Research & Vehicle Technology
"Infotainment Systems Product Development"

Feature – Second Row Seats InterfaceClient1

Infotainment Subsystem Part Specific Specification (SPSS)

Version 1.0
UNCONTROLLED COPY IF PRINTED

Version Date: January 14, 2022

FORD CONFIDENTIAL

Revision History

Date	Ver	Notes
January 14, 2022	**1.0**	**Initial Release**

Table of Contents

1   Overview

The Second Row Seats feature allows a first row user to make second row driver and passenger seat adjustment requests from the SRSInterfaceClient2 via Power Pitch. Power Pitch allows Pitch/Return control of the Second Row Driver and Passenger Seats.

1.1   Terms and Definitions

Abbreviation	Description
CAN	Controller Area Network
DID	Data Identifier
FNV3	Fully Networked Vehicle 3rd Generation
FRS	First Row Seat
SCMK	Seat Control Module-K (driver's side second row seat module)
SCML	Seat Control Module-L (passenger's side second row seat module)
SPSS	Subsystem Part Specific Specification
SRS	Second Row Seat

Term	Description

2 Architectural Design

2.1 SRS-CLD-REQ-465235/A-Second Row Seats InterfaceClient1

The Second Row Seats InterfaceClient1 (SRSInterfaceClient1) is responsible for the tasks listed below:
- Receive seat status information from SRSDriverPositionServer and SRSPassengerPositionServer
- Transmit Power Pitch adjustment requests to SRSDriverPositionServer and SRSPassengerPositionServer
- Display seat status information for Power Pitch

Please review the implementation guide/ block diagram to locate the Second Row Seats InterfaceClient1 class.

2.2 SRS-CLD-REQ-465236/A-Second Row Seats Driver Position Server

The Second Row Seats Driver Position Server (SRSDriverPositionServer) is responsible for the tasks listed below:
- Transmit driver seat status information to SRSInterfaceClient2
- Receive driver seat adjustment requests from SRSInterfaceClient2
- Receive Power Pitch adjustment requests from SRSInterfaceClient1
- Transmit Power Pitch seat status to SRSInterfaceClient1
- Synchronize screen menu changes with SRSInterfaceClient2
- Perform/actuate driver seat adjustments
- Perform/actuate Power Pitch adjustments

Please review the implementation guide/ block diagram to locate the Second Row Seats Driver Position Server class.

2.3 SRS-CLD-REQ-465237/A-Second Row Seats Passenger Position Server

The Second Row Seats Passenger Position Server (SRSPassengerPositionServer) is responsible for the tasks listed below:
- Transmit passenger seat status information to SRSInterfaceClient2
- Receive passenger seat adjustment requests from SRSInterfaceClient2
- Receive Power Pitch adjustment requests from SRSInterfaceClient1
- Transmit Power Pitch seat status to SRSInterfaceClient1
- Synchronize screen menu changes with SRSInterfaceClient2
- Perform/actuate passenger seat adjustments
- Perform/actuate Power Pitch adjustments

Please review the implementation guide/ block diagram to locate the Second Row Seats Passenger Position Server class.

2.4 Physical Mapping of Classes

The table below shows an example of how the logical classes that make up the Second Row Seats feature can be mapped into physical modules. This mapping is an example only and does not necessarily carryover to other carlines or vehicle architectures.

Logical Class	Physical Module (ECU)
SRSInterfaceClient1	Phoenix
SRSDriverPositionServer	SCMK
SRSPassengerPositionServer	SCML

2.5 SRSInterfaceClient1 Interface

2.5.1 SRS-IIR-REQ-464846/A-SRSInterfaceClient1_Rx

2.5.1.1   MD-REQ-027149/A-IgnitionStatus_St (TcSE ROIN-225464-1)

Message Type: Status

Signal used to indicate ignition state.

Name	Literals	Value	Description
Type	-	-	Indicates ignition state
	Unknown	0x0	
	Off	0x1	
	Accessory	0x2	
	Run	0x4	
	Start	0x8	
	Invalid	0xF	

2.5.1.2   MD-REQ-465364/A-SeatLatchWarningSecondRowDriver_Rq

Message Type: Request

Signal used to request Driver side Power Pitch warnings be displayed on HMI.

Name	Literals	Value	Description
Type	-	-	Request to display Power Pitch warnings on HMI.
	Inactive	0x0	
	Warning_1	0x1	
	Warning_2	0x2	
	Warning_3	0x3	

2.5.1.3   MD-REQ-465365/A-SeatLatchWarningSecondRowPassenger_Rq

Message Type: Request

Signal used to request Passenger side Power Pitch warnings be displayed on HMI.

Name	Literals	Value	Description
Type	-	-	Request to display Power Pitch warnings on HMI.
	Inactive	0x0	
	Warning_1	0x1	
	Warning_2	0x2	
	Warning_3	0x3	

2.5.1.4   MD-REQ-465366/A-SeatSlideDriver_Rq

Message Type: Request

Signal used to provide Second Row Driver seat pitch/return status.

