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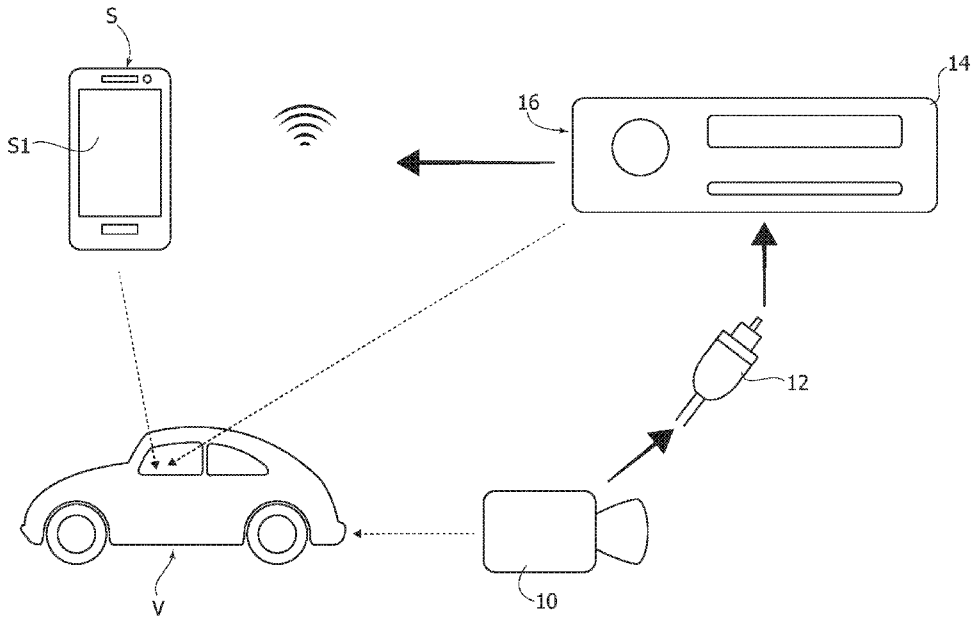
WO 2019/025887 A1

(54) Title: A METHOD OF INTEGRATING CAMERAS IN MOTOR VEHICLES, CORRESPONDING SYSTEM, CIRCUIT, KIT AND MOTOR VEHICLE

FIG. 1



(57) Abstract: A vehicle such as a motor car (V) equipped with a radio equipment (14) is provided with a rearview camera 5 (10). Video frames from the rearview camera (10) are received at the radio equipment (14) and transmitted to a mobile communication device (S) such as a smart phone equipped with a video screen (S1) so that video frames from the rearview camera (10) are displayed on the 10 video screen (S1) of the mobile communication device (S).

[Continued on next page]

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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— *with international search report (Art. 21(3))*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

"A method of integrating cameras in motor vehicles, corresponding system, circuit, kit and motor vehicle"

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Technical field

The description relates to rearview (backup) cameras for motor vehicles.

One or more embodiments may apply to "after-market" or "retrofit" equipping of motor vehicles with such cameras.

Technological background

Rearview (or "backup") cameras are currently installed in motor vehicles as an optional feature. Legislation is under way in certain countries intended to render rearview camera a compulsory equipment for all new cars for safety reasons.

A rearview camera allows a driver, when reversing, to see an image of the area just behind a car e.g. via a camera mounted on the car rear bumper. This facilitates avoiding e.g. inadvertent pedestrian backover crashes during reversing.

Different approaches can be adopted in integrating a rearview camera (and an associated monitor) in a motor vehicle.

For instance, a rearview camera and a monitor for displaying the images from the rearview camera can be included as original vehicle equipment (OEM) installed at the factory, possibly together with touchscreen navigation features and Bluetooth for hands-free phone calls. In certain cases, a monitor can be provided as a small monitor located in a rearview mirror on the driver's side.

A vehicle not provided with such original equipment can be "retro-fitted" with a rearview camera and an associated monitor. For instance, this may occur while replacing a factory-installed radio with a

smarter radio, which may have associated e.g. a GPS viewing screen which may be exploited for displaying rearview camera images when the vehicle is in reverse.

Such upgrade will normally involve a relatively high cost, possibly justified (only) by additional benefits to rearview camera alone.

