Coordination Proposal to Rental Car Services
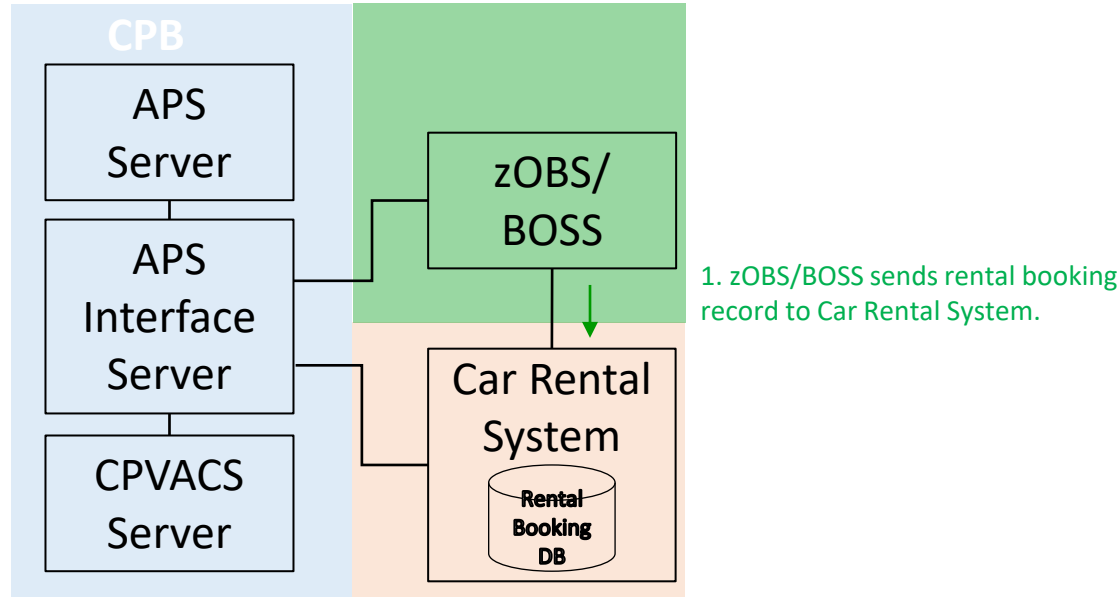
2025-05-09

Rental Booking Sync between Car Rental System & zOBS/BOSS:

1. zOBS/BOSS sends rental booking record to Car Rental System.

LD Request for provision of 5 timestamps:

LD Response:
We expect the following timestamps to be provided to BOSS:

1. Entry to Barrier Gate 21
2. Vehicle storage from transfer cabin to APS no-man zone by operator via manual mode
3. Vehicle exit from retrieval cabin
4. Entry to M/F rental area via barrier gate 26
5. Exit at barrier gate 25 or 27

