## 相關資源

• DAC WiFi: SSID / Password

- 今日線上共筆: https://reurl.cc/gadrz7
- 工作坊投影片: https://reurl.cc/9RIWAx
- GitHub: https://reurl.cc/Mye20n

# RPi-Video-Sync-Looper

開源錄像同步循環播放系統

# 活動守則

請尊重所有人 Respect all people

## 工作坊活動守則

- 參與者應共同致力於提供一個友善且無騷擾的環境給每一位參與者,無論其性別、性傾向、年紀、身心理狀態、外貌、族群、信仰、政治立場或技術偏好。
- 在活動中使用含有影射性、暴力、與歧視的言語及意象, 皆是不恰當的。在進行討論時的笑話、現場閒聊等行為, 都應以尊重與禮貌為原則。如果您不確定某種行為或表達 方式會不會冒犯他人,別瞎猜,先找個朋友問問看吧。

## 工作坊活動守則

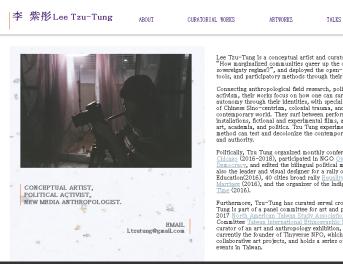
- 請善意推斷其它參與者也願意共同營造友善且無騷擾的環境,且樂於接受指教。若您覺得受到冒犯,或見到某種不尊重他人的行為,我們鼓勵您向對方明確指出這樣的感受,並主動勸告及制止其騷擾或不恰當的行為。主辦單位亦有權驅離違反守則者。
- 如果您被他人提醒自己的行為有不當之處(或者您自己發現了),還請記得停止不當行為,並向對方鄭重道歉。大家都會犯錯,有時即使無心也可能不慎傷人。只要能重新檢視行為並避免下次再錯,我們就能有更友善的環境。

# 

為什麼有這個專案

### 國美館〈2022國際科技藝術大展〉





Lee Tzu-Tung is a conceptual artist and curator from Taiwan. They ask "How marginalized communities queer up the current ownership and sovereignty regime?", and deployed the open-source spirit, decentralized tools, and participatory methods through their projects.

CONTACT

Connecting anthropological field research, political concern, and economic activism, their works focus on how one can survive, manipulate, and regain autonomy through their identities, with special attention on the hegemony of Chinese Sino-centrism, colonial trauma, and Indigeneity in Taiwan's contemporary world. They surf between performances, web art, installations, fictional and experimental films, and play along the borders of art, academia, and politics. Tzu Tung experiments with how art as a method can test and decolonize the contemporary form of art, technology,

Politically, Tzu Tung organized monthly conferences Cafe Philo Chicago (2016-2018), participated in NGO Overseas Talwanese fo Democracy, and edited the bilingual political magazine NewBloom. They are also the leader and visual designer for a rally of 200 people Anti-Black Box Education(2016), 40 cities broad rally Equality of Same-Sex Marriage (2016), and the organizer of the Indigenous protest Passage of

Furthermore, Tzu-Tung has curated serval cross-disciplinary events, Tzu-Tung is part of a panel committee for art and political roundtable in the 2017 North American Taiwan Study Association, served as the Jury Committee Taiwan International Ethnographic Film Festival, and the curator of an art and anthropology exhibition, Sensefield. Tzu Tung is currently the founder of Tinyverse NPO, which facilitates transdisciplinary, collaborative art projects, and holds a series of Hackathon for Artists

