

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

DALE PROGRESS LTD.,

Plaintiff,

v.

ALLGO SYSTEMS, INC.,

Defendant.

Civil Action No.

PATENT CASE

JURY TRIAL DEMANDED

**COMPLAINT FOR PATENT INFRINGEMENT
AGAINST ALLGO SYSTEMS, INC.**

Plaintiff Dale Progress Ltd. (“Plaintiff”), by and through its undersigned counsel, files this Complaint against Defendant Allgo Systems, Inc. (“Defendant”) as follows:

NATURE OF THE ACTION

1. This is an action for violation of 35 U.S.C. §§ 271(a) and 35 U.S.C. §§ 271(b). This is a patent infringement action to stop Defendant’s infringement of United States Patent No. 9,686,504 (“the ‘504 patent”) entitled “Remote Resource Access Interface Apparatus” and the United States Patent No. 8,320,461 (“the ‘461 patent”) entitled “Remote Resource Access Interface Apparatus”. A true and correct copy of the ‘504 patent is attached hereto as Exhibit A. A true and correct copy of the ‘461 patent is attached hereto as Exhibit B. Plaintiff is the owner by assignment of the ‘504 and ‘461 patents. Plaintiff seeks monetary damages and injunctive relief.

PARTIES

2. Plaintiff is a limited liability company having a principal place of business located at #204(#-81), 83, Gasan digital 1-ro, Gasan-Dong Geumcheon-gu, Seoul, 08589, Republic of Korea.

3. Upon information and belief, Defendant is a corporation organized and existing under the laws of the State of Delaware with a principal place of business located at 32401 W. Eight Mile Rd., #L4, Livonia, MI 48152. Defendant can be served with process by serving Capitol Services, Inc., 1675 S. State Street, STE. B, Dover, Delaware 19901.

JURISDICTION AND VENUE

4. This action arises under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq.*, including 35 U.S.C. §§ 271, 281, 283, 284, and 285.

5. This Court has subject matter jurisdiction over this case for patent infringement under 28 U.S.C. §§ 1331 and 1338(a).

6. The Court has personal jurisdiction over Defendant because: Defendant is present within or has minimum contacts within the State of Delaware and the District of Delaware; Defendant has purposefully availed itself of the privileges of conducting business in the State of Delaware and in the District of Delaware; Defendant has sought protection and benefit from the laws of the State of Delaware; Defendant regularly conducts business within the State of Delaware and within the District of Delaware; and Plaintiff's cause of action arises directly from Defendant's business contacts and other activities in the State of Delaware and in the District of Delaware. Further, this Court has personal jurisdiction over Defendant because it is incorporated in Delaware and has purposely availed itself of the privileges and benefits of the laws of the State of Delaware.

7. More specifically, Defendant, directly and/or through intermediaries, ships, distributes, uses, offers for sale, sells, and/or advertises products and services in the United States, the State of Delaware, and the District of Delaware including but not limited to the Accused Instrumentalities as detailed below. Upon information and belief, Defendant has committed patent infringement in the State of Delaware and in the District of Delaware. Defendant solicits and has

solicited customers in the State of Delaware and in the District of Delaware. Defendant has paying customers who are residents of the State of Delaware and the District of Delaware and who each use and have used the Defendant's products and services in the State of Delaware and in the District of Delaware.

8. Venue is proper in the District of Delaware pursuant to 28 U.S.C. §§ 1400(b). On information and belief, Defendant is incorporated in this district, and has transacted business in this district, and has directly and/or indirectly committed acts of patent infringement in this district.

COUNT I – PATENT INFRINGEMENT

9. Plaintiff refers to and incorporates herein the allegations of Paragraphs 1-8 above.

10. The '504 patent was duly and legally issued by the United States Patent and Trademark Office on June 20, 2017 after full and fair examination. Plaintiff is the owner by assignment of the '504 patent and possesses all rights of recovery under the '504 patent, including the exclusive right to sue for infringement and recover past damages and obtain injunctive relief.

11. Defendant owns, uses, operates, advertises, controls, sells, and otherwise provides apparatus, systems and methods that infringe the '504 patent. Claim 2 of the '504 patent provides, among other things, "a remote resource access interface apparatus comprising: a touch input detection unit configured to detect touch input on a display screen and to generate touch position information on a display screen; a communication unit configured to receive supportable key information from a compatible portable device, the communication unit further configured to transmit input key information to the portable device and to receive video information from the portable device; a video output unit configured to display adjusted video information in the form of a visual image, the video output unit having a display screen having a screen specification different from a screen specification of the portable device, wherein the screen specification

includes screen resolution information regarding the screen resolutions supported by the portable device; and a key advisor unit configured to output the supportable key information to the video output unit wherein the key advisor unit is configured to receive the touch position information through the touch input detection unit, and wherein the adjusted video information is video data adjusted to screen resolution supported by the video output unit on the basis of the screen resolution information supported by the portable device, and the touch position information is mapped to one of key values indicated by the supportable key information of the portable device such that the touch position information matches key values of the portable device.”

12. Defendant has been and is now infringing the ‘504 Patent in the State of Delaware, in this judicial district, and elsewhere in the United States, by, among other things, directly or through intermediaries, making, using, importing, testing, providing, supplying, distributing, selling, and/or offering for sale apparatus and systems (including, without limitation, the Defendant’s products including RACE Smartphone Connectivity suite from AllGo which provides embedded SDKs that enable automotive head units to connect to and control applications running on smartphones and tablets. RACE Smartphone Connectivity suite consists of MirrorLink implementations identified herein as the “Accused Instrumentalities”) that provide a remote resource access interface device, covered by at least claims 1, 2, 3, 4, 5, 6, 7, 8, and 9 of the ‘504 Patent to the injury of Dale Progress Ltd. Defendant is directly infringing, literally infringing, and/or infringing the ‘504 Patent under the doctrine of equivalents. Defendant is thus liable for infringement of the ‘504 Patent pursuant to 35 U.S.C. § 271.

13. Defendant has induced and continues to induce infringement of the ‘504 Patent by intending that others use, offer for sale, or sell in the United States, products and/or methods covered by one or more claims of the ‘504 Patent, including, but not limited to, a remote resource

access interface apparatus. Defendant provides these products to others, such as customers, resellers and end-use consumers who, in turn, use, offer for sale, or sell in the United States these a remote resource access interface apparatus that infringe one or more claims of the '504 Patent.

14. Defendant indirectly infringes the '504 Patent by inducing infringement by others, such as resellers, customers and end-use consumers, in accordance with 35 U.S.C. § 271(b) in this District and elsewhere in the United States. Direct infringement is a result of the activities performed by the resellers, customers and end-use consumers of a remote resource access interface apparatus.

15. Defendant received notice of the '504 Patent at least as of the date this lawsuit was filed.

16. Defendant affirmative acts of providing and/or selling the a remote resource access interface apparatus, including manufacturing and distributing, and providing instructions for using the a remote resource access interface apparatus in their normal and customary way to infringe one or more claims of the '504 Patent. Defendant performs the acts that constitute induced infringement, and induce actual infringement, with the knowledge of the '504 Patent and with the knowledge or willful blindness that the induced acts constitute infringement.

17. Defendant specifically intends for others, such as resellers, customers and end-use consumers, to directly infringe one or more claims of the '504 Patent, or, alternatively, has been willfully blind to the possibility that its inducing acts would cause infringement. By way of example, and not as limitation, Defendant induces such infringement by its affirmative action by, among other things: (a) providing advertising on the benefits of using the Accused Instrumentalities' functionality; (b) providing information regarding how to use the Accused Instrumentalities' functionality; (c) providing instruction on how to use the Accused

Instrumentalities' functionality; and (d) providing hardware and/or software components required to infringe the claims of the '504 Patent.

18. Accordingly, a reasonable inference is that Defendant specifically intends for others, such as resellers, customers and end-use consumers, to directly infringe one or more claims of the '504 Patent in the United States because Defendant has knowledge of the '504 Patent at least as of the date this lawsuit was filed and Defendant actually induces others, such as resellers, customers and end-use consumers, to directly infringe the '504 Patent by using, selling, and/or distributing, within the United States, a remote resource access interface apparatus.

19. As a result of Defendant acts of infringement, Plaintiff has suffered and will continue to suffer damages in an amount to be proved at trial.

20. Claim 2 of the '504 patent, claims:

A remote resource access interface apparatus comprising:

12 AllGo MirrorLink Server Solution 2



AllGo MirrorLink Server Solution 2

Source: <http://www.allgosystems.com/showcase.php#video12>

MirrorLink: MirrorLink is a screen projection technology promoted by an industry consortium called Car Connectivity Consortium. AllGo is a leading Core member of CCC. AllGo's MirrorLink implementation is able to support ML 1.1 and ML 1.2 over USB & WiFi. **See more.**

Source: http://www.allgosystems.com/race_smartphone_connectivity.php



Source: http://www.allgosystems.com/race_smartphone_connectivity.php

RACE SMARTPHONE CONNECTIVITY

Automotive head unit connectivity technologies are becoming main stream in popular smartphones. Leading smartphone connectivity technologies such as CarPlay, Android Auto, MirrorLink and Miracast are demanded by automotive OEMs eager to provide downloadable application connectivity to their customers. These technologies provide a way for the smartphones to project an HMI to the head unit, with the head unit being able to control the smartphone applications using touch, knobs and steering wheel controls. Smartphone screen projection is currently available over USB and WiFi connectivity.

