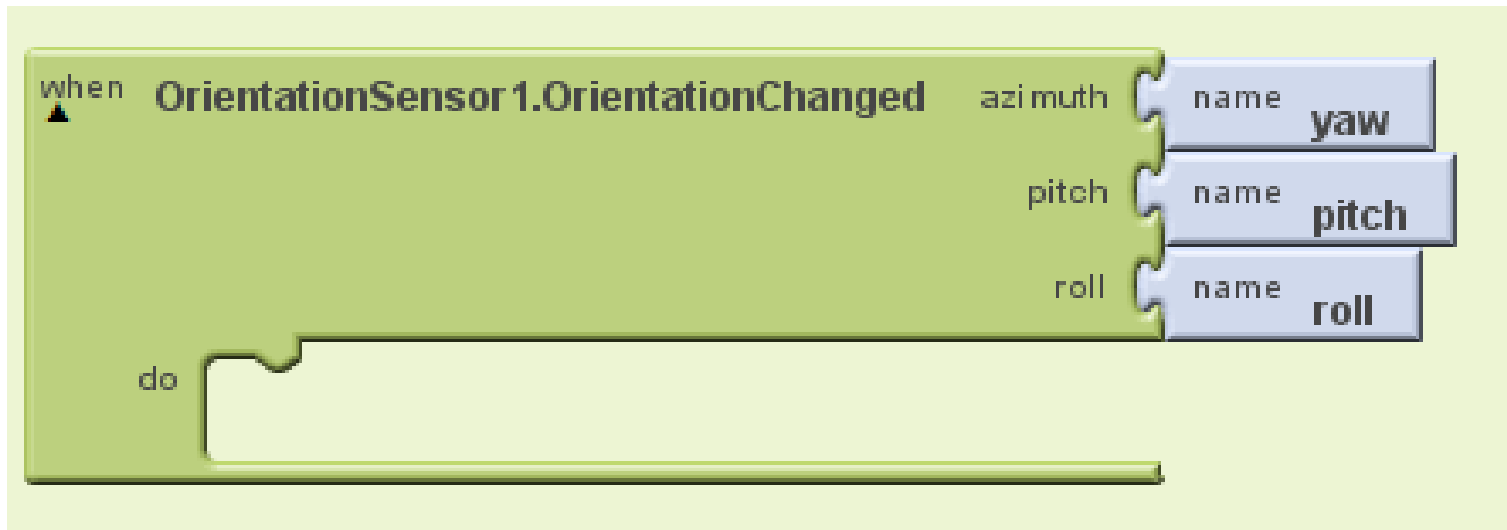


藍牙連線前後的設定(同前)



中斷藍牙連線





範例6：使用GPS

Display Invisible Components in Viewer

Screen1

目前經度:

目前緯度:

台北101經度: 121.0011

台北101緯度: 23.0923

兩者最短距離:

Non-visible components

LocationSensor1



```
def x as number 0
```

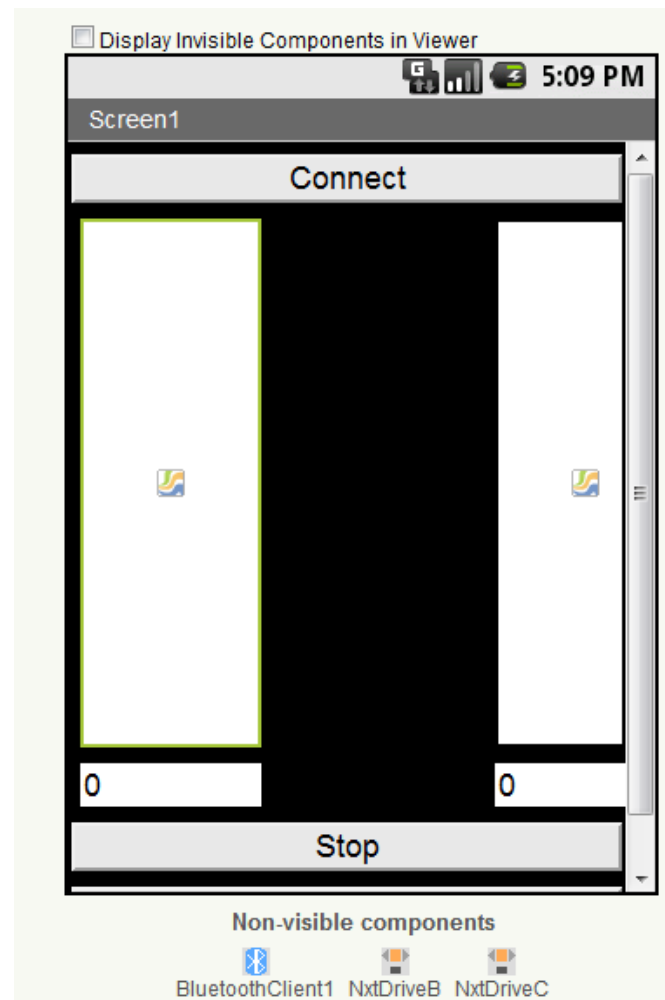
```
def y as number 0
```

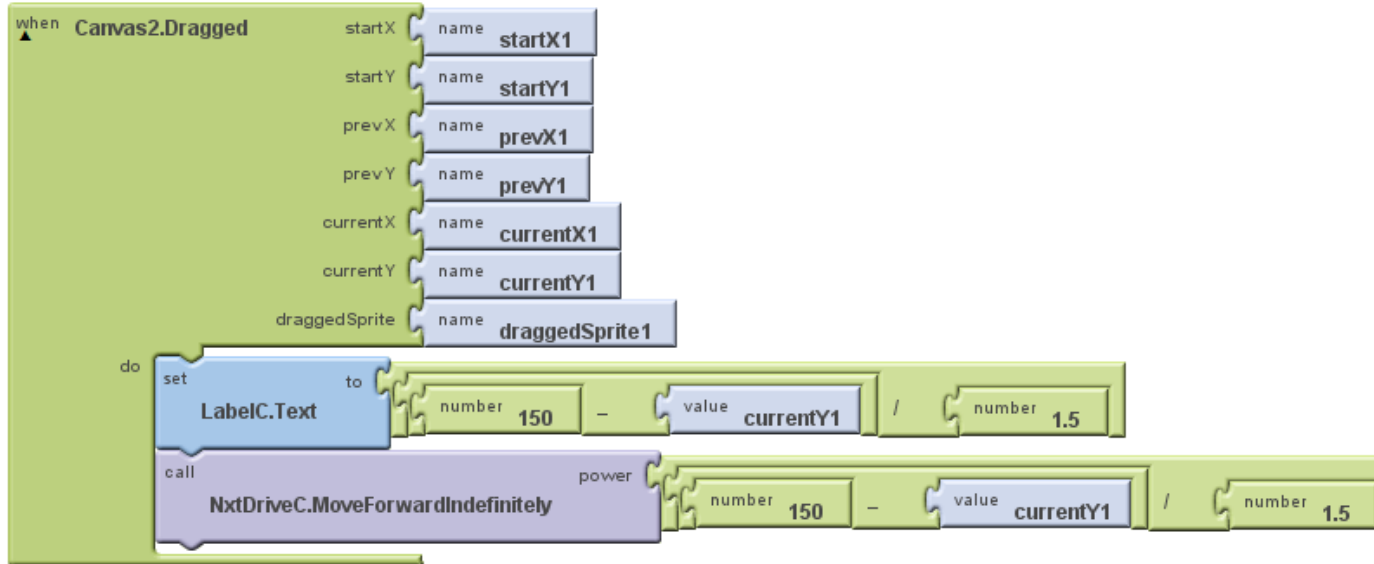