https://www.tzutung.com/

### 李紫彤 LEE Tzu-Tung 《#迎靈者(#Ghostkeepers)》參與式藝術計畫





國美館2022國際科技藝術大展「科技斡旋•亞洲觀點」

## 館方用的設備



BrightSign Expanded I/O Player (XT1144) \$609.00 USD

#### 《酷共生》北師美術館 2023



### 李紫彤 LEE Tzu-Tung 《#迎靈者(#Ghostkeepers)》參與式藝術計畫

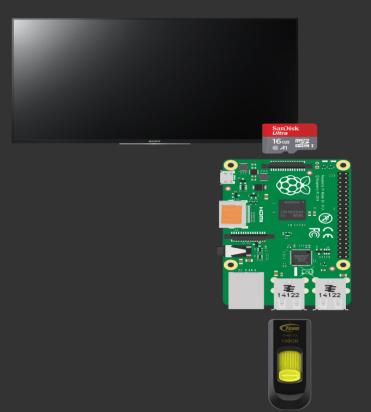


李紫彤,〈#迎靈者〉,北師美術館提供,攝影|黃暐程

# UHAT

RPi-video-sync-looper 展示

## Demo1 單影片循環撥放



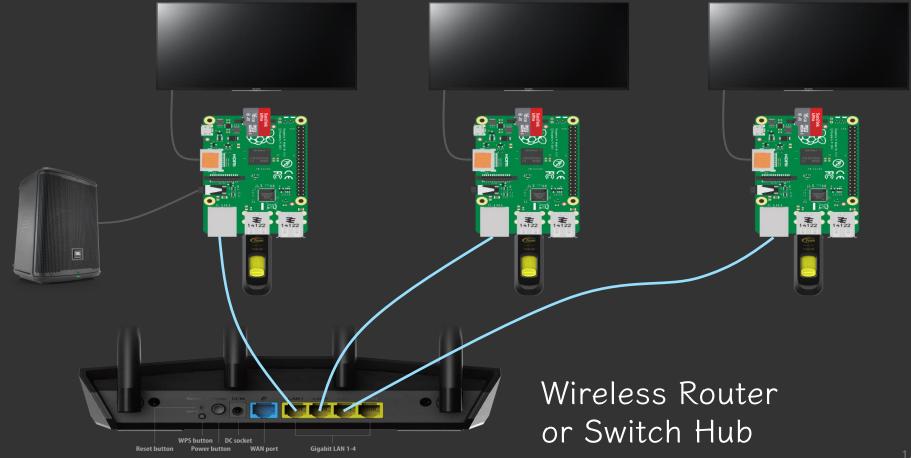
TV Monitor: <u>Reso</u>lution ≥ 1080p

16~32GB SD card with Rasbian Buster + RPi-Video-Sync-Looper Package

Raspberry Pi 3B+ / 4B, 3B, 2B, Zero Power: 5v2A~3A

USB Flash Drive containing H264 video file Format: exFAT

## Demo2 多螢幕影片同步播放



# HOU

如何建構此系統











## 作業系統 Raspbian



https://en.wikipedia.org/wiki/Raspberry\_Pi\_OS



https://zh.wikipedia.org/zh-tw/Debian



"Buster" (Toy Story)



#### Install rasbian-buster-videosync image



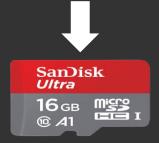
2021-05-07-raspios-buster-armhf-lite.zip

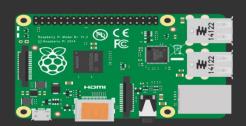


"rpi-video-sync-looper" package



rasbian-buster-videosync.img.gz





#### SD Card

- \* 16~32GB
- \* with Rasbian Buster + RPi-Video-Sync-Looper Package



rasbian-buster-videosync.img.gz (from: https://github.com/andrewintw/rpi-video-sync-looper)