Name	Literals	Value	Description
Type	-	-	Second Row Driver seat pitch/return status.
	Inactive	0x0	
	Enabling	0x1	
	Pitching	0x2	
	Pitched	0x3	
	Returning	0x4	
	Stopped	0x5	

NotUsed	0x6-0x7	

2.5.1.5   MD-REQ-465367/A-SeatSlidePassenger_Rq

Message Type: Request

Signal used to provide Second Row Passenger seat pitch/return status.

Name	Literals	Value	Description
Type	-	-	Second Row Passenger seat pitch/return status.
	Inactive	0x0	
	Enabling	0x1	
	Pitching	0x2	
	Pitched	0x3	
	Returning	0x4	
	Stopped	0x5	
	NotUsed	0x6-0x7	

2.5.2   SRS-IIR-REQ-464847/A-SRSInterfaceClient1_Tx

2.5.2.1   MD-REQ-465368/A-SeatSlideSecondRowDriver_Rq

Message Type: Request

Signal used to control Second Row Driver seat pitch/return, from First Row HMI input

Name	Literals	Value	Description
Type	-	-	Adjust pitch/return of Second Row Driver seat device from First Row HMI.
	Inactive	0x0	
	Pitch	0x1	
	Return	0x2	
	Stop	0x3	

2.5.2.2   MD-REQ-465369/A-SeatSlideSecondRowPassenger_Rq

Message Type: Request

Signal used to control Passenger Second Row seat pitch/return, from First Row HMI input

Name	Literals	Value	Description
Type	-	-	Adjust pitch/return of Second Row Passenger seat device from First Row HMI.
	Inactive	0x0	
	Pitch	0x1	
	Return	0x2	
	Stop	0x3	

3 General Requirements

3.1 SRS-REQ-465177/A-Power Pitch - Configuration

The SRSInterfaceClient1 shall have a configurable parameter/DID to allow the Power Pitch feature to be enabled/disabled.

- When the parameter indicates that Power Pitch is Present, all the functionality and signals defined in FUN-REQ-464909 shall be supported.
- When the parameter indicates that Power Pitch is Not Present, none of the functionality defined in FUN-REQ-464909 shall be supported.
  - o The default value for this parameter shall be Not Present.

3.2 SRS-REQ-465178/A-Power Pitch - Powermode Conditions

The SRSInterfaceClient1 shall only perform the Power Pitch functionality as long as the HMI display is available (irrespective of IgnitionStatus_St).

4   Functional Definition

4.1   SRS-FUN-REQ-464909/A-Power Pitch

4.1.1   Use Cases

4.1.1.1   SRS-UC-REQ-464991/A-User makes Power Pitch Driver adjustments via SRSInterfaceClient1

Actors	SRSInterfaceClient1, SRSDriverPositionServer
Pre-conditions	Powermode conditions are met
Scenario Description	User opens Power Pitch and makes a driver side adjustment on the SRSInterfaceClient1
Post-conditions	The SRSInterfaceClient1 sends the respective setting request to the SRSDriverPositionServer The SRSDriverPositionServer makes the adjustment and sends status update to SRSInterfaceClient1 The SRSInterfaceClient1 displays the updated status
List of Exception Use Cases	
Interfaces	CAN, HMI

4.1.1.2   SRS-UC-REQ-464992/A-User makes Power Pitch Passenger adjustments via SRSInterfaceClient1

Actors	SRSInterfaceClient1, SRSPassengerPositionServer
Pre-conditions	Powermode conditions are met
Scenario Description	User opens Power Pitch and makes a passenger side adjustment on the SRSInterfaceClient1
Post-conditions	The SRSInterfaceClient1 sends the respective setting request to the SRSPassengerPositionServer The SRSPassengerPositionServer makes the adjustment and sends status update to SRSInterfaceClient1 The SRSInterfaceClient1 displays the updated status
List of Exception Use Cases	
Interfaces	CAN, HMI

4.1.1.3   SRS-UC-REQ-464993/A-Seat not fully returned/latched via Power Pitch

Actors	SRSInterfaceClient1, SRSPassengerPositionServer, SRSPassengerPositionServer
Pre-conditions	Powermode conditions are met Second Row Driver or Passenger Seat is not fully returned to initial position and not latched
Scenario Description	User puts vehicle in Drive
Post-conditions	The SRSDriverPositionServer or SRSPassengerPositionServer (whichever seat is not latched) sends popup request to SRSInterfaceClient1

	The SRSInterfaceClient1 displays popup
List of Exception Use Cases	
Interfaces	CAN, HMI

4.1.2 Requirements

4.1.2.1 SRS-REQ-465179/A-Request Driver Pitch Forward from SRSInterfaceClient1

The SRSInterfaceClient1 shall send SeatSlideSecondRowDriver_Rq = "Pitch" when the user selects to move the driver's second row seat to the pitched position.

4.1.2.2 SRS-REQ-465180/A-Request Driver Pitch Rearward from SRSInterfaceClient1

The SRSInterfaceClient1 shall send SeatSlideSecondRowDriver_Rq = "Return" when the user selects to move the driver's second row seat to the seated position.

