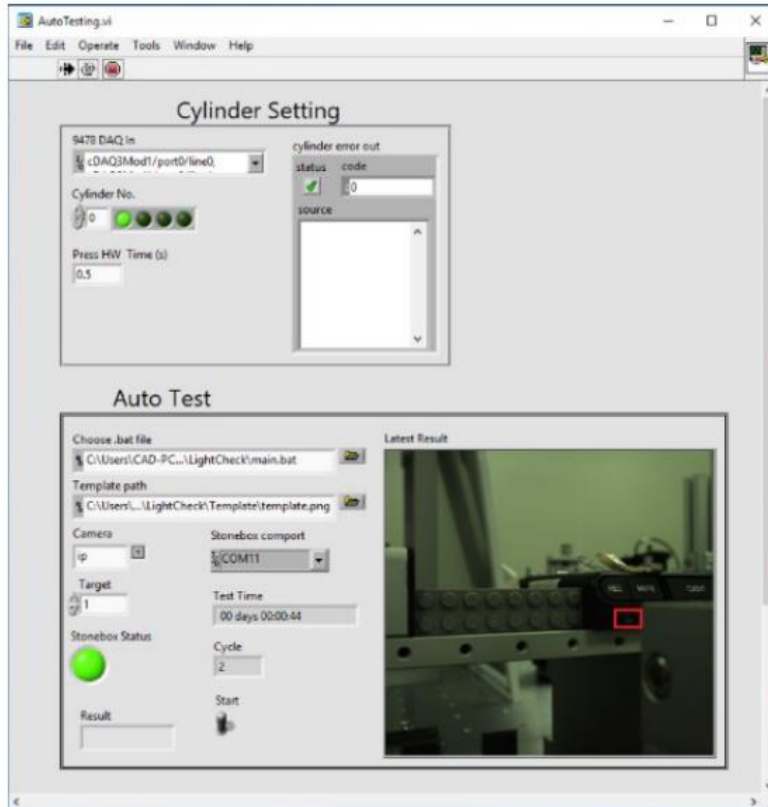
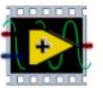



# Automation Stress Testing

For accurate and repetitive motion quality test on devices.



Progress	
 LabVIEW Vision license cost	 Python+OpenCV cost
NTD 51,100 ~ NTD 324,000	Free
Reduction	
At least NTD 51,100 for each PC.	

Deployed to each laptop, resulting in an average total cost reduction of nearly **NT\$ 937,750** for the DQE.

# Keyword Auto-Searching Tool (Standalone Ver.)

Analysis and periodic report notification system for large log files.

Log Checking Tool (Stress Log Mode)

File Mode

Cycle: 299

2020/05/03 07:39:32 [INFO] <FirmwareUtil::PlayVoiceImp> voice file5 : \ResidentFlash2\voice\001.wav

2020/05/03 07:39:39 [INFO] <FirmwareUtil::PlayVoiceImp> voice file5 : \ResidentFlash2\voice\020.wav

2020/05/03 07:43:38 [INFO] <FirmwareUtil::PlaySoundDirect> voice file8 : \ResidentFlash2\voice\002.wav

2020/05/03 07:44:31 [INFO] <FirmwareUtil::PlayVoiceImp> voice file5 : \ResidentFlash2\voice\001.wav

Cycle: 379

2020/05/03 14:27:14 [INFO] <FirmwareUtil::PlayVoiceImp> voice file5 : \ResidentFlash2\voice\020.wav

2020/05/03 14:31:19 [INFO] <FirmwareUtil::PlaySoundDirect> voice file8 : \ResidentFlash2\voice\002.wav

Cycle: 535




2020/05/04 03:39:55 [INFO] <FirmwareUtil::PlayVoiceImp> voice file5 : \ResidentFlash2\voice\001.wav

2020/05/04 03:40:03 [INFO] <FirmwareUtil::PlayVoiceImp> voice file5 : \ResidentFlash2\voice\020.wav

Check stress test logs by setting start and end keywords to sort out error cycle in the log.  
Each keywords should appear only once in each cycle, if not we could use keys setting.

Total time 00:00:05

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Progress	
	
Manual time cost	Auto time cost
480 secs	32 secs
Reduction	
Each file checking saves 93% time for a person.	
	

