Research & Vehicle Technology
"Infotainment Systems Product Development"

Feature – Rear Camera On Demand

Infotainment Subsystem Part Specific Specification (SPSS)

Version 1.1
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Version Date: June 21, 2019

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Revision History

Date	Ver	Notes
September 5, 2017	1.0	**Initial Release**	
June 21, 2019	1.1	
		RVCOD-FRD-REQ-273364/B-Rear Camera On Demand SPSS	tmertiri: changes related to FNV2 , new signal, new seq diagram etc
		473439/B-Overview	tmertiri: update overview. Removed Reverse gear
		RVCOD-CLD-REQ-273348/B-RC On Demand Client	tmertiri: structure reorg
		RVCOD-CLD-REQ-273349/B-RC On Demand Server	tmertiri: structure reorg
		FUR-REQ-273357/B-RC on Demand Logical Signal Mapping	tmertiri:added new signal
		RVCOD-IIR-REQ-273360/B-RCOD Client_Rx	tmertiri: added new signal
		MD-REQ-273361/B-RcodSt	tmertiri: formatting
		MD-REQ-353826/A-LCmrSt	tmertiriL new signal
		473436/B-General Requirements	tmertiri: new requirement due to new signal
		RVCOD-REQ-273352/B-RC on Demand Availibility	tmertiri: structure update
		RVCOD-REQ-273353/B-Error Conditions	tmertiri: structure update
		RVCOD-REQ-273354/B-Missing Signals	tmertiri: structure update
		RVCOD-REQ-274273/B-Button Press	tmertiri: structure update
		RVCOD-REQ-274274/B-Shifting in Reverse Gear	tmertiri: updated requirement
		RVCOD-REQ-353976/A-Feature Signals	tmertiri: new requirement
		RVCOD-UC-REQ-273350/B-Turn On Rear Camera On Demand	tmertiri: update usecase verbiage
		RVCOD-UC-REQ-273351/B-Turn Off Rear Camera On Demand	tmertiri: update usecase verbiage
		RVCOD-ACT-REQ-273365/B-Activity Diagram	tmertiri: structure update
		473447/B-Sequence Diagram	tmertiri: Added new Seq diagram , due to LCmrSt signal
		RVCOD-SD-REQ-273366/B-Sequence Diagram RcodSt	tmertiri: Update diagram.
		RVCOD-SD-REQ-353975/A-Sequence Diagram LCmrSt	tmertiri: new requirement

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1 Architectural Design

1.1 Overview

The Rear Camera On Demand Feature will use current capabilities of the Rear View Camera and vehicle display to present rear view camera image while gear is in Neutral, Park and Drive while vehicle is moving with speeds up to 10kph.The rest of the requirements should be reviewed to learn if other restrictions are applicable.

1.2 RVCOD-CLD-REQ-273348/B-RC On Demand Client

Responsibility: Rear Camera On Demand Client among its other duties that it may have is also responsible for displaying or not displaying the Rear View Camera image stream whenever the appropriate conditions are satisfied.

1.3 RVCOD-CLD-REQ-273349/B-RC On Demand Server

Responsibility: Rear Camera On Demand Server will acquire user requests to turn the feature On or Off and will provide this request to the Client which will proceed as deemed appropriate.

1.4 FUR-REQ-273357/B-RC on Demand 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: There may be cases where the actual CAN signal name is used in this documentation.

Logical Name	CAN Signal Name
RcodSt	**CamraRearBttn_D_Stat**
LCmrSt	**CamraFrntStat_D_Stat**

Table: Logical name/CAN signal mapping

1.5 RVCOD-IIR-REQ-273360/B-RCOD Client_Rx

1.5.1 MD-REQ-273361/B-RcodSt

RcodSt is used to send users request to the Client RCOD.

Name	Literals	Value	Description
RcodtSt			
	Not_Pressed	0x0	Camera button is currently not being pressed.
	Pressed	0x1	Camera button is being pressed.

1.5.2 MD-REQ-353826/A-LCmrSt

LCmrSt: This signal is sent by the server to the client to indicate that Camera button states as below.

