

同動車 API 簡易使用說明

一、 登入小電腦

1. 輸入登入密碼：itri
2. 連線到 AP（Access Point）

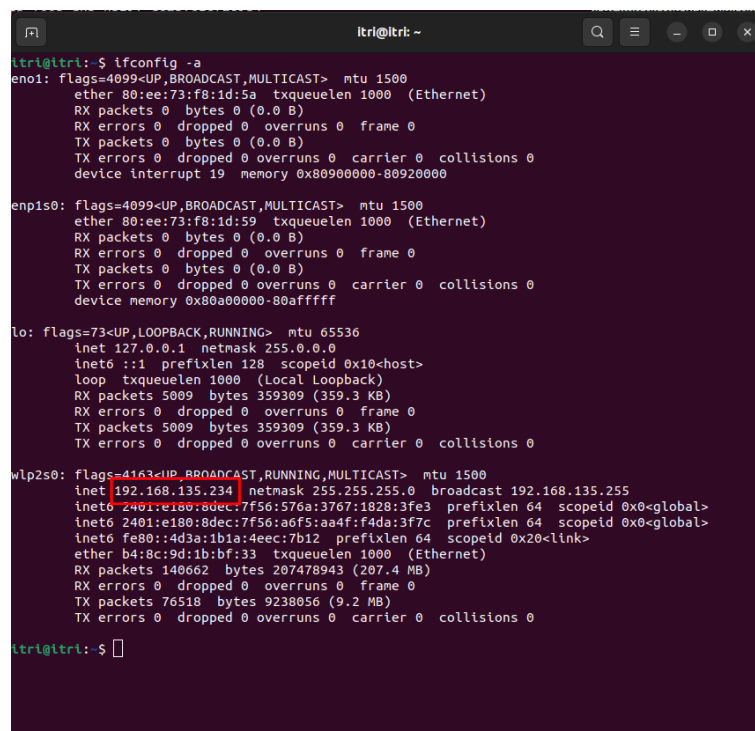
二、 執行 python 程式

1. 開啟 Terminal



2. 取得小電腦的 IP 位址

```
ifconfig -a
```



```
itri@itri: ~$ ifconfig -a
eno1: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 80:ee:73:f8:1d:5a txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 19 memory 0x80900000-80920000

enp1s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 80:ee:73:f8:1d:59 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device memory 0x80a00000-80afffff

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 5009 bytes 359309 (359.3 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 5009 bytes 359309 (359.3 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.135.234 netmask 255.255.255.0 broadcast 192.168.135.255
    inet6 2401:e180:8dec:7f56:576a:3767:1828:3fe3 prefixlen 64 scopeid 0x0<global>
    inet6 2401:e180:8dec:7f56:a6f5:aa4f:f4da:3f7c prefixlen 64 scopeid 0x0<global>
    inet6 fe80::4d3a:1b1a:4eec:7b12 prefixlen 64 scopeid 0x20<link>
    ether b4:8c:9d:1b:bf:33 txqueuelen 1000 (Ethernet)
    RX packets 140662 bytes 207478943 (207.4 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 76518 bytes 9238056 (9.2 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

itri@itri: ~$
```

3. 輸入以下指令以切換至程式目錄

```
cd ~/Downloads/
```

4. 執行手部追蹤程式

```
python3 websocket_hand_tracking_0106.py
```

三、 在筆電上執行網頁測試程式

1. 確認筆電已連線至與小電腦相同的 AP（網路）

2. 使用瀏覽器開啟 artist.html

① 輸入小電腦的 IP 位址

② 點擊「連接」按鈕

③ 連接成功後，狀態燈號會轉為綠色，並顯示「已連接」

④ 系統將即時偵測左手座標，並顯示於畫布中

⑤ 畫面下方會顯示目前偵測到的左手座標值與移動速度

⑥ 系統運作與連線狀態會顯示於 Log 訊息區



四、 API 使用方式（以 Web 為例）

```
function connect() {  
  // 修改這裡為小電腦的 IP 位址  
  const raspberryPiIP = document.getElementById('serverIP').value || '192.168.1.100';  
  const wsUrl = `ws://${raspberryPiIP}:8765`;  
  addLog(`正在連接到 ${wsUrl}...`);  
  
  try {  
    ws = new WebSocket(wsUrl);  
  
    ws.onopen = () => {  
      updateStatus(true, '已連接');  
      addLog('WebSocket 連接成功');  
      document.getElementById('connectBtn').disabled = true;  
      document.getElementById('disconnectBtn').disabled = false;  
    };  
  }  
}
```

透過 WebSocket 與小電腦建立即時連線

```
ws.onmessage = (event) => {  
  const message = JSON.parse(event.data);  
  
  if (message.type === 'connection') {  
    addLog(`模式: ${message.mode}, 解析度: ${message.resolution.width}x${message.resolution.height}`);  
  } else if (message.type === 'tracking_data') {  
    updateData(message.data);  
  }  
};
```

接收手部追蹤資料

```
ws.onerror = (error) => {  
  addLog('WebSocket 錯誤: ' + error);  
  updateStatus(false, '連接錯誤');  
};  
  
ws.onclose = () => {  
  updateStatus(false, '連接已關閉');  
  addLog('WebSocket 連接已關閉');  
  document.getElementById('connectBtn').disabled = false;  
  document.getElementById('disconnectBtn').disabled = true;  
  positions = [];  
  clearCanvas();  
};  
} catch (error) {  
  addLog('連接失敗: ' + error.message);  
  updateStatus(false, '連接失敗');  
}  
}
```

```
function updateData(data) {  
  document.getElementById('xValue').textContent = data.x;  
  document.getElementById('yValue').textContent = data.y;  
  document.getElementById('velocityValue').textContent = data.velocity.toFixed(1);  
  
  // 添加位置到軌跡  
  positions.push({  
    x: data.x / 1920 * canvas.width,  
    y: canvas.height - (data.y / 1080 * canvas.height)  
  });  
  
  if (positions.length > MAX_POSITIONS) {  
    positions.shift();  
  }  
  
  drawTracking();  
}
```

資料內容包含左手的 X、Y 座標及移動速度，可供前端應用或互動設計使用