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WEST VIEW RESEARCH, LLC

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF CALIFORNIA

WEST VIEW RESEARCH, LLC, a California limited liability company, Plaintiff, V. AUDI AG, a German corporation; VOLKSWAGEN AG, a German corporation; and VOLKSWAGEN GROUP OF AMERICA, INC. d/b/a AUDI OF AMERICA, INC., a New Jersey corporation, Defendants. And Related Counterclaim.	CASE NO. 14-CV-2668-CAB-WVG **PLAINTIFF AND COUNTER-DEFENDANT WEST VIEW RESEARCH, LLC'S REVISED DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS, PURSUANT TO PATENT L.R. 3.1 AND THE JUNE 10, 2015 COURT ORDER** JURY TRIAL DEMANDED Judge: Hon. Cathy Ann Bencivengo Ctrm: 4C

VWGoA - Ex. 1009
Volkswagen Group of America, Inc. - Petitioner

In connection with the above-entitled action, Plaintiff and Counter-Defendant WEST VIEW RESEARCH, LLC ("West View" or "Plaintiff") hereby makes the following Revised Disclosure of Asserted Claims and Infringement Contentions, pursuant to Southern District of California Local Patent Rule 3.1 and this Court's June 10, 2015 Order on Motions to Amend and Strike adopting West View's revised seven selected claims for each Patent-in-Suit (the "June 10 Order").

West View's disclosure in this regard is made without the benefit of discovery, and therefore it reserves the right to amend its Revised Disclosure of Asserted Claims and Infringement Contentions.

I. Patent L.R. 3.1.a - Each claim of each patent in suit that is allegedly infringed by each opposing party.

In accordance with Patent L.R. 3.1.a, West View discloses that the following claims are infringed by Defendants AUDI AG, VOLKSWAGEN AG, and VOLKSWAGEN GROUP OF AMERICA, INC. d/b/a AUDI OF AMERICA, INC. (collectively, "Audi/VW"), with respect to each of U.S. Patent Nos. 8,719,038 (the "'038 patent"), 8,719,037 (the "'037 patent"), 8,682,673 (the "'673 patent"), 8,296,146 (the "'146 patent"), 8,065,156 (the "'156 patent"), 8,290,778 (the "'778 patent"), 8,706,504 (the "'504 patent"), and 8,781,839 (the "'839 patent") (collectively, the "Patents-in-Suit").

Patent No.	Asserted Claims
8,719,038	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 30, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, and 68
8,719,037	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, and 77

8,682,673	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30
8,296,146	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, and 34
8,065,156	7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, and 37
8,290,778	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, and 30
8,706,504	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, and 48
8,781,839	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, and 47

In accordance with the June 10 Order, West View selects the following seven claims in each of the Patents-in-Suit, which West View hereby asserts against Audi/VW:

Patent No.	**Revised Seven Selected Claims**
8,719,038	1, 5, 12, 16, 22, 54, and 66
8,719,037	1, 22, 37, 42, 48, 75, and 77
8,682,673	1, 15, 19, 23, 25, 27, and 28
8,296,146	1, 11, 17, 18, 19, 27, and 30
8,065,156	10, 11, 15, 18, 20, 22, and 24
8,290,778	1, 5, 9, 22, 27, 28, and 30
8,706,504	1, 37, 43, 44, 45, 46, and 48
8,781,839	1, 10, 11, 16, 23, 29, and 35

II. Patent L.R. 3.1.b - Separately for each asserted claim, each accused apparatus, product, device, process, method, act, or other instrumentality ("Accused Instrumentality") of each opposing party of which the party is aware. This identification must be as specific as possible. Each product, device and apparatus must be identified by name or model number, if known. Each method or process must be identified by name, if known, or by any product,

device, or apparatus which, when used, allegedly results in the practice of the claimed method or process.

Upon information and belief, as of the date of this disclosure, West View is aware of the following Accused Instrumentalities, grouped into the following categories:

(1) Model year 2011 and later "AUDI"-branded "A3," "A4," "A5," "A6," "A7," "A8," "Allroad", "Q3", "Q5," and "Q7"-models (including without limitation "Premium", Premium Plus", "Prestige", "S" , "RS", "Sportback", "L", "W12", Hybrid, and other variants of the foregoing as applicable) of motor vehicles with Defendants' so-called "Audi MMI" ("Multi Media Interface" or "MMI") technology, and may also include such vehicles with Defendants' so-called "Audi connect®" technology (hereinafter, the "Audi MMI and Audi connect® Products");

(2) "AUDI"-branded "Smart Display" touchscreen tablet device (and any other similar platforms that incorporate this technology) (hereinafter, the "Audi Smart Display Products");

(3) "AUDI"-branded vehicles, including but not limited to, 2016 "Q7" vehicles, with, and/or having capability to interface with, Defendants' so-called "Smart Display" (and any other vehicles which incorporate this technology) (hereinafter, the "Audi Smart Display Vehicles");

(4) "AUDI"-branded vehicles with smartphone integration ("Android Auto®" only), which may include, but is not limited to, "A3," "A4," "A5," "A6," "A7," "A8," "Allroad", "Q3", "Q5," and "Q7"-models (including without limitation "Premium", "Premium Plus", "Prestige", "S", "RS", "Sportback", "L", "W12", Hybrid, and other variants of the foregoing as applicable), (hereinafter "Audi Android Auto Products");

(5) "VOLKSWAGEN"-branded vehicles with standard or optional Hard Drive/SD Card navigation systems with touchscreen capability and voice recognition, including but not limited to the RNS-510 and RNS-850 units, and also including, but not limited to, the following models: "Passat," "CC," "Touareg," "Golf," "Golf GTI," and "Golf Sport Wagon" (hereinafter "Volkswagen HD/SD Navigation Systems");

(6) "VOLKSWAGEN"-branded vehicles with "Modularen Infotainment-baukasten" (MIB) modular infotainment systems, including without limitation the MIB and MIB-II variants, and which may include smartphone integration ("Android Auto®" and "MirrorLink" only), and which may include any related Volkswagen-branded software applications ("apps"), such vehicles which may include, without limitation, "Jetta," "Passat," "CC," "Golf," "Golf GTI," and "Golf Sport Wagon," as well as "Touareg," "Beetle," "Eos," and "Tiguan" models (hereinafter "Volkswagen MIB Products");

(7) Incipient "VOLKSWAGEN" branded "Cross"-based SUV vehicles (model names to be determined), and the related "CrossBlue", Cross Coupe, and/or "Cross Coupe GTE" concept vehicles, and any variants thereof (hereinafter "Volkswagen Cross Vehicles");

(8) All versions of the "VOLKSWAGEN"-branded "Media Control" software application for portable electronic tablet and/or smartphone devices (Android only) usable with vehicles in the U.S. (hereinafter "Volkswagen Media Control Tablet/Smartphone Application Products"); and

(9) Incipient "VOLKSWAGEN"-branded "Cross"-based vehicles (model names to be determined), and the related "Cross Blue", Cross Coupe, and/or "Cross Coupe GTE" concept vehicles, which include Wi-Fi hotspot capability and integration for a portable electronic tablet

computing device, including those with the with the Media Control Tablet/Smartphone Application Products, (hereinafter "Volkswagen Cross with Tablet Integration Vehicles").

Audi MMI and Audi connect® Products, Audi Smart Display Products, Audi Smart Display Vehicles, Audi Android Auto Products, Volkswagen HD/SD Navigation Systems, Volkswagen MIB Products, Volkswagen Cross Vehicles, Volkswagen Media Control Tablet/Smartphone Application Products, and Volkswagen Cross with Tablet Integration Vehicles may be collectively referred to herein as the "Accused Instrumentalities."

West View identifies the foregoing Accused Instrumentalities separately for each asserted claim for each of the Patents-in-Suit in **Exhibit A** attached hereto.

III. Patent L.R. 3.1.c - A chart identifying specifically where each element of each asserted claim is found within each Accused Instrumentality, including for each element that such party contends is governed by 35 U.S.C. § 112(6), the identity of the structure(s), act(s), or material(s) in the Accused Instrumentality that performs the claimed function.

Consistent with the April 24, 2015 Case Management Order and the June 10 Order, Plaintiff's Claim Charts consist of at least one representative product and/or method for each of the revised seven selected claims of each Patent-in-Suit asserted against Audi/VW.

In addition, when a selected claim depends upon a non-selected dependent and/or independent claim, and therefore by virtue of its dependency necessarily includes the limitations of the non-selected claim(s), those non-selected claims are charted for sake of thoroughness and completeness.

Therefore, West View's attached Claim Charts consist of at least one representative product and/or method for each of the revised seven selected claims of the Patents-in-Suit asserted against Audi/VW, and any necessarily included non-

selected claims.

Attached hereto as **Exhibit B** is a claim chart identifying specifically where each element for each applicable one of the seven selected claims of the ’038 patent asserted against Audi/VW is found within an exemplary Accused Instrumentality.

Attached hereto as **Exhibit C** is a claim chart identifying specifically where each element for each applicable one of the seven selected claims of the ’037 patent asserted against Audi/VW is found within an exemplary Accused Instrumentality.

Attached hereto as **Exhibit D** is a claim chart identifying specifically where each element for each applicable one of the seven selected claims of the ’673 patent asserted against Audi/VW is found within an exemplary Accused Instrumentality.

Attached hereto as **Exhibit E** is a claim chart identifying specifically where each element for each applicable one of the seven selected claims of the ’146 patent asserted against Audi/VW is found within an exemplary Accused Instrumentality.

Attached hereto as **Exhibit F** is a claim chart identifying specifically where each element for each applicable one of the seven selected claims of the ’156 patent asserted against Audi/VW is found within an exemplary Accused Instrumentality.

Attached hereto as **Exhibit G** is a claim chart identifying specifically where each element for each applicable one of the seven selected claims of the ’778 patent asserted against Audi/VW is found within an exemplary Accused Instrumentality.

Attached hereto as **Exhibit H** is a claim chart identifying specifically where each element for each applicable one of the seven selected claims of the ’504 patent asserted against Audi/VW is found within an exemplary Accused Instrumentality.

Attached hereto as **Exhibit I** is a claim chart identifying specifically where each element for each applicable one of the seven selected claims of the ’839 patent asserted against Audi/VW is found within an exemplary Accused Instrumentality.

IV. Patent L.R. 3.1.d - For each claim which is alleged to have been indirectly infringed, an identification of any direct infringement and a

description of the acts of the alleged indirect infringer that contribute to or are inducing that direct infringement. Insofar as alleged direct infringement is based on joint acts of multiple parties, the role of each such party in the direct infringement must be described.

West View asserts that all Patents-in-Suit, the ’156, ’146, ’673, ’037, ’038, ’778, ’504, and ’839 patents, are indirectly infringed. West View alleges Defendants advertise, entice, encourage, instruct, enable, and otherwise aid and abet third-parties, including but not limited to Defendants’ past, present, and prospective sales personnel and agents, as well as past, present, and prospective customers, owners, drivers of, and/or passengers in the Accused Instrumentalities to directly infringe the Patents-in-Suit, including the ’156, ’146, ’673, ’037, ’038, ’778, ’504, and ’839 patents, through the publication and dissemination of marketing and promotional materials, detailed operational manuals, on-line instructional videos, and/or technical assistance in a manner that directly infringes the ’156, ’146, ’673, ’037, ’038, ’778, ’504, and ’839 patents.

Defendants characterize certain features of the Accused Instrumentalities as “must-have” additions to “AUDI”- and “VW”-branded vehicles. Furthermore, through Defendants’ publication of detailed operating manuals, educational and tutorial materials, instructional videos, and press releases concerning their technology, Defendants direct the attention of past, present, and prospective customers, owners, drivers of, and/or passengers in the Accused Instrumentalities to such instructional, educational, and tutorial publications, thereby enticing, encouraging, and aiding and abetting third parties to use certain features disposed within the Accused Instrumentalities in a manner that directly infringes the Patents-in-Suit, including the ’156, ’146, ’673, ’037, ’038, ’778, ’504, and ’839 patents.

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V. Patent L.R. 3.1.e - Whether each element of each asserted claim is claimed to be literally present and/or present under the doctrine of equivalents in the Accused Instrumentality.

West View identifies in its Claims Charts related to the Patents-in-Suit, attached as Exhibits B-I, whether each element of each one of the seven selected claims of the Patents-in-Suit asserted against Audi/VW, is claimed to be literally present and/or present under the doctrine of equivalents in the exemplary Accused Instrumentality.

VI. Patent L.R. 3.1.f - For any patent that claims priority to an earlier application, the priority date to which each asserted claim allegedly is entitled.

Each of the Patents-in-Suit has a priority date of June 10, 1999, and an expiration date of June 10, 2019 (exclusive of any term extensions).

VII. Patent L.R. 3.1.g - If a party claiming patent infringement asserts or wishes to preserve the right to rely, for any purpose, on the assertion that its own apparatus, product, device, process, method, act, or other instrumentality practices the claimed invention, the party must identify, separately for each asserted claim, each such apparatus, product, device, process, method, act, or other instrumentality that incorporates or reflects that particular claim.

No such instrumentalities are being identified pursuant to Patent L.R. 3.1.g, and therefore no identification is being made.

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VIII. Patent L.R. 3.1.h - If a party claiming infringement alleges willful infringement, the basis for such allegation.

West View is not alleging willful infringement.

Dated: June 26, 2015

GAZDZINSKI & ASSOCIATES, P.C.

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EXHIBIT A

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
8,065,156		1									
		2									
		3									
		4									
		5									
		6									
	D/I	7		x				x			
	D/I	8		x				x			
	D/I	9		x				x			
	D/I	10	x	x	x	x		x	x		x
	D/I	11		x	x	x		x	x		x
	D/I	12		x	x	x		x	x		x
	D/I	13		x	x	x		x	x		x
	D/I	14		x	x	x		x	x		x
	D/I	15	x	x	x	x		x	x		x
	D/I	16		x				x			
	D/I	17		x				x			
	D/I	18	x	x	x	x		x	x		x
	D/I	19		x	x	x		x	x		x
	D/I	20	x	x	x	x		x	x		x
	D/I	21	x	x	x	x		x	x		x
	D/I	22	x	x	x	x		x	x		x
	D/I	23	x	x	x	x		x	x		x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	24	x	x	x	x		x	x		x
	D/I	25		x				x	x		
	D/I	26		x				x			
	D/I	27		x				x			
	D/I	28		x				x			
	D/I	29		x				x			
		30									
	D/I	31		x				x	x		
	D/I	32		x				x			
	D/I	33		x				x			
	D/I	34		x				x			
	D/I	35		x				x			
	D/I	36		x				x			
	D/I	37		x				x			
		38									
8,296,146	D/I	1	x	x	x	x		x	x		x
	D/I	2	x	x	x	x		x	x		x
	D/I	3	x	x	x	x		x	x		x
	D/I	4	x	x	x	x		x	x		x
	D/I	5	x	x	x	x		x	x		x
	D/I	6		x				x			

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smartphone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	7		x	x	x		x	x		x
	D/I	8	x	x		x		x	x		x
	D/I	9		x				x			
	D/I	10	x	x	x	x		x	x		x
	D/I	11	x	x	x	x		x	x		x
	D/I	12	x	x	x	x		x	x		x
	D/I	13	x	x	x	x		x	x		x
	D/I	14	x	x	x	x		x	x		x
	D/I	15		x		x		x	x		x
	D/I	16				x		x	x		x
	D/I	17						x	x		x
	D/I	18		x	x			x	x		x
	D/I	19	x	x	x			x	x		x
	D/I	20		x	x			x	x		x
	D/I	21						x	x		x
	D/I	22						x	x		x
	D/I	23		x				x	x		x
	D/I	24		x				x	x		x
	D/I	25		x	x			x	x		x
	D/I	26		x	x			x	x		x
	D/I	27	x	x	x	x		x	x		x
	D/I	28	x	x	x	x		x	x		x
	D/I	29	x	x	x	x		x	x		x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smartphone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	30	x	x	x				x		x
	D/I	31	x	x	x	x		x	x		x
	D/I	32	x		x	x		x	x		x
	D/I	33	x	x	x	x		x	x		x
	D/I	34	x	x	x	x		x	x		x
8,682,673	D/I	1	x	x	x	x		x	x	x	x
	D/I	2	x	x	x	x		x	x	x	x
	D/I	3	x	x	x	x		x	x	x	x
	D/I	4		x				x	x	x	x
	D/I	5						x	x		
	D/I	6	x	x	x	x		x	x	x	x
	D/I	7	x		x	x		x	x	x	x
	D/I	8	x	x	x	x		x	x	x	x
	D/I	9	x	x	x	x		x	x	x	x
	D/I	10	x	x	x	x		x	x	x	x
	D/I	11		x							
	D/I	12	x	x		x		x	x	x	x
	D/I	13	x	x				x			
	D/I	14	x	x				x			
	D/I	15	x	x	x	x		x	x	x	x
	D/I	16	x	x	x	x		x	x	x	x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	17	x	x	x	x		x	x	x	x
	D/I	18		x	x			x	x	x	x
	D/I	19						x	x		
	D/I	20	x	x	x	x		x	x	x	x
	D/I	21	x		x	x		x	x	x	x
	D/I	22	x	x	x	x		x	x	x	x
	D/I	23	x	x	x	x		x	x	x	x
	D/I	24	x	x	x	x		x	x	x	x
	D	25		x							
	D/I	26		x				x			
	D/I	27	x	x	x	x		x	x		x
	D/I	28		x	x	x		x	x		x
	D/I	29		x	x	x		x	x		x
	D/I	30		x	x	x		x	x		x
8,719,037	D/I	1		x				x			
	D/I	2		x				x			
	D/I	3		x				x			
	D	4		x							
	D/I	5		x				x			
	D/I	6		x				x			
	D/I	7		x				x			

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D	8		x							
	D/I	9		x				x			
	D/I	10		x				x			
	D/I	11		x				x			
	D/I	12						x			
	D	13		x							
		14									
	D/I	15		x				x			
	D/I	16		x				x			
	D/I	17		x				x			
	D/I	18		x				x			
	D/I	19						x			
	D/I	20		x				x			
	D/I	21		x				x			
	D/I	22	x	x	x	x		x	x		x
	D/I	23		x				x			
	D/I	24	x	x	x	x		x	x		x
	D/I	25		x				x	x		x
	D/I	26		x				x			
	D/I	27		x				x	x		x
	D/I	28	x	x	x	x		x	x		x
	D/I	29		x	x	x		x	x		x
	D/I	30		x				x	x		x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smartphone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	31		x				x	x		x
	D/I	32	x	x	x	x		x	x		x
	D/I	33			x	x		x	x		x
	D	34		x							
	D/I	35	x	x	x	x		x	x		x
	D/I	36	x	x	x	x		x	x		x
	D/I	37	x	x	x	x		x	x		x
	D/I	38		x	x	x		x			
	D/I	39		x	x	x		x			
	D/I	40	x	x	x	x		x	x		x
	D/I	41	x	x	x	x		x	x		x
	D/I	42	x	x	x	x		x	x		x
	D/I	43	x	x	x	x		x	x		x
	D/I	44	x	x	x	x		x	x		x
	D/I	45	x		x	x		x	x		x
	D/I	46			x						
	D/I	47			x						
	D/I	48	x	x	x	x		x	x		x
	D/I	49		x	x	x		x			
	D/I	50		x	x	x		x			
	D/I	51	x	x	x	x		x	x		x
	D/I	52		x	x	x		x	x		x
	D/I	53		x				x	x		x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smartphone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	54	x	x	x			x	x		x
	D/I	55	x	x	x			x	x		x
	D/I	56	x	x	x			x	x		x
	D/I	57	x	x	x	x		x	x		x
	D/I	58	x	x	x	x		x	x		x
	D/I	59	x	x	x	x		x	x		x
	D/I	60		x	x			x			
	D/I	61		x	x			x			
	D/I	62		x				x	x		x
	D/I	63	x	x	x	x		x	x		x
	D/I	64	x		x	x		x			
	D/I	65		x				x	x		x
	D/I	66		x				x	x		x
	D/I	67	x	x	x	x		x	x		x
	D/I	68	x		x	x		x	x		x
	D	69		x							
	D/I	70	x	x	x	x		x	x		x
	D/I	71						x	x		x
	D/I	72						x	x		x
	D/I	73						x	x		x
	D/I	74						x	x		x
	D/I	75							x		x
	D/I	76		x		x		x	x		x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	77		x	x	x		x	x		x
8,719,038	D/I	1	x	x	x	x	x	x	x	x	x
	D/I	2	x	x	x	x	x	x	x	x	x
	D/I	3	x	x				x	x	x	x
	D/I	4		x		x	x	x	x	x	x
	D/I	5		x				x	x	x	x
	D/I	6	x	x	x	x	x	x	x	x	x
	D/I	7	x	x	x	x	x	x	x	x	x
	D/I	8	x	x	x	x	x	x	x	x	x
	D/I	9	x	x	x	x	x	x	x	x	x
	D/I	10	x	x	x	x	x	x	x	x	x
	D/I	11	x	x	x	x	x	x	x	x	x
	D/I	12		x				x			
	D/I	13	x	x	x	x	x	x	x	x	x
	D/I	14		x		x		x		x	
	D/I	15	x	x	x	x		x	x	x	x
	D/I	16	x	x	x	x		x	x	x	x
	D	17	x								
	D/I	18	x	x		x		x		x	
	D/I	19	x		x	x	x		x		x
	D/I	20	x		x	x	x		x		x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
		21									
	D/I	22		x			x	x	x	x	x
	D/I	23		x			x	x	x		x
	D/I	24		x				x	x		x
	D/I	25		x				x			
	D/I	26		x				x	x		x
	D/I	27		x				x	x		x
		28									
		29									
	D/I	30		x			x	x	x		x
	D/I	31		x			x	x	x		x
	D/I	32		x				x			x
	D/I	33		x			x	x	x		x
	D/I	34		x			x	x	x		x
	D/I	35		x			x	x	x		x
	D/I	36		x			x	x	x		x
	D/I	37		x				x			
	D/I	38		x			x	x	x		x
		39									
	D/I	40		x			x	x	x		x
	D/I	41		x				x			
	D/I	42		x				x			
	D/I	43		x			x	x	x		x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smartphone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	44					x	x	x		x
	D/I	45					x	x	x		x
		46									
	D/I	47		x			x	x	x		x
	D/I	48		x				x			
	D/I	49					x	x	x		x
	D/I	50		x			x	x	x		x
	D/I	51		x				x	x		x
	D/I	52		x				x	x		x
	D/I	53		x				x	x		x
	D/I	54		x			x	x	x	x	x
	D/I	55		x			x	x	x		x
	D/I	56					x	x	x		x
	D/I	57		x			x	x	x	x	x
	D/I	58		x			x	x	x	x	x
	D/I	59		x			x	x	x	x	x
	D/I	60		x			x	x	x	x	x
	D/I	61		x			x	x	x	x	x
	D/I	62		x				x			
	D	63		x							
	D	64		x							
	D	65		x							
	D/I	66		x			x	x	x	x	x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	67		x			x	x	x	x	x
	D/I	68		x			x	x	x	x	x
Patents added via June 10, 2015 Order											
8,290,778	D/I	1		x			x	x	x	x	x
	D/I	2		x			x	x	x	x	x
	D	3		x							
	D	4		x							
	D	5		x							
	D/I	6		x			x	x	x	x	x
	D	7		x							
	D/I	8		x			x	x	x	x	x
	D/I	9		x			x	x	x	x	x
	D/I	10		x				x	x	x	x
	D/I	11		x			x	x	x	x	x
	D	12		x							
	D	13		x							
	D	14		x							
	D/I	15		x			x	x	x	x	x
	D	16		x							
	D/I	17		x			x	x	x	x	x
	D/I	18		x			x	x	x	x	x

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smartphone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D	19		x							
	D	20		x							
	D/I	21		x			x	x	x	x	x
	D/I	22		x			x	x	x	x	x
	D/I	23		x				x	x	x	x
	D/I	24		x				x	x	x	x
	D/I	25		x				x	x	x	x
		26									
	D	27		x							
	D/I	28		x			x	x	x	x	x
	D	29		x							
	D/I	30		x			x	x	x	x	x
8,706,504	D/I	1		x				x			
	D/I	2		x				x			
	D/I	3		x				x			
	D	4		x							
	D/I	5		x				x			
	D/I	6		x				x			
	D/I	7		x				x			
		8									
	D/I	9		x				x			

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	10		x				x			
	D/I	11		x				x			
		12									
	D	13		x							
		14									
		15									
	D/I	16		x				x			
		17									
	D/I	18		x				x			
	D/I	19		x				x			
	D/I	20		x				x			
	D/I	21		x				x			
	D/I	22		x				x			
	D/I	23		x				x			
	D	24		x							
	D/I	25		x				x			
	D/I	26		x				x			
	D/I	27		x				x			
		28									
	D/I	29						x			
	D/I	30						x			

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D/I	31		x				x			
		32									
	D	33		x							
		34									
	D/I	35		x				x			
	D/I	36		x				x			
	D/I	37		x				x			
	D/I	38		x				x			
	D/I	39		x				x			
	D/I	40		x				x			
	D/I	41		x				x			
	D/I	42		x				x			
	D/I	43	x	x	x	x		x	x	x	x
	D/I	44	x	x	x	x		x	x	x	x
	D/I	45	x	x	x	x		x		x	
	D/I	46	x	x	x	x		x		x	
	D/I	47	x	x	x	x		x	x	x	x
	D/I	48	x	x	x	x		x	x	x	x
8,781,839	D/I	1		x			x	x	x	x	
	D	2		x							
	D	3		x							

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smartphone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D	4		x							
	D	5		x							
	D/I	6		x			x	x	x	x	
	D	7		x							
	D/I	8		x			x	x	x	x	
	D/I	9		x			x	x	x	x	
	D/I	10		x			x	x	x	x	
	D/I	11		x				x	x	x	
	D	12					x				
	D/I	13		x			x	x	x	x	
	D	14		x							
	D	15		x							
	D/I	16		x				x			
	D/I	17		x			x	x	x	x	
	D/I	18		x			x	x	x	x	
	D/I	19		x			x	x	x	x	
	D/I	20		x			x	x	x	x	
	D/I	21		x			x	x	x	x	
	D/I	22		x			x	x	x	x	
	D/I	23		x			x	x	x	x	
	D	24		x							

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D	25		x							
	D/I	26		x				x	x	x	
	D/I	27		x				x	x	x	
	D/I	28		x				x	x	x	
	D/I	29		x			x	x	x		
		30									
	D	31		x							
	D/I	32		x			x	x	x	x	
	D/I	33		x				x	x	x	
	D/I	34		x				x	x	x	
	D/I	35		x				x	x	x	
	D/I	36		x				x	x	x	
	D	37		x							
	D	38		x							
	D	39		x							
	D	40		x							
	D	41		x							
	D	42		x							
	D	43		x							
	D	44		x							
	D	45		x							

EXH A – REVISED AUDI/VW ACCUSED INSTRUMENTALITIES

Patents-In-Suit	Direct / Inducement	[Claims in Green highlight = Revised 7 selected claims for the Patents-in-Suit, per June 10, 2015 Order]	Audi MMI and Audi Connect® Products	Audi Smart Display Products	Audi Smart Display-enabled Vehicles (e.g., 2016 Q7)	Audi Android Auto-enabled Vehicles (e.g., 2016 Q7)	VW HD/SD Navigation Systems with Touchscreen and voice recognition (including e.g., RNS510, RNS850)	VW MIB Products (e.g., MIB-II with Android Auto; MirrorLink)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof) including Wi-Fi hotspot and rear seat tablet with VW Media Control app. (Android only)	VW Media Control Tablet/Smart phone Application (Android Only)	VW "Cross" SUV Products (e.g., CrossBlue, Cross Coupe, Cross Coupe GTE, and variants thereof)
	D	46		x							
	D	47		x							

EXHIBIT B

Audi/Volkswagen Products vs. U.S. Patent No. 8,719,038
"Computerized Information and Display Apparatus"

U.S. Patent No. 8,719,038 Data	Filed: 1/28/13 Issued: 5/6/14 Priority date: June 10, 1999 68 claims total - 4 independent, 64 dependent

Provided pursuant to Patent Local Rule 3.1 and June 10, 2015 Order;
Plaintiff reserves the right to supplement.

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	EXEMPLARY 2015 AUDI A3 WITH MMI/CONNECT IMPLEMENTATION		
	This analysis is targeted at 2015 Audi A3 with Connect providing driving directions/maps and other information [2] http://www.pcmag.com/article2/0,2817,2455739,00.asp 		

[1] West View denotes allegations of literal infringement as "L" and infringement under the doctrine of equivalents as "DOE," as applicable.

[2] West View denotes allegations of direct infringement as "D" and indirect or induced infringement as "I," as applicable.

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **THE AUDI A3 CONNECT SYSTEM IS AN EMBEDDED SYSTEM (I.E., THE NAVIGATION SYSTEM AND MODEM AND RELATED COMPONENTS) ARE EACH PROVIDED WITH THE VEHICLE, AS OPPOSED TO A NON-EMBEDDED SYSTEM WHICH UTILIZES THE USER'S SMARTPHONE AS A BASIS FOR WIRELESS COMMUNICATION.**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]

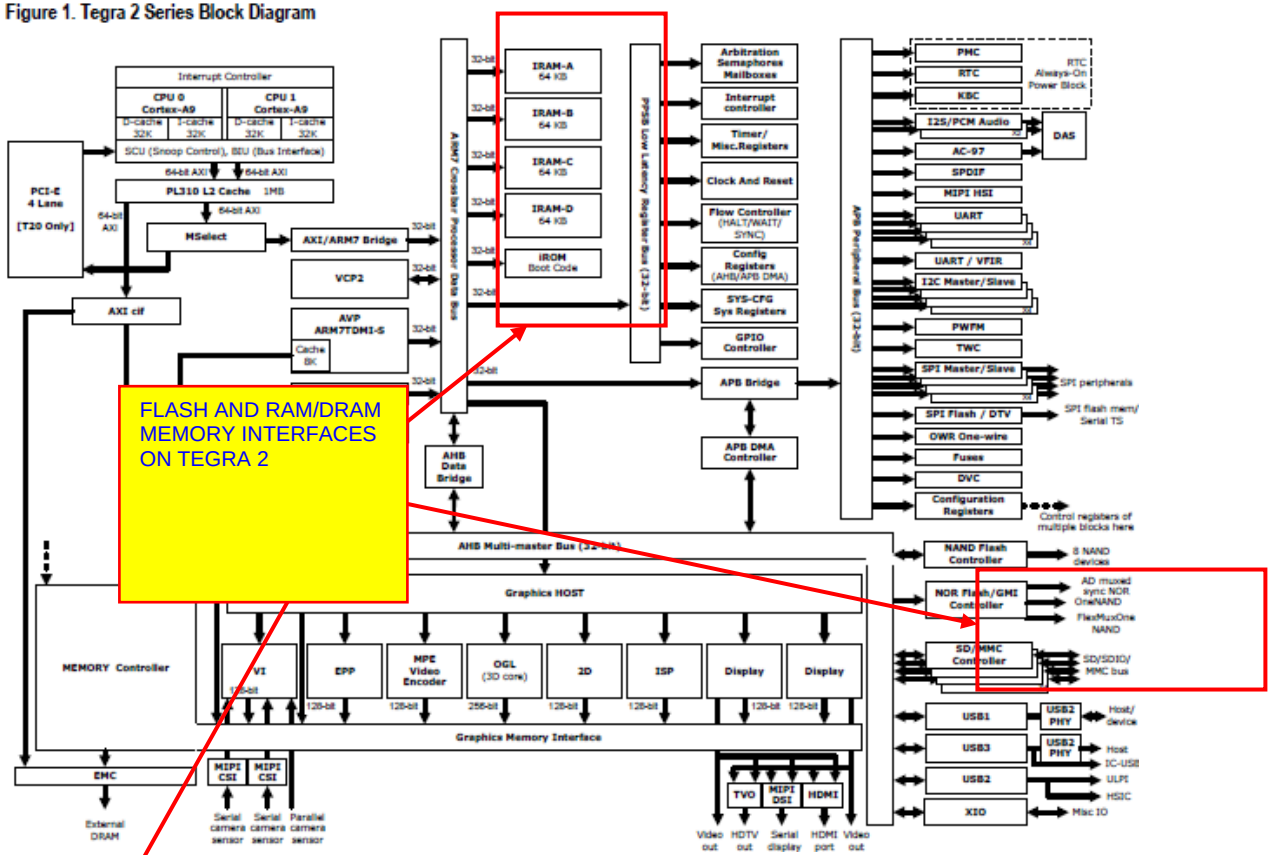
Audi connect features.

	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■
Parking information	■	■	■	■	■	■	■	■
Fuel prices	■	■	■	■	■	■	■	■
Flight information								■
Communication								
Facebook®								■
Twitter®								■
Infotainment								
Audi music stream[2]	■	■	■	■	■	■	■	■
Weather	■	■	■	■	■	■	■	■
Travel information	■	■	■	■	■	■	■	■
News	■	■	■	■	■	■	■	
Personalized news								■
City events	■	■	■	■	■	■	■	■
Google™ Local Search	■	■	■	■	■	■	■	■
Wi-Fi® hotspot	■	■	■	■	■	■	■	■
3G (HSPA/HSPA+)	■	■	■	■	■	■	■	
4G/LTE								■

FEATURES OF 2015 A3 WITH MMI AND CONNECT

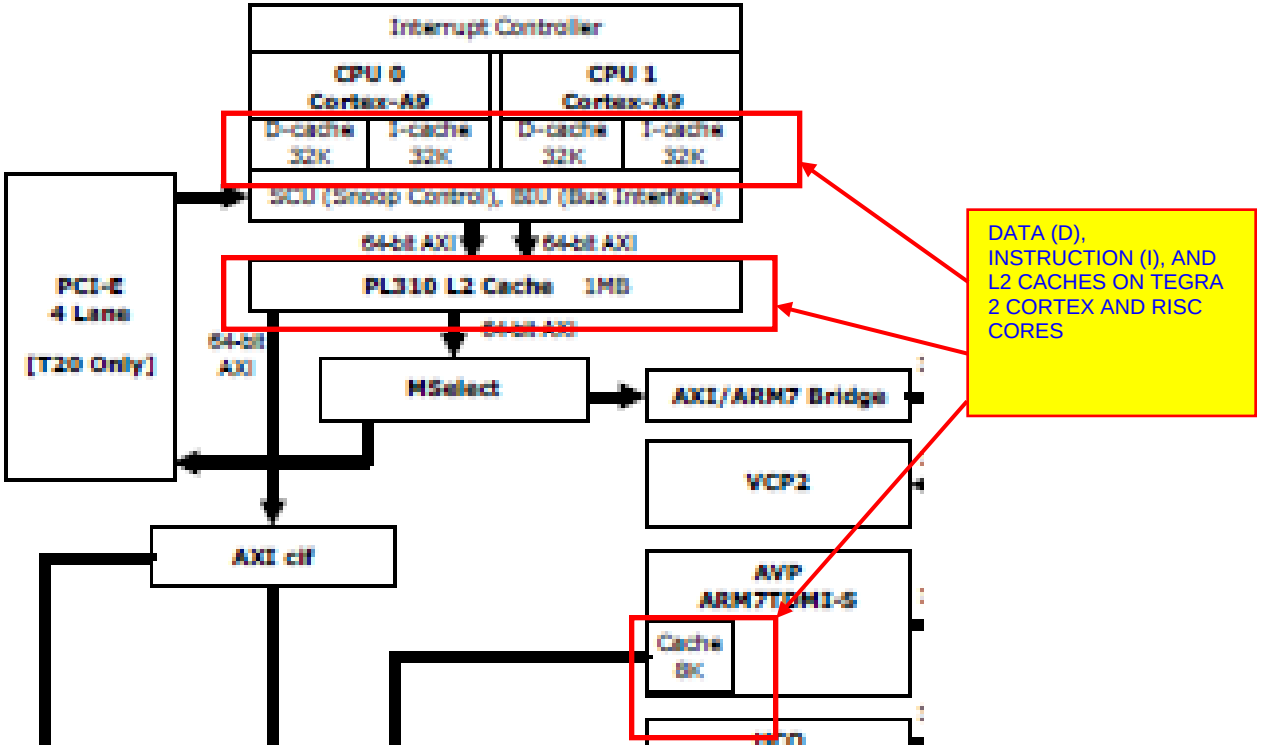
[1]

SEE TABLE ABOVE; THE A3 CONNECT SYSTEM PROVIDES NUMEROUS TYPES OF INFORMATION, MOST OF WHICH ARE PROVIDED VIA THE SYSTEMS EMBEDDED LTE INTERFACE (AS OPPOSED FOR EXAMPLE TO SIRIUSXM, WHICH IS SATELLITE/DOWNLINK BASED, AND WHICH REQUIRES A SEPARATE SUBSCRIPTION FROM THE CONNECT SYSTEM OFFERED BY AUDI).

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
1. Computer readable apparatus configured to aid a user in locating an organization or entity,	**AS DISCUSSED BELOW, AUDI A3 MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA 2 PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA 2 CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA SUCH AS MAP DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("COMPUTER READABLE APPARATUS").** Figure 1. Tegra 2 Series Block Diagram  http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf	**L, DOE**	**D, I**

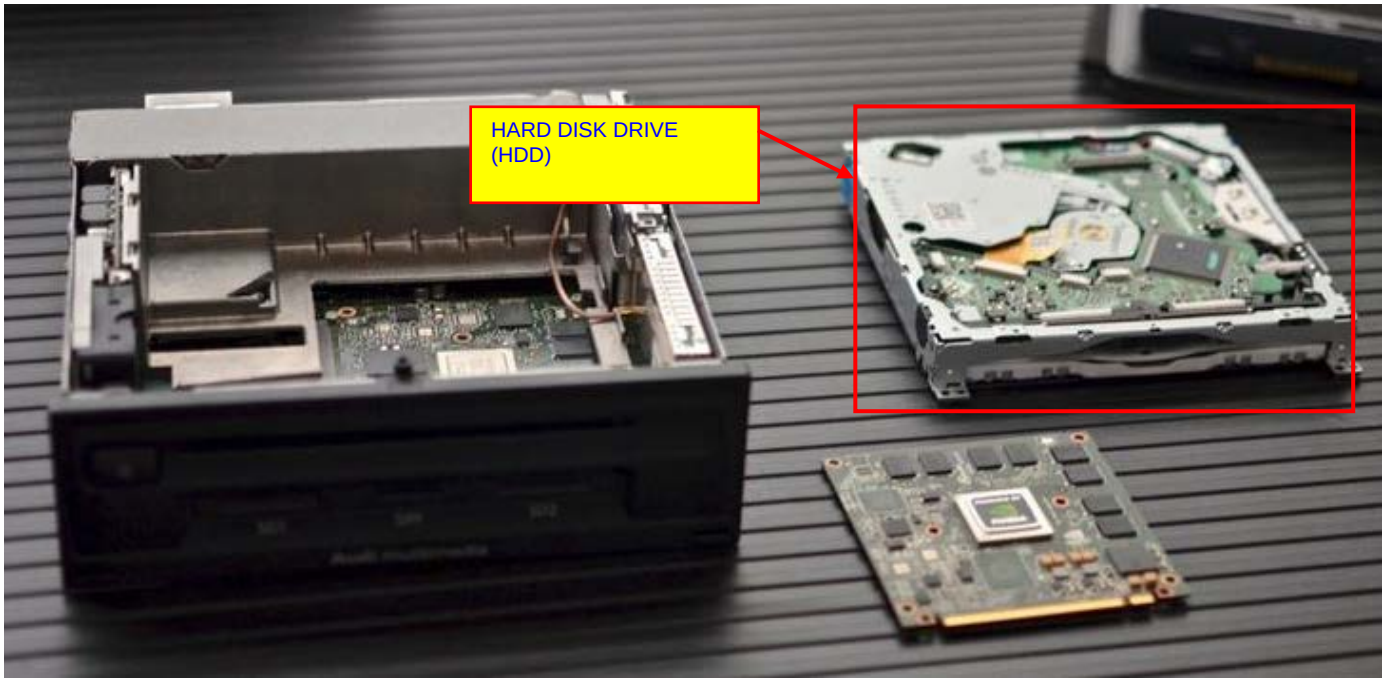
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]

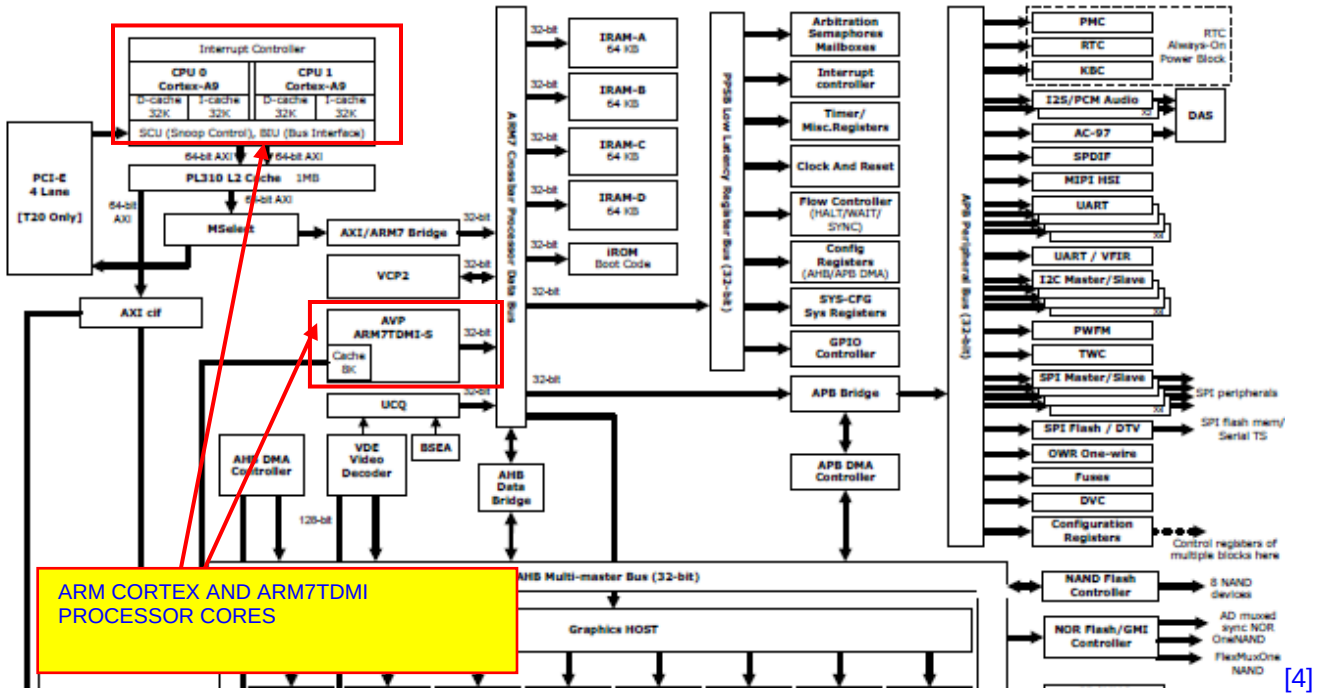
Figure 1. Tegra 2 Series Block Diagram



http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

"Powered by Nvidia Tegra 2
Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	powered by a Tegra 4 with minimal retooling."  http://www.cnet.com/pictures/audi-evolves-the-2015-audi-a3-into-a-4g-lte-connected-sedan-pictures/19/ "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [7] http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/		
the apparatus comprising a storage medium having a computer program configured to run on a	**THE HDD, FLASH, DRAM, ETC. EACH HAVE STORAGE MEDIA (E.G., MAGNETIC DISK SURFACE, DRAM CELLS, ETC.). THE STORAGE MEDIA INCLUDE SOFTWARE/FIRMWARE/DATA WHICH OPERATE THE INFORMATION SYSTEM WHEN EXECUTED ON THE SOC (TEGRA 2 PROCESSOR).**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
processor,	Figure 1. Tegra 2 Series Block Diagram  [4] http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf		
the program configured to, when executed on the processor:	**THE PROGRAM (INCLUDING SUBROUTINES) EXECUTES ON THE TEGRA 2 PROCESSOR CPU CORE(S) AND OTHER EXECUTION UNITS THEREIN, SUCH AS THE ARM7TDMI FOR GRAPHICS RENDERING.**	**L, DOE**	
obtain a representation of a first speech input from the user, the first speech input relating to a name of a desired	**THE AUDI A3 UTILIZES VOICE DIGITIZATION APPARATUS/FUNCTIONS IN AT LEAST THREE AREAS; (I) GOOGLE LOCAL SEARCH; (II) VEHICLE (LOCAL) COMMANDS, AND (III) MESSAGING; THESE INPUTS ARE RECEIVED VIA A MICROPHONE BUILT INTO THE VEHICLE:** "October 11, 2012 08:00 AM Eastern Daylight Time	**L, DOE**	

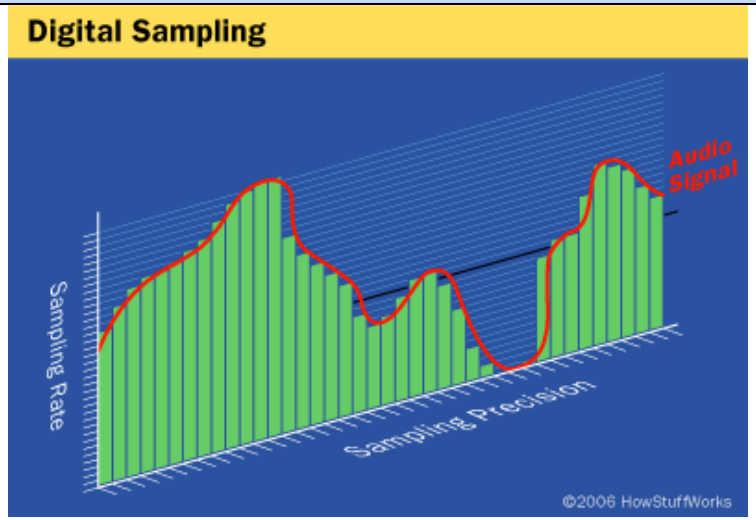
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
organization or entity;	BURLINGTON, Mass.--(BUSINESS WIRE)--Nuance Communications Inc. (NASDAQ: NUAN) today announced that its automotive-grade Dragon Drive! Messaging service for the connected car is powering the text message dictation in the new Audi A3, creating a hands-free messaging experience. With Audi connect Messaging, drivers can simply use their voice to dictate and send text messages while driving, as well as hear incoming text or e-mail messages.' … "Dragon Drive! Messaging's flexible and customizable architecture enables world-leading automotive brands like Audi to deeply integrate powerful voice capabilities as part of their unique in-car experience, without compromising quality or adding dangerous distractions." The Audi A3 deeply integrates Dragon Drive! Messaging as part of the in-car user interface. Drivers simply connect their phone via Bluetooth or insert their SIM card into the MMI Navigation plus to quickly and easily dictate and send text messages without having to take their hands off of the wheel. For example, just say "Dictate text message to John Smith" to quickly access the contact from a mobile address book, and then speak the message, "I am stuck in traffic and will be late for the meeting. Start without me." The message is read to the driver, and from there they can continue dictating, edit or send the message using simple voice commands. Nuance's natural, humanlike text-to-speech capabilities also read out incoming text and email messages, keeping Audi drivers connected to friends and family from anywhere. … Audi also integrates Nuance's voice command and control as part of Audi's voice user interface, letting drivers speak voice commands to search and access contacts and make calls on their phone, select Audi connect services and one-shot voice commands to input navigation address information." [12] http://www.businesswire.com/news/home/20121011005696/en/Nuance%E2%80%99s-Dragon-Drive!-Messaging-Powers-Text-Message#.VYsO7_lVhBd **FOR GOOGLE LOCAL SEARCH (AKA "ONLINE DESTINATIONS" FUNCTION IN THE NAVIGATION SUBMENU), THE "GOOGLE VOICE" ALGORITHM IS USED FOR DIGITIZATION, AND THE "PACKET" REFERENCED ABOVE IS SENT TO THE REMOTE GOOGLE SERVICE FOR RECOGNITION AND SEARCH OF THE GOOGLE LOCAL DATABASE RELEVANT TO THE VEHICLE'S CURRENT LOCATION:** "Another new Audi connect service is the POI (Point Of Interest) search, which can be operated via the voice control		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	system. The driver simply chooses a destination and specifies their interest – the name of a restaurant, for instance. The voice command, or "voice tag," is converted to a small data packet that is sent to the Google search engine." [9] http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/ "For non-personalized services (such as Navigation enhanced by Google, information about parking, city events, flight information, weather, gas prices,) we share location information with the appropriate content providers as needed to respond to the requests, but we do not share information that directly identifies you or your Audi vehicle." [10]		

Audi connect features.

	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■

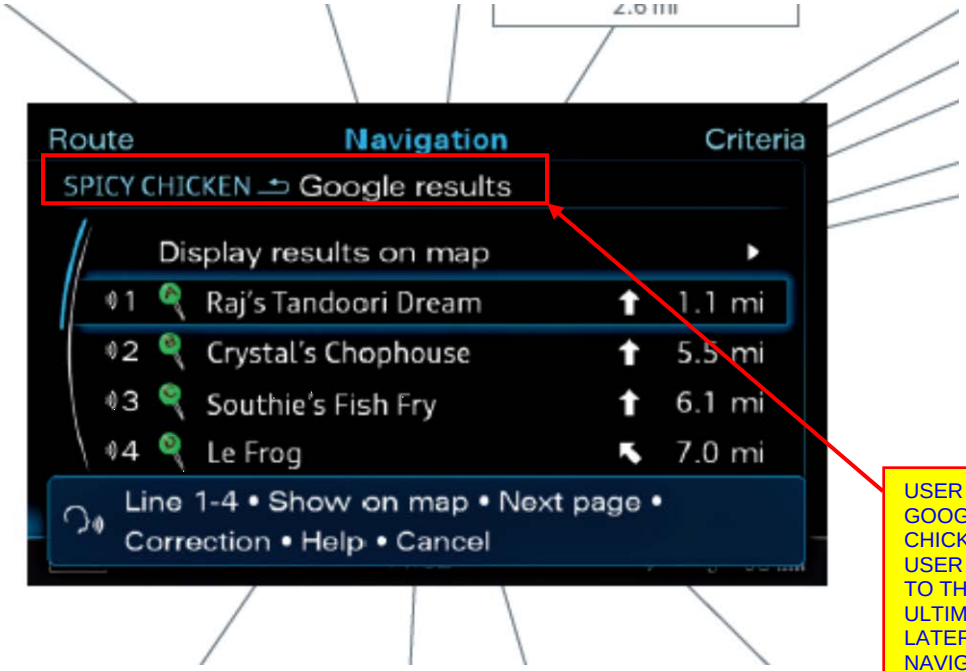
[1]

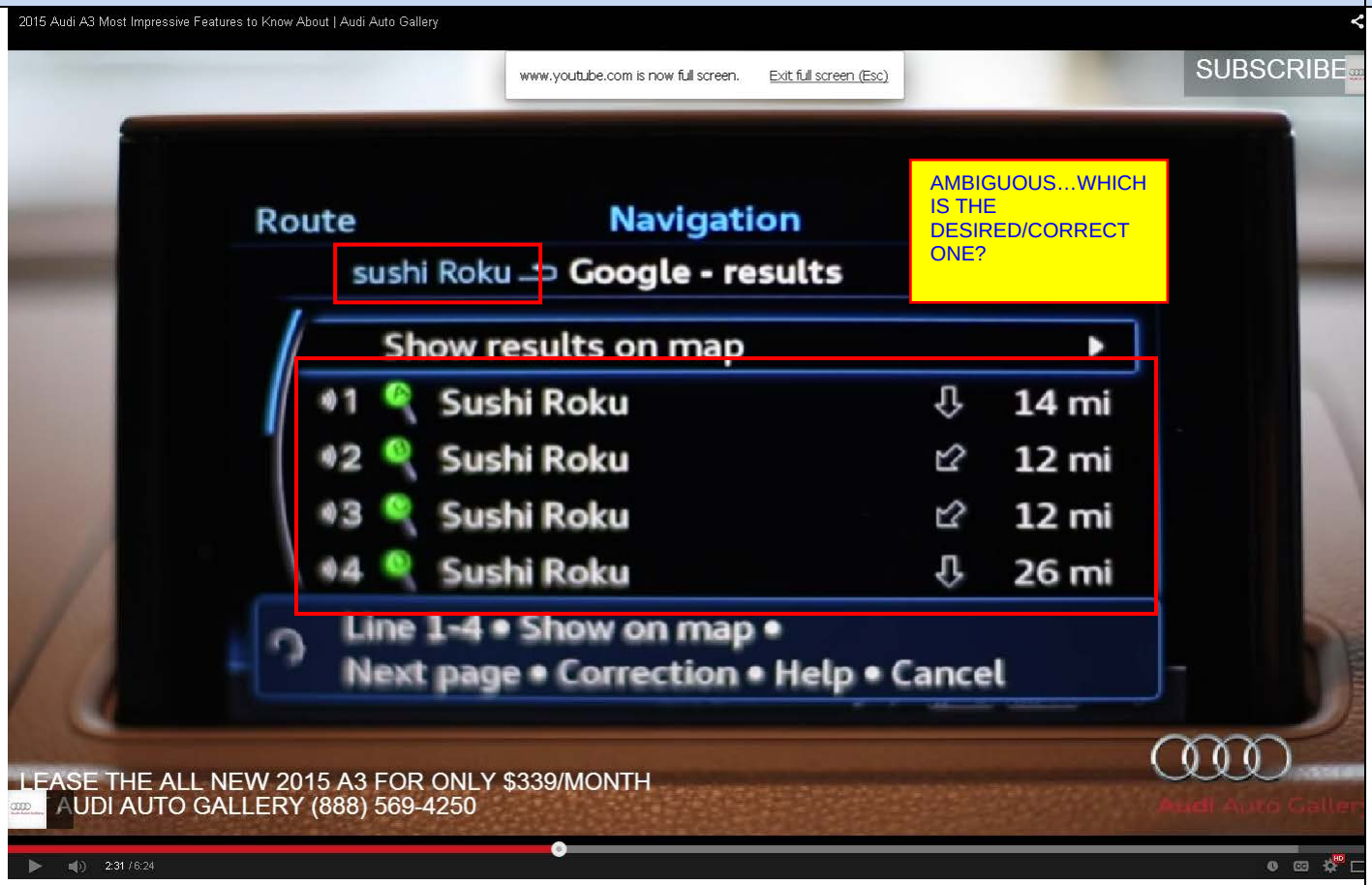
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **"**An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality." [18] http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " [19] http://www.wired.com/2013/02/android-neural-network/ ***"How Voice Search works*** Voice Search allows you to provide a voice query to a Google search client application on a device instead of typing that query. It uses pattern recognition to transcribe spoken words to written text. For each voice query made to Voice Search, we store the language, the country, the utterance and our system's guess of what was said. The stored audio data does not contain your Google Account ID unless you have selected otherwise. We do not send any utterances to Google unless you have indicated an intent to use the Voice Search function (for example, pressing the microphone icon in the quick search bar or in the virtual keyboard or saying "Google" when the quick search bar indicates that the Voice Search function is available). We send the utterances to Google servers in order to recognize what was said by you. We keep utterances to improve our services, including to train the system to better recognize		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]

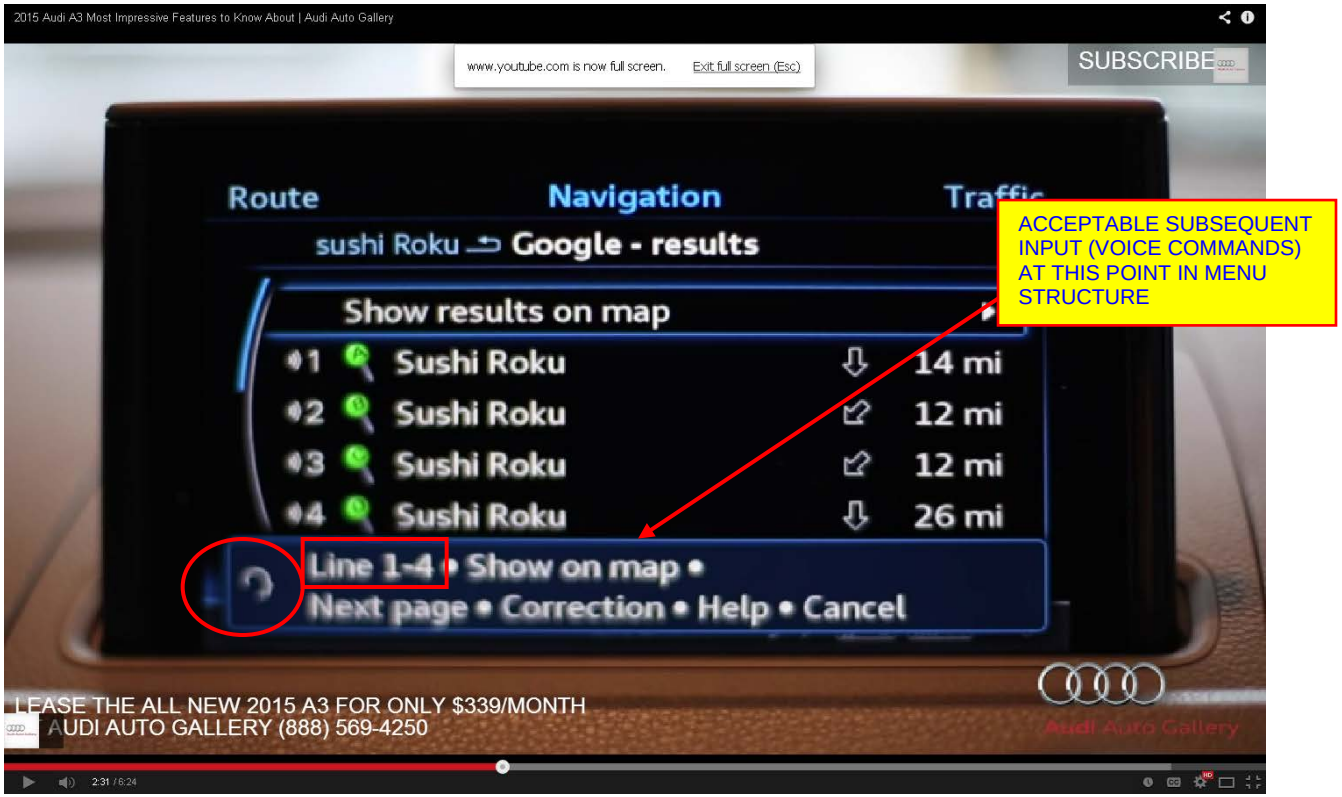
	the correct search query." [27] https://www.google.com/policies/technologies/pattern-recognition/
	
	"**Behind the Scenes**
	
	Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec.
	
	The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like:…
	
	After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string.
	
	`GET /complete/search?client=iphoneapp&hjson=t&types=t`
	`&spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1`
	`User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1`
	`Accept: */*`
	`Accept-Language: en-us`
	`Accept-Encoding: gzip, deflate`
	`Pragma: no-cache`
	`Connection: keep-alive`
	`Connection: keep-alive`
	`Host: clients1.google.com`
	
	The response is an array of search terms in JSON format, for use in search auto completion.
	