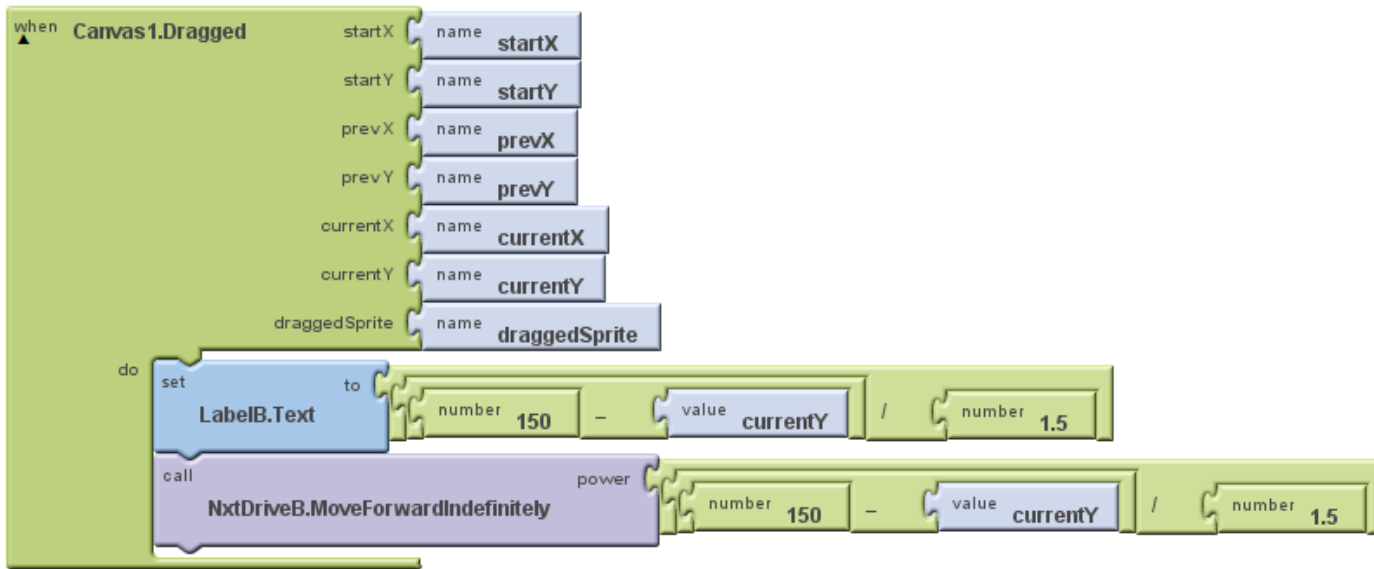
```
def Distance as number 0
```

```
when LocationSensor1.LocationChanged latitude name latitude  
longititude name longitude  
altitude name altitude  
do
```