Literals	Value	Description
Off	0x0	Button is not pressed
On	0x1	Button is Pressed
NotUsed	0x2	Not Used

NoDataPresent	0x3	Server not present.

Client should not receive the values 0x2 and 0x3. These signal values mean that server is sending some incompatible data.

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FILE:REAR CAMERA ON DEMAND APIM SPSS V1.1 JUNE 21, 2019.DOCX	**FORD MOTOR COMPANY CONFIDENTIAL** *The information contained in this document is Proprietary to Ford Motor Company.*	*Page* 5 *of* 10

2 General Requirements

2.1 RVCOD-REQ-273352/B-RC on Demand Availibility

RC On Demand shall not be available when **Ignition_Status = OFF/ACC/Start/Unknown.**
RC On demand shall not be available if **Transmission Status (**GearLvrPos_D_Actl**) = Unknown.**

2.2 RVCOD-REQ-273353/B-Error Conditions

Client shall display "**For your safety.....**" (Front camera overspeed pop up) when button is pressed and vehicle is in D with speed above 10kph.

2.3 RVCOD-REQ-273354/B-Missing Signals

Camera shall display "Camera not available" if there is no valid video signal from Rear Camera for more than 10 seconds.

2.4 RVCOD-REQ-274273/B-Button Press

Since CAN signal from button press only indicates its state of pressed and not pressed, the client shall toggle the state of RCOD whenever a new button press is detected.

2.5 RVCOD-REQ-274274/B-Shifting in Reverse Gear

If the user has RCOD active while gear is not in reverse and then shifts in reverse, the RCOD shall get replaced with standard RVC video feed. The client shall ignore and RCOD button presses while gear is in reverse and instead it should maintain displaying RVC video feed.

2.6 RVCOD-REQ-353976/A-Feature Signals

This feature can be controlled by the two signals mentioned in Logical Signal Mapping Table.
The signals should not coexist in the same vehicle, so Client should be receiving a single signal at a time.

3   Functional Definition

3.1   Use Cases

3.1.1   RVCOD-UC-REQ-273350/B-Turn On Rear Camera On Demand

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. Vehicle is in Park, Neutral or Drive below 10kph. Vehicle is equipped with Rear Camera On Demand. RC on demand is OFF.
Scenario Description	Customer presses Rear Camera on demand button.
Post-conditions	Client displays Rear Camera On Demand.
List of Exception Use Cases	
Interfaces	G-HMI Vehicle System Interface

3.1.2   RVCOD-UC-REQ-273351/B-Turn Off Rear Camera On Demand

Actors	Vehicle Occupant
Pre-conditions	The infotainment system is powered on. The ignition status is Run/Start. Vehicle is in any valid gear position. Vehicle is equipped with Rear Camera on Demand. Rear Camera on Demand is On.
Scenario Description	Customer presses Rear Camera on Demand button or customer drives above 10kph or customer shifts to Reverse.
Post-conditions	Client turns Rear Camera on Demand Off
List of Exception Use Cases	
Interfaces	G-HMI Vehicle System Interface