4.1.2.3 SRS-REQ-465181/A-Request Driver Pitch Pause from SRSInterfaceClient1

The SRSInterfaceClient1 shall send SeatSlideSecondRowDriver_Rq = "Stop" when the user selects to pause the driver's second row seat while the seat is in the process of pitching/reseating.

4.1.2.4 SRS-REQ-465182/A-Request Driver Pitch Rearward from SRSInterfaceClient1 after Vehicle Status Warning

When the SRSInterfaceClient1 receives SeatLatchWarningSecondRowDriver_Rq = "Warning_1" and the user selects to reseat the pitched seat, it shall send SeatSlideSecondRowDriver_Rq = "Return".

4.1.2.5 SRS-REQ-465183/A-Display SRS Driver Side Stop Option in SRSInterfaceClient1

When the SRSInterfaceClient1 receives SeatSlideDriver_Rq = "Pitching", "Returning", or "Enabling", it shall provide the user the option to stop the driver's side second row seat pitch process.

4.1.2.6 SRS-REQ-465184/A-Display SRS Driver Side Return Option in SRSInterfaceClient1

When the SRSInterfaceClient1 receives SeatSlideDriver_Rq = "Pitched", it shall provide the user the option to return the driver's side second row seat.

4.1.2.7 SRS-REQ-465185/A-Display SRS Driver Side Pitch Option in SRSInterfaceClient1

When the SRSInterfaceClient1 receives SeatSlideDriver_Rq = "Inactive", it shall provide the user the option to pitch the driver's side second row seat.

4.1.2.8 SRS-REQ-465186/A-Display SRS Driver Side Pitch or Return Options in SRSInterfaceClient1

When the SRSInterfaceClient1 receives SeatSlideDriver_Rq = "Stopped", it shall provide the user the options to pitch or return the driver's side second row seat.

4.1.2.9 SRS-REQ-465187/A-Request Passenger Pitch Forward from SRSInterfaceClient1

The SRSInterfaceClient1 shall send SeatSlideSecondRowPassenger_Rq = "Pitch" when the user selects to move the passenger's second row seat to the pitched position.

4.1.2.10 SRS-REQ-465188/A-Request Passenger Pitch Rearward from SRSInterfaceClient1

The SRSInterfaceClient1 shall send SeatSlideSecondRowPassenger_Rq = "Return" when the user selects to move the passenger's second row seat to the seated position.

4.1.2.11 SRS-REQ-465189/A-Request Passenger Pitch Pause from SRSInterfaceClient1

The SRSInterfaceClient1 shall send SeatSlideSecondRowPassenger_Rq = "Stop" when the user selects to pause the passenger's second row seat while the seat is in the process of pitching/reseating.

4.1.2.12 SRS-REQ-465190/A-Request Passenger Pitch Rearward from SRSInterfaceClient1 after Vehicle Status Warning

When the SRSInterfaceClient1 receives SeatLatchWarningSecondRowPassenger_Rq = "Warning_1" and the user selects to reseat the pitched seat, it shall send SeatSlideSecondRowPassenger_Rq = "Return".

4.1.2.13 SRS-REQ-465191/A-Display SRS Passenger Side Stop Option in SRSInterfaceClient1

When the SRSInterfaceClient1 receives SeatSlidePassenger_Rq = "Pitching", "Returning", or "Enabling", it shall provide the user the option to stop the passenger's side second row seat pitch process.

4.1.2.14 SRS-REQ-465192/A-Display SRS Passenger Side Return Option in SRSInterfaceClient1

When the SRSInterfaceClient1 receives SeatSlidePassenger_Rq = "Pitched", it shall provide the user the option to return the passenger's side second row seat.

4.1.2.15 SRS-REQ-465193/A-Display SRS Passenger Side Pitch Option in SRSInterfaceClient1

When the SRSInterfaceClient1 receives SeatSlidePassenger_Rq = "Inactive", it shall provide the user the option to pitch the passenger's side second row seat.

4.1.2.16 SRS-REQ-465194/A-Display SRS Passenger Side Pitch or Return Options in SRSInterfaceClient1

When the SRSInterfaceClient1 receives SeatSlidePassenger_Rq = "Stopped", it shall provide the user the options to pitch or return the passenger's side second row seat.

4.1.2.17 SRS-REQ-465195/A-Display Warning 1 for Second Row Driver Seat

When the SRSInterfaceClient1 receives SeatLatchWarningSecondRowDriver_Rq = "Warning_1", it shall:
- Display a warning to the user that the driver's second row seat is pitched
- Provide an option to the user to return the seat.

4.1.2.18 SRS-REQ-465196/A-Display Warning 1 for Second Row Passenger Seat

When the SRSInterfaceClient1 receives SeatLatchWarningSecondRowPassenger_Rq = "Warning_1", it shall:
- Display a warning to the user that the passenger's second row seat is pitched
- Provide an option to the user to return the seat.

4.1.3 White Box View

4.1.3.1 Activity Diagrams

4.1.3.2 Sequence Diagrams

5   Appendix: Reference Documents

Reference #	Document Title
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	