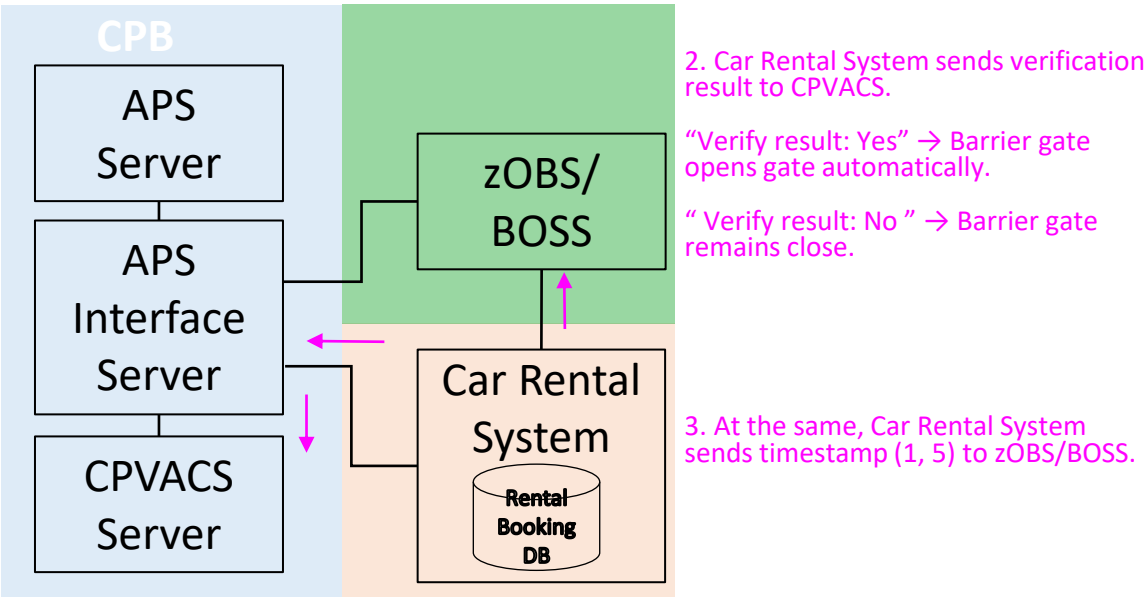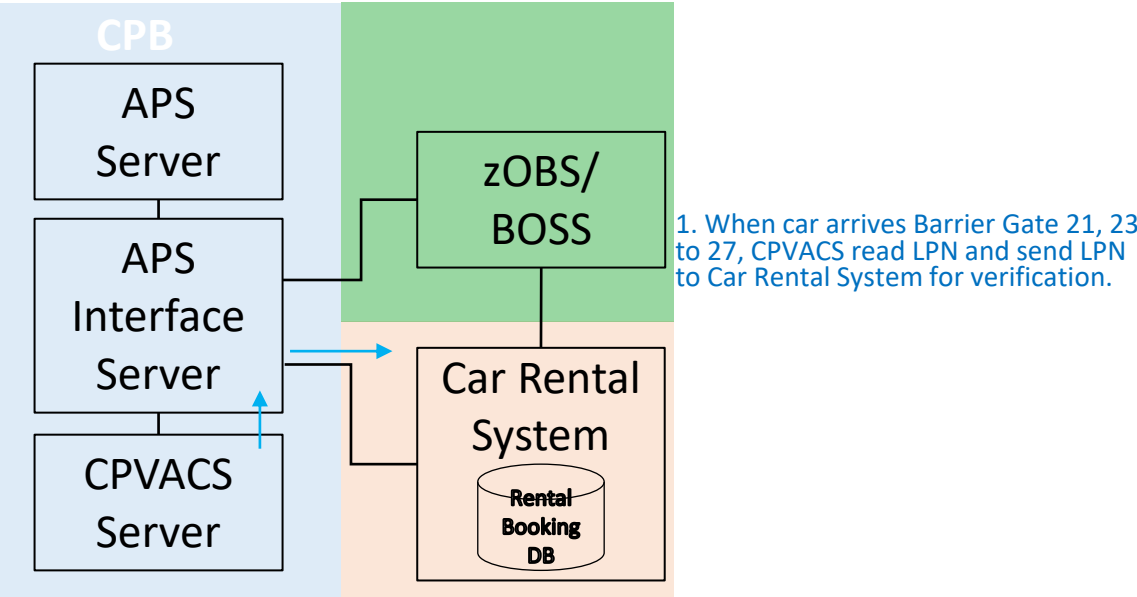6. *Special retrieval timestamp for rental cars*

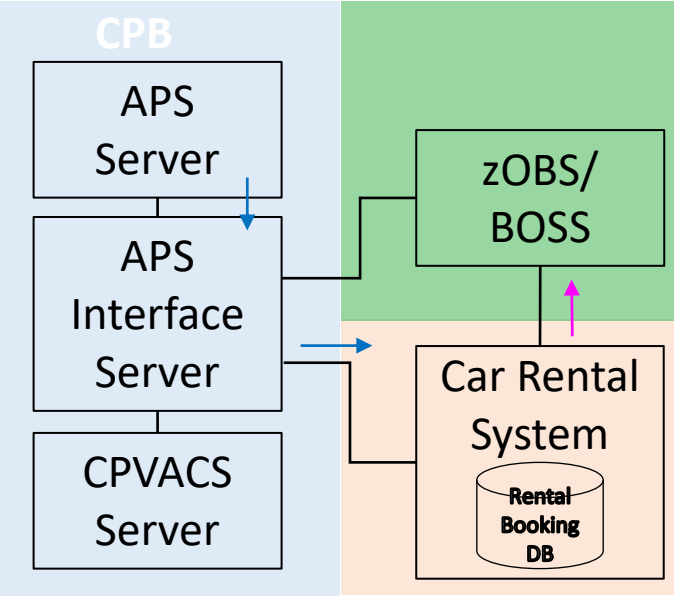Additional API (2,3,6) needs to be added to send [LPN, location, timestamp] to Rental Car System.