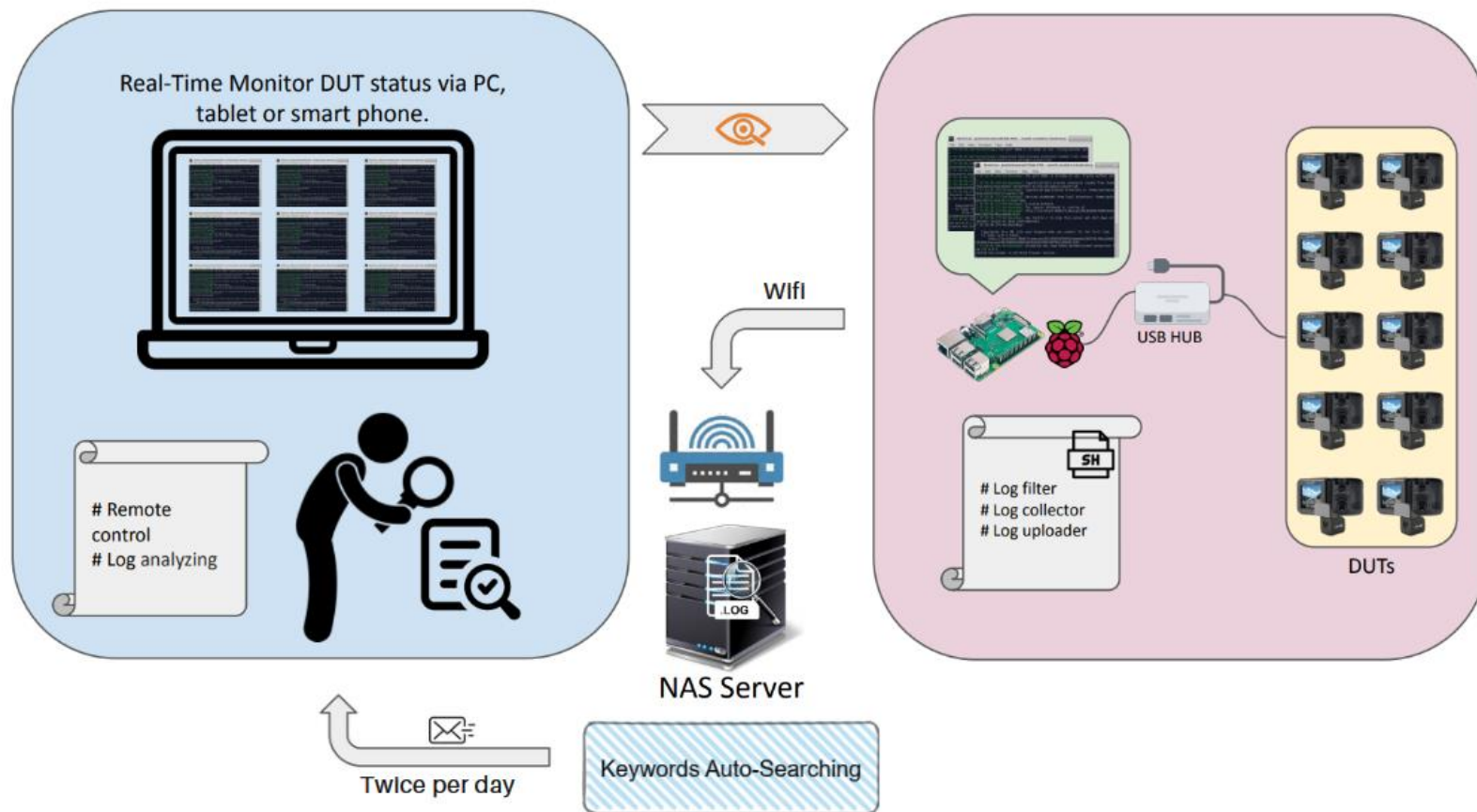
The development outcome of the project corresponds to a minimum reduction of **NT\$ 2,330**/month in total costs per person.





For 2 projects reduce 5person\*2330/month. Total **NT\$ 11,650**



# Keyword Auto-Searching System (Online Ver.)

Analysis and periodic report notification system for large log files.



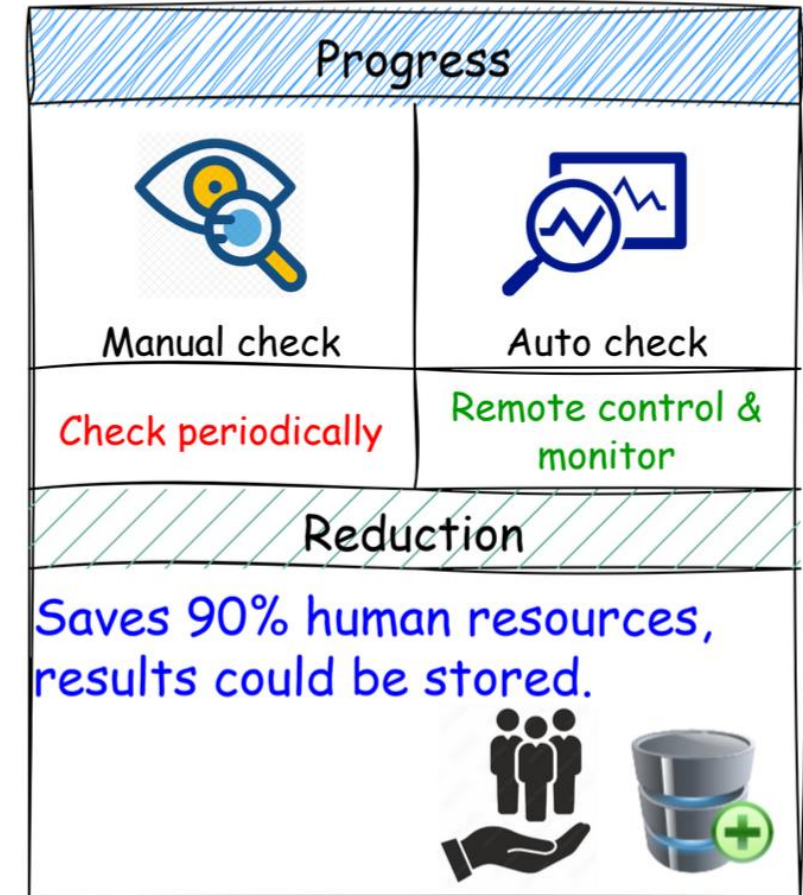
Progress	
 Offline time cost 32 secs/per file	 Online time cost 600 secs/all files
Reduction	
Save 90% human resources & 80% time for data reviewing.	
 	

The development outcome of the project corresponds to a minimum reduction of **NT\$ 43,680**/month in total costs per person.

\* Assuming NTD 50,000/month per person.

# GPS Signal Monitor

- Signal values are saved for root cause analysis.
- Alarm system for LINE or Telegram



The development outcome of the project corresponds to a minimum reduction of **NT\$ 520**/month in total costs per person.