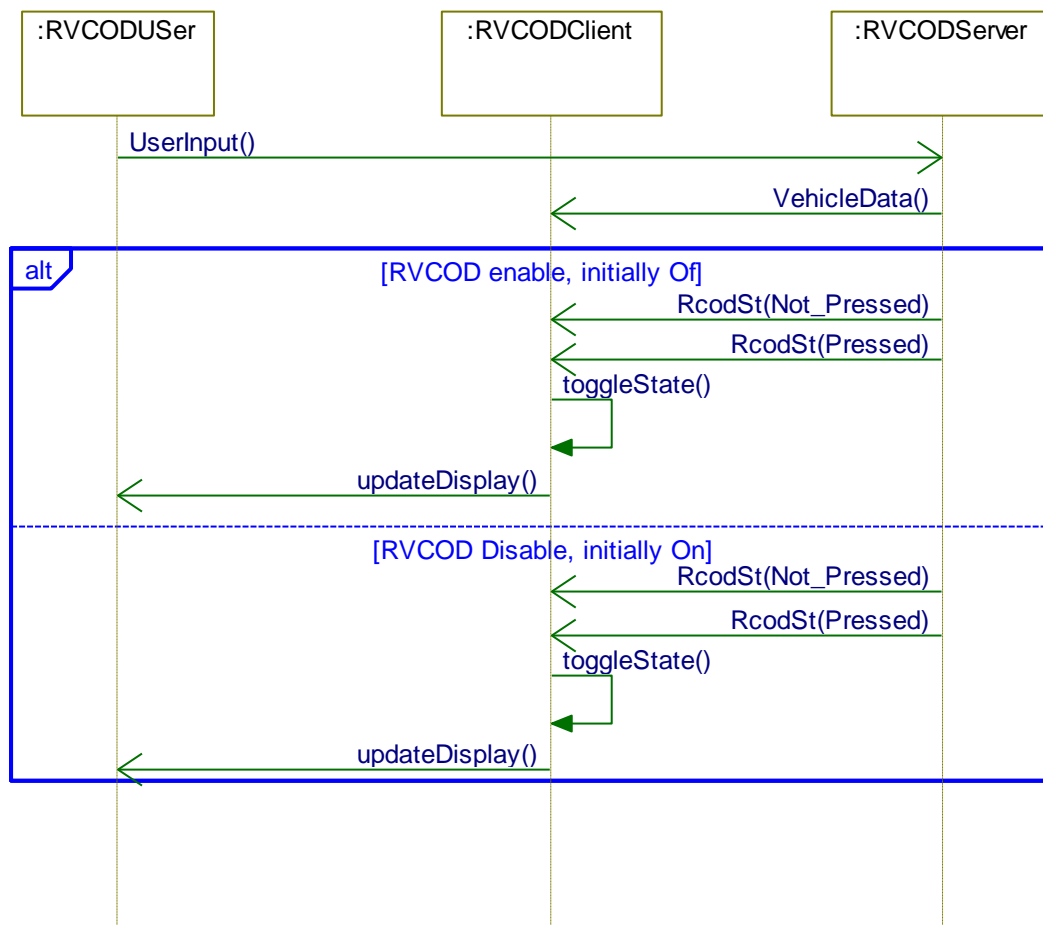## 3.2   White Box Views

3.2.1   Activity Diagram

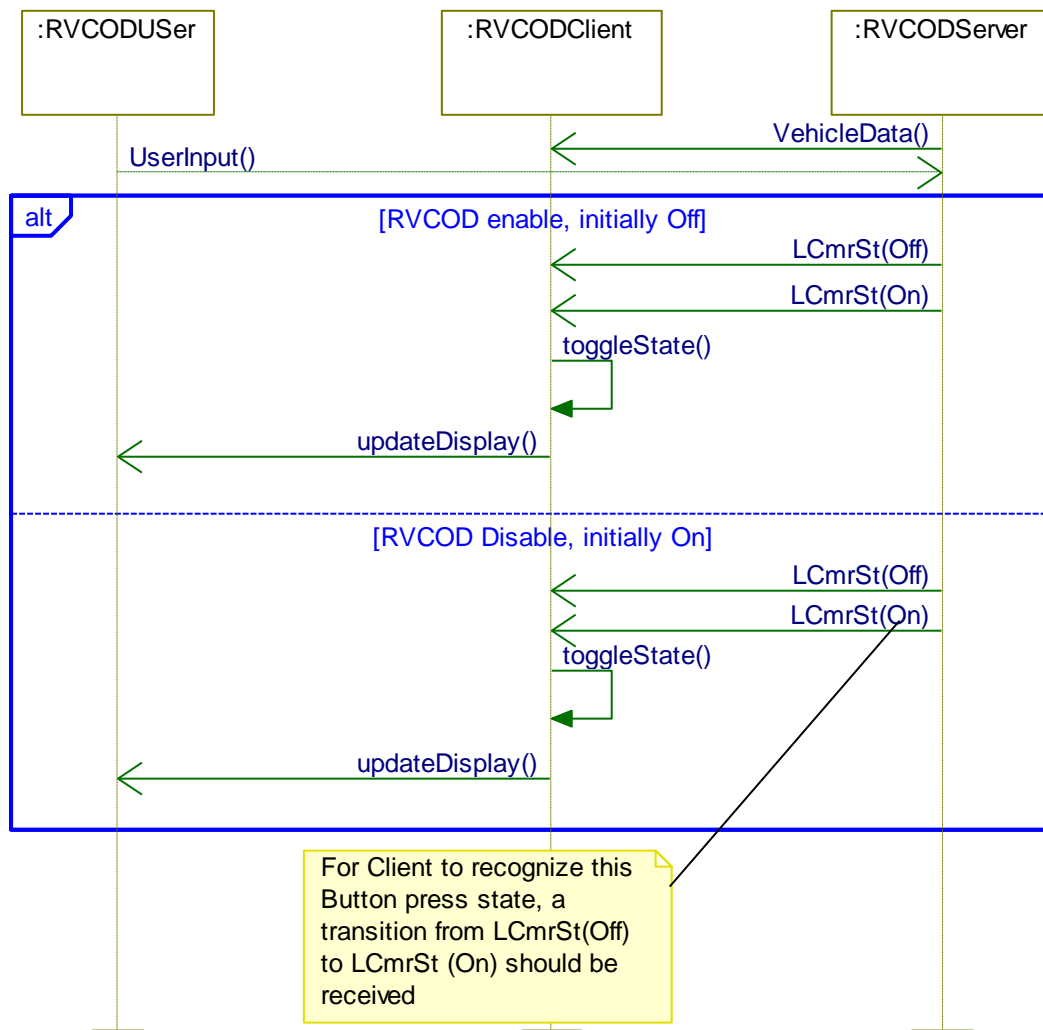#### 3.2.1.1   RVCOD-ACT-REQ-273365/B-Activity Diagram