Source: http://www.allgosystems.com/race_smartphone_connectivity.php

a touch input detection unit configured to detect touch input on a display screen and to generate touch position information on a display screen;

RACE SMARTPHONE CONNECTIVITY

Automotive head unit connectivity technologies are becoming main stream in popular smartphones. Leading smartphone connectivity technologies such as CarPlay, Android Auto, MirrorLink and Miracast are demanded by automotive OEMs eager to provide downloadable application connectivity to their customers. These technologies provide a way for the smartphones to project an HMI to the head unit, with the head unit being able to control the smartphone applications using touch, knobs and steering wheel controls. Smartphone screen projection is currently available over USB and WiFi connectivity.

Source: http://www.allgosystems.com/race_smartphone_connectivity.php

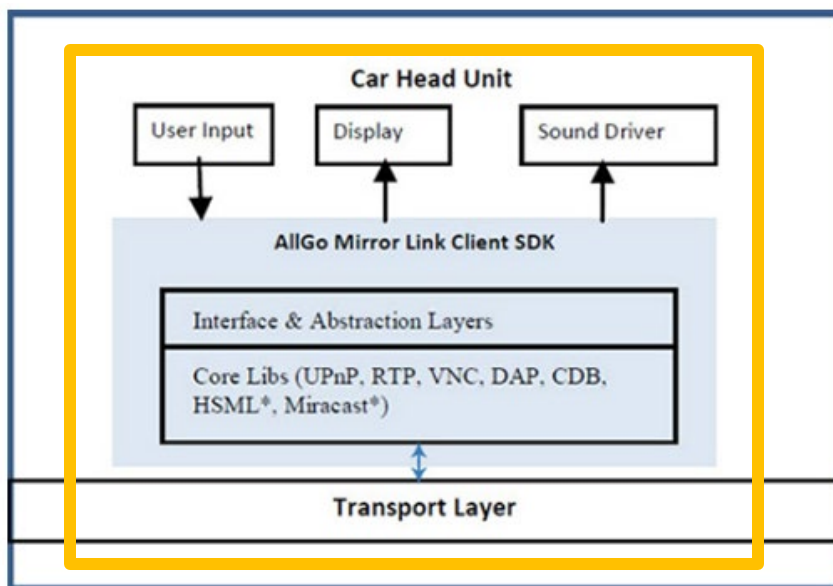
Defendant provides a touch input detection unit configured to detect touch input on a display screen and to generate touch position information on a display screen;

The '504 patent specification clearly states that a touch input detection unit detects a touch input on the display screen and generates position information on the display screen in association of the current image.

The touch input detection unit detects a touch input on the display screen and generates position information on the display screen in association of the current image. The touch input detection unit transmits the position information associated with the current image to the portable device. The touch input detection unit is implemented in the form of a touch-sensitive touchscreen covering the display screen of the video output unit. The touch input detection unit may further include a processor for converting a pressure voltage sensed on the display screen to the position information. *See* '504 patent Col. 4 *l.* 42-47.

a communication unit configured to receive supportable key information from a compatible portable device, the communication unit further configured to transmit input key information to the portable device and to receive video information from the portable device;

The phone screen replication on the head unit is typically called screen scraping. **All user inputs (like rotary knob, buttons, and touch inputs) from the Head unit are directed to the phone**



Analyst comment- Evidence demonstrates the AllGo MirrorLink client SDK which uses multiple protocols to establish communication between the vehicle dashboard and MirrorLink associated smartphones.

Source: <http://www.allgosystems.com/mirrorlink.php>

RACE Smartphone Connectivity

HSML is identified as specific encoding within an existing VNC connection. Therefore, remote applications shall be listed and handled as VNC based applications with protocolID set to "VNC".

During a VNC session the MirrorLink client shall list HSML pseudo encoding (-527) within VNC Set Encoding message, to indicate the support of HSML. If MirrorLink server supports the HSML as well, it shall send VNC Framebuffer Update messages with Context Information (-524) and HSML pseudo encoding (-527) in response to Framebuffer Update Request messages from the MirrorLink client.

# bytes	Type	Value	Description
2	U16	0	X-position of rectangle (top left corner)
2	U16	0	Y-position of rectangle (top left corner)
2	U16	width	Width of the negotiated framebuffer resolution
2	U16	height	Height of the negotiated framebuffer resolution
4	S32	-527	Encoding type
2	U16	16	The length of unique identifier
16	Array of U8		UUID version 4.

Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354421/01.03.00_60/ts_10354421v010300p.pdf

Analyst comment- Evidence demonstrates sending the connection establishment message to supportable devices, which includes context information, and HSML encoding, in response to a request generated by the vehicle infotainment system.

Defendant provides a communication unit configured to receive supportable key information from a compatible portable device, the communication unit further configured to transmit input key information to the portable device and to receive video information from the portable device;

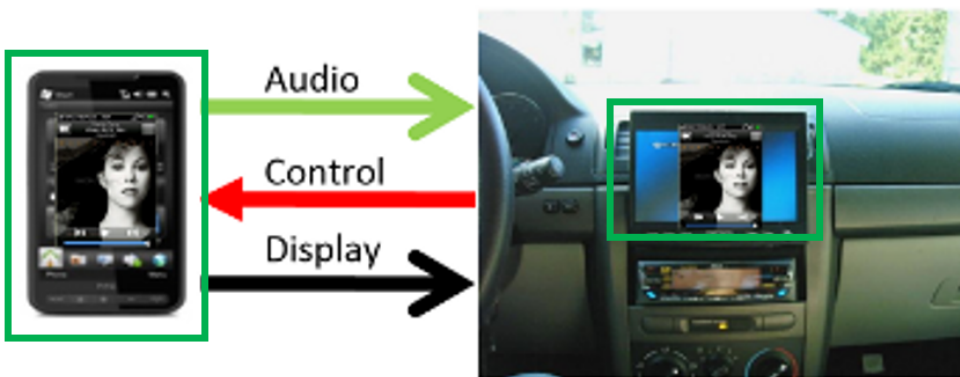
The specification discloses sufficient structure for one of ordinary skilled in the art to build or program a communication unit. The specification clearly states that a communication unit utilizes wireless communication interfaces to perform the claim limitation functions.

The communication unit can be provided with at least one of wireless communication interfaces specified by Bluetooth, wireless fidelity (wi-fi), ZigBee, wireless broadband (WiBro)

protocols for communicating with the portable device. The communication unit also can be connected to the portable device through a communication wire so as to exchange data with the portable device in series or in parallel. See '504 patent Col. 4 l. 8-15.

a video output unit configured to display adjusted video information in the form of a visual image, the video output unit having a display screen having a screen specification different from a screen specification of the portable device, wherein the screen specification includes screen resolution information regarding the screen resolutions supported by the portable device; and

RACE Smartphone Connectivity



Source: <http://www.allgosystems.com/mirrorlink.php>

Table 15: HSML Pseudo Encoding

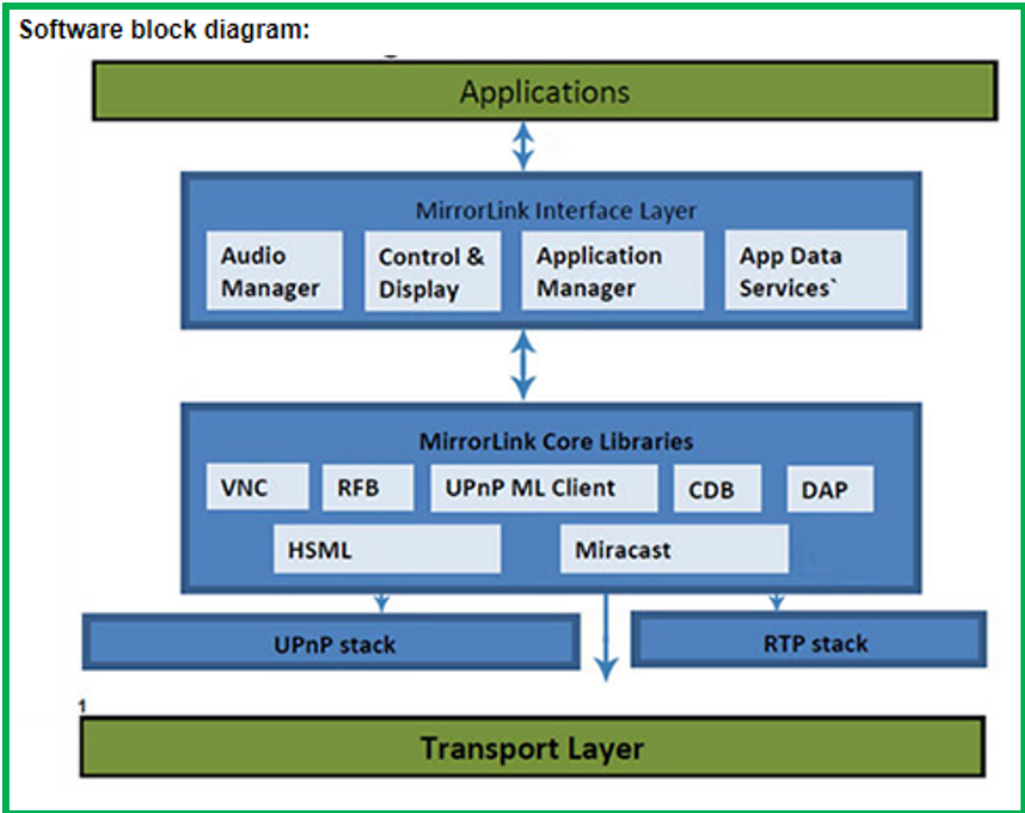
# bytes	Type	Value	Description
2	U16	0	X-position of rectangle (top left corner)
2	U16	0	Y-position of rectangle (top left corner)
2	U16	width	Width of the negotiated framebuffer resolution
2	U16	height	Height of the negotiated framebuffer resolution
4	S32	-527	Encoding type
2	U16	16	The length of unique identifier
16	Array of U8		UUID version 4.

Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354421/01.03.00_60/ts_10354421v010300p.pdf

Analyst comment- Evidence demonstrates the video output unit (vehicle dashboard) which is configured to display the visual image by invoking the key input. The display screen (vehicle dashboard) is larger than the portable device (MirrorLink associated smartphone).

RACE Smartphone Connectivity

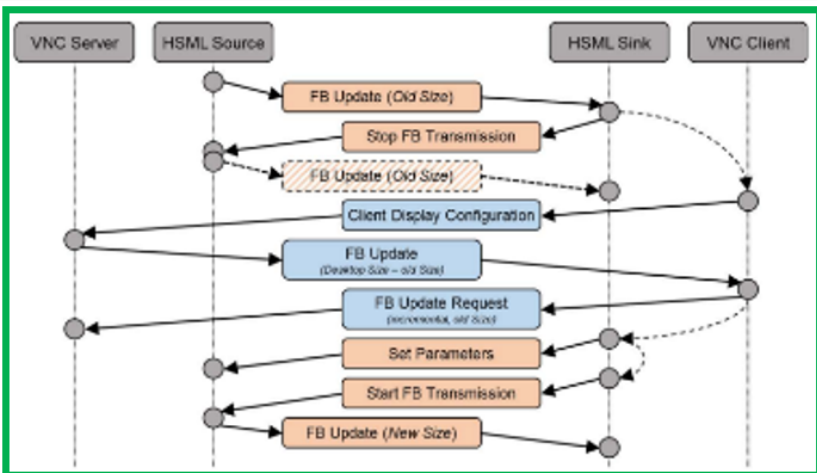
The **multimedia playback service** allows applications to request and control the playback of audio and video.



Source:<http://www.allgosystems.com/mirrorlink.php>

Analyst comment- Evidence demonstrates the architecture layers for playing multimedia applications on the vehicle infotainment system.

RACE Smartphone Connectivity



On reception of the ClientDisplayConfiguration message, the VNC Server shall send a FramebufferUpdate message containing a DesktopSize pseudo encoding rectangle with the new framebuffer resolution. In case the VNC Server does not support the new resolution, it shall send a FramebufferUpdate message containing a DesktopSize pseudo encoding rectangle with the old framebuffer resolution, as shown in Figure 14.

Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354421/01.03.00_60/ts_10354421v010300p.pdf

Analyst comment- Evidence demonstrates that on the response of the client display configuration message (dashboard), VNC server (consumer electronic device) sends the newly updated frame buffer resolution. If consumer electronic device do not supports the new resolution, it then sends an updated message with old frame resolution.

Defendant provides a video output unit configured to display adjusted video information in the form of a visual image, the video output unit having a display screen having a screen specification different from a screen specification of the portable device, wherein the screen specification includes screen resolution information regarding the screen resolutions supported by the portable device; and

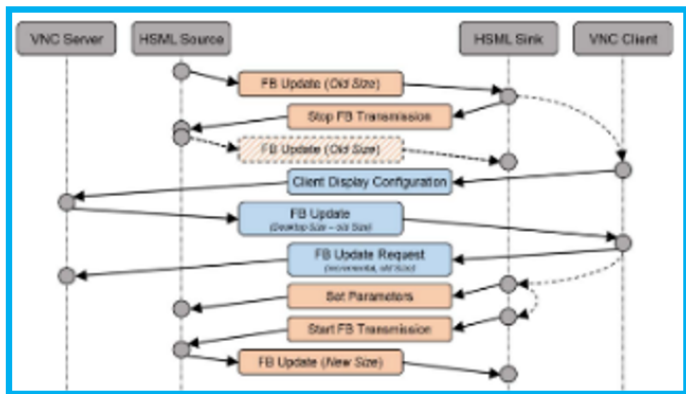
The video output unit displays the video information output by the pixel information processing unit. The video output unit can be implemented with a liquid crystal display (LCD) panel or an organic light emitting diode (OLED) display panel. *See* '504 patent Col. 3 l. 11-15. The video output unit outputs the video information received from the pixel information processing unit in the form of a visual image. The video output unit can be implemented with a liquid crystal

display (LCD) panel or an organic light emitting diode (OLED) panel. Preferably, the video output unit is provided with a display screen larger than that of the portable device. See '504 patent Col. 4 l. 29-35.

a key advisor unit configured to output the supportable key information to the video output unit wherein the key advisor unit is configured to receive the touch position information through the touch input detection unit, and wherein the adjusted video information is video data adjusted to screen resolution supported by the video output unit on the basis of the screen resolution information supported by the portable device, and the touch position information is mapped to one of key values indicated by the supportable key information of the portable device such that the touch position information matches key values of the portable device.

QNX CAR Platform for Infotainment

support for multimodal input (e.g., trackpad, keyboard, and virtual keyboard)



Source:
http://support7.qnx.com/download/download/26204/QNX_CAR_Architecture_Guide.pdf

On reception of the ClientDisplayConfiguration message, the VNC Server shall send a FramebufferUpdate message containing a DesktopSize pseudo encoding rectangle with the new framebuffer resolution. In case the VNC Server does not support the new resolution, it shall send a FramebufferUpdate message containing a DesktopSize pseudo encoding rectangle with the old framebuffer resolution, as shown in Figure 14.

Source:https://www.etsi.org/deliver/etsi_ts/103500_103599/10354421/01.03.00_60/ts_10354421v010300p.pdf

Analyst comment- Evidence demonstrates the supportable key information message for establishing the connection for displaying the video on the vehicle dashboard.

RACE Smartphone Connectivity

MirrorLink API provides information to your application about the park/drive status of the car. While in **park mode there are no content restrictions on MirrorLink applications** – the UI can be as complex as you want. Drive mode, however, is a different matter. Apps that are used in drive mode need to have simple UIs that require a minimum amount of interaction from the driver.

Display Minimal Text – don't display a lot of text or complex messages

Don't use Text Input – Though allowed in some regions it's a bad practice in drive mode. Use park mode for text entry or voice input if possible.

Use Park Mode for Additional Functionality – Since **a MirrorLink app is aware if it is in drive or in park mode, you can offer additional features or information to the driver while stopped.**

When the car goes into drive mode you switch to the simpler UI.

Use High Contrast - The UI must be legible in a variety of lighting conditions, even in direct sunlight. To achieve this, all foreground/background text combinations must have a minimum contrast level.

Source: <https://mirrorlink.com/Developers>

Analyst comment- Evidence demonstrates the multiple modes of Mirrorlink, which shows the restricted and supported contents during multiple modes. The device In driver mode only extracts allowed supportable contents for the dashboard.