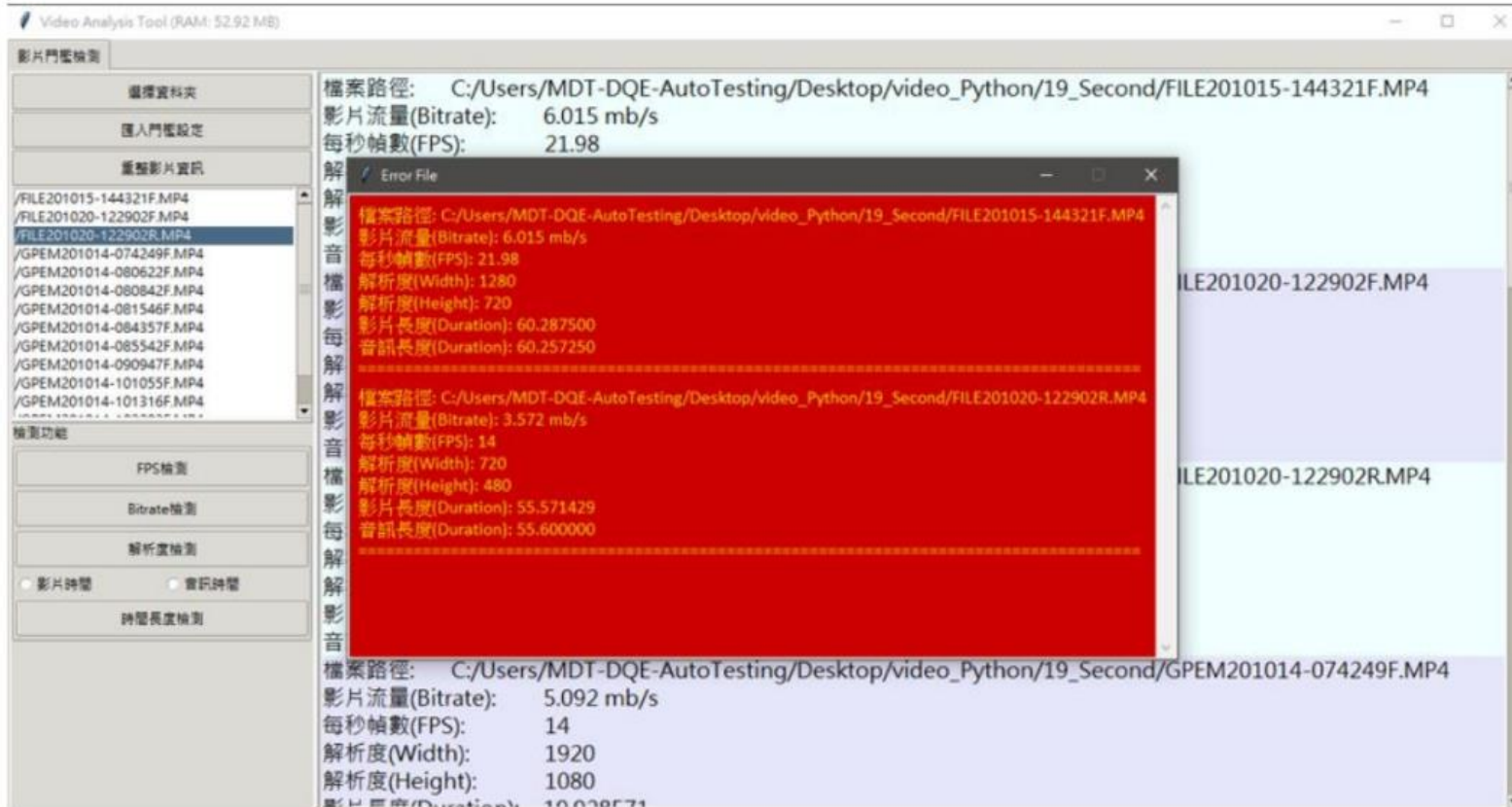
\* Assuming NTD 50,000/month per person.






# Video Files Analysis Tool

A video files analyzer

FPS, video duration, resolution, bitrate, crash file, and abnormal file detection