(*Q:* Why not design CPVACS to directly send timestamp to zOBS/BOSS? Or why cannot the original BOSS-CPB-API-005 be used?
A: Because CPB system has no database or verification mechanical for car rental bookingId and information.)

Rental Car Entry into / Exit CPB via Barrier Gate (21, 23-27):

1. When car arrives Barrier Gate 21, 23 to 27, CPVACS read LPN and send LPN to Car Rental System for verification.

2. Car Rental System sends verification result to CPVACS.

"Verify result: Yes" → Barrier gate opens gate automatically.

" Verify result: No " → Barrier gate remains close.

3. At the same, Car Rental System sends timestamp (1, 5) to zOBS/BOSS.

Rental Car Parking into APS:

CPB
- APS Server
- APS Interface Server
- CPVACS Server

- zOBS/BOSS
- Car Rental System
  - Rental Booking DB

Whilst the purpose for car rental service is a **provision for future implementation**, the general concept flow for the car rental service is:
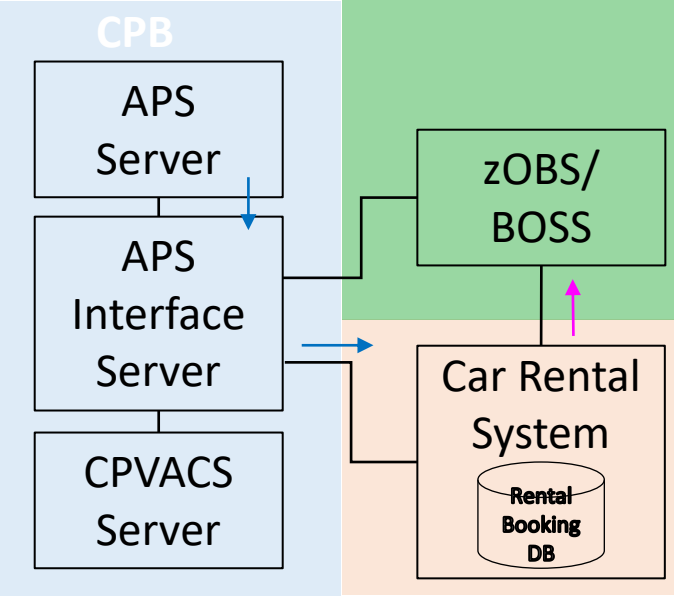
Car Return (i.e. from HZMB to PCB)
Conventional Mode
- Pax to drive rented vehicle to Car Park B's G/F return area
- Car Rental service staff to station at return area for formalities
- Pax to leave Car Park B for PCB
- Upon cleaning/ maintenance, car rental service staff to (drive and) park vehicles into the APS

Fast Return Mode
- Pax to directly return rented vehicle into the APS (if the car rental franchisee decides no inspection/ formalities is required)

Contract C21W21
Automated Car Park B at HZMB HKP (Phase 1)
Particular Specification
Appendix F – Part E – Specification on APS Requirements
PS F E 3/46 (Add. No.3)
AA 28/03/22

Conventional Mode for Parking Rental Car into APS:

1. Rental car driver drives into G/F rental area for Rental Operator to inspect any formalities.

2. APS MMI Operator receives Car Rental Operator's request to proceed manual parking of a rental car.

3. APS MMI Operator switches an available parking cabin into SEMI-AUTO mode, input the assigned cabin number. Then, the assigned cabin will not be open to other cars and only wait for the rental car's arrival. (It is recommended not to switch more than 2 parking cabins into SEMI-AUTO to serve rental cars in order not to affect the daily carpark operation.)