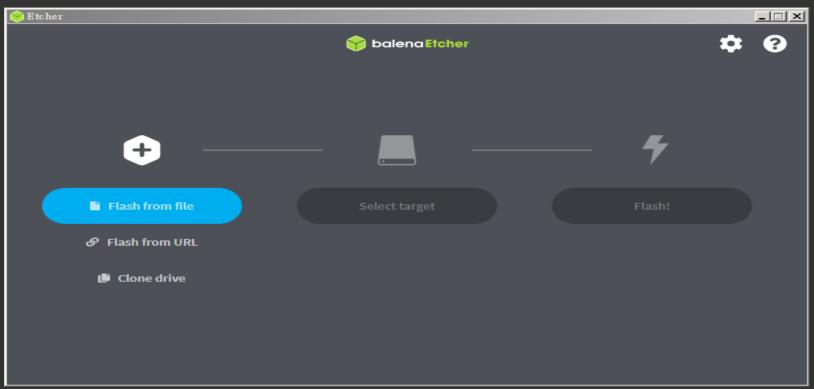




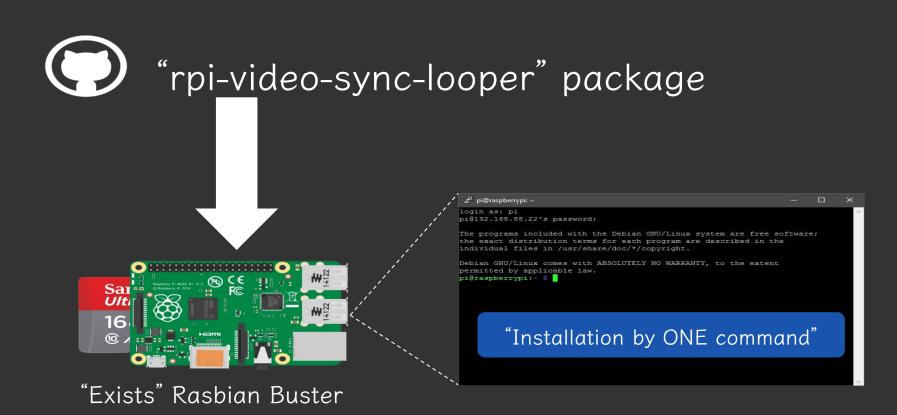
balenaEtcher - Flash OS images to SD cards



#### balenaEtcher - Flash OS images to SD cards



#### "Manual" install rpi-video-sync-looper package



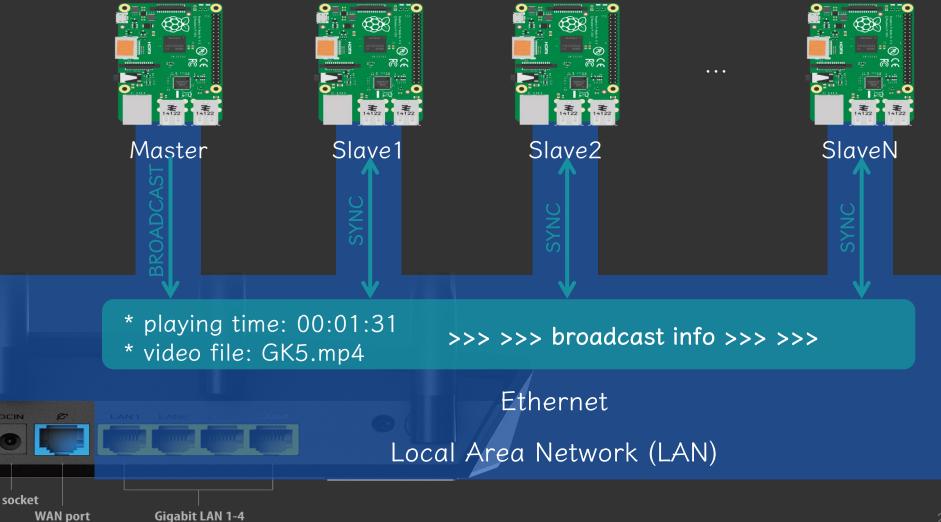


### USB flash drive

	□ ~ View	Disk Utility		+   - Volume		Partition			
4	Erase Erasing can't un  Name: Format		APFS APFS (Encrypted) APFS (Case-sensitive) APFS (Case-sensitive, Encrypted)  Mac OS Extended (Journaled) Mac OS Extended (Case-sensitive, Journaled)  MS-DOS (FAT)  EXFAT  Cancel Erase					ou .	
	Cap	pacity:	_	_	2 TB O	wners:	-	Externa	al Phy
	Ava	ilable:		1.9	7 TB C	onnection:			

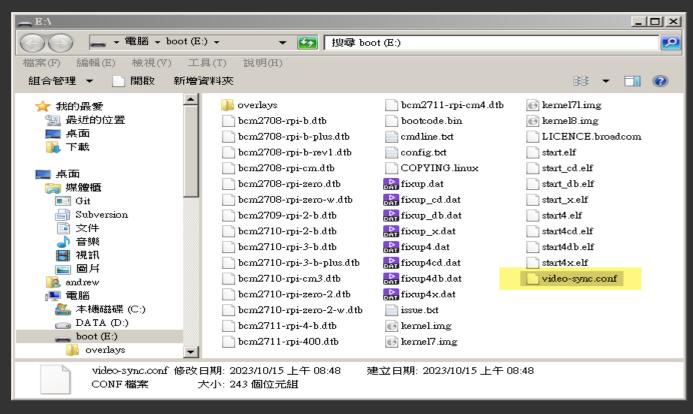
Format USB flash drive to exFAT





## Configuration: video-sync.conf

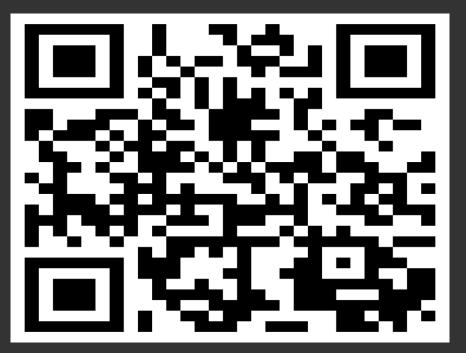




### Configuration: video-sync.conf

```
video.player=omxplayer
video.player.mode='sync loop'
video.player.role='master' # <= 改這行 { master, slave }
video.player.loop='1'
video.player.verbose='0'
video.player.audiodev='both'
video.player.filepath='/media/USB'
video.player.ifname='eth0'
video.player.rundemo='0'
```