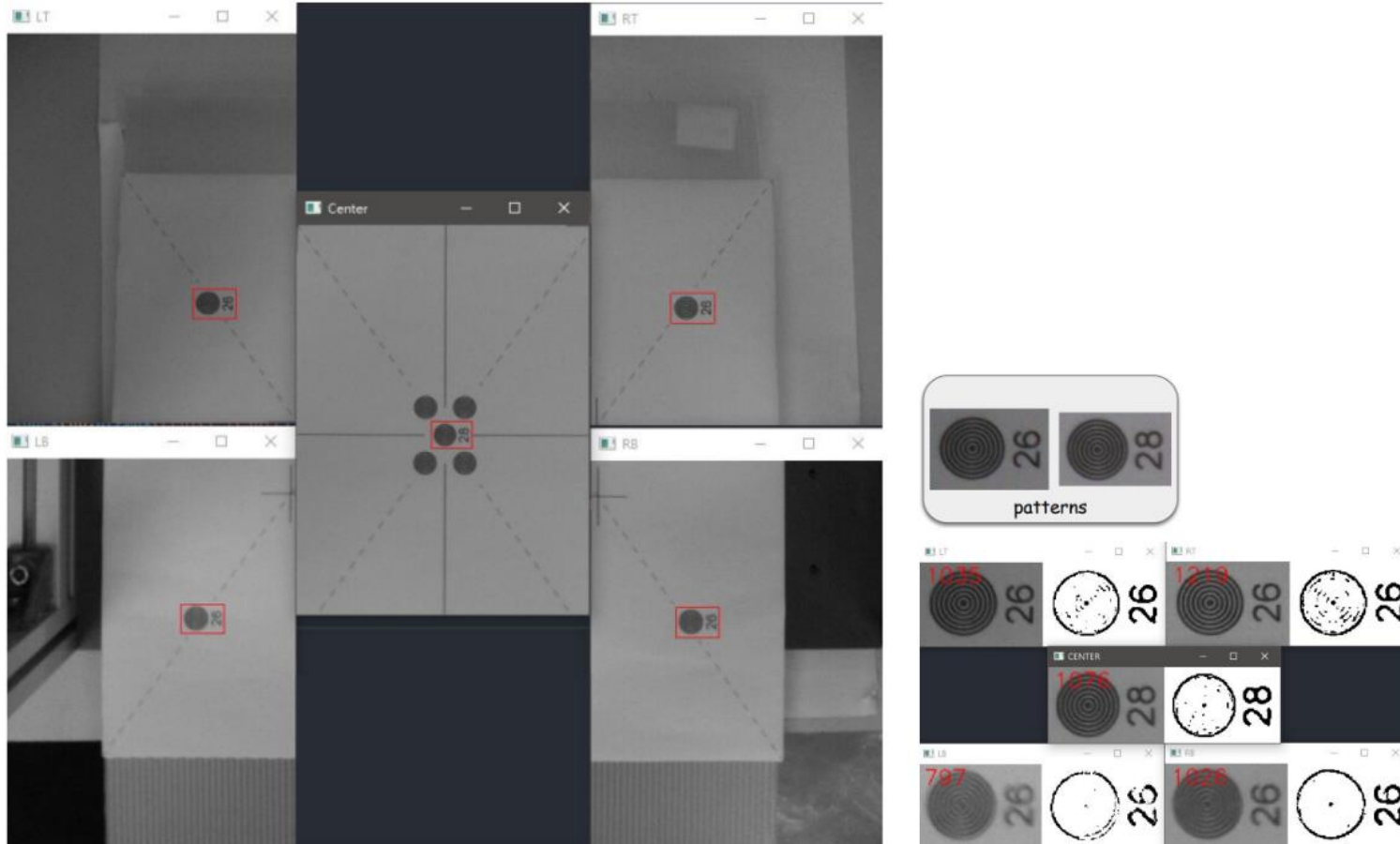
Progress	
	
Manual time cost	Auto time cost
180 secs	10 secs
Reduction	
Each video checking saves 94% time for a person.	
	



The development outcome of the project corresponds to a minimum reduction of **NT\$ 5,893**/month in total costs per person.

\* Assuming NTD 50,000/month per person.

# Camera Module Defocus Filter Tool

This tool could double-check whether the final product defocuses or not.



Progress	
 Manual time cost	 Auto time cost
20 secs	5 secs
Reduction	
Saves 75% time for each camera module checking.	
Reduce checking mistakes made by humans.	

The development outcome of the project corresponds to a minimum reduction of **NT\$ 2,750**/month in total costs per person.

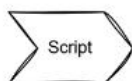
\* Assuming NTD 26,400/month per person, UPH(unit per hour) 50.



# Capture Frame (event video) Tool

Quick getting event frames from videos based on logs.

```
06-22 19:30:16.084 I/[ADAS-SDK] (2611): [113016  
/VehicleTracking.cpp calculateTimes 551  
DBG_INFO_FREQUENT] [TTC][15VehicleTracking] v =  
19  
dist = 14.475904, oneframeInM = 1.050278,  
fakecarHead = 2.795822, ttc = 2543.802734  
Event recording createMuxer  
start:{"mAudioEnable":true,"mFolderName":"Event",  
mIsUpload":false,"mLocation":{"mElapsedRealtimeNan  
os":1252661595771,"mProvider":"gps"},"mPostSec":5,  
"mPreSec":10,"mPrefix":"EMER","mRank":0,"mSerialN  
umber":"000022","mStartTimeMs":1655898265720,"  
mStatus":"driving","mSuffix":"C_F","mTag":"ADAS_FR  
ONT_COLLISION","mVideoFile":{"path":"/storage/1601  
3D70/Android/data/com.mitac.gemini.cdr/files/Gemini  
/Event/000022_EMER220622-194425C_F.mp4"}}}
```



Time	Event	Speed	Distance	TTC
06-13 20:56:13.368	ADAS_LANE_DEPARTURE	68	14.639970	591.057251
06-13 20:56:33.603	DMS_INATTENTIVE			
06-13 20:58:51.316	ADAS_FRONT_COLLISION	78	18.483538	655.086365
06-13 21:01:30.129	ADAS_LANE_DEPARTURE			
06-13 21:04:40.739	ADAS_FRONT_COLLISION	49	12.926807	523.724609
...	...	...	...	...

▼DMS\_MOBILE\_PHONE\_USAGE\_000136\_EMER220613-211314C\_I\_06-13-211314.514.jpg



▼ADAS\_FRONT\_COLLISION\_000138\_EMER220614-080659C\_F\_06-14-080659.621.jpg



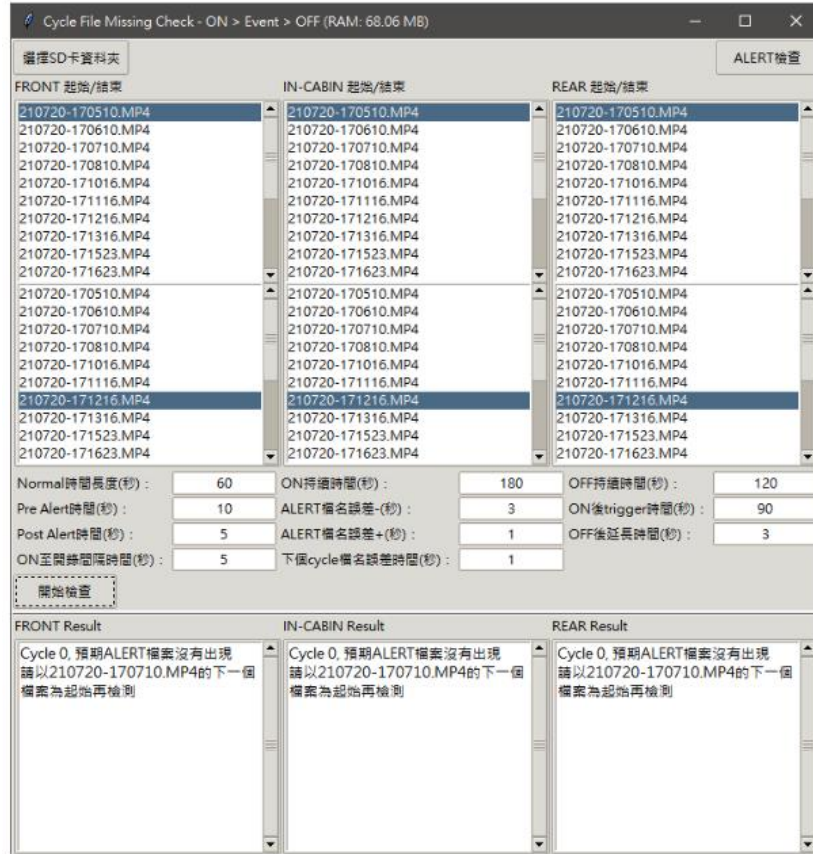
The development outcome of the project corresponds to a minimum reduction of **NT\$ 11,960**/month in total costs per person.