Another option may include a "kit" including a rearview camera for mounting e.g. at the car plate and an associated stand-alone monitor.

Solutions are available where a smart phone can be used to display rearview camera images, e.g. by sending the rearview camera images over a WiFi connections to a specific device that redirects the frame to the smart phone. One such solution is disclosed at https://pearlauto.com/.

Object and summary

Despite the activity discussed in the foregoing, improved solutions are desirable in order to address various issues.

For instance, reducing the cost of "retrofitting" an existing vehicle with a rearview camera may facilitate the diffusion of such a safety feature.

The capability of interfacing with the "infotainment" system of the vehicle (e.g. the ability of exploiting data/messages from the CAN subsystem in the vehicle) may represent another desirable feature.

An accurate installation, not easy to be tampered with, possibly certified by a qualified operator, may represent a point of interest in view of the possible "forensic" relevance of rearview camera images (e.g. for insurance purposes).

An object of one or more embodiments is to contribute in providing such an improved solution.

According to one or more embodiments, such an object can be achieved by means of a method having the

features set forth in the claims that follow.

One or more embodiments may relate to a corresponding system, a corresponding circuit as well as to a corresponding kit (e.g. for use in "retro-fitting" exisitng vehicles) and a corresponding motor vehicle.

The claims are an integral part of the technical teaching provided herein in respect of the embodiments.

One or more embodiments make it possible to provide a vehicle with a rearview camera feature at a reduced cost (e.g. a few USD).

One or more embodiments can be associated effectively with other "aftermarket" products by making these more appealing for the final user.

One or more embodiments make it possible to provide a vehicle with a rearview camera feature with the camera representing practically the sole item to be added.

Brief description of the several views of the drawings

One or more embodiments will now be described, by way of example only, with reference to the annexed figures, wherein:

- Figure 1 is a functional diagram exemplary of embodiments,
- Figure 2 is a block diagram exemplary of a system based on embodiments, and
- Figure 3 is a block diagram exemplary of a system architecture based on embodiments.

Detailed description

In the ensuing description, one or more specific details are illustrated, aimed at providing an in-depth understanding of examples of embodiments of this description. The embodiments may be obtained without one or more of the specific details, or with other

methods, components, materials, etc. In other cases, known structures, materials, or operations are not illustrated or described in detail so that certain aspects of embodiments will not be obscured.

Reference to "an embodiment" or "one embodiment" in the framework of the present description is intended to indicate that a particular configuration, structure, or characteristic described in relation to the embodiment is comprised in at least one embodiment. Hence, phrases such as "in an embodiment" or "in one embodiment" that may be present in one or more points of the present description do not necessarily refer to one and the same embodiment. Moreover, particular conformations, structures, or characteristics may be combined in any adequate way in one or more embodiments.

The references used herein are provided merely for convenience and hence do not define the extent of protection or the scope of the embodiments.

In Figure 1 reference V indicates a vehicle such as a motor car having installed thereon (e.g. by way of retro-fitting) a rearview ("backup") camera 10. The camera can be of any known type as already available on the market from various sources.

The camera 10 is coupled via a connection 12 to a car radio receiver 14 installed in the vehicle V and provided with a connection 16 (e.g. USB or WiFi, this latter designation being intended to be inclusive of Bluetooth connection) to a smart phone S or a similar portable device (e.g. a tablet or the like) provided with a video quality screen S1, that is a screen (e.g. a LCD screen) capable of providing adequate reproduction of video signals as produced by a rearview camera such as 10.

In one or more embodiments, the vehicle V being driven in reverse can be sensed by the radio 14. The video signals from the camera 10, which may be activated by reversing being sensed, can thus be received by the radio 14 over the connection 12 and sent towards the device S over the connections 16 to be displayed on the screen S1. For that purpose, the device S may be arranged on a support member (e.g. a support bracket in the passenger compartment) at an adequate location in the driver's field of view.

In one or more embodiments the radio 14 can be e.g. a so-called 1DIN (ISO7736) radio not equipped with an LCD display. Such a radio would per se be unable to support rearview camera use. On the other hand, 1DIN radios still represent a significant quota of OEM and aftermarket car radio systems.