	`["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]]` [38]
	http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/		

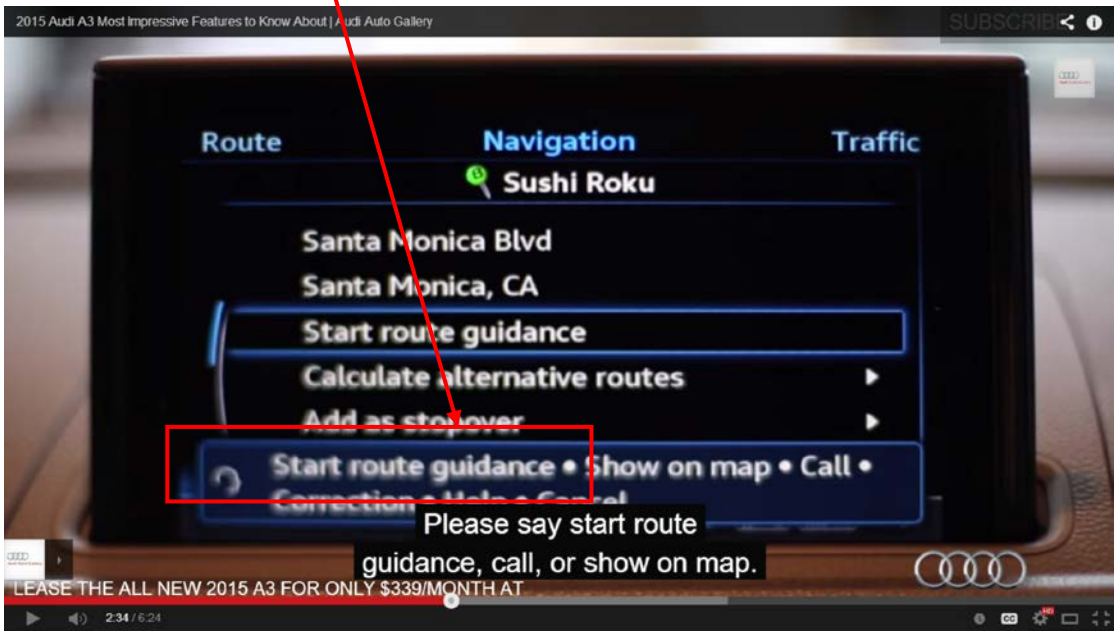
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH. **SO, AS ONE EXAMPLE, THE USER SAYS A SEARCH TERM UNDER THE "NAVIGATION/ONLINE DESTINATIONS" FUNCTION TO FIND A DESIRED RESTAURANT:** Your destiny is on the tip of your tongue. Google Voice™ Local Search allows you to easily search via voice commands for restaurants, historical landmarks and places of interest, both near and far.[1] Imagine entering a destination address by just speaking the words—Audi connect® makes that possible. With the power of Google™ on the tip of your tongue, Audi connect brings a vast Internet database to you with the advanced engineering and style of Audi. The same ease of use and thorough location search capability you've come to expect from Google™ rolled into your every commute. Search nearby and faraway points of interest with the power of Google Voice™ Local Search. Need to take the client out for nine holes? Just tell Audi connect "golf course." Looking for a meal with a little kick? Just ask for "spicy chicken"—Google™ will populate your navigation display with restaurants or descriptions that match the phrase you speak. Select the destination that best suits your appetite, and style, and your Audi MMI® navigation system will guide you there in clear and accurate detail. More than just a companion on the road, Audi connect, once you use it, will become an integral part of the family.		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 [1] **SEE VIDEO BELOW FOR ANOTHER EXAMPLE (SEARCH FOR "SUSHI ROKU"):**		

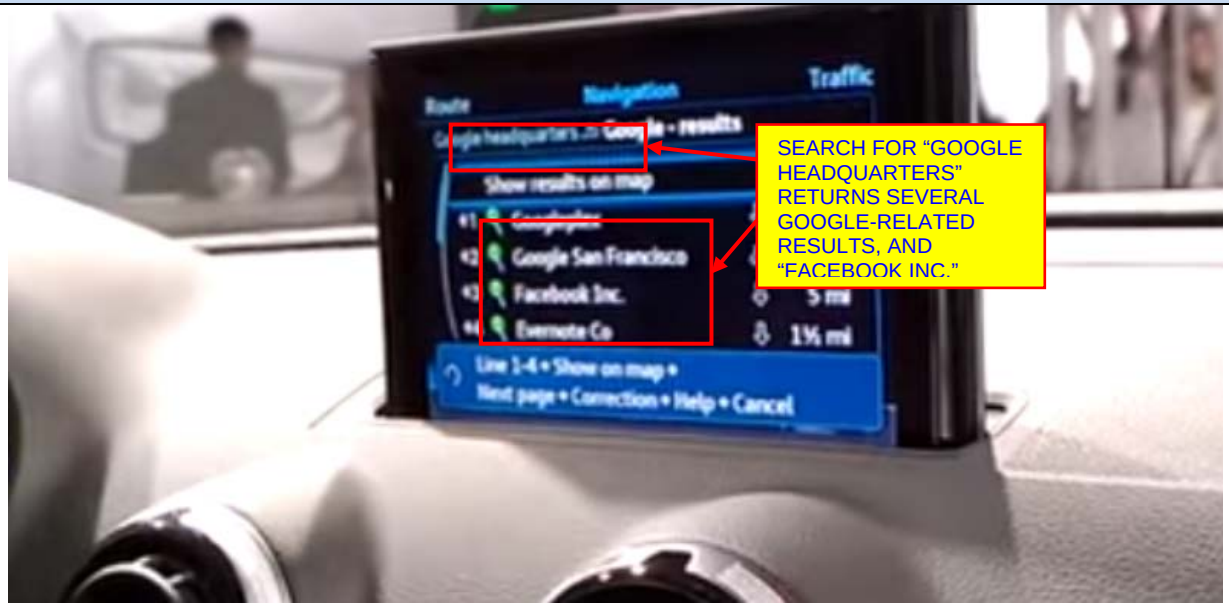
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=pjoeoDxz06U		
cause use of at least a speech recognition algorithm to process the representation to identify at least one word or phrase therein;	**SEE ABOVE; FOR THE ILLUSTRATED EXAMPLE OF A GOOGLE "ONLINE DESTINATIONS" SEARCH CONDUCTED IN THE AUDI A3, THE USER'S VOICE IS DIGITIZED AND SENT OVER THE AUDI'S LTE 4G INTERFACE TO A REMOTE SERVER FOR RECOGNITION/SEARCH FUNCTIONS. WHEN THE DIGITIZED VOICE FILE REACHES THE GOOGLE SERVERS, GOOGLE RECOGNIZES THE WORD(S) CONTAINED THEREIN:**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	"How Voice Search works Voice Search allows you to provide a voice query to a Google search client application on a device instead of typing that query. It uses pattern recognition to transcribe spoken words to written text. For each voice query made to Voice Search, we store the language, the country, the utterance and our system's guess of what was said. The stored audio data does not contain your Google Account ID unless you have selected otherwise. We do not send any utterances to Google unless you have indicated an intent to use the Voice Search function (for example, pressing the microphone icon in the quick search bar or in the virtual keyboard or saying "Google" when the quick search bar indicates that the Voice Search function is available). We send the utterances to Google servers in order to recognize what was said by you. We keep utterances to improve our services, including to train the system to better recognize the correct search query." [27] https://www.google.com/policies/technologies/pattern-recognition/		
use at least the identified at least one word or phrase to identify a plurality of possible matches for the name;	**SEE ABOVE; THE IDENTIFIED WORDS/PHRASES ARE USED TO CONDUCT THE SEARCH OF THE GOOGLE DATABASE(S) FOR POSSIBLE MATCHES:** "How similar keywords match to search terms Your ads are eligible to appear based on the similarity of your keywords to the search terms a person enters when they're searching on Google or our search partner sites. Only one keyword can trigger an ad per search term. Check out the examples below to learn what happens when multiple keywords in your account match a search at the same time." [28] https://support.google.com/adwords/answer/2756257?hl=en "Welcome to the Google Places API Power your location-based app with the Google Places API, which can be used to find detailed information about places across a wide range of categories. Backed by the same database used by Google Maps and Google+ Local, the Google Places API features over 95 million businesses and points of interest that are updated frequently through owner-verified listings and user-moderated contributions." [14] https://developers.google.com/places/?hl=e	**L, DOE**	

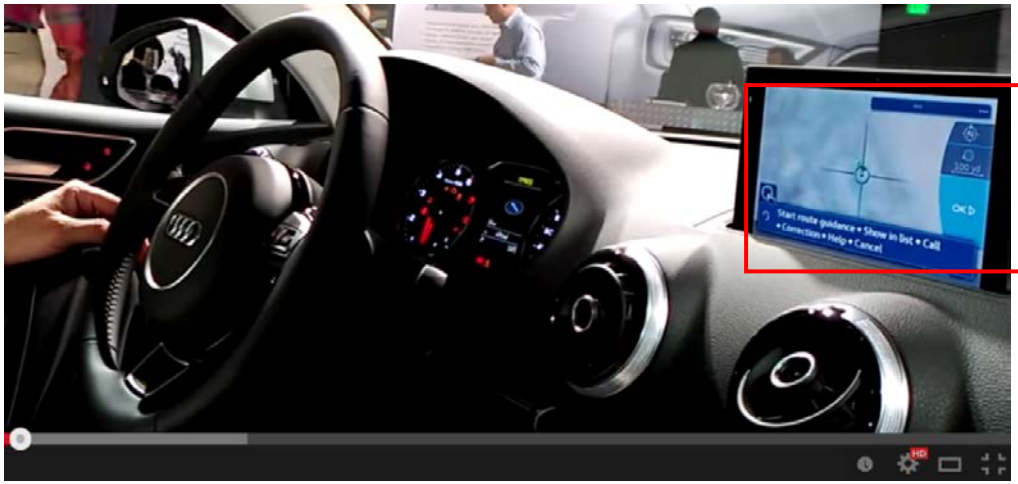
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
cause the user to be prompted to enter a subsequent input in order to aid in identification of one of the plurality of possible matches which best correlates to the desired organization or entity;	**ONCE DESTINATION SEARCH RESULTS HAVE BEEN RETURNED FROM REMOTE SERVER, THE SYSTEM PROMPTS THE USER VIA VOICE TO RESOLVE THE AMBIGUITY AS TO WHICH OF THE LISTED SUSHI ROKU'S IS THE DESIRED ONE ("BEST CORRELATES"):** **"SUSHI ROKU HAVE BEEN LOADED…PLEASE SAY …"**  https://www.youtube.com/watch?v=pjoeoDxz06U **AT THIS POINT, THE USER MUST RESOLVE THE AMBIGUITY BY SAYING AN ASSOCIATED LINE NUMBER (E.G., "LINE TWO" OR "TWO"), OR ENTERING IT VIA THE TOUCHPAD KNOB, OR CORRECTING/REVISING THEIR INPUT.**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	VEHICLE ITERATIVELY PRESENTS USER WITH PROMPTS TO ENTER ADDITIONAL VOICE COMMANDS TO ISOLATE THE ONE DESIRED DESTINATION. **FOR EXAMPLE, A TYPICAL ONLINE SEARCH MIGHT GO AS FOLLOWS (FUNCTIONALITY VERIFIED DURING TEST DRIVE):** **USER: "ONLINE DESTINATIONS"** **A3: "ONLINE DESTINATIONS"** **USER: "SUSHI ROKU"** **A3: "SUSHI ROKU"…** **A3: "SUSHI ROKU HAVE BEEN LOADED…PLEASE SAY …"** **USER: "LINE 2"** **A3: "LINE 2 – PLEASE SAY START ROUTE GUIDANCE…"** **USER: "START ROUTE GUIDANCE"** 		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	AS ANOTHER EXAMPLE, THE SEARCH MIGHT GO AS FOLLOWS (FUNCTIONALITY VERIFIED DURING TEST DRIVE): **USER: "ONLINE DESTINATIONS"** **A3: "ONLINE DESTINATIONS"** **USER: "SUSHI"** **A3: "SUSHI"…** **[A LONG, MULTI-PAGE LIST OF OSTENSIBLY MATCHING ENTITIES IS RETURNED BY THE A3]** **USER: "CORRECTION"** **A3: "CORRECTION"** **USER: "SUSHI ROKU"** **A3: "SUSHI ROKU HAVE BEEN LOADED…PLEASE SAY …"** **USER: "LINE 2"** **A3: "LINE 2 – PLEASE SAY START ROUTE GUIDANCE…"** **USER: "START ROUTE GUIDANCE"** **SEE ALSO FOLLOWING VIDEO FOR ANOTHER EXAMPLE – USER SEARCHING FOR "GOOGLE HEADQUARTERS":**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	  http://www.youtube.com/watch?v=ojzs8QZKoWA		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	NOTE THAN IN EXAMPLE ABOVE, THE RETURN OF "FACEBOOK" ON A SEARCH FOR GOOGLE HEADQUARTERS IS POORLY CORRELATED. THIS ILLUSTRATES THAT THE SEARCH ENGINE MAY RETURN RESULTS (I) WHICH MATCH THE SEARCH TERM WELL BUT ARE NOT GEOGRAPHICALLY CORRECT (E.G., A NUMBER OF SUSHI ROKU'S IN SAME GENERAL AREA, ONLY ONE OF WHICH IS THE ONE WHICH THE USER DESIRES, AND/OR (II) WHICH POORLY MATCH THE SEARCH TERM, BUT ARE RELATED IN SOME OTHER WAY (PRESUMABLY ANOTHER TECH COMPANY IN SILICON VALLEY). **THE SYSTEM HAS NO IDEA AT THIS POINT WHICH IS THE CORRECT/DESIRED RESULT, AND HENCE MUST SOLICIT FURTHER INPUT TO MAKE THIS DETERMINATION.**		
receive data relating to the subsequent user input;	**SEE ABOVE; USER PROVIDES SPEECH OR OTHER INPUT RELATING TO DESIRED SELECTION (E.G., "ONE" FOR FIRST LINE IN THE LIST). USER VOICE INPUT IS CONVERTED TO DIGITAL DATA BY SYSTEM AND PROVIDED TO ALGORITHM.**	**L, DOE**	
based at least in part on the data, determine which of the plurality of possible matches is the one that best correlates;	**THE SYSTEM USES THE DATA TO DEFINITIVELY DETERMINE/DESIGNATE THE BEST CORRELATING MATCH, FOR WHICH SUBSEQUENT ROUTE CALCULATION, ETC. WILL OCCUR.**	**L, DOE**	
determine a location associated with the one of the possible matches that best correlates;	**THE SYSTEM RETRIEVES THE LOCATION DATA ASSOCIATED WITH THE SELECTED RESULT. NOTE THAT IT IS IMMATERIAL WHETHER THE LOCATION DATA IS SENT FROM THE SERVER FOR ALL RESULTS IN THE LIST (PRESUMED; BASED ON DISTANCE MEASUREMENTS SHOWN ON LIST), OR SUBSEQUENTLY RETRIEVED FROM THE SERVER AFTER DESIGNATION OF THE BEST CHOICE; THAT DATA HAS NOT BEEN DESIGNATED AS THE CORRECT DATA FOR ROUTE GUIDANCE, ETC. UNTIL THE USER'S SELECTION IS RECEIVED. HENCE, THE ROUTE PLANNING ALGORITHM FOR EXAMPLE WILL NOT "DETERMINE THE LOCATION" ASSOCIATED WITH BEST CORRELATED OPTION (EVEN THOUGH IT MAY BE STORED IN LOCAL MEMORY) UNTIL THE USER'S SELECTION IS RECEIVED, AT WHICH POINT THE MEMORY LOCATION IS ACCESSED AND THE RETRIEVED LOCATION DATA FED TO THE ALGORITHM.**	**L, DOE**	
and select and cause presentation of a visual representation of the location, as well as at least an immediate surroundings thereof, on a display viewable by the	**ONCE THE BEST CORRELATED RESULT IS SELECTED, THE SYSTEM PROVIDES THE USER THE ABILITY TO SHOW EITHER GOOGLE EARTH SATELLITE IMAGE DATA, OR GOOGLE STREET VIEW DATA, ON THE VEHICLE DISPLAY DEVICE. THE SELECTION OF THE IMAGERY (ONCE THE USER PICKS AN OPTION) IS COORDINATED BETWEEN THE VEHICLE AND THE REMOTE GOOGLE SERVER.** **FOR EXAMPLE, SEE VIDEO BELOW, WHERE USER SAYS "SHOW ON MAP" AFTER SELECTING THE**	**L, DOE**	

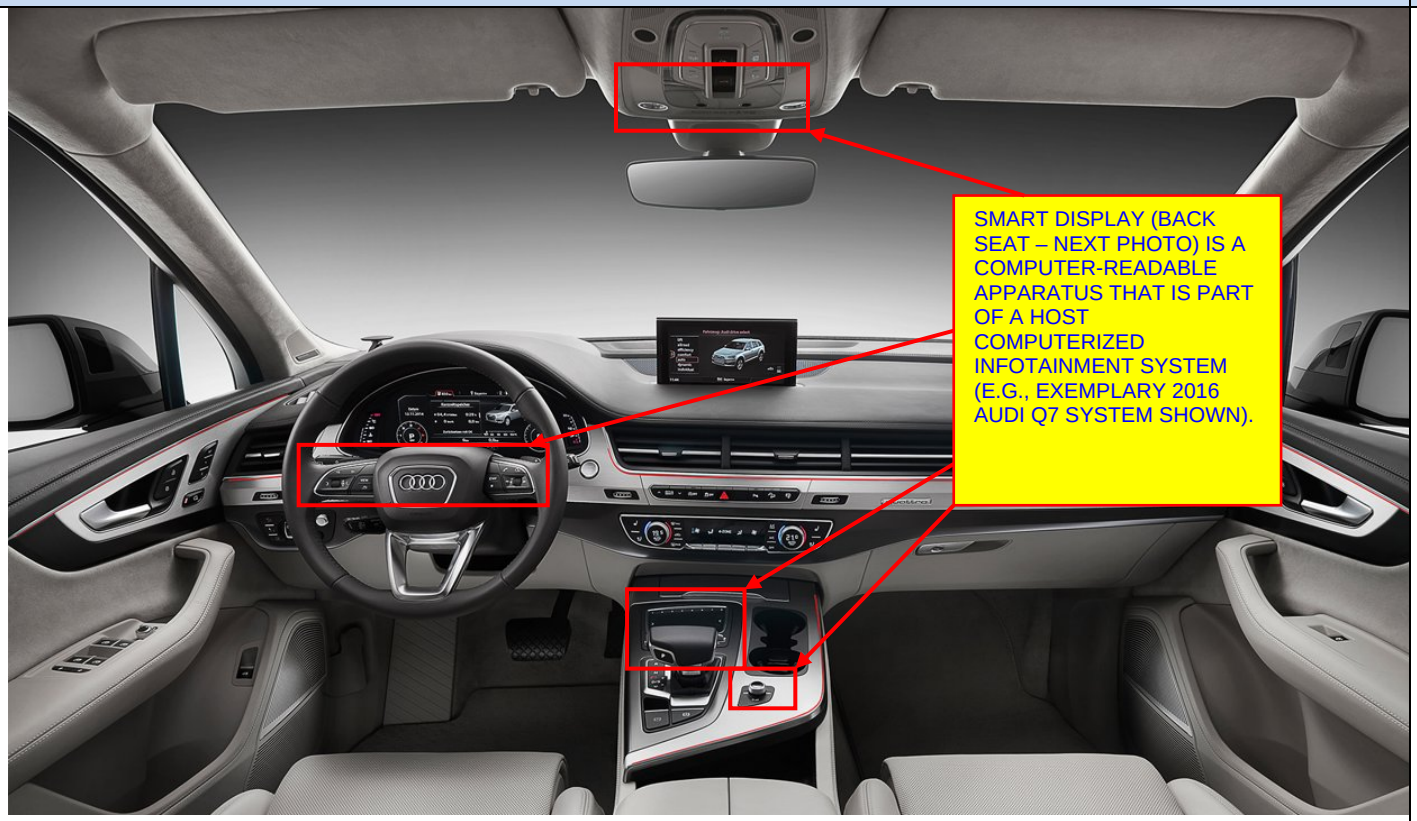
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
user,	**APPROPRIATE RESULT FROM THE LIST OR RETURNED RESULTS. AS SHOWN BELOW, THE SATELLITE (AND LATER STREET VIEW) DATA HAS TO BE DOWNLOADED FROM THE REMOTE SERVER (AND HENCE FUZZY IMAGE BELOW FOR A FEW SECONDS WHILE LOADING). HENCE, THE IMAGE DATA IS NOT "PRE-CACHED" ON THE VEHICLE:**  http://www.youtube.com/watch?v=ojzs8QZKoWA **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." [11]		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 ONE TYPICAL STREET VIEW ("VISUAL REPRESENTATION OF LOCATION"), SAY FOR NEW YORK, NEW YORK CASINO IN LAS VEGAS – ALSO SHOWS SURROUNDINGS (HERE, MGM GRAND), ETC.  ONE TYPICAL GOOGLE EARTH SATELLITE VIEW (ANOTHER "VISUAL REPRESENTATION OF LOCATION"), SHOWING SURROUNDINGS OF DESTINATION AND VARIOUS OTHER ENTITIES BOTH VISUALLY (WHEN ZOOMED IN) AND BY GREEN ICONS.		

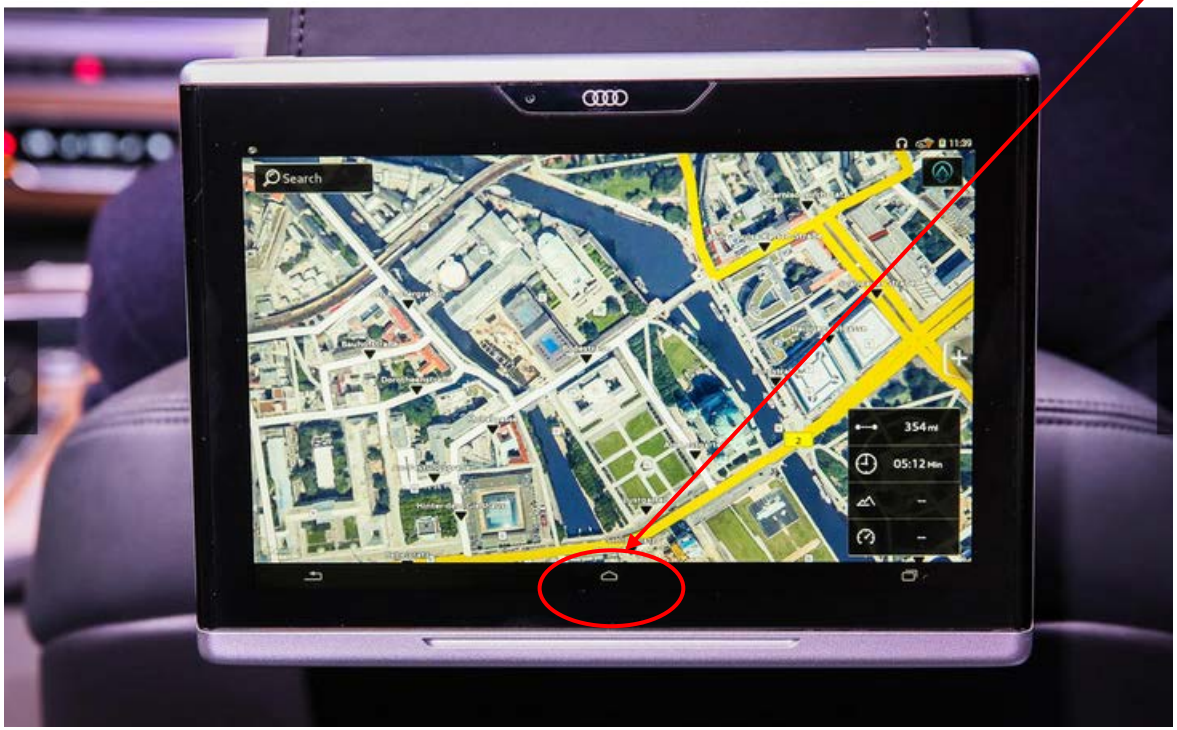
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
the visual representation further comprising visual representations of one or more other organizations or entities proximate to the location.	**SEE SAMPLE PICTURES ABOVE; EACH INCLUDE VISUAL REPRESENTATIONS OF OTHER ENTITIES PROXIMATE TO THE LOCATION OF THE SELECTED DESTINATION. NOTE THAT USER CAN SELECT TO POPULATE THEIR DISPLAY WITH INFORMATION RELATING TO NEARBY ENTITIES AS WELL:**  [16] USER SELECTS THE TYPE OF POI'S THAT THEY WANTED DISPLAYED ON THE "LOCAL" GOOGLE SEARCH MAP	**L, DOE**	

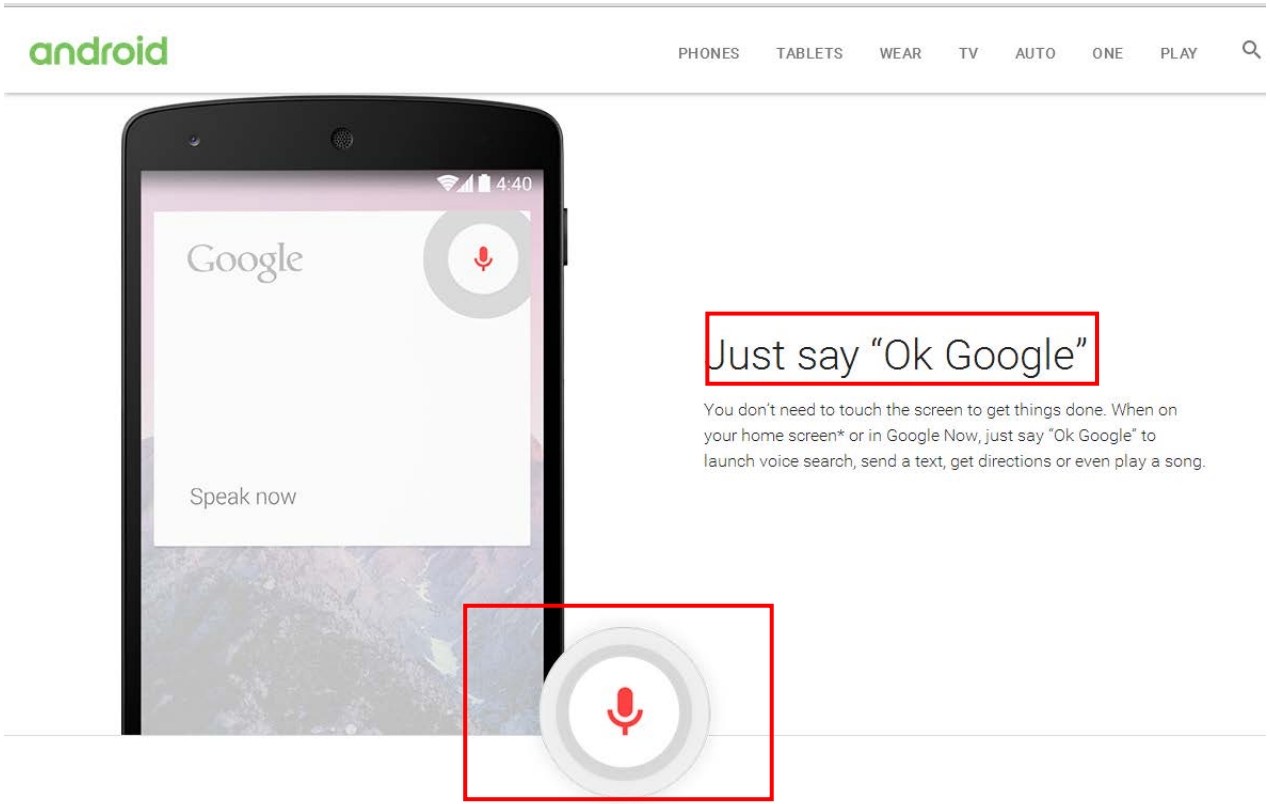
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	2016 AUDI Q7 SMART DISPLAY IMPLEMENTATION		
	THIS ANALYSIS IS BASED ON THE SMART DISPLAY TABLET (OFFERED WITH E.G., THE 2016 AUDI Q7) 		

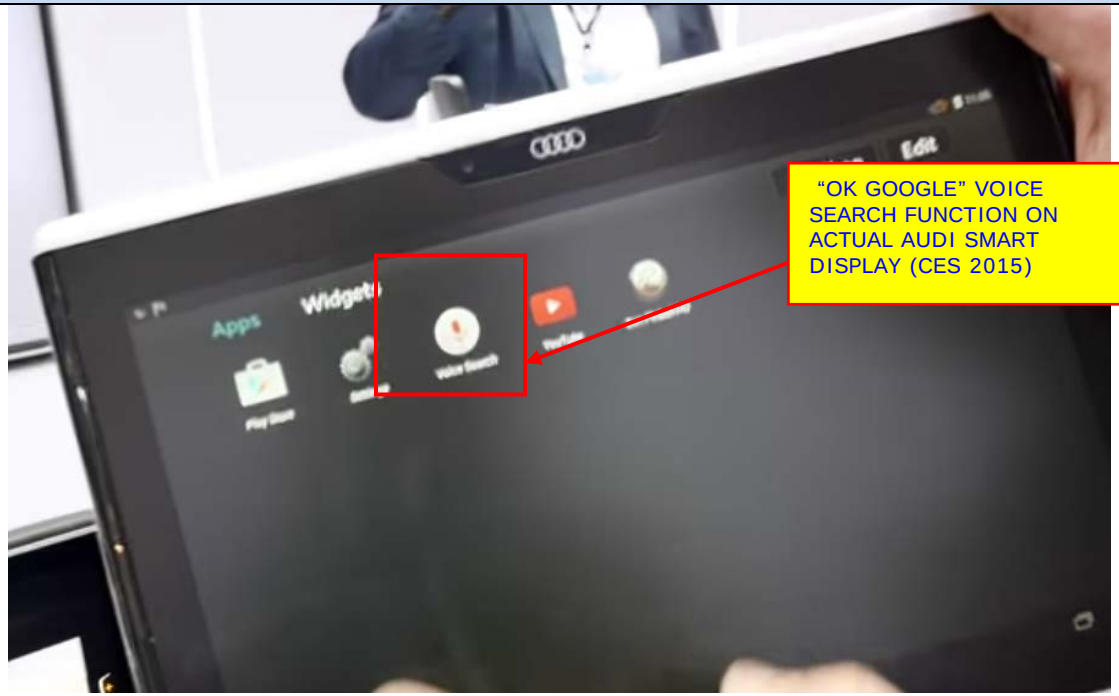
Audi/Volkswagen Products vs. U.S. Patent No. 8,719,038
"Computerized Information and Display Apparatus"

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
1. Computer readable apparatus configured to aid a user in locating an organization or entity,		**L, DOE**	**D, I**

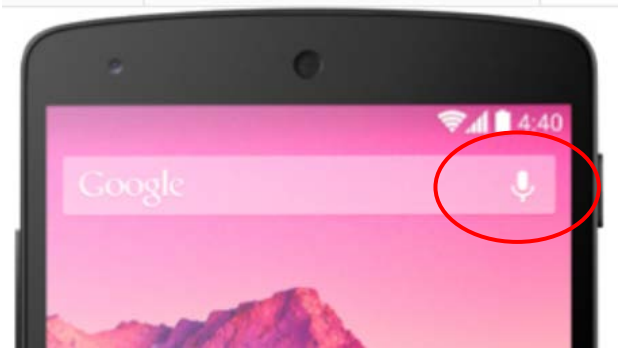
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
			
the apparatus comprising a storage medium having a computer program configured to run on a processor,	**THE SMART DISPLAY IS IN LARGE PART A STANDARD ANDROID-BASED TABLET, AND INCLUDES NUMEROUS DATA STORAGE APPARATUS (E.G., RAM, ROM, FLASH, ETC.), WHICH EACH HAVE THEIR OWN ACCESIBLE STORAGE MEDIA (E.G., MEMORY CELLS, MAGNETIC DISK DRIVE SECTORS, ETC.), AND HENCE THE OVERALL DEVICE (AND EACH OF THE STORAGE COMPONENTS) ARE "COMPUTER READABLE". AS BUT A FEW EXAMPLES:** • **THE HOST SYSTEM CAN ACCESS THE SMART DISPLAY (AND VICE VERSA) VIA WI-FI;** • **THE SMART DISPLAY CAN ACCESS EACH OF ITS INTERNAL STORAGE COMPONENTS;** • **AN EXTERNAL DEVICE (E.G., BLUETOOTH-CONNECTED SMARTPHONE. OR USB-CONNECTED TABLET OR SMARTPHONE, OR WI-FI CONNECTED AP) CAN ACCESS THE SMART DISPLAY STORAGE DEVICES.** **THE STORAGE DEVICES CONTAIN DATA AND/OR, IN THE CASE OF E.G., PROGRAM MEMORY, HDD, ETC., PROGRAM INSTRUCTIONS WHICH ARE EXECUTED ON ONE OR MORE PROCESSING DEVICES IN THE SMART DISPLAY ('COMPUTERIZED MEANS").**	**L, DOE**	
the program configured	**THE SMART DISPLAY HAS BOTH AN UNDERLYING COMPLETE ANDROID KITKAT 4.4 OPERATING SYSTEM**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
to, when executed on the processor: obtain a representation of a first speech input from the user, the first speech input relating to a name of a desired organization or entity;	**(WHICH INCLUDES INDIGENOUS SPEECH RECOGNITION CAPABILITY, AND A HIGHER-LAYER AUDI-SPECIFIC USER INTERFACE (U/I). USER CAN TOGGLE BETWEEN LAYERS USING E.G., HOME BUTTON ON TABLET:**  **IN THE FIRST CASE (ANDROID LAYER), INDIGENOUS "GOOGLE MAPS" FUNCTIONS OF "GOOGLE NOW" FUNCTIONALITY OF KITKAT 4.4 O/S IS PRESENT. FOLLOWING EXAMPLE WILL DEMONSTRATE THE FOREGOING FUNCTIONS (BASED ON A COUNTERPART GOOGLE NEXUS DEVICE WITH SAME ANDROID KITKAT 4.4 O/S), ALTHOUGH VARIOUS OTHER TYPES OF FUNCTIONS MAY BE USED AS THE BASIS OF DEMONSTRATION AS WELL.** **THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION IN ADROID LAYER OF SMART DISPLAY:** **1) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA**		

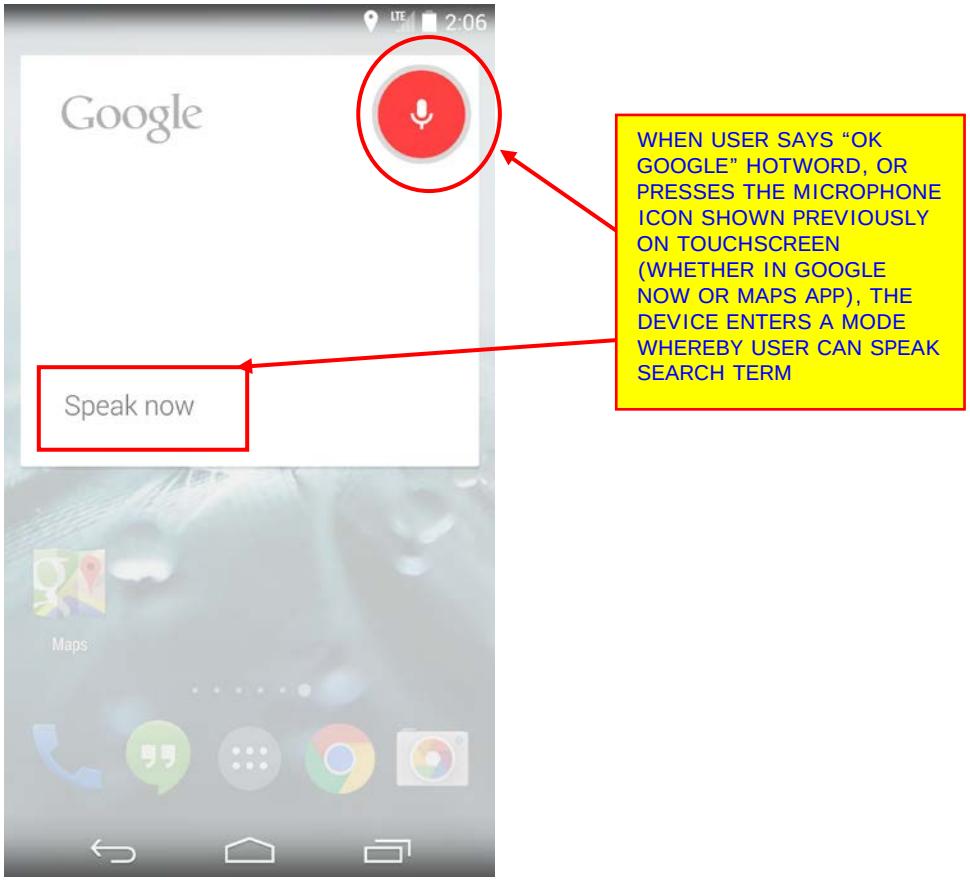
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	HANDS FREE), FOLLOWED BY VOICE SEARCH TERM; 		

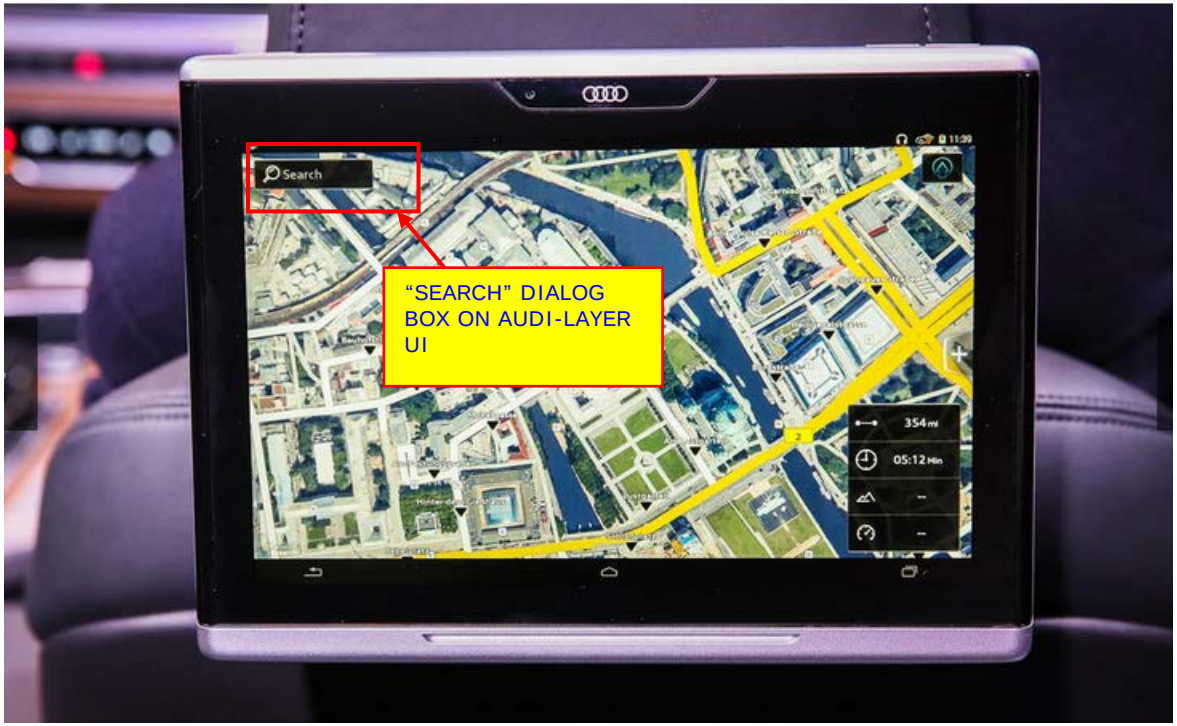
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **2) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;**		

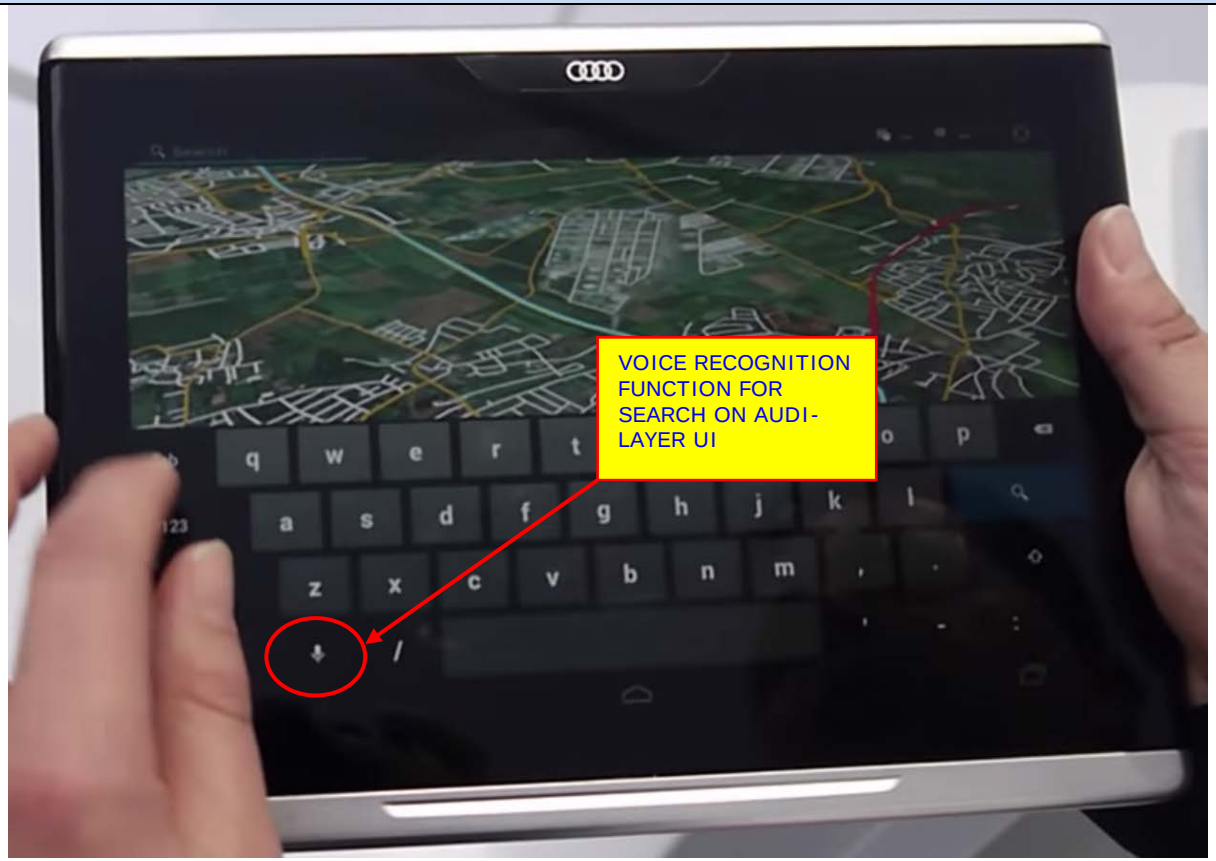
Audi/Volkswagen Products vs. U.S. Patent No. 8,719,038
"Computerized Information and Display Apparatus"

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

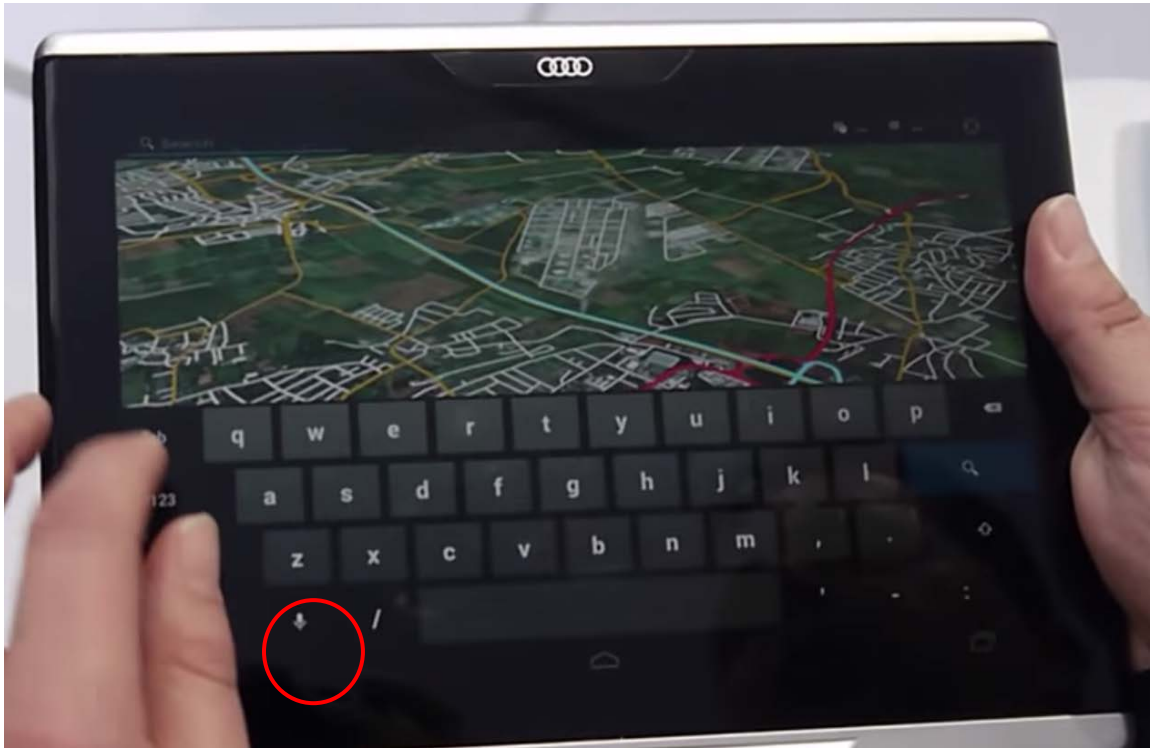
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **THE VOICE COMMAND (OR DEPRESSING ICON) CAUSE THE DEVICE TO ENTER A MODE WHEREIN THE USER CAN SAY THE INPUT (E.G., NAME OF AN ENTITY) ALOUD, THE USER'S VOICE PICKED UP BY THE MICROPHONE OF THE TABLET DEVICE:**		

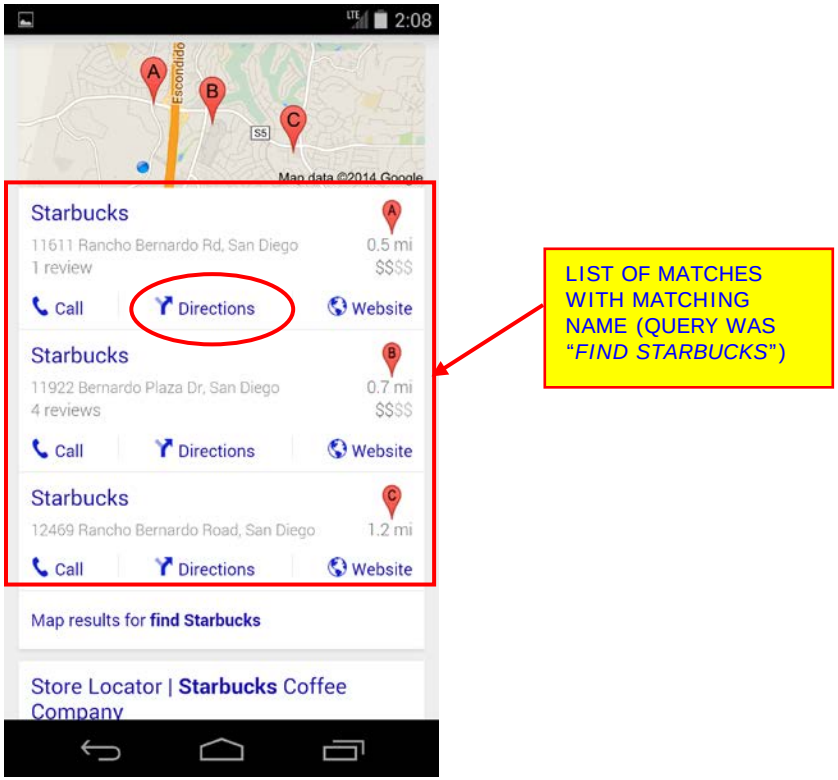
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **ADDITIONALLY, THE AUDI-LAYER SEARCH FUNCTION INCLUDES THE ABILITY TO PERFORM VOICE-BASED-SEARCHES (PRESUMABLY VIA AT LEAST PARTLY COMMON SPEECH PROCESSING APPARATUS ON THE SMART DISPLAY):**		

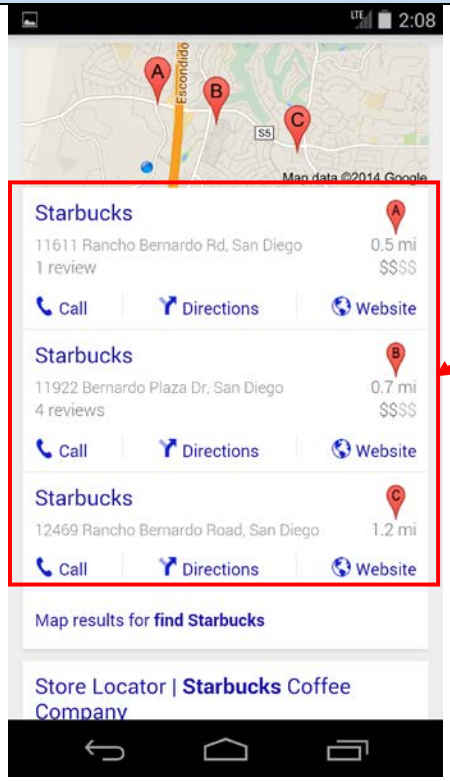
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **SEE VIDEO BELOW; DEMONSTRATOR TOUCHES "SEARCH" DIALOG BOX, AND THEN DISPLAYS ENTRY SOFT KEYS (WHICH INCLUDE A VOICE RECOGNITION FUNCTION):**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **https://www.youtube.com/watch?v=2D32beCtCvs** **GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:** **"General Commands** • "Search for [*chicken recipes*]?" • "Say [*where is the supermarket*] in [*Spanish*]?"		

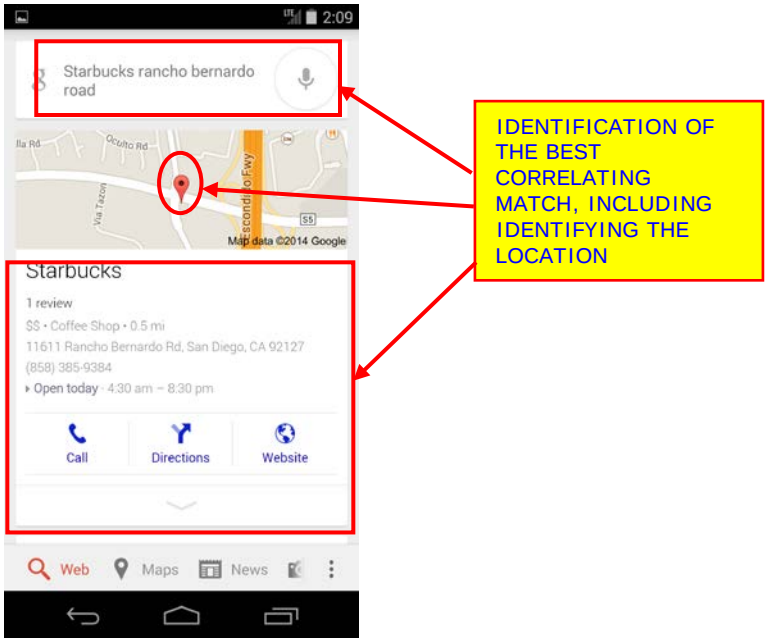
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	• "What is [*Schrodinger's cat*]?" • "Who invented [*the internet*]?" • "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" **…** **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know POSSIBLE INPUTS FROM USER FOR E.G., MAPS/DIRECTIONS OR BUSINESSES/ENTITIES		
cause use of at least a speech recognition algorithm to process the representation to identify at least one word or phrase therein;	**AS ONE EXAMPLE, THE SMART DISPLAY CAN USE EITHER (I) THE LTE INTERFACE OF THE HOST VEHICLE (E.G., Q7), VIA ITS WI-FI INTERFACE TO THE VEHICLE, TO ACCESS AN EXTERNAL NETWORK (WHICH INCLUDES THE LTE CELLULAR NETWORK), OR (II) ITS OWN INDIGENOUS WI-FI INTERFACE TO AN EXTERNAL NETWORK (E.G., WI-FI AP TO SERVICE-PROVIDER NETWORK TO INTERNET, TO ACCESS A REMOTE SERVER (E.G., GOOGLE MAPS SERVER):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **ALTERNATIVELY, THE VOICE SEARCH FUNCTION ON THE AUDI-SPECIFIC LAYER OF THE SMART DISPLAY, SHOWN BELOW, CAN BE USED TO ACCESS THE LOCAL DATABASE (E.G., HEAD UNIT OF MMI CONNECT SYSTEM AND ITS POI/MAPS DATABASE – TO BE DETERMINED IN DISCOVERY).**  **https://www.youtube.com/watch?v=2D32beCtCvs**		

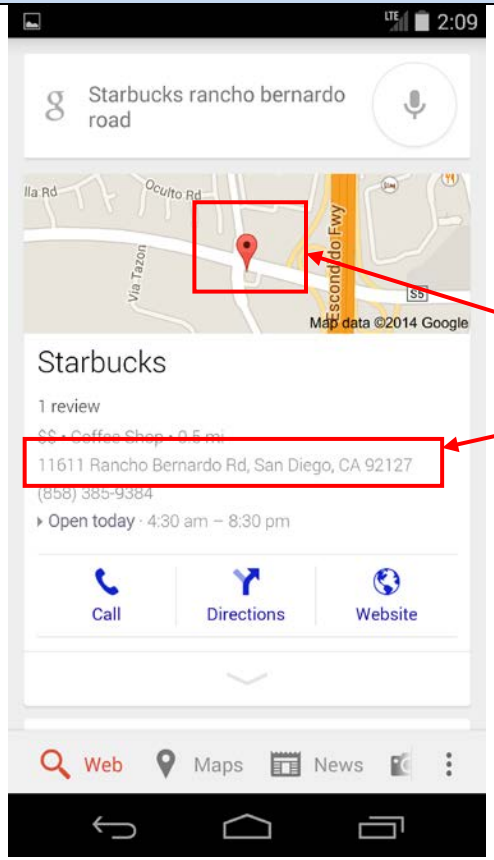
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
use at least the identified at least one word or phrase to identify a plurality of possible matches for the name;	**SEE EXAMPLE BELOW (CONDUCTED ON EXEMPLARY GOOGLE ANDROID NEXUS 5 PHONE RUNNING KITKAT 4.4 O/S, PRESUMABLY SIMILAR OR IDENTICAL IN FUNCTION TO KITKAT O/S ON SMART DISPLAY):**  **USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"**	**L, DOE**	

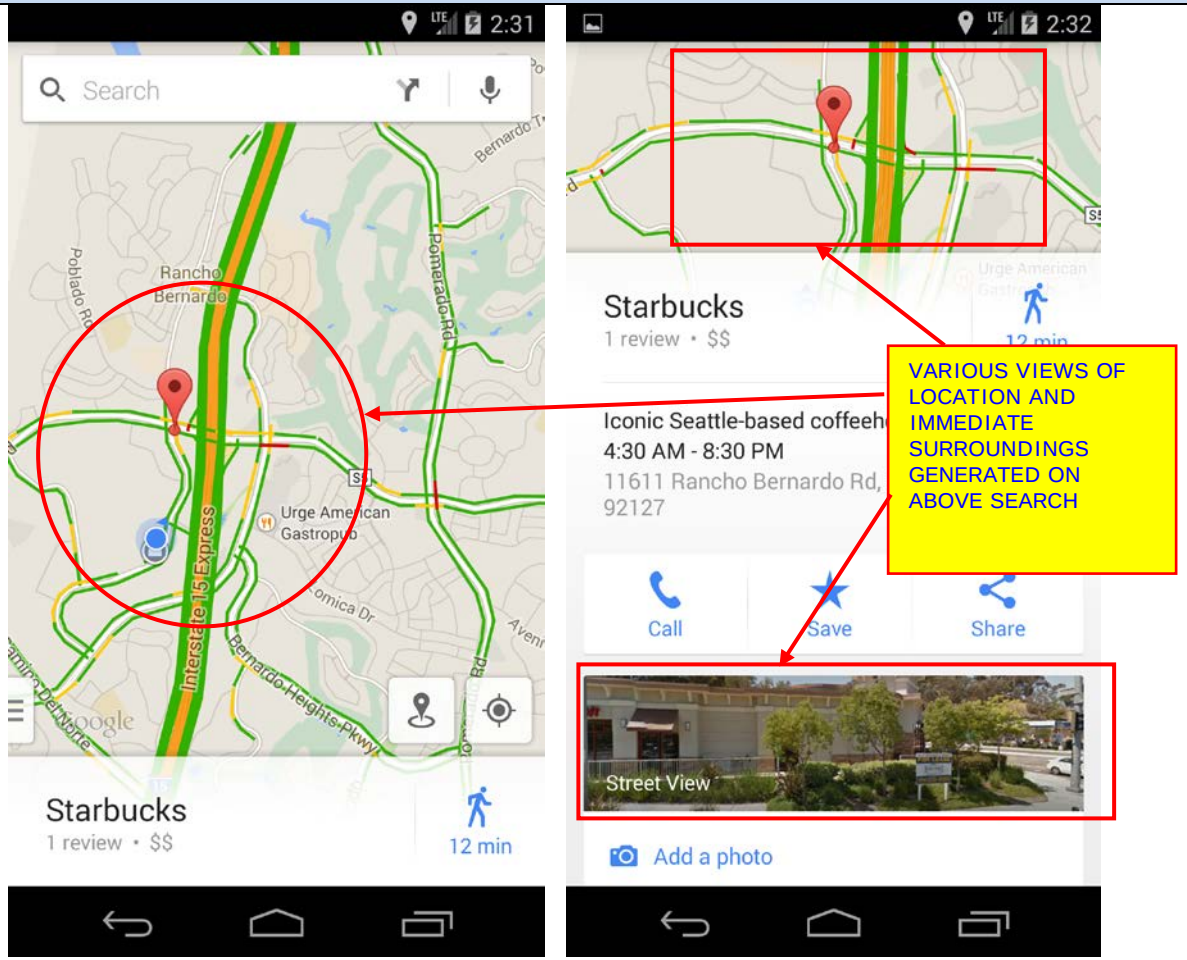
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **SEE EXEMPLARY SEQUENCE ABOVE; IN RESPONSE TO USER VOICE QUERY OF "FIND STARBUCKS" ON NEXUS 5, THE PHONE RETURNS A LISTING OF NEARBY STARBUCKS IN SAN DIEGO AND SAYS *"HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES."* (I.E., IDENTIFIES THAT A PLURALITY OF MATCHES EXIST)**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2D32beCtCvs		
cause the user to be prompted to enter a subsequent input in order to aid in identification of one of the plurality of possible matches which best correlates to the desired organization or entity;	**SEE ABOVE; FOR ANDROID, ONCE LISTING OF POSSIBLE MATCHES PRESENTED, THE USER CAN EITHER (I) SAY AN ADDITIONAL "DEFINING" COMMAND (E.G., "RANCHO BERNARDO ROAD"), OR SIMPLY SELECT ONE OF THE LISTED POSIBILITIES, SUCH AS BY TOUCHING THE TOUCH SCREEN.** **FOR AUDI LAYER, USER CAN AT LEAST TOUCH SCREEN (VOICE INPUT TO SELECT TO BE VERIFIED IN DISCOVERY).**	**L, DOE**	