\* Assuming NTD 50,000/month per person.

Progress	
 Manual time cost <b>240 secs</b>	 Auto time cost <b>10 secs</b>
Reduction	
Saves 96% time for each event checking and report producing.	
	

# Stress Log Checking Tool

Quick searching and checking massive logs, videos, and sequences based on different stress testing pattern.



Progress	
 Manual time cost	 Auto time cost
530 secs	20 secs
Reduction	
Saves 96% time for each camera video checking.	
	

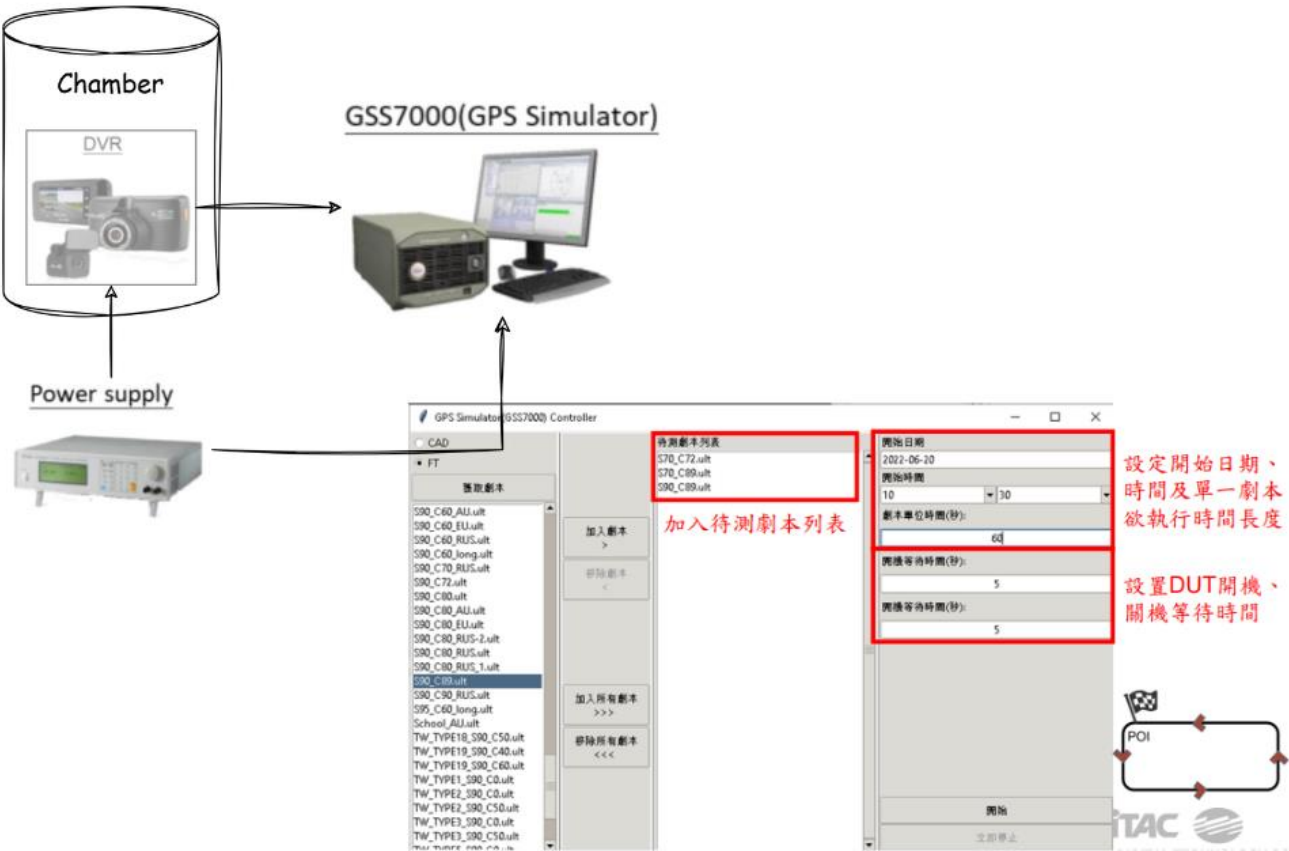
The development outcome of the project corresponds to a minimum reduction of **NT\$ 1,061**/month in total costs per person.



\* Assuming NTD 50,000/month per person.