4. APS MMI Operator informs Car Rental Operator the cabin number. Car Rental Operator drives the rental car into the assigned cabin.

5. Once rental car arrives outside the assigned parking cabin, LPRS cam reads the LPN and sends to APS for verification. APS then feedback "no" message. CPVACS MMI will pop up an alert msg to Operator for visual check the photo captured on CPVACS MMI. After CPVACS Operator checks with APS operator it is rental car, he will click "confirm" on CPVACS MMI. At the same time, APS operator manually opens the parking cabin door via APS MMI.

6. APS sends arrival timestamp [LPN, cabin no, arrival to cabin time, status 'arrival'] to Car Rental System.

7. Then, Car Rental System sends timestamp (2) to zOBS/BOSS.

8. Rental car user follows guidance (inside Cabin, outside Cabin but no LPN) to leave the parking cabin via side glass door.

9. Then, Car Rental Operator contacts APS MMI operator to select rackID for the rental car (whitelist procedure).

(* Whitelist manual parking mode cannot identify whether car type is rental cars. Since LD required a fixed 100 rack positions to reserve for rental cars. Thus, APS operator must select available rackID for rental cars.)

10. After complete scanning, doors lock and lift side door opens, then APS sends timestamp [LPN, cabin no, parking completion time, status 'parked'] to Car Rental System.

11. Then, Car Rental System sends timestamp (3) to zOBS/BOSS.

Fast Return Mode for Parking Rental Car into APS (Under assumption that ICK Operator knew the rental car needs and is accepted by rental car franchise to go Fast Return Mode) :

1. Rental car arrives at ICK.

2. APS MMI Operator receives ICK Operator's request to proceed manual parking of a rental car into APS.

3. APS MMI Operator switches an available parking cabin into SEMI-AUTO mode, input the assigned cabin number. Then, the assigned cabin will not be open to other cars and only wait for the rental car's arrival. (It is recommended not to switch more than 2 parking cabins into SEMI-AUTO to serve rental cars in order not to affect the daily carpark operation.)

4. APS MMI Operator informs ICK Operator the assigned parking cabin number. Then, ICK Operator passes the message to the rental car driver.

5. Once rental car arrives outside the assigned parking cabin, LPRS cam reads the LPN and sent to APS for verification. APS then feedback "no" message. CPVACS MMI will pop up an alert msg to Operator for visual check the photo captured on CPVACS MMI. After CPVACS Operator checks with APS operator it is rental car, he will click "confirm" on CPVACS MMI. At the same time, APS operator manually opens the parking cabin door via APS MMI.

6. APS sends arrival timestamp [LPN, cabin no, arrival to cabin time, status 'arrival'] to Car Rental System.

7. Then, Car Rental System sends timestamp (2) to zOBS/BOSS.

8. Rental car driver follows guidance (inside Cabin, outside Cabin but no LPN) to leave the parking cabin via side glass door and heads to Car Rental Franchisee Office to notify the staff which rental car has been returned.

9. Then, Car Rental Operator contacts APS MMI operator to select rackID for the rental car (whitelist procedure).

(* Whitelist manual parking mode cannot identify whether car type is rental cars. Since LD required a fixed 100 rack positions to reserve for rental cars. Thus, APS operator must select available rackID for rental cars.)

10. After complete scanning, doors lock and lift side door opens, then APS sends timestamp [LPN, cabin no, parking completion time, status 'parked'] to Car Rental System.