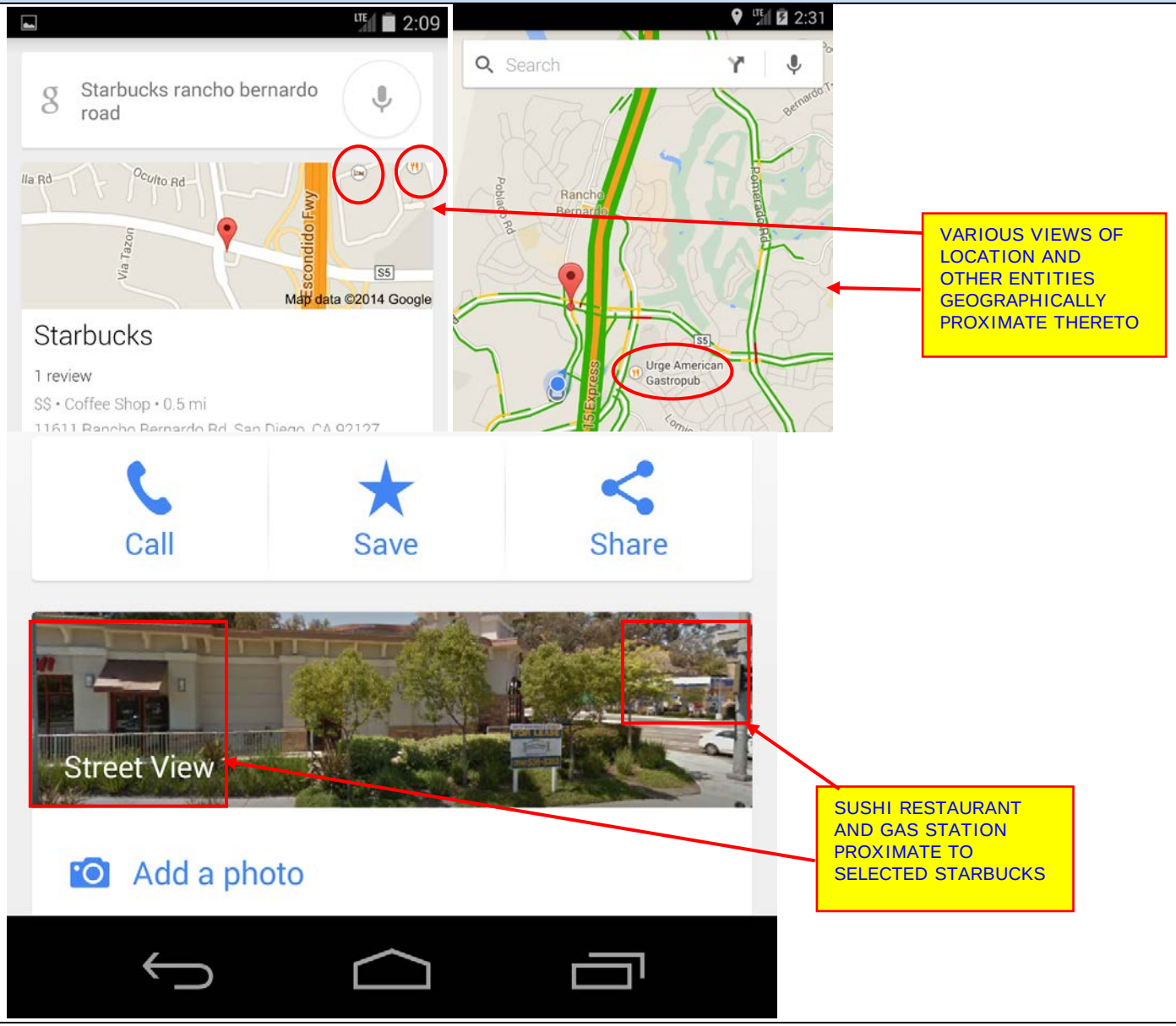
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
receive data relating to the subsequent user input;	**IN THE ANDROID EXAMPLE, THE USER'S SUBSEQUENT VOICE INPUT IS CONVERTED TO DATA, AND SENT TO THE REMOTE GOOGLE SERVER(S) VIA THE WIRELESS LINK(S) FOR FURTHER PROCESSING.** **SIMILARLY, IN THE AUDI-LAYER EXAMPLE, THE USER'S TOUCH INPUT ON A REGION OF THE SCREEN (OR SUBSEQUENT VOICE INPUT AS APPLICABLE) IS CONVERTED TO DATA, AND SENT TO THE REMOTE GOOGLE SERVER(S) VIA THE WIRELESS LINK(S), OR TO THE MMI HEAD UNIT PROCESSING APPARATUS, FOR FURTHER PROCESSING.**	**L, DOE**	
based at least in part on the data, determine which of the plurality of possible matches is the one that best correlates;	**IN ANDROID EXAMPLE ABOVE, THE PHONE RETURNS "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*" VOCALLY, AND SHOWS THAT RESULT ON THE DISPLAY, BASED ON THE USER'S SECOND (SUBSEQUENT) INPUT OF "RANCHO BERNARDO ROAD" AND THE DATA TRANSMITTED TO THE GOOGLE SERVER ASSOCIATED THEREWITH:**  **THE PHONE CLEARLY USES THE SUBSEQUENT INPUT TO AID IN THE DETERMINATION OF WHICH OF THE POSSIBLE MATCHES IS THE ONE THAT BEST CORRELATES, AND IDENTIFIES THE LOCATION**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	ASSOCIATED WITH THE BEST CORRELATING MATCH. **SIMILARLY, FOR AUDI-LAYER, THE RECEIVED DATA GENERATED BASED OFF THE USER'S SUBSEQUENT TOUCH/VOICE INPUT IS USED TO SELECT THAT ENTRY WHICH IS BEST CORRELATED (E.G., ACCESS A GIVEN REGION OF THE MASS STORAGE DEVICE IN HEAD UNIT THAT CORRESPONDS TO THE SELECTED LOCATION).** **NOTE THAT AS USED HEREIN, THE TERM "BEST CORRELATES: CAN ALSO REFER TO A NON-EXACT MATCH FOR WHAT THE USER HAD IN MIND. FOR EXAMPLE, THE USER MIGHT WANT A STARBUCKS ON RANCHO BERNARDO ROAD, BUT ONLY BE PRESENTED WITH A STARBUCKS ON WEST BERNARDO DRIVE (A NEARBY STREET), OR ANOTHER COFFEE HOUSE (E.G., DUNKIN DONUTS) ON RANCHO BERNARDO ROAD, WHICH THE USER THEN "SETTLES" FOR AS BEING CLOSE ENOUGH TO THEIR INITIAL DESIRED ENTITY/LOCATION COMBINATION.**		
determine a location associated with the one of the possible matches that best correlates;	**SEE ABOVE; IN CASE OF ANDROID, GOOGLE REMOTE SERVER DETERMINES LAT/LON, ADDRESS ASSOCIATED WITH THE DETERMINED BEST MATCH.** **SIMILARLY, IN AUDI LAYER, THE SYSTEM RETURNS THE LOCATION ASSOCIATED WITH THE SELECTED (BEST CORRELATED) MATCH.**	**L, DOE**	
and select and cause presentation of a visual representation of the location, as well as at least an immediate surroundings thereof, on a display viewable by the user,	**SEE BELOW; ANDROID LAYER (EXEMPLARY NEXUS 5 SHOWN BELOW) CAN DISPLAY VARIOUS TYPES OF VISUAL REPRESENTATIONS OF LOCATION AND SURROUNDINGS, INCLUDING ENTITIES PROXIMATE THERETO, SUCH AS VIA MAP GRAPHIC OR STREET VIEW:**	**L, DOE**	

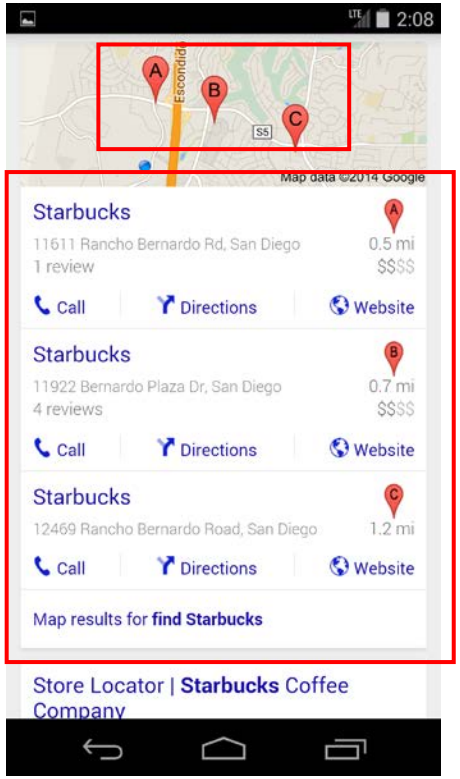
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

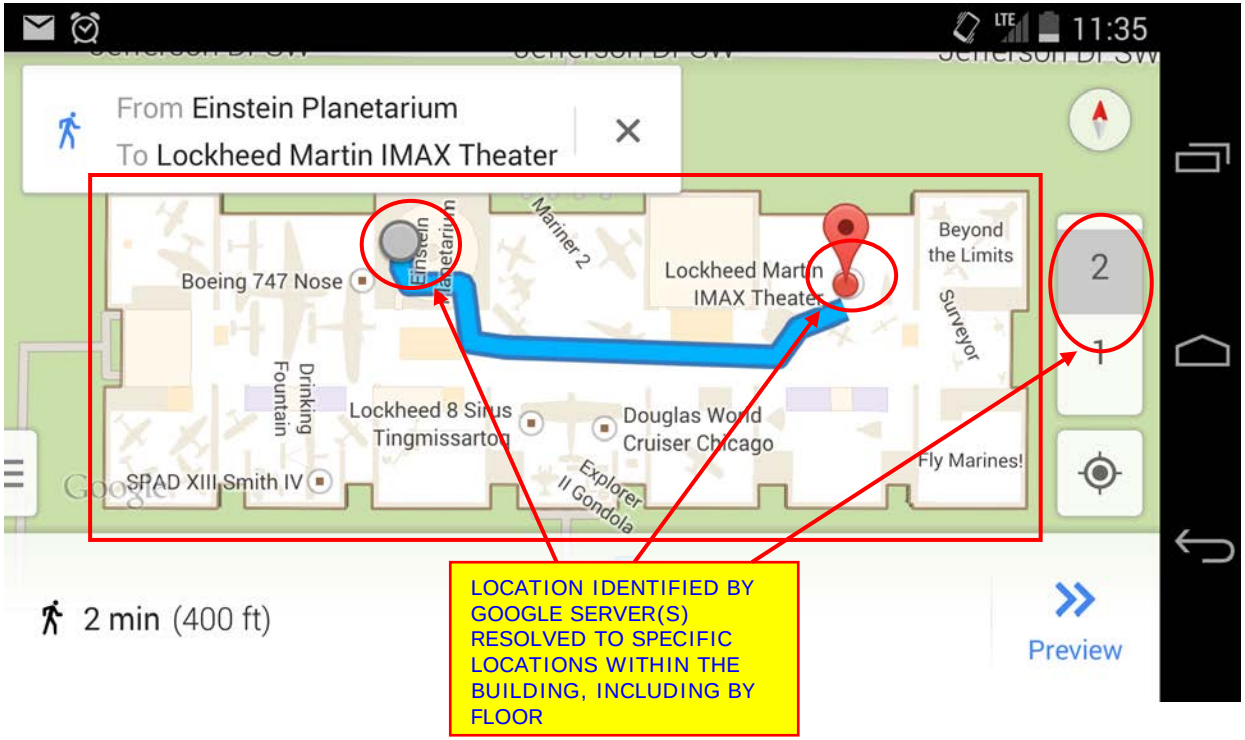
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]

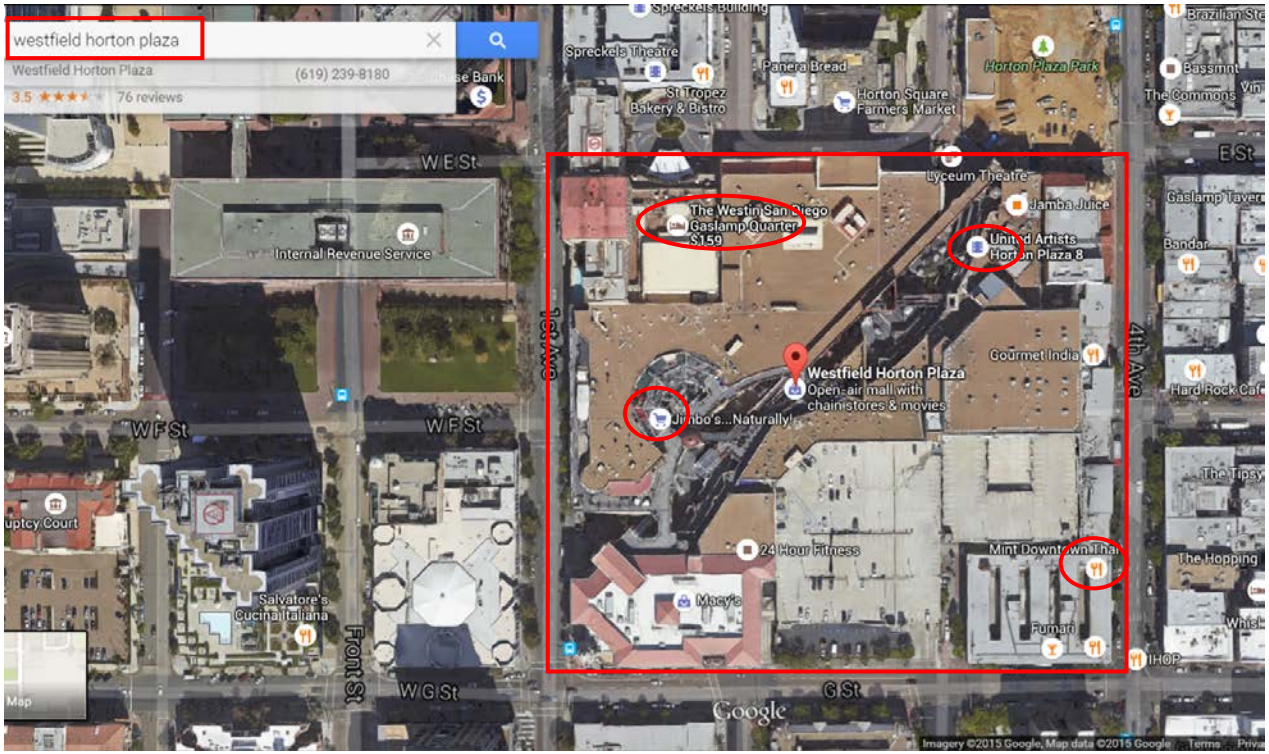


Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	FOR AUDI LAYER, TOUCHSCREEN CAN ALSO BE USED TO DISPLAY SEARCHED-FOR INFORMATION, INCLUDING LOCATION AND ITS SURROUNDINGS/ENTITIES:  **NOTE – OTHER GRAPHIC/MAP FORMATS SUCH AS E.G., 3D BUILDINGS, PERSPECTIVE, ETC. MAY BE AVAILABLE FOR DISPLAY IN AUDI LAYER – TO BE DETERMINED DURING DISCOVERY**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
the visual representation further comprising visual representations of one or more other organizations or entities proximate to the location.	**SEE ABOVE; BOTH ANDROID LAYER AND AUDI-LAYER ALLOW FOR AT LEAST ONE TYPE OF RENDERING THAT SHOWS THE LOCATION/ENTITY OF INTEREST AND ITS SURROUNDINGS, TO INCLUDE SEVERAL OTHER ENTITIES (WHETHER VISUALLY, GRAPHICALLY, ICONICALLY, ETC.).**	**L, DOE**	
4. The apparatus of claim 1, wherein the prompt for the subsequent user input comprises a display of a listing of the plurality of possible matches on a touch-screen input and display device, such that the user can select one of the plurality of possible matches via a touch of the appropriate region of the touch-screen device. (*Unselected claim 4 included because selected claim 5 depends hereon.*)	**ANDROID:**  **AUDI LAYER:**	**L, DOE**	**D, I**

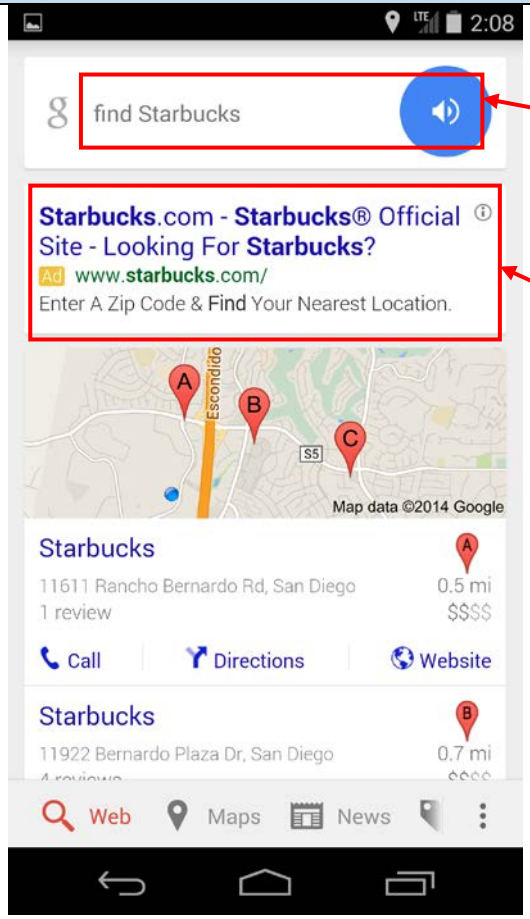
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2D32beCtCvs		
5. The apparatus of claim 4, wherein the location comprises a location within a building, the one or more other organizations or entities proximate to the location are disposed within the building, the building further comprising a	**ANDROID:** **GOOGLE MAPS RETURNS, *INTER ALIA*, LAT/LON DATA ASSOCIATED WITH THE LOCATION OF THE ENTITY. SEE ALSO GRAPHIC MAP BELOW, WHEREIN LOCATION IS DETERMINED TO BE INSIDE A BUILDING (I.E., NATIONAL AIR AND SPACE MUSEUM). THE GOOGLE MAPS FUNCTION CAN ALSO RESOLVE AS TO FLOOR NUMBER IN MULTI-FLOOR BUILDINGS.** "Latitude and longitude coordinates	**L, DOE**	**D, I**

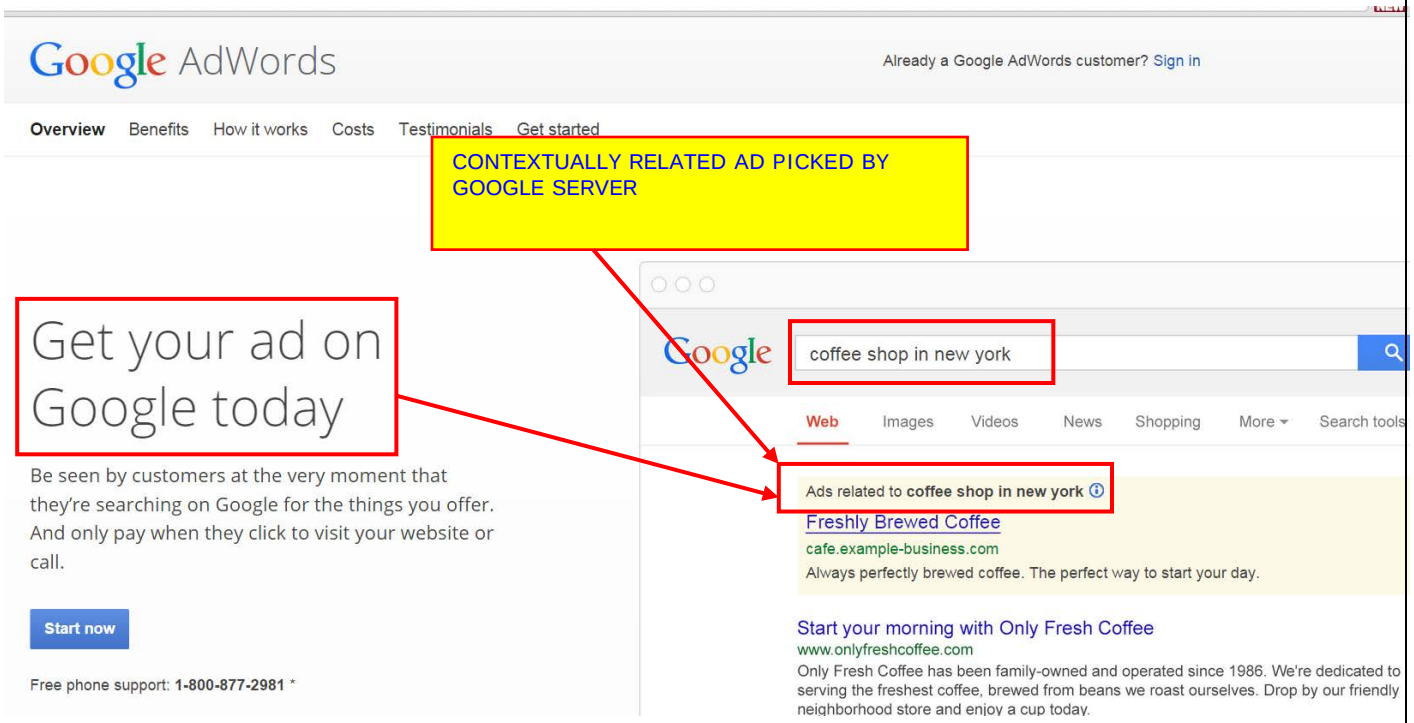
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
plurality of floors and at least one elevator capable of accessing the plurality of floors, and the location and the one or more other organizations or entities are disposed on at least a common floor.	You can search for a place using its latitude and longitude coordinates, as well as get the coordinates of a place you've already found on Google Maps." https://support.google.com/maps/answer/18539 **THE GOOGLE MAPS API'S CAN ALSO RETURN DIRECTIONS, EITHER OUTSIDE OR INSIDE THE BUILDING WITH ELEVATOR (OR BOTH):** 		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	AUDI LAYER: **SEE GOOGLE EARTH-BASED EXAMPLE BELOW (I.E., HORTON PLAZA IN SAN DIEGO, CA – A LARGE PARTLY OPEN-AIR STRUCTURE (MALL) IN DOWNTOWN SAN DIEGO):**  **NOTE THAT IN ABOVE EXAMPLE, THE VARIOUS DIFFERENT ENTITIES AND THEIR SURROUNDINGS WITH IN HORTON PLAZA'S BUILDING CAN BE RESOLVED BOTH ICONICALLY AND (IN SOME CASES) VISUALLY <u>WITHIN THE BUILDING</u>, THE BUILDING WHICH INCLUDES SEVERAL ENTITIES ON THE SAME FLOOR, AND SEVERAL ELEVATORS, SO A SEARCH FOR ANY OF THESE ENTITIES WOULD RESULT IN A SIMILAR VIEW**		

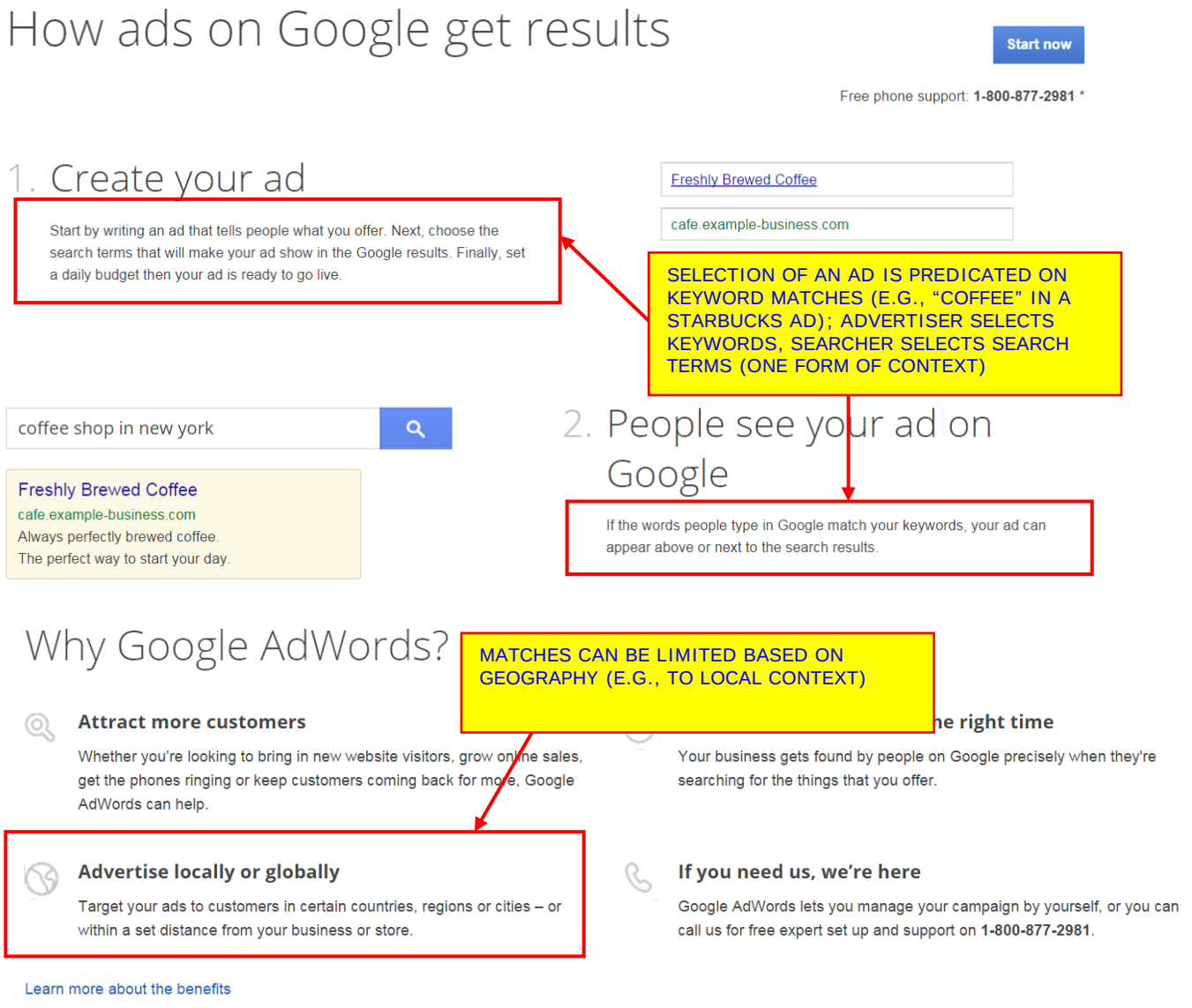
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	AS ABOVE. **HENCE, SINCE IMAGERY SUCH AS THAT ABOVE IS OSTENSIBLY AVAILABLE TO AUDI SMART DISPLAY (SEE AUDI IMAGE ABOVE – GENERALLY SIMILAR), THE AUDI LAYER OF THE SMART DISPLAY ALSO MEETS THE STATED CLAIM LIMITATIONS; I.E., APART FROM ANDROID-BASED GOOGLE INDOOR MAPS FUNCTION ABOVE:**  **https://www.youtube.com/watch?v=GrBY2GmdTwA**		

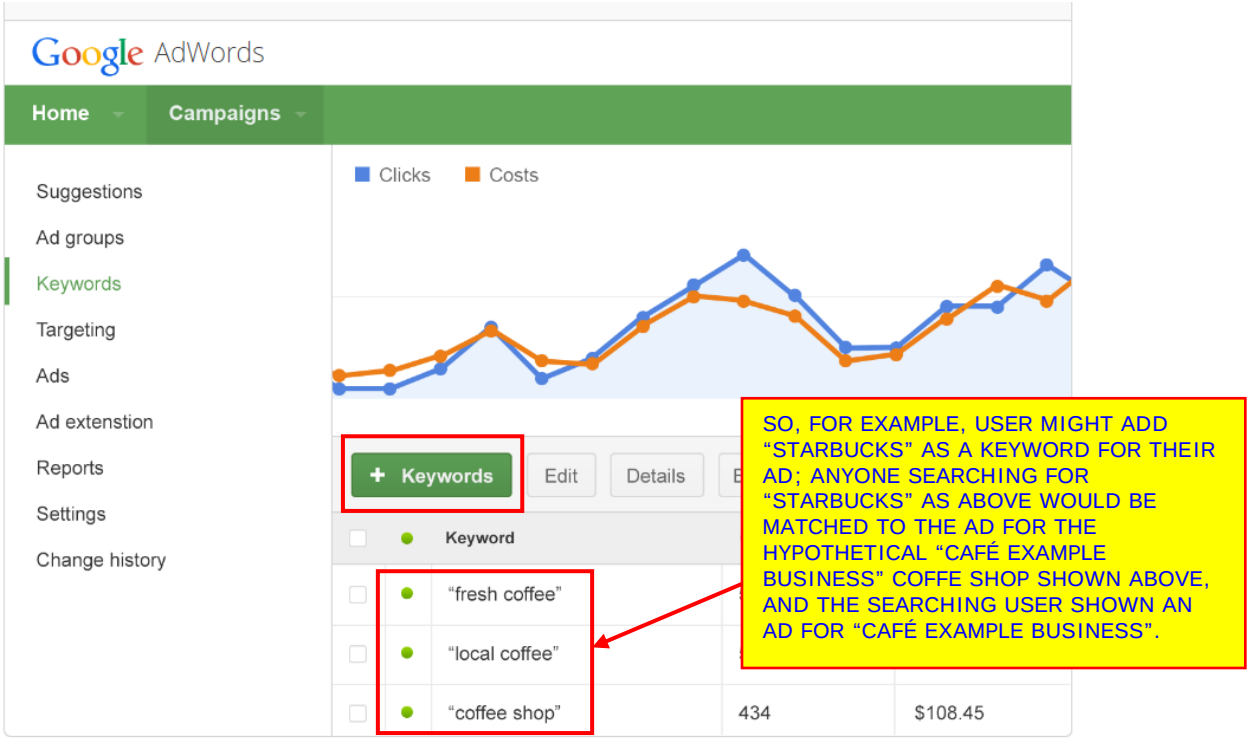
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
12. The apparatus of claim 1, wherein the display comprises a capacitive touch-screen input and display device configured to generate a plurality of soft function keys thereon, the soft function keys each having at least one function associated therewith, and the computer program is further configured to, based at least in part on a user's selection of at least one of the soft function keys, enable selection of advertising content relating at least in part to the function associated with the selected at least one soft function key, and cause display the selected content on the display device.	**ANDROID LAYER:**  https://www.youtube.com/watch?v=2D32beCtCvs	L, DOE	D, I

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **SO, IN THIS EXAMPLE, THE VOICE SEARCH TERM "FIND STARBUCKS" WAS ENTERED ON THE EXAMPLE NEXUS 5 WITH KITKAT 4.4 (PRESUMED TO OPERATE IDENTICALLY TO KITKAT 4.4. ON AUDI SMART DISPLAY ANDROID LAYER) , AND SEVERAL NEARBY STARBUCKS LOCATIONS WERE RETURNED, AS WELL AS AN ADVERTISEMENT FOR STARBUCKS (WEBSITE) GENERALLY. STARBUCKS WEBSITE IS CONTEXTUALLY RELATED TO "FIND STARBUCKS" (ALBEIT NOT WHAT WE WERE EXPLICITLY SEARCHING FOR).**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	ADVERTISING SUCH AS THE EXAMPLE SHOWN ABOVE IS GENERATED VIA E.G., GOOGLE "ADWORDS" SERVICE: 		

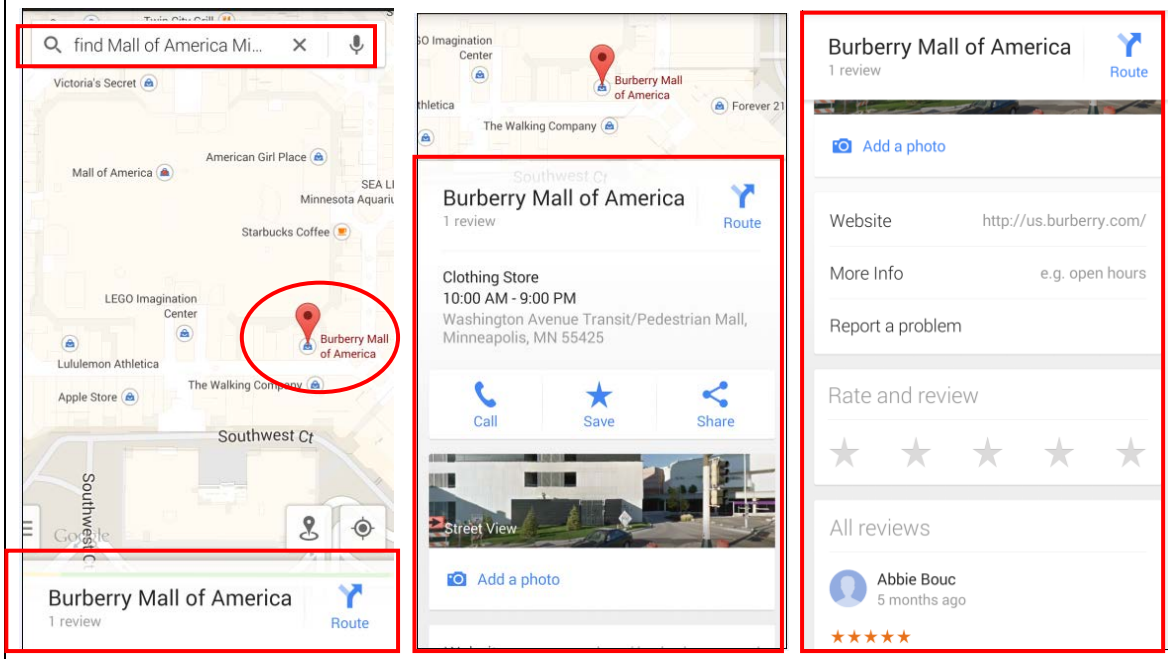
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]

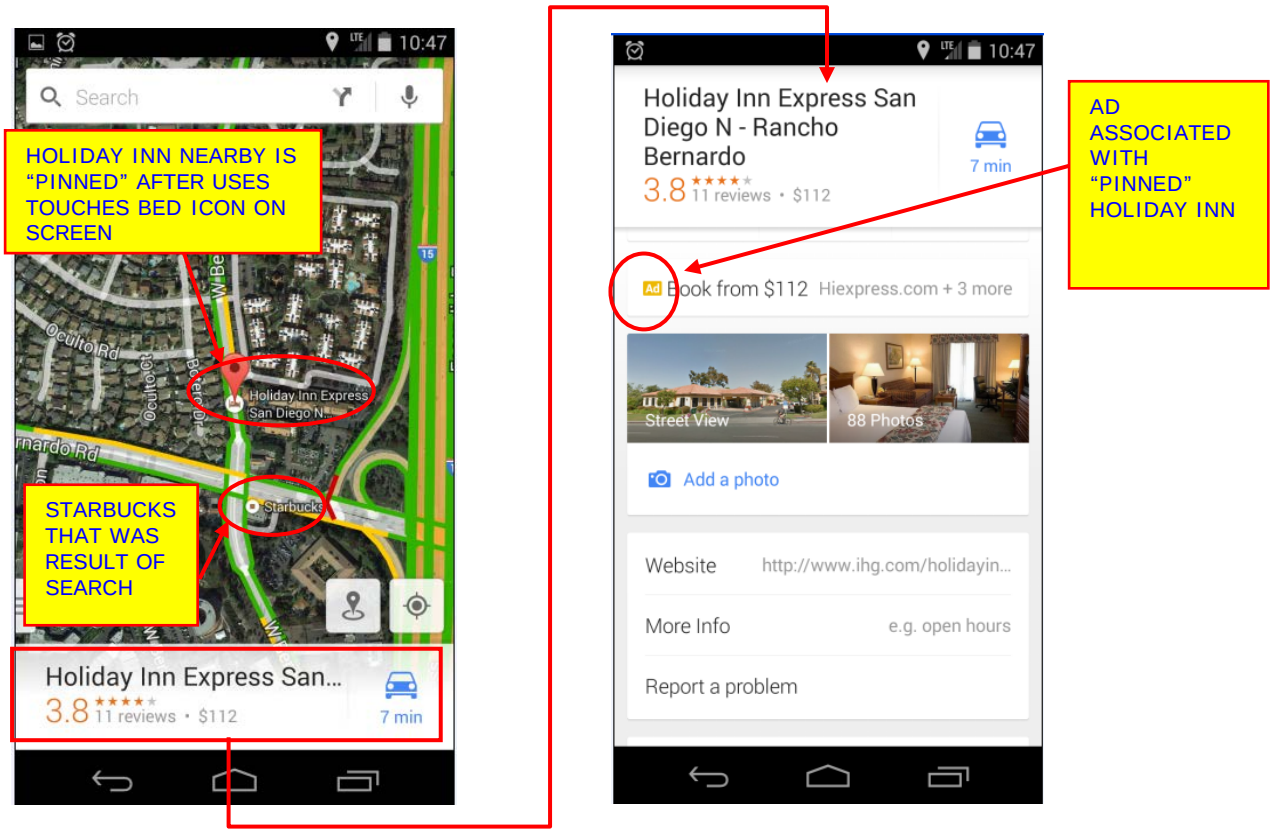


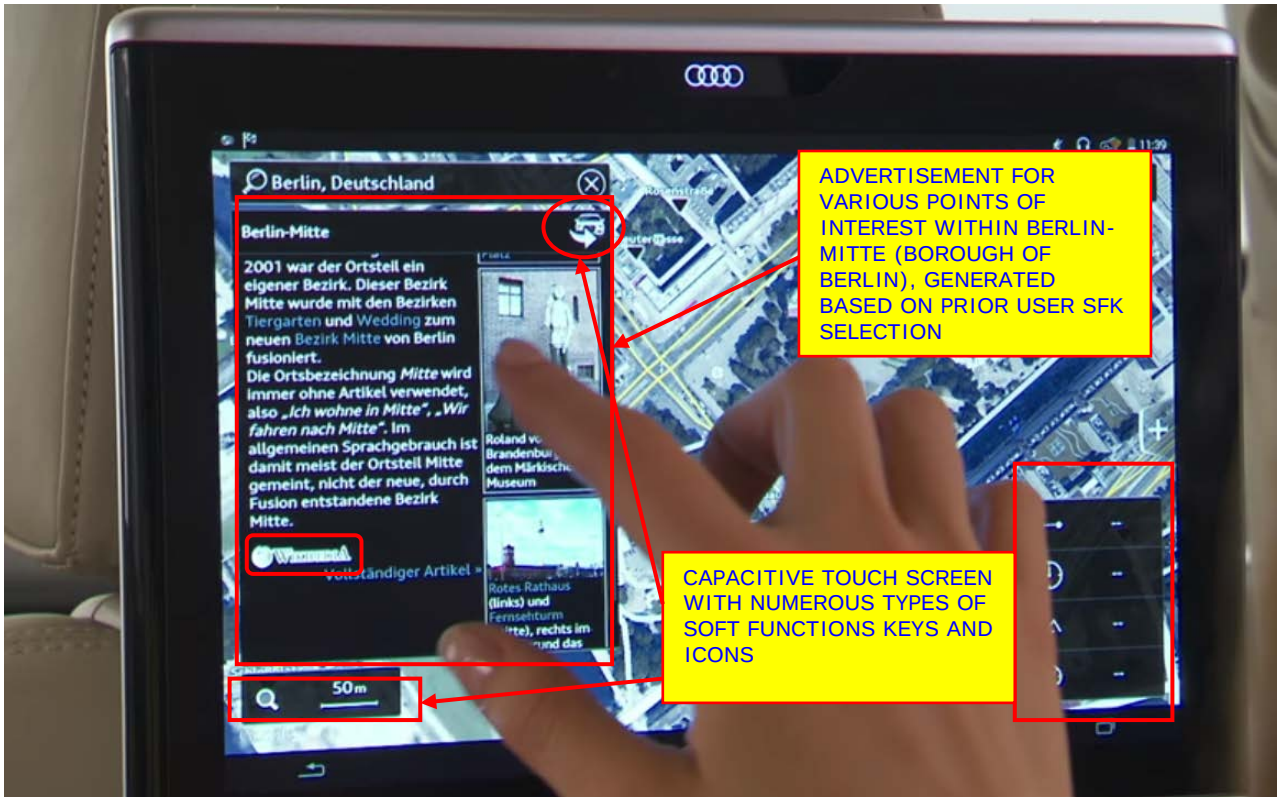
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 Easy-to-read reports and graphs show how your ads are doing in Google AdWords http://www.google.com/adwords/start/?sourceid=awo&subid=us-en-ha-aw-bkmp0~48674311565&gclid=CMeViPbsz8ACFZYWjgodkwcAdQ **PER GOOGLE ITSELF, LOCATION IS ALSO ONE TYPE OF "CONTEXT":** "Location is one piece of context, knowing where you are." http://www.cnet.com/news/google-maps-becoming-more-context-aware-and-emotional/ **CONTEXT = LOCAL SEARCH AREA, WHICH NECESSARILY INCLUDES THE DESIRED INFORMATION (E.G., LOCATION OF NEARBY STARBUCKS IN SAN DIEGO). THE ADVERTISEMENT MAY BE SELECTED BASED**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	ON THIS GEOGRAPHIC CONTEXT AS WELL, OR BY ITSELF. **NOTE THAT GOOGLE ALSO PROVIDES A KEYWORD PLANNING TOOL, WHICH GUIDES USERS IN SELECTING CONTEXTUAL KEYWORDS:**  **Search for new keyword or ad group ideas** Keyword Planner is like a workshop for building new Search Network campaigns or expanding existing ones. You can search for keyword and ad group ideas, get historical statistics, see how a list of keywords might perform, and even create a new keyword list by multiplying several lists of keywords together. A free AdWords tool, Keyword Planner can also help you choose competitive bids and budgets to use with your campaigns. Whether you're new to online advertising or an experienced pro, you can use Keyword Planner to lay the groundwork for a successful campaign. Learn more. https://adwords.google.com/KeywordPlanner **GOOGLE ADS CAN APPEAR ACROSS MANY GOOGLE PLATFORMS:** "If you use keywords to target your ads, you select a set of keywords related to the product or service you'd like to advertise. Then, when people search using the words or phrases you picked, your text ads can appear alongside or		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	above search results. On Google search sites: Your ads can appear on Google Search, Shopping, Maps, Images, and Groups when someone searches on your keywords. Here's an example, for the keyword "cupcakes":" https://support.google.com/adwords/answer/1704373?hl=en **NOTE THAT ALTERNATIVELY, AND ASIDE FROM "ADWORDS" SERVICE ABOVE, GOOGLE MAPS CAN BE CONSIDERED TO PROVIDE ADVERTISING IN RENDERING ITS MAPS SEARCH RESULTS ON THE SCREEN WITH ICONS/TEXT RELATING TO LOCAL COMMERCIAL ENTITIES:**  ADVERTISEMENTS FOR LOCAL BUSINESSES IN AREA OF SEARCHED-FOR ENTITY (HERE, INSIDE MALL OF AMERICA IN MINNESOTA). NOTE SHOPPING BAG ICON (I.E., TO SELL PRODUCT). **THESE ORGANIZATIONS MUST AFFIRMATIVELY ENTER THEIR INFORMATION WITH GOOGLE ONLINE TO BE SHOWN ON MAP, PRESUMABLY TO INCREASE SALES TRAFFIC, AND ARE SFK'S (I.E., USER CAN SELECT TO SEE PULL-DOWN ADVERTISEMENT).** *"ad·ver·tise·ment* *noun* *a notice or announcement in a public medium promoting a product, service, or event or publicizing a job vacancy.* *"advertisements for alcoholic drinks" "*		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ADVERTISEMENT+DEFINITION  **IN THE EXAMPLE ABOVE (BASED ON VOICE SEARCH FOR "MALL OF AMERICA"), THE USER IS SHOWN MULTIPLE COMMERCIAL ENTITIES PROXIMATE TO THE DESIRED ENTITY. WHEN USER TOUCHES SHOPPING BAG ICON (ONE TYPE OF "SFK") FOR, SAY BURBERRY STORE, THE STORE IS "PINNED", AND AN ADVERTISEMENT IS DISPLAYED AT BOTTOM OF SCREEN, SHOWING INFORMATION ABOVE, INCLUDING HOURS OF OPERATION, INDUSTRY TYPE (CLOTHING STORE), ADDRESS, STREET VIEW PHOTO, WEBSITE URL, AND REVIEWS BY VARIOUS INDIVIDUALS.** **AS NOTED ABOVE, THIS BURBERRY WAS SELECTED FOR DISPLAY BASED AT LEAST ON (I) THE BURBERRY STORE SUBMITTING ITSELF/DETAILS TO GOOGLE FOR DISPLAY, AND (II) IT'S GEOGRAPHIC PROXIMITY TO THE SEARCHED FOR ENTITY.**		

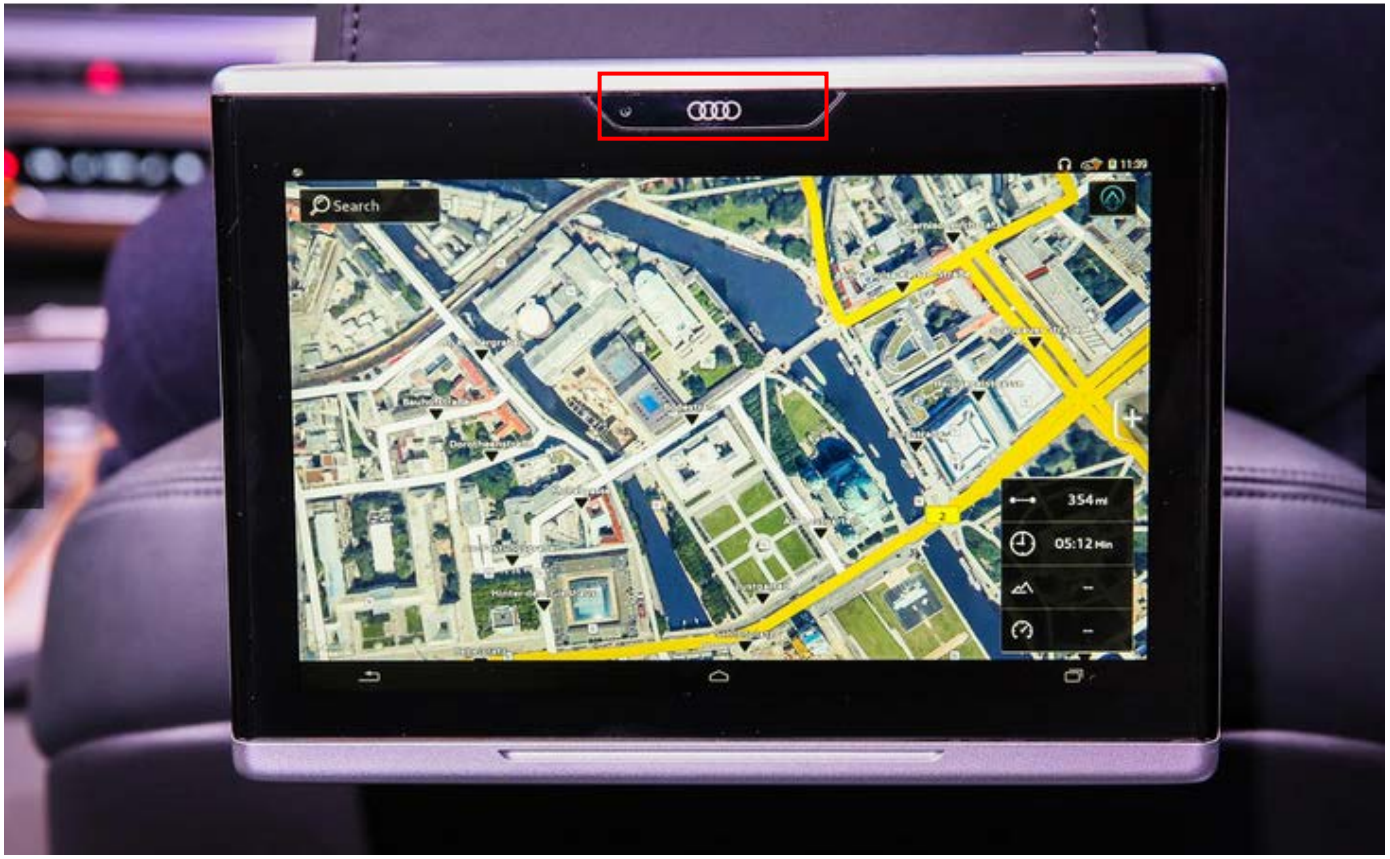
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	SEE ALSO ANOTHER EXAMPLE BELOW…A HOLIDAY INN HOTEL THAT WAS MARKED AS A NEARBY LOCATION ("BED" ICON) TO THE STARBUCKS OF THE SEARCH ABOVE HAS AN ADVERTISEMENT ASSOCIATED WITH IT AS WELL – I.E., WHEN USER TOUCHES THE "BED" ICON, THE MAP BELOW IS SHOWN, AND WHEN USER SWIPES DOWN, THE AD IS REVEALED: 		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	AUDI LAYER: **IN AUDI APPLICATION-LAYER U/I ENVIRONMENT; ADVERTISEMENTS THAT ARE CONTEXTUALLY RELATED MAY ALSO BE SHOWN (PRESUMABLY RECEIVED OVER THE WI-FI LINK FROM A REMOTE INFORMATION SERVER (TO BE VERIFIED IN DISCOVERY):**  https://www.youtube.com/watch?v=2Yg6cPnFpII		

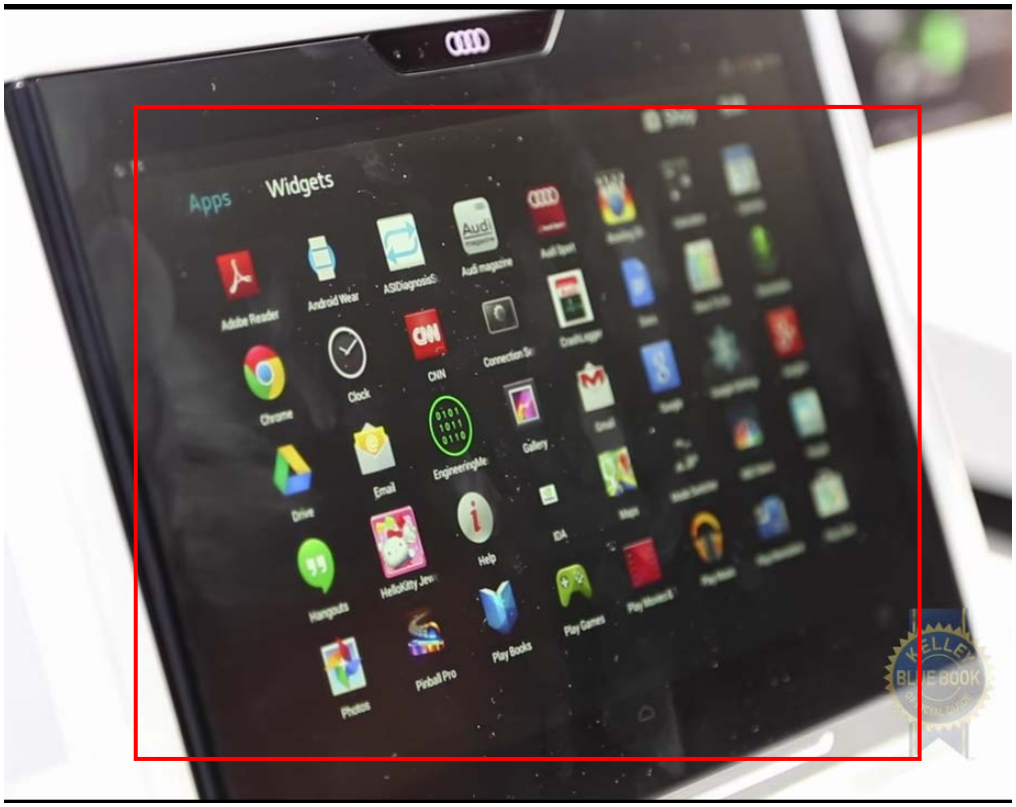
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
16. The apparatus of claim 1, wherein the causation of use of at least a speech recognition algorithm, the use of at least the identified at least one word or phrase, the causation of the user to be prompted to enter a subsequent input, the receipt of the data relating to the subsequent user input, the determination of which of the plurality of possible matches is the one that best correlates, the determination of the location, and the selection of the visual representation, are each performed by at least one networked server in wireless communication with client device, the client device and the at least one server forming a client-server relationship, and the at least one server disposed geographically remote to the client device.	**ANDROID LAYER:** **GOOGLE NEXUS 5 INCLUDES A SPEECH DIGITIZATION APPARATUS (I.E., GOOGLE VOICE ALGORITHMS RUNNING ON THE PLATFORM) TO DIGITIZE THE USERS ANALOG VOICE INTO A FORM USEFUL FOR RECOGNITION PURPOSES (E.G., AN FFT–DERIVED SPECTROGRAM):** "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " http://www.wired.com/2013/02/android-neural-network/; http://arxiv.org/ftp/arxiv/papers/1003/1003.4083.pdf **WHILE FOR DIFFERENT O/S, FOLLOWING IS ILLUSTRATIVE:** "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like: … After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string. GET /complete/search?client=iphoneapp&hjson=t&types=t &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1 User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1 Accept: */* Accept-Language: en-us Accept-Encoding: gzip, deflate Pragma: no-cache Connection: keep-alive	**L, DOE**	**D, I**

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	Connection: keep-alive Host: clients1.google.com The response is an array of search terms in JSON format, for use in search auto-completion. ["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.** **AUDI LAYER: TO BE DETERMINED IN DISCOVERY HOW MUCH OF PROCESSING IS PERFORMED OFF-VEHICLE. IT APPEARS THAT AT LEAST FOR GOOGLE EARTH SEARCHES, ON AUDI LAYER (SEE ABOVE), EACH OF THE ELEMENTS OF CLAIM 16 IS MET (BASED ON USE OF GOOGLESERVERS, API'S).**		
	THIS ANALYSIS IS TARGETED AT THE AUDI SMART DISPLAY ANDROID-BASED TABLET WITH ANDROID OS KITKAT 4.4. UTILIZING "GOOGLE NOW" OR SIMILAR FUNCTION TO PROVIDE INTERACTIVE INFORMATION EXCHANGE WITH A USER		

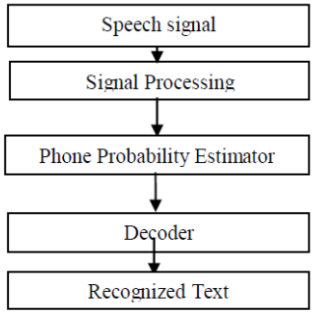
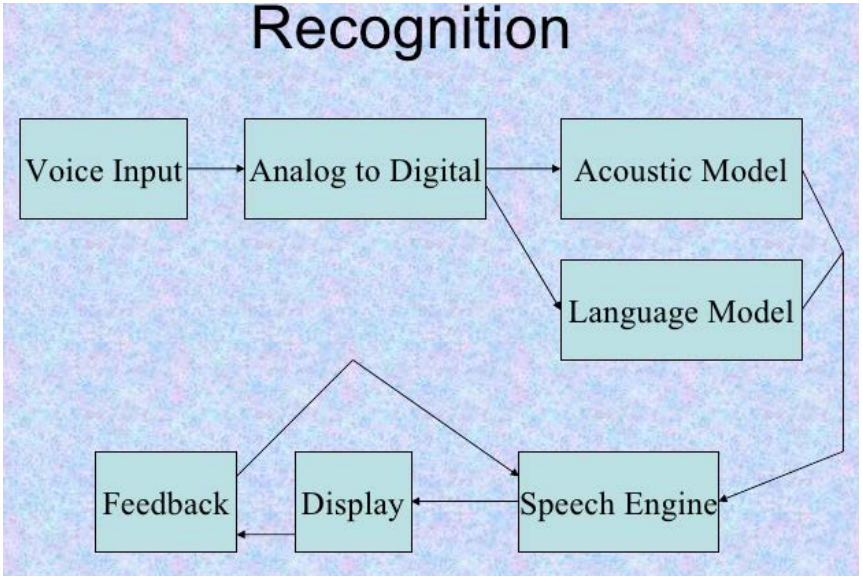
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.audiusa.com/search?query=2016+Q7#		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html		

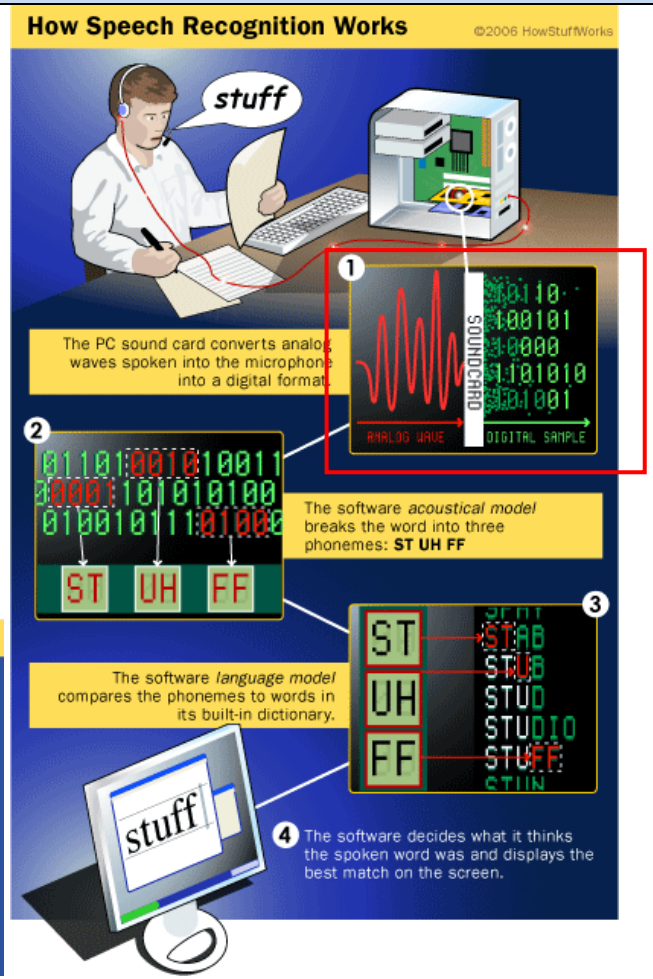
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
22. Computerized information apparatus configured to aid a user in locating an organization or entity, the apparatus comprising:	 AUDI SMART DISPLAY IS A COMPUTERIZED INFORMATION APPARATUS; ANDROID KITKAT IS A COMPUTER OPERATING SYSTEM https://www.youtube.com/watch?v=QcfIgdDl-lE **SEE DISCUSSION BELOW REGARDING AIDING A USER IN LOCATING AN ORGANIZATION OR ENTITY**	**L, DOE**	**D, I**
a microphone;	**THERE IS AT LEAST ONE MICROPHONE ON THE SMART DISPLAY:** "The Smart Display features Bluetooth, NFC (near field communication) and an inbuilt microphone and speakers, so that a variety of apps and appliances can be used with it. For example, the sound from it can be linked to the car's	**L, DOE**	

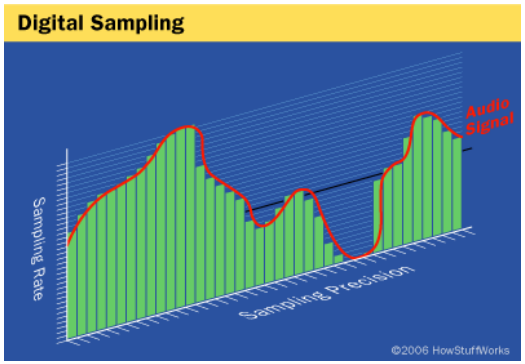
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	audio sound system or Bluetooth headsets for a quieter alternative. Likewise, the integrated camera and microphone can be used for Skype or similar video calling software available in the Android marketplace." [40]		
a capacitive touch-screen input and display device;	**THE SMART DISPLAY USES A 10.2 INCH CAPACITIVE TOUCH SCREEN INPUT AND DISPLAY DEVICE:** 	**L, DOE**	
a processor in data communication with the	**THE SMART DISPLAY USES A TEGRA 4 PROCESSOR AND ANDROID O/S (KITKAT 4.4).** http://www.autovolt-magazine.com/audi-smart-display-tablet-shows-future-of-vehicle-connectivity/	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
display device;	**HOWEVER, SINCE IT IS NOT A PRODUCTION DEVICE, FEW OTHER DEFINITE FACTS ABOUT THE INTERNALS ARE KNOWN. ACCORDINGLY, THI S ANALYSIS IS PREDICATED ON A GENERALLY SIMILAR TOUCHSCREEN "SMART" DEVICE, THE GOOGLE NEXUS 5 RUNNING KITKAT 4.4. ALSO, SINCE THE FEATURES OF PRIMARY CONCERN IN THIS ANALYSIS ARE APPLICATION-LAYER FOR THE MOST PART (I.E., "GOOGLE NOW" VOICE SEARCH FUNCTIONALITY, WHICH IS PRESENT ON ANY SUCH ANDROID DEVICE.**		
speech digitization apparatus in signal communication with the microphone;		**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	2. SPEECH RECOGNITION Speech recognition is the task of converting any speech signal into its orthographic representation. **2.1 Phases of Speech Recognition** **2.1.1 Speech signal.** The word spoken is received as sounds and digitized using microphone. The digitized signal is delivered to signal processing unit at a sampling rate not above 8 KHz because sampling rate higher than 8 KHz have less recognition accuracy.  **Figure 1: Phases of Speech Recognition** **2.1.2 Signal processing.** This phase performs feature extraction. Converting linear amplitude signal into spectral like representation [6]. It reduces the data rate of the raw audio input, thereby decreasing the computational load of the fore coming phases. [8], [9]  		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]



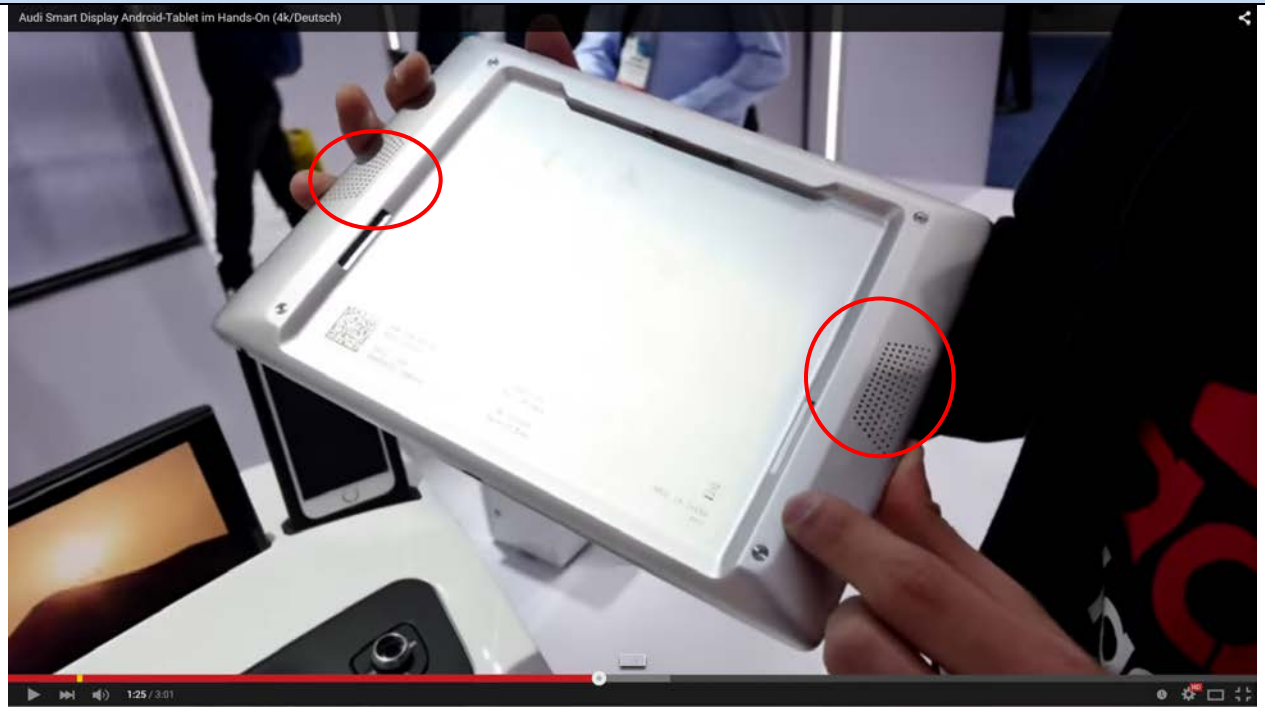


"An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality." [18] **http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm**