RACE Smartphone Connectivity

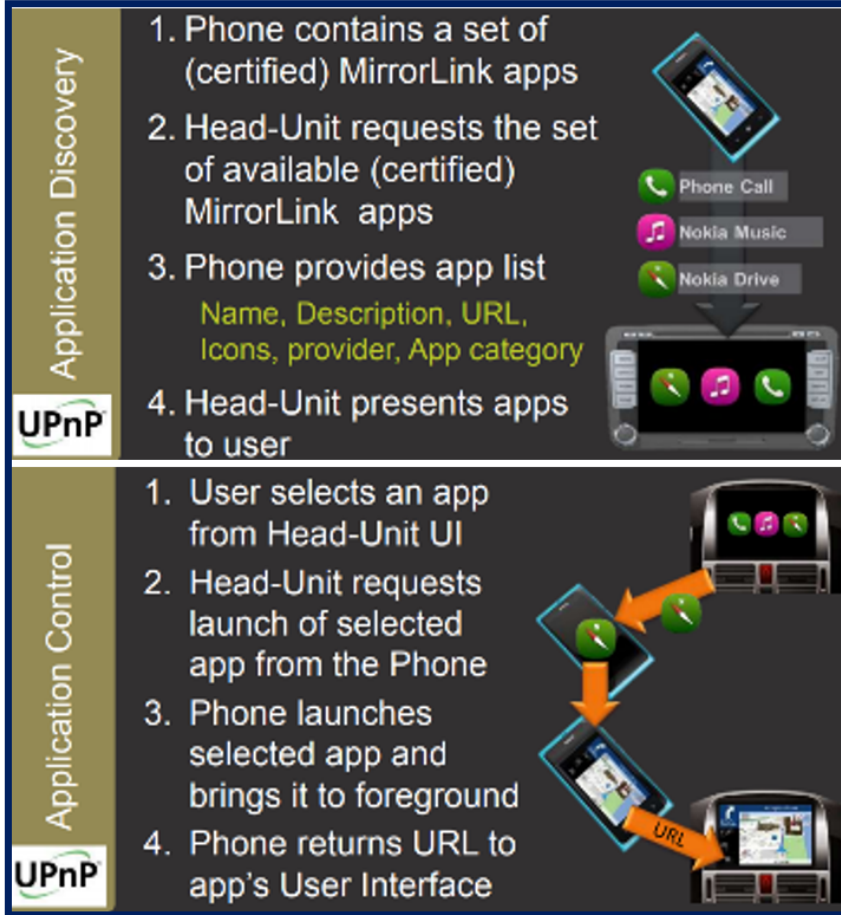


MirrorLink enables the car head unit to be configured in either drive mode or park mode. In the drive mode only apps that are certified by CCC as Driver Safe can be launched. These certified apps have simple GUI, bigger fonts, buttons and do not allow content that distract driver (like video / games). In the park mode all the applications on the phone can be launched from the head unit.

Source: <http://www.allgosystems.com/mirrorlink.php>

Analyst comment- Evidence demonstrates RACE Smartphone Connectivity having advisor unit which mirrors the consumer electronic display on the vehicle dashboard. The key configuration mode is used to receive the apps (like calling, text, email, navigation, etc) on the display device by requesting via key to a portable device (MirrorLink associated smartphones). The key selection is based on mode selected by the vehicle either drive mode or park mode.

RACE Smartphone Connectivity

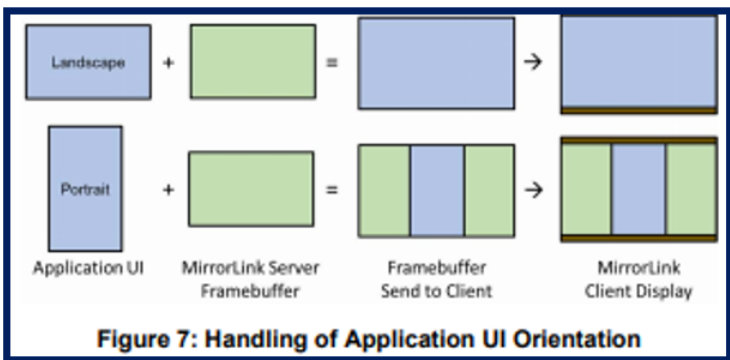
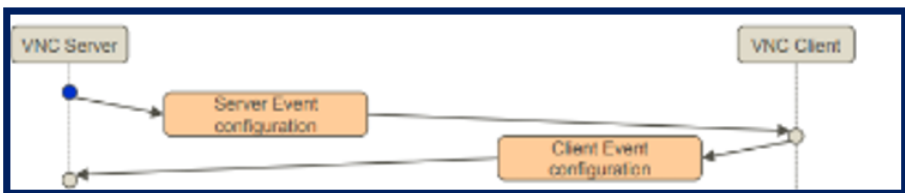


Source:
https://mirrorlink.com/public/files/files/Opening_Session_Beijing_China_March_2015_English.pdf

Analyst comment- Evidence demonstrates the advisor unit which mirrors the consumer electronic display on the vehicle dashboard. The MirrorLink is associated with RACE Smartphone Connectivity.

RACE Smartphone Connectivity

The ServerEventConfiguration and ClientEventConfiguration message pair provides additional information about event handling, i.e. which key and pointer events are natively supported on the VNC Server and Client. This information helps the Server to map specific incoming VNC Client events to Server events.



Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354402/01.03.00_60/ts_10354402v010300p.pdf

Analyst comment- Evidence demonstrates the handling of the user interface (display screen), in which the screen information is similar on the vehicle dashboard and the MirrorLink associated smartphone for the RACE Smartphone Connectivity.

RACE Smartphone Connectivity

MirrorLink® is a concept promoted by Car Connectivity Consortium for integrating smart phones and the Car head Unit. It allows complete control of the smart phones from the Head Unit. **The phone screen is replicated and sent to the Head unit with audio in another channel. The phone screen replication on the head unit is typically called screen scraping. All user inputs (like rotary knob, buttons, and touch inputs) from the Head unit are directed to the phone.**

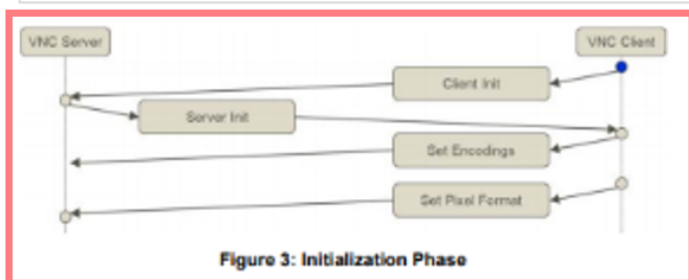
MirrorLink enables the car head unit to be configured in either drive mode or park mode. In the drive mode only apps that are certified by CCC as Driver Safe can be launched. These certified apps have simple GUI, bigger fonts, buttons and do not allow content that distract driver (like video / games). In the park mode all the applications on the phone can be launched from the head unit.

Source: <http://www.allgosystems.com/mirrorlink.php>

Analyst comment- Evidence demonstrates the adjustment of video resolution information based on the supported video resolution on the MirrorLink associated smartphone to the vehicle dashboard by using screen scraping using Race Smartphone Connectivity. All user inputs (like rotary knob, buttons, and touch inputs) from the vehicle dashboard are directed to MirrorLink associated Smartphone.

RACE Smartphone Connectivity

The initialization phase defines a couple of messages, which are exchanged between the VNC Client and the VNC Server, as shown in the Figure 3. In general, the VNC Server presents its capabilities and the VNC Client selects the best option with regard to its own capabilities.



The MirrorLink Server shall support a framebuffer resolution of at least 800 x 480. The actual transmitted framebuffer resolution may be less to preserve the MirrorLink Server framebuffer's aspect ratio on the MirrorLink Client's display, i.e. one framebuffer dimension shall be equal to original framebuffer resolution.

Source:https://www.etsi.org/deliver/etsi_ts/103500_103599/10354402/01.03.00_60/ts_10354402v010300p.pdf

Analyst comment- Evidence demonstrates the resolution of portable device.

Defendant provides a key advisor unit configured to output the supportable key information to the video output unit wherein the key advisor unit is configured to receive the touch position information through the touch input detection unit, and wherein the adjusted video information is video data adjusted to screen resolution supported by the video output unit on the basis of the screen resolution information supported by the portable device, and the touch position information is mapped to one of key values indicated by the supportable key information of the portable device such that the touch position information matches key values of the portable device.

The key advisor unit and key input unit are each comprised of software utilizing a microprocessor and storage means on a computer to perform their respective steps as outlined in the specification. The specification describes an algorithm to transform a general-purpose microprocessor to a special purpose computer so that a person of ordinary skill in the art can

implement the disclosed algorithm to achieve the claimed function. A disclosed algorithm can include steps for achieving a result as shown in the '504 patent specification.

In at least one embodiment, the key adviser unit extracts supportable key information from the connection establishment response signal and transmits the supportable key information to the video output unit so as to be displayed on the screen. *See* '504 patent Col. 3 *l.* 16-19. The key input unit is provided with a plurality of keys for generating input key commands. The input key commands are generated by matching the key values input through the key input unit to the key values of the portable device with reference to the supportable key information. *See* '504 patent Col. 3 *l.* 20-25.

In at least one embodiment, the key advisor unit extracts compatible key information from the connection establishment response signal and displays the compatible key information on the display screen of the video output unit. The key advisor unit displays a key among the keys provided by the compatible key information, which is matched to the key input through the key input unit, on the display screen of the video output unit. If a set of keys are selected by through the key input unit, the key advisor unit displays the keys supported by the portable device on the display screen of the video output unit. If a key is input through the key input unit, the key advisor unit matches the key value of the input key to a key value of the corresponding key supported by the portable device. *See* '504 patent Col. 4 *l.* 48-62. The key input unit is provided with a plurality of keys for generating input key values. *See* '504 patent Col. 4 *l.* 63-64.

COUNT II – PATENT INFRINGEMENT

21. Plaintiff refers to and incorporates herein the allegations of Paragraphs 1-20 above.

22. The '461 patent was duly and legally issued by the United States Patent and Trademark Office on November 27, 2012 after full and fair examination. Plaintiff is the owner by assignment of the '461 patent and possesses all rights of recovery under the '461 patent, including the exclusive right to sue for infringement and recover past damages and obtain injunctive relief.

