Research & Vehicle Technology
"Infotainment Systems Product Development"

Feature – Remote Park Control

Infotainment Subsystem Part Specific Specification (SPSS)

Version 1.0

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Version Date: May 26, 2020

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Revision History

Date	Version	Notes	
May 26, 2020	1.0	Initial Release	

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Table of Contents

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1 Overview

Park Aid Control is a feature that allows the user to enable/disable the parking notification.
This feature originated in IPC and the requirements were many, but with the transfer to centerstack , a considerable number of signals and relevant requirements are dropped since centerstack is already processing the dropped signals, hence there is no benefit in exporting signals that are already in centerstack module.

2 Architectural Design

2.1 PAC-CLD-REQ-382988/A-Park Aid Control Client

Park Aid Control Client provides the user input to request feature change.

2.2 PAC-CLD-REQ-382989/A-Park Aid Control Server

Park Aid Control Server controls the feature state. It receives user's input through Client and decides on what action to take, depending on user's request.

2.3 Logical Signal Mapping

The CAN signals mentioned throughout this document shall refer to the CAN signal's logical name. The logical names shall be mapped to their actual CAN signal names. Please use the table below to perform the mapping. The InfoCAN database file is the master file for the actual CAN signal names. Note: some CAN signals referenced throughout this document may use the logical name while some may use the actual CAN signal name.

Logical Name	CAN Signal Name
LPaRear	PrkAidRear_D_RqDrv
LPaFRq	PrkAidAcsyFront_D_RqDrv
LPaRRq	PrkAidAcsyRear_D_RqDrv
LPaRearSt	ParkAidRear_D_Stat
LPaRSt	ParkAidAcsyRear_D_Stat
LPaFrSt	PrkAidAcsyFront_D_Stat
LMyKey	IgnKeyType_D_Actl
IgnSt	Ignition_Status

2.4 PAC-IIR-REQ-382990/A-Park Aid Control Client Rx

2.4.1 MD-REQ-382995/A-IgnSt

IgnSt: This signal is received by the client. It provides vehicle power state.

Signal Parameter	Parameter Description
0x0	Unknown
0x1	Off
0x2	Accessory
0x4	Run
0x8	Start
0xF	Invalid

2.4.2 MD-REQ-389029/A-LPaRearSt

LPaRearSt: This signal is sent by the server to indicate Rear Park Aid Status.

Detail	State Encoded
Disabled	0 (0x0)
Enabled	1 (0x1)
Unused	2 (0x2)
Faulted	3 (0x3)

2.4.3 MD-REQ-389030/A-LPaRSt

LPaRSt: This signal is sent by the server to be used for rear park aid accessory mode on/off menu indicator.

Detail	State Encoded
Null	0 (0x0)
Off	1 (0x1)
On	2 (0x2)
Not Used	3 (0x3)

2.4.4 MD-REQ-389031/A-LPaFrSt

LPaFrSt: This signal is sent by the server to be used for front park aid accessory mode on/off menu indicator.

Detail	State Encoded
Null	0 (0x0)
Off	1 (0x1)
On	2 (0x2)
Not Used	3 (0x3)

2.4.5 MD-REQ-389035/A-LMyKey

LMyKey: This signal indicates the key in ignition cycle.

Encoding Meaning	Signal Encoding
Key_Read_In_Progress	0x0
Key_In_Ign_Standard_Key	0x1
Key_In_Ign_My_Key	0x2
Key_Not_Prgrm_Read_Failure	0x3
Unknown	0xE
Invalid	0xF

2.5 PAC-IIR-REQ-382991/A-Park Aid Control Client Tx

2.5.1 MD-REQ-382992/A-LPaRear

LPaRear : Client command to enable/Disable the Rear Park Aid.

Parameter meaning	State Encoded
Disabled	0 (0x0)
Enabled	1 (0x1)
Status	2 (0x2)
Unused	3 (0x3)

While one of the parameters is to check the Status of the feature, the current implementation only controls Enable/Disable state.