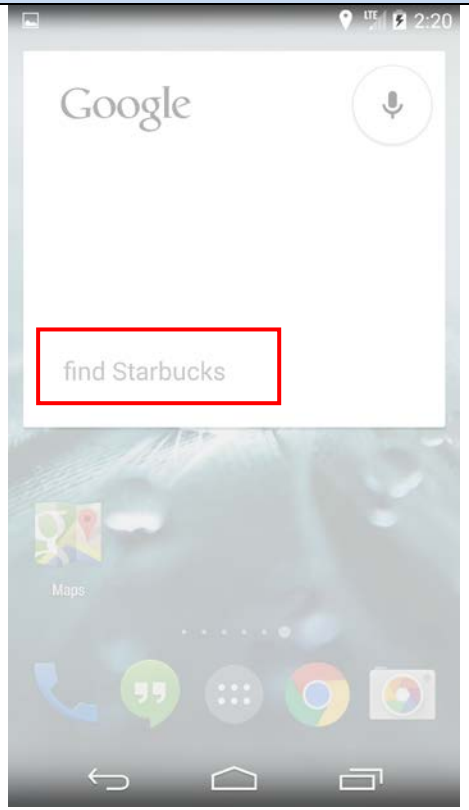
GOOGLE KITKAT 4.4 INCLUDES A SPEECH DIGITIZATION APPARATUS (I.E., GOOGLE VOICE ALGORITHMS RUNNING ON THE PLATFORM) TO DIGITIZE THE USERS ANALOG VOICE INTO A FORM USEFUL FOR

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	RECOGNITION PURPOSES (E.G., AN FFT–DERIVED SPECTROGRAM): "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " [12], [15,], [19] http://www.wired.com/2013/02/android-neural-network/ **WHILE FOR DIFFERENT O/S, FOLLOWING IS ILLUSTRATIVE:** "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like: … After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string. GET /complete/search?client=iphoneapp&hjson=t&types=t &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1 User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1 Accept: */* Accept-Language: en-us Accept-Encoding: gzip, deflate Pragma: no-cache Connection: keep-alive Connection: keep-alive Host: clients1.google.com		

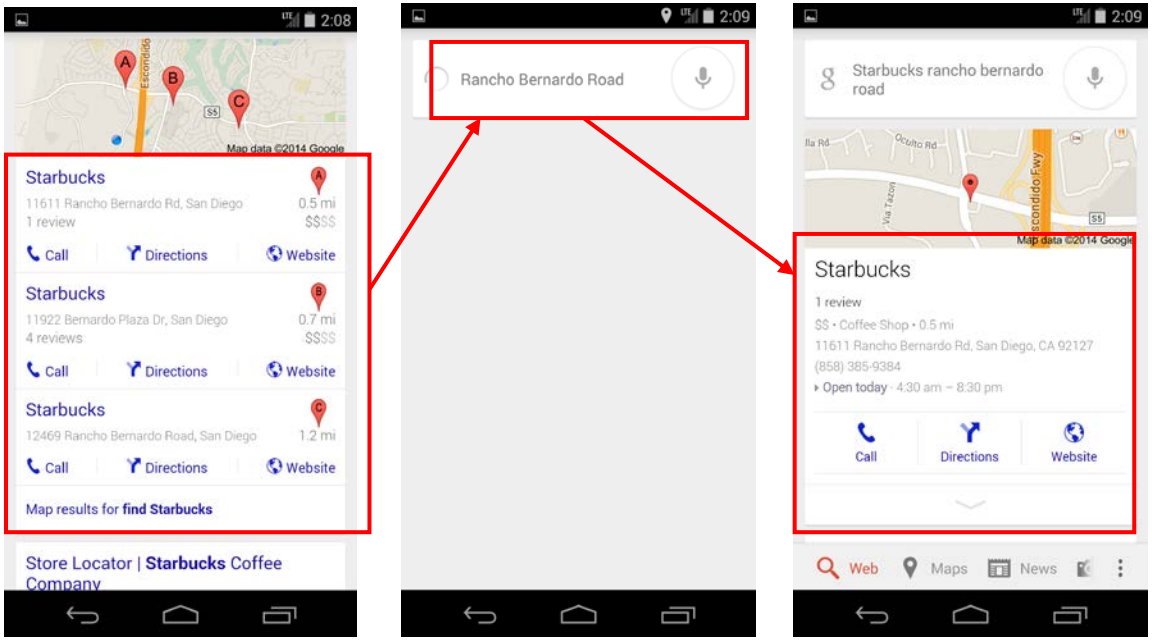
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	The response is an array of search terms in JSON format, for use in search autocompletion. ["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] [7], [38] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.** **THE PROCESSING APPARATUS OF THE AUDI SMART DISPLAY MUST BE IN COMMUNICATION WITH THE SPEECH DIGITIZATION APPARATUS IN ORDER TO, E.G., PROCESS SPEECH INPUTS FOR TRANSMISSION OVER THE WIRELESS INTERFACE TO GOOGLE SERVERS, ETC.** **SEE DISCUSSION BELOW; WHEN THE USER SPEAKS THE SEARCH TERM (E.G., "*FIND STARBUCKS*"), THEIR ANALOG VOICE IS RECEIVED BY THE MICROPHONE AND DIGITIZED BY THE SOFTWARE OF THE NEXUS 5. THE DIGITIZED SPEECH IS DERIVED FROM THE USER'S VERBAL COMMAND/SEARCH TERM.**		

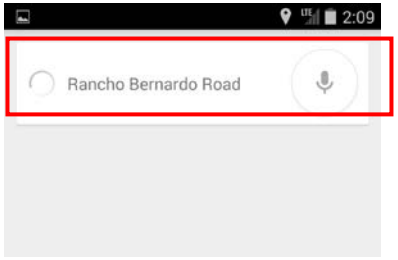
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
at least one audio speaker;		**L, DOE**	
speech synthesis apparatus in signal communication with the at least one audio speaker; and	**THE ANDROID O/S 4.4 ALSO INCLUDES TEXT-TO-SPEECH/SYNETHSIS CAPABILITY:** "Google's Text-to-Speech, the app that powers speech output on Android devices in a whole range of apps, was updated today to include higher-quality voice options for those who speak English. For those who have their phones set to U.S. English, you now have the option to download a "Female (high quality)" voice that takes up a nice 244MB chunk of space on your phone and replaces the standard 6.8MB package. For those using U.K. English, you'll have a new Male option that's just 3.7MB, along with a Female (high quality) 276MB and Male (high quality) that's 100MB. If you don't mind using up the space, it's a few simple steps to download the new voice data for a better voice output experience. The Text-to-Speech options can be found in Settings > Language & input > Text-to-speech output. You can then tap the settings button and hit "Install voice data" to pull down the voice packages that are useful and relevant to you." **http://www.androidcentral.com/latest-google-text-speech-update-enables-high-quality-voices-us-and-uk-english**	**L, DOE**	

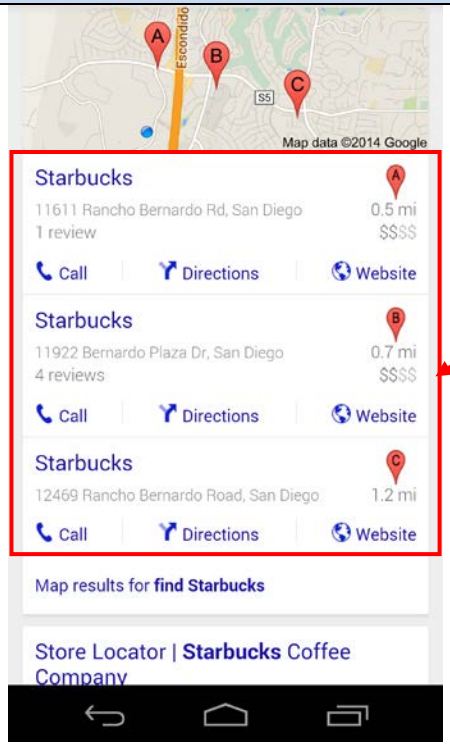
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
a storage medium comprising at least one computer program configured to run on at least the processor, the at least one program configured to, when executed on the processor:	**THE AUDI SMART DISPLAY INHERENTLY INCLUDES A STORAGE MEDIUM HAVING AT LEAST ONE COMPUTER PROGRAM CONFIGURED TO RUN ON ITS PROCESSOR (I.E., PROGRAM MEMORY/RAM, ROM, DRAM, NAND/NOR FLASH, LI/L2 PROCESSOR CACHE, ETC.**	**L, DOE**	
obtain a representation of a first speech input from the user, the first speech input relating to a name of a desired organization or entity;	**SO, IN OUR TEST/EXAMPLE CONDUCTED ON A GOOGLE NEXUS 5 (MANUFACTURED BY LG), THE USER'S VOICE SEARCH TERM WAS "*FIND STARBUCKS*". STARBUCKS IS AN ENTITY TO WHICH WE WANTED TO NAVIGATE:**	**L, DOE**	

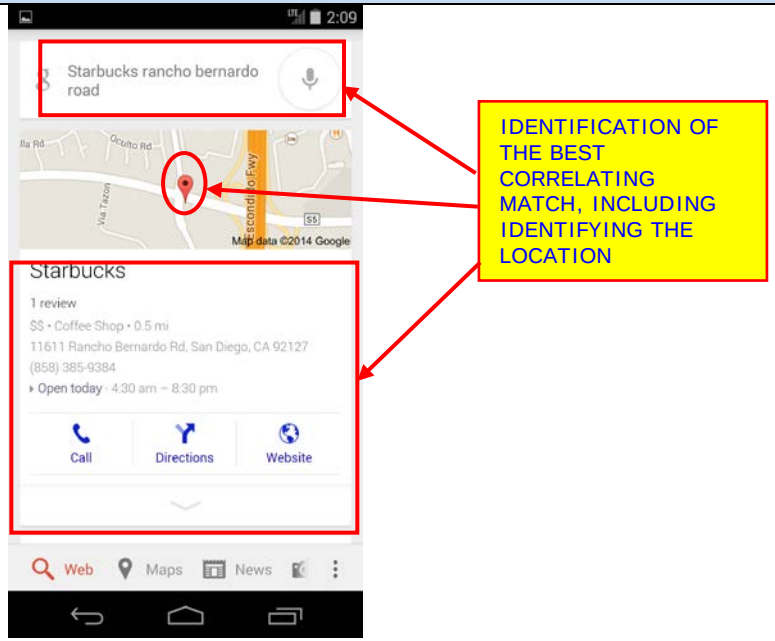
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
			
cause use of at least a speech recognition algorithm to process the representation to identify at least one word or phrase therein;	"MEMORY Choose 16GB or 32GB internal storage (actual formatted capacity will be less) 2GB RAM" "DDR3L" http://www.google.com/nexus/5/#/; http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html	**L, DOE**	

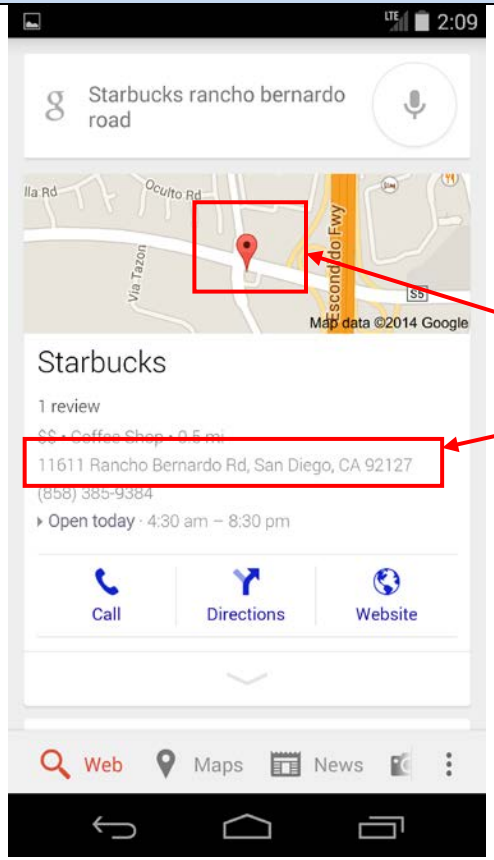
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	"Overview • 11 stage integer pipeline with 3-way decode and 4-way out-of-order speculative issue superscalar execution • Pipelined VFPv4[2] and 128-bit wide NEON (SIMD) • 7 execution ports • 4 KB + 4 KB direct mapped L0 cache • 16 KB + 16 KB 4-way set associative L1 cache • 1 MB 8-way set associative (dual-core) or 2 MB (quad-core) L2 cache • Dual or quad-core configurations • Performance (DMIPS/MHz): Krait 200: 3.3 (28 nm LP) Krait 300: 3.39[3] (28 nm LP) Krait 400: 3.39 (28 nm HPm) Krait 450: 3.51 (28 nm HPm)" https://en.wikipedia.org/wiki/Krait_(CPU) **THE NEXUS 5 COMPRISES AT LEAST ONE STORAGE MEDIUM (E.G., BUILT-IN MEMORY/MASS STORAGE). IT INCLUDES DDR AND OTHER MEMORY SUCH AS NAND FLASH AND THE L0, L1 AND L2 CACHES NOTED ABOVE.** **THE NEXUS 5 ALSO INCLUDES COMPUTER CODE/SOFTWARE, ASICS, PROCESSOR, ETC. COMPUTER CODE MUST BE STORED ON A NON-VOLATILE STORAGE DEVICE SUCH AS A PROM OR FLASH MEMORY, AND CAN BE CACHED BY VOLATILE MEMORY NOTED ABOVE.** **SEE DISCUSSION AND EXAMPLE BELOW, WHEREIN USER HAS VERBAL INTERCHANGE WITH PHONE, I.E.:** **FOLLOWING TEST CONDUCTED ON GOOGLE NEXUS 5:**		

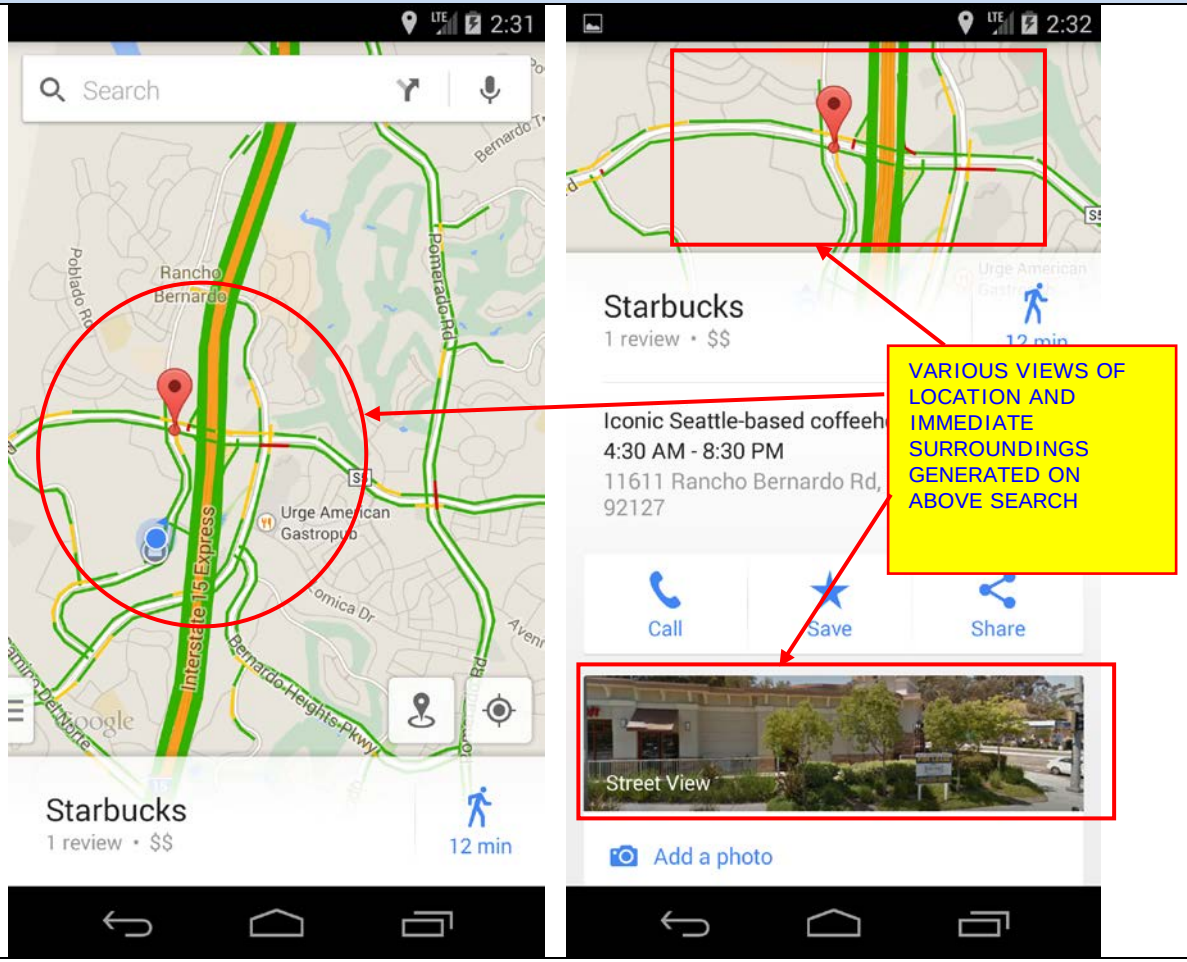
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	USER SAYS: "*FIND STARBUCKS*" **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"** 		
prompt the user for a subsequent input in order to further clarify the first speech input and aid in identification of one of a plurality of	**SEE ABOVE; PHONE PROMPTS USER FOR NECT INPUT TO HELP RESOLVE THE AMBIGUITY OF MULTIPLE POSSIBLE MATCHES.** **NEXT, USER SAYS, FOR EXAMPLE, "RANCHO BERNARDO ROAD" TO FURTHER CLARIFY THE SEARCH;**	**L, DOE**	

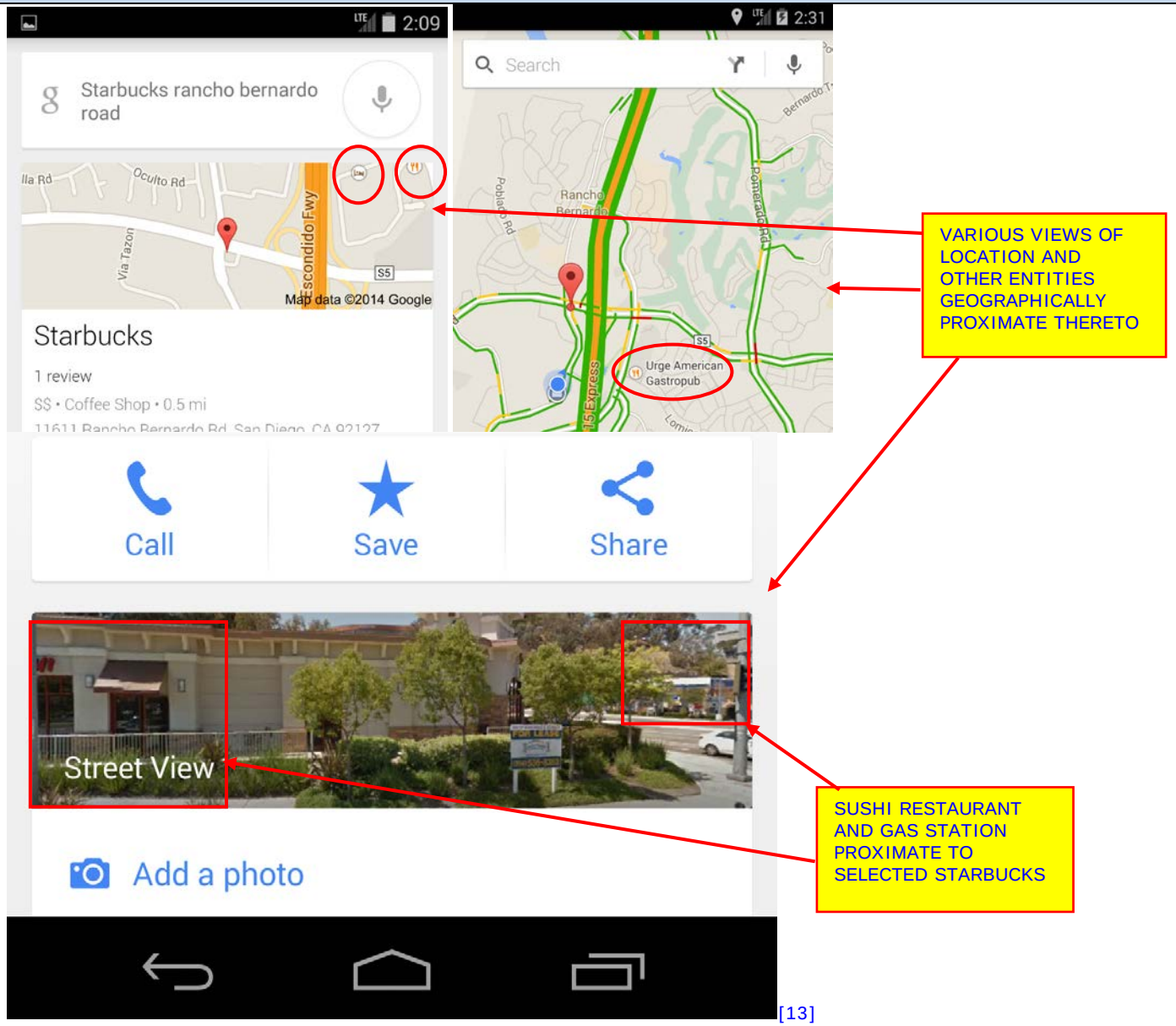
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
possible matches which best correlates to the desired organization or entity;	**RANCHO BERNARDO ROAD IS ADDITIONAL/SUBSEQUENT INPUT TO AID IN IDENTIFICATION OF DESIRED ORGANIZATION OR ENTITY:** 		
receive the subsequent user input; and	**USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **SEE EXEMPLARY SEQUENCE ABOVE; IN RESPONSE TO USER VOICE QUERY OF "FIND STARBUCKS" ON NEXUS 5, THE PHONE RETURNS A LISTING OF NEARBY STARBUCKS IN SAN DIEGO. A SUBSEQUENT VOICE QUERY OF "RANCHO BERNARDO" RETURNS A LISTING OF STARBUCKS LOCATIONS NEAR RANCHO BERNARDO.**		
cause, based at least in part on the subsequent input, (i) determination of which of the plurality of possible matches is the one that best correlates, (ii) identification of a location associated with	**NEXT, THE PHONE RETURNS "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*" VOCALLY, AND SHOWS THAT RESULT ON THE DISPLAY:**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
the one of the possible matches that best correlates, and	 **THE PHONE CLEARLY USES THE SUBSEQUENT INPUT TO AID IN THE DETERMINATION OF WHICH OF THE POSSIBLE MATCHES IS THE ONE THAT BEST CORRELATES AND IDENTIFIES THE LOCATION ASSOCIATED WITH THE BEST CORRELATING MATCH.**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
(iii) selection of a visual representation of the location,		**L, DOE**	

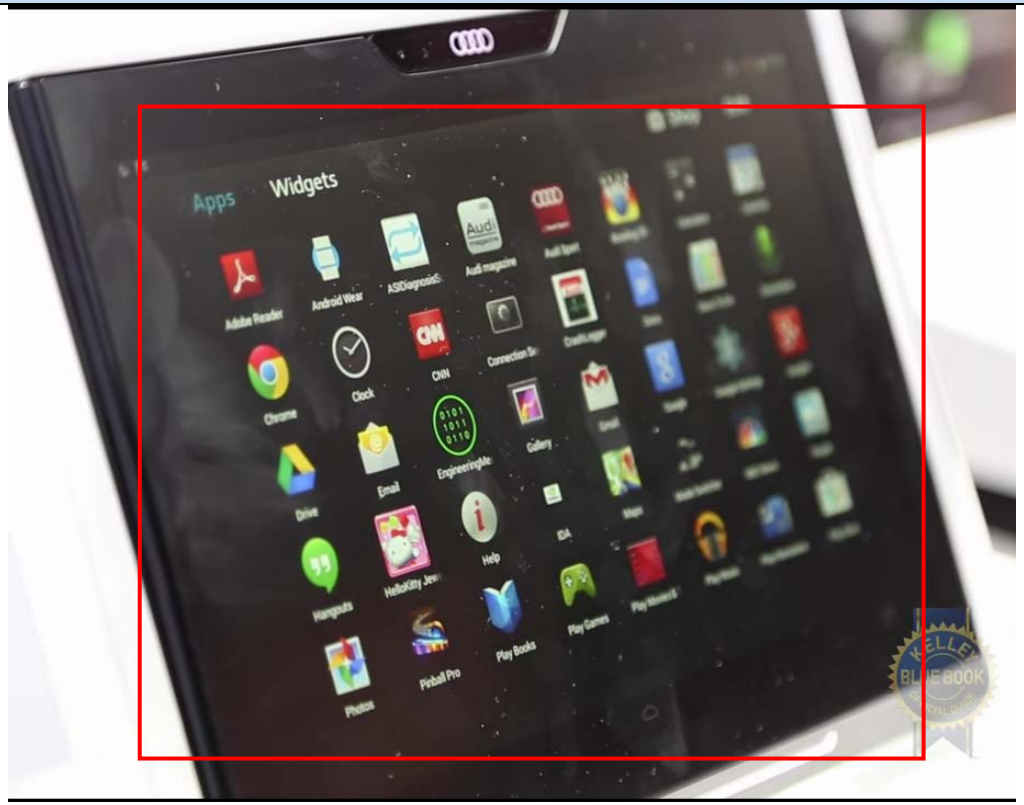
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
as well as at least an immediate surroundings thereof, capable of display on the display device,		L, DOE	

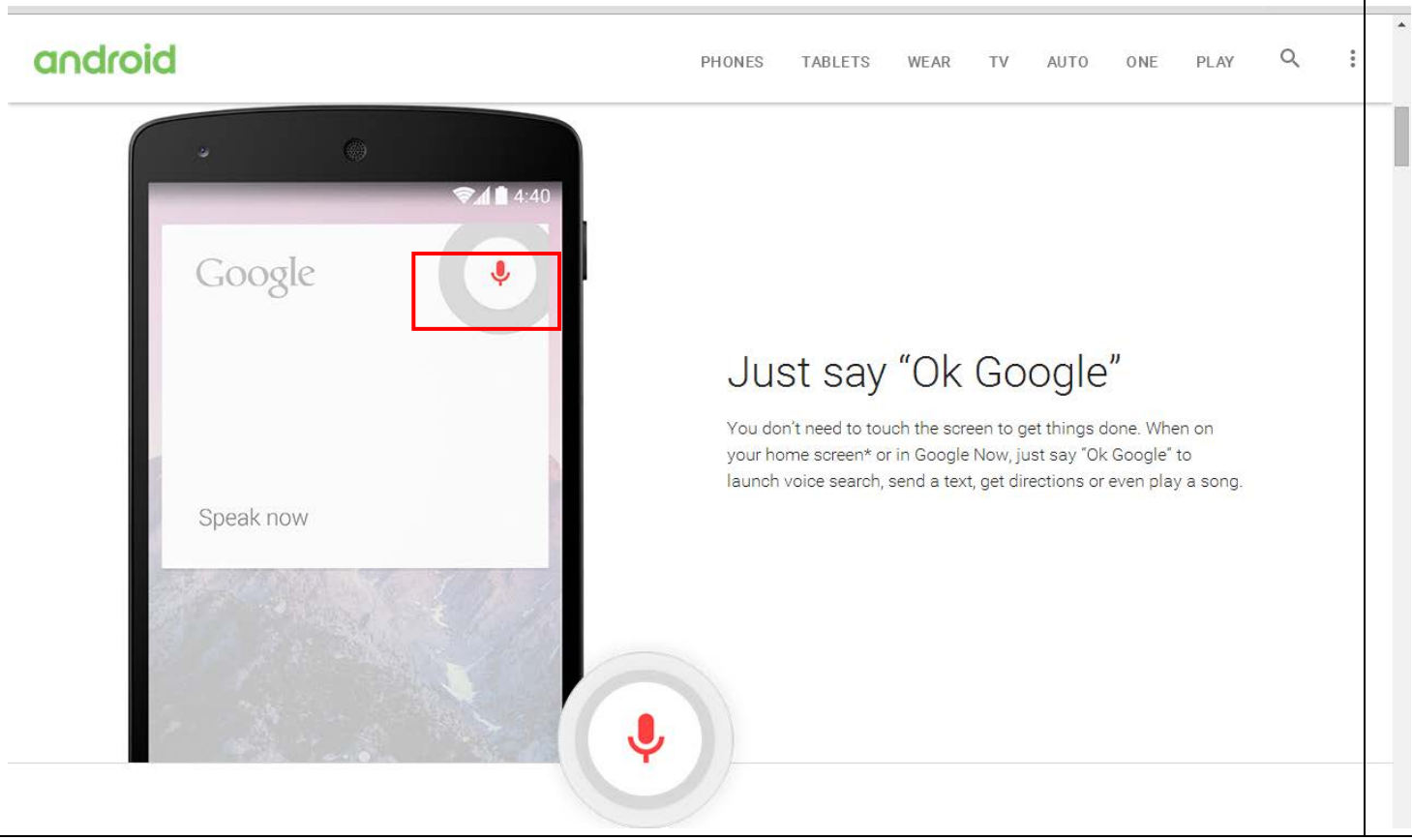
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
the visual representation further comprising visual representations of one or more other organizations or entities proximate to the location, and directions to the location.	 [13]	L, DOE	

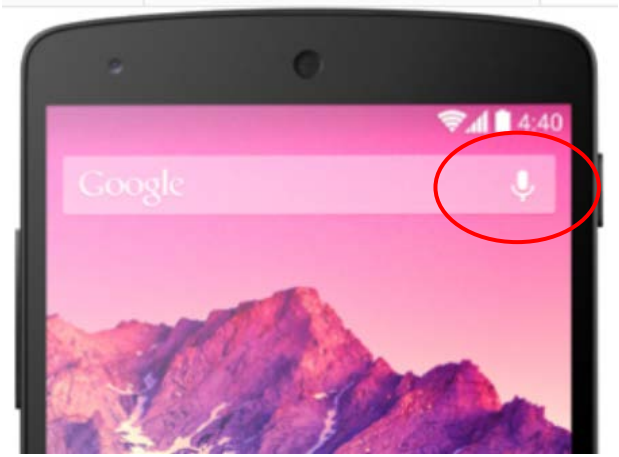
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
54. Smart computerized apparatus capable of interactive information exchange with a human user, the apparatus comprising:	 AUDI **SMART** DISPLAY IS A COMPUTERIZED INFORMATION APPARATUS; ANDROID KITKAT IS A COMPUTER OPERATING SYSTEM https://www.youtube.com/watch?v=QcfIgdDl-lE **SEE DISCUSSION BELOW REGARDING AIDING A USER IN LOCATING AN ORGANIZATION OR ENTITY**	**L, DOE**	**D, I**
a microphone;	**THERE IS AT LEAST ONE MICROPHONE ON THE SMART DISPLAY:**	**L, DOE**	

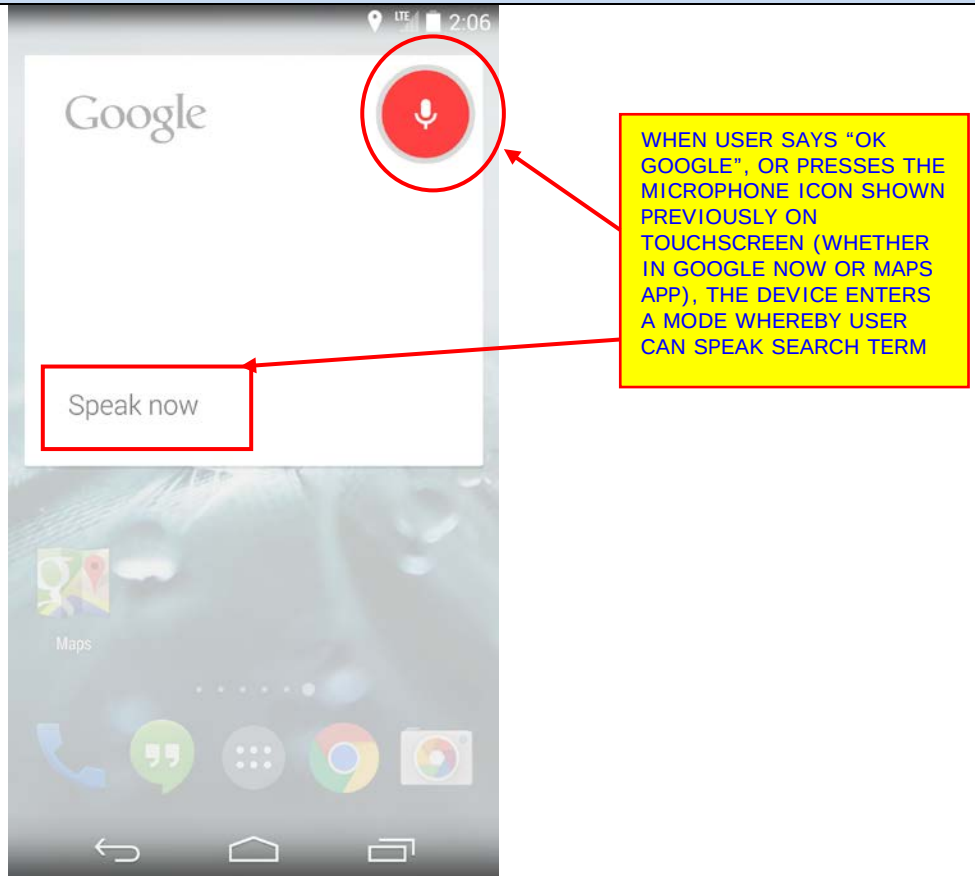
Audi/Volkswagen Products vs. U.S. Patent No. 8,719,038
"Computerized Information and Display Apparatus"

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	"The Smart Display features Bluetooth, NFC (near field communication) and an inbuilt microphone and speakers, so that a variety of apps and appliances can be used with it. For example, the sound from it can be linked to the car's audio sound system or Bluetooth headsets for a quieter alternative. Likewise, the integrated camera and microphone can be used for Skype or similar video calling software available in the Android marketplace." http://www.autovolt-magazine.com/audi-smart-display-tablet-shows-future-of-vehicle-connectivity/		
one or more processors;	**THE SMART DISPLAY USES A TEGRA 4 PROCESSOR AND ANDROID O/S (KITKAT 4.4).** http://www.autovolt-magazine.com/audi-smart-display-tablet-shows-future-of-vehicle-connectivity/ **HOWEVER, SINCE IT IS NOT A PRODUCTION DEVICE, FEW OTHER DEFINITE FACTS ABOUT THE INTERNALS ARE KNOWN. ACCORDINGLY, THI S ANALYSIS IS PREDICATED ON A GENERALLY SIMILAR TOUCHSCREEN "SMART" DEVICE, THE GOOGLE NEXUS 5 RUNNING KITKAT 4.4. ALSO, SINCE THE FEATURES OF PRIMARY CONCERN IN THIS ANALYSIS ARE APPLICATION-LAYER FOR THE MOST PART (I.E., "GOOGLE NOW" VOICE SEARCH FUNCTIONALITY, WHICH IS PRESENT ON ANY SUCH ANDROID DEVICE.**	**L, DOE**	
a capacitive touch-screen input and display device;	**THE SMART DISPLAY USES A 10.2 INCH CAPACITIVE TOUCH SCREEN INPUT AND DISPLAY DEVICE:**	**L, DOE**	

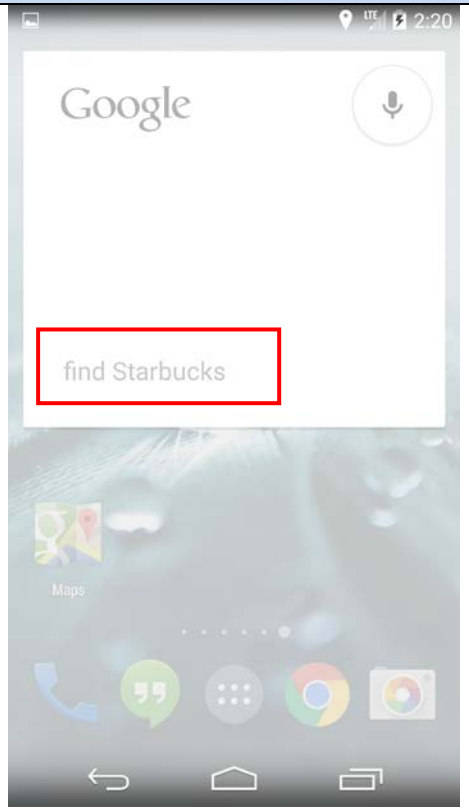
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=QcfIgdDl-lE		
speech synthesis apparatus and at least one speaker in signal communication therewith;	**THE ANDROID O/S 4.4 ALSO INCLUDES TEXT-TO-SPEECH/SYNETHSIS CAPABILITY:** "Google's Text-to-Speech, the app that powers speech output on Android devices in a whole range of apps, was updated today to include higher-quality voice options for those who speak English. For those who have their phones set to U.S. English, you now have the option to download a "Female (high quality)" voice that takes up a nice 244MB chunk of space on your phone and replaces the standard 6.8MB package. For those using U.K. English, you'll have a new Male option that's just 3.7MB, along with a Female (high quality) 276MB and Male (high quality) that's 100MB. If you don't mind using up the space, it's a few simple steps to download the new voice data for a better voice output experience. The Text-to-Speech options can be found in Settings > Language & input > Text-to-speech output. You	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	can then tap the settings button and hit "Install voice data" to pull down the voice packages that are useful and relevant to you." http://www.androidcentral.com/latest-google-text-speech-update-enables-high-quality-voices-us-and-uk-english		
input apparatus configured to cause the computerized apparatus to enter a mode whereby a user can speak a name of an entity into a microphone in signal communication with the computerized apparatus,	**THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION:** **3) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA HANDS FREE), FOLLOWED BY VOICE SEARCH TERM;** **4) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;** 	**L, DOE**	

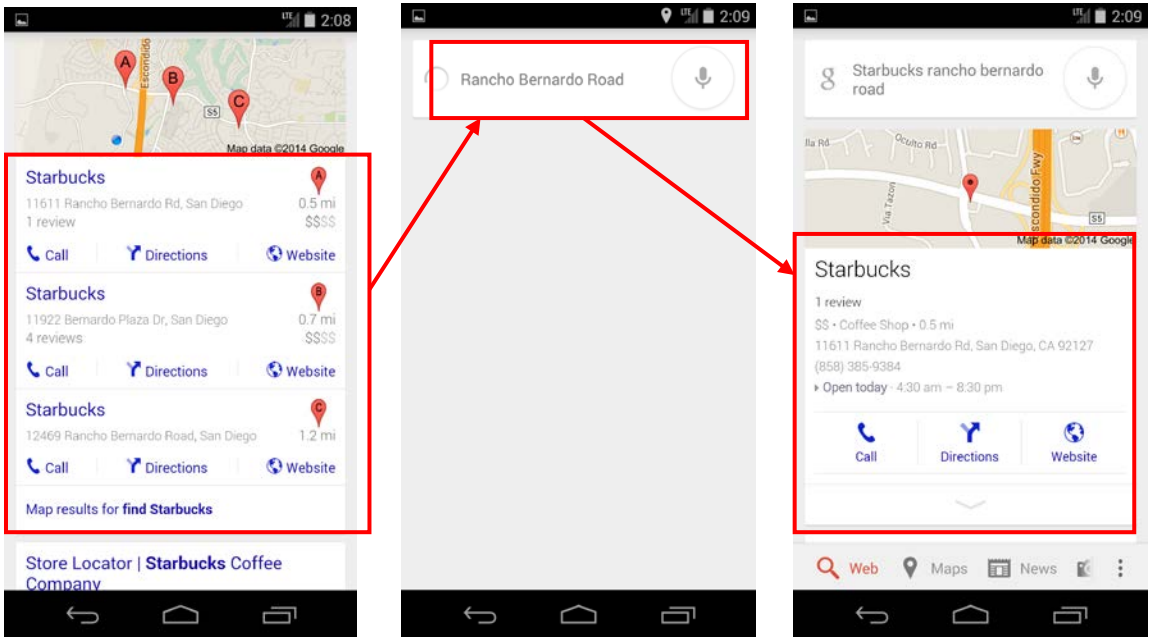
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **THE VOICE COMMAND (OR DEPRESSING ICON) CAUSE THE DEVICE TO ENTER A MODE WHEREIN THE USER CAN SAY THE NAME OF AN ENTITY ALOUD, THE USER'S VOICE PICKED UP BY THE AFOREMENTIONED MICROPHONE**		

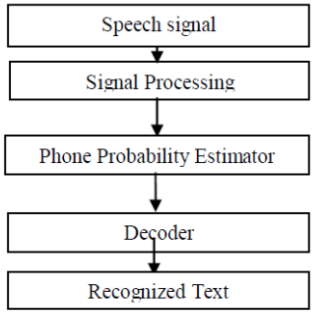
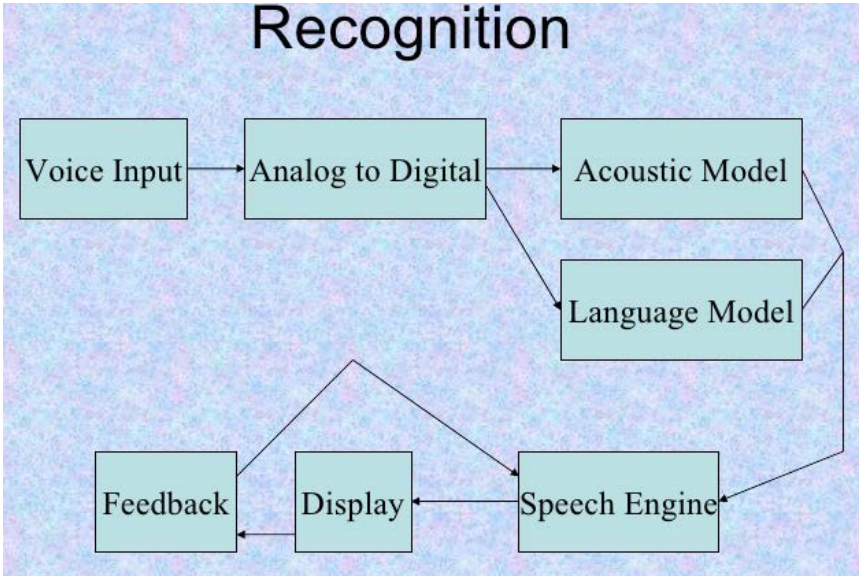
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:** **"General Commands** • "Search for [*chicken recipes*]?" • "Say [*where is the supermarket*] in [*Spanish*]?" • "What is [*Schrodinger's cat*]?"		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	• "Who invented [*the internet*]?" • "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" **…** **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" … If you want to have the full Google Now experience at all times with all the latest updates – check out the new Nexus 5!" http://trendblog.net/list-of-google-now-voice-commands-infographic/#list-text		
the entity being an entity to which the user wishes to navigate;	**SO, IN OUR TEST/EXAMPLE CONDUCTED ON A GOOGLE NEXUS 5 (MANUFACTURED BY LG), THE USER'S VOICE SEARCH TERM WAS "*FIND STARBUCKS*". STARBUCKS IS AN ENTITY TO WHICH WE WANTED TO NAVIGATE:**	**L, DOE**	

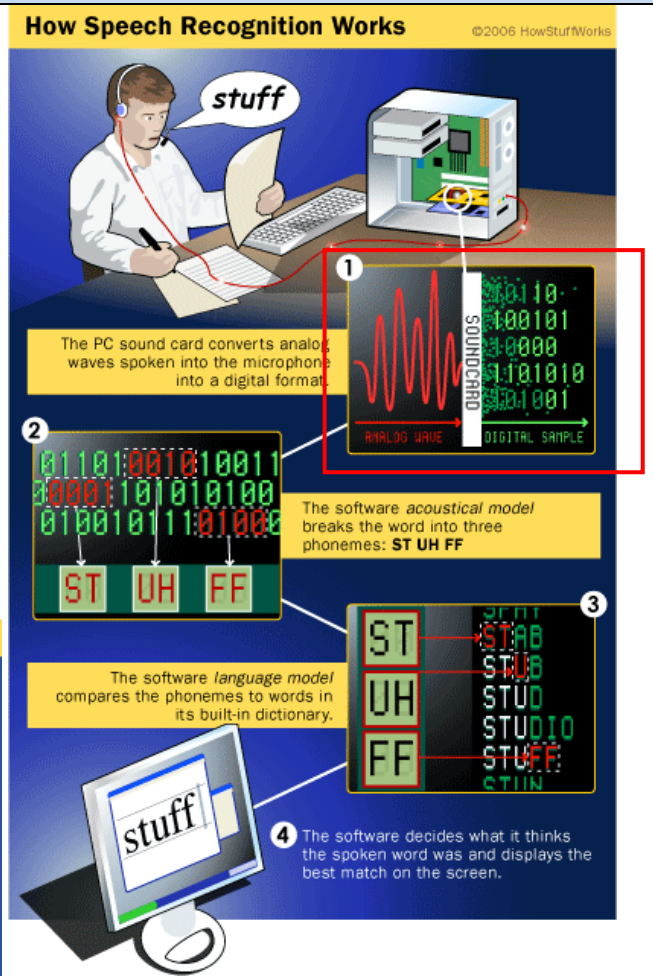
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
			
and at least one computer program operative to run on the one or more processors and configured to engage the user in an interactive audible interchange, the interchange comprising:	"MEMORY Choose 16GB or 32GB internal storage (actual formatted capacity will be less) 2GB RAM" "DDR3L" http://www.google.com/nexus/5/#/; http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html	**L, DOE**	

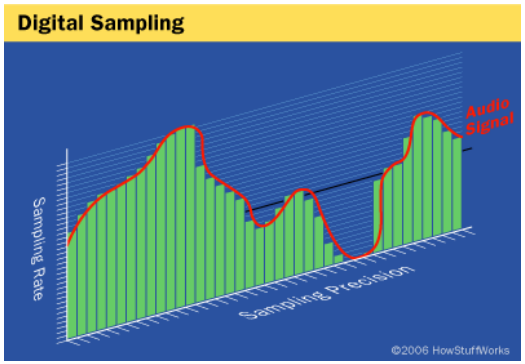
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	"Overview • 11 stage integer pipeline with 3-way decode and 4-way out-of-order speculative issue superscalar execution • Pipelined VFPv4[2] and 128-bit wide NEON (SIMD) • 7 execution ports • 4 KB + 4 KB direct mapped L0 cache • 16 KB + 16 KB 4-way set associative L1 cache • 1 MB 8-way set associative (dual-core) or 2 MB (quad-core) L2 cache • Dual or quad-core configurations • Performance (DMIPS/MHz): Krait 200: 3.3 (28 nm LP) Krait 300: 3.39[3] (28 nm LP) Krait 400: 3.39 (28 nm HPm) Krait 450: 3.51 (28 nm HPm)" http://en.wikipedia.org/wiki/Krait_%28CPU%29 **THE NEXUS 5 COMPRISES AT LEAST ONE STORAGE MEDIUM (E.G., BUILT-IN MEMORY/MASS STORAGE). IT INCLUDES DDR AND OTHER MEMORY SUCH AS NAND FLASH AND THE L0, L1 AND L2 CACHES NOTED ABOVE.** **THE NEXUS 5 ALSO INCLUDES COMPUTER CODE/SOFTWARE, ASICS, PROCESSOR, ETC. COMPUTER CODE MUST BE STORED ON A NON-VOLATILE STORAGE DEVICE SUCH AS A PROM OR FLASH MEMORY, AND CAN BE CACHED BY VOLATILE MEMORY NOTED ABOVE.** **SEE DISCUSSION AND EXAMPLE BELOW, WHEREIN USER HAS VERBAL INTERCHANGE WITH PHONE, I.E.:** **FOLLOWING TEST CONDUCTED ON GOOGLE NEXUS 5:**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	USER SAYS: "*FIND STARBUCKS*" **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"** 		
digitization of the user's speech received via the microphone to produce a digital representation thereof;	**ALL SPEECH RECOGNITION SYSTEMS INHERENTLY DIGITIZE THE SPEAKER'S ANALOG VOICE:**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	2. SPEECH RECOGNITION Speech recognition is the task of converting any speech signal into its orthographic representation. **2.1 Phases of Speech Recognition** **2.1.1 Speech signal.** The word spoken is received as sounds and digitized using microphone. The digitized signal is delivered to signal processing unit at a sampling rate not above 8 KHz because sampling rate higher than 8 KHz have less recognition accuracy.  **Figure 1: Phases of Speech Recognition** **2.1.2 Signal processing.** This phase performs feature extraction. Converting linear amplitude signal into spectral like representation [6]. It reduces the data rate of the raw audio input, thereby decreasing the computational load of the fore coming phases.  		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]





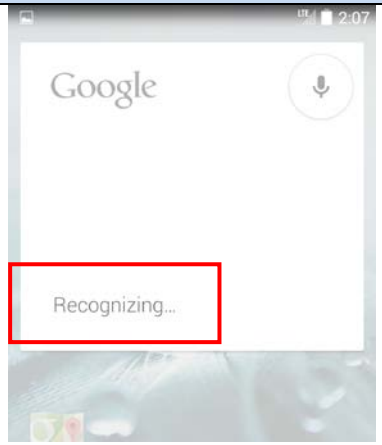
"An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality."

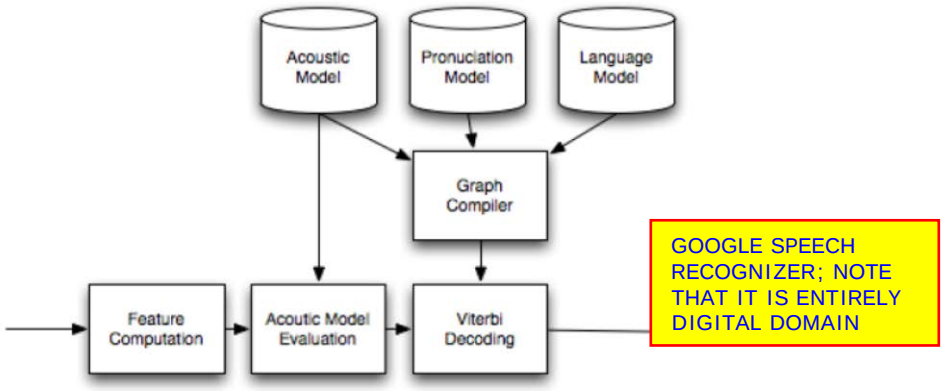
[18] http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm

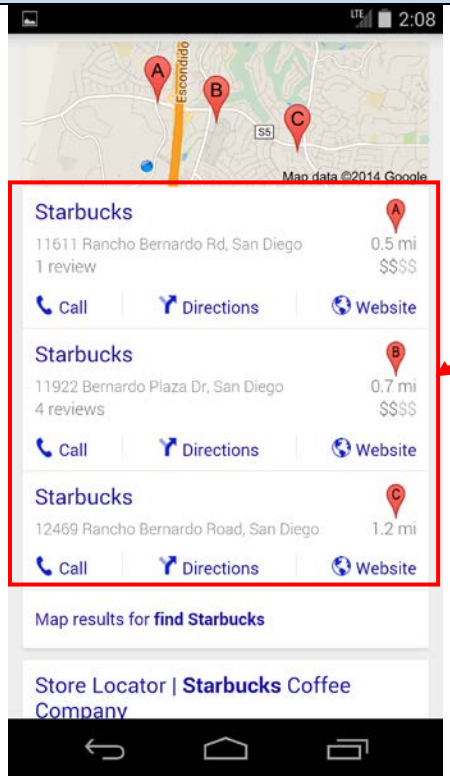
GOOGLE NEXUS 5 INCLUDES A SPEECH DIGITIZATION APPARATUS (I.E., GOOGLE VOICE ALGORITHMS RUNNING ON THE PLATFORM) TO DIGITIZE THE USERS ANALOG VOICE INTO A FORM USEFUL FOR

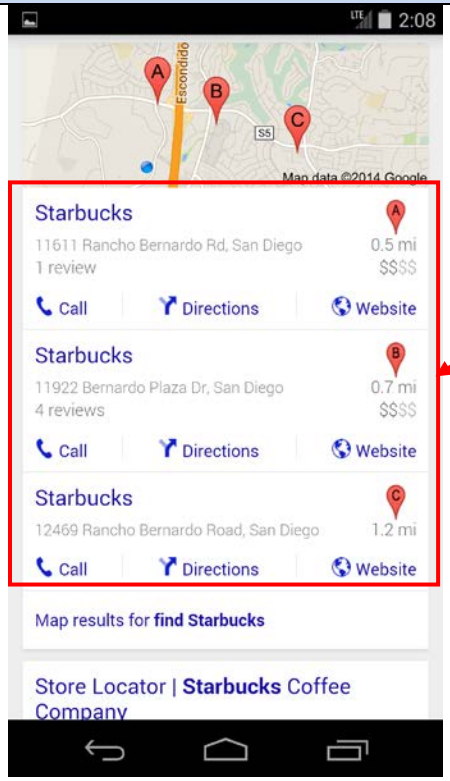
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	RECOGNITION PURPOSES (E.G., AN FFT–DERIVED SPECTROGRAM): "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " [19] http://www.wired.com/2013/02/android-neural-network/ **WHILE FOR DIFFERENT O/S, FOLLOWING IS ILLUSTRATIVE:** "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like: … After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string. GET /complete/search?client=iphoneapp&hjson=t&types=t &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1 User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1 Accept: */* Accept-Language: en-us Accept-Encoding: gzip, deflate Pragma: no-cache Connection: keep-alive Connection: keep-alive Host: clients1.google.com The response is an array of search terms in JSON format, for use in search autocompletion.		