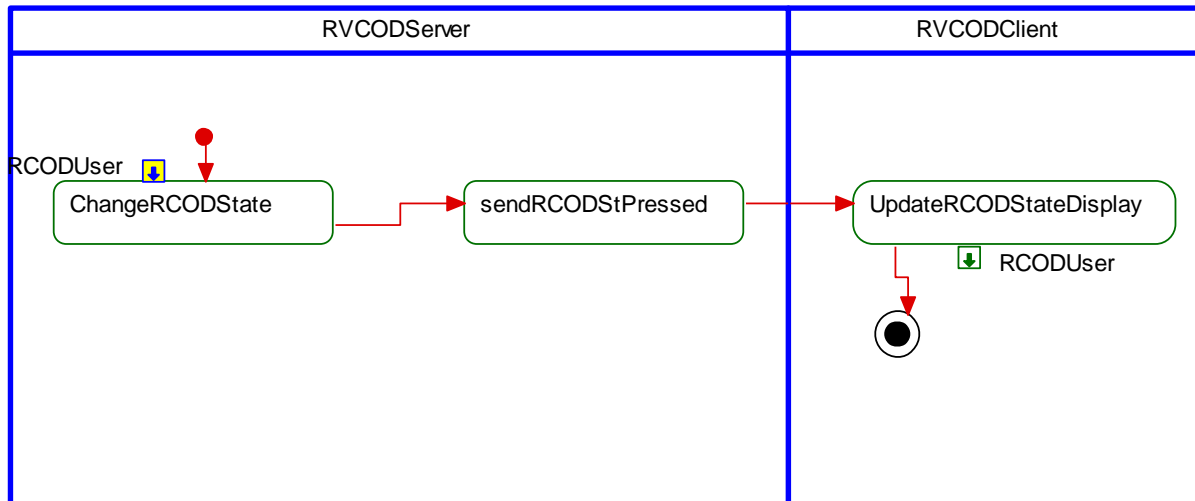
3.2.2   Sequence Diagram

3.2.2.1   RVCOD-SD-REQ-273366/B-Sequence Diagram RcodSt

3.2.2.2 RVCOD-SD-REQ-353975/A-Sequence Diagram LCmrSt

4   Appendix: Reference Documents