One or more embodiments make it possible to bypass that limitation by using a display screen e.g. of the driver's smart phone connected via WiFi or USB to the car radio 14 (which may be already equipped with such communication features for synchronization with such a smart phone e.g. for hands-free phone calls).

In one or more embodiments, the rearview camera 10 can be installed e.g. at the rear bumper of the vehicle V to send video frames to the radio 14 over the connection 12. In one or more embodiments, an analog video decoder 10a may be associated with the camera 10 for that purpose.

In one or more embodiments, the radio 14 can receive over the connection 12 video frames generated from the rearview camera 10, e.g. using a Graphic accelerator 140 or a video input port (e.g. Accordo2 Smart Graphic Accelerator SGA) and output them e.g. as YUV frames to be sent, possibly after optional compression (e.g. at a compressor 142 such as a Cortex

R4-based compressor), to the device S (e.g. a smart phone) over the connection 16.

Also, in one or more embodiments, a radio 14 such as e.g. a 1DIN radio can be (already) configured - in a manner known per se - to receive messages via a CAN subsystem or any other interface installed in the vehicle V and send to the device S corresponding messages, e.g. by using a dedicated protocol.

A Controller Area Network (CAN) bus is a known standard which enables communication between devices such as microcontrollers and other devices. While originally devised for other electrical wiring applications, it is extensively used in vehicles due e.g. to good noise immunity and the possibility of saving on copper. Also, being a message-based approach, a host computer is not required.

In one or more embodiments, the device S (hereinafter a smart phone will be mostly referred to for simplicity) can receive from the car radio 14 over the connection 16 video frames generated from the rearview camera 10, optionally de-compress them, and display them on the screen S1.

In one or more embodiments, the device S can also decode messages coming from the radio 14 about the reverse status as sensed - in manner known per se – at the radio 14.

It will be otherwise appreciated that the device S may per se be distinct from one or more embodiments.

The device S may simply be a mobile communications device ("user equipment") including a video-quality screen (e.g. a smart phone, a tablet, a watch or any other type of portable/wearable device) as carried/worn by a driver capable of and configured - in a manner known per se - for receiving from the radio 14 video frames generated from the rearview camera 10 and

displaying them on the screen S1.

Various (identical or different) options can be considered for both connections 12 and 16.

In one or more embodiments, the connection 12 of the camera 10 to the radio 14 may include a RCA connector (composite video)

In one or more embodiments, the connection 12 of the camera 10 to the radio 14 may be in compliance with the ITU-R BT 656 standard.

While not mandatory, in one or more embodiments, the connection 12 of the camera 10 to the radio 14 may include a wired connection. This may facilitate installation being entrusted to a qualified operator, also in view of possible certification. Also such a wired connection, included in the vehicle "harness", may be less exposed to undesired tampering.

In one or more embodiments, the connection 16 of the radio 14 to the device (smart phone) 10 may include a USB or WiFi (e.g. Bluetooth) connection.

While not mandatory, in one or more embodiments, such connection 16 may exploit a communication channel already provided (e.g. for hands-free phone calls).

In one or more embodiments a rearview camera application ("app") can be loaded to the smart phone 10 to be triggered when the reverse gear is activated. This condition can be sensed by the radio 14 by being connected to the vehicle CAN subsystem.

In one or more embodiments a circuit essentially corresponding to blocks 140 and 142 of Figure 2 (including circuit elements providing interfacing with the connections 12 and 16) can be integrated into an otherwise conventional car radio 14, e.g. Accordo2™ as available with companies of the ST Group.

Accordo2™ is a family of devices that provide a cost effective microprocessor solution for modern

automotive car radio systems, with an embedded powerful Digital Sound Processing subsystem, as well as a MIPS efficient ARM Cortex-R4 processor and an ARM Cortex-M3 controller dedicated for real-time CAN/Vehicle Interface Processing.

Accordo2™ family devices come with a set of common interfaces (UART/I2S/I2C/USB/MMC) which facilitates implementing a feature-rich system as well as a cost effective solution, bundled with a software package, which facilitates fast system implementation.