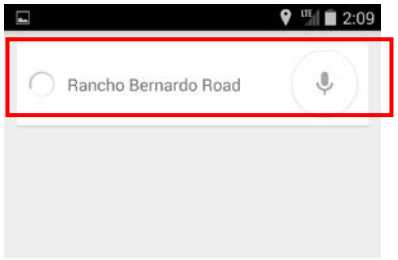
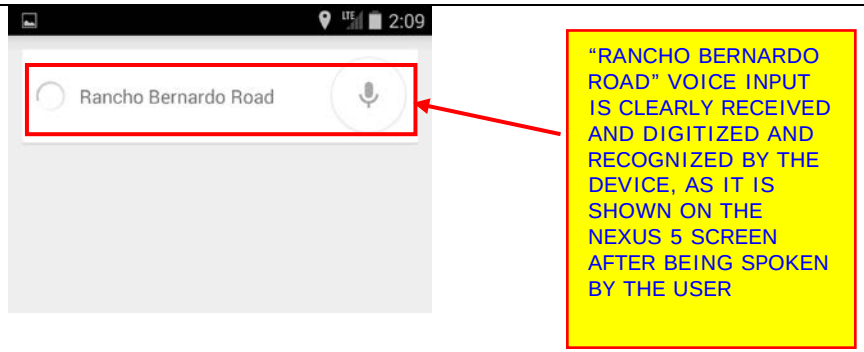
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] [38] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.** **THE PROCESSING APPARATUS OF THE NEXUS 5 MUST BE IN COMMUNICATION WITH THE SPEECH DIGITIZATION APPARATUS IN ORDER TO, E.G., PROCESS SPEECH INPUTS FOR TRANSMISSION OVER THE WIRELESS INTERFACE TO GOOGLE SERVERS, ETC.** **SEE DISCUSSION ABOVE; WHEN THE USER SPEAKS THE SEARCH TERM (E.G., "*FIND STARBUCKS*"), THEIR ANALOG VOICE IS RECEIVED BY THE MICROPHONE AND DIGITIZED BY THE SOFTWARE OF THE NEXUS 5. THE DIGITIZED SPEECH IS DERIVED FROM THE USER'S VERBAL COMMAND/SEARCH TERM.**		
causation of use of the digitized representation to identify a plurality of entities which match at least a portion of the name;	**SEE DISCUSSION ABOVE; THE DIGITIZED VOICE IS SENT TO THE GOOGLE (REMOTE) SERVER(S) FOR WORD RECOGNITION AND SEARCH.**	**L, DOE**	

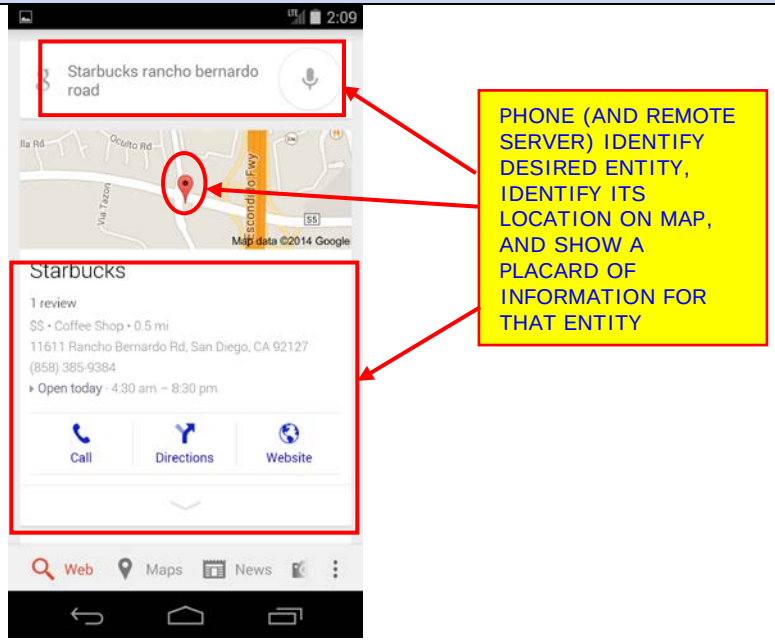
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **"Server types** *Google's* server infrastructure is divided into several types, each assigned to a different purpose:[14][17][49][50][51] • Web servers coordinate the execution of queries sent by users, then format the result into an HTML page. The execution consists of sending queries to index servers, merging the results, computing their rank, retrieving a summary for each hit (using the document server), asking for suggestions from the spelling servers, and finally getting a list of advertisements from the ad server. • Data-gathering servers are permanently dedicated to spidering the Web. Google's web crawler is known as GoogleBot. They update the index and document databases and apply Google's algorithms to assign ranks to pages. • Each index server contains a set of index shards. They return a list of document IDs ("docid"), such that documents corresponding to a certain docid contain the query word. These servers need less disk space, but suffer the greatest CPU workload. • Document servers store documents. Each document is stored on dozens of document servers. When performing a search, a document server returns a summary for the document based on query words. They can also fetch the complete document when asked. These servers need more disk space. Ad servers manage advertisements offered by services like AdWords and AdSense.." http://en.wikipedia.org/wiki/Google_platform "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent		

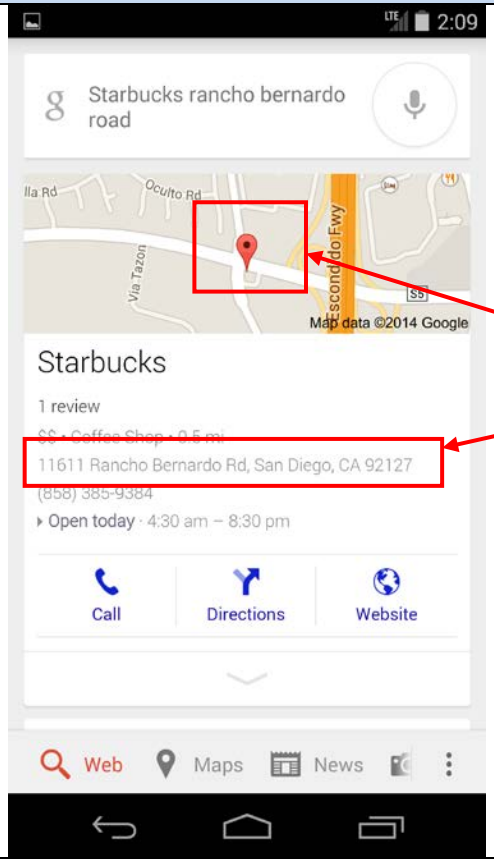
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	to eight different computers housed in Google's vast worldwide army of servers. It's then processed, using the neural network models built by Vanhoucke and his team. Google happens to be very good at breaking up big computing jobs like this and processing them very quickly, and to figure out how to do this, Google turned to Jeff Dean and his team of engineers, a group that's better known for reinventing the way the modern data center works." http://www.wired.com/2013/02/android-neural-network/  Figure 5: Basic block diagram of a speech recognizer. "Figure 5 depicts the basic system architecture of the recognizer behind Google search by Voice." http://static.googleusercontent.com/external_content/untrusted_dlcp/research.google.reverse-proxy.org/en/us/pubs/archive/36340.pdf		

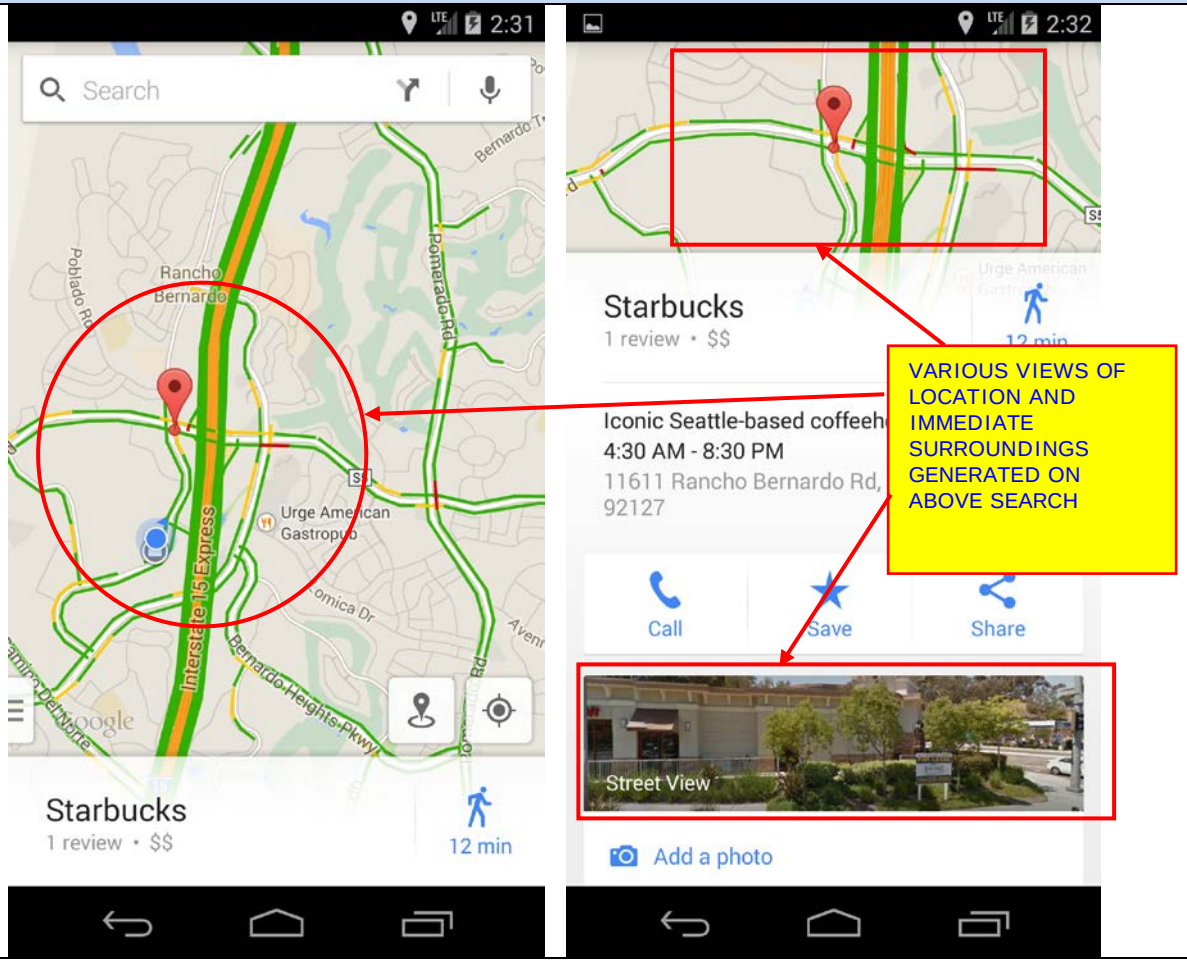
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 LIST OF MATCHES WITH MATCHING NAME (QUERY WAS "*FIND STARBUCKS*") [13]		
causation of generation of an audible communication to the user via the speech synthesis apparatus in order to at least inform the user of the identification of the plurality of matches;	**USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES*."** **USER SAYS: "*RANCHO BERNARDO*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"**	**L, DOE**	

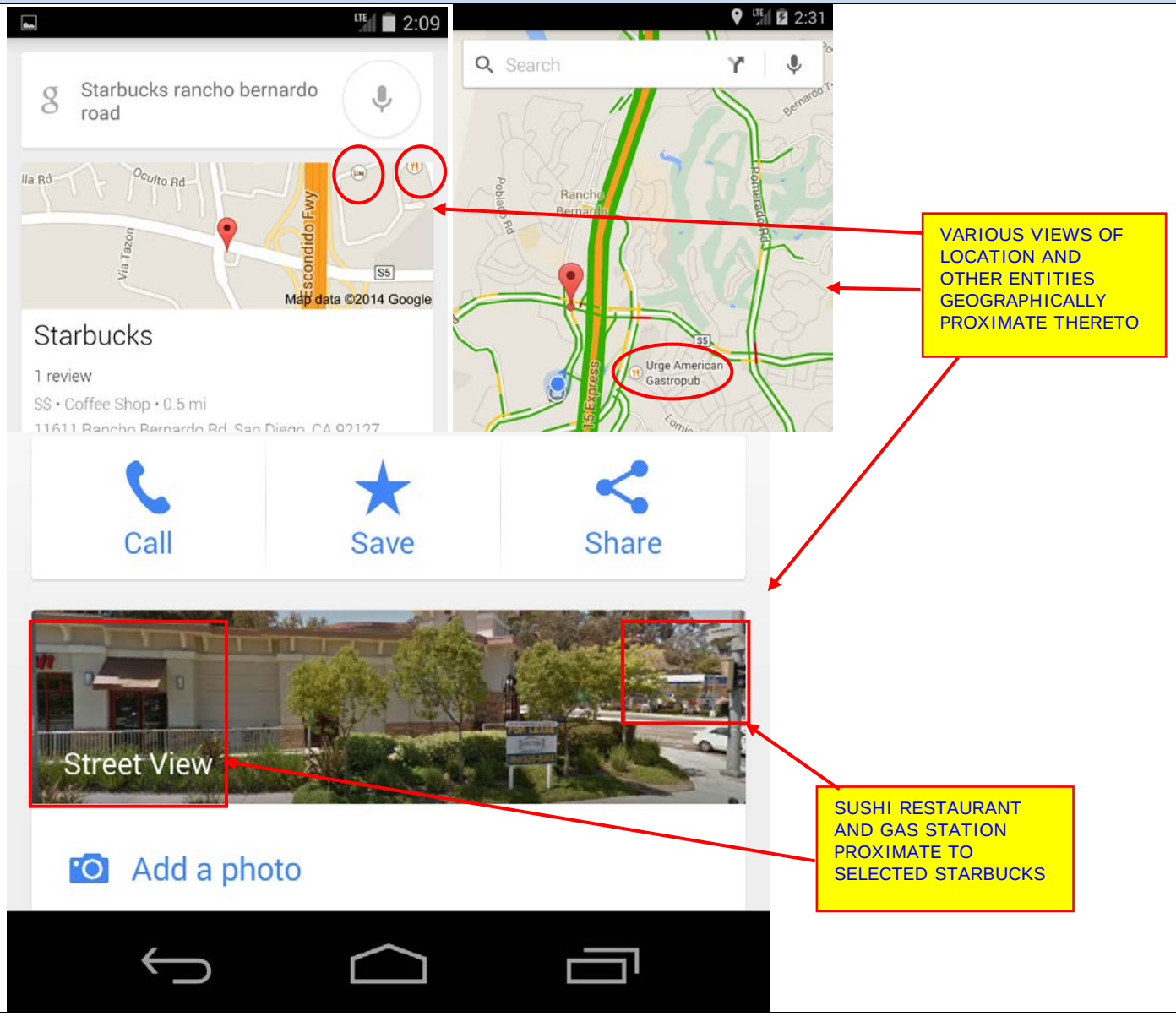
Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **SEE EXEMPLARY SEQUENCE ABOVE; IN RESPONSE TO USER VOICE QUERY OF "FIND STARBUCKS" ON NEXUS 5, THE PHONE RETURNS A LISTING OF NEARBY STARBUCKS IN SAN DIEGO AND SAYS *"HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES."* (I.E., IDENTIFIES THAT A PLURALITY OF MATCHES EXIST)**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
receipt of a subsequent speech input, the subsequent speech input comprising at least one additional piece of information;	**NEXT, USER SAYS "RANCHO BERNARDO ROAD" TO FURTHER NARROW THE SEARCH; RANCHO BERNARDO ROAD IS ADDITIONAL PIECE OF INFORMATION NOT WITHIN FIRST QUERY:** 	**L, DOE**	
digitization of the subsequent speech input to produce a digital representation thereof;		**L, DOE**	
causation of utilization of at least the digital representation of the subsequent input to identify one of the plurality of entities which correlates to the entity to	**NEXT, THE PHONE RETURNS "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*" VOCALLY, AND SHOWS THAT RESULT ON THE DISPLAY:**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
which the user wishes to navigate, and a location associated with the entity;	 **THE PHONE CLEARLY USES THE ADDITIONAL PIECE OF INFORMATION TO SELECT ONE OF THE PLURALITY OF LISTED MATCHES AS CORRELATING TO THE USER'S DESIRED ENTITY.**		

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
and causation of provision of a graphical representation of the location,		**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
including at least the immediate surroundings thereof,		L, DOE	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
and at least one other entity geographically proximate to the entity.		L, DOE	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
66. Smart computerized apparatus capable of interactive information exchange with a human user, the apparatus comprising:	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	**D, I**
a microphone;	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
one or more processors;	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
a capacitive touch-screen input and display device;	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
speech synthesis apparatus and at least one speaker in signal communication therewith;	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
input apparatus configured to cause the computerized apparatus to enter a mode whereby a user can speak a name of an entity into a microphone in signal communication with the computerized apparatus,	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
the entity being an entity to which the user wishes to navigate; and	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
and at least one computer program operative to run on the one or more processors and configured to engage the user in an interactive audible interchange, the interchange comprising:	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
digitization of the user's speech received via the microphone to produce a digital representation thereof;	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
causation of evaluation of the digitized representation to determine an appropriate subsequent audible communication to be provided to the user via the speech synthesis apparatus in order to at least inform the user of the results; causation of generation of the subsequent audible communication;	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
receipt of a subsequent user input, the subsequent user input comprising at least one additional piece of information useful in identification of the	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	

Exemplary Claim Language	Audi Implementation	Literal / DOE[1]	Direct / Indirect [2]
entity;			
causation of utilization of the at least the at least one piece of information of the subsequent input to identify one of a plurality of entities, the one entity which best correlates to the entity to which the user wishes to navigate, and a location associated with the one entity; and	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
causation of provision of a graphical representation of the location,	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
including at least the immediate surroundings thereof,	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	
and at least one other entity geographically proximate to the one entity.	**SEE DISCUSSION OF CLAIMS 22 AND 54 ABOVE**	**L, DOE**	

CITED EXEMPLARY REFERENCES

[1] Audi connect brochure 2014

[2] http://www.pcmag.com/article2/0,2817,2455739,00.asp

[3] http://www.pcmag.com/article2/0,2817,2455739,00.asp

[4] http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

[5] http://www.cnet.com/products/2015-audi-a3-sedan/

[6] http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/

[7] http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/

[8] http://fourtitude.com/emAlbum/albums/Marques%20(Audi%20Brand%20Group)/Audi%20(Modern%20Era)/A3/from%202013%20(Type%208V,%20MQB)/Sportback/Technical/audi-connect-refuelling-stp-service-mmi-a3-18.jpg

[9] http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/

[10] http://www.audiusa.com/innovation/intelligence/audi-connect/connect-privacy.html

[11] https://www.audi-mediaservices.com/publish/ms/content/en/public/hintergrundberichte/2014/01/07/next_generation__/infotainment_and_audi.html

[12] http://www.businesswire.com/news/home/20121011005696/en/Nuance%E2%80%99s-Dragon-Drive!-Messaging-Powers-Text-Message#.U_PAdMVdXN8

[13] https://pictures.dealer.com/aoa/d47887b20a0d02b701e481c10e83549f.pdf

[14] https://developers.google.com/places/

[15] http://www.martinshervington.com/what-is-google-local-and-how-to-set-up-a-page/

[16] http://www.audiusa.com/help/audi-connect#dtufilters/vehicleYear/null/vehicleName/null/

[17] http://www.cnet.com/news/google-maps-becoming-more-context-aware-and-emotional/

[18] http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm

[19] http://www.wired.com/2013/02/android-neural-network/

[20] http://www.cnet.com/products/2015-audi-a3-sedan/

[21] http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=4147524&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3D4147524

[22] http://en.wikipedia.org/wiki/Wireless_ad_hoc_network

[23] http://www.audiusa.com/innovation/intelligence/audi-connect

[24] http://en.wikipedia.org/wiki/Speech_synthesis

[25] http://www.ee.columbia.edu/~dpwe/e6820/lectures/L05-speechmodels.pdf

[26] http://www.haskins.yale.edu/featured/heads/synthesis.html

[27] https://www.google.com/policies/technologies/pattern-recognition/

[28] https://support.google.com/adwords/answer/2756257?hl=en

[29] http://en.wikipedia.org/wiki/Speech_recognition

[30] http://www.ijcta.com/documents/volumes/vol3issue4/ijcta2012030418.pdf

[31] http://www.cs.nyu.edu/~eugenew/asr13/lecture_14.pdf

[32] http://en.wikipedia.org/wiki/Speex

[33] http://www.speex.org/

[34] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/

[35] http://en.wikipedia.org/wiki/Client%E2%80%93server_model

[36] http://www.data-compression.com/speech.shtml

[37] http://www.phonearena.com/news/The-secret-of-Googles-amazing-voice-recognition-revealed-it-works-like-a-brain_id39938

[38] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/

EXHIBIT C

Audi/Volkswagen Vehicles and Products vs. U.S. Patent No. 8,719,037
"Transport Apparatus with Computerized Information and Display Apparatus"

U.S. Patent No. 8,719,037 Data	Filed: 1/9/13 Issued: 5/6/14 Priority date: June 10, 1999 77 claims total - 6 independent, 71 dependent

Provided pursuant to Patent Local Rule 3.1 and June 10, 2015 Order;
Plaintiff reserves the right to supplement.

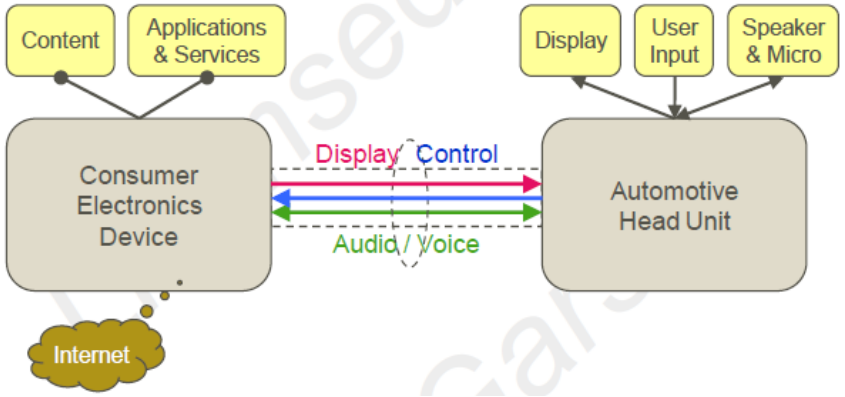
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	THIS ANALYSIS IS DIRECTED TO THE 2015/2016 VW GOLF GTI WITH MIB-II INFOTAINMENT SYSTEM WITH MIRRORLINK FUNCTIONALITY. "Later this year [*2015*], VW will introduce the second generation "modular infotainment platform" (MIB II) in the United States. Along with the new infotainment system, MirrorLink™ will also be made available for the first time, integrating the apps and operating layout of numerous smartphones (including Samsung, HTC, LG and Sony) into cars. When MirrorLink™ is introduced, two other interfaces will also be launched under the App-Connect label: … Android Auto™ (Google®). Simultaneously, VW will also launch … Android Auto™ in the European market." http://media.vw.com/release/908/ **NOTE THAT WHILE FOLLOWING ANALYSIS IS BASED ON THE INCIPIENT MIB-II SYSTEM, AN ACTUAL VEHICLE IS NOT YET ON SALE IN THE U.S. AS OF THE DATE OF THIS SUBMISSION. ACCORDINGLY, THE FOLLOWING IS PREDICATED AT LEAST IN PART ON THE EXTANT 2015 GOLF GTI (I.E., WITH PREDECESSOR TO MIB-II) NOW SOLD IN THE U.S., WITH DIFFERENCES NOTED AS APPLICABLE.**		

[1] West View denotes allegations of literal infringement as "L" and infringement under the doctrine of equivalents as "DOE," as applicable.
[2] West View denotes allegations of direct infringement as "D" and indirect or induced infringement as "I," as applicable.

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

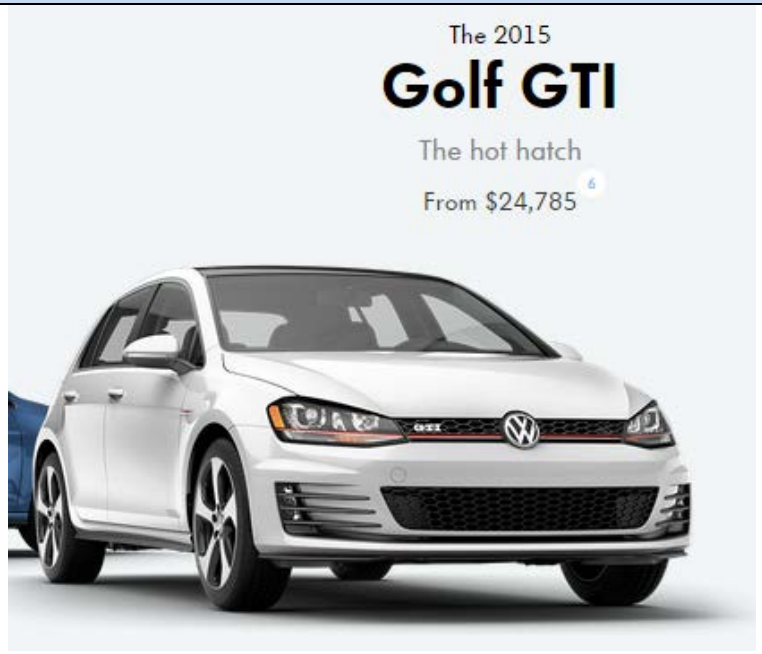
2 INTRODUCTION TO MIRRORLINK CONCEPT

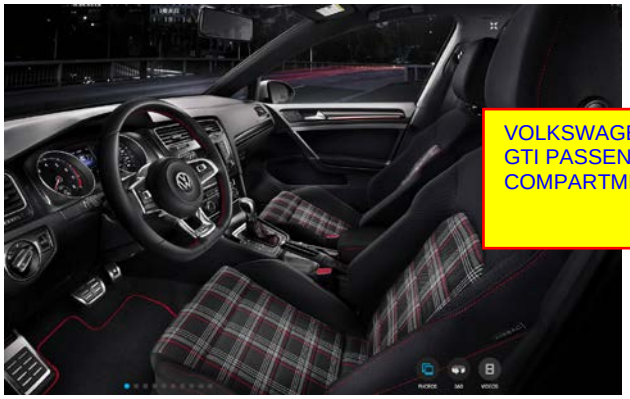
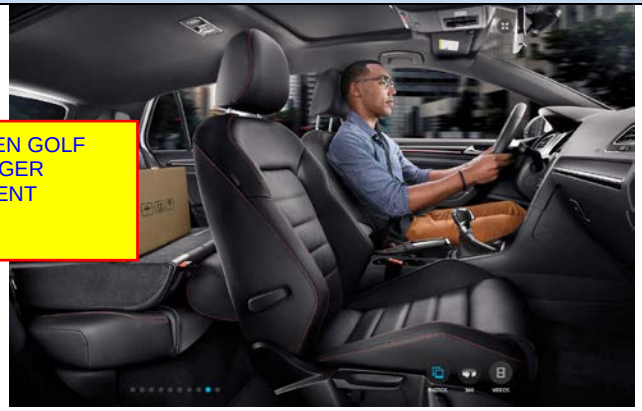
MirrorLink provides a concept for integrating the mobile device (hereinafter referred to as the "MirrorLink server") and the vehicle head-unit (hereinafter referred to as the "MirrorLink client"). In a MirrorLink context, the control and interaction of applications and services running on the mobile device will be replicated into the vehicle environment. Diverting display and audio output to the vehicle head-unit come together with receiving key and voice control input from it are the main interaction streams, as shown in the following Figure 1.



MIRRORLINK USES MOBILE DEVICE IN CONJUNCTION WITH HEAD UNIT

Audi/Volkswagen Vehicles and Products vs. U.S. Patent No. 8,719,037
"Transport Apparatus with Computerized Information and Display Apparatus"

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
1. A transport apparatus configured to transport one or more persons from one location to the next, comprising:	 **VW GOLF GTI IS A LAND-MOBILE TRANSPORT APPARATUS FOR MOVING PEOPLE BETWEEN LOCATIONS.**	**L, DOE**	**D, I**
control apparatus configured to enable control of at least one aspect of the motion or operation of the transport apparatus;	**THE VW GOLF HAS NUMEROUS MANUAL, AUTOMATED, AND/OR PARTLY AUTOMATED CONTROL APPARATUS THAT CONTROL ONE OR BOTH OF THE MOTION OR OPERATION OF THE VEHICLE, INCLUDING FOR EXAMPLE:** - **CRUISE CONTROL, WHICH CONTROLS THE SPEED OF THE CAR DURING MOVEMENT BETWEEN LOCATIONS;** - **PARK DISTANCE CONTROL (PDC), WHICH CONTROLS PROXIMITY OF THE VEHICLE TO ANOTHER VEHICLE OR FIXED OBJECT; AND** - **SPEECH RECOGNITION ENTRY BUTTON (E.G., ON STEERING WHEEL) AND SUPPORTING SPEECH RECOGNITION SYSTEM (WHICH CONTROL E.G., AUDIO FUNCTIONS, NAVIGATION/SEARCH FUNCTIONS, CALL FUNCTIONS)**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
a passenger compartment;	  VOLKSWAGEN GOLF GTI PASSENGER COMPARTMENT [THE 2015 VW Golf GTI]	L, DOE	
and computerized information and display apparatus disposed at least partly within the passenger compartment, the information and display apparatus comprising:	 MIB-II SYSTEM WITH EXEMPLARY ANDROID SMARTPHONE ASSOCIATED THEREWITH VIA USB CABLE/PORT (COMPUTERIZED INFORMATION AND DISPLAY APPARATUS) http://cars.reviewed.com/content/volkswagen-mib-ii-infotainment-system-first-impressions-review	L, DOE	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

SEE FEATURE MATRIX BELOW; CURRENT ANALYSIS IS BASED ON 2015 GOLF GTI WITH MIB-II AND MIRRORLINK.

Golf GTI Specs

•	Standard, no additional cost
O	Optional, additional cost
–	Not available
2D	Standard on 2-Door only
4D	Standard on 4-Door only
DCC	Available with Dynamic Chassis Control Package
DAP	Available with Driver Assistance Package
PP	Available with Performance Package
LP	Available with Lighting Package

Technology	S	SE	Autobahn (4-Door only)
5.8" touchscreen sound system with proximity sensors and voice control, MP3- and WMA-compatible in-dash CD player, and SD memory card reader	•	•	–
Navigation system with 5.8" touchscreen with proximity sensors and voice control, and 2 SD memory card readers	–	–	•
8 speakers	•	–	–
Fender® Premium Audio System with 9 speakers including subwoofer	–	•	•
SiriusXM Satellite Radio All Access with 3-month trial subscription	•	•	•

Technology Cont.	S	SE	Autobahn (4-Door only)
Interior ambient lighting	•	•	•
SiriusXM Traffic™ with 4-year trial subscription	–	–	•
Bluetooth® with audio streaming*	•	•	•
Media Device Interface (MDI) with iPod® cable	•	•	•
Rearview camera	–	•	•
Keyless access with push-button start	–	•	•
Park Distance Control (PDC) system with front and rear proximity sensors	DAP	DAP	DAP
Forward Collision Warning	DAP	DAP	DAP

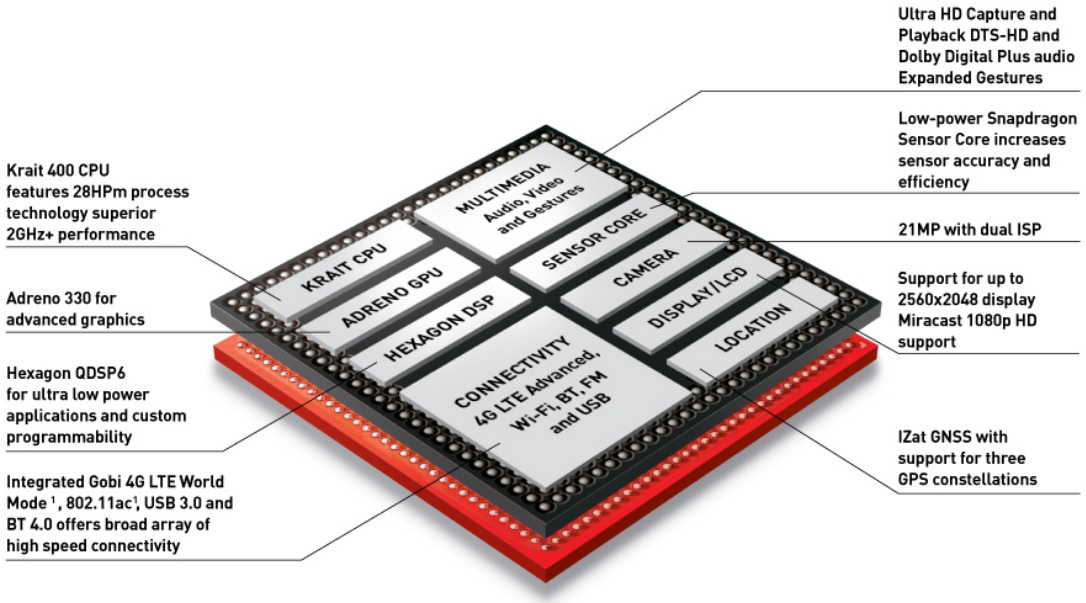
[THE 2015 VW Golf GTI STANDARD AND OPTIONAL EQUIPMENT]

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
a network interface;	MirrorLink Specification 1.0.3 Core Architecture CCC-TS-001 Page 8/12 MIRRORLINK TECHNICAL SPECIFICATION REQUIRES PRESENCE OF WIRELESS CONNECTIVITY (SUCH AS CELLULAR BROADBAND OR WI-FI) VIA "MOBILE DEVICE" (E.G., SMARTPHONE) 1 **1 ABOUT** This document specifies an interface for enabling remote user interaction of a mobile device via another device. This specification is written having a vehicle head-unit to interact with the mobile device in mind, but it will similarly apply for other devices, which do provide a colored display, audio input/output and user input mechanisms. Figure 2: MirrorLink Architecture MirrorLink Architecture consists of a set of protocols, providing the following features: 1. Connectivity, as specified in [1], providing a. Wired and wireless IP based connection-oriented and connection-less connectivity, and b. Dedicated Bluetooth connectivity 2. UPnP based Services, providing a. Mechanisms for advertisement of MirrorLink enabled Server devices as specified in [7] b. Mechanisms for MirrorLink client profiles as specified in [6] and ["Car Connectivity Consortium," April 28, 2015] **AS SHOWN ABOVE, THE MOBILE DEVICE IS PAIRED TO THE VW MIB-II SYSTEM VIA A "USB" CABLE (E.G., MICRO-USB/USB OR SIMILAR). WIRELESS INTERFACE OF SMARTPHONE IS USED FOR EXTERNAL CONNECTIVITY.**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
			
processing apparatus in data communication with the network interface;	**FOLLOWING RELATES TO EXTRA-U.S. VERSION OF MIB-II, LAUNCHED BEFORE U.S. MODEL:** **"Generation II of MIB systems:** **Ideally networked world with Car-Net, MirrorLink™ and SMS by TTS*** The new Passat is launching with Generation II of Volkswagen infotainment systems. The latest generation of this modular information toolkit (MIB) enables a maximum degree of connectivity in terms of coupling external devices. Its diverse interfaces include interfacing to smart phones and their apps via MirrorLink™. In addition, the systems were given much faster processors (optimised booting, quicker route calculation, smoother touchscreen performance, perfected language dialogues) and new higher-resolution displays (in the 6.5-inch systems). … **2. Faster processors.** The new generation of devices is characterised by better system performance. Consider the "Discover Media", the radio-navigation system with 6.5-inch display: Compared to the first generation, performance of the CPU (main processor) was more than doubled from 950 MIPS (million instructions per second) to 2,500 MIPS. …	**L, DOE**	

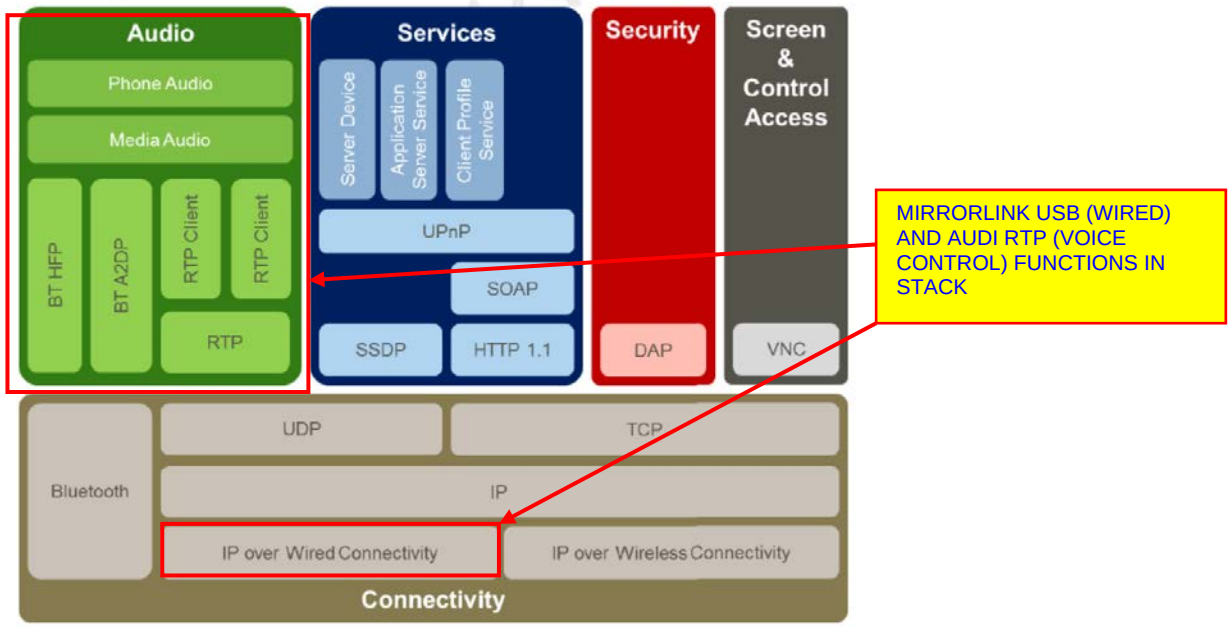
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	4. MirrorLink™. For the first time in the Passat, MirrorLink™ is available – from the "Composition Media" it is optional, in the "Discover Pro" it is standard. MirrorLink™ makes it possible to integrate numerous apps or functions of Android smart phones into the infotainment system. Related apps will be offered directly from Volkswagen and from third party suppliers. The Volkswagen apps: "Mobile Office", "audioMOTION", "ThinkBlue. Trainer", "Shared Audio", "Drive&Track" and "My Guide". Third party apps include "Audioteka" (audio books), "Glympse" (social media), "Aupeo!" (Internet radio), "Life360″ (family locator) and "Kaliki" (news)." http://www.vwvortex.com/news/volkswagen-news/detail-new-passat-generation-8-2/ **HENCE, MIB-II SYSTEM HAS CPU, GPU, ETC. IN COMMUNICATION WITH EXEMPLARY ANDROID SMARTPHONE VIA USB.** **EXEMPLARY NEXUS 5 ANDROID SMARTPHONE (USED FOR PURPOSES OF ILLUSTRATION – OTHER ANDROID PHONES ARE EQUALLY APPLICABLE) HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE MIRRORLINK SYSTEM:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz" [https://support.google.com/nexus/answer/3467463?hl=en] **"Snapdragon 800** Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC." [http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html]

THE CPU/GPU OF THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE COORDINATE VIA THE USB CABLE (USING INTERNET PROTOCOL OVER TOP OF THE USB PROTOCOL) TO PROVIDE, AMONG OTHER THINGS, THE EMULATION OF THE PHONE'S DISPLAY AND FUNCTIONS ON THE VEHICLE TOUCHSCREEN DISPLAY.

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	The MirrorLink high-level architecture is shown in the following Figure 2.  Figure 2: MirrorLink Architecture ["Car Connectivity Consortium," April 28, 2015]		

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4 MIRRORLINK FEATURES

The following Table 1 specifies the requirements for the different MirrorLink features for the MirrorLink Server and Client.

Feature			Version	MirrorLink Server	MirrorLink Client
Connectivity	USB	USB Host	1.0	N/A	MUST
		USB Device	1.0	MUST	N/A
	WLAN	Access Point	1.0	MAY	MAY
		Device	1.0	MAY	MAY
	Bluetooth		1.0	MAY	MAY
UPnP based Services MirrorLink implements 2-Box pull model	UPnP Server Services Provided	Server Device	1.0	MUST	N/A
		Application Server Service	1.0	MUST	N/A
		Client Profile Service	1.0	MUST	N/A
	UPnP Control Point Services Supported	Server Device	1.0	N/A	MUST
		Application Server Service	1.0	N/A	MUST
		Client Profile Service	1.0	N/A	SHOULD
Screen & Control	VNC Server		1.0	MUST	N/A
	VNC Client		1.0	N/A	MUST
Audio	RTP	RTP Server	1.0	MUST	SHOULD
		RTP Client	1.0	SHOULD	MUST
	BT	BT HFP	1.0	SHOULD	SHOULD
		BT A2DP	1.0	MAY	MAY
Security	DAP	Server Endpoint	1.0	SHOULD	N/A
		Client Endpoint	1.0	N/A	SHOULD

Table 1: MirrorLink Feature Requirements

The MirrorLink Server MUST implement either the UPnP 1.0 stack or the UPnP 1.1 stack. In either case, it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 Control Points.

The MirrorLink Client MUST implement either an UPnP 1.0 control point or an UPnP 1.1 control point. In either case it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 services residing on the MirrorLink server.

USB, RTP (REAL TIME PROTOCOL- FOR AUDIO INCLUDING VOICE RECOGNITION) AND VNC SCRREN/CONTROL **MANDATORY.** WLAN (WI-FI) AP OR DEVICE CAPABILITY MAY ALSO BE INCLUDED.

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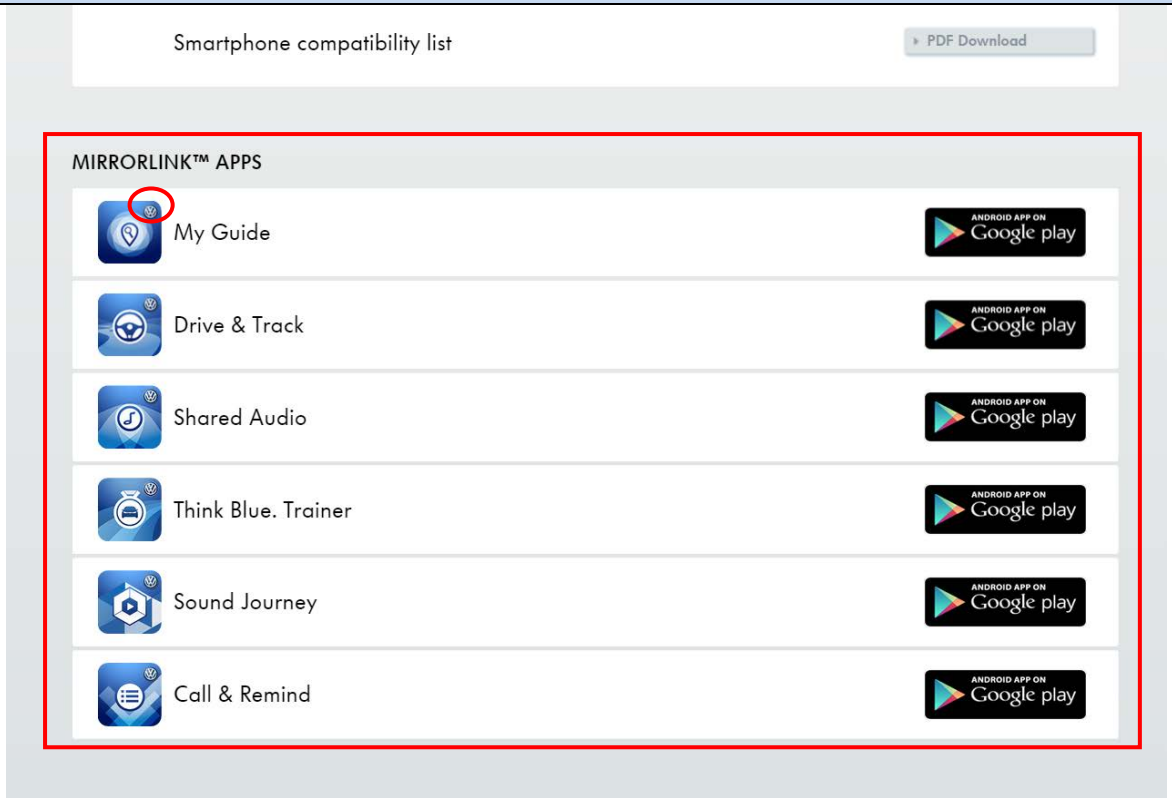
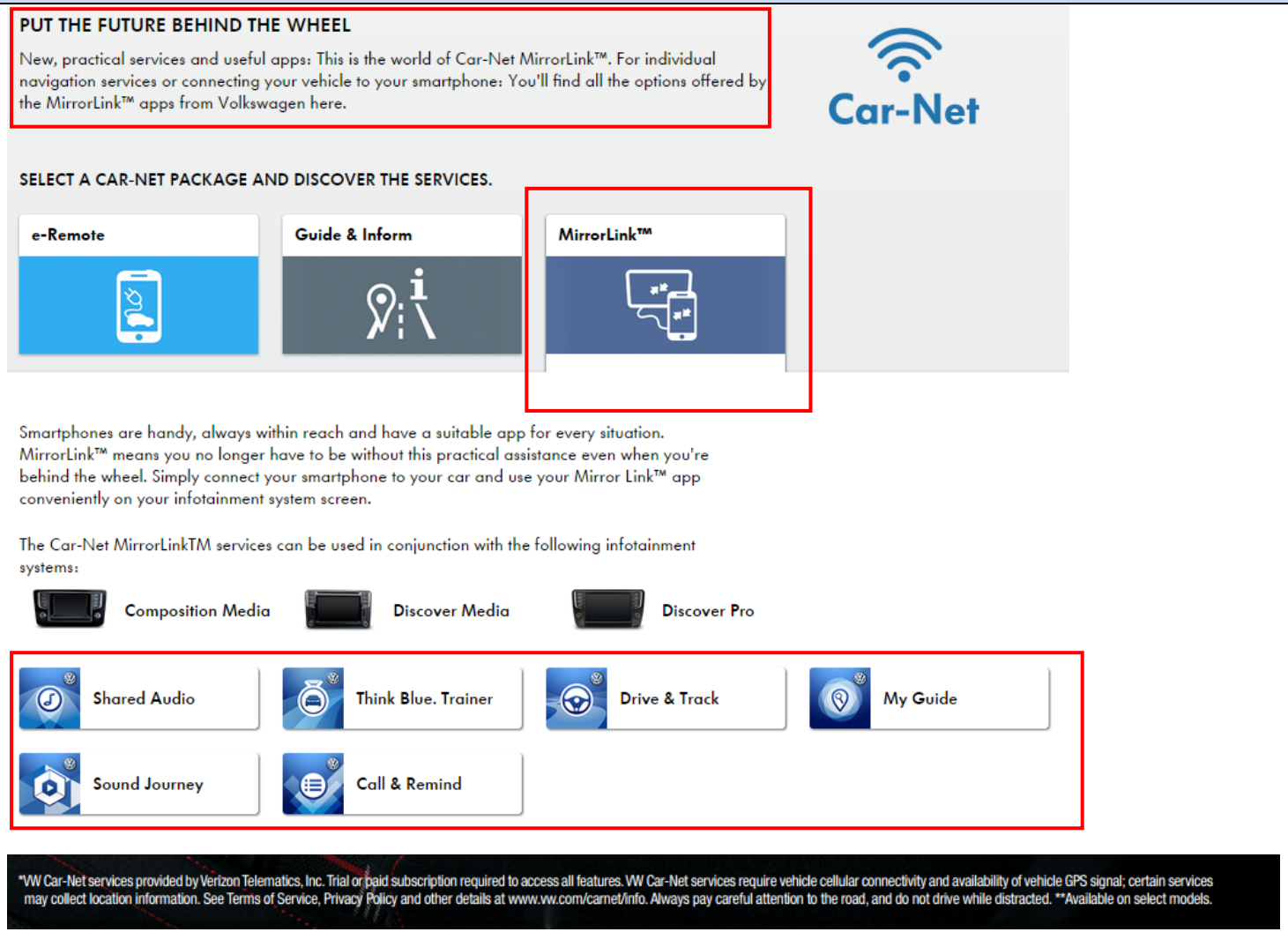
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	"Car Connectivity Consortium," April 28, 2015		
a display device;		**L, DOE**	
and a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed:	**SEE ABOVE; THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE, WHEN CONNECTED, COMPRISE NUMEROUS PROCESSORS, MEMORY (E.G., RAM, ROM, FLASH), SOFTWARE, FIRMWARE, ETC. WITH NUMEROUS COMPUTER PROGRAMS OPERATIVE TO RUN THEREON TO RENDER GRAPHICS, ESTABLISH USB CONNECTIVITY, PROCESS SPEECH INPUTS, ETC.** **VOLSWAGEN ALSO SUPPLIES APPLICATION-LAYER SOFTWARE (AKA "APPS") FOR VARIOUS FUNCTIONS FOR USE ON THE MATED ANDROID PHONE:**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 http://volkswagen-carnet.com/int/en/start/app-download.html **HENCE, VW (I) PROVIDES THE MIB-II MIRRORLINK-ENABLED HEAD UNIT IN THE VEHICLE; (II) PROVIDES THE VW-BRANDED APPLICATION SOFTWARE TO LOAD ON THE USER'S SMARTPHONE; AND (III) INSTRUCTS THE USER ON CONNECTION/UTILIZATION OF THE TWO DEVICES AS A SYSTEM.**		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	7) Service is available soon The mobile online service (Car-Net) can only be used with the optional Discover Media and Discover Pro equipment. A mobile terminal (e.g. smartphone) with the ability to act as a mobile WLAN hotspot is also required. Alternatively, a mobile phone with a remote SIM Access Profile (rSAP) or a SIM card with call and data options can be used with the "Premium mobile phone interface" option. The Car-Net service is available only with an existing mobile phone contract or one which must be separately established between you and your mobile service provider, and only within the coverage of the individual mobile phone network. Additional fees (e.g. roaming charges) may arise when receiving data from the internet, depending on your particular mobile phone tariff and especially when using the service abroad. Due to the accumulation of data when using the Car-Net service, it is strongly recommended that you organise an unlimited data plan with your mobile service provider. A separate contract with Volkswagen AG must be set up online in order to use Car-Net. After the vehicle handover, the customer has 90 days to register the vehicle at [http://volkswagen-carnet.com/int/en/start/online-devices.html#tab/open/mirror-link] **NOTE THAT CAR-NET SERVICE IS STANDARD ON GOLF GTI, BUT REQUIRES PRESENCE OF WIRELESS CONNECTION (E.G., CELLULAR SMARTPHONE WITH WI-FI HOTSPOT CAPABILITY, WHICH IMPLIES THAT CAR DOES NOT HAVE ITS OWN INDIGENOUS CELLULAR MODEM.**		
obtain digitized speech generated based on speech received from a passenger, the digitized speech comprising an affirmative query for desired information which the passenger wishes to find;	**GOLF GTI HAS INDIGENOUS MICROPHONE AND SPEAKERS TO SUPPORT, AMONG OTHER THINGS VOICE RECOGNITION FUNCTIONS:** Accepting and rejecting calls **Accepting a call** – To accept a call, briefly press the button ⇒ page 25, fig. 8 ⑫. The radio will go silent and the words: **ANS CALL** and then **TALKING** will appear in the display. **Rejecting a call** – Briefly press the button ⇒ page 25, fig. 8 ⑬ to reject an incoming call during the "ring" signal. **CALL ENDED** will appear in the display. Each time there is an incoming call to the connected cell phone with the radio on, an acoustic signal will sound and the display will read **CALL FROM**. If the connected cell phone has caller ID, the number from which the call is incoming will appear in the radio display. The audio connection will be available through the vehicle's front speakers and the microphone in the front of the radio. **Transferring a call from the radio to the cell phone and vice versa** Briefly press the button ⇒ page 25, fig. 8 ⑫ during the call, it will then be transferred from the radio to the cell phone and vice versa. **CALL TRANS** will appear on the display. **Tips** • It is possible to control volume and audio adjustments with the radio buttons. • In order to end the call, briefly press the button ⇒ page 25, fig. 8 ⑬. **CALL ENDED** will appear in the display. ◀ [http://parts.vw.com/media/images/ecatalog/itemdocuments/1000/VW%20Sound%20System.pdf] **SEE BELOW; MIB-II UTILIZES E.G., RTP MEDIA PROTOCOL TO TRANSFER USER'S VOICE AUDIO IN DIGITAL FORMAT (I.E., RTP PACKETS) TO SMARTPHONE VOICE RECOGNITION INTERFACE:**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

2 The Device Status Request message is given in Table 20.

# bytes	Type	Value	Description
1	U8	128	Message-type
1	U8	12	Extension-type
2	U16	4	Payload length
4	U32	*Bit*	*Status of Device Features* *(00 = ignore, 01* = reserved *10 = disable, 11 = enable))*
		[1:0]	Key-lock (block key entry on the device)
		[3:2]	Device lock (block key entry on the device and from MirrorLink client)
		[5:4]	Screen saver (power-down the device screen)
		[7:6]	Night mode (run device in night mode)
		[9:8]	Voice input (route the incoming audio stream to a voice recognition engine on the mobile device)[12]
		[11:10]	Microphone input on MirrorLink Client routed from microphone to the MirrorLink server
		[17:16]	Driver Distraction Avoidance (MirrorLink Client is in restricted driving mode (enabled), non-restricted driving mode (disabled) or does not enforce a specific driving mode (ignore))
		[26:24]	Absolute Framebuffer rotation (clock-wise) (000 = ignore, 001, 010, 011 = reserved

[12] The MirrorLink client MUST use this flag only if the voice command is streamed via RTP. In case an existing BT HFP connection is used and Voice Recognition Activation is supported by both Hands-Free unit and Audio Gateway, the MirrorLink client MUST use the BT HFP voice activation mechanism (AT + BVRA command as specified in **Error! Reference source not found.**) instead.

["Car Connectivity Consortium," April 28, 2015]

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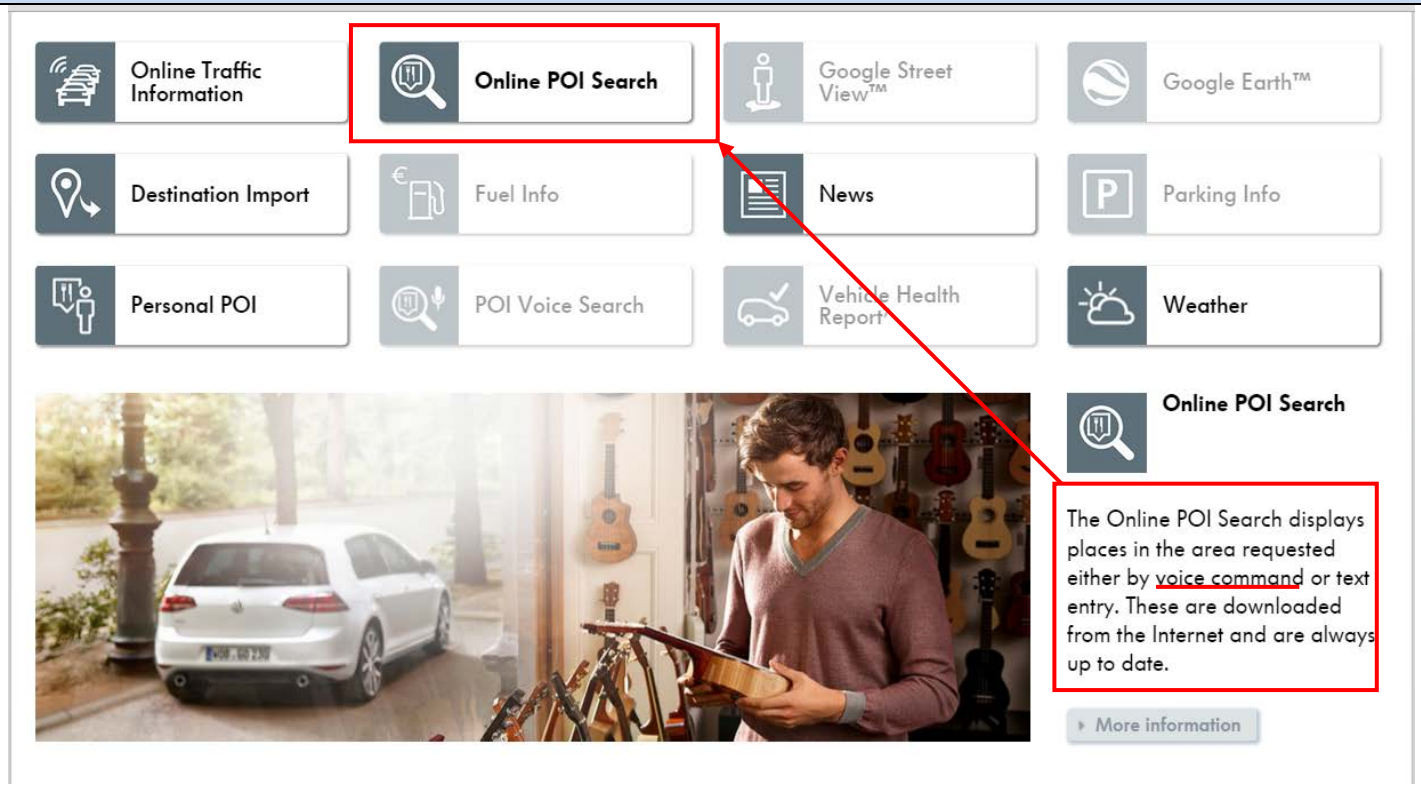
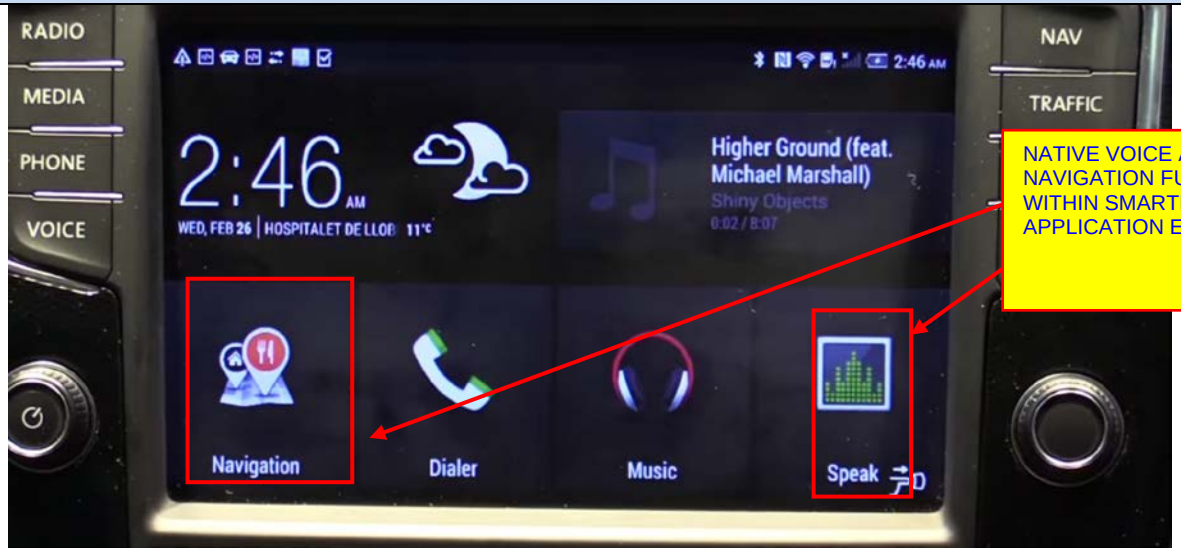
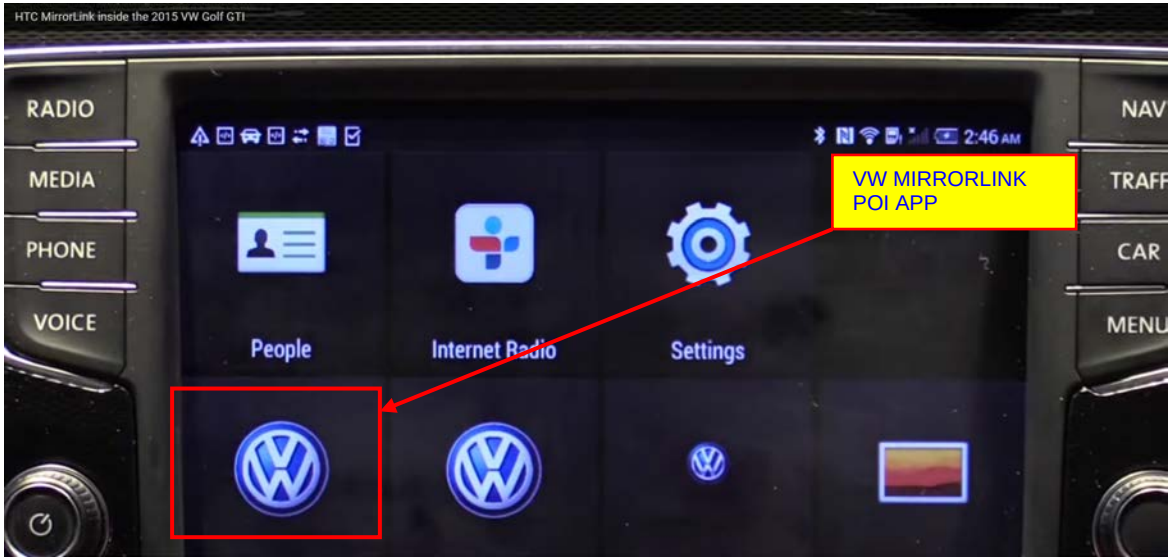
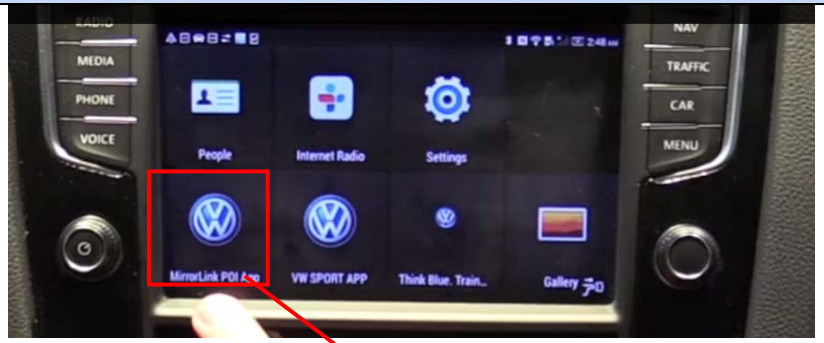
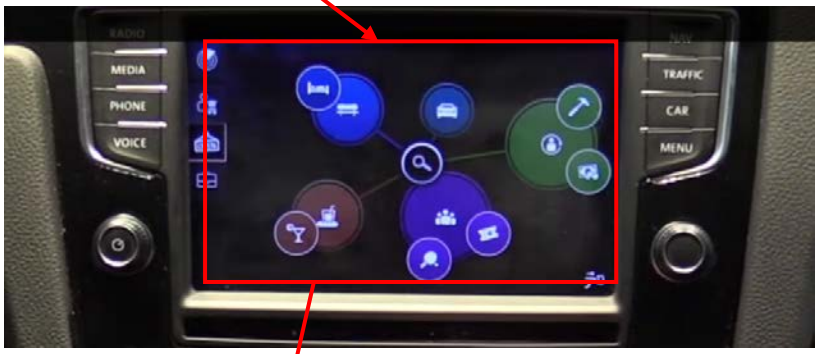
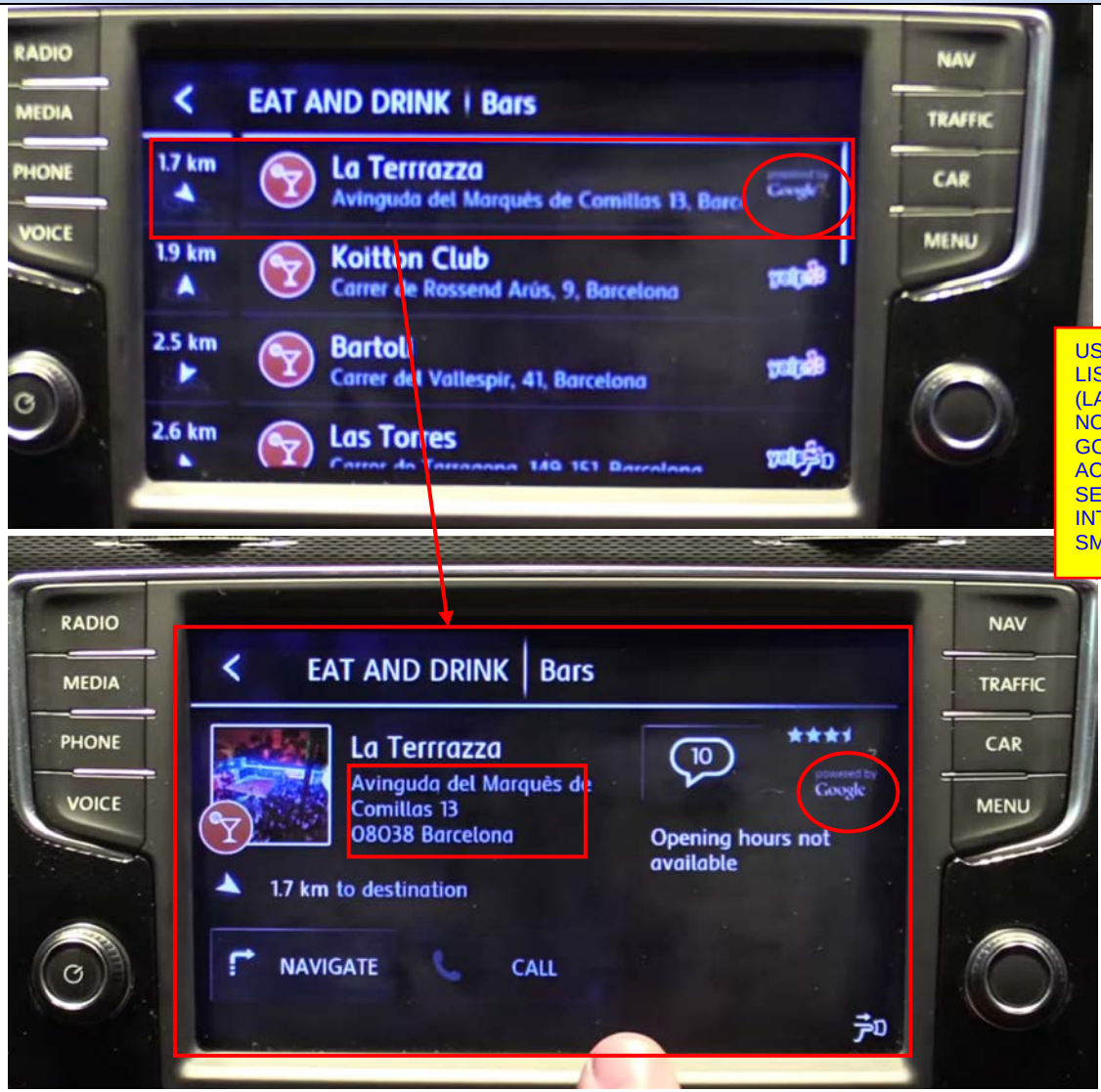
	 http://volkswagen-carnet.com/int/en/start/online-devices.html#130411dc-254f-4d9e-b8d6-e61f322d0417 **SEE FOLLOWING EXEMPLARY HTC-BASED ILLUSTRATION OF THE MIRRORLINK-ENABLED MIB-II IN 2015 GOLF GTI (OUTSIDE U.S.):** **https://www.youtube.com/watch?v=6J5KNaaVRoQ**		