11. Then, Car Rental System sends timestamp (3) to zOBS/BOSS.
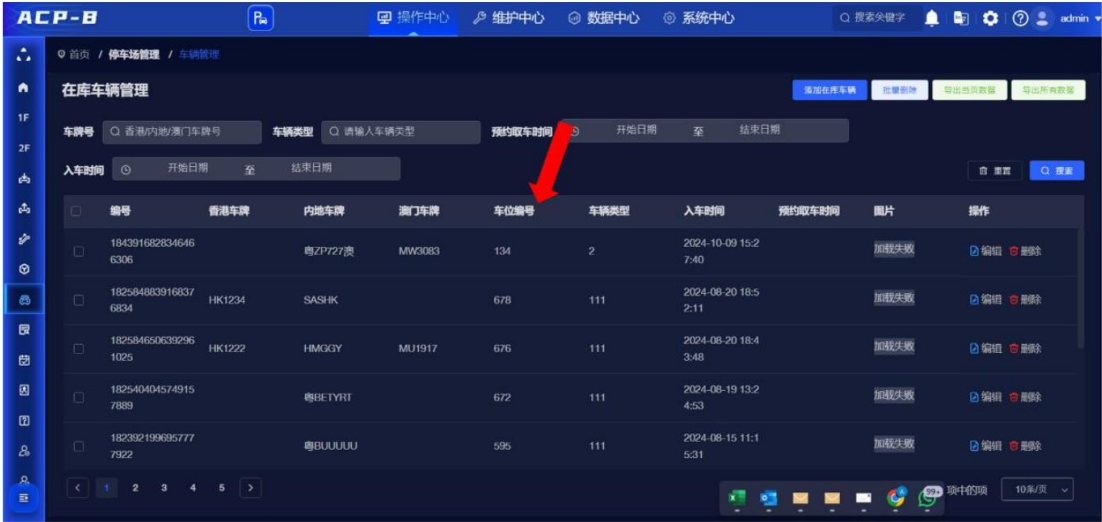
Rental Car Retrieval from APS:

1. Rental Car Driver approaches Car Rental Franchisee Counter to register with ID document.

2. APS MMI Operator receives Car Rental Operator's request to proceed manual retrieval of a rental car with certain LPN.

3. APS MMI Operator switches an available retrieval cabin into SEMI-AUTO mode , input the rack ID and assigned retrieval cabin number.

4. APS MMI Operator informs Car Rental Operator the assigned cabin (R11/ R12). Car Rental Operator companies the driver to the self-service kiosk, presses intercom and notifies APS Operator to unlock side door and main cabin door for user to drive away the car. (If Car Rental Operator does not want to company the driver to the cabin, he should teach the driver to go to the assigned cabin and press the intercom by himself.)

5. When the rental car is driven out of retrieval cabin. APS sends timestamp [LPN, cabin no and complete exit cabin time] to Car Rental System.

6. Then, Car Rental System sends timestamp (4) to zOBS/BOSS.
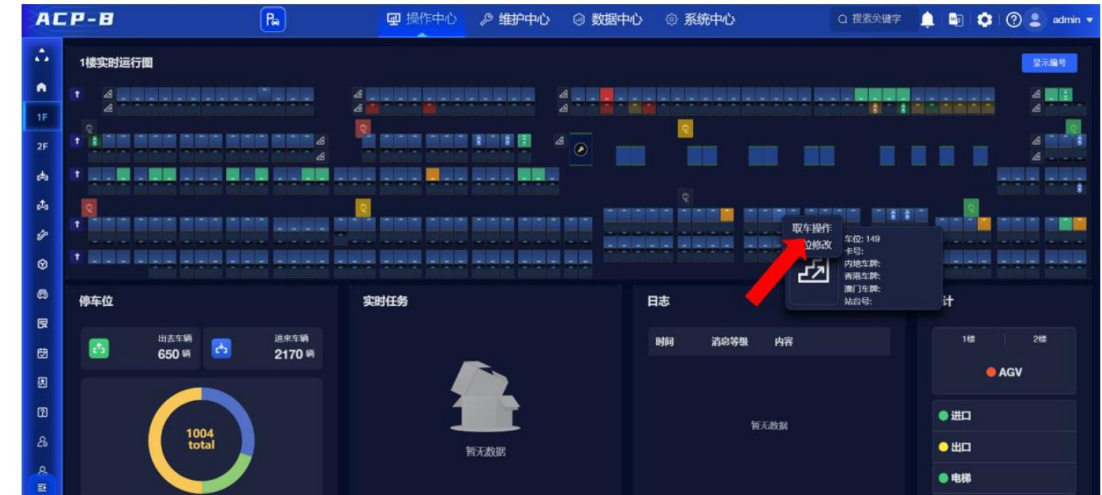

Car Pick-up (i.e. from PCB to HZMB)

- Pax to approach car rental franchisee in retail kiosks inside PCB and register with ID document & take facial token

- Pax to pick-up cars from APS directly using facial token

- Pax to leave Car Park B. In case of any issues, he/she can drive to the service areas (conventional parking spaces on M/F) for follow up.