23. Defendant owns, uses, operates, advertises, controls, sells, and otherwise provides apparatus and methods that infringe the '461 patent. Claim 9 of the '461 patent provides, among other things, “a remote resource access interface apparatus comprising: a key input unit configured to generate input key values; a communication unit configured to transmit a connection establishment request message to determine compatibility with a portable device and in order to establish a connection and, if compatible, to receive a connection establishment response message

including screen resolution information and supportable key information from the portable device, the communication unit further configured to transmit input key information and to receive video information from the portable device after establishing the connection; a video output unit configured to display the video information in the form of a visual image, the video output unit having a display screen larger than the portable device, wherein the screen resolution information includes information regarding the screen resolutions supported by the video output unit; and a key advisor unit configured to extract the supportable key information from the connection establishment response message and output the supportable key information to the video output unit, wherein the key advisor unit displays on a display screen of the video output unit, if a key configuration mode is activated, keys of the portable device and is configured to receive corresponding keys through the key input unit, and wherein key values corresponding to the keys of the key input unit match key values of the portable device, and wherein the video information is video data adjusted in resolution by the portable device for the video output unit on the basis of the screen resolution information, and the input key value is mapped to one of key values indicated by the supportable key information of the portable device.”

24. Defendant has been and is now infringing the ‘461 Patent in the State of Delaware, in this judicial district, and elsewhere in the United States, by, among other things, directly or through intermediaries, making, using, importing, testing, providing, supplying, distributing, selling, and/or offering for sale apparatus (including, without limitation, the Defendant’s products including RACE Smartphone Connectivity suite from AllGo which provides embedded SDKs that enable automotive head units to connect to and control applications running on smartphones and tablets. RACE Smartphone Connectivity suite consists of MirrorLink implementations, identified herein as the “Accused Instrumentalities”) that provide a remote resource access interface device,

covered by at least claims 1, 2, 4, 5, 6, 7, 8, 9 and 10 of the '461 Patent to the injury of Dale Progress Ltd. Defendant is directly infringing, literally infringing, and/or infringing the '461 Patent under the doctrine of equivalents. Defendant is thus liable for infringement of the '461 Patent pursuant to 35 U.S.C. § 271.

25. Defendant has induced and continues to induce infringement of the '461 Patent by intending that others use, offer for sale, or sell in the United States, products and/or methods covered by one or more claims of the '461 Patent, including, but not limited to, a remote resource access interface apparatus. Defendant provides these products to others, such as customers, resellers and end-use consumers who, in turn, use, offer for sale, or sell in the United States these a remote resource access interface apparatus that infringe one or more claims of the '461 Patent.

26. Defendant indirectly infringes the '461 Patent by inducing infringement by others, such as resellers, customers and end-use consumers, in accordance with 35 U.S.C. § 271(b) in this District and elsewhere in the United States. Direct infringement is a result of the activities performed by the resellers, customers and end-use consumers of a remote resource access interface apparatus.

27. Defendant received notice of the '461 Patent at least as of the date this lawsuit was filed.

28. Defendant affirmative acts of providing and/or selling the a remote resource access interface apparatus, including manufacturing and distributing, and providing instructions for using the a remote resource access interface apparatus in their normal and customary way to infringe one or more claims of the '461 Patent. Defendant performs the acts that constitute induced infringement, and induce actual infringement, with the knowledge of the '461 Patent and with the knowledge or willful blindness that the induced acts constitute infringement.

29. Defendant specifically intends for others, such as resellers, customers and end-use consumers, to directly infringe one or more claims of the '461 Patent, or, alternatively, has been willfully blind to the possibility that its inducing acts would cause infringement. By way of example, and not as limitation, Defendant induces such infringement by its affirmative action by, among other things: (a) providing advertising on the benefits of using the Accused Instrumentalities' functionality; (b) providing information regarding how to use the Accused Instrumentalities' functionality; (c) providing instruction on how to use the Accused Instrumentalities' functionality; and (d) providing hardware and/or software components required to infringe the claims of the '461 Patent.

30. Accordingly, a reasonable inference is that Defendant specifically intends for others, such as resellers, customers and end-use consumers, to directly infringe one or more claims of the '461 Patent in the United States because Defendant has knowledge of the '461 Patent at least as of the date this lawsuit was filed and Defendant actually induces others, such as resellers, customers and end-use consumers, to directly infringe the '461 Patent by using, selling, and/or distributing, within the United States, a remote resource access interface apparatus.

31. As a result of Defendant acts of infringement, Plaintiff has suffered and will continue to suffer damages in an amount to be proved at trial.

32. Claim 9 of the '461 patent, claims:

a remote resource access interface apparatus comprising:

12 AllGo MirrorLink Server Solution 2



AllGo MirrorLink Server Solution 2

Source: <http://www.allgosystems.com/showcase.php#video12>

MirrorLink: MirrorLink is a screen projection technology promoted by an industry consortium called Car Connectivity Consortium. AllGo is a leading Core member of CCC. AllGo's MirrorLink implementation is able to support ML 1.1 and ML 1.2 over USB & WiFi. **See more.**

Source: http://www.allgosystems.com/race_smartphone_connectivity.php



Source: http://www.allgosystems.com/race_smartphone_connectivity.php

RACE SMARTPHONE CONNECTIVITY

Automotive head unit connectivity technologies are becoming main stream in popular smartphones. Leading smartphone connectivity technologies such as CarPlay, Android Auto, MirrorLink and Miracast are demanded by automotive OEMs eager to provide downloadable application connectivity to their customers. These technologies provide a way for the smartphones to project an HMI to the head unit, with the head unit being able to control the smartphone applications using touch, knobs and steering wheel controls. Smartphone screen projection is currently available over USB and WiFi connectivity.

Source: http://www.allgosystems.com/race_smartphone_connectivity.php

a key input unit configured to generate input key values;

RACE SMARTPHONE CONNECTIVITY

Automotive head unit connectivity technologies are becoming main stream in popular smartphones. Leading smartphone connectivity technologies such as CarPlay, Android Auto, MirrorLink and Miracast are demanded by automotive OEMs eager to provide downloadable application connectivity to their customers. These technologies provide a way for the smartphones to project an HMI to the head unit, with the head unit being able to control the smartphone applications using touch, knobs and steering wheel controls. Smartphone screen projection is currently available over USB and WiFi connectivity.

Source: http://www.allgosystems.com/race_smartphone_connectivity.php

Defendant provides a key input unit configured to generate input key values.

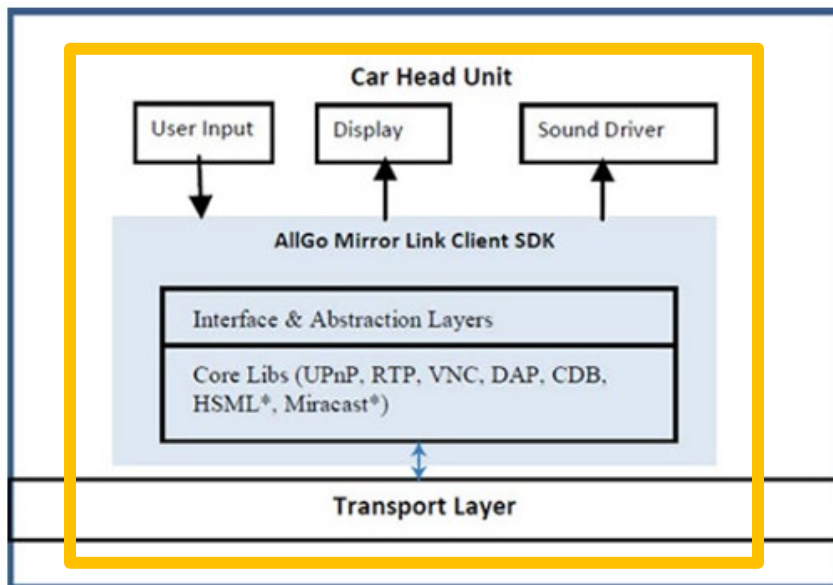
The key advisor unit and key input unit are each comprised of software utilizing a microprocessor and storage means on a computer to perform their respective steps as outlined in the specification. The specification describes an algorithm to transform a general-purpose microprocessor to a special purpose computer so that a person of ordinary skill in the art can implement the disclosed algorithm to achieve the claimed function. A disclosed algorithm can include steps for achieving a result as shown in the '461 patent specification.

In at least one embodiment, the key adviser unit extracts supportable key information from the connection establishment response signal and transmits the supportable key information to the video output unit so as to be displayed on the screen. *See* '461 patent Col. 3 *l.* 9-12. The key input unit is provided with a plurality of keys for generating input key commands. The input key commands are generated by matching the key values input through the key input unit to the key values of the portable device with reference to the supportable key information. *See* '461 patent Col. 3 *l.* 13-17.