## Git repository

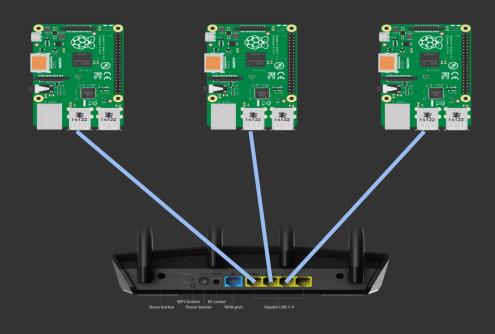


https://github.com/andrewintw/rpi-video-sync-looper

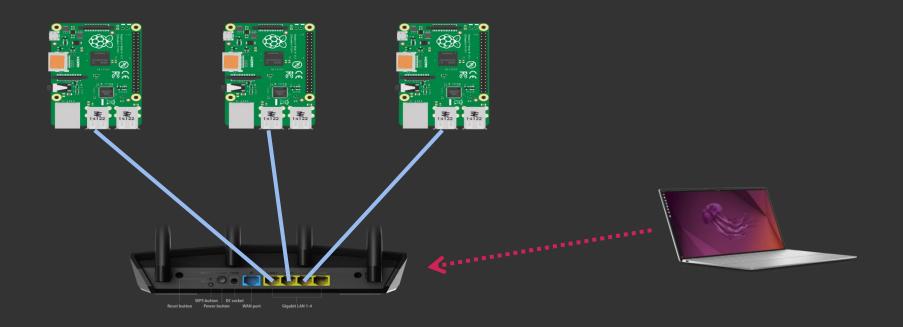
# UHERE

展場佈置建議

## 同步播放系統使用「有線網路」

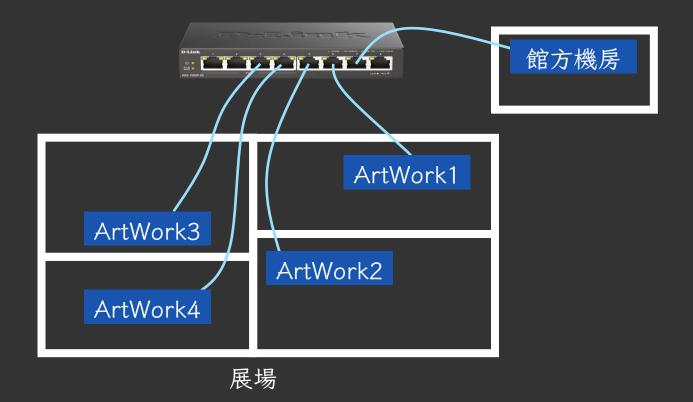


## 監控系統使用「無線網路」



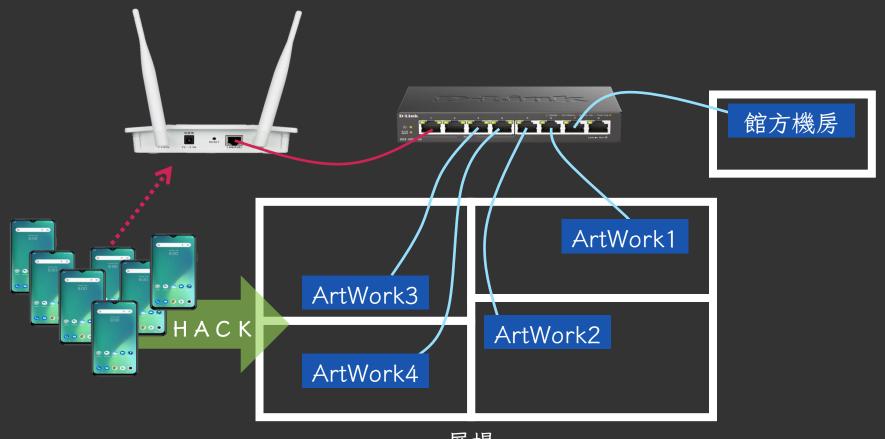


## 1 「隔離」館方的網路系統



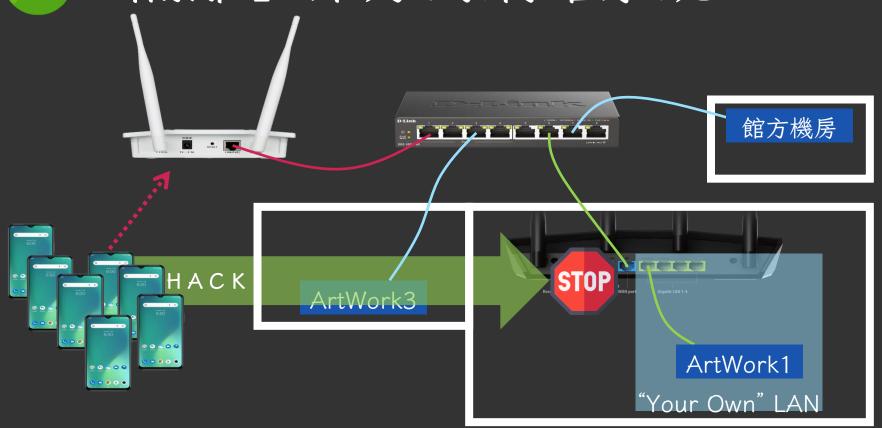


## 「隔離」館方的網路系統





## 「隔離」館方的網路系統



展場



- Wi-Fi Router
- 無線網路路由器

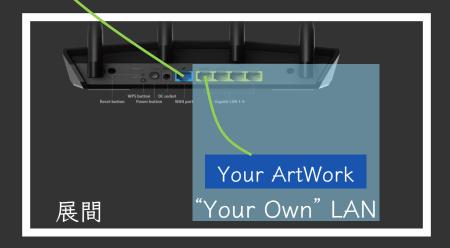


- Switch Hub
- 乙太網路交換器

## 補充: Internet Access



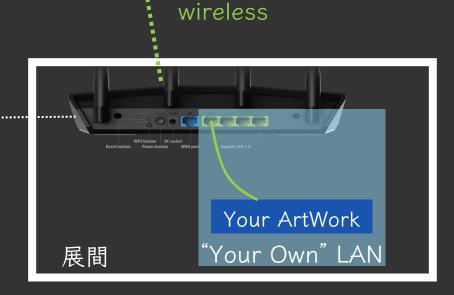
Ethernet Cable

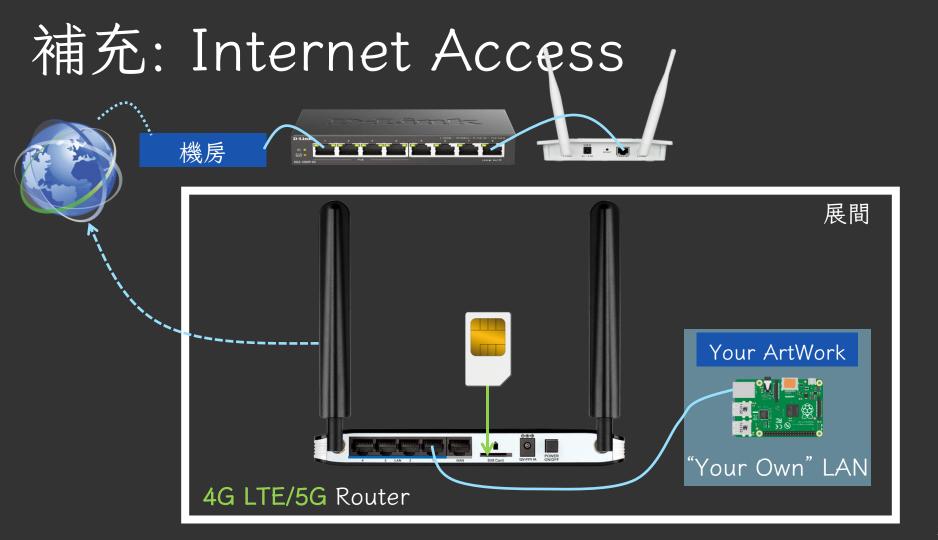


## 補充: Internet Access

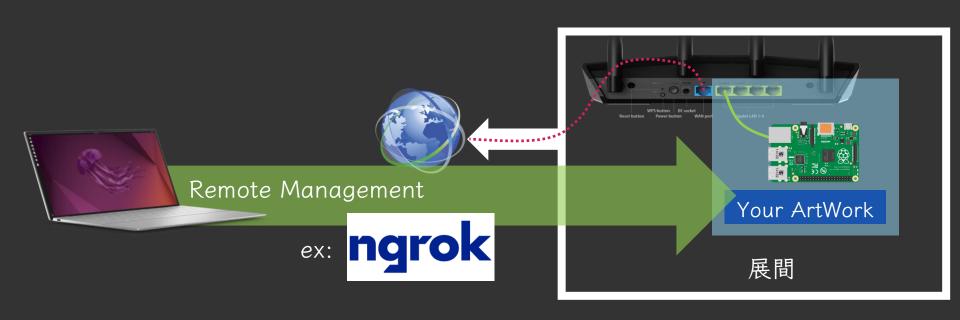


NOTE: 路由器必須支援 "WISP mode" 或 "AP client mode"





## 補充: Internet Access







HDMI影音擷取卡 (\$300~500) **OBS Studio** 

# 

巨人的肩膀

## 感謝開源專案

- https://github.com/huceke/omxplayer
