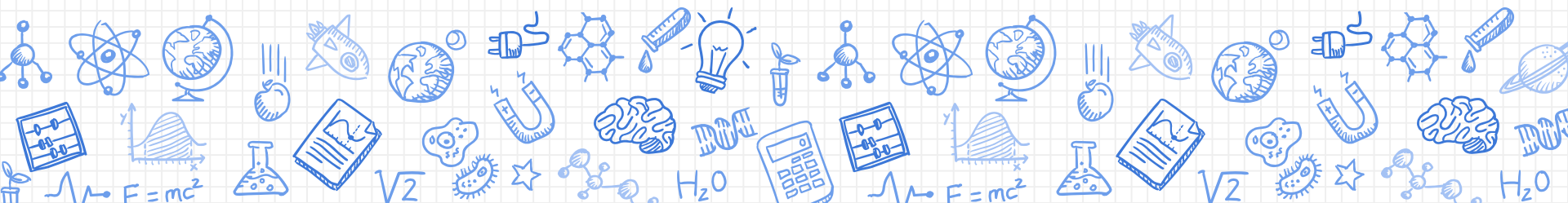


# Raspberry Pi 物聯網 影像監控專案開發實驗



# 物聯網影像監控介紹

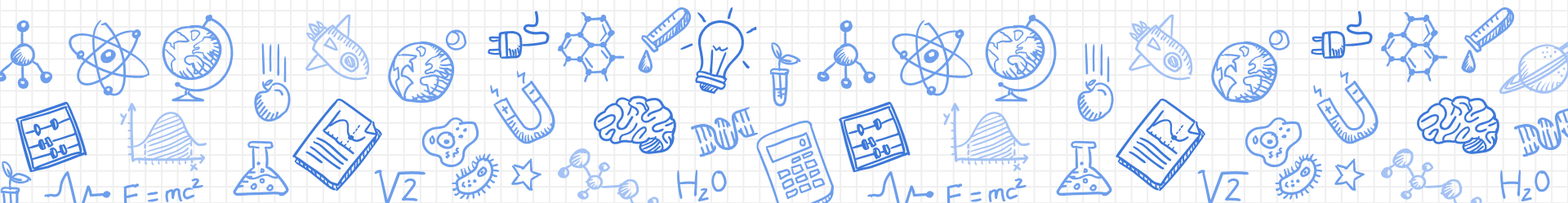
## 樹梅派很會欸





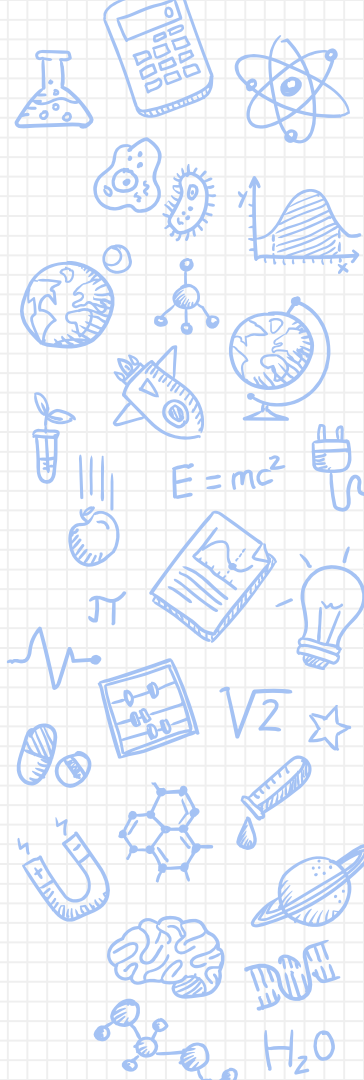
# Raspberry Pi 網路攝影串流

# 樹梅派看得見



# Raspberry Pi 網路攝影機串流

- Motion
- VLC
- OpenCV





# Motion 串流 (2)

- 更改 motion 設定檔

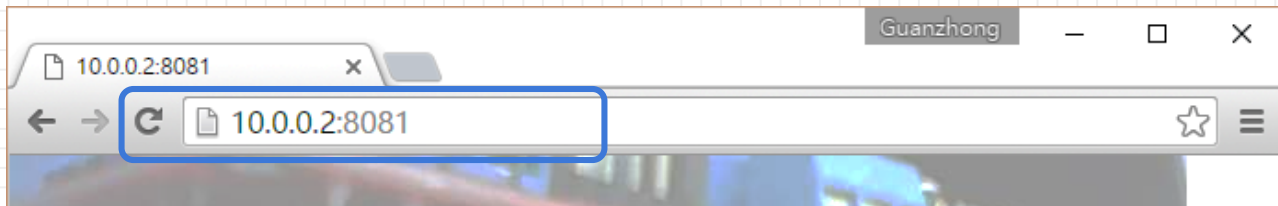
```
sudo nano /etc/motion/motion.conf
```