人工取車流程(工程車)：

1. 司機聯絡保安室安排取車，報上車牌號。

2. 因存放車輛仍會因為優化調度時有機會被系統移動位置，操作員需通過 MMI 搜索相應車輛此刻位置。

3. 到無人區頁面，找到相應車位，右鍵進入 "取車任務" 並手動下達任務到一個空閒的出口。

4. 人工任務的優先級最低，等待所有自動任務完成後執行。

5. 白名單車按下面的**情況三**處理。

    情況三 – 工程白名單車:

    當車輛到達出口後，，APS 需在升降機門打開後，以 Dolly 啟動時為起點延時數秒(可現場調較)發出 1)觸發出口 LPRC 訊號, 2)委派到此出口的車牌, 3)Booking ID 到 CPVACS，出口內的 LPRC 鏡頭會把車牌自動發到 CPVACS 後台，再轉去 APS 讓其和委派車牌作確認(3 地對 3 地)。

    如果正確:

    APS 反饋 "確認" 信息到 CPVACS，因車牌無預約, Booking ID 應為 null, CPVACS 在收到 Booking ID 為 null 的時候**不會**在 19 寸車牌屏幕及 43 寸侯車屏中顯示或更新其車牌。
    APS 不需更新操作屏畫面並顯示用戶車牌。

    如果發現不正確:

    1) **如取出車輛與系統紀錄不符(拉錯車)**，操作員直接在 APS MMI 作人工處理。操作員把出口換成 "半自動"，出口點右鍵 選 "反存"。操作屏在半自動情況下會顯示 "人工處理中"。當車反存到升降機，出口空閒後，無人區頁面選正確車位下達人工取車任務，人工取車任務綁定到出口後，操作員方可把出口換回 "自動"。因無預約訊息，CPVACS 不需要更新 19 寸屏幕及 43 寸侯車屏的信息，操作屏保持人工處理。

    2) **如取出車輛與系統紀錄相符(Cam 錯)**,但車牌識別鏡頭誤讀錯誤車牌則按下 "系統車牌覆蓋",多走一次發車牌的 API 到 APS, APS 再回覆確認予 CPVACS。因無預約訊息，CPVACS 不需要更新 19 寸屏幕及 43 寸侯車屏的信息。操作屏保持顯示 "人工處理"。

6. 操作員通知司機到該 cabin。

7. 司機到達玻璃門外，致電操作員。

8. 操作員將出口設為半自動模式。

9. 操作員遠程手動開啟玻璃門 (出口會添加 "解鎖取車" 按鈕。)

出口新增右鍵 "解鎖取車" 功能

10. 操作員通知司機進入 Cabin, 取車並駛離。

11. Cabin 於半自動模式下仍會保留 PLC 自動功能, 檢測到車輛離開後, 外門自動關閉, 進行安全掃描, 玻璃門自動鎖上。

12. 操作員確認 "出口" 狀態顏色為(空間)後, 可以將 cabin 恢復為自動模式。

13. 司機到達 M/F 大閘。

14. CPVACS 偵測到車輛，CPVACS 會先和白名單做對比，閘門不會自動打開。CPVACS MMI 會自動出現彈窗提醒操作員，車輛種類會顯示為 "白名單"。

15. 操作員檢查 CPVACS 畫面，手動核對車牌，確認無誤後手動開閘，如果有錯，則更改車牌按重新提交。

16. 白名單車輛離開 CPB。

A. 白名單處理方法

人工存車流程 (白名單):