- https://github.com/popcornmix/omxplayer
- https://github.com/turingmachine/omxplayer-sync
- https://github.com/HsienYu/RPi\_SyncLooper

## 感謝藝術家

• 李紫彤 Lee Tzu-Tung https://www.tzutung.com

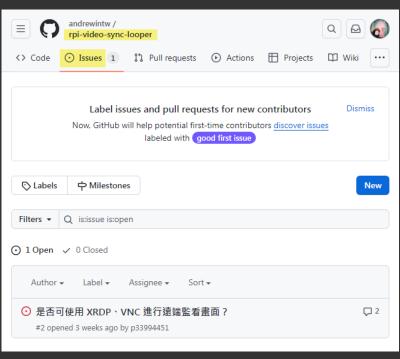
 鄭先喻 HsienYu Cheng https://chenghsienyu.com

# UHEN

專案的下一步

#### NEXT...

- 歡迎任何開源社群的貢獻
  - 討論:https://github.com/andrewintw/rpi-video-sync-looper/issues



## NEXT...

• The "Exhiberry Pi" project



《少女的祈禱》吳梓安

2020台灣國際錄像藝術展第七屆:ANIMA阿尼瑪 圖/C-LAB提供

#### NEXT...

- OMXPlayer Alternatives
  - OpenMAX is deprecated on new RPi
  - ex: mplayer, mpv
- 社群
  - Raspberry Pi Taiwan User Group 台灣樹莓派社群
    - FBGroup: https://www.facebook.com/groups/raspberrypi.taiwan
  - 伴伴學
    - Discord: https://discord.com/invite/azQUs8Y2fY
    - FBGroup: https://www.facebook.com/groups/1620888028100996

# 

輪到你了