## motion.conf – Raspberry Pi

Daemon on	# 常駐
Logfile /tmp/motion.log	# 錯誤記錄 (拿掉前方註解)
Width 640	# 長 640
Height 480	# 寬 480
framerate 30	# 放寬擷取畫格數限制
output_picture off	# 停用動作偵測拍照
ffmpeg_output_movies off	# 停用動作偵測錄影
stream_maxrate 30	# 放寬串流畫格數限制
stream_localhost off	# 停用只串流影像到 Raspberry Pi 本身



- (假設燒錄本課程的映像檔，且照著連線步驟設定)



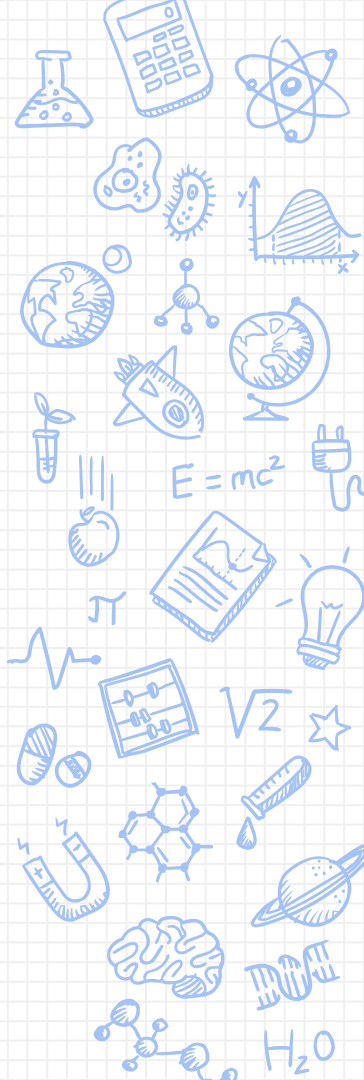


-

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# Raspberry Pi 網路攝影機串流

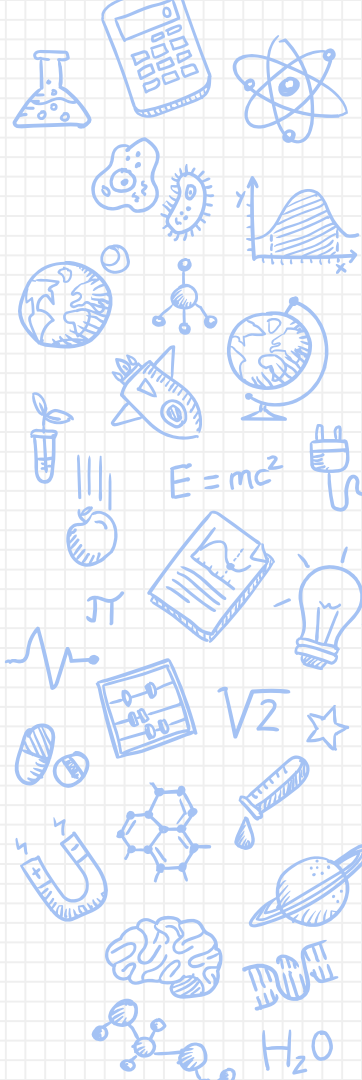
- Motion
- VLC
- OpenCV



# OpenCV 串流 (1)

## streaming.py – Python

```
0 import cv2
1
2 camera = cv2.VideoCapture(0)
3 camera.set(3, 320)          # width (max for c170: 640)
4 camera.set(4, 240)          # height (max for c170: 480)
5
6 while True:
7     # 擷取畫格
8     grabbed, frame = camera.read()
9
10    # 你可以在此做影像處理
11
12    # 顯示在視窗上
13    cv2.imshow('Webcam Streaming', frame)
14    if cv2.waitKey(1) & 0xFF == ord('q'):
15        break
16
17 camera.release()
18 cv2.destroyAllWindows()
```