# GPS Simulator Script Control Tool

Detection and checking for multiple safety camera, speed limit icon.  
(Project + SKU)



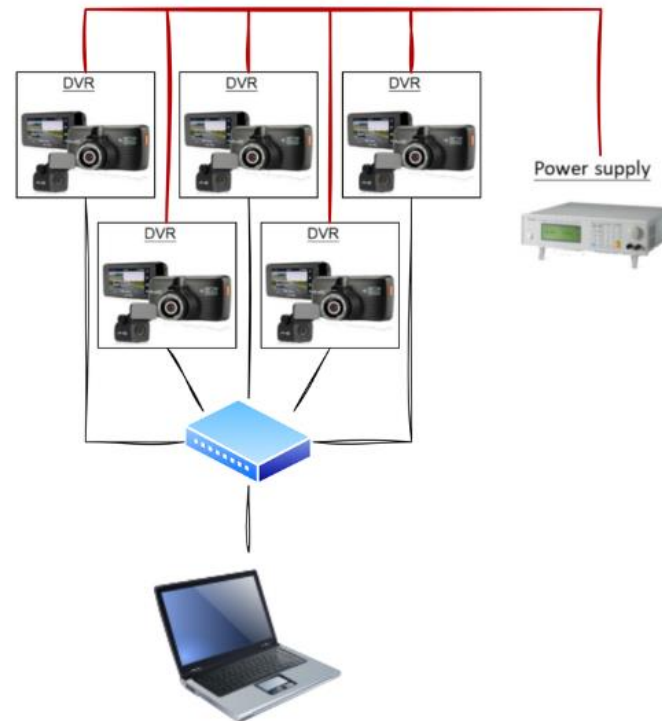
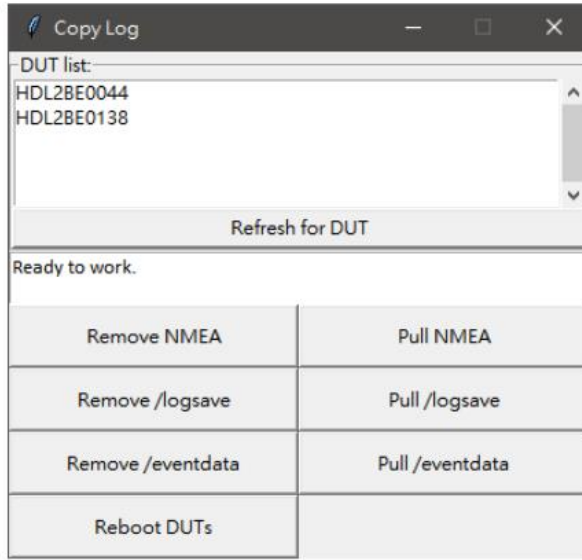
Progress	
 Manual time cost	 Auto time cost
1433 secs	605 secs
Reduction	
Saves 57% time for scripts running.	
Let working proceed in parallel.	




The development outcome of the project corresponds to a minimum reduction of **NT\$ 124,200**/month in total costs per person.

\* Assuming NTD 50,000/month per person.

# Copy Log Tool

Auto pulling and cleaning log data for multiple devices.  
(Windows & Linux version)



Progress	
	
Manual time cost	Auto time cost
127 secs	107 secs
Reduction	
Saves 16% time for each device copy once.	
	