Accordo2™ family devices can manage an audio chain from analog or digital inputs to analog or digital outputs, including digital audio media decoding, sample rate conversion among various sources, intelligent routing and audio effects/DSP post processing. A flexible memory configuration facilitates implementing from very low cost systems based on real time OS, scaling up to demanding applications based on Linux OS.

Accordo2™ family devices are easily configurable in such a way that the vehicle being driven in reverse ("reversing") is detected to facilitate activation of the rearview camera system described (only) during reversing.

The block diagram of Figure 3 represents, in a complementary way to the system block diagram of Figure 2, a possible software architecture of one or more embodiments adapted for implementation e.g. in Accordo2™ family devices.

Such architecture may provide a frame path from the camera 10 to the smart phone S such that video frames from the camera 10 can be received at the radio 14 over the connection 12 e.g. via a video input port (VIP) driver 20 and processed (e.g. STGLib) at 22.

A smartphone connectivity stack 24/USB stack 26

can be exploited to sent the images form the camera 10 to the smart phone (or another screen-equipped device) S over the connection 16 (e.g. a USB connection).

Protocol features between the smart phone S and the radio 14 can include both EAP 28 (over iAp - 28a) -- for iOS devices -- and AOA 30 -- for Android devices.

A method according to one or more embodiments may include:

- providing a rearview camera (e.g. 10) on a vehicle (e.g. a motor car V) equipped with a radio equipment (e.g. 14),

- receiving (e.g. at 12) video frames from the rearview camera at the radio equipment,

- transmitting (e.g. at 16) video frames received at the radio equipment from the rearview camera to a mobile communication device (e.g. S) equipped with a video screen (e.g. S1), wherein video frames from the rearview camera are displayed on the video screen of the mobile communication device.

One or more embodiments may include:

- sensing at the radio equipment the vehicle reversing (that is, being driven in reverse), and

- transmitting video frames received at the radio equipment from the rearview camera to the mobile communication device for display on the video screen thereof as a result of vehicle reversing being sensed at the radio equipment.

In one or more embodiments a system may include:

- a rearview camera for mounting on a vehicle equipped with a radio equipment, and

- the radio equipment configured for receiving video frames from the rearview camera at the radio equipment and transmitting video frames received at the radio equipment from the rearview camera to a mobile communication device equipped with a video screen.

One or more embodiments may include the radio equipment configured for sensing the vehicle reversing and transmitting video frames received at the radio equipment from the rearview camera to a mobile communication device for display on the video screen thereof as a result of vehicle reversing being sensed at the radio equipment.

One or more embodiments may include a wired connection between the rearview camera and the radio equipment.

In one or more embodiments the radio equipment may include a WiFi or USB transmitter configured for transmitting to a mobile communication device video frames received from the rearview camera.

A circuit according to one or more embodiments for inclusion in vehicle (e.g. car) radio equipment may include:

- a video signal receiver circuit block (e.g. 140) configured for receiving video signals conveying video frames from a vehicle rearview camera,
- a video signal transmitter circuit block (e.g. 142) configured for transmitting to a mobile communication device equipped with a video screen said video signals received at said video signal receiver circuit block.

In one or more embodiments, the circuit may be configured for sensing the vehicle reversing and transmitting said video signals to a mobile communication device as a result of vehicle reversing being sensed at the radio equipment.

In one or more embodiments, a kit (e.g. for retro-fitting purposes) may include a rearview camera as well as radio equipment for mounting on a vehicle, the radio equipment including:

- a video signal receiver circuit block configured for receiving video signals conveying video frames from said rearview camera mounted on said vehicle,

- a video signal transmitter circuit block configured for transmitting to a mobile communication device equipped with a video screen said video signals received at said video signal receiver circuit block.

One or more embodiments may include a vehicle (e.g. motor car) equipped (as OEM feature or by way of retro-fitting) with a system according to one or more embodiments.

Without prejudice to the underlying principles, the details and embodiments may vary, even significantly, with respect to what has been described by way of example only, without departing from the extent of protection.

The extent of protection is defined by the annexed claims.

CLAIMS

1. A method, including:

- providing a rearview camera (10) on a vehicle (V) equipped with a radio equipment (14),

- receiving (12) video frames from the rearview camera (10) at the radio equipment (14),

- transmitting (16) video frames received (12) at the radio equipment (14) from the rearview camera (10) to a mobile communication device (S) equipped with a video screen (S1), wherein video frames from the rearview camera (10) are displayed on the video screen (S1) of the mobile communication device (S).