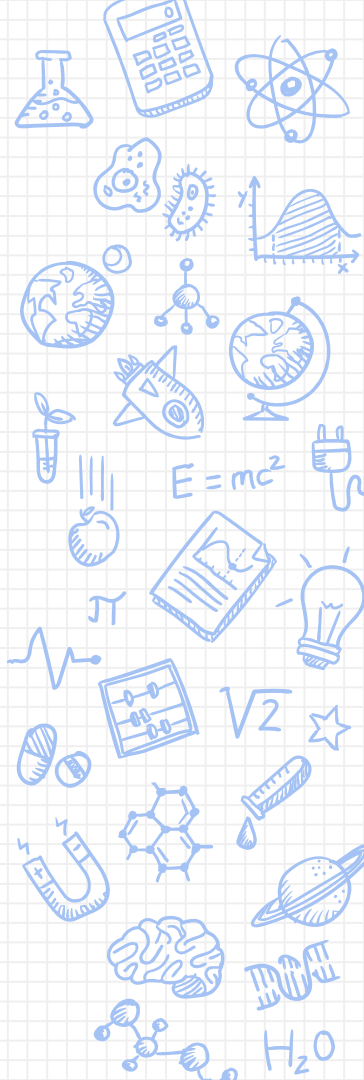
- 執行 Python 程式  
python streaming.py



# 錄影

## record\_video.py - Python

```
0  import cv2
1
2  camera = cv2.VideoCapture(0)
3
4  # Define the codec and create VideoWriter object
5  fourcc = cv2.cv.CV_FOURCC(*'XVID')
6  out = cv2.VideoWriter('output.avi',fourcc, 20.0, (640,480))
7
8  while(camera.isOpened()):
9      ret, frame = camera.read()
10     if ret == True:
11         # write the frame
12         out.write(frame)
13         cv2.imshow('Record Video',frame)
14         if cv2.waitKey(1) & 0xFF == ord('q'):
15             break
16     else:
17         break
18
19 camera.release()
21 out.release()
22 cv2.destroyAllWindows()
```



## play\_video.py – Python

```
0 import cv2
1
2 video = cv2.VideoCapture('output.avi')
3
4 while video.isOpened():
5     ret, frame = video.read()
6
7     if ret == False:
8         break
9
10    cv2.imshow('Play Video', frame)
11    if cv2.waitKey(1) & 0xFF == ord('q'):
12        break
13
14 cap.release()
15 cv2.destroyAllWindows()
```

- 錄影
- 用 OpenCV 播放影片





# Manifest檔

- 描述該應用有哪些元件
- 設定權限機制

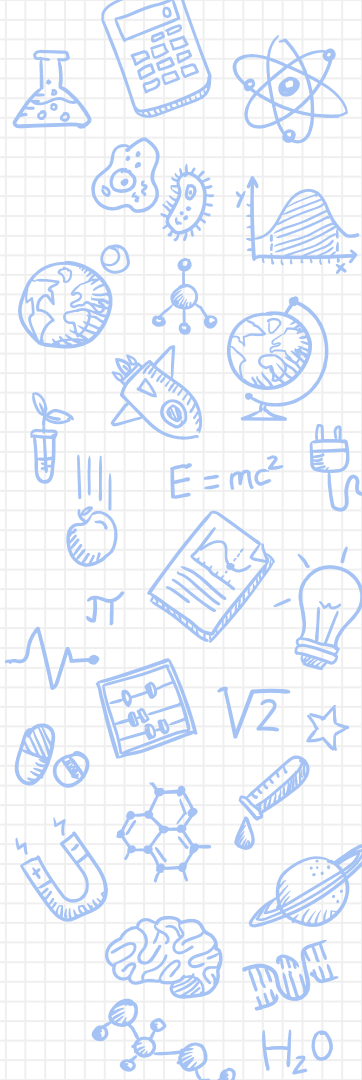


```
package="com.example.denny.myapplication">
```

```
<uses-permission android:name="android.permission.INTERNET"/>
```

```
<uses-permission android:name="android.permission.VIBRATE" />
```

```
<application
```



- 提供一個畫面的所有相關工作
- Event Handler
- 一個畫面會有一個Activity與畫面配置檔

- 畫面配置檔
- 定義item
- 定義畫面layout, border, margin等等