In at least one embodiment, the key advisor unit extracts compatible key information from the connection establishment response signal and displays the compatible key information on the display screen of the video output unit. The key advisor unit displays a key among the keys provided by the compatible key information, which is matched to the key input through the key input unit, on the display screen of the video output unit. If a set of keys are selected by through the key input unit, the key advisor unit displays the keys supported by the portable device on the display screen of the video output unit. If a key is input through the key input unit, the key advisor unit matches the key value of the input key to a key value of the corresponding key supported by the portable device. *See* '461 patent Col. 4 *l.* 37-46. The key input unit is provided with a plurality of keys for generating input key values. The input key commands are generated by matching the key values input through the key input unit to the key values of the portable device with reference to the supportable key information. *See* '461 patent Col. 3 *l.* 13-17.

a communication unit configured to transmit a connection establishment request message to determine compatibility with a portable device and in order to establish a connection and, if compatible, to receive a connection establishment response message including screen resolution information and supportable key information from the portable device, the communication unit further configured to transmit input key information and to receive video information from the portable device after establishing the connection;

The phone screen replication on the head unit is typically called screen scraping. **All user inputs (like rotary knob, buttons, and touch inputs) from the Head unit are directed to the phone**



Analyst comment- Evidence demonstrates the AllGo MirrorLink client SDK which uses multiple protocol to establish communication between the vehicle dashboard and MirrorLink associated smartphones.

Source: <http://www.allgosystems.com/mirrorlink.php>

RACE Smartphone Connectivity

HSML is identified as specific encoding within an existing VNC connection. Therefore, remote applications shall be listed and handled as VNC based applications with `protocolID` set to "VNC".

During a VNC session the MirrorLink client shall list HSML pseudo encoding (-527) within VNC Set Encoding message, to indicate the support of HSML. If MirrorLink server supports the HSML as well, it shall send VNC Framebuffer Update messages with Context Information (-524) and HSML pseudo encoding (-527) in response to Framebuffer Update Request messages from the MirrorLink client.

Table 15: HSML Pseudo Encoding

# bytes	Type	Value	Description
2	U16	0	X-position of rectangle (top left corner)
2	U16	0	Y-position of rectangle (top left corner)
2	U16	width	Width of the negotiated framebuffer resolution
2	U16	height	Height of the negotiated framebuffer resolution
4	S32	-527	Encoding type
2	U16	16	The length of unique identifier
16	Array of U8		UUID version 4.

Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354421/01.03.00_60/ts_10354421v010300p.pdf

Analyst comment- Evidence demonstrates sending the connection establishment message to supportable devices, which includes context information, and HSML encoding, in response to a request generated by the vehicle infotainment system.

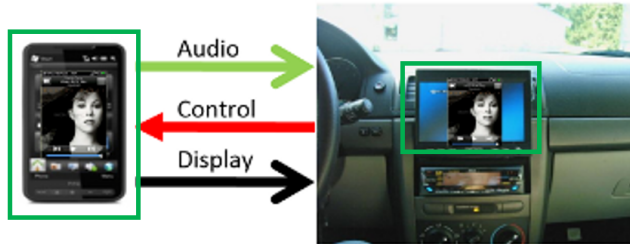
Defendant provides a communication unit configured to transmit a connection establishment request message to determine compatibility with a portable device and in order to establish a connection and, if compatible, to receive a connection establishment response message including screen resolution information and supportable key information from the portable device, the communication unit further configured to transmit input key information and to receive video information from the portable device after establishing the connection.

The specification discloses sufficient structure for one of ordinary skilled in the art to build or program a communication unit. The specification clearly states that a communication unit utilizes wireless communication interfaces to perform the claim limitation functions.

The communication unit can be provided with at least one of wireless communication interfaces specified by Bluetooth, wireless fidelity (wi-fi), ZigBee, wireless broadband (WiBro) protocols for communicating with the portable device. The communication unit also can be connected to the portable device through a communication wire so as to exchange data with the portable device in series or in parallel. *See* '461 patent Col. 3 l. 65-67 & Col. 4 l. 1-5.

a video output unit configured to display the video information in the form of a visual image, the video output unit having a display screen larger than the portable device, wherein the screen resolution information includes information regarding the screen resolutions supported by the video output unit; and

RACE Smartphone Connectivity



Source: <http://www.allqosystems.com/mirrorlink.php>

Table 15: HSML Pseudo Encoding

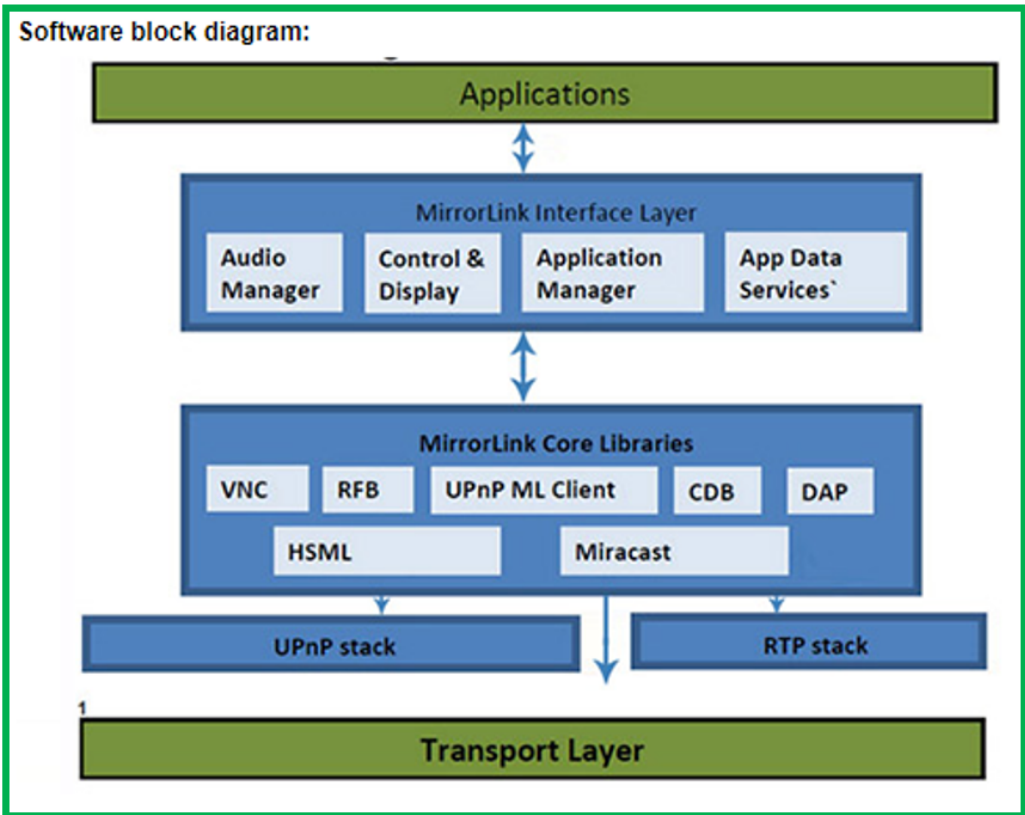
# bytes	Type	Value	Description
2	U16	0	X-position of rectangle (top left corner)
2	U16	0	Y-position of rectangle (top left corner)
2	U16	width	Width of the negotiated framebuffer resolution
2	U16	height	Height of the negotiated framebuffer resolution
4	S32	-527	Encoding type
2	U16	16	The length of unique identifier
16	Array of U8		UUID version 4.

Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354421/01.03.00_60/ts_10354421v010300p.pdf

Analyst comment- Evidence demonstrates the video output unit (vehicle dashboard) which is configured to display the visual image by invoking the key input. The display screen (vehicle dashboard) is larger than the portable device (MirrorLink associated smartphone).

RACE Smartphone Connectivity

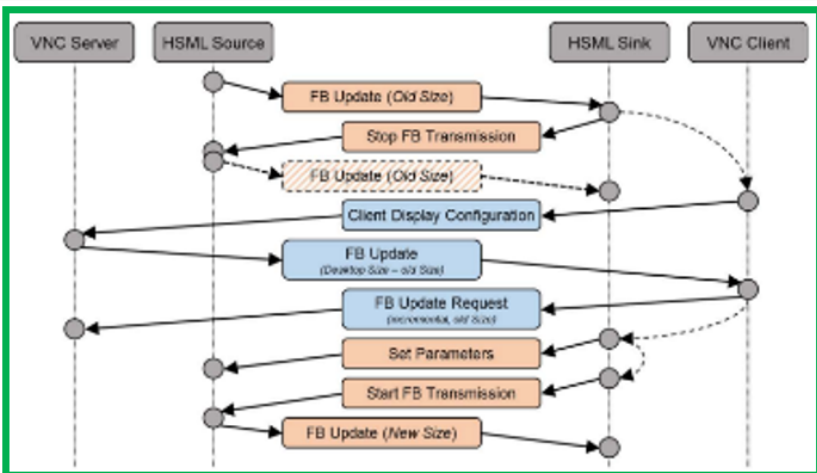
The **multimedia playback service** allows applications to request and control the playback of audio and video.



Source:<http://www.allgosystems.com/mirrorlink.php>

Analyst comment- Evidence demonstrates the architecture layers for playing multimedia applications on the vehicle infotainment system.