1. 預先將車牌加入 CPVACS 白名單 (只需入單牌)。

2. 如需停到無人區, 預先將車牌加入 APS 白名單 (需要入三牌)。

3. 車輛到達 21 號閘口。

4. CPVACS 偵測到車輛, CPVACS 會先和白名單做對比, 閘門不會自動打開。CPVACS MMI 會自動出現彈窗提醒操作員, 車輛種類會顯示為 "白名單車"。

5. 人工核對車牌, 確認無誤後手動開閘, 如果有錯, 則更改車牌按重新提交。

6. 車輛進入 G/F 後, 如需通過 APS 停泊在無人區, 停在 lay-by 等待並聯絡保安室安排入口存車。

7. 操作員將按使用量按排入口 Cabin, 並在 MMI 設為 "半自動模式"。

8. 操作員通知司機駕車到該 Cabin 門口。

9. 車輛觸發地感, 地感訊號於自動/半自動模式下仍然需要提交到 CPVACS, CPVACS 收到 APS 訊號後提交車牌, 因無 Cabin 委派車牌的紀錄, APS 要反饋 "NULL" 到 CPVACS, CPVACS 會在 MMI 出彈窗提示, 讓操作員可以通過 Cabin 門口的車牌識別攝像頭進行人工核查。檢查後可以把彈窗提示關閉。32" 屏幕會顯示 "車牌錯誤", 除非 APS 可以 Feed "人工處理" status 予 CPVACS。

10. 操作員遙距手動打開 Cabin 外門。

11. 司機駛入 Cabin。

12. Cabin 於半自動模式下會保留 cabin 裡面引導屏指引及安全掃描功能。

13. 汽車按引導屏指引停妥後, 外門自動關閉, 玻璃門自動解鎖。

14. 到達玻璃門外, 電話聯絡保安室。

15. 因人工存車操作下, CPVACS 不會跟 APS 有其他 API Interface (僅限地感除外), 操作員需要於 Cabin 手動把 APS 系統默認為 "未知" 的車輛定義身份。入口界面會新增右鍵, 或底部按鈕, 容許操作員從預設 APS 白名單中選擇車輛, 或直接鍵入三地車牌。(如果有預約訊息的車牌, 白名單/鍵入車牌按鈕會隱藏, APS 裡面也會做對比, 如有 BOSS 訊息, 此功能會失效)

16. 操作員設換到無人區頁面, 選擇空間車位, 右鍵選 "存車任務" 人工下發存車任務到指定車位。從 "存車任務" 的彈窗 "入口" 位置下拉選擇相應 Cabin, 發送任務。

這裡彈窗添加自動安排車位按鈕 (除了指定車位外), 系統需自動限定包廂的相應區域進行

分配 (非其他區域)。

17. Cabin 進行安全掃描, 鎖上玻璃門, 進行任務排隊。

18. 人工任務的優先級最低, 等待所有自動任務完成後執行。

19. 任務開始排隊後, 操作員通知司機可以離開。

20. 操作員需等待汽車進入升降機, 入口狀態變為 "空閒" 後, 操作員方可將 Cabin 恢復為自

動模式。

Whilst the purpose for car rental service is a **provision for future implementation**, the general concept flow for the car rental service is:

Car Return (i.e. from HZMB to PCB)
<u>Conventional Mode</u>

- Pax to drive rented vehicle to Car Park B's G/F return area

- Car Rental service staff to station at return area for formalities

- Pax to leave Car Park B for PCB

- Upon cleaning/ maintenance, car rental service staff to (drive and) park vehicles into the APS

<u>Fast Return Mode</u>

- Pax to directly return rented vehicle into the APS (if the car rental franchisee decides no inspection/ formalities is required)