2. The method of claim 1, including:

- sensing at the radio equipment (14) the vehicle reversing, and

- transmitting (16) video frames received (12) at the radio equipment (14) from the rearview camera (10) to the mobile communication device (S) for display on the video screen (S1) thereof as a result of vehicle reversing being sensed at the radio equipment (14).

3. A system, including:

- a rearview camera (10) for mounting on a vehicle (V) equipped with a radio equipment (14), and

- the radio equipment (14) configured for receiving (12) video frames from the rearview camera (10) at the radio equipment (14) and transmitting (16) video frames received (12) at the radio equipment (14) from the rearview camera (10) to a mobile communication device (S) equipped with a video screen (S1).

4. The system of claim 3, including the radio equipment (14) configured for sensing the vehicle reversing and transmitting (16) video frames received (12) at the radio equipment (14) from the rearview camera (10) to a mobile communication device (S) for

display on the video screen (S1) thereof as a result of vehicle reversing being sensed at the radio equipment (14).

5. The system of claim 3 or claim 4, including a wired connection (12) between the rearview camera (10) and the radio equipment (14).

6. The system of any of claims 3 to 5, wherein the radio equipment (14) includes a WiFi or USB transmitter (16) configured for transmitting (16) to a mobile communication device (S) video frames received (12) from the rearview camera (10).

7. A circuit for inclusion in vehicle radio equipment (14), the circuit including:

- a video signal receiver circuit block (140) configured for receiving (12) video signals conveying video frames from a vehicle rearview camera (10),

- a video signal transmitter circuit block (142) configured for transmitting (16) to a mobile communication device (S) equipped with a video screen (S1) said video signals received at said video signal receiver circuit block (140).

8. The circuit of claim 7, configured for sensing the vehicle reversing and transmitting (16) said video signals to a mobile communication device (S) as a result of vehicle reversing being sensed at the radio equipment (14).

9. A kit, including a rearview camera (10) as well as radio equipment (14) for mounting on a vehicle (V), the radio equipment (14) including:

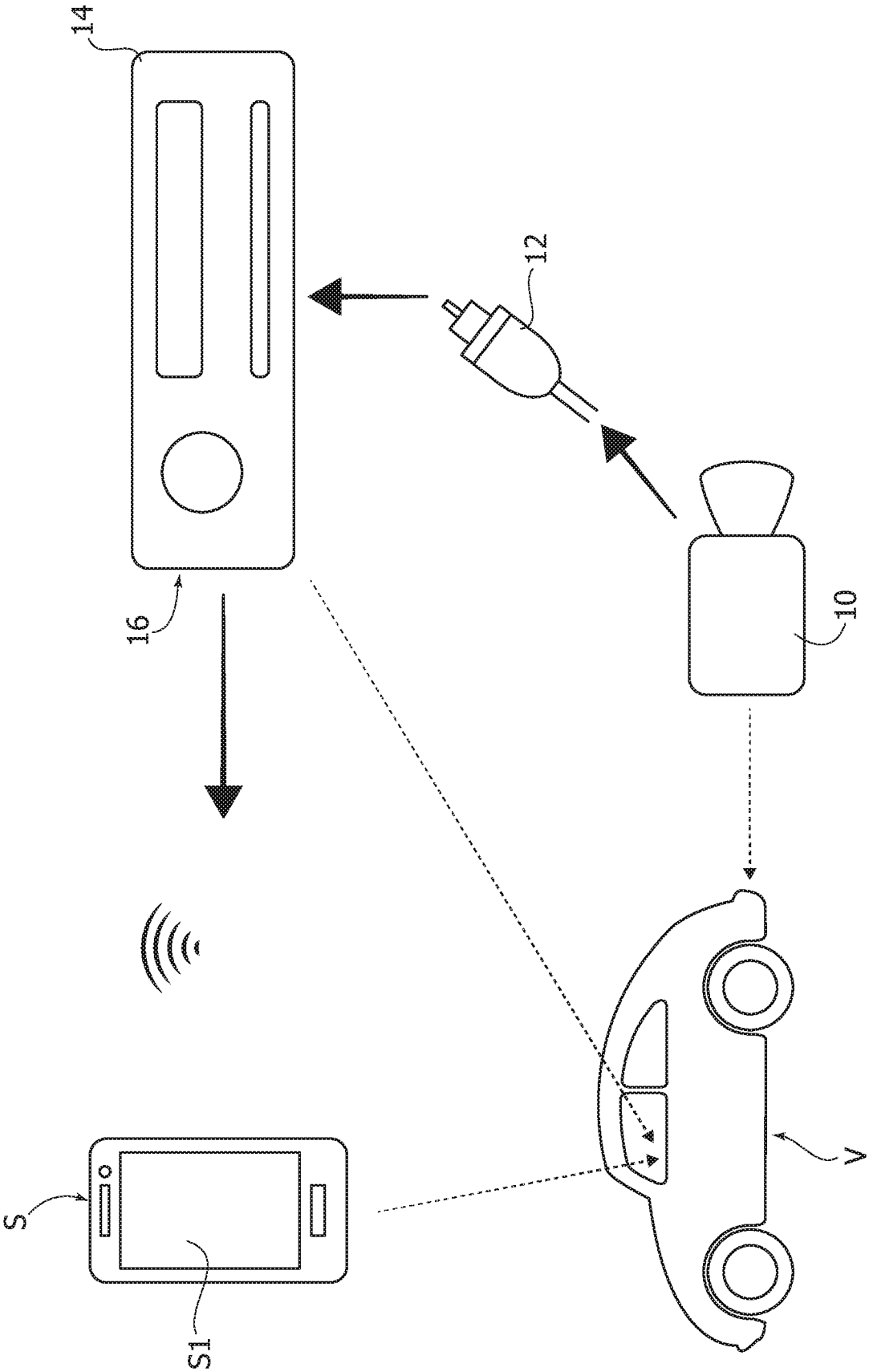
- a video signal receiver circuit block (140) configured for receiving (12) video signals conveying video frames from said rearview camera (10) mounted on said vehicle,

- a video signal transmitter circuit block (142) configured for transmitting (16) to a mobile

communication device (S) equipped with a video screen (S1) said video signals received at said video signal receiver circuit block (140).