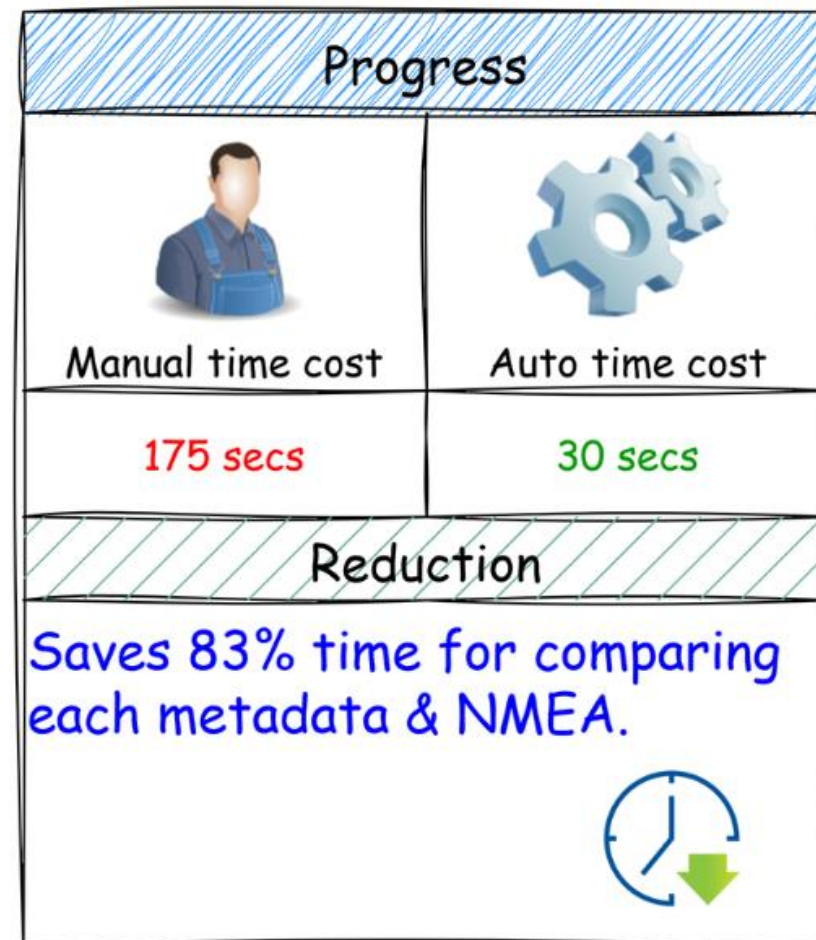
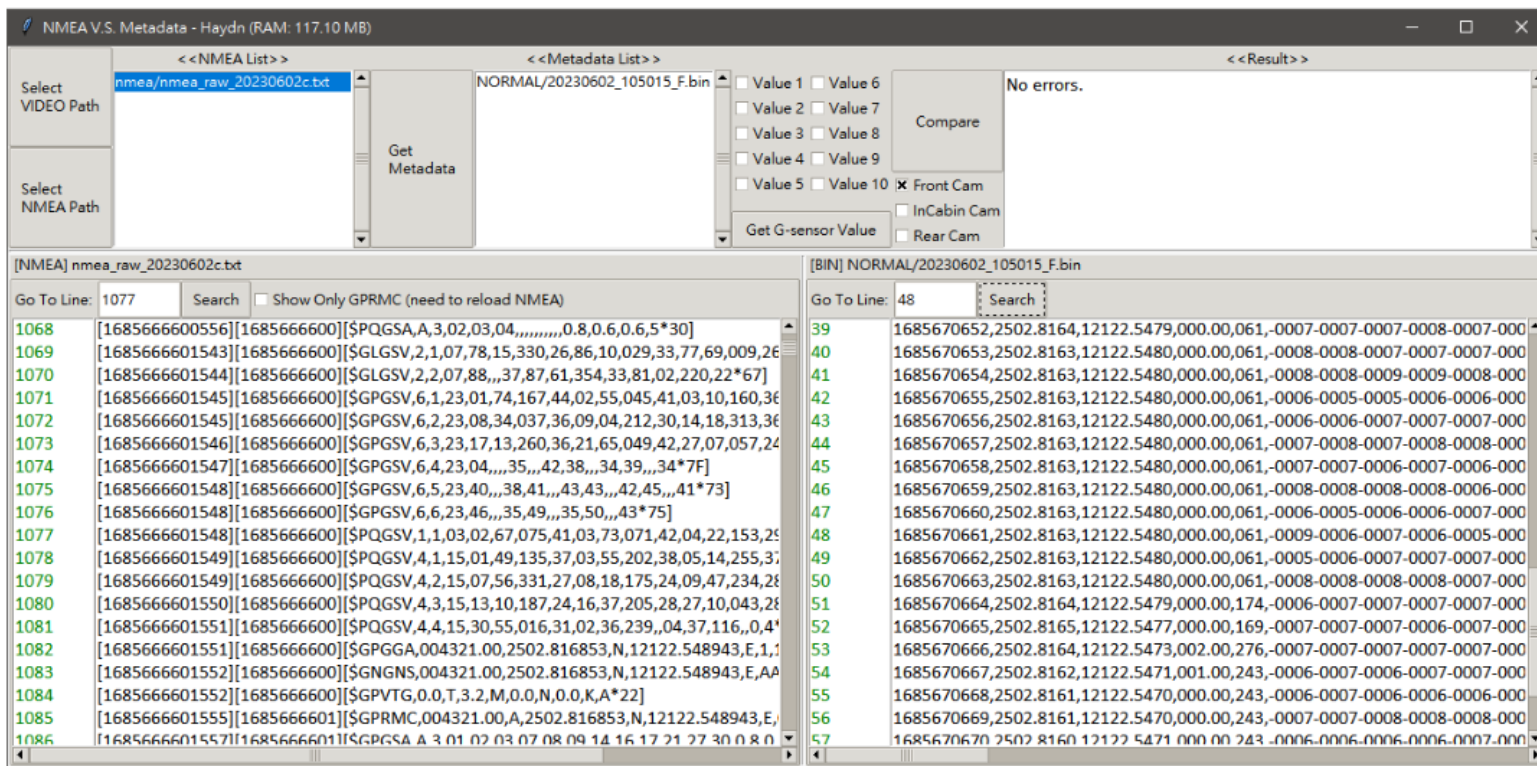
The development outcome of the project corresponds to a minimum reduction of **NT\$ 173**/month in total costs per person.

\* Assuming NTD 50,000/month per person.



# Metadata & NMEA Compare Tool

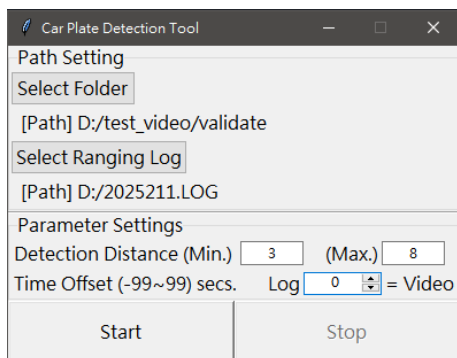
Extract metadata from videos and compare data with NMEA log content.



The development outcome of the project corresponds to a minimum reduction of **NT\$ 78,000**/month in total costs per person.

\* Assuming NTD 50,000/month per person.

# License plate clarity recognition system



檔案名稱: FILE250211-104529F.mp4  
目前時間: 13:25:51, 時間軸: 00:00:20/00:01:00(33.4%), #影格: 601/1802  
目前設定: \*預設配置, CPU: 5/42%, GPU: 6%, VPE: 0/0%, VRAM: 747.3MB/1.36GB  
版本: 201209(20.12.9), Windows 10 20H2(10.0.19042)

視訊解碼器: Native D3D9 DXVA Decoder(VLD) - Intel(R) UHD Graphics 620  
輸入: HVC1(24 位元), 3840×2160(1.78:1/1.78:1), FPS: 30, 位元率: 19566kbps  
解碼: 3840×2160p, 格式: NV12, 範圍: tv, 位置: left

輸出: dxva(12 位元), 3840×2160(1.78:1/1.78:1), FPS: 30(14.4)->3.6

視訊渲染器: Enhanced Video Renderer(Custom Present)

- 格式: NV12(Input)->YUY2(Mixer)->XRGB(Video->BackBuffer->Display)