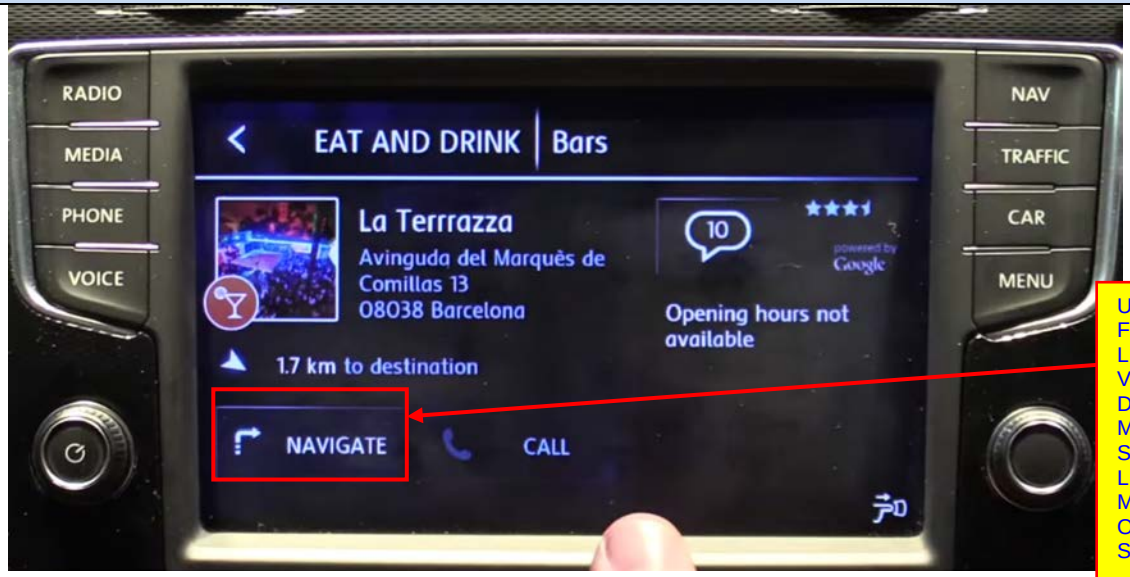
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]





Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	   USER SELECTS VW MIRRORLINK POI APP, THEN "BARS AND RESTAURANTS" SUB-FUNCTION. NOTE THAT EACH OF THE FOREGOING CAN BE ACCOMPLISHED VIA VOICE COMMAND, AS NOTED ABOVE		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	  USER SELECTS "NAVIGATE" FUNCTION AND OBTAINS AT LEAST MAP DISPLAY AND VISUAL DIRECTIONS ON DISPLAY SCREEN (NOTE: MAP IMAGE FROM VW AG SITE VERSUS VIDEO). AT LEAST PART OF THE MAP/DIRECTIONS HAS BEEN OBTAINED FROM REMOTE SERVER. http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2014/11/Innovation_workshop_2014/Networking.html		

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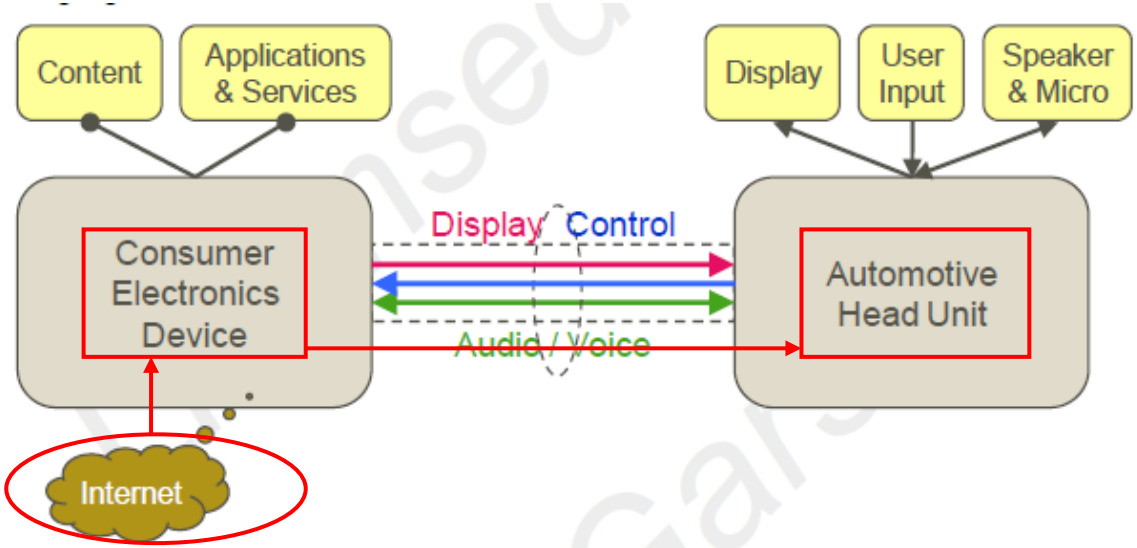
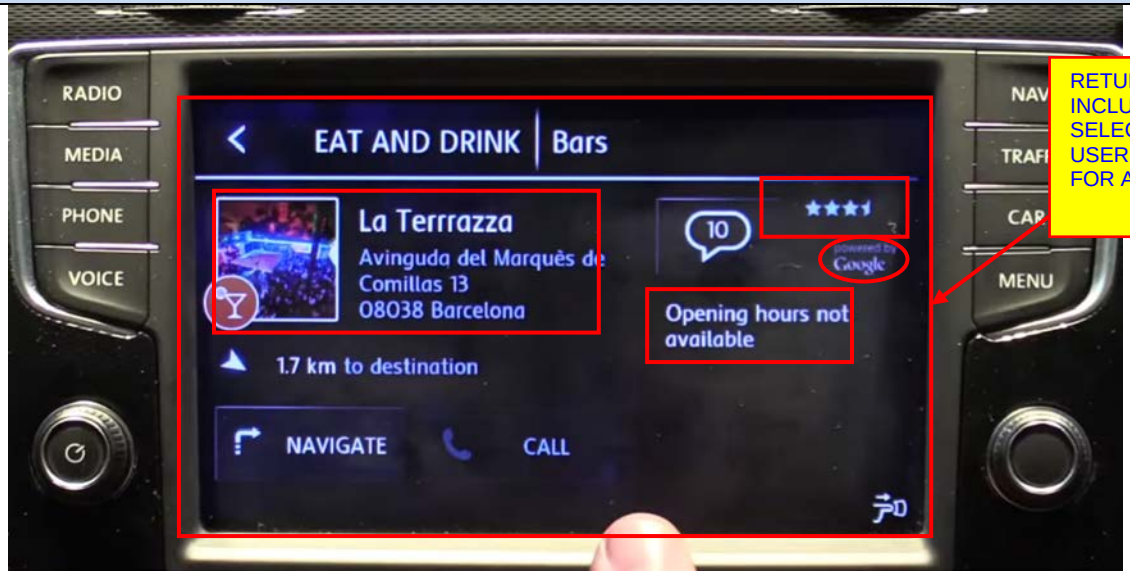
and cause, based at least in part on the digitized speech, access of a remote network entity to cause retrieval of the desired information;	**THE VW MIB-II RECEIVES THE INFORMATION FROM THE REMOTE SERVER VIA THE WIRELESS INTERFACE OF THE SMARTPHONE, AND THEN VIA USB CONNECTION BETWEEN PHONE AND VEHICLE:**  8 ["Car Connectivity Consortium," April 28, 2015]	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
wherein the computerized information and display apparatus is further configured to display advertising content on the display device, the content received via the network interface and selected based at least in part on the digitized speech.	 *"ad·ver·tise·ment* ***noun*** \ˌad-vər-ˈtīz-mənt; əd-ˈvər-təz-mənt, -tə-smənt\ : something (such as a short film or a written notice) that is shown or presented to the public to help sell a product or to make an announcement : a person or thing that shows how good or effective something is : the act or process of advertising" http://www.merriam-webster.com/dictionary/advertisement **AS AN EXAMPLE OF ADVERTISING ON NETWORKED DEVICES, CONSIDER GOOGLE (WHICH "POWERS" THE POI SEARCH WITHIN THE VW MIRRORLINK APP AS SHOWN ABOVE):** **PLACE DATA IS ENTERED BY THE OWNER OF A POI INTO THE "GOOGLE PLACES" (NOW "GOOGLE LOCAL") DATABASE IN ORDER TO INCREASE THE EASE OF FINDING THE BUSINESS USING THE SEARCH ENGINE, WHICH OSTENSIBLY TRANSLATES TO MORE BUSINESS:**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	"Welcome to the Google Places API Power your location-based app with the Google Places API, which can be used to find detailed information about places across a wide range of categories. Backed by the same database used by Google Maps and Google+ Local, the Google Places API features over 95 million businesses and points of interest that are updated frequently through owner-verified listings and user-moderated contributions." https://developers.google.com/places/ "In 2012 'Google Places' changed it's name to 'Google Local'. If you are a local business with a physical location then this part is something you will want to set up. In essence, it is a Google Plus Page and has the ability for people to give you local reviews as well. They are very simple to create and this article is intended to support you in the process. … How to create a Google Local Page It is probably worth untangling something that could cause of confusion… Google says there are "currently…two types of pages on Google for a single business. These pages will either be similar to a Place page with scores and reviews [Google Local], or they will be Google+ pages with social features [A Google+ 'Page']. You can distinguish the pages by the features available." We are talking here about the 'Google Local' type of Page as, well, you have the ability of being 'pinned' on a map – this way people can find you more easily." **GOOGLE'S OWN ADVERTISEMENTS (ONLINE ADVERTISEMENT - CIRCA LATE 2014) SHOW "ADS" WHICH ARE MARKEDLY SIMILAR TO THE BLUE LINK SEARCH RESULT:**  		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

ONE MIGHT ARGUE THAT THE DISPLAY ABOVE IS MERELY A "PROMOTION", BUT THIS IS UNAVAILING:

"promotion

noun pro·mo·tion \prə-ˈmō-shən\

: the act of moving someone to a higher or more important position or rank in an organization

: the act of moving a sports team to a higher position in a league

: something (such as advertising) that is done to make people aware of something and increase its sales or popularity" http://www.merriam-webster.com/dictionary/promotion

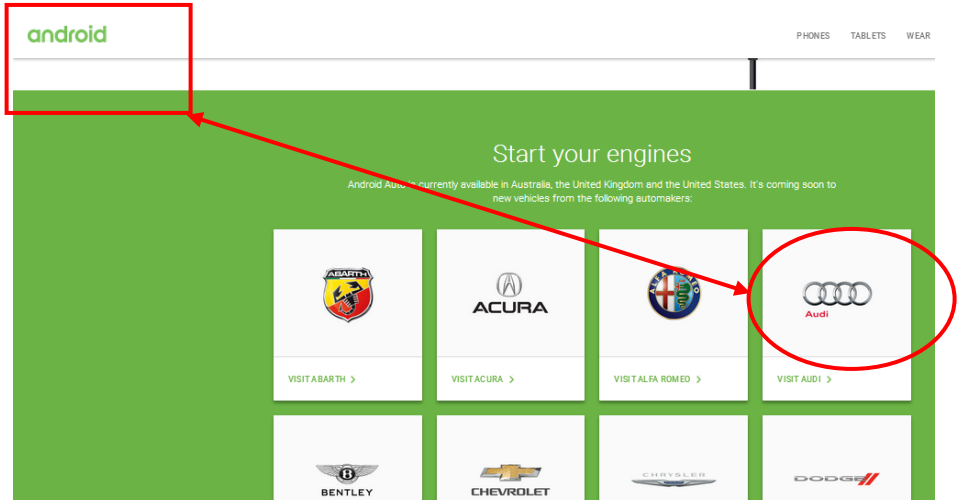
SEE ABOVE; ALL RELEVANT INFORMATION DESIRED BY THE USER AND THE ADVERTISING ARE NOT INDIIGENOUS ON THE VEHICLE, BUT RATHER OBTAINED FROM A REMOTE SERVER (E.G., GOOGLE POI) BASED ON PROCESSING OF THE USER'S DIGITIZED SPEECH.

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	AUDI ANDROID AUTO PRODUCTS (INTERNET RADIO)		
22. A transport apparatus configured to transport one or more persons from one location to another, comprising:	**THIS ANALYSIS IS TARGETED AT THE EXEMPLARY 2016 Q7 WITH "ANDROID AUTO" (ANDROID SMARTPHONE INTEGRATION)**  **http://www.audiusa.com/search?query=2016+Q7#** "Audi plans to begin introducing Android Auto technology with all-new models **it launches in 2016**. **Audi was a founding member of – and the only luxury brand among them – the Open Automotive Alliance, a coalition of Google and other technology companies and auto-industry leaders that was formed in early 2014 with the objective of bringing the Android platform to cars.** Google demonstrated its Android Auto system for the first time at its I/O developer conference in San Francisco later in the year. Android Auto will provide a seamless link for Android mobile car apps to function through Audi connect. Motorists will be able to project apps and services optimized for voice commands and the driving environment, **using Audi connect displays and controls** optimized for safe and intuitive operation on the road. The Open Automotive Alliance is dedicated to building an open ecosystem around a common digital-tech platform in order to drive innovation in connectivity." **http://www.audiusa.com/newsroom/topics/2014/audi-connect**	**L, DOE**	**D, I**

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

"Look for this in Audi cars starting with the **2016 Q7** when it starts hitting showrooms this year."
http://www.engadget.com/2015/01/08/audis-latest-supports-android-auto-and-carplay/

NOTE THAT ANDROID AUTO IS A COLLABORATION BETWEEN THE VEHICLE MANUFACTURER AND THE GOOGLE-CREATED "OPEN AUTOMOTIVE ALLIANCE" (OAA), OF WHICH AUDI WAS A FOUNDING MEMBER:



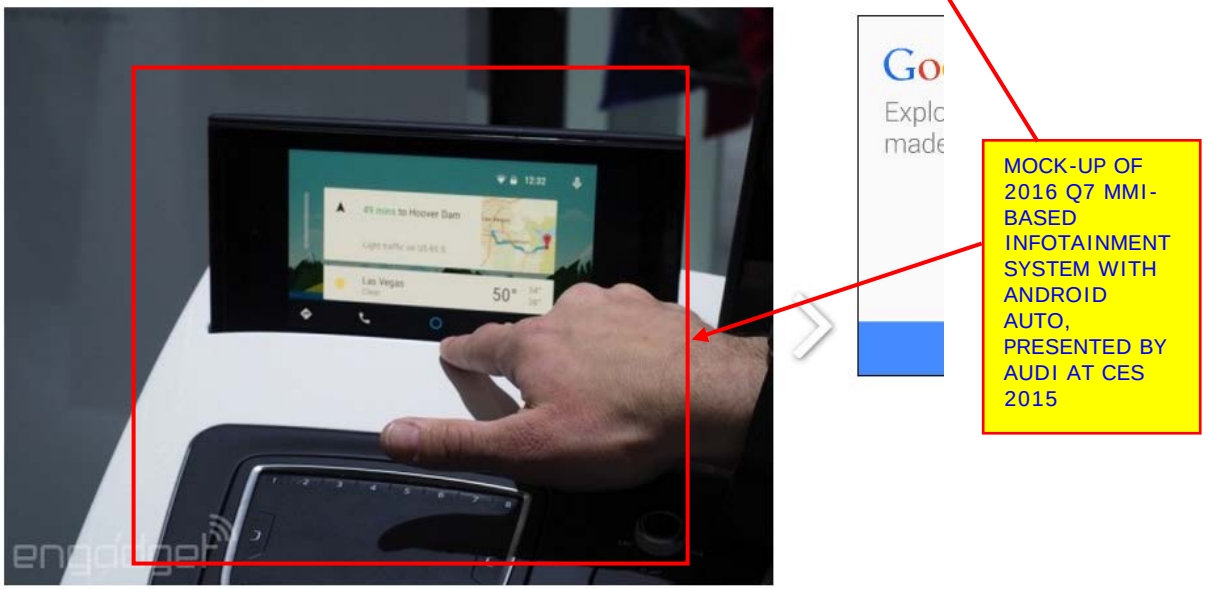
COMPONENTS OF THE CAR SUCH AS DISPLAY SCREEN, WIRELESS ANTENNAS, MICROPHONES/INDIGENOUS SPEECH PROCESSING, USB PORT, ETC. ARE USED IN CONJUNCTION WITH A COMPATIBLE ANDROID-BASED DEVICE (E.G., SMARTPHONE WITH LOLLIPOP 5.0 OR HIGHER) TO PROVIDE THE DESIRED FEATURES:

"Android Auto will be able to use in-car hardware

Android Auto runs on your phone, but that doesn't mean it's limited to your phone's hardware. Apps will be able to **access the car's own GPS and GPS antenna (if fitted), steering wheel controls, the sound system, the car's wheel speed, its compass and any mobile antennas, and there are moves to access car data from the vehicle's own computer too**….

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Android Auto cars aren't actually running Android In many cases they'll be running **BlackBerry's QNX**, which many car firms have been using for a while." http://www.androidpit.com/android-auto "Audi's implementation of Android Auto will see it baked into the existing MMI in-car system, with drivers seeing a prompt when they connect up a compatible Android smartphone. It's important to remember that Android isn't taking over all of the running, **Audi still has its own proprietary system underneath Android Auto run on the QNX operating system**." http://www.androidcentral.com/audi-commits-android-auto-vehicles-2015 **HENCE, AUDI AND OAA/GOOGLE HAVE AFFIRMATIVELY COORDINATED AND COOPERATED TO BOTH (I) PRODUCE A VEHICLE THAT CAN PROVIDE THE ANDROID AUTO FUNCTIONALITY, AND (II) CAUSE USERS (CES PARTICIPANTS, DEALERS, CUSTOMERS OF HYUNDAI CARS SO EQUIPPED, ETC.) TO CONNECT THE USER'S SMARTPHONE AND PROVIDE THE FUNCTIONALITY DESCRIBED BELOW.** "After connecting an Android smartphone in a compatible Audi, drivers will see a prompt asking if they want their apps to function through the MMI touch display and controls. The graphics and audio streams, including microphone input and all control interfaces, will then operate with Android Auto which is seamlessly integrated into the Audi MMI mobile media application framework developed by the Audi software joint venture e.solutions on top of the QNX Car automotive operating system." http://www.androidcentral.com/audi-commits-android-auto-vehicles-2015 **SPECIALIZED SOFTWARE IS REQUIRED IN BOTH THE CAR AND THE PHONE (E.G., ANDROID AUTO SMARTPHONE "APP") TO MAKE THE VEHICLES INTEROPERATE, AND THESE SOFTWARE ELEMENTS (CAR AND PHONE) HAD TO BE DEVELOPED IN CONJUNCTION/COOPERATION WITH ONE ANOTHER TO ENSURE COMPATIBILITY.** **AUDI EVEN PROVIDES ITS CUSTOMERS WITH THE CABLE TO CONNECT THE TWO DEVICES:** "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android** …Once attached, the car takes over, routing calls and messages to Audi's pop-up display." http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html		

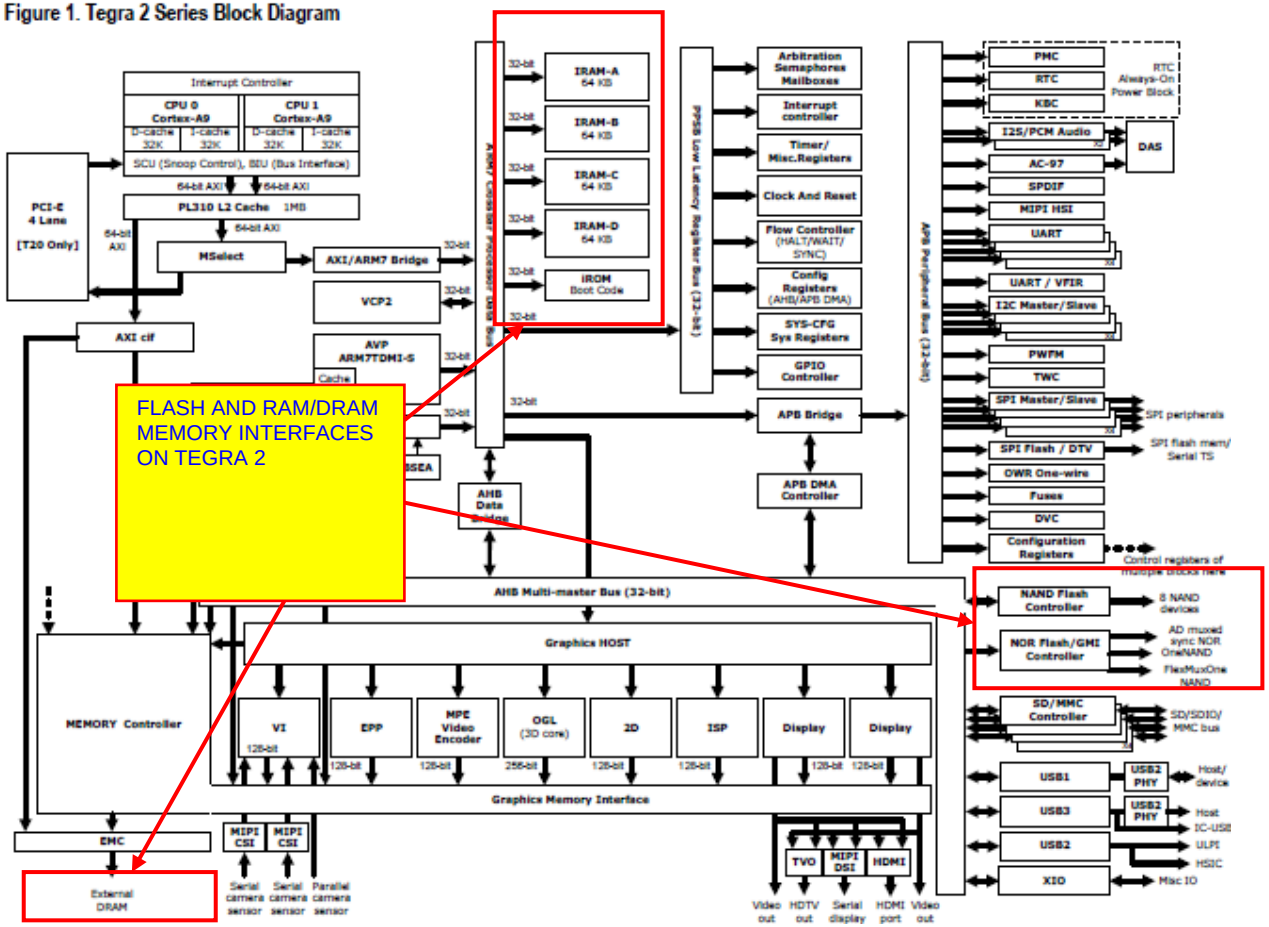
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
a passenger compartment;	 http://www.audiusa.com/search?query=2016+Q7#	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and computerized information and display apparatus disposed at least partly within the passenger compartment, the information and display apparatus comprising:	GALLERIES Audi's latest Q7 supports Android Auto Related Article SHARE:  MOCK-UP OF 2016 Q7 MMI-BASED INFOTAINMENT SYSTEM WITH ANDROID AUTO, PRESENTED BY AUDI AT CES 2015 **THE 2016 Q7 HAS (WILL HAVE) A COMPUTERIZED INFORMATION AND DISPLAY APPARATUS (NAVIGATION/INFOTAINMENT SYSTEM AS ASSOCIATED COMPONENTS) DISPOSED AT LEAST PARTLY WITHIN THE SHOWN PASSENGER COMPARTMENT (OSTENSIBLY AS SHOWN IN PASSENGER COMPARTMENT PHOTO ABOVE).**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=FNo-Cuzp3Rw		
a wireless network interface;	**THE 2016 Q7 (VEHICLE) INCLUDES EACH OF: (I) A CELLULAR NETWORK MODEM (LONG TERM EVOLUTION OR "LTE"); (II) WI-FI NETWORK MODEM ("HOTSPOT"); AND (III) A BT INTERFACE.** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example.	**L, DOE**	

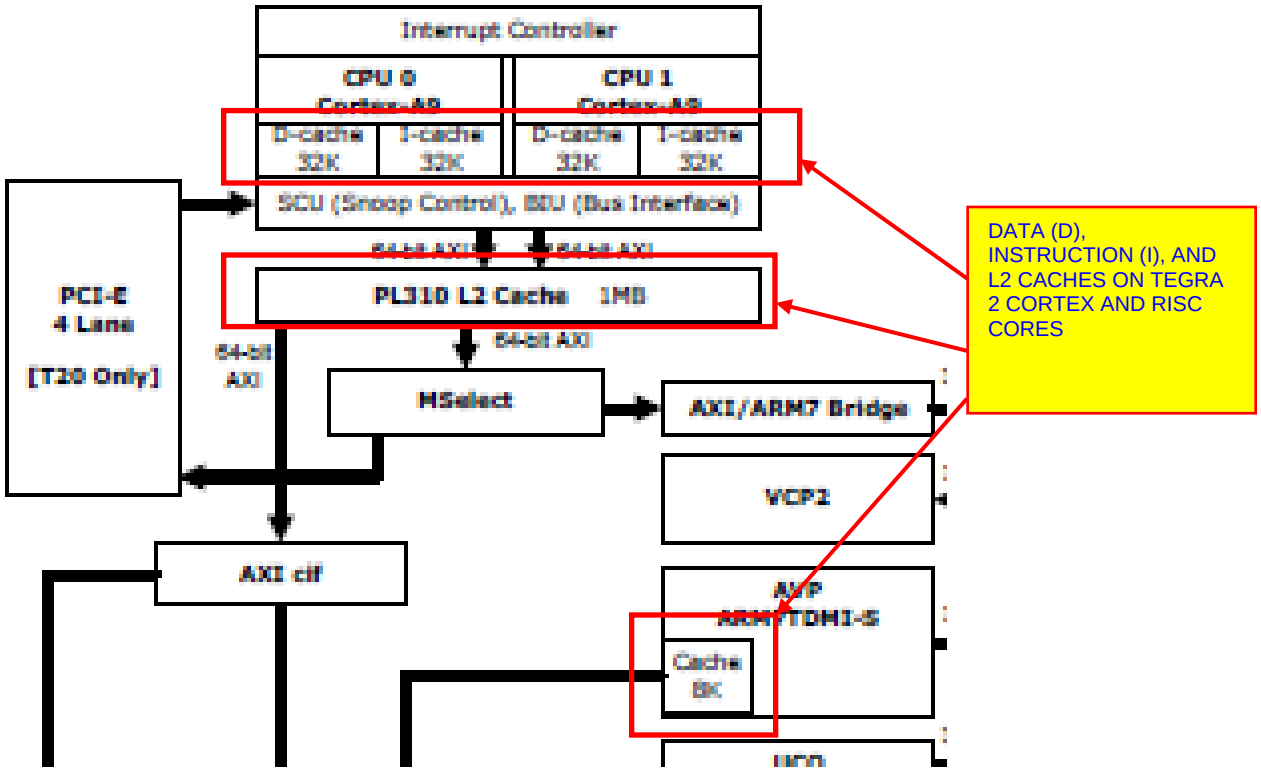
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Internet with LTE speed: **Audi connect** MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. The driver can use the tailored Audi connect services ranging from online traffic information to navigation with Google Earth and Google Street View to online media streaming. The new app provides access to Aupeo! personal web radio and the large Napster music library. The Q7 also has a new, top-of-the-line element of the Audi connect portfolio: The Audi smartphone interface brings …"Google Android Auto" on board. If an …Android cellular phone is connected to the USB port (…Android from Version 5.0 Lollipop), the … environment opens in the Audi smartphone interface. Both are tailored for use in the car. **The heart of this feature is online music.** In addition, both platforms offer navigation functions, missed call/appointment reminders and messaging functions. Over time, these will be joined by numerous third-party applications such as Pandora, Spotify and WhatsApp." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **ADDITIONALLY, THE EXEMPLARY NEXUS 5 (FOR ILLUSTRATION ONLY; SIMILAR LOGIC APPLIES TO OTHER ANDROID SMARTPHONES OR DEVICES THAT MAY BE CONNECTED TO Q7 SYSTEM) INCLUDES AT LEAST: (I) CELLULAR MODEM (E.G., LTE OR 3G); (II) WI-FI; (III) BLUETOOTH, AND (IV) NFC.** "**WIRELESS** DUAL-BAND WI-FI (2.4G/5G) 802.11 A/B/G/N/AC NFC (ANDROID BEAM) BLUETOOTH 4.0 NETWORKS **2G/3G/4G LTE…** "**PORTS AND CONNECTORS** MICROUSB SLIMPORT™ ENABLED 3.5MM STEREO AUDIO JACK DUAL MICROPHONES CERAMIC POWER AND VOLUME BUTTONS" [https://support.google.com/nexus/answer/3467463?hl=en] **THE NEXUS 5 COMES EQUIPPED FROM THE FACTORY WITH HARDWARE AND SOFTWARE SUPPORTING EACH OF THE FOREGOING TYPES OF INTERFACES.**		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
processing apparatus in data communication with the network interface;	**SEE DISCUSSION BELOW REGARDING DETAILS ON 2015 AUDI A3 (MIB-BASED MMI SYSTEM BELIEVED TO BE FUNCTIONALLY SIMILAR TO WHAT WILL BE INSTALLED IN 2016 Q7 WHEN SOLD IN LATER 2015).** "The Audi Q7 also sets standards with respect to the operating concept, infotainment, connectivity and driver assistance systems. The second-generation modular infotainment platform is on board, as is the Audi virtual cockpit. **The new MMI all-in-touch control unit with large touchpad** makes operation child's play." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **AS DISCUSSED BELOW, MIB/MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA (2 OR 3) PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA SUCH AS MAP DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("PROCESSING APPARATUS" AND "STORAGE APPARATUS WITH AT LEAST ONE COMPUTER PROGRAM…" REFERENCED BELOW).**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Figure 1. Tegra 2 Series Block Diagram  http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

Figure 1. Tegra 2 Series Block Diagram

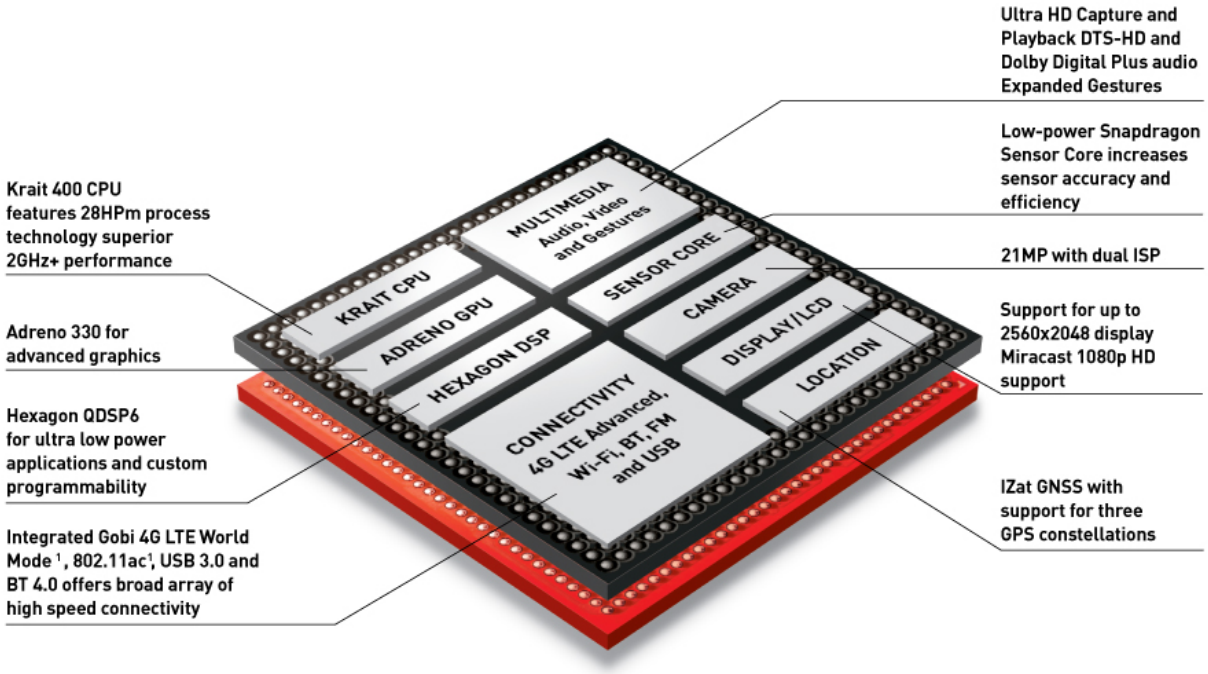


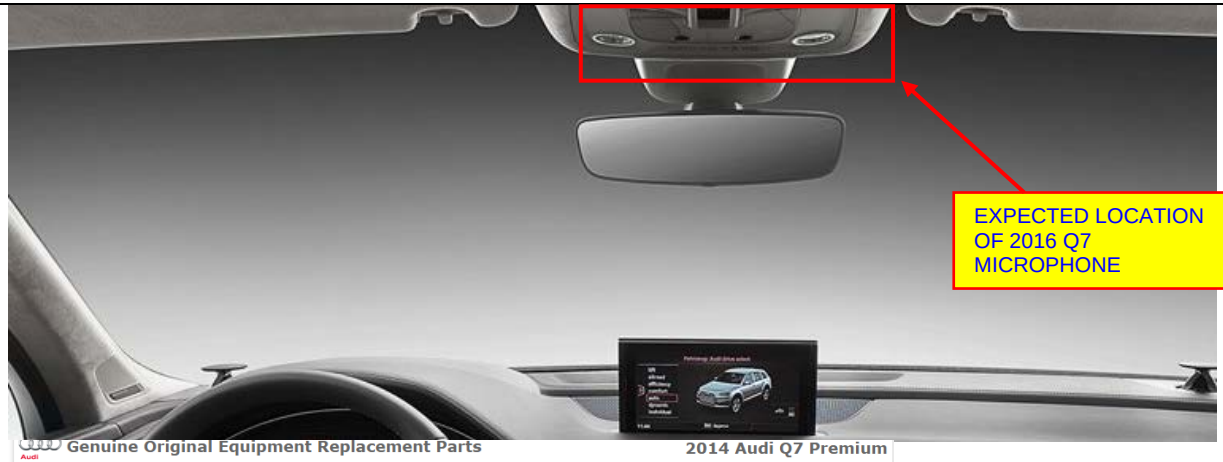
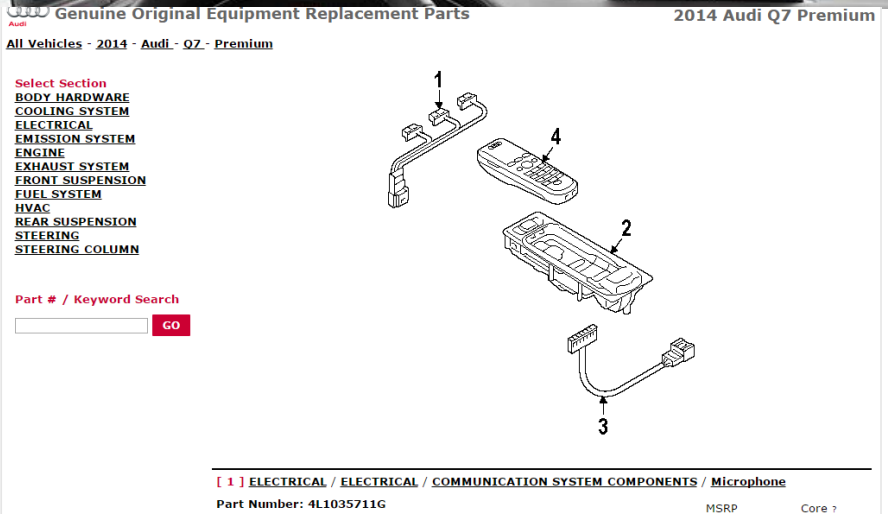
http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

"Powered by Nvidia Tegra 2

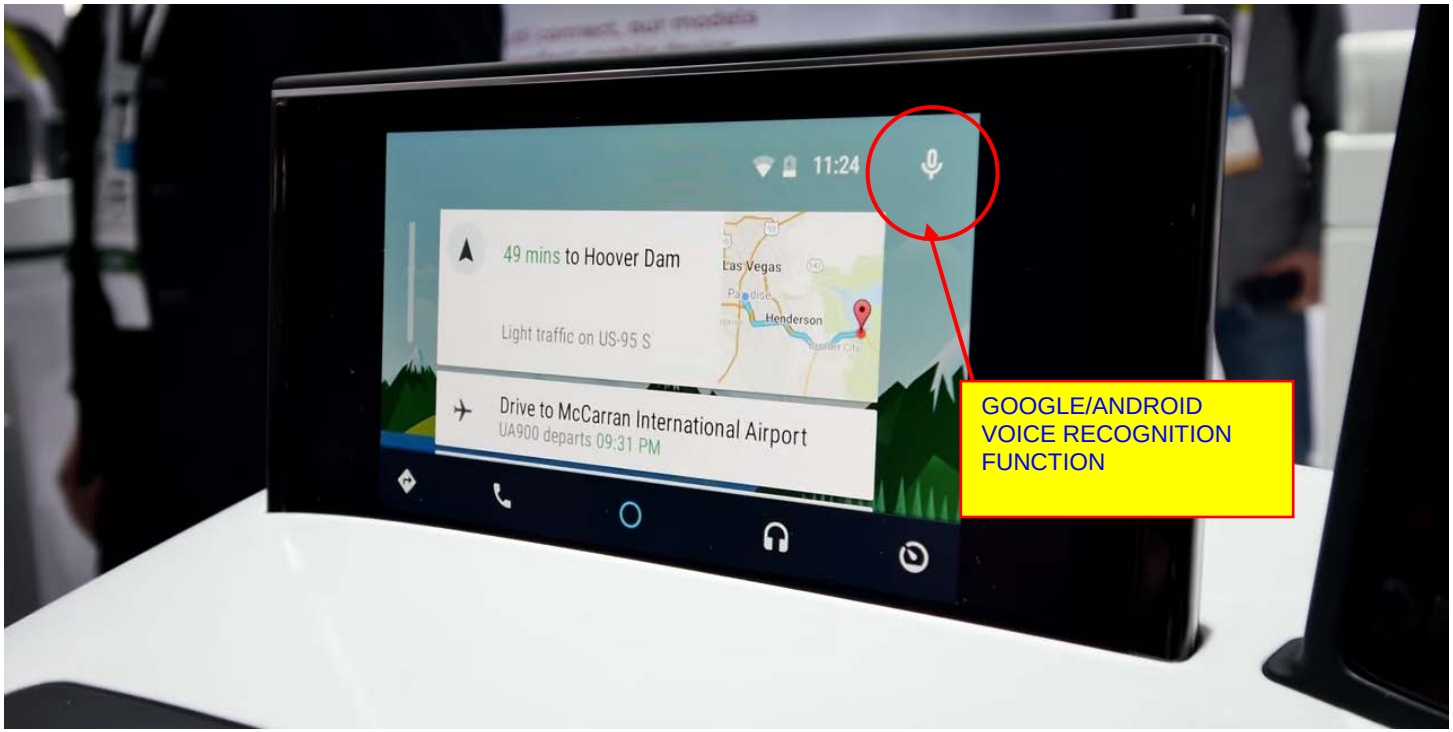
Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra 4 with minimal retooling."

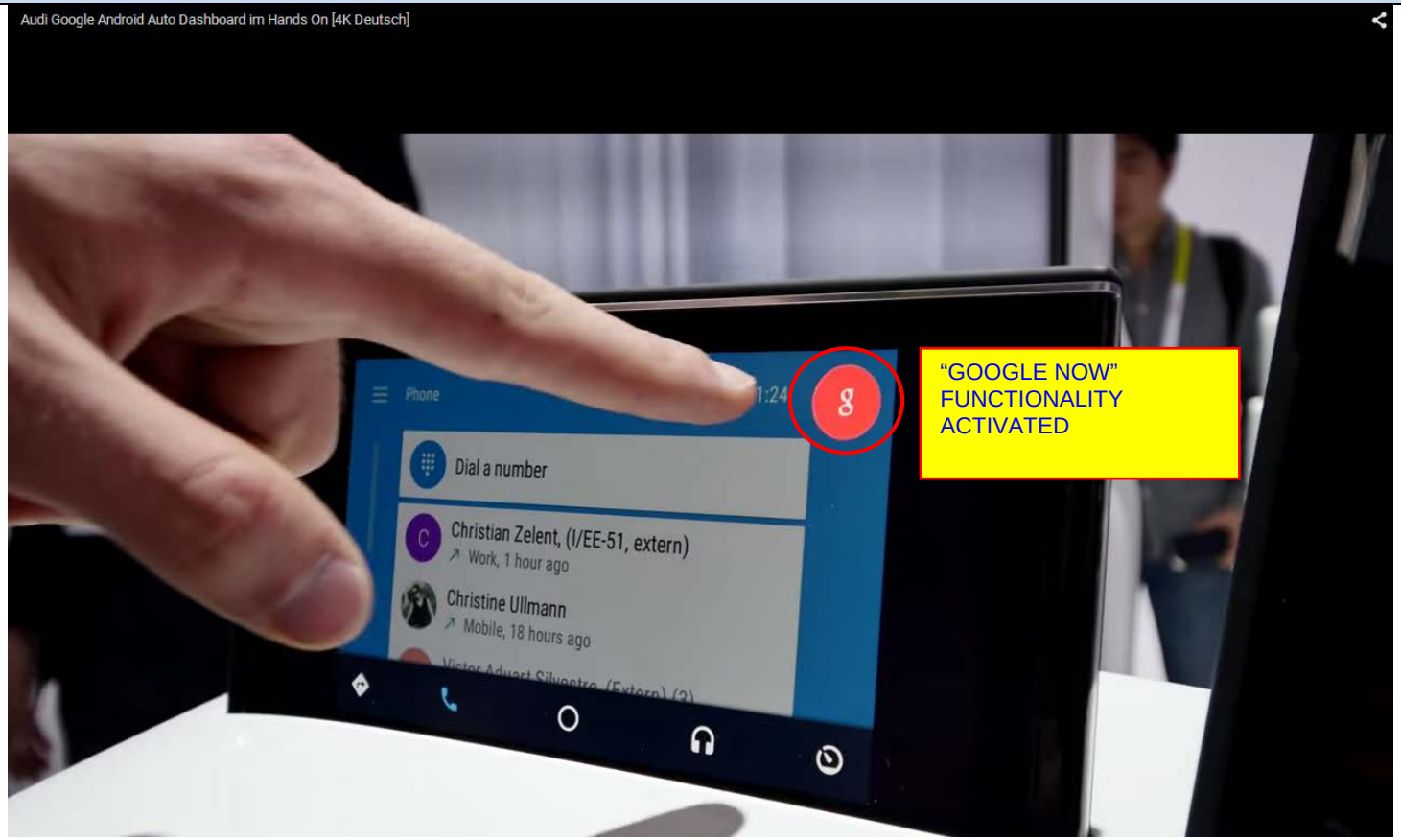
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.cnet.com/products/2015-audi-a3-sedan/] **EXEMPLARY NEXUS 5 ANDROID PHONE HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE ANDROID AUTO SYSTEM (INCLUDING INTERFACING DIRECTLY OR INDIRECTLY WITH CAR'S MIMO ANTENNAS, TOUCH SCREEN, VOICE SYSTEMS, ETC. VIA QNX STACK:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor		

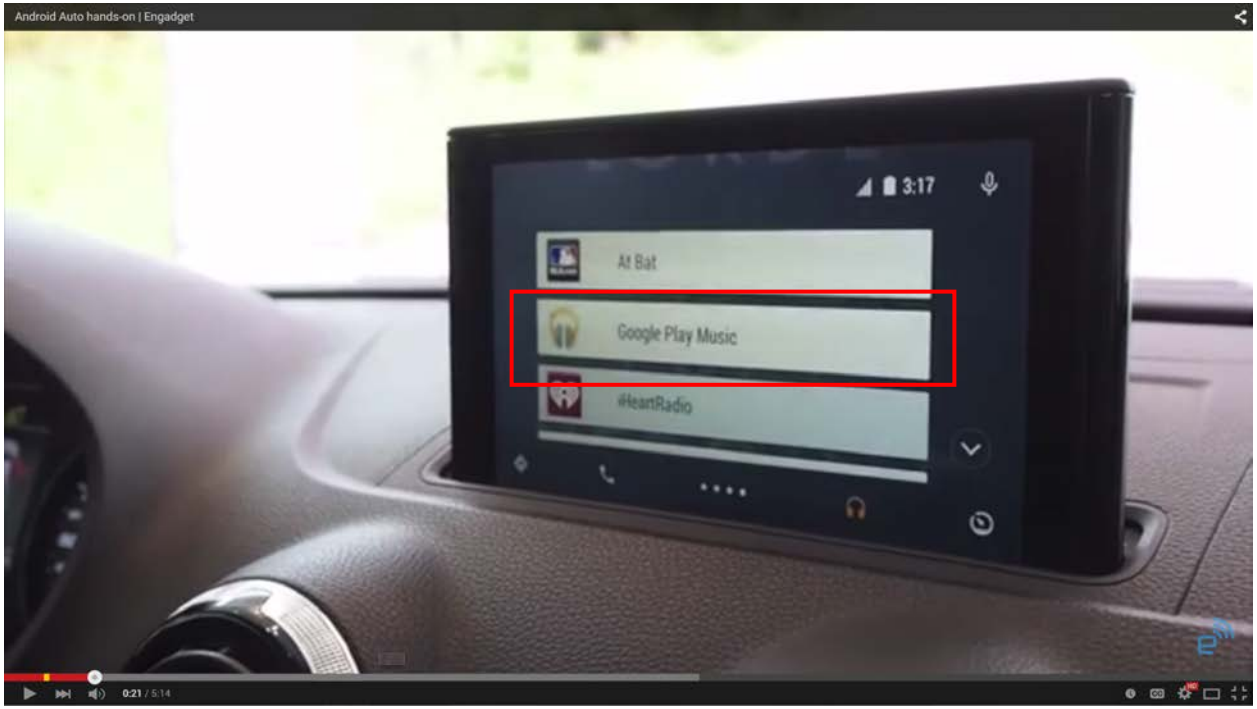
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	GPU: Adreno 330, 450MHz" [https://support.google.com/nexus/answer/3467463?hl=en] **"Snapdragon 800** Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices. 		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC." http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html		
a microphone;	 	**L, DOE**	

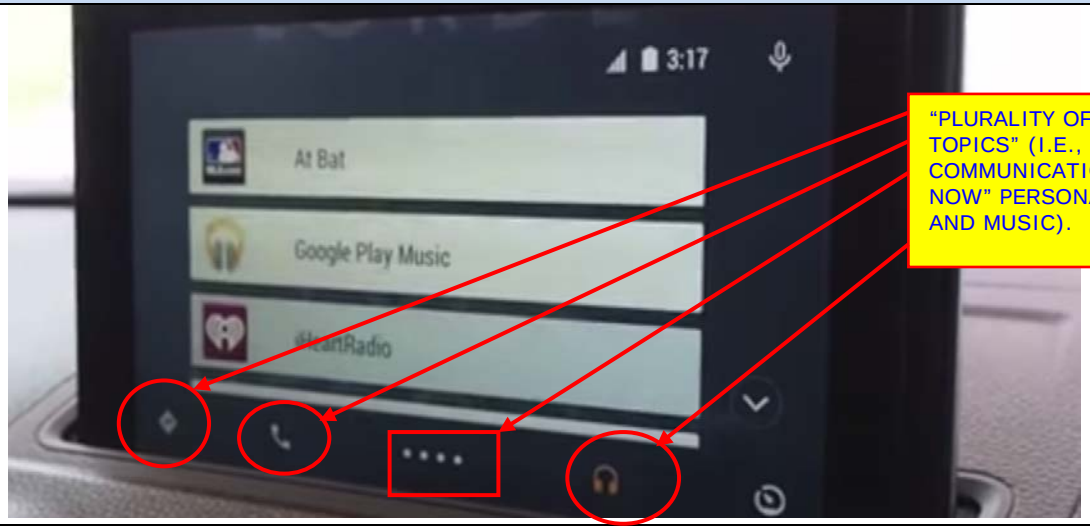
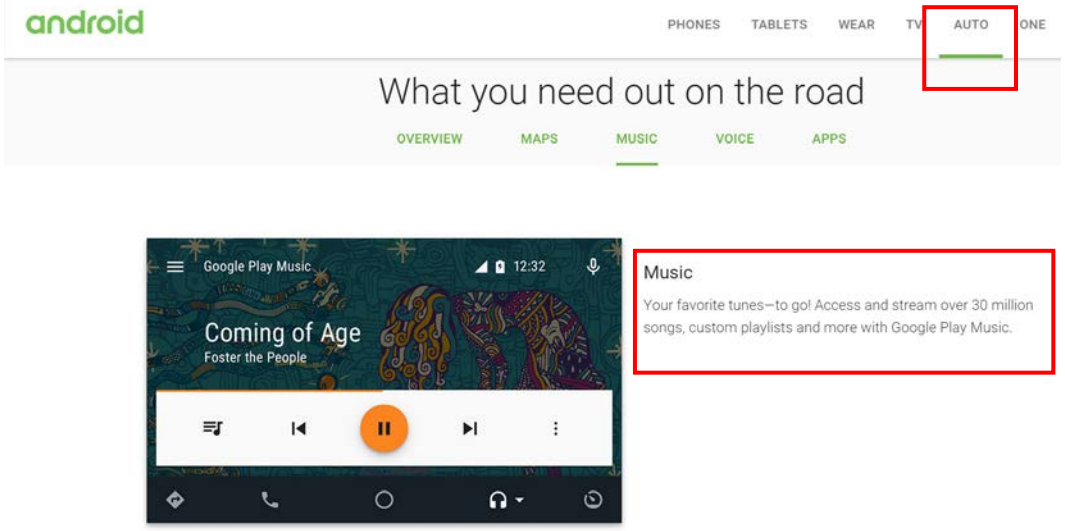
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
a display device;		**L, DOE**	
and a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed:	**SEE DISCUSSION OF PROCESSING APPARATUS ABOVE; 2016 Q7 (ASSUMING MIB/MMI AS NOTED ABOVE) HAS NUMEROUS TYPES OF STORAGE DEVICES WHICH CONTAIN COMPUTER CODE, FIRMWARE, ETC. TO DRIVE THE DISPLAY, INFOTAINMENT FEATURES, SPEECH RECOGNITION, ETC.** **MOREOVER, EXEMPLARY ANDROID PHONE (NEXUS 5) HAS NUMEROUS STORAGE DEVICES, SOFTWARE, FIRMWARE, ETC. AS WELL, AS SHOWN ABOVE.** **WHEN CONNECTED BY E.G., A SERIAL BUS (E.G., MICRO-USB PROVIDED BY AUDI WITH VEHICLE), THE TWO DEVICES (SMARTPHONE AND VEHICLE MIB/HEAD UNIT) COOPERATE AND COORDINATE TO PASS DATA BACK AND FORTH, ETC. AS ONE SEAMLESS DEVICE. THE PHONE DISPLAY IS EFFECTIVELY LOCKED, AND THE CAR INTERFACES (I.E., MMI CONTROLLER, VOICE CONTROL SYSTEM, ETC.) ARE THE SOLE USER INTERFACES TO THE SYSTEM.**	**L, DOE**	

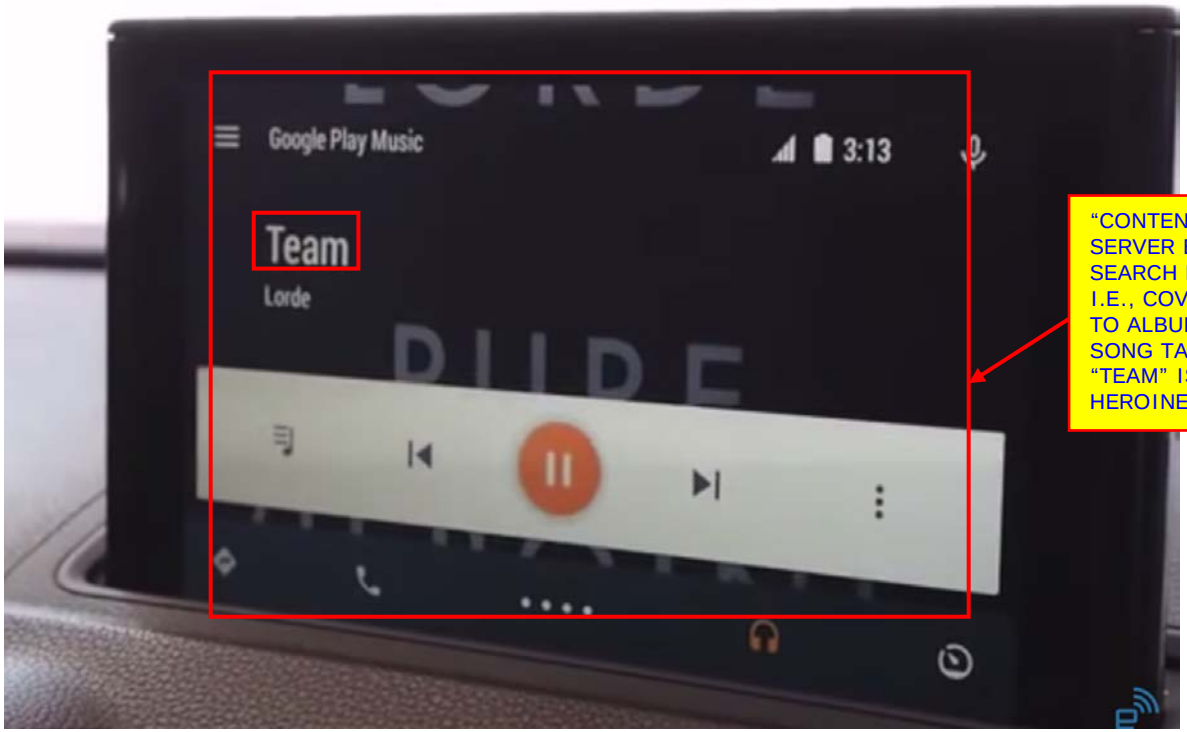
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
obtain digitized speech generated based on speech received from a passenger via the microphone,	"Audi plans to begin introducing Android Auto technology with all-new models it launches in 2016. Audi was a founding member of – and the only luxury brand among them – the Open Automotive Alliance, a coalition of Google and other technology companies and auto-industry leaders that was formed in early 2014 with the objective of bringing the Android platform to cars. …Motorists will be able to project apps and services optimized for voice commands and the driving environment, using Audi connect displays and controls optimized for safe and intuitive operation on the road." http://www.audiusa.com/newsroom/topics/2014/audi-connect 	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
the digitized speech comprising an affirmative request for desired information which the passenger wishes to find via a network search,	 https://www.youtube.com/watch?v=uXrVtUg61xs **IN THE AUDI ANDROID AUTO IMPLEMENTATION (A3 SHOWN ABOVE), THE USER CAN SIMPLY SAY "PLAY {ARTIST/SONG TITLE}", AND THE GOOGLE NOW FUNCTIONALITY WILL FIND THE SONG VIA E.G., INTERNET RADIO SERVICE SUCH AS GOOGLE PLAY MUSIC.**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	## Listen to Music You can play music with Android Auto through your car's speakers. By default, Android Auto will use Google Play Music, but other media apps will also be available through the button on your display. **Listen to Google Play Music** To start listening to Google Play Music: 1. Press and hold your car's voice command button for 1-2 seconds or touch the microphone on the display. • In most cases you'll find the voice command button on your steering wheel. If you're not sure, your car's user guide will have the details. 2. Say "play music." By default, a song from your "I'm feeling lucky" playlist will start. • To hear a specific song or artist, just say "play" and then the song or artist you want to hear. 3. At any time, push the voice command button and say "pause" to pause your music. You can also get to your music by touching on the home screen. Once in Google Play Music, touch to access the menu. From there you can choose from the following: • Listen now (recommendations) • Recent playlists • Instant mixes (mixes based on your favorite artists & songs) **Note:** Google Play Music subscribers will see Radio instead of Instant mixes. https://support.google.com/androidauto#6140614		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
the desired information relating to at least one of a plurality of predetermined topics of interest;		L, DOE	
and cause, based at least in part on the digitized speech, search of a remote network entity to cause retrieval of the desired information;	**"GOOGLE NOW" FUNCTION USES NETWORKED (REMOTE) SERVERS TO PERFORM BOTH (I) VOICE SEARCH FUNCTION TO SUPPORT "PLAY {ARTIST/SONG}" VOICE INPUT; AND (II) STREAMING FUNCTION FROM, E.G., GOOGLE PLAY MUSIC SERVICE, BOTH VIA THE WIRELESS INTERFACE OF THE CELLULAR TELEPHONE (AND OPTIONALLY SOME OF THE AUDI'S WIRELESS INFRASTRUCTURE INCLUDING ANTENNAS):** 	L, DOE	

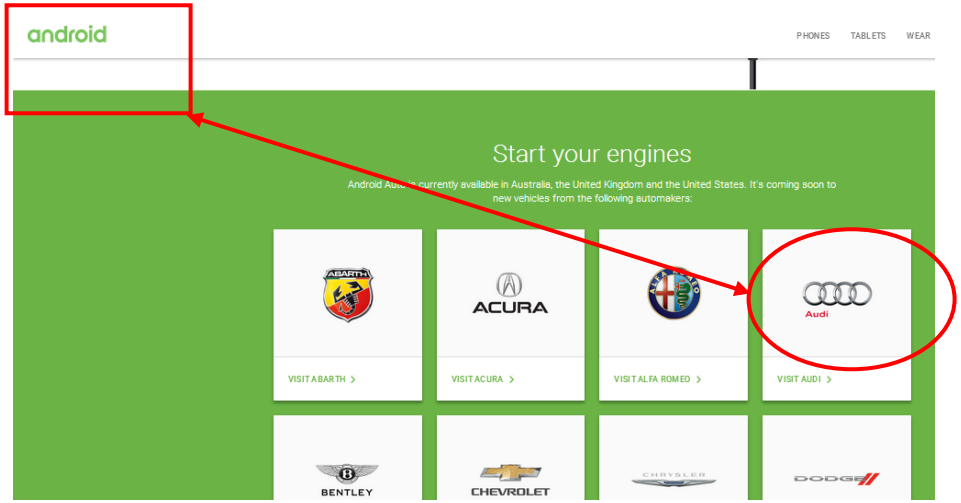
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
wherein the apparatus is further configured to display content on the display device, the content received via the network interface and selected based at least in part on the digitized speech.	 **SEE ALSO FOLLOWING DEMO VIDEO (STARTING AT 3:00 "PLAY COLDPLAY" EXAMPLE – FOR HYUNDAI ANDROID AUTO SYSTEM, BUT VOICE SEARCH ON INTERNET RADIO FUNCTIONALLY IDENTICAL TO AUDI):** **https://www.youtube.com/watch?v=OqLHO20eftM**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	AUDI ANDROID AUTO PRODUCTS (MAP FUNCTION)		
42. A transport apparatus configured to transport one or more persons from one location to another, comprising:	**THIS ANALYSIS IS TARGETED AT THE EXEMPLARY 2016 Q7 WITH "ANDROID AUTO" (ANDROID SMARTPHONE INTEGRATION)**  **http://www.audiusa.com/search?query=2016+Q7#** "Audi plans to begin introducing Android Auto technology with all-new models **it launches in 2016**. **Audi was a founding member of – and the only luxury brand among them – the Open Automotive Alliance, a coalition of Google and other technology companies and auto-industry leaders that was formed in early 2014 with the objective of bringing the Android platform to cars.** Google demonstrated its Android Auto system for the first time at its I/O developer conference in San Francisco later in the year. Android Auto will provide a seamless link for Android mobile car apps to function through Audi connect. Motorists will be able to project apps and services optimized for voice commands and the driving environment, **using Audi connect displays and controls** optimized for safe and intuitive operation on the road. The Open Automotive Alliance is dedicated to building an open ecosystem around a common digital-tech platform in order to drive innovation in connectivity." **http://www.audiusa.com/newsroom/topics/2014/audi-connect**	**L, DOE**	**D, I**

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

"Look for this in Audi cars starting with the **2016 Q7** when it starts hitting showrooms this year."
http://www.engadget.com/2015/01/08/audis-latest-supports-android-auto-and-carplay/

NOTE THAT ANDROID AUTO IS A COLLABORATION BETWEEN THE VEHICLE MANUFACTURER AND THE GOOGLE-CREATED "OPEN AUTOMOTIVE ALLIANCE" (OAA), OF WHICH AUDI WAS A FOUNDING MEMBER:



COMPONENTS OF THE CAR SUCH AS DISPLAY SCREEN, WIRELESS ANTENNAS, MICROPHONES/INDIGENOUS SPEECH PROCESSING, USB PORT, ETC. ARE USED IN CONJUNCTION WITH A COMPATIBLE ANDROID-BASED DEVICE (E.G., SMARTPHONE WITH LOLLIPOP 5.0 OR HIGHER) TO PROVIDE THE DESIRED FEATURES:

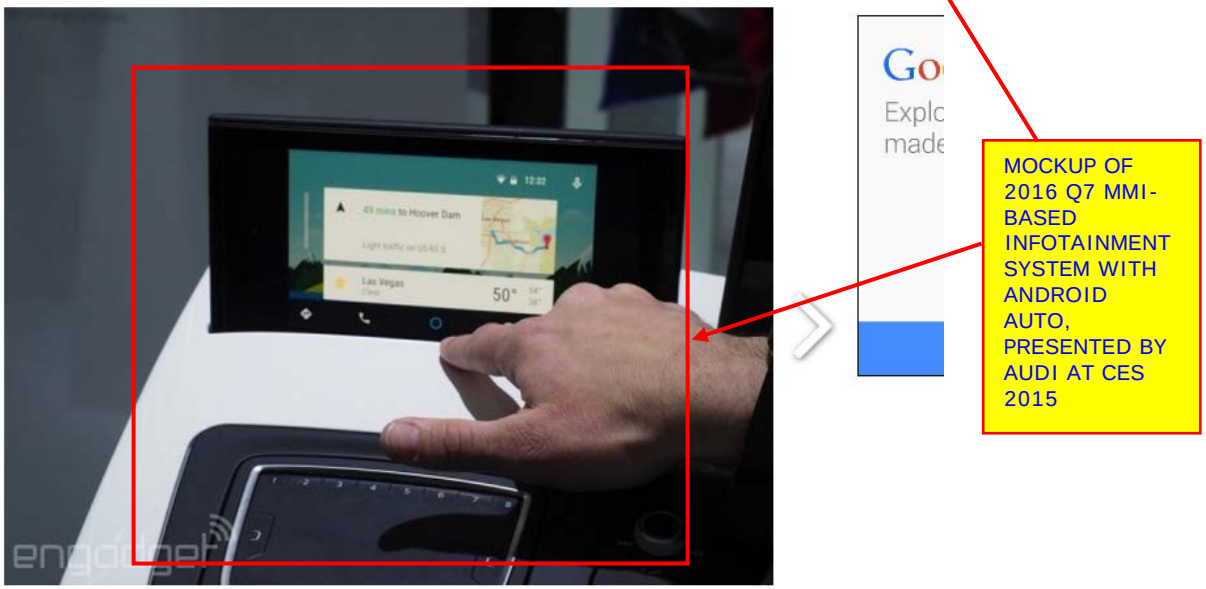
" Android Auto will be able to use in-car hardware

Android Auto runs on your phone, but that doesn't mean it's limited to your phone's hardware. Apps will be able to **access the car's own GPS and GPS antenna (if fitted), steering wheel controls, the sound system, the car's wheel speed, its compass and any mobile antennas, and there are moves to access car data from the vehicle's own computer too**….