10. A vehicle (V) equipped with a system according to any of claims 3 to 6.

FIG. 1



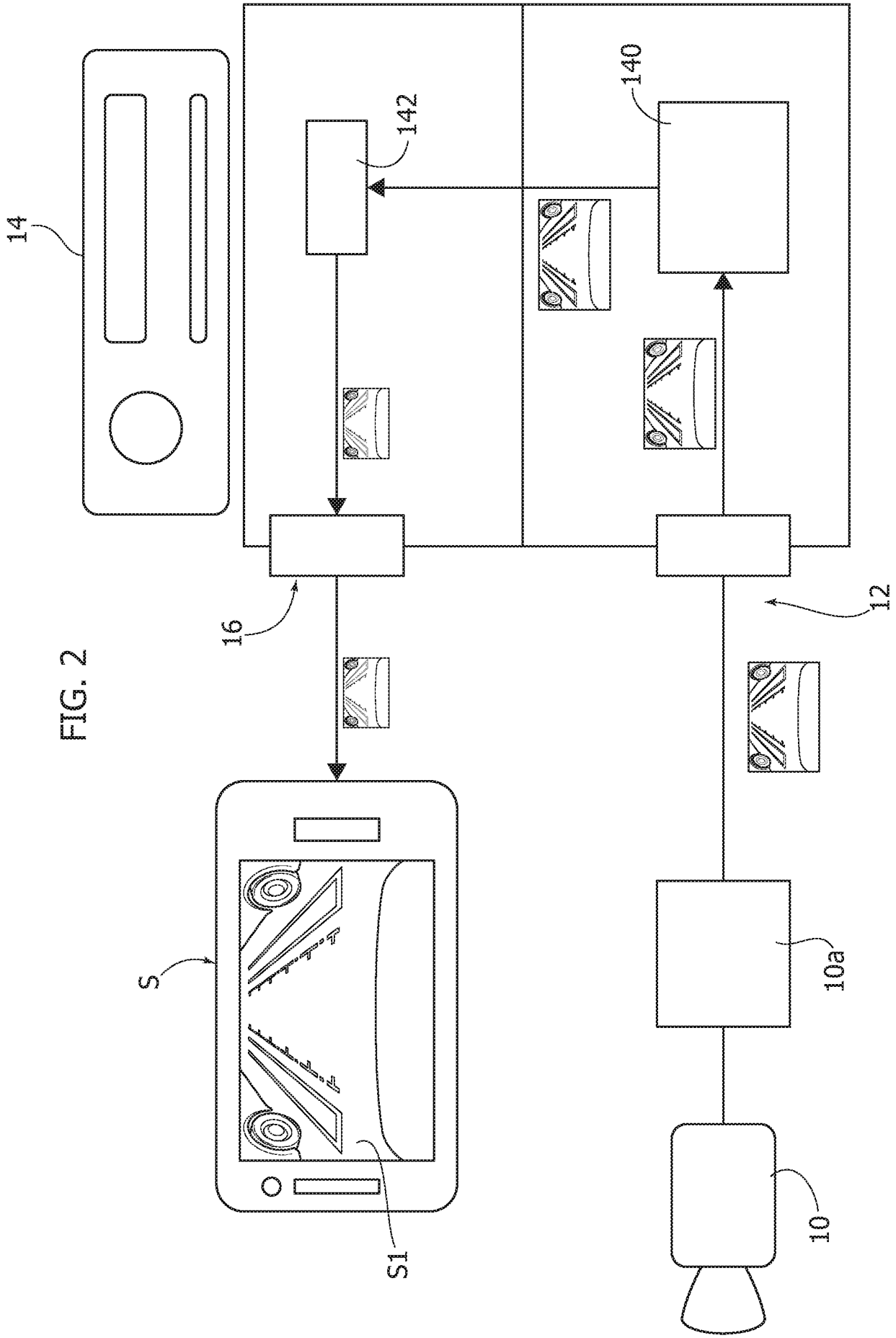
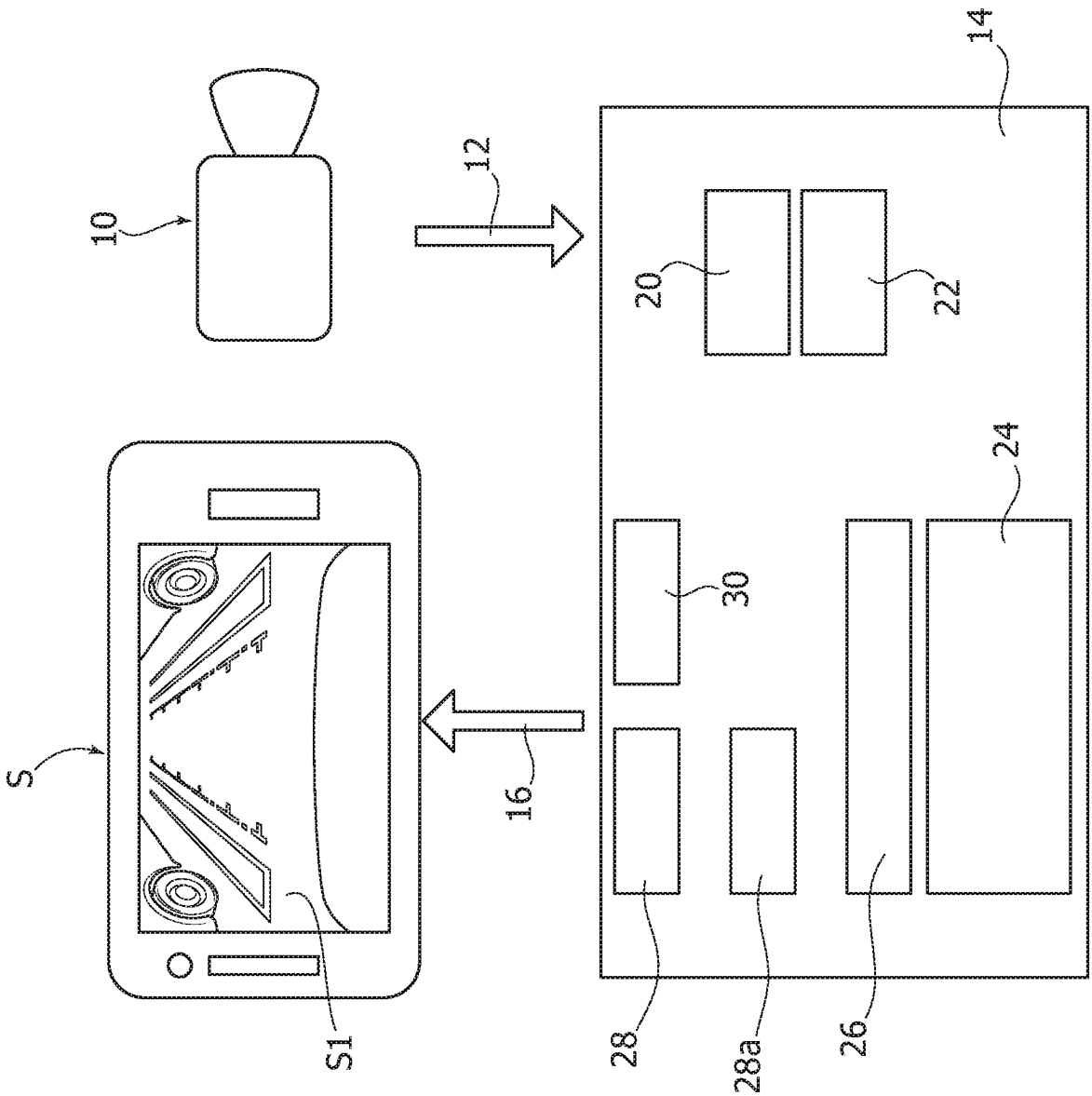