多點觸控





```
when ListPicker1.BeforePicking
do
  set ListPicker1.Elements to BluetoothClient1.AddressesAndNames
```

```
when ListPicker1.AfterPicking
do
  if test call BluetoothClient1.Connect address ListPicker1.Selection
  then-do
    set ListPicker1.Enabled to false
    set Button1.Enabled to true
    set Button2.Enabled to true
```

```
when Button1.Click
do
  call NxtDriveB.Stop
  call NxtDriveC.Stop
  set LabelB.Text to number 0
  set LabelC.Text to number 0
```

```
when Button2.Click
do
  call BluetoothClient1.Disconnect
  set ListPicker1.Enabled to true
  set Button1.Enabled to false
  set Button2.Enabled to false
```

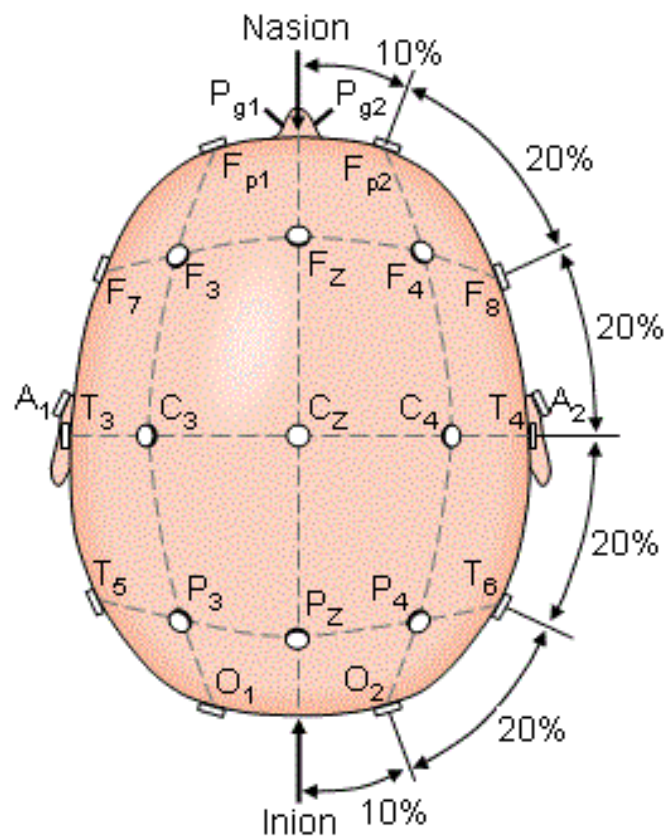
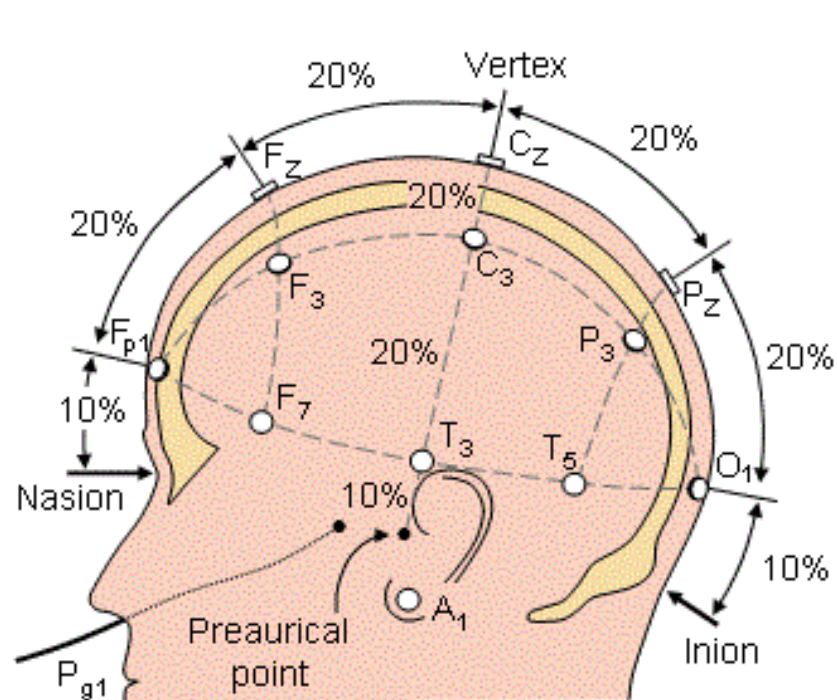