### LAB1 透過燒錄映像檔實作同步撥放

- 1. 下載映像檔 URL: https://reurl.cc/gadeYb
- 2. 使用 balenaEtcher 將映像檔燒錄至 SD 卡 https://etcher.balena.io/#download-etcher
- 3. 將 SD 卡接入筆電,修改設定檔(video-sync.conf), 決定裝置扮演角色(video.player.role=master or slave)
- 4. 將你想要播放的 mp4 檔(1080p)放在 USB 隨身碟頂層 NOTE: 必須格式化為 exFAT
- 5. 將 SD 卡、USB 隨身碟插入樹莓派,上電測試

## 測試

- 斷電測試
  - 全部斷電
  - 斷 Master
  - 斷 Slave

• 長時間測試(至少 8hr+ 配合展覽時間)

• (可選)嘗試遠端連線

### LAB2 手動安裝(可選)

- 1. 下載 Raspbian Buster 映像檔 URL: https://reurl.cc/RyNQIG
- 2. 使用 balenaEtcher 將映像檔燒錄至 SD 卡 https://etcher.balena.io/#download-etcher
- 3. 以 ssh 進入樹莓派
- 4. 執行指令 (下面是同一行, master 可替換為 slave) 詳細參考: https://reurl.cc/3ezkyj curl -LJs https://raw.githubusercontent.com/andrewintw/ rpi-video-sync-looper/main/install.sh | sudo bash -s -- master

### LAB2 手動安裝(可選)

- 5. 將你想要播放的 mp4 檔(1080p)放在 USB 隨身碟頂層 NOTE: 必須格式化為 exFAT
- 6. 將 SD 卡、USB 隨身碟插入樹莓派,上電測試