FIG. 2

FIG. 3



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2018/055139

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04N7/18 B60R1/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B60R H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	AU 768 275 B2 (GONZALEZ RUBEN) 4 December 2003 (2003-12-04) the whole document -----	1-6
A	US 2014/300740 A1 (FUJIOKA JUNJI [JP]) 9 October 2014 (2014-10-09) the whole document -----	1-6
A	FR 2 875 049 A1 (RENAULT V I SA [FR]) 10 March 2006 (2006-03-10) the whole document -----	1-6
A	EP 2 197 708 A1 (BOSCH GMBH ROBERT [DE]) 23 June 2010 (2010-06-23) the whole document -----	1-6
	-/--	

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 December 2018	18/12/2018

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Tamme, H

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2018/055139

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2016/034146 A1 (DALY JR CHARLES D [US] ET AL) 4 February 2016 (2016-02-04) paragraph [0080] - paragraph [0082]	7-9
A	EP 1 211 132 A2 (BOSCH GMBH ROBERT [DE]) 5 June 2002 (2002-06-05) the whole document	8
A	DE 10 2015 000794 A1 (DAIMLER AG [DE]) 20 August 2015 (2015-08-20) the whole document	8
A	DE 10 2011 017233 A1 (DAIMLER AG [DE]) 16 August 2012 (2012-08-16) the whole document	8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2018/055139

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6

   Method and system with rear-view camera

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2. claims: 7-10

   Circuit for inclusion in a radio and kit having the same

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2018/055139

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
AU 768275 B2	04-12-2003	NONE	
US 2014300740 A1	09-10-2014	JP 2014204361 A	27-10-2014
		US 2014300740 A1	09-10-2014
FR 2875049 A1	10-03-2006	NONE	
EP 2197708 A1	23-06-2010	AT 548222 T	15-03-2012
		CN 101821131 A	01-09-2010
		DE 102007057744 A1	16-04-2009
		EP 2197708 A1	23-06-2010
		US 2010286904 A1	11-11-2010
		WO 2009049972 A1	23-04-2009
US 2016034146 A1	04-02-2016	NONE	
EP 1211132 A2	05-06-2002	DE 10059315 A1	13-06-2002
		EP 1211132 A2	05-06-2002
		US 2002075387 A1	20-06-2002
DE 102015000794 A1	20-08-2015	NONE	
DE 102011017233 A1	16-08-2012	NONE	