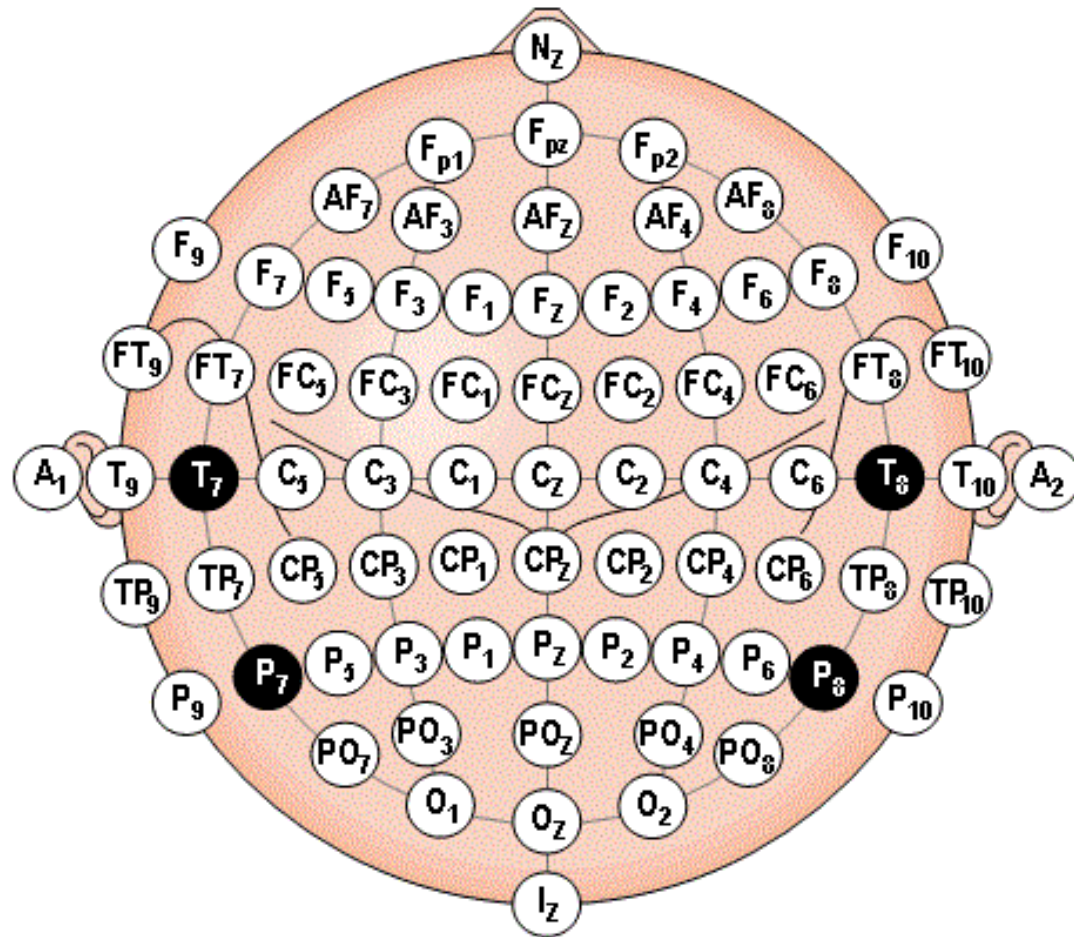
腦機介面之應用 – Emotiv EPOC 與 NXT

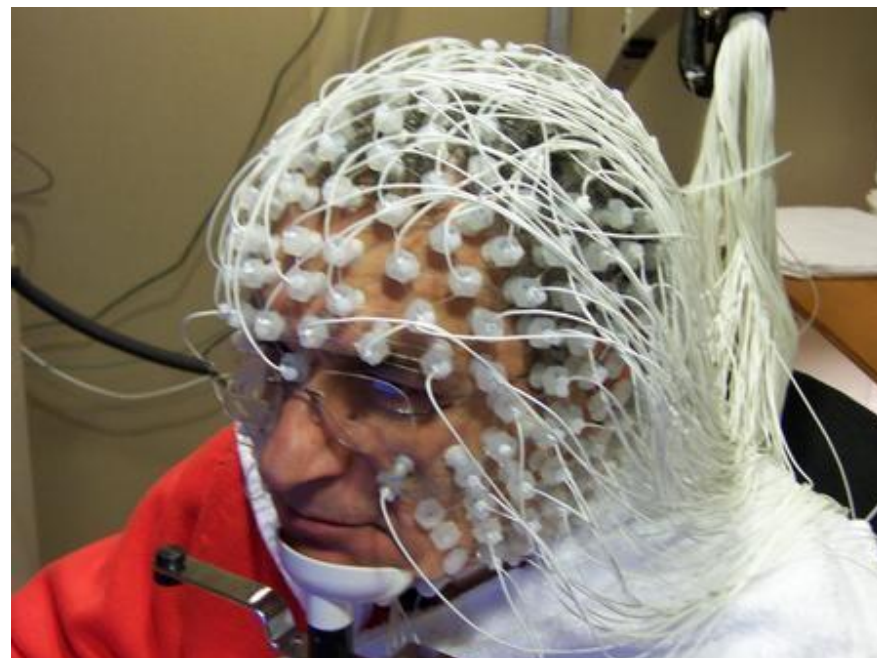


- 認識腦電波 (Electroencephalography)
- Emotiv EPOC
- NXT++
- 實際展示















NXT++

The screenshot shows a web browser window with the URL `nxtpp.clustur.com`. The browser's address bar and tabs are visible at the top. Below the browser window, the website's main content area is displayed. On the left side, there is a navigation menu with links to 'Main Page', 'Community portal', 'Current events', 'Recent changes', 'Random page', and 'Help'. Below the navigation menu is a search box with 'Go' and 'Search' buttons. Further down is a 'toolbox' section with links for 'What links here', 'Related changes', 'Special pages', 'Printable version', and 'Permanent link'. The main content area features a 'Main Page' heading, a large advertisement for Cathay Pacific (國泰航空公司) with the text '獎勵機票 飛快到手' and '我也要機票', and a welcome message: 'Welcome to the NXT++ website. NXT++ is an interface written in C++ that allows the control LEGO MINDSTORMS robots directly through USB or Bluetooth connections. The interface is intended to be simple and easy to use in any C++ program. On this website you will find programs, building instructions, and many other resources related to NXT++ programming. Have fun! NXT++ on SourceForge'. Below the welcome message is a 'Please try out Clustur' link. A grid of six icons with labels provides quick access to 'Download', 'Tutorials', 'Documentation', 'Examples', 'Extra Resources', and 'LEGO Building Instructions'. At the bottom of the main content area, there is a 'ClustrMaps' widget showing a world map with 3,067 visitors from 5 Nov 2010 to 23 Dec 2011.