2.5.2 MD-REQ-382993/A-LPaFRq

LPaFRq : This signal turn on/off menu in the HMI unit in front of the driver.

Parameter meaning	State Encoded
Null	0 (0x0)
Off	1 (0x1)
On	2 (0x2)
Unused	3 (0x3)

2.5.3 MD-REQ-382994/A-LPaRRq

LPaRRq: this signal controls the rear park aid accessory mode in front of driver HMI.

Parameter meaning	State Encoded
Null	0 (0x0)
Off	1 (0x1)
On	2 (0x2)
Unused	3 (0x3)

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3 General Requirements

3.1 HMI ID

To avoid errors in linking HMI elements to SPSS signals, HMI ID. Below are the IDs associated with the signals in the SPSS. Keep in mind not all signals get an ID.

Logical Name	HMI ID
LPaRear & LPaRearSt	ID 155
LPaFRq & LPaFrSt	ID 301
LPaRRq & LPaRSt	ID 300

3.2 PAC-REQ-382996/A-Value Queries

Due to Client booting time and the signal transit time and type (only on data change), there could be cases where the received values could be missed. The client should request data from the transmitting server whenever the client wakes up due to ignition cycle.

3.3 PAC-REQ-382997/A-System Accuracy

Within a 100 msec of receiving data that results in a change of state the client will update the display to the proper status.

3.4 PAC-REQ-389032/A-Faulty Status

If signals go missing for longer than 5 sec, they need to be considered faulty.

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4 Functional Requirements

4.1 PAC-FUN-REQ-383026/A-Park Aid Control

4.1.1 PAC-REQ-383025/A-Power Mode Operation

The feature should be accessible for interaction to the user while signal IgnSt is 0x4 (Run) or 0x8 (Start).

4.1.2 PAC-REQ-389036/A-When Key is MyKey

When signal LMyKey is 0x2 (Key_In_Ign_My_Key) no menu should be shown to the user.

4.1.3 PAC-REQ-389037/A-Default Signals Status

While CAN DBC provides default values of the signals, the feature requires some unique values upon client bootup which may or may not match default can dbc values.

The client should send these values upon ignition cycle or wakeup:

LPaRear should be 0x1 (Enabled).
LPaFRq should not be initialized so the value should be 0x0 (Null).
LPaRRq should not be initialized so the value should be 0x0 (Null).

4.1.4 Use Cases

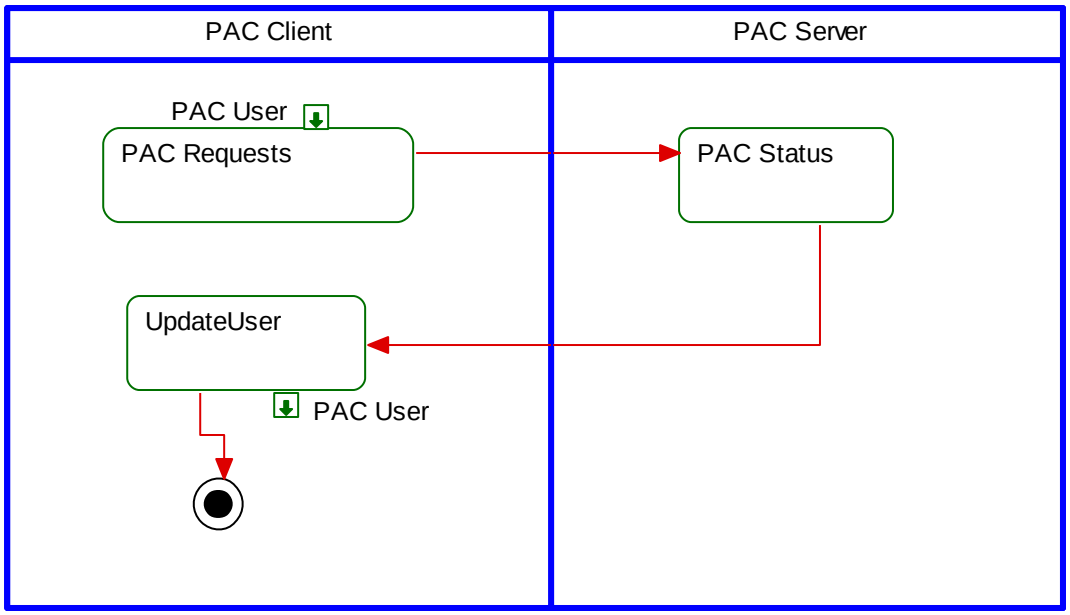
4.1.4.1 PAC-UC-REQ-383027/A-Park Aid Control Operation