Contract C21W21   PS F E 3/46 (Add. No.3)   AA 28/03/22
Automated Car Park B at HZMB HKP (Phase 1)
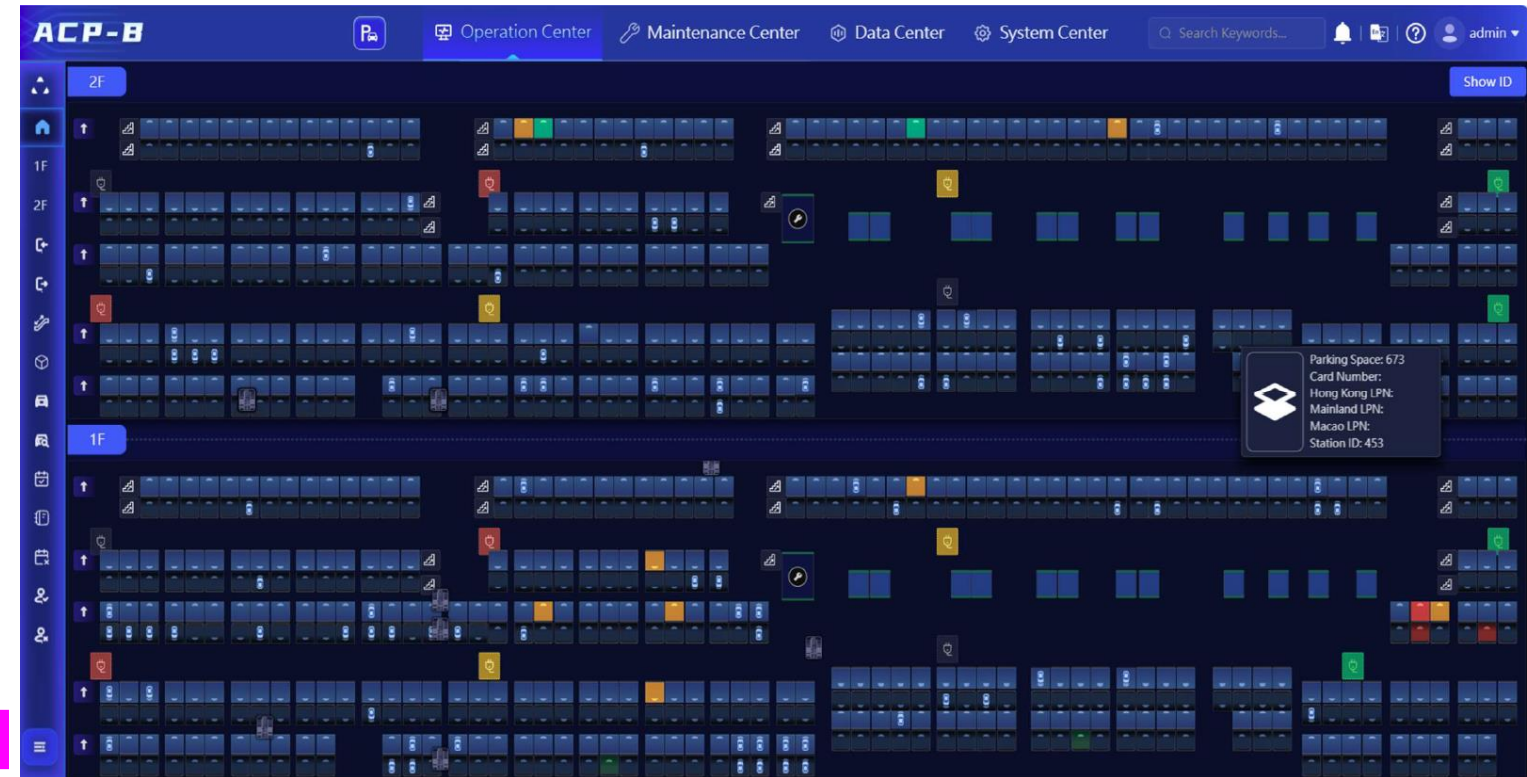Particular Specification
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Car Pick-up (i.e. from PCB to HZMB)

- Pax to approach car rental franchisee in retail kiosks inside PCB and register with ID document & take facial token

- Pax to pick-up cars from APS directly using facial token

- Pax to leave Car Park B. In case of any issues, he/she can drive to the service areas (conventional parking spaces on M/F) for follow up.

Required interfaces for APS System

- A number of parking space (indicatively around 50-100, to be reserved within the overall APS capacity will be assigned to the car rental franchisee. Whilst physical space may or may not be designated, vehicles under car rental should be specifically highlighted in the APS control system for easy identification. The overall number of car rental vehicles parked in ACP B shall also be monitored.

- APS system should facilitate car rental activity with due consideration (e.g. car parking by car rental service staff who may not possess ID documents as pre-registered drivers)

LD requested to reserve 100 no. of parking places for rental cars, which should be close to Lift 12.
Please update APS MMI as per contract request.