Android Auto cars aren't actually running Android

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	In many cases they'll be running **BlackBerry's QNX**, which many car firms have been using for a while." http://www.androidpit.com/android-auto "Audi's implementation of Android Auto will see it baked into the existing MMI in-car system, with drivers seeing a prompt when they connect up a compatible Android smartphone. It's important to remember that Android isn't taking over all of the running, **Audi still has its own proprietary system underneath Android Auto run on the QNX operating system**." http://www.androidcentral.com/audi-commits-android-auto-vehicles-2015 **HENCE, AUDI AND OAA/GOOGLE HAVE AFFIRMATIVELY COORDINATED AND COOPERATED TO BOTH (I) PRODUCE A VEHICLE THAT CAN PROVIDE THE ANDROID AUTO FUNCTIONALITY, AND (II) CAUSE USERS (CES PARTICIPANTS, DEALERS, CUSTOMERS OF HYUNDAI CARS SO EQUIPPED, ETC.) TO CONNECT THE USER'S SMARTPHONE AND PROVIDE THE FUNCTIONALITY DESCRIBED BELOW.** "After connecting an Android smartphone in a compatible Audi, drivers will see a prompt asking if they want their apps to function through the MMI touch display and controls. The graphics and audio streams, including microphone input and all control interfaces, will then operate with Android Auto which is seamlessly integrated into the Audi MMI mobile media application framework developed by the Audi software joint venture e.solutions on top of the QNX Car automotive operating system." http://www.androidcentral.com/audi-commits-android-auto-vehicles-2015 **SPECIALIZED SOFTWARE IS REQUIRED IN BOTH THE CAR AND THE PHONE (E.G., ANDROID AUTO SMARTPHONE "APP") TO MAKE THE VEHICLES INTEROPERATE, AND THESE SOFTWARE ELEMENTS (CAR AND PHONE) HAD TO BE DEVELOPED IN CONJUNCTION/COOPERATION WITH ONE ANOTHER TO ENSURE COMPATIBILITY.** **AUDI EVEN PROVIDES ITS CUSTOMERS WITH THE CABLE TO CONNECT THE TWO DEVICES:** "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android** …Once attached, the car takes over, routing calls and messages to Audi's pop-up display." http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html		
a passenger		**L, DOE**	

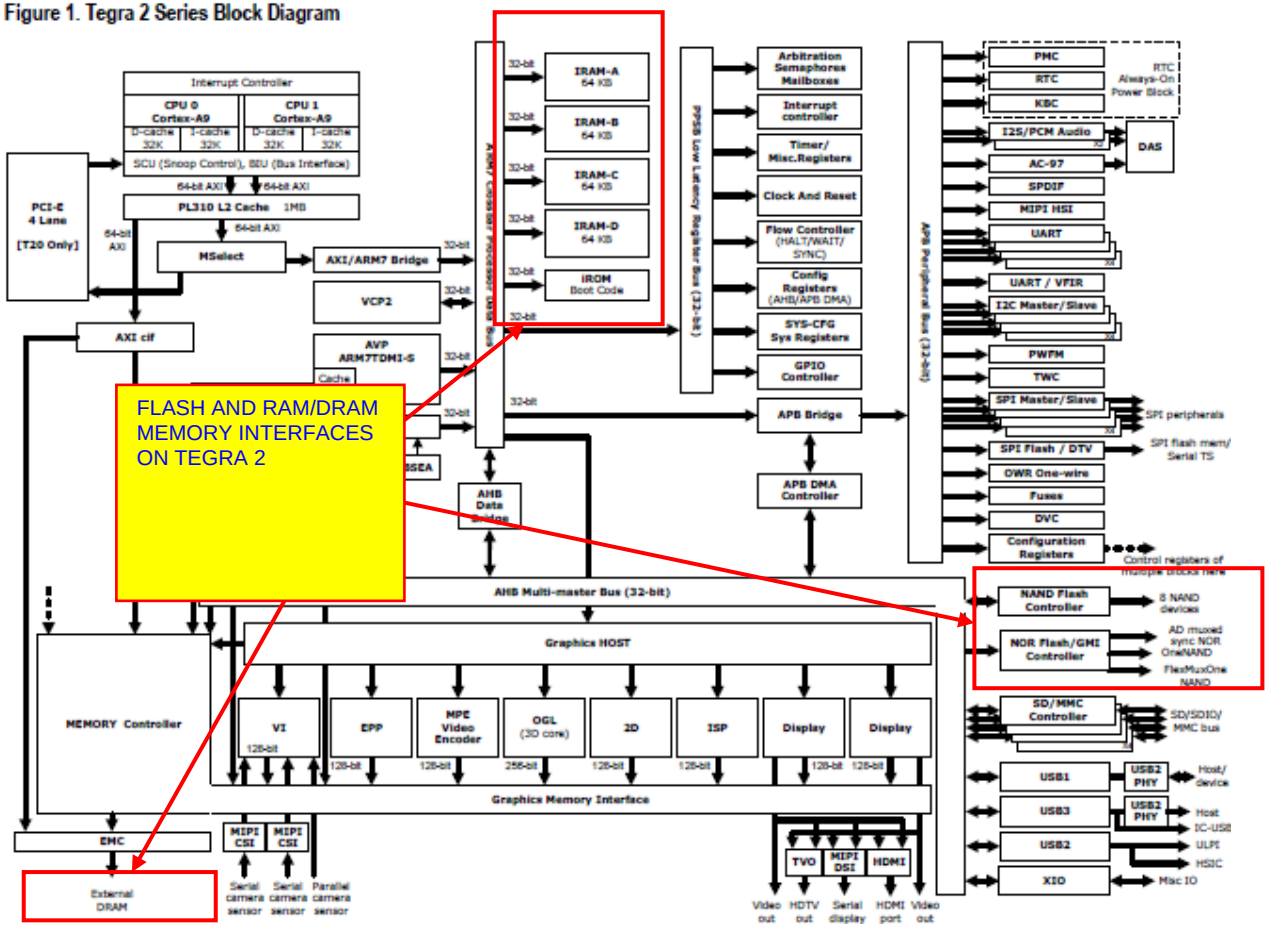
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
compartment;	 http://www.audiusa.com/search?query=2016+Q7#		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and computerized information and display apparatus disposed at least partly within the passenger compartment, the information and display apparatus comprising:	GALLERIES Audi's latest Q7 supports Android Auto Related Article SHARE:  MOCKUP OF 2016 Q7 MMI-BASED INFOTAINMENT SYSTEM WITH ANDROID AUTO, PRESENTED BY AUDI AT CES 2015 **THE 2016 Q7 HAS (WILL HAVE) A COMPUTERIZED INFORMATION AND DISPLAY APPARATUS (NAVIGATION/INFOTAINMENT SYSTEM AS ASSOCIATED COMPONENTS) DISPOSED AT LEAST PARTLY WITHIN THE SHOWN PASSENGER COMPARTMENT (OSTENSIBLY AS SHOWN IN PASSENGER COMPARTMENT PHOTO ABOVE).**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=FNo-Cuzp3Rw		
a wireless network interface;	**THE 2016 Q7 (VEHICLE) INCLUDES EACH OF: (I) A CELLULAR NETWORK MODEM (LONG TERM EVOLUTION OR "LTE"); (II) WI-FI NETWORK MODEM ("HOTSPOT"); AND (III) A BT INTERFACE.** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on	**L, DOE**	

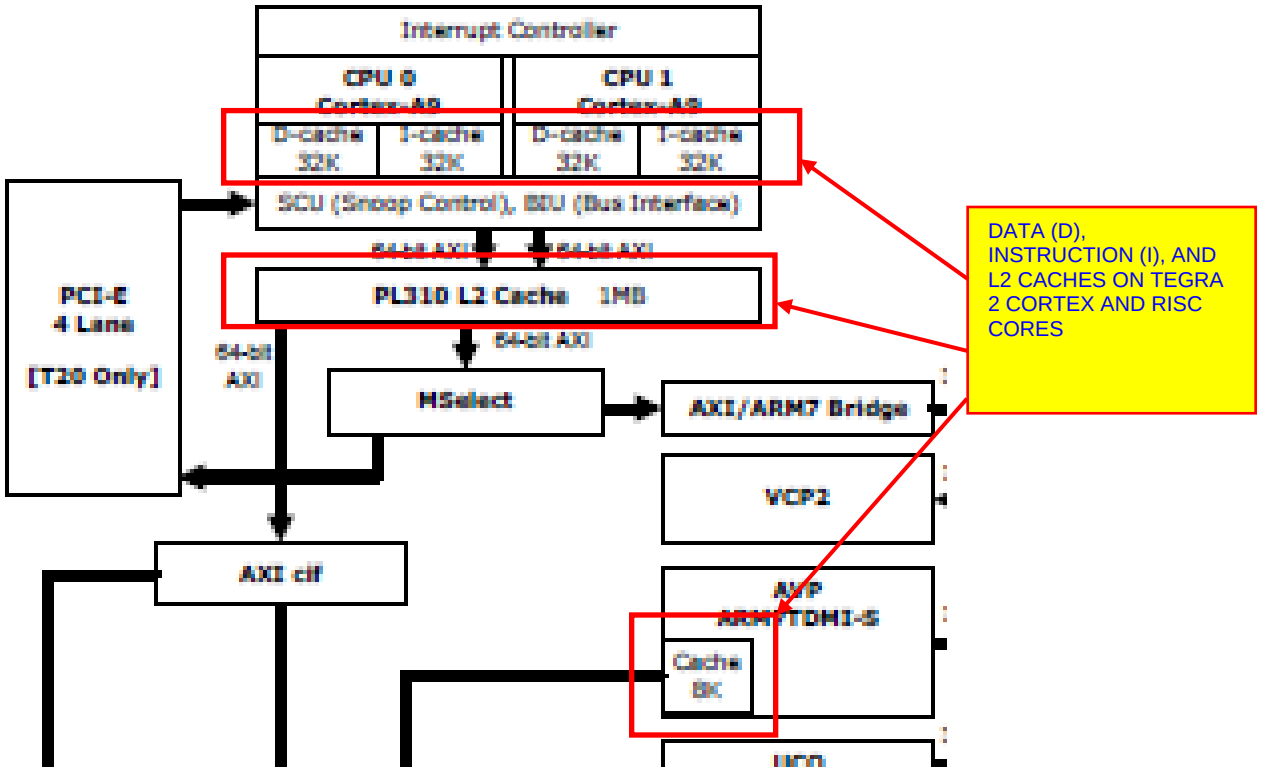
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example. **Internet with LTE speed:** **Audi connect** MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. The driver can use the tailored Audi connect services ranging from online traffic information to navigation with Google Earth and Google Street View to online media streaming. The new app provides access to Aupeo! personal web radio and the large Napster music library. The Q7 also has a new, top-of-the-line element of the Audi connect portfolio: The Audi smartphone interface brings …"Google Android Auto" on board. If an …Android cellular phone is connected to the USB port (…Android from Version 5.0 Lollipop), the … environment opens in the Audi smartphone interface. Both are tailored for use in the car. **The heart of this feature is online music.** In addition, both platforms offer navigation functions, missed call/appointment reminders and messaging functions. Over time, these will be joined by numerous third-party applications such as Pandora, Spotify and WhatsApp." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **ADDITIONALLY, THE EXEMPLARY NEXUS 5 (FOR ILLUSTRATION ONLY; SIMILAR LOGIC APPLIES TO OTHER ANDROID SMARTPHONES OR DEVICES THAT MAY BE CONNECTED TO Q7 SYSTEM) INCLUDES AT LEAST: (I) CELLULAR MODEM (E.G., LTE OR 3G); (II) WI-FI; (III) BLUETOOTH, AND (IV) NFC.** "**WIRELESS** DUAL-BAND WI-FI (2.4G/5G) 802.11 A/B/G/N/AC NFC (ANDROID BEAM) BLUETOOTH 4.0 NETWORKS **2G/3G/4G LTE…** "**PORTS AND CONNECTORS** MICROUSB SLIMPORT™ ENABLED 3.5MM STEREO AUDIO JACK DUAL MICROPHONES CERAMIC POWER AND VOLUME BUTTONS" [https://support.google.com/nexus/answer/3467463?hl=en]		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	THE NEXUS 5 COMES EQUIPPED FROM THE FACTORY WITH HARDWARE AND SOFTWARE SUPPORTING EACH OF THE FOREGOING TYPES OF INTERFACES.		
processing apparatus in data communication with the network interface;	**SEE DISCUSSION BELOW REGARDING DETAILS ON 2015 AUDI A3 (MIB-BASED MMI SYSTEM BELIEVED TO BE FUNCTIONALLY SIMILAR TO WHAT WILL BE INSTALLED IN 2016 Q7 WHEN SOLD IN LATER 2015).** "The Audi Q7 also sets standards with respect to the operating concept, infotainment, connectivity and driver assistance systems. The second-generation modular infotainment platform is on board, as is the Audi virtual cockpit. **The new MMI all-in-touch control unit with large touchpad** makes operation child's play." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **AS DISCUSSED BELOW, MIB/MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA (2 OR 3) PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA SUCH AS MAP DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("PROCESSING APPARATUS" AND "STORAGE APPARATUS WITH AT LEAST ONE COMPUTER PROGRAM…" REFERENCED BELOW).**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Figure 1. Tegra 2 Series Block Diagram  http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

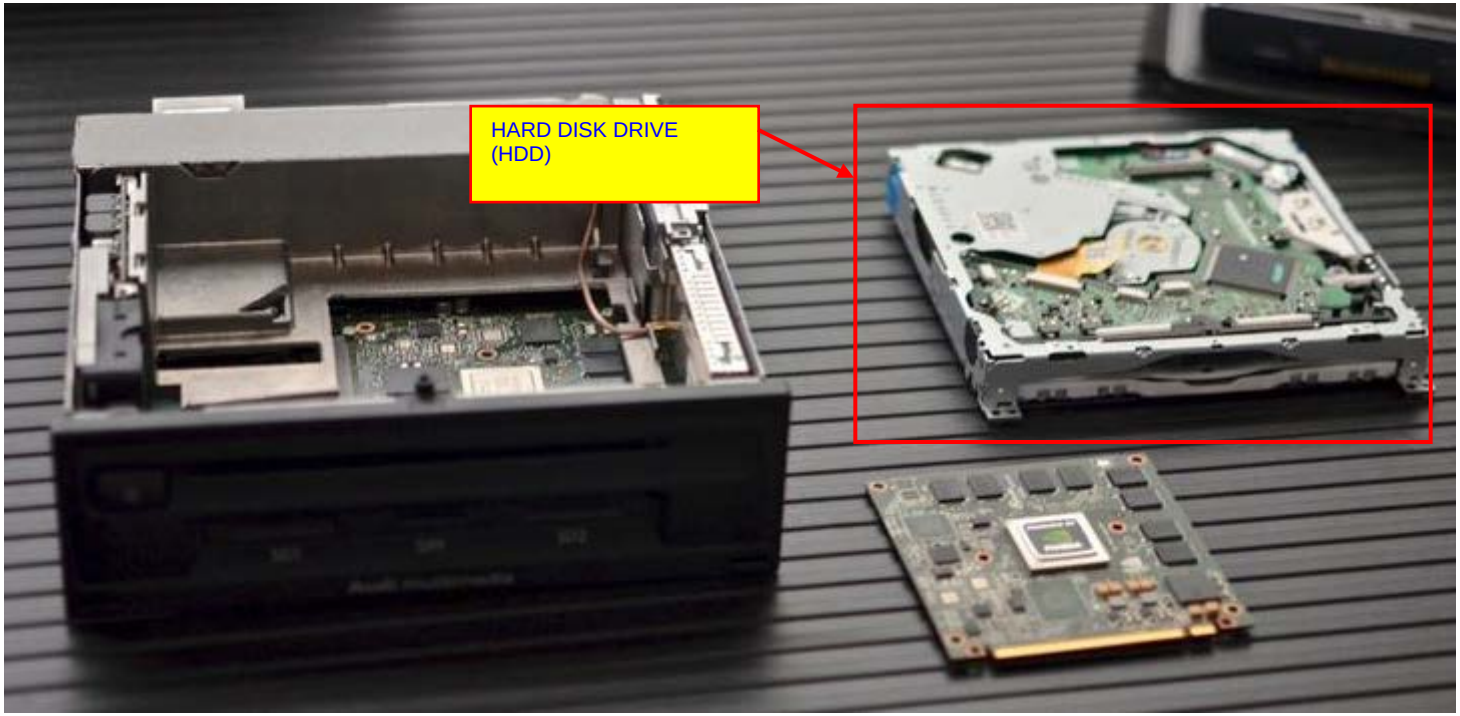
Figure 1. Tegra 2 Series Block Diagram

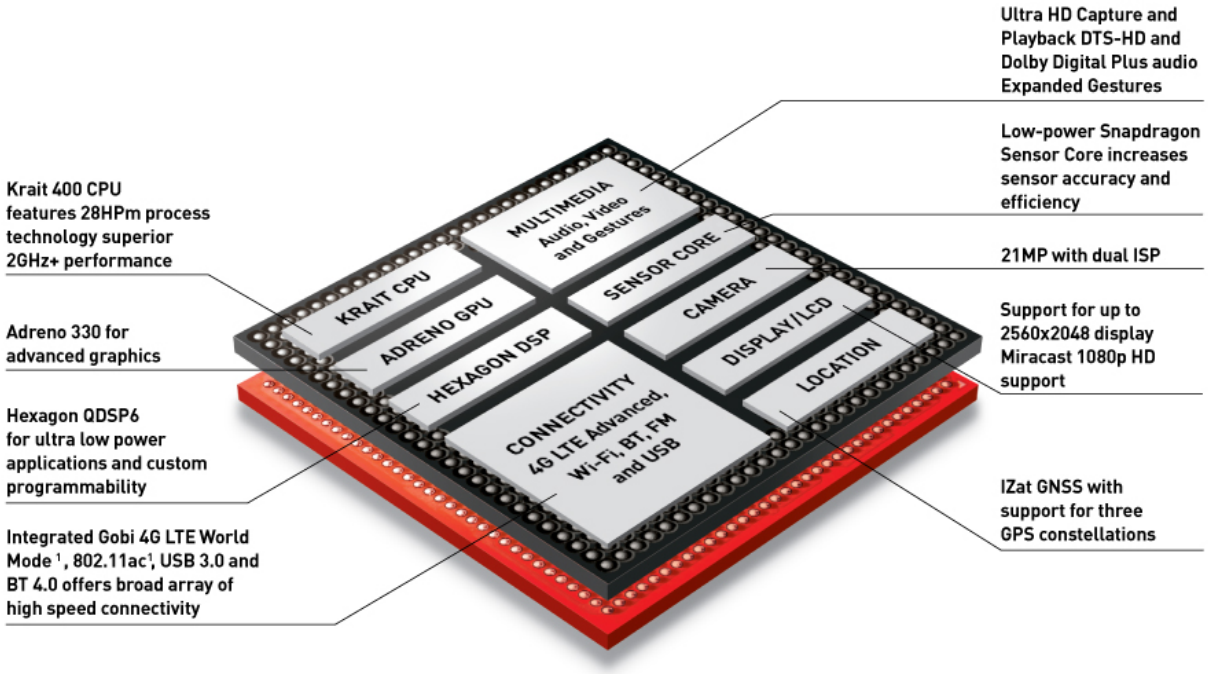


http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

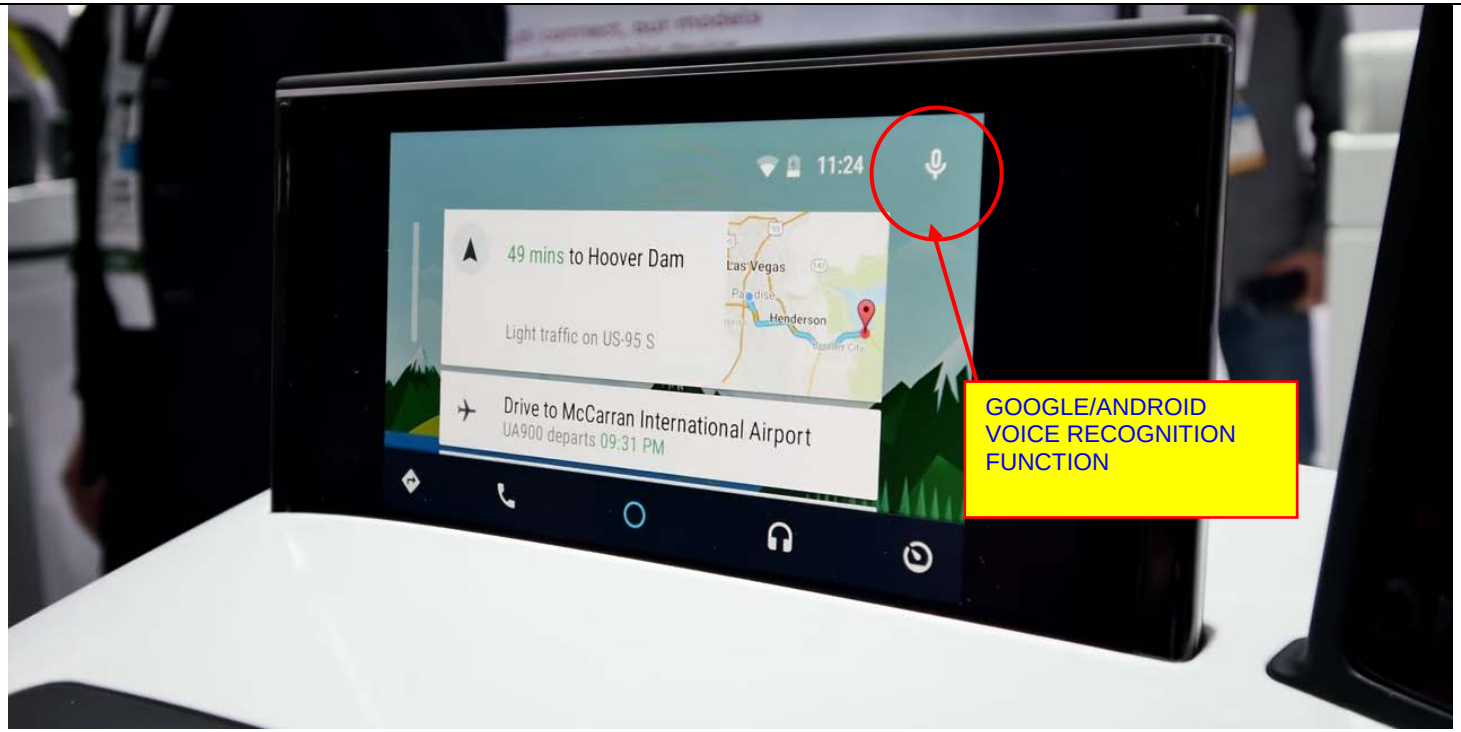
"Powered by Nvidia Tegra 2

Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra 4 with minimal retooling."

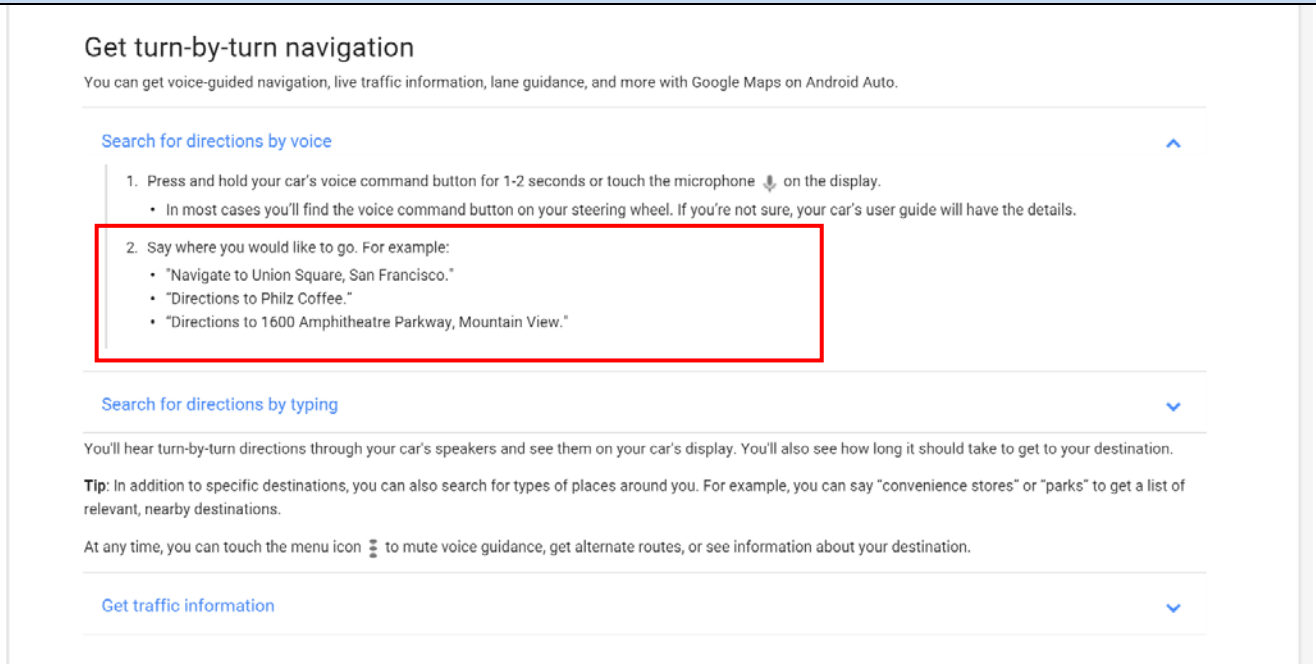
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.cnet.com/products/2015-audi-a3-sedan/] **EXEMPLARY NEXUS 5 ANDROID PHONE HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE ANDROID AUTO SYSTEM (INCLUDING INTERFACING DIRECTLY OR INDIRECTLY WITH CAR'S MIMO ANTENNAS, TOUCH SCREEN, VOICE SYSTEMS, ETC. VIA QNX STACK:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	GPU: Adreno 330, 450MHz" [1] **"Snapdragon 800** Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.  		

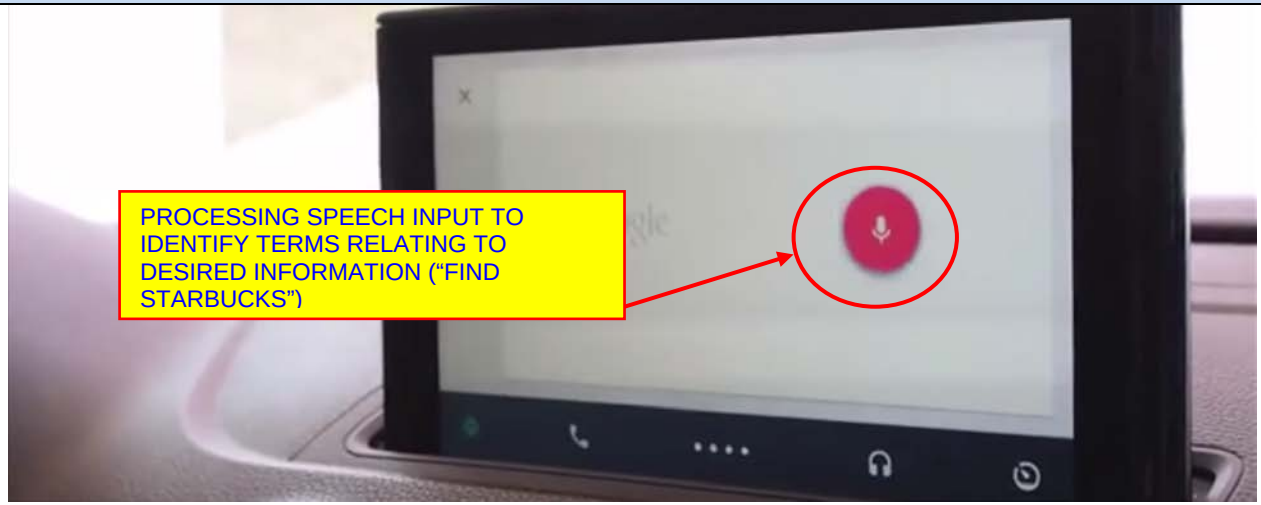
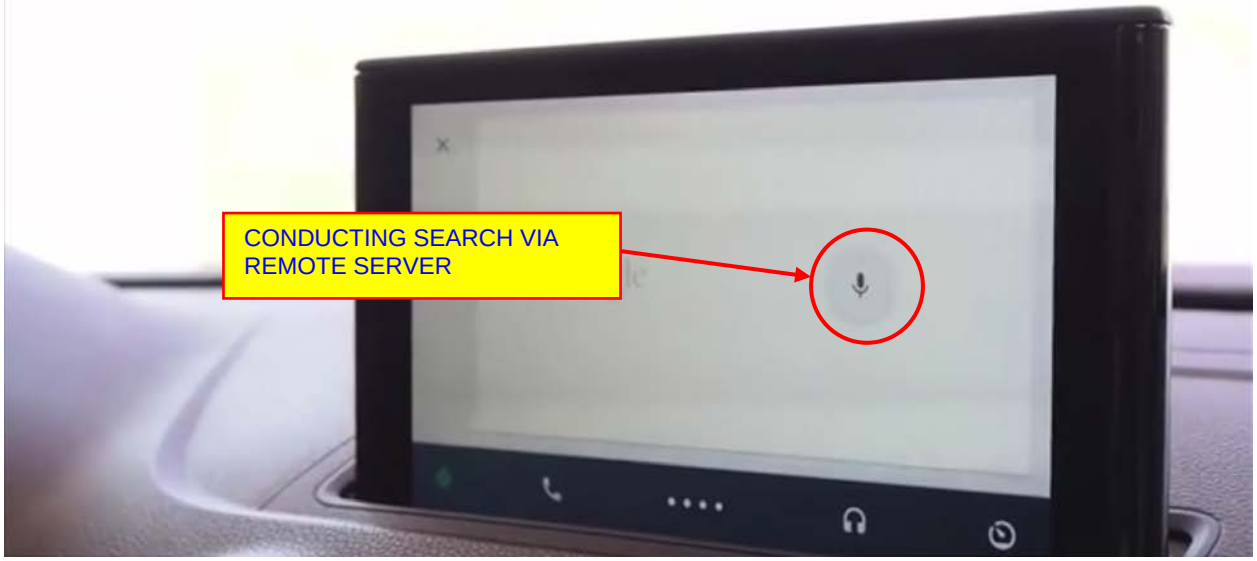
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC." [http://www.cnet.com/products/2015-audi-a3-sedan/]		
a display device configured to be viewable by an occupant of the transport apparatus during use;		**L, DOE**	
and a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed:	**SEE DISCUSSION OF PROCESSING APPARATUS ABOVE; 2016 Q7 (ASSUMING MIB/MMI AS NOTED ABOVE) HAS NUMEROUS TYPES OF STORAGE DEVICES WHICH CONTAIN COMPUTER CODE, FIRMWARE, ETC. TO DRIVE THE DISPLAY, INFOTAINMENT FEATURES, SPEECH RECOGNITION, ETC.** **MOREOVER, EXEMPLARY ANDROID PHONE (NEXUS 5) HAS NUMEROUS STORAGE DEVICES, SOFTWARE, FIRMWARE, ETC. AS WELL, AS SHOWN ABOVE.**	**L, DOE**	

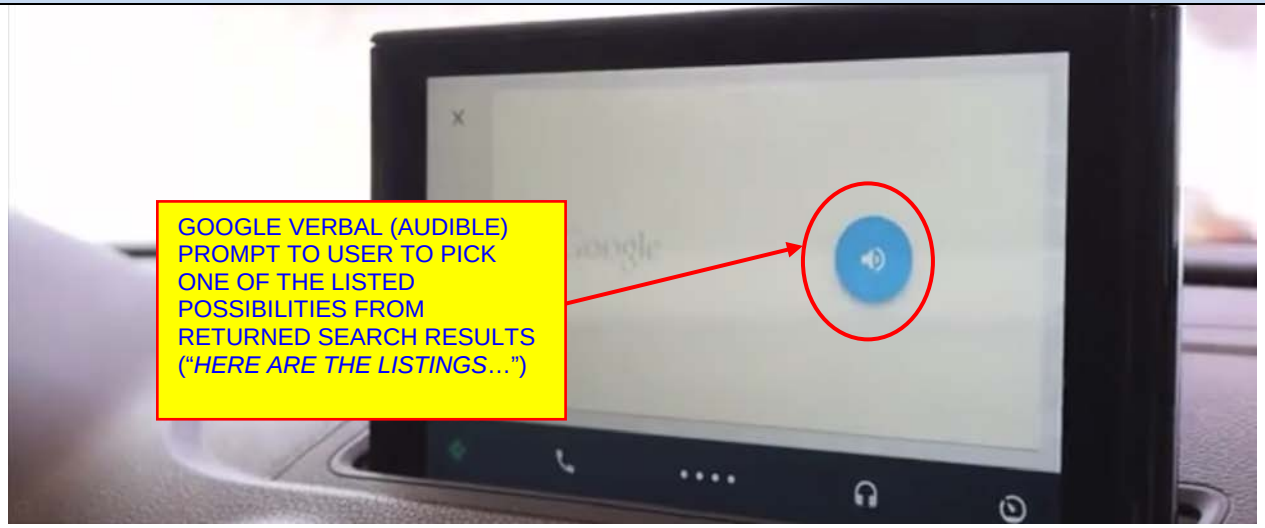
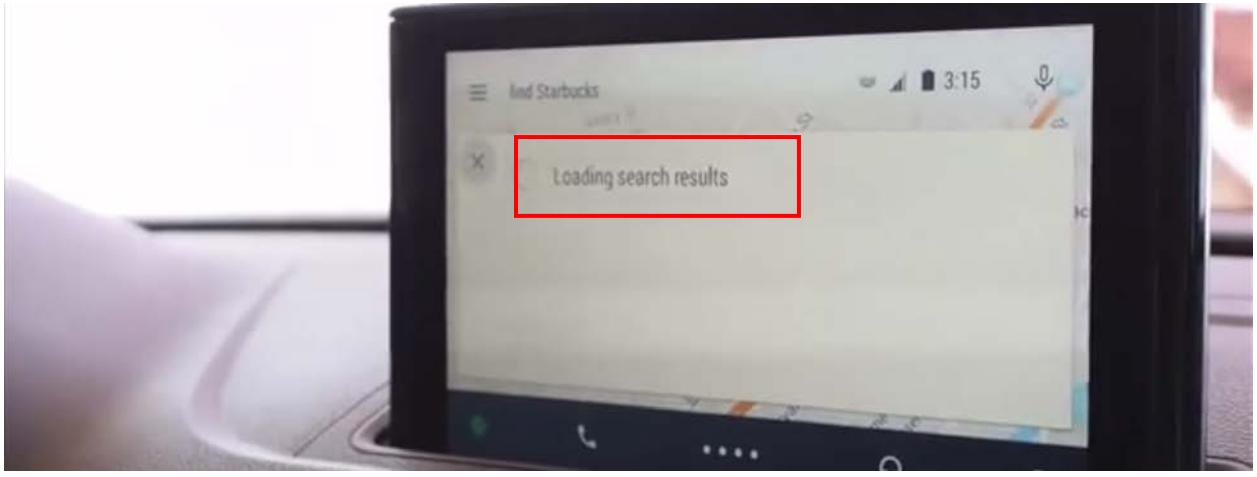
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	"Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android** …Once attached, the car takes over, routing calls and messages to Audi's pop-up display." http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html **WHEN CONNECTED BY E.G., A SERIAL BUS (E.G., MICRO-USB PROVIDED BY AUDI WITH VEHICLE DESCRIBED ABOVE), THE TWO DEVICES (SMARTPHONE AND VEHICLE MIB/HEAD UNIT) COOPERATE AND COORDINATE TO PASS DATA BACK AND FORTH, ETC. AS ONE SEAMLESS DEVICE. THE PHONE DISPLAY IS EFFECTIVELY LOCKED, AND THE CAR INTERFACES (I.E., MMI CONTROLLER, VOICE CONTROL SYSTEM, ETC.) ARE THE SOLE USER INTERFACES TO THE SYSTEM.**		
obtain digitized speech generated based on speech received from the occupant, the digitized speech comprising one or more terms relating to a desired information which the occupant wishes to obtain;		**L, DOE**	

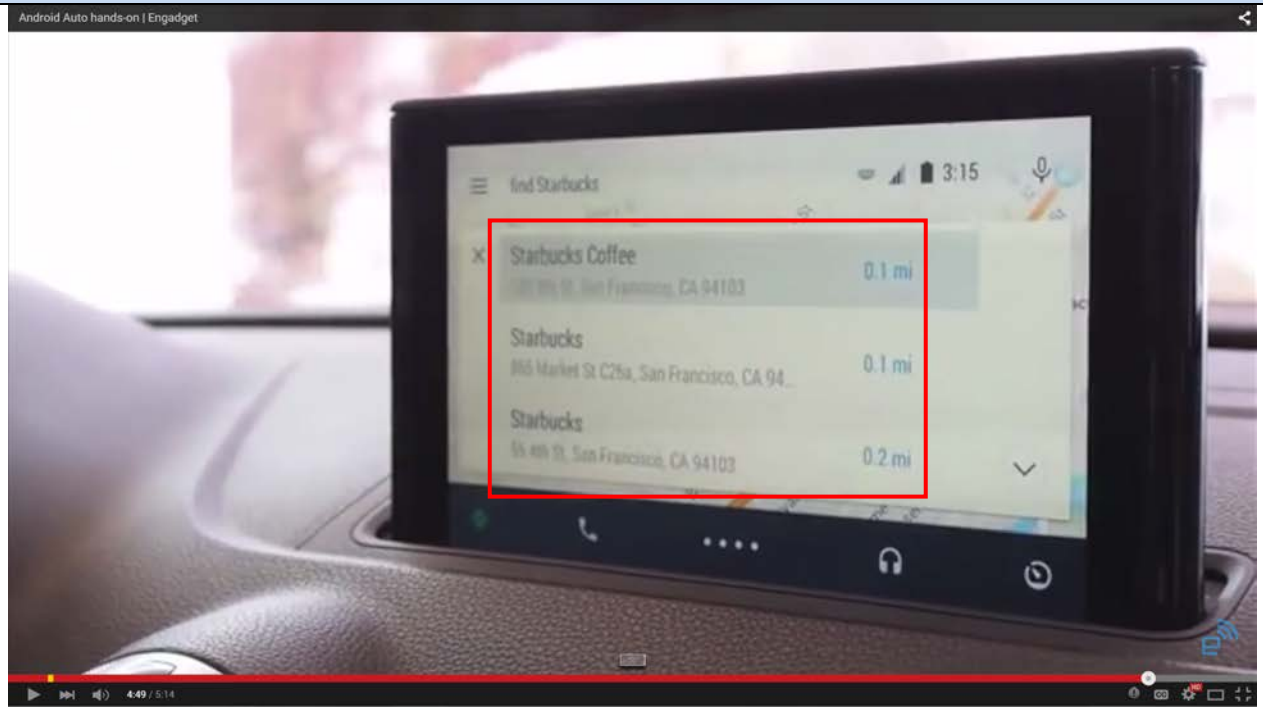
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

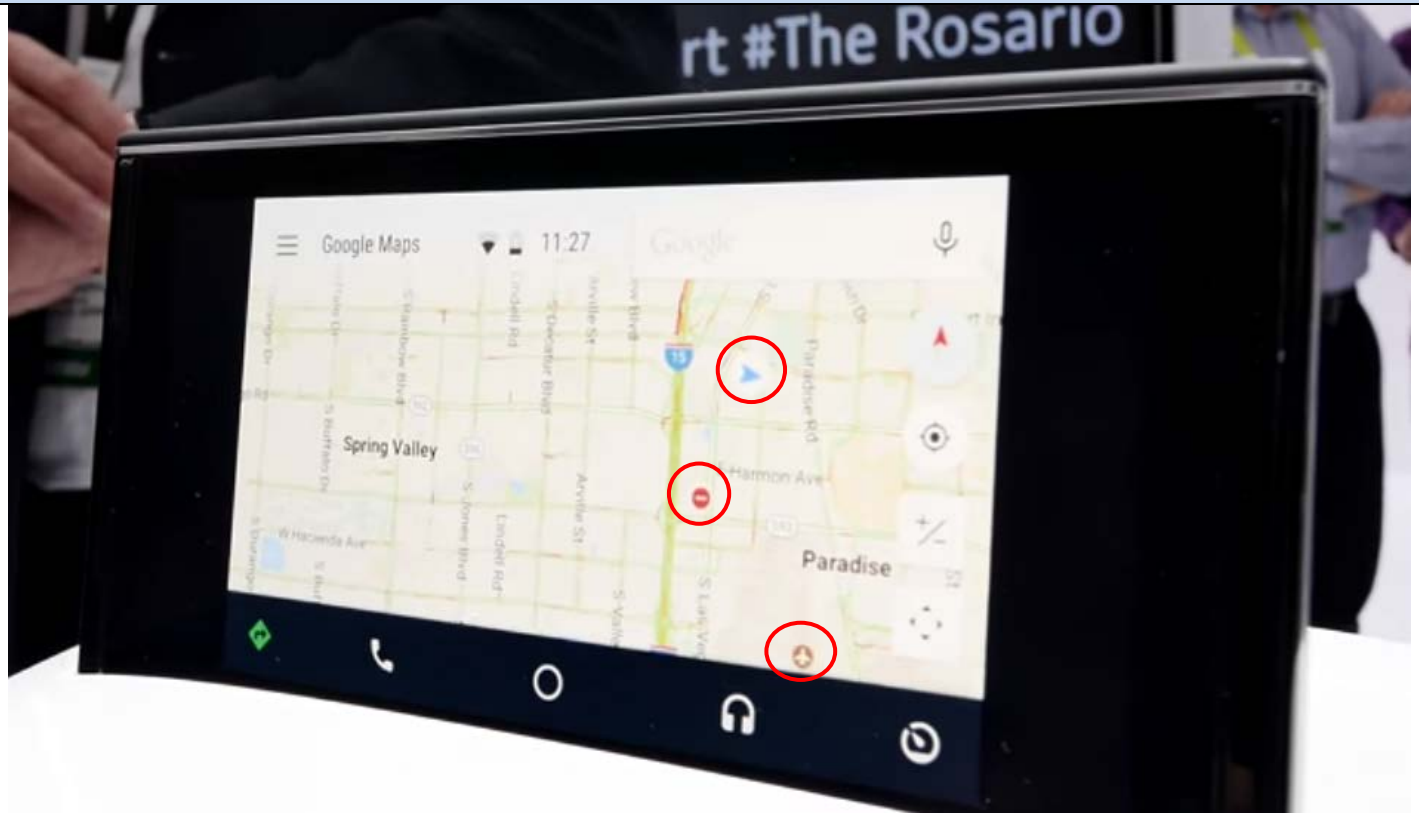


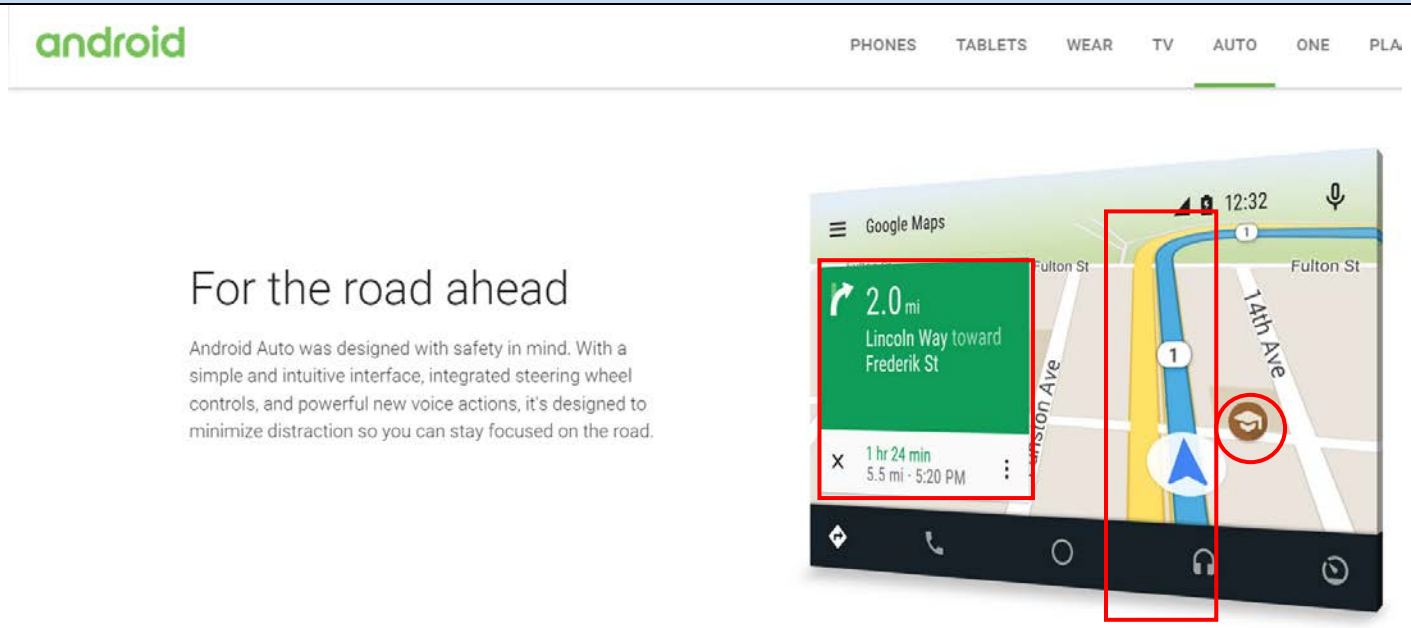
SEE EXPLICIT EXAMPLE IN VIDEO BELOW (AUDI A3, BUT FUNCTIONALITY SAME):
https://www.youtube.com/watch?v=uXrVtUg61xs

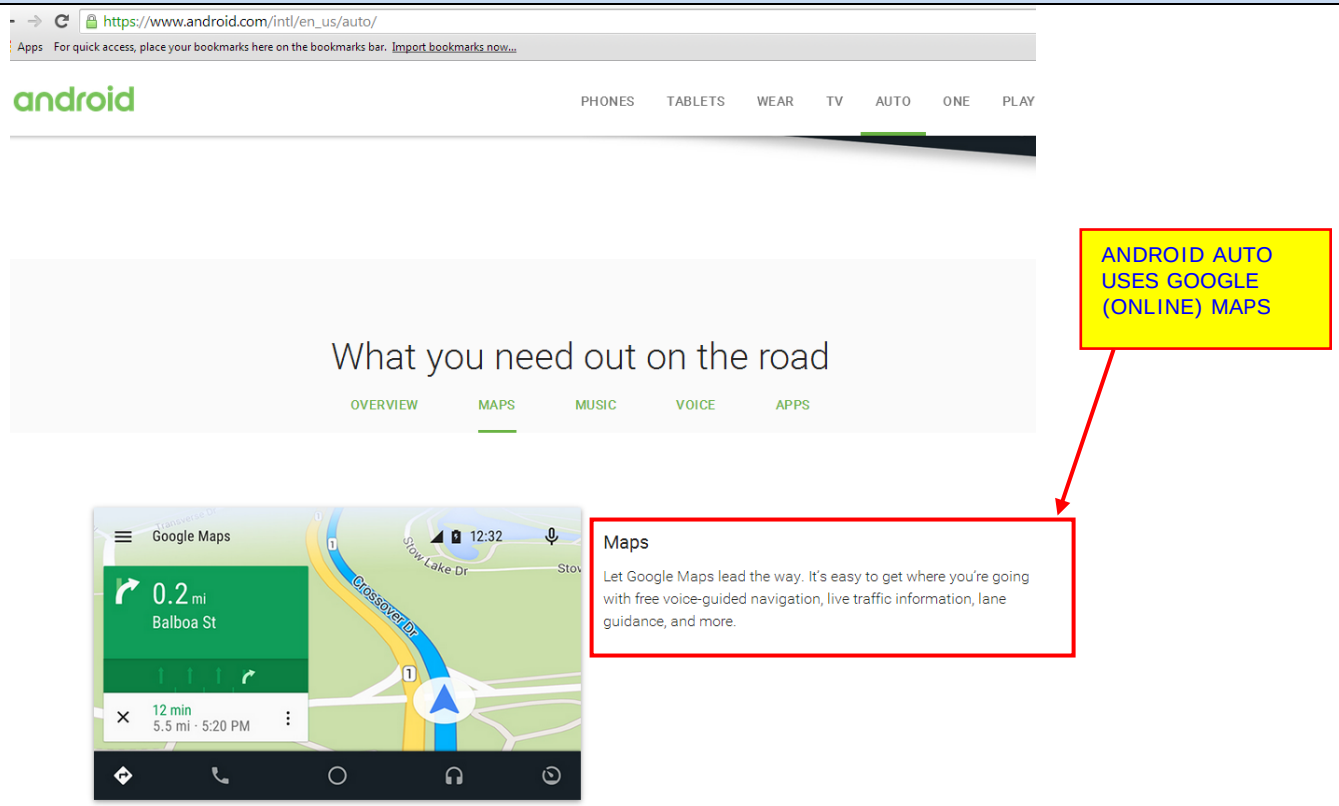
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 **DEMONSTRATOR: "*FIND STARBUCKS*"**		
cause, based at least in part on at least one of the one or more terms, access of a remote network entity via the network interface to cause retrieval of the desired information;		**L, DOE**	

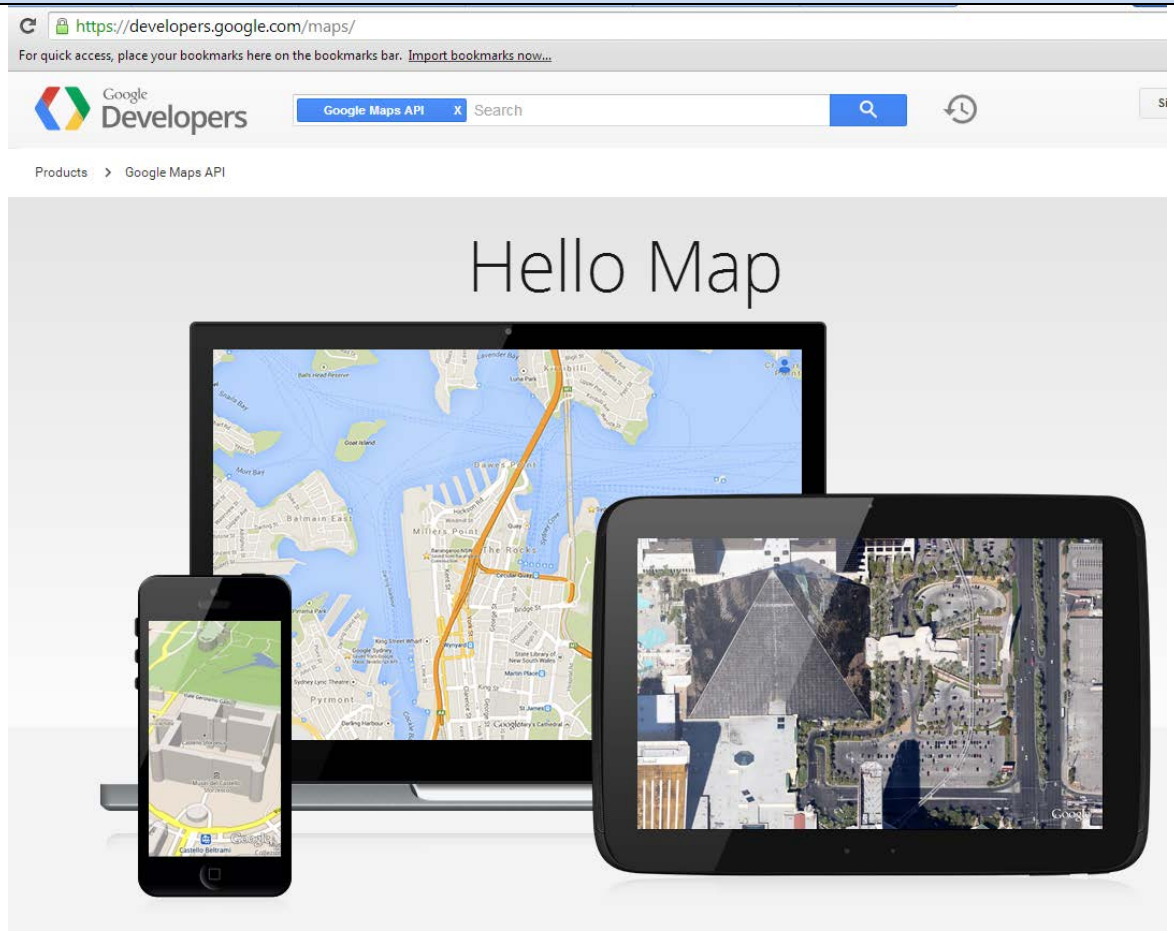
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and receive the desired information via the network interface;	 **CAR: "*HERE ARE THE LISTINGS FOR STARBUSCKS WITH 0.8 MILES*"** 	**L, DOE**	

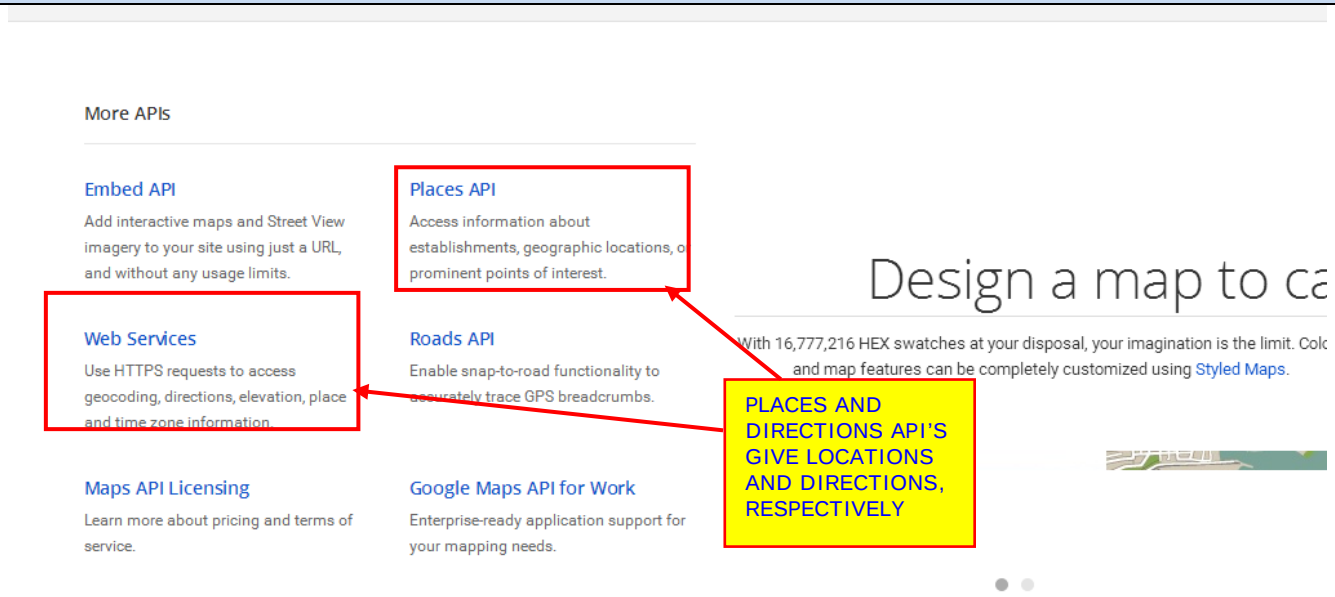
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
wherein the computerized information and display apparatus is further configured to display at least a portion of the desired information on the display device,	 **AFTER USER SELECTS APPROPRIATE ENTRY ABOVE, A MAP SUCH AS FOLLOWS IS SHOWN (CES DEMO – Q7 MOCKUP, AND AA WEBSITE), SHOWING DESTINATION (GRAPHICALLY AND VIA ICON), NEARBY POI'S (SEE AIRPORT AT BOTTOM), GRAPHICAL DIRECTIONS (COLORED LINES/ARROWS), TEXTUAL DIRECTIONS, ETC.:**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
			