Actors	Vehicle User
Pre-conditions	Park Aid is enabled.
Scenario Description	User selects to disable Park Aid.
Post-conditions	Park Aid is disabled. Relevant warnings to do not show up anymore.
List of Exception Use Cases	
Interfaces	

4.1.4.2 Activity Views

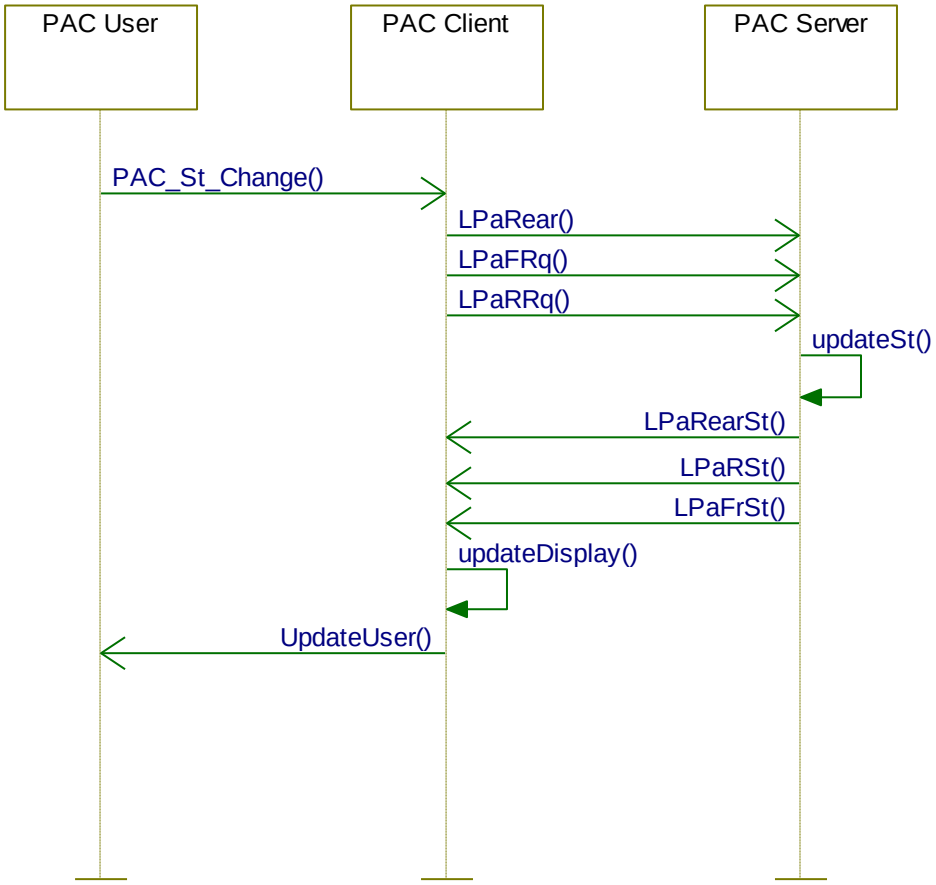
4.1.4.2.1 Activity Diagrams

4.1.4.2.1.1 PAC-ACT-REQ-389033/A-PAC Operation



4.1.4.2.2 Sequence Diagrams

4.1.4.2.2.1 PAC-SD-REQ-389034/A-PAC Operation



5 Appendix: Reference Documents

1	Park Aid Control Function - Rear and Front - CGEA1.3
2	Settings In Infotainment CenterStack SPSS v1.17 May 28, 2019

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