RACE Smartphone Connectivity



On reception of the ClientDisplayConfiguration message, the VNC Server shall send a FramebufferUpdate message containing a DesktopSize pseudo encoding rectangle with the new framebuffer resolution. In case the VNC Server does not support the new resolution, it shall send a FramebufferUpdate message containing a DesktopSize pseudo encoding rectangle with the old framebuffer resolution, as shown in Figure 14.

Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354421/01.03.00_60/ts_10354421v010300p.pdf

Analyst comment- Evidence demonstrates that on the response of the client display configuration message (dashboard), VNC server (consumer electronic device) sends the newly updated frame buffer resolution. If consumer electronic device do not supports the new resolution, it then sends an updated message with old frame resolution.

Defendant provides a video output unit configured to display the video information in the form of a visual image, the video output unit having a display screen larger than the portable device, wherein the screen resolution information includes information regarding the screen resolutions supported by the video output unit; and

The video output unit displays the video information output by the pixel information processing unit. The video output unit can be implemented with a liquid crystal display (LCD) panel or an organic light emitting diode (OLED) display panel. *See* '461 patent Col. 3 l. 4-8.

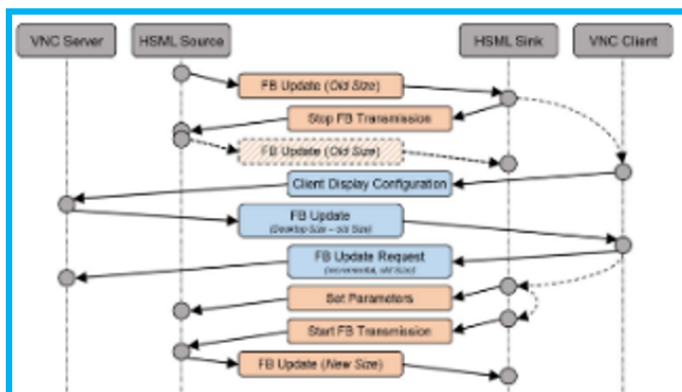
The video output unit outputs the video information received from the pixel information processing unit in the form of a visual image. The video output unit can be implemented with a

liquid crystal display (LCD) panel or an organic light emitting diode (OLED) panel. Preferably, the video output unit is provided with a display screen larger than that of the portable device. See '461 patent Col. 4 l. 19-25.

a key advisor unit configured to extract the supportable key information from the connection establishment response message and output the supportable key information to the video output unit, wherein the key advisor unit displays on a display screen of the video output unit, if a key configuration mode is activated, keys of the portable device and is configured to receive corresponding keys through the key input unit, and wherein key values corresponding to the keys of the key input unit match key values of the portable device, and wherein the video information is video data adjusted in resolution by the portable device for the video output unit on the basis of the screen resolution information, and the input key value is mapped to one of key values indicated by the supportable key information of the portable device.

QNX CAR Platform for Infotainment

support for multimodal input (e.g., trackpad, keyboard, and virtual keyboard)



Source:
http://support7.qnx.com/download/download/26204/QNX_CAR_Architecture_Guide.pdf

On reception of the **ClientDisplayConfiguration** message, the **VNC Server** shall send a **FramebufferUpdate** message containing a **DesktopSize** pseudo encoding rectangle with the new framebuffer resolution. In case the **VNC Server** does not support the new resolution, it shall send a **FramebufferUpdate** message containing a **DesktopSize** pseudo encoding rectangle with the old framebuffer resolution, as shown in Figure 14.

Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354421/01.03.00_60/ts_10354421v010300p.pdf

Analyst comment- Evidence demonstrates the supportable key information message for establishing the connection for displaying the video on the vehicle dashboard.

RACE Smartphone Connectivity

MirrorLink API provides information to your application about the park/drive status of the car. While in **park mode there are no content restrictions on MirrorLink applications** – the UI can be as complex as you want. Drive mode, however, is a different matter. Apps that are used in drive mode need to have simple UIs that require a minimum amount of interaction from the driver.

Display Minimal Text – don't display a lot of text or complex messages

Don't use Text Input – Though allowed in some regions it's a bad practice in drive mode. Use park mode for text entry or voice input if possible.

Use Park Mode for Additional Functionality – Since **a MirrorLink app is aware if it is in drive or in park mode, you can offer additional features or information to the driver while stopped.**

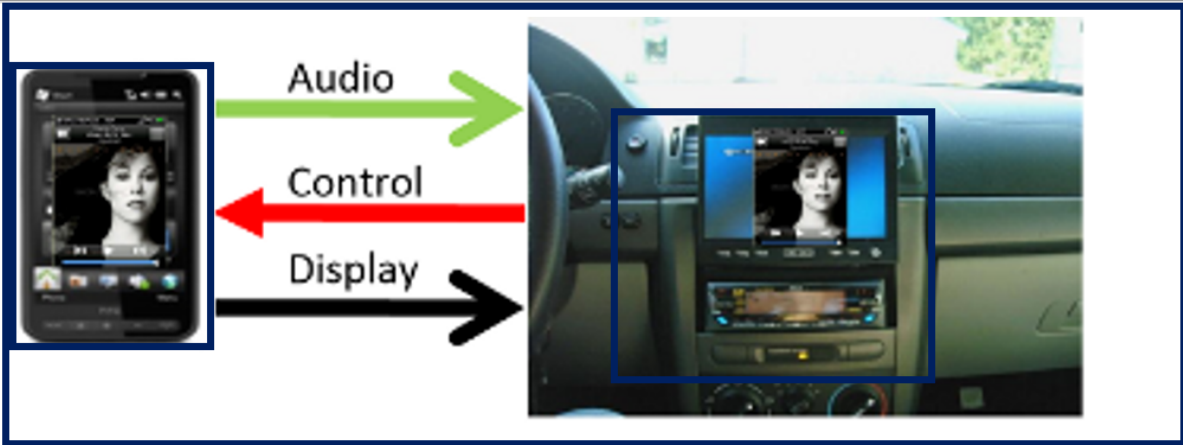
When the car goes into drive mode you switch to the simpler UI.

Use High Contrast - The UI must be legible in a variety of lighting conditions, even in direct sunlight. To achieve this, all foreground/background text combinations must have a minimum contrast level.

Source: <https://mirrorlink.com/Developers>

Analyst comment- Evidence demonstrates the multiple modes of Mirrorlink, which shows the restricted and supported contents during multiple modes. The device In driver mode only extracts allowed supportable contents for the dashboard.

RACE Smartphone Connectivity

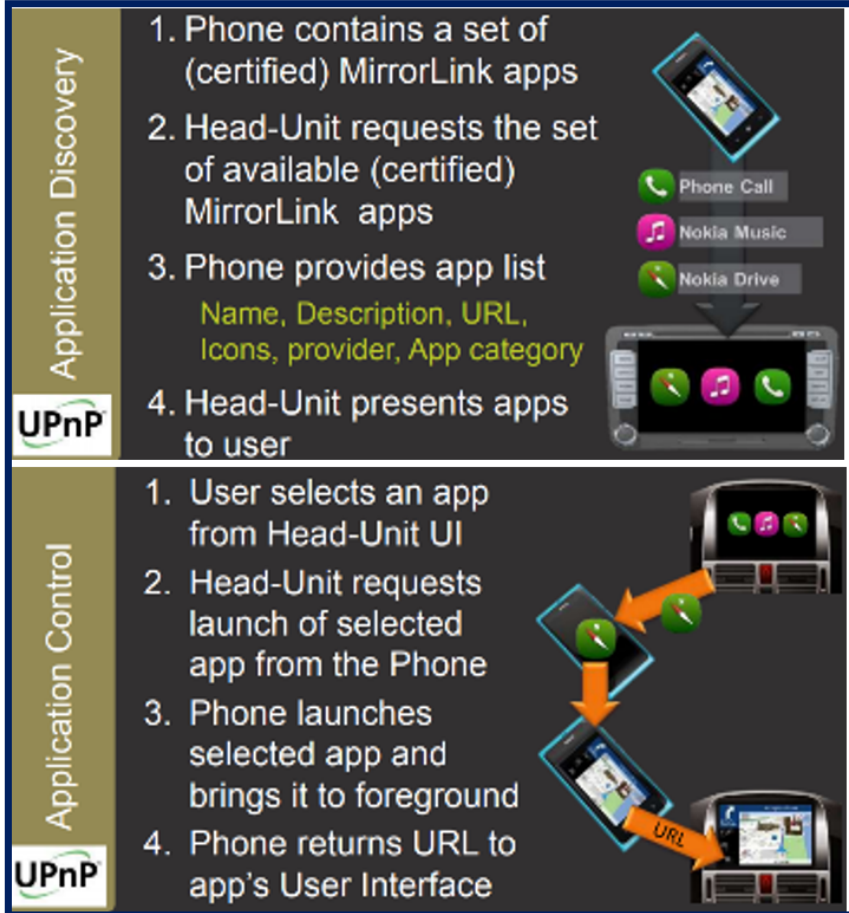


MirrorLink enables the car head unit to be configured in either drive mode or park mode. In the drive mode only apps that are certified by CCC as Driver Safe can be launched. These certified apps have simple GUI, bigger fonts, buttons and do not allow content that distract driver (like video / games). In the park mode all the applications on the phone can be launched from the head unit.

Source: <http://www.allgosystems.com/mirrorlink.php>

Analyst comment- Evidence demonstrates RACE Smartphone Connectivity having advisor unit which mirrors the consumer electronic display on the vehicle dashboard. The key configuration mode is used to receive the apps (like calling, text, email, navigation, etc) on the display device by requesting via key to a portable device (MirrorLink associated smartphones). The key selection is based on mode selected by the vehicle either drive mode or park mode.

RACE Smartphone Connectivity

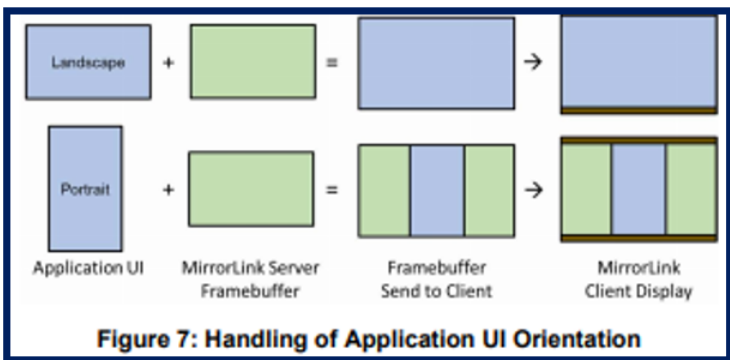
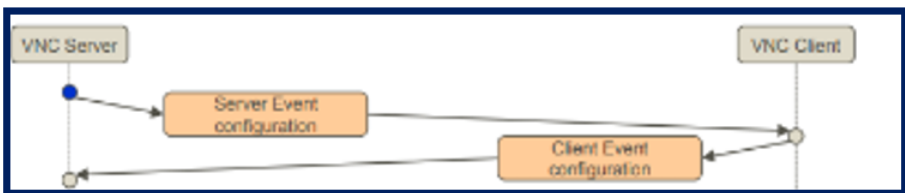


Source:
https://mirrorlink.com/public/files/files/Opening_Session_Beijing_China_March_2015_English.pdf

Analyst comment- Evidence demonstrates the advisor unit which mirrors the consumer electronic display on the vehicle dashboard. The MirrorLink is associated with RACE Smartphone Connectivity.

RACE Smartphone Connectivity

The ServerEventConfiguration and ClientEventConfiguration message pair provides additional information about event handling, i.e. which key and pointer events are natively supported on the VNC Server and Client. This information helps the Server to map specific incoming VNC Client events to Server events.



Source: https://www.etsi.org/deliver/etsi_ts/103500_103599/10354402/01.03.00_60/ts_10354402v010300p.pdf

Analyst comment- Evidence demonstrates the handling of the user interface (display screen), in which the screen information is similar on the vehicle dashboard and the MirrorLink associated smartphone for the RACE Smartphone Connectivity.

RACE Smartphone Connectivity

MirrorLink® is a concept promoted by Car Connectivity Consortium for integrating smart phones and the Car head Unit. It allows complete control of the smart phones from the Head Unit. **The phone screen is replicated and sent to the Head unit with audio in another channel. The phone screen replication on the head unit is typically called screen scraping. All user inputs (like rotary knob, buttons, and touch inputs) from the Head unit are directed to the phone.**

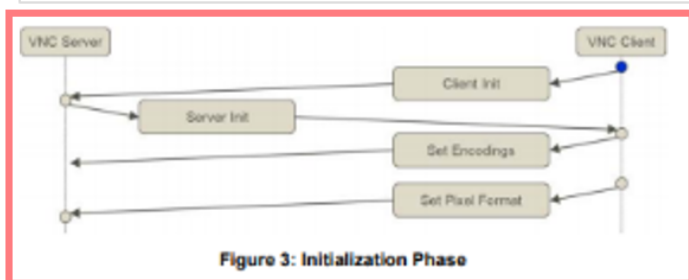
MirrorLink enables the car head unit to be configured in either drive mode or park mode. In the drive mode only apps that are certified by CCC as Driver Safe can be launched. These certified apps have simple GUI, bigger fonts, buttons and do not allow content that distract driver (like video / games). In the park mode all the applications on the phone can be launched from the head unit.

Source: <http://www.allgosystems.com/mirrorlink.php>

Analyst comment- Evidence demonstrates the adjustment of video resolution information based on the supported video resolution on the MirrorLink associated smartphone to the vehicle dashboard by using screen scraping using Race Smartphone Connectivity. All user inputs (like rotary knob, buttons, and touch inputs) from the vehicle dashboard are directed to MirrorLink associated Smartphone.

RACE Smartphone Connectivity

The initialization phase defines a couple of messages, which are exchanged between the VNC Client and the VNC Server, as shown in the Figure 3. In general, the VNC Server presents its capabilities and the VNC Client selects the best option with regard to its own capabilities.



The MirrorLink Server shall support a framebuffer resolution of at least 800 x 480. The actual transmitted framebuffer resolution may be less to preserve the MirrorLink Server framebuffer's aspect ratio on the MirrorLink Client's display, i.e. one framebuffer dimension shall be equal to original framebuffer resolution.

Source:https://www.etsi.org/deliver/etsi_ts/103500_103599/10354402/01.03.00_60/ts_10354402v010300p.pdf

Analyst comment- Evidence demonstrates the resolution of portable device.

Defendant provides a key advisor unit configured to extract the supportable key information from the connection establishment response message and output the supportable key information to the video output unit, wherein the key advisor unit displays on a display screen of the video output unit, if a configuration mode is activated, keys of the portable device and is configured to receive corresponding keys through the key input unit, and wherein key values corresponding to the keys of the key input unit match key values of the portable device, and wherein the video information is video data adjusted in resolution by the portable device for the video output unit on the basis of the screen resolution information, and the input key value is mapped to one of key values indicated by the supportable key information of the portable device.

The key advisor unit and key input unit are each comprised of software utilizing a microprocessor and storage means on a computer to perform their respective steps as outlined in

the specification. The specification describes an algorithm to transform a general-purpose microprocessor to a special purpose computer so that a person of ordinary skill in the art can implement the disclosed algorithm to achieve the claimed function. A disclosed algorithm can include steps for achieving a result as shown in the '461 patent specification.

In at least one embodiment, the key adviser unit extracts supportable key information from the connection establishment response signal and transmits the supportable key information to the video output unit so as to be displayed on the screen. *See* '461 patent Col. 3 *l.* 9-12. The key input unit is provided with a plurality of keys for generating input key commands. The input key commands are generated by matching the key values input through the key input unit to the key values of the portable device with reference to the supportable key information. *See* '461 patent Col. 3 *l.* 13-17.

In at least one embodiment, the key adviser unit extracts compatible key information from the connection establishment response signal and displays the compatible key information on the display screen of the video output unit. The key adviser unit displays a key among the keys provided by the compatible key information, which is matched to the key input through the key input unit, on the display screen of the video output unit. If a set of keys are selected by through the key input unit, the key adviser unit displays the keys supported by the portable device on the display screen of the video output unit. If a key is input through the key input unit, the key adviser unit matches the key value of the input key to a key value of the corresponding key supported by the portable device. *See* '461 patent Col. 4 *l.* 37-46. The key input unit is provided with a plurality of keys for generating input key values. The input key commands are generated by matching the key values input through the key input unit to the key values of the portable device with reference to the supportable key information. *See* '461 patent Col. 3 *l.* 13-17.

33. Defendant's aforesaid activities have been without authority and/or license from Plaintiff.

34. To the extent 35 U.S.C. § 287 is determined to be applicable, Plaintiff is informed and believes its requirements have been satisfied with respect to the '504 and '461 patents.

35. Plaintiff is entitled to recover from Defendant the damages sustained by Plaintiff as a result of the Defendant's wrongful acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

JURY DEMAND

Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

Plaintiff respectfully requests that the Court find in its favor and against the Defendant, and that the Court grant Plaintiff the following relief:

- A. A judgment in favor of Plaintiff that Defendant has infringed one or more of the claims, directly, jointly, and/or indirectly the '504 and '461 patents;
- B. A permanent injunction pursuant to 35 U.S.C. § 283, enjoining Defendant and their officers, directors, agents servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert therewith from infringement, inducing the infringement of, or contributing to the infringement of the '461 and '504 patents, or such other equitable relief the Court determines is warranted;
- C. An award to Plaintiff of damages adequate to compensate Plaintiff for the Defendant's acts of infringement together with pre-judgment and post-judgment interest; and an accounting of all damages not presented at trial;
- D. That, should Defendant's acts of infringement be found to be willful from the time that Defendant became aware of the infringing nature of their actions, which is the time of filing of Plaintiff's Original Complaint at the latest, that the Court award treble damages for the period of such willful infringement pursuant to 35 U.S.C. § 284; and
- E. Any further relief that this Court deems just and proper.

Dated: May 3, 2019

Respectfully submitted,

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