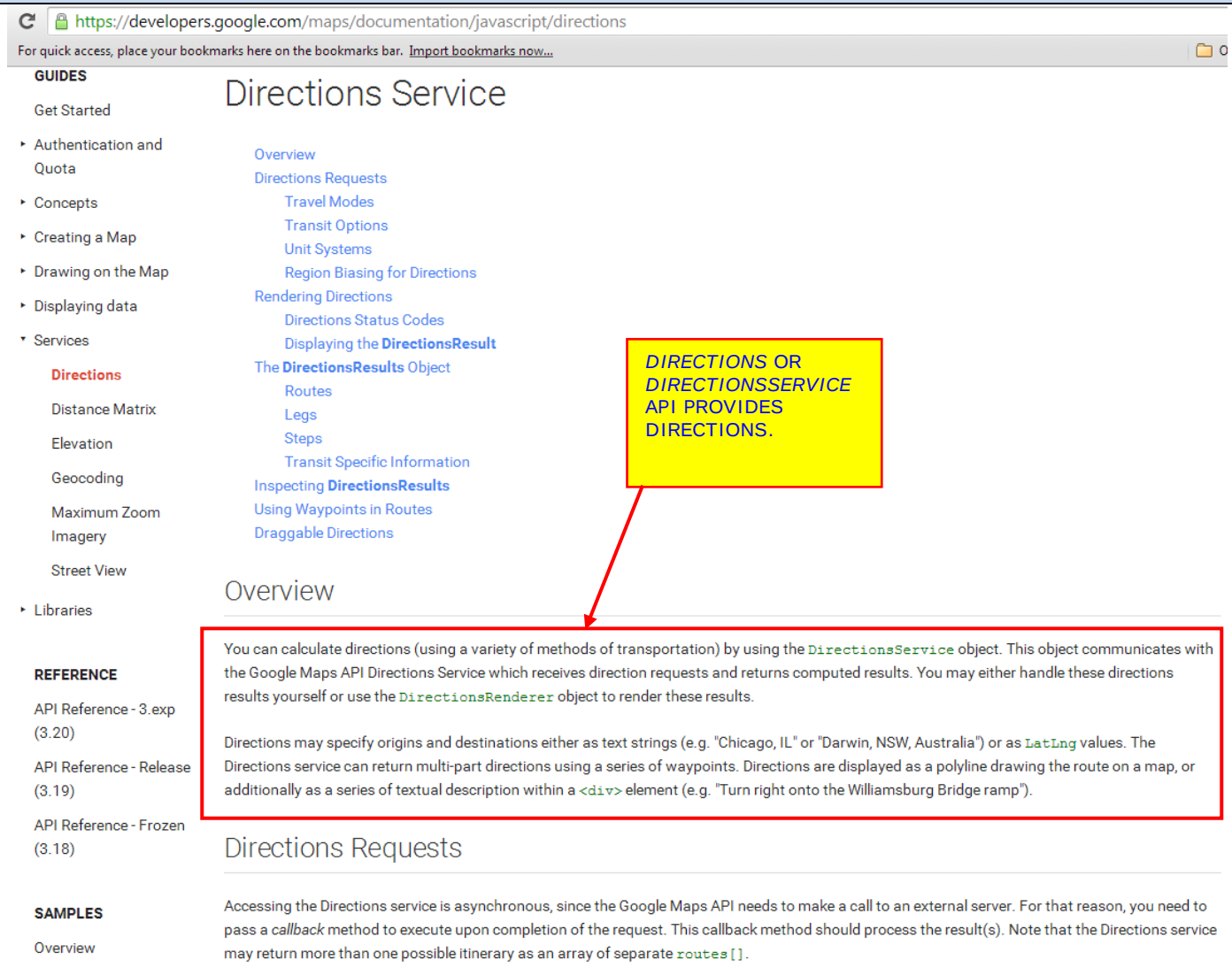
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
the information received via the network interface and selected based at least in part on the digitized speech;	 **GOOGLE MAPS IN ANDROID AUTO USES BOTH GOOGLE "*PLACES*" OR SIMILAR API (APPLICATION PROGRAMMING INTERFACE) TO CALL FOR LOCATION DATA, AND GOOGLE "*DIRECTIONS*" OR "*DIRECTIONSSERVICE*" API'S TO GENERATE LOCATION OF ENTITY AND ROUTE TO ENTITY:**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
			

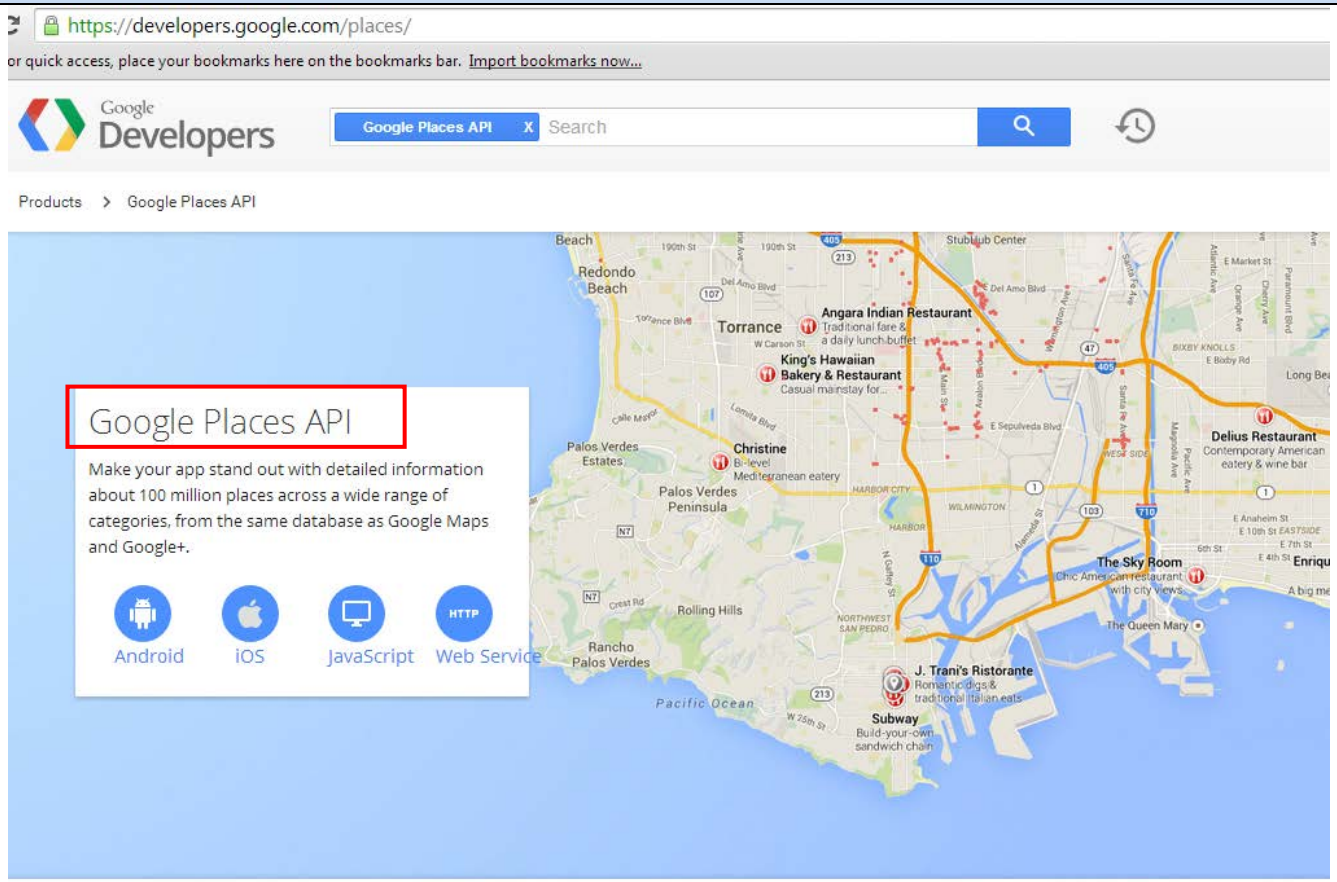
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 https://developers.google.com/maps/		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



https://developers.google.com/maps/documentation/javascript/directions

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	https://developers.google.com/places/		
and wherein the desired information comprises at least one of a map and/or directions to a particular organization or entity accessible by the transport apparatus,	**SEE DISCUSSION OF API FUNCTIONS ABOVE; IN THE CASE OF GOOGLE MAPS, BOTH (I) AT LEAST A PORTION OF THE MAP CONTENT, AND (II) AT LEAST A PORTION OF THE DIRECTIONS ARE OBTAINED FROM THE SERVER.**	**L, DOE**	
the at least one map and/or directions comprising a graphical representation of the organization or entity and its surroundings.	**SEE DISCUSSION ABOVE; DISPLAY SCREEN SHOWS MAP, TWO KINDS OF DIRECTIONS, NEARBY POIS, GRAPHICAL REPRESENTATION OF LOCATION/DESTINATION (ICONICALLY AND GRAPHICALLY) AND SURROUNDINGS, ETC.**	**L, DOE**	
	2015 AUDI A3 WITH MMI CONNECT		
37. A land-mobile transport apparatus configured to transport one or more persons from one location to another, comprising:	**This analysis is targeted at 2015 Audi A3 with MMI/Connect providing driving directions/maps and other information**	**L, DOE**	**D, I**

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 [13] **AUDI A3 IS A LAND-MOBILE TRANSPORT DEVICE FOR MOVING PEOPLE BETWEEN LOCATIONS.**		
a passenger compartment;	 https://www.youtube.com/watch?v=ojzs8QZKoWA	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and computerized information and display apparatus disposed at least partly within the passenger compartment, the information and display apparatus comprising:		**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

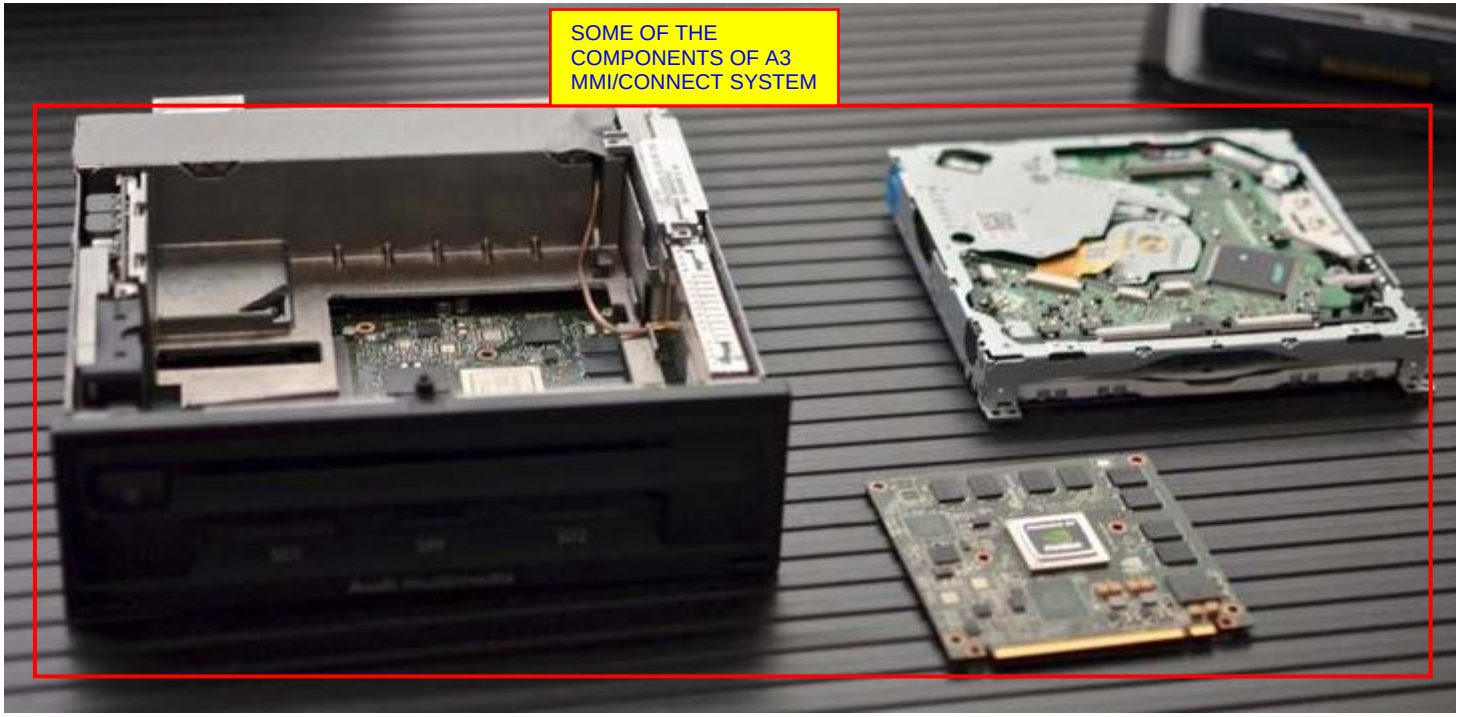
Audi connect features.

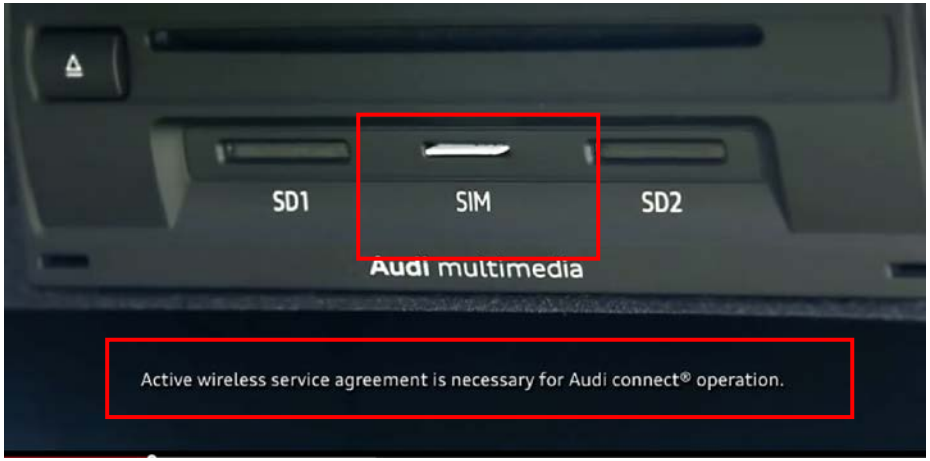
	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■
Parking information	■	■	■	■	■	■	■	■
Fuel prices	■	■	■	■	■	■	■	■
Flight information								■
Communication								
Facebook®								■
Twitter®								■
Infotainment								
Audi music stream[2]	■	■	■	■	■	■	■	■
Weather	■	■	■	■	■	■	■	■
Travel information	■	■	■	■	■	■	■	■
News	■	■	■	■	■	■	■	
Personalized news								■
City events	■	■	■	■	■	■	■	■
Google™ Local Search	■	■	■	■	■	■	■	■
Wi-Fi® hotspot	■	■	■	■	■	■	■	■
3G (HSPA/HSPA+)	■	■	■	■	■	■	■	
4G/LTE								■

FEATURES OF 2015 A3 WITH MMI AND CONNECT

[Audi connect brochure 2014]

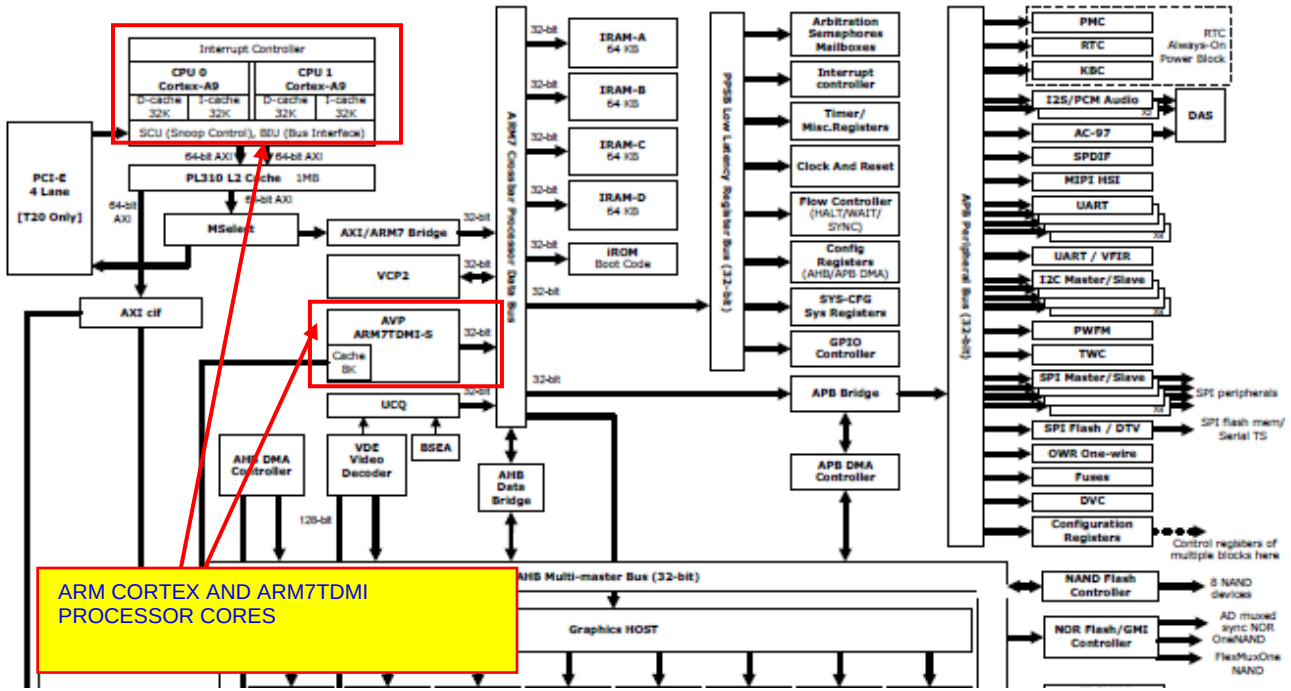
SEE TABLE ABOVE; THE A3 CONNECT SYSTEM PROVIDES NUMEROUS TYPES OF INFORMATION, MOST OF WHICH ARE PROVIDED VIA THE SYSTEMS EMBEDDED LTE INTERFACE (AS OPPOSED FOR EXAMPLE TO SIRIUSXM, WHICH IS SATELLITE/DOWNLINK BASED, AND WHICH REQUIRES A SEPARATE SUBSCRIPTION FROM THE CONNECT SYSTEM OFFERED BY AUDI).

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.cnet.com/products/2015-audi-a3-sedan/]		
a wireless network interface;	**"Connectivity, Navigation, and Interface** The A3 has several new tech features that haven't made it to even Audi's top-of-the-line A8. It's the first Audi with 4G LTE wireless connectivity via AT&T, for example, while Facebook and Twitter apps are new additions and for now exclusive to the A3's Audi connect system.… Even if you are able to connect your portable device and have ample power, you don't really get much of a chance to use it—or its data plan—beyond listening to music or making calls via Bluetooth. Most of the A3's connected features are dependent on having the AT&T data plan that's part of the Audi connect system and costs $99 for a six-month/5GB-total	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	package or $499 for a 30-month/30GB-total package after a free six-month trial…. Instead of leveraging a smartphone to connect to the cloud, as with some systems, features such as Internet radio and Picture navigation are communicated via Audi Connect, and through the A3's onboard Wi-Fi connection that's part of the AT&T data plan. This means that if you allow your 4G subscription to lapse, you lose these features." [http://www.pcmag.com/article2/0,2817,2455743,00.asp]  **AUDI A3 CONNECT UTILIZES A 4G LTE MODEM AND SERVICE THROUGH AT&T. THIS IS THE PRIMARY WIRELESS INTERFACE FOR THE VEHICLE. THE LTE MODEM ALSO AFFORDS THE PASSENGERS WITH A WI-FI HOTSPOT (I.E., WI-FI AP INTERFACE TO USER DEVICES, WITH WI-FI AP COUPLED TO LTE FOR BROADBAND SERVICE)**		
processing apparatus in data communication with the network interface;	**THE MMI/CONNECT SYSTEM ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA 2 PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA 2 CHIP AND OTHER COMPONENTS.** **THE PROCESSING APPARATUS IS IN DATA COMMUNICATION WITH THE WIRELESS NETWORK (E.G., 4G LTE) INTERFACE DISCUSSED BELOW IN ORDER TO, *INTER ALIA*, RECEIVE AND PROCESS DATA FROM THE CONNECT REMOTE SERVERS.**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

Figure 1. Tegra 2 Series Block Diagram

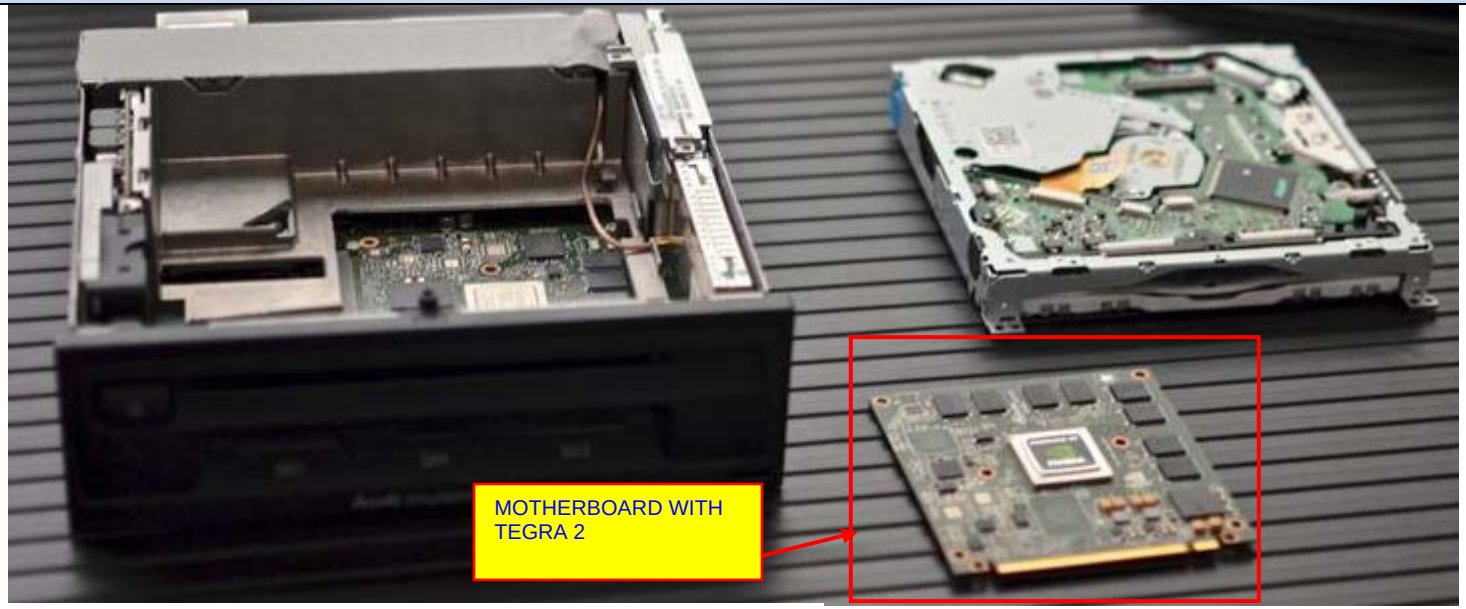


http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

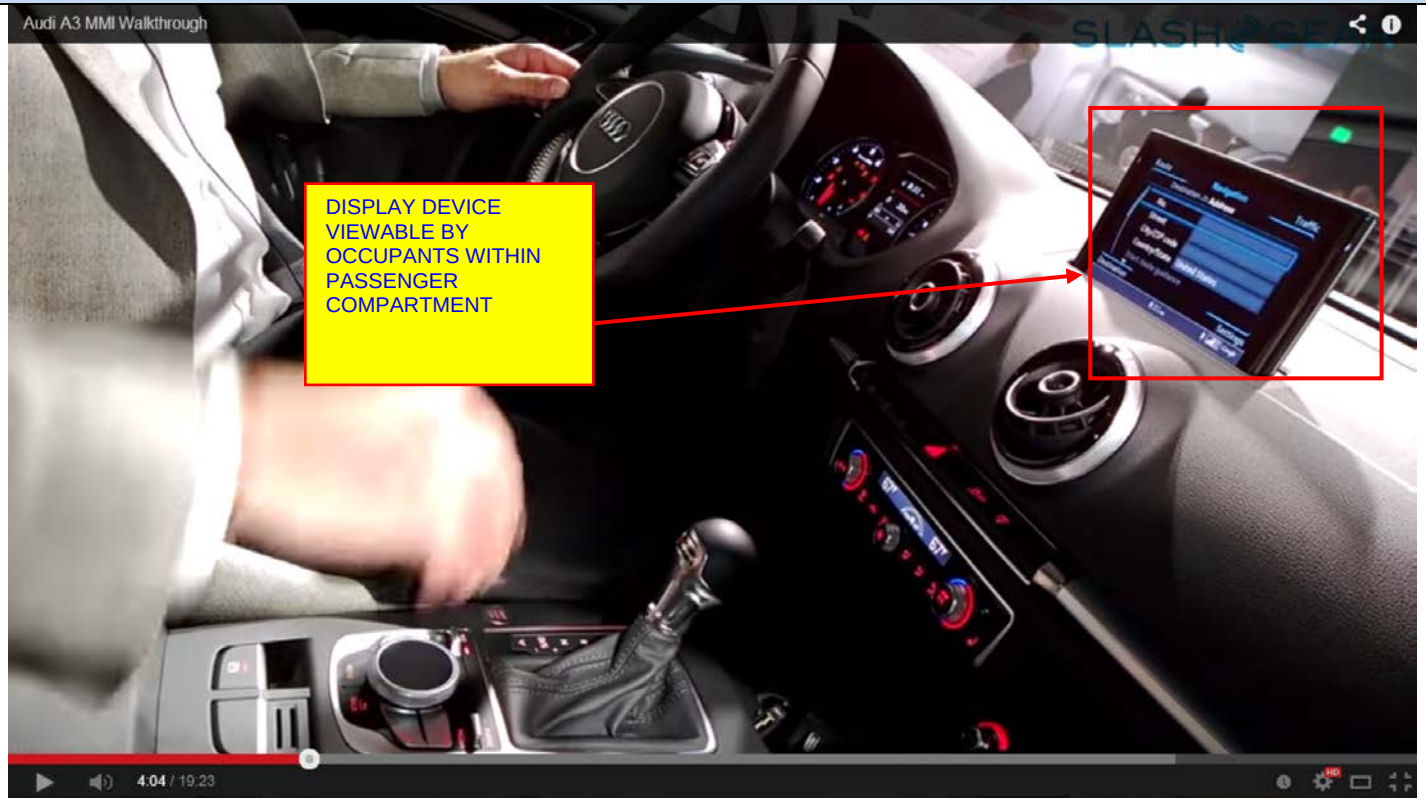
"**The future of Audi is modular**

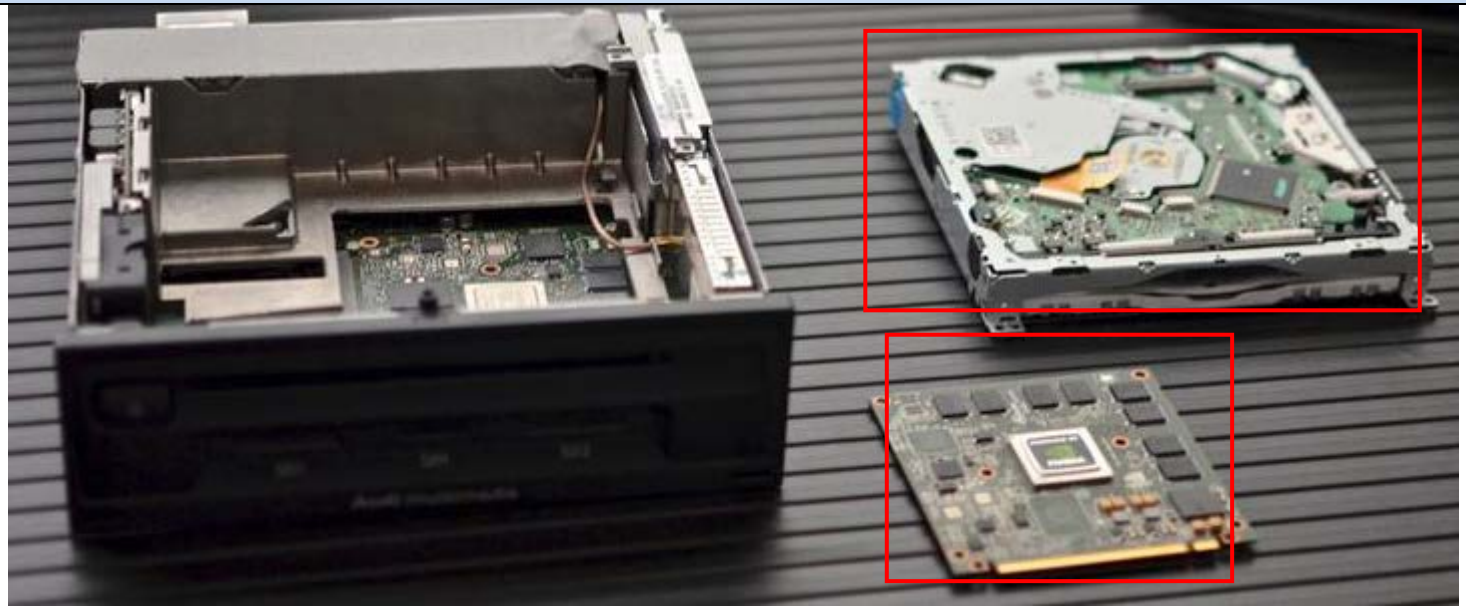
The A3's Multi Media Interface (MMI) infotainment system is powered by Nvidia's Tegra 2 processor and features crisply rendered 3D topographical map data for the navigation system and snappy, sharp menus. …

Right now, it's packing the Tegra 2 and 4G LTE connectivity, but next year it could be rocking a more powerful brain or a faster connection. …

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 		

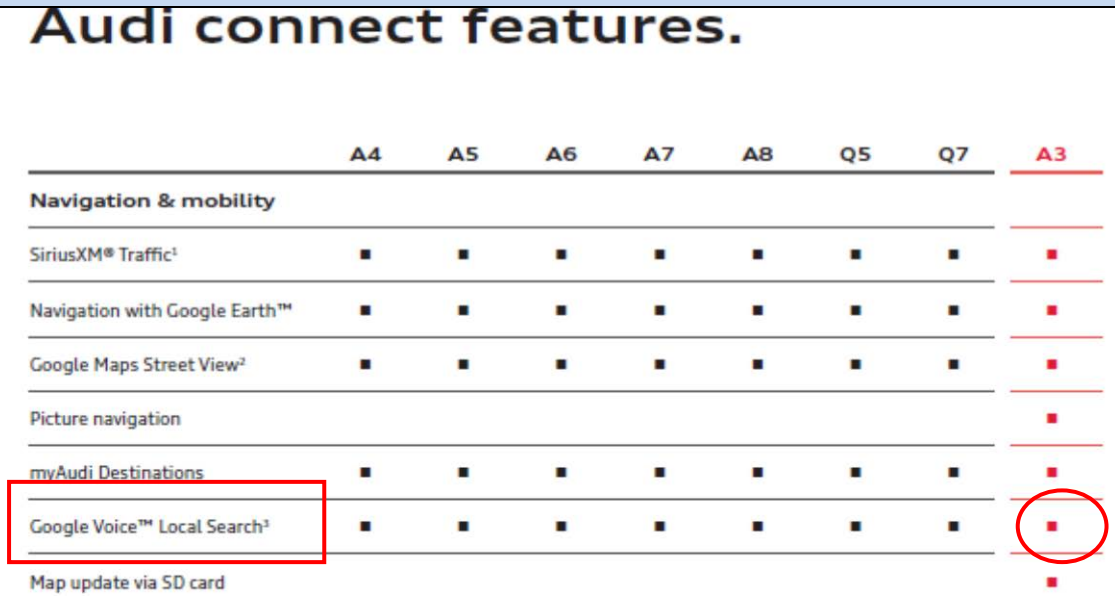
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	The A3's infotainment system's guts are designed to be modular. The brains of the entire system fit into a box that's about the same size as a single-DIN CD player." [http://www.cnet.com/products/2015-audi-a3-sedan/] *"Powered by Nvidia Tegra 2* Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra 4 with minimal retooling." "The central computer in the modular infotainment platform, such as the one Audi currently uses, comprises two units: the Radio Car Control Unit and what is known as the MMX board (MMX: Multi-Media eXtension). The latter is a high-performance plug-in module which integrates – in addition to the RAM and flash-memory modules – the latest Tegra processor from Nvidia. It handles all voice control, online, media, navigation and telephone functions. The new modular layout makes it easy to update the hardware; the fact that the MMX board can be replaced keeps the system at the cutting edge of technology." [http://www.cnet.com/pictures/audi-evolves-the-2015-audi-a3-into-a-4g-lte-connected-sedan-pictures/19/]		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
a display device configured to be viewable by an occupant of the land-mobile apparatus during use;		**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed:	 **SEE DISCUSSION OF TEGRA 2, ETC. ABOVE; MMI/CONNECT SYSTEM HAS SOFTWARE, FIRMWARE WHICH ARE USED TO PROVIDE THE INFORMATION SYSTEM FUNCTIONS. CODE IS STORED ON, E.G., MASS STORAGE DEVICES OF MMI SYSTEM INCLUDING PROGRAM MEMORY, HARD DRIVE (HDD), ETC.**	**L, DOE**	
obtain digitized speech generated based on speech received from the occupant, the digitized speech comprising a request for desired information which the occupant wishes to obtain;	**THE AUDI A3 UTILIZES VOICE DIGITIZATION APPARATUS/FUNCTIONS IN AT LEAST THREE AREAS; (I) GOOGLE LOCAL SEARCH; (II) VEHICLE (LOCAL) COMMANDS, AND (III) MESSAGING; THESE INPUTS ARE RECEIVED VIA A MICROPHONE BUILT INTO THE VEHICLE:** "Another new Audi connect service is the POI (Point Of Interest) search, which can be operated via the voice control system. The driver simply chooses a destination and specifies their interest – the name of a restaurant, for instance. The voice command, or "voice tag," is converted to a small data packet that is sent to the Google search engine." [http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/] "October 11, 2012 08:00 AM Eastern Daylight Time BURLINGTON, Mass.--(BUSINESS WIRE)--Nuance Communications Inc. (NASDAQ: NUAN) today announced that its automotive-grade Dragon Drive! Messaging service for the connected car is powering the text message dictation in the new Audi A3, creating a hands-free messaging experience. With Audi connect Messaging, drivers can simply use their voice to dictate and send text messages while driving, as well as hear incoming text or e-mail messages.'	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	…		
	"Dragon Drive! Messaging's flexible and customizable architecture enables world-leading automotive brands like Audi to deeply integrate powerful voice capabilities as part of their unique in-car experience, without compromising quality or adding dangerous distractions."		
	The Audi A3 deeply integrates Dragon Drive! Messaging as part of the in-car user interface. Drivers simply connect their phone via Bluetooth or insert their SIM card into the MMI Navigation plus to quickly and easily dictate and send text messages without having to take their hands off of the wheel. For example, just say "Dictate text message to John Smith" to quickly access the contact from a mobile address book, and then speak the message, "I am stuck in traffic and will be late for the meeting. Start without me." The message is read to the driver, and from there they can continue dictating, edit or send the message using simple voice commands. Nuance's natural, humanlike text-to-speech capabilities also read out incoming text and email messages, keeping Audi drivers connected to friends and family from anywhere.		
	…		
	Audi also integrates Nuance's voice command and control as part of Audi's voice user interface, letting drivers speak voice commands to search and access contacts and make calls on their phone, select Audi connect services and one-shot voice commands to input navigation address information." [http://www.businesswire.com/news/home/20121011005696/en/Nuance%E2%80%99s-Dragon-Drive!-Messaging-Powers-Text-Message#.VYsxLflVhBd]		
	DEPENDING ON THE FUNCTION, DIFFERENT SPEECH DIGITIZATION /RECOGNITIONS APPARATUS AND FUNCTIONS ARE USED TO EFFECTUATE THE VOICE COMMAND/SEARCH TERM. FOR GOOGLE LOCAL SEARCH (AKA "ONLINE DESTINATIONS" FUNCTION), THE "GOOGLE VOICE" ALGORITHM IS USED FOR DIGITIZATION, AND THE "PACKET" REFERENCED ABOVE IS SENT TO THE REMOTE GOOGLE SERVICE FOR RECOGNITION AND SEARCH OF THE GOOGLE LOCAL DATABASE RELEVANT TO THE VEHICLE'S CURRENT LOCATION:		
	"For non-personalized services (such as Navigation enhanced by Google, information about parking, city events, flight information, weather, gas prices,) we share location information with the appropriate content providers as needed to respond to the requests, but we do not share information that directly identifies you or your Audi vehicle." [http://www.audiusa.com/technology/intelligence/audi-connect/connect-privacy.html]		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



Audi connect features.

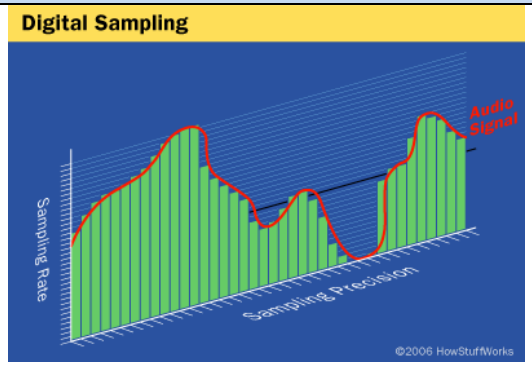
	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■

[Audi connect brochure 2014]

"How Voice Search works

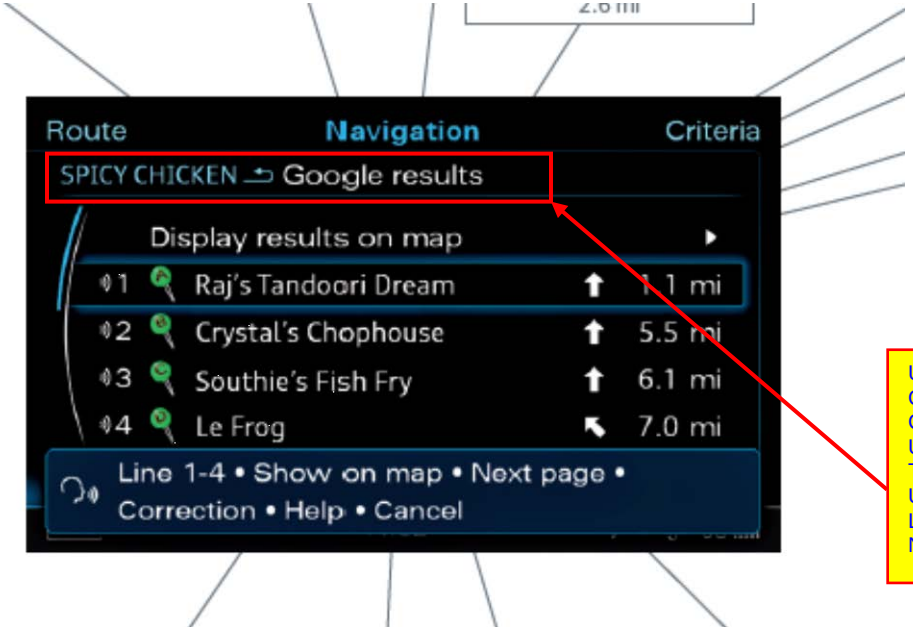
Voice Search allows you to provide a voice query to a Google search client application on a device instead of typing that query. It uses pattern recognition to transcribe spoken words to written text. For each voice query made to Voice Search, we store the language, the country, the utterance and our system's guess of what was said. The stored audio data does not contain your Google Account ID unless you have selected otherwise. We do not send any utterances to Google unless you have indicated an intent to use the Voice Search function (for example, pressing the microphone icon in the quick search bar or in the virtual keyboard or saying "Google" when the quick search bar indicates that the Voice Search function is available). We send the utterances to Google servers in order to recognize what was said by you. We keep utterances to improve our services, including to train the system to better recognize the correct search query."
https://www.google.com/policies/technologies/pattern-recognition/

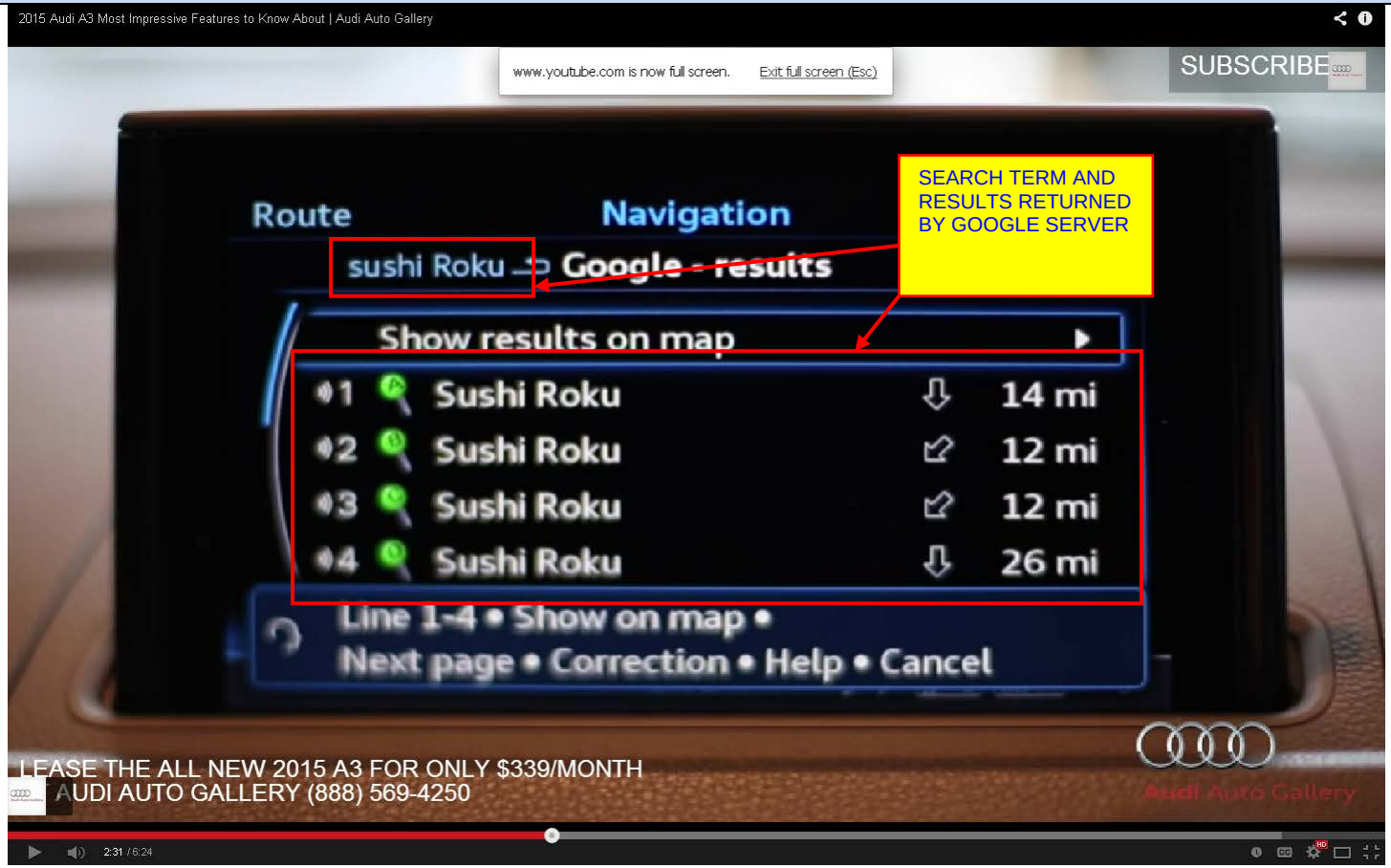
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

	
	"An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality." http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm
	
	"When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " http://www.wired.com/2013/02/android-neural-network/
	
	"**Behind the Scenes**
	
	Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec.
	
	The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like:
	
	…
	
	After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string.
	
	`GET /complete/search?client=iphoneapp&hjson=t&types=t`
	`&spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1`
	`User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1`
	`Accept: */*`
	`Accept-Language: en-us`		

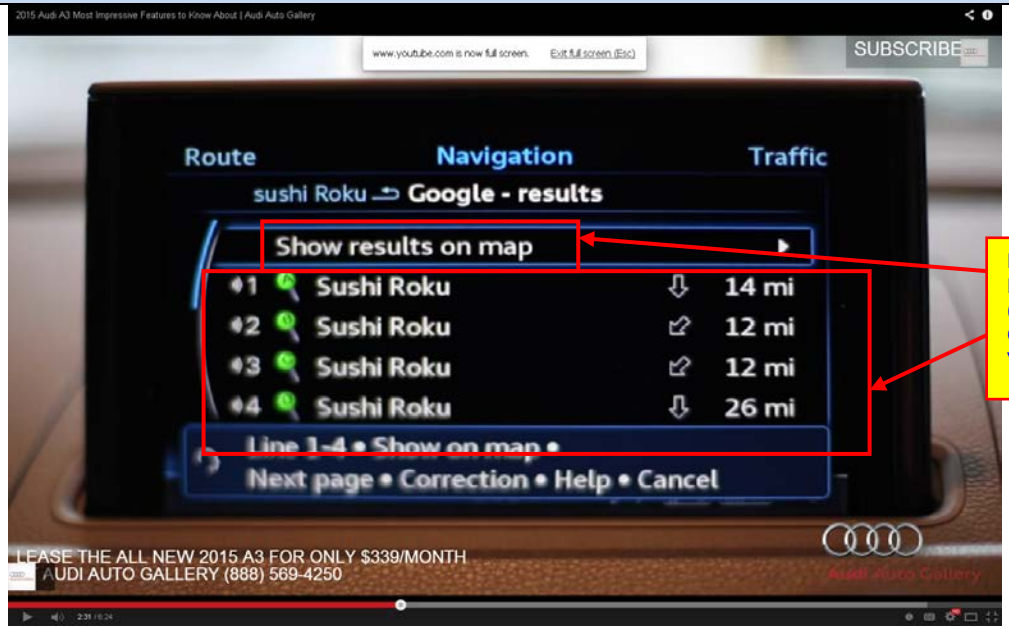
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Accept-Encoding: gzip, deflate Pragma: no-cache Connection: keep-alive Connection: keep-alive Host: clients1.google.com The response is an array of search terms in JSON format, for use in search autocompletion. ["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.** **SO, AS ONE EXAMPLE, THE USER SAYS A SEARCH TERM UNDER THE "NAVIGATION/ONLINE DESTINATIONS" FUNCTION TO FIND A DESIRED RESTAURANT:**		

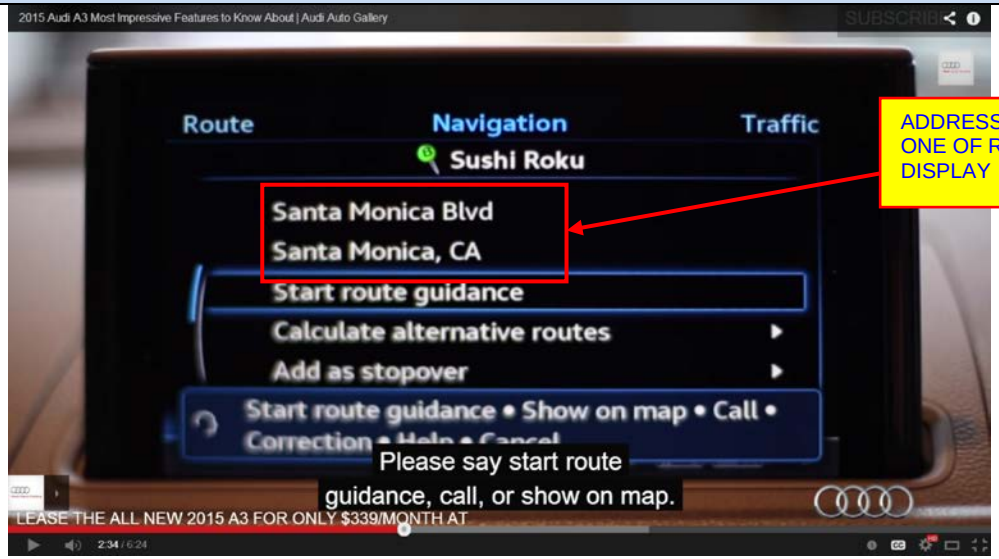
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Your destiny is on the tip of your tongue. Google Voice™ Local Search allows you to easily search via voice commands for restaurants, historical landmarks and places of interest, both near and far.[1] Imagine entering a destination address by just speaking the words—Audi connect® makes that possible. With the power of Google™ on the tip of your tongue, Audi connect brings a vast Internet database to you with the advanced engineering and style of Audi. The same ease of use and thorough location search capability you've come to expect from Google™ rolled into your every commute. Search nearby and faraway points of interest with the power of Google Voice™ Local Search. Need to take the client out for nine holes? Just tell Audi connect "golf course." Looking for a meal with a little kick? Just ask for "spicy chicken"—Google™ will populate your navigation display with restaurants or descriptions that match the phrase you speak. Select the destination that best suits your appetite, and style, and your Audi MMI® navigation system will guide you there in clear and accurate detail. More than just a companion on the road, Audi connect, once you use it, will become an integral part of the family.		

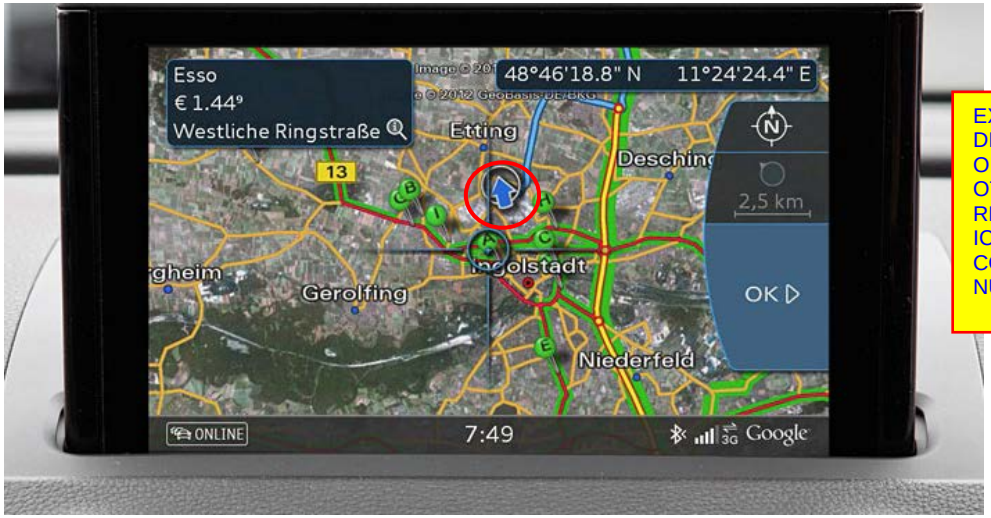
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 [Audi connect brochure 2014] **SEE VIDEO BELOW FOR ANOTHER EXAMPLE (SEARCH FOR "SUSHI ROKU"):**		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=pjoeoDxz06U		
cause, based at least in part on the digitized speech, access of a remote	**SEE DISCUSSION ABOVE; FOR EXAMPLE OF GOOGLE LOCAL VOICE SEARCH, THE DIGITIZED USER'S VOICE IS SENT VIA THE LTE INTERFACE TO AN AUDI CONNECT SERVER, WHICH THEN FORWARDS THE REQUEST TO THE GOOGLE SERVER(S), THE LATTER WHICH: (I) PERFORM RECOGNITION ON THE DATA TO IDENTIFY ONE OR MORE WORDS, AND (II) SEARCH THE GOOGLE LOCAL DATABASE, ETC. FOR "MATCHING" ENTRIES (IN THE**	**L, DOE**	

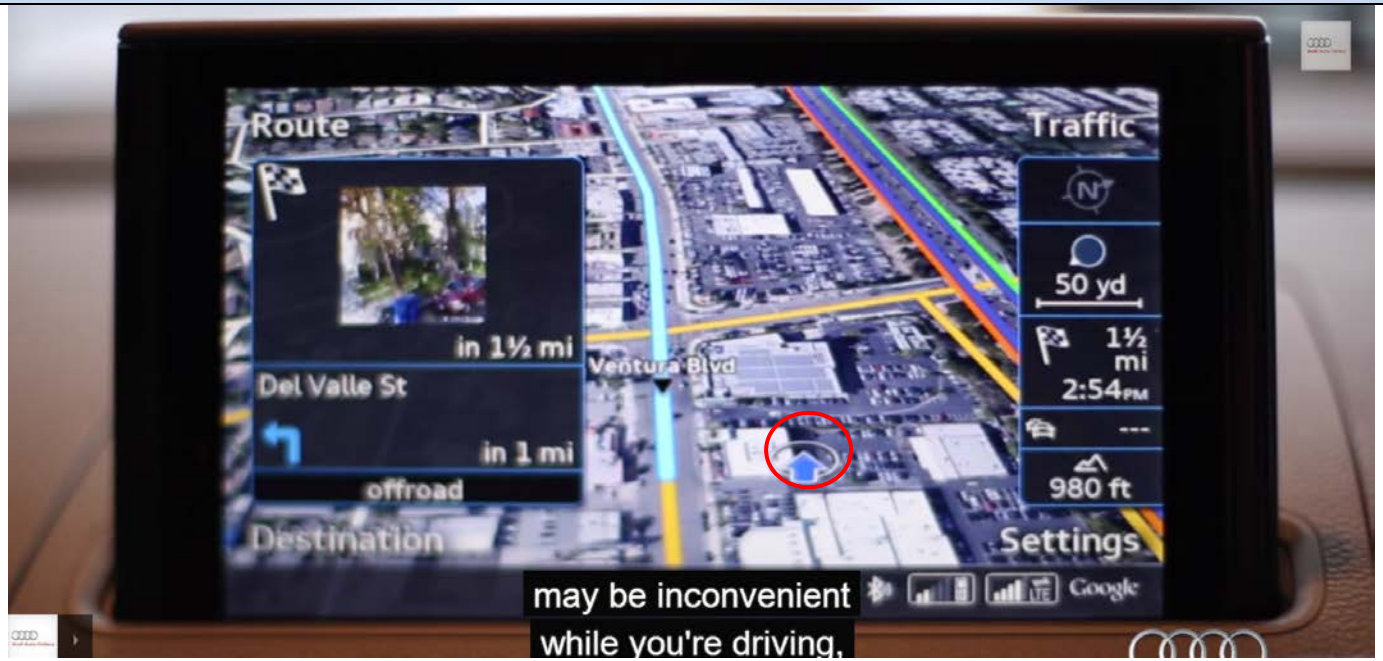
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
network entity via the network interface to cause retrieval of the desired information;	**ILLUSTRATED EXAMPLE, SUSHI ROKU RESTAURANTS GENERALLY IN PROXIMITY TO THE USER'S VEHICLE).** "Audi's IT department is also on the job whenever an Audi driver requests certain Audi connect services such as weather information or the news. Such requests are transmitted via the mobile communications network to back-end servers in Ingolstadt, which identify the vehicle in question. Requests are then forwarded to content providers, which in turn deliver data directly to the customer's vehicle. Audi has already begun managing Audi connect data with cutting-edge precision. This is particularly intriguing in terms of the wireless use of media data via cloud computing, which Audi refers to as "seamless media." " [http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/]		
and receive the desired information via the network interface;	**THE REQUESTED INFORMATION (E.G., SPICY CHICKEN OR SUSHI ROKU LOCATIONS) IS SENT BACK VIA THE LTE WIRELESS INTERFACE TO THE VEHICLE.** **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." [https://www.audi-mediacenter.com/en]	**L, DOE**	

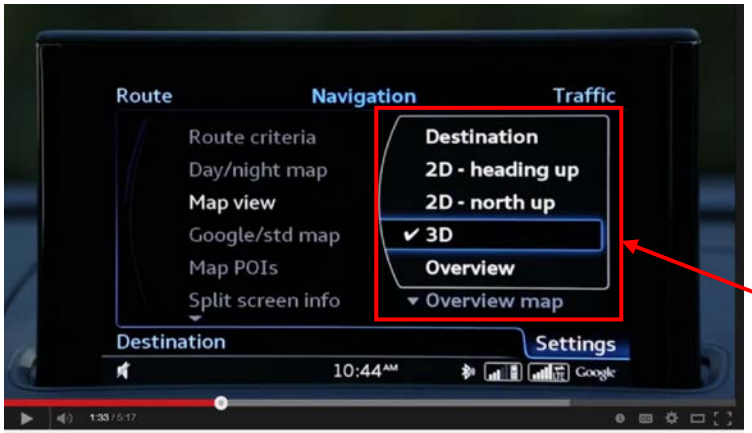
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
wherein the apparatus is further configured to display at least a portion of the desired information on the display device,		**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 EXAMPLE OF LOCATION AND DIRECTIONS SHOWN ON MAP ON DISPLAY (ALONG WITH OTHERS OF THE RETURNED RESULTS, SHOWN AS GREEN ICONS WITH LETTERS WHICH CORRELATE TO LINE NUMBERS ON LIST ABOVE) [http://fourtitude.com/emAlbum/albums/Marques%20(Audi%20Brand%20Group)/Audi%20(Modern%20Era)/A3/from%202013%20(Type%208V,%20MQB)/Sportback/Technical/audi-connect-refuelling-stp-service-mmi-a3-18.jpg]		
the information received via the network interface and selected based at least in part on the digitized speech;	**SEE ABOVE; DESIRED INFORMATION RECEIVED FROM GOOGLE SERVERS VIA LTE INTERFACE; THE GOOGLE SERVERS SELECT THE INFO BASED AT LEAST ON THE DIGITIZED SPEECH THEY RECEIVED AS PART OF SEARCH REQUEST**	**L, DOE**	
and wherein the desired information comprises at least one of a map and/or directions to a particular organization or entity accessible by the transport apparatus.	**SEE ABOVE; DESIRED INFORMATION (I.E., LOCATION OF SUSHI ROKU IN THIS THIS EXAMPLE) DISPLAYED ON MAP:**	**L, DOE**	

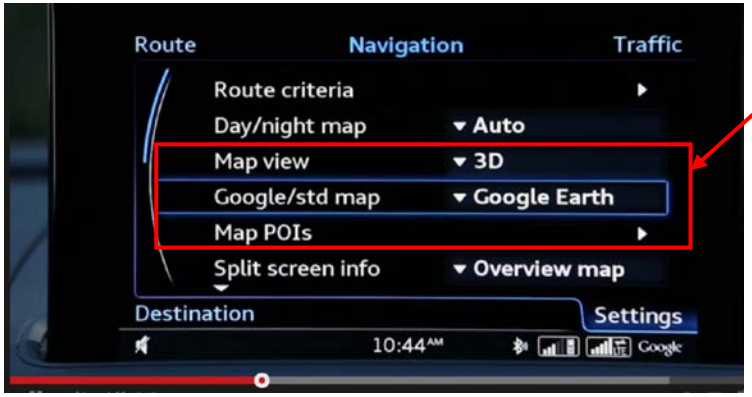
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]





AUDI A3 OFFERS SEVERAL DIFFERENT DISPLAY MODES FOR GOOGLE-SUPPLIED MAPS

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



http://www.youtube.com/watch?v=xadb1vSXw7Q

SEE VIDEO BELOW, WHERE USER SAYS "SHOW ON MAP" AFTER SELECTING THE APPROPRIATE RESULT FROM THE LIST OR RETURNED RESULTS. AS SHOWN BELOW, THE SATELLITE (AND LATER STREET VIEW) DATA HAS TO BE DOWNLOADED FROM THE REMOTE SERVER (AND HENCE FUZZY IMAGE BELOW FOR A FEW SECONDS WHILE LOADING). HENCE, THE IMAGE DATA IS NOT "PRE-CACHED" ON THE VEHICLE:

http://www.youtube.com/watch?v=ojzs8QZKoWA

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	2015 AUDI A3 WITH MMI CONNECT		
48. A land-mobile personnel transport device configured to transport one or more persons from one location to another, comprising:	**This analysis is targeted at 2015 Audi A3 with MMI/Connect providing driving directions/maps and other information**  [2] **AUDI A3 IS A LAND-MOBILE TRANSPORT DEVICE FOR MOVING PEOPLE BETWEEN LOCATIONS.**	**L, DOE**	**D, I**
a passenger compartment;	 AUDI A3 HAS PASSENGER COMPARTMENT THAT HOLDS MULTIPLE PASSENGERS	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	https://www.youtube.com/watch?v=ojzs8QZKoWA		
and computerized information and display apparatus disposed at least partly within the passenger compartment, the information and display apparatus comprising:		**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

