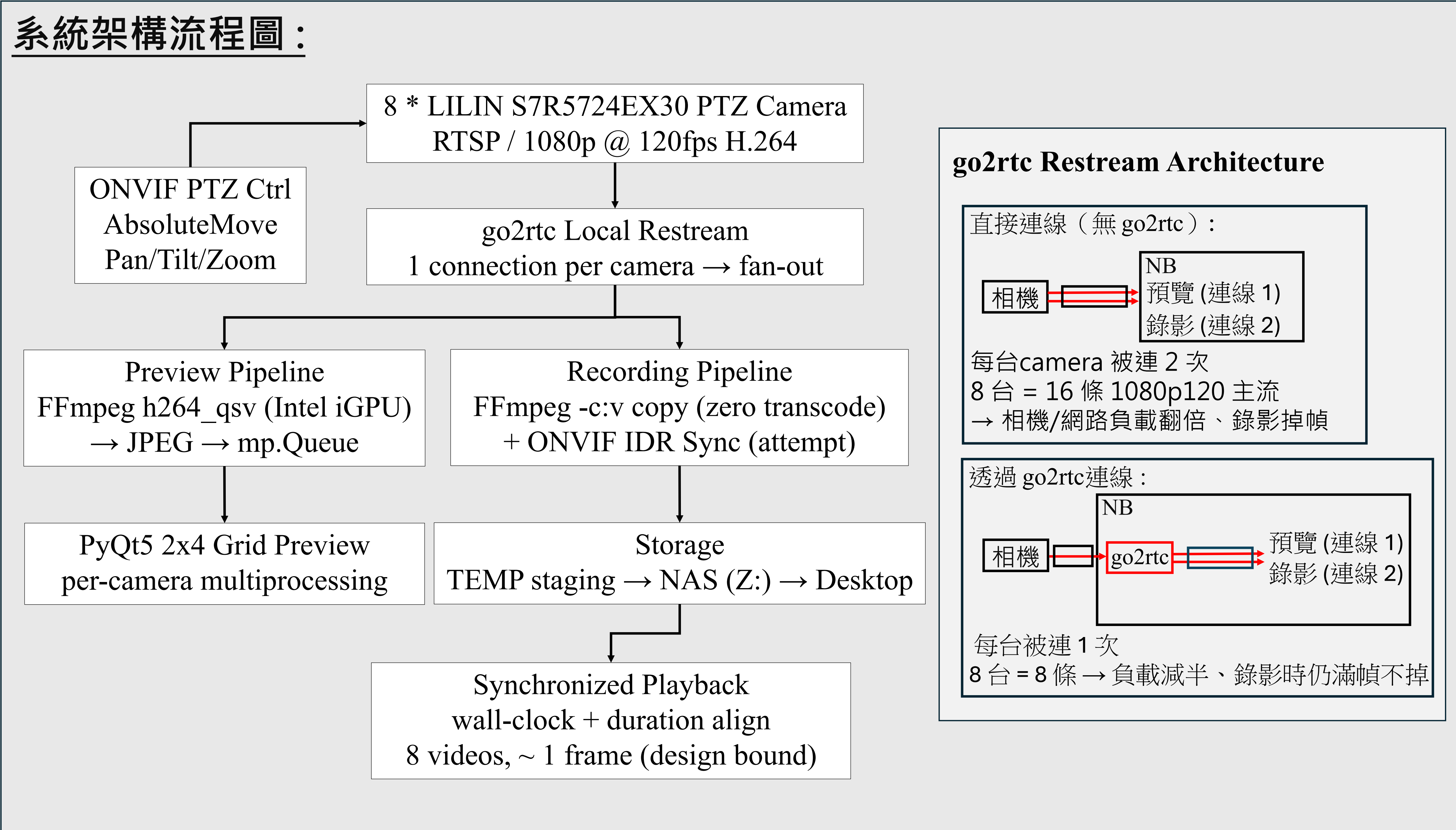


智慧體育館：環場多視角情蒐

Smart Stadium : Multi-View Surrounding Camera System for Scouting

簡介：
運動訓練與比賽情蒐高度仰賴多視角影像記錄，幫助賽後比對與戰術分析。然而，傳統上若以多台攝影機獨立錄影，常面臨各機起錄時間不一致、跨鏡頭畫面難以對齊的問題。若要在單機上同時預覽與錄製八路高幀率 (1080p120fps) 的高畫質串流，硬體解碼資源與 NAS 網路寫入頻寬極易飽和而導致嚴重掉幀。為解決此問題，以實作一套「環場多視角」的運動影像情蒐系統，目標是以單台筆記型電腦取代傳統商用 NVR 的核心功能。

指導教授：連震杰
組員姓名：馮品叡
開發工具：Python、PyQt5、go2rtc、FFmpeg、ONVIF
測試環境：Windows 11、LILIN 攝影機



成果展示：

UI：

• 多機攝影機 (Recording, Preview)

The screenshot shows the 'Recording' and 'Preview' interface. It features a top control bar with buttons for '錄影' (Recording), '預覽' (Preview), and '同步播放' (Synchronized Playback). Below this, there are eight video thumbnails labeled Ptz01 through Ptz08, each showing a different camera angle of a basketball court. The interface also includes a 'NAS 2-PTZ recordings' section and a 'NAS 2-PTZ recordings' button.

• 播放(Playback)

The screenshot shows the 'Playback' interface. It features a top control bar with buttons for '錄影' (Recording), '預覽' (Preview), and '同步播放' (Synchronized Playback). Below this, there are eight video thumbnails labeled Ptz01 through Ptz08, each showing a different camera angle of a basketball court. The interface also includes a 'NAS 2-PTZ recordings' section and a 'NAS 2-PTZ recordings' button.

實驗數據：8 路零掉幀錄影驗證

檔名	解析度	標稱FPS	實測FPS	時長	幀數	大小GB	修改時間
Ptz01_20260525_130553.mp4	1920x1080	120	120	00:25:29	183519	1.34	05/25 13:31
Ptz02_20260525_130553.mp4	1920x1080	120	120	00:25:28	183474	1.34	05/25 13:31
Ptz03_20260525_130553.mp4	1920x1080	120	120.001	00:25:28	183474	1.34	05/25 13:31
Ptz04_20260525_130553.mp4	1920x1080	120	120	00:25:28	183470	1.01	05/25 13:31
Ptz05_20260525_130553.mp4	1920x1080	120	120	00:25:28	183462	1.34	05/25 13:31
Ptz06_20260525_130553.mp4	1920x1080	120	120	00:25:28	183475	1.34	05/25 13:31
Ptz07_20260525_130553.mp4	1920x1080	120	120	00:25:28	183473	1.34	05/25 13:31
Ptz08_20260525_130553.mp4	1920x1080	120	120	00:25:28	183471	1.01	05/25 13:31

實測證明：8 台 PTZ 相機同時錄製 25 分鐘，實測 FPS 皆達 120，掉幀率 ≈ 0%。