- 縮放: Texture 雙線性 (Bilinear), 呈現器: D3D 9Ex Discard, 裝置: Intel(R) UHD

- 播放/遺失影格: 56/8, 佇列: 6, 抖動: 344ms, 同步位移: 0/0ms, 更新率: 59 Hz

視訊影格大小: 1920×1080(1.78:1) - 1920×1080(1.78:1) = 0×0(0×0%)

音訊解碼器: PCM

輸入: sowt(0x74776f73), 16000Hz, 1聲道, 16位元, 256(256)kbps

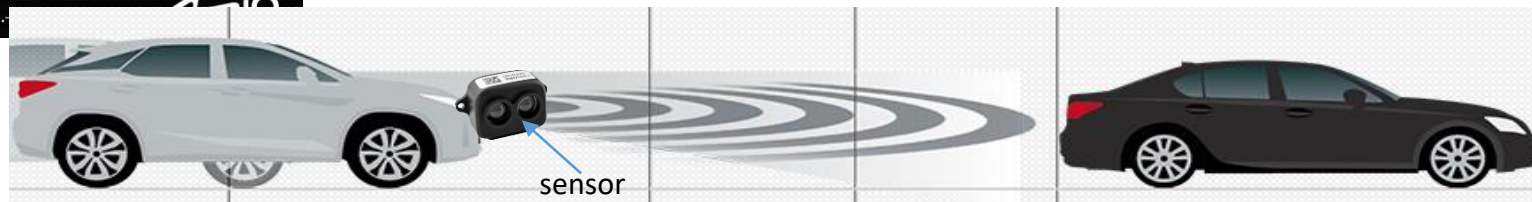
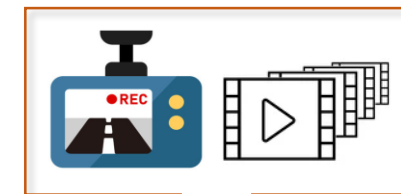
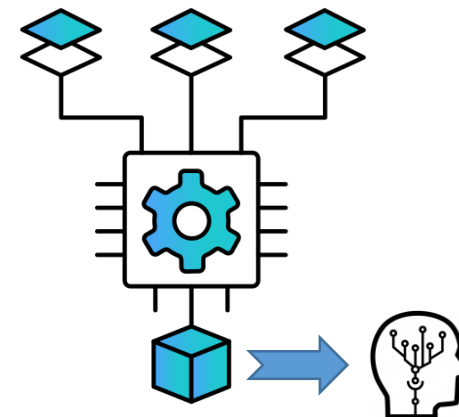
輸出: PCM(0x1), 16000Hz, 2聲道, 16位元, 512kbps

渲染輸入: PCM(0x1), 16000Hz, 2聲道, 16位元, 512kbps

音訊渲染器: DirectSound Audio Renderer

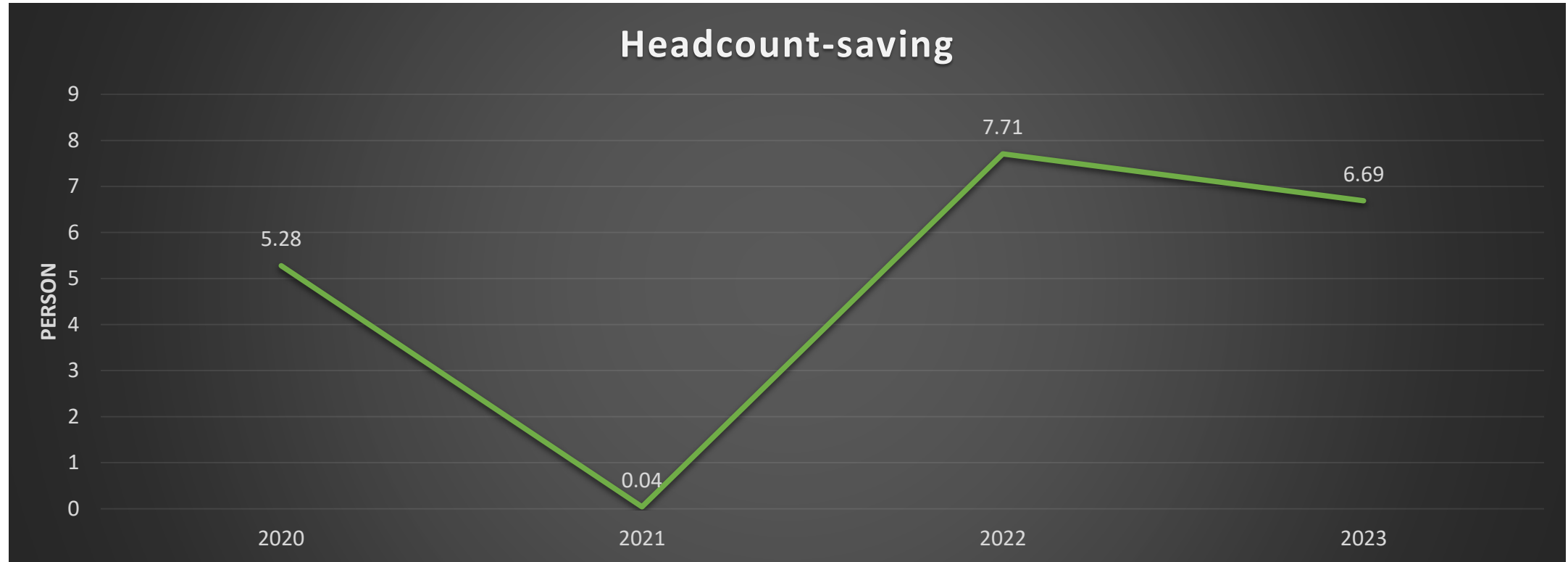


Label license plate images (daytime, nighttime, commercial plates, EV plates)  
Label non-license plate objects (road signs, road markings, painted text)





# Summary



On average, helping the DQE save **NT\$ 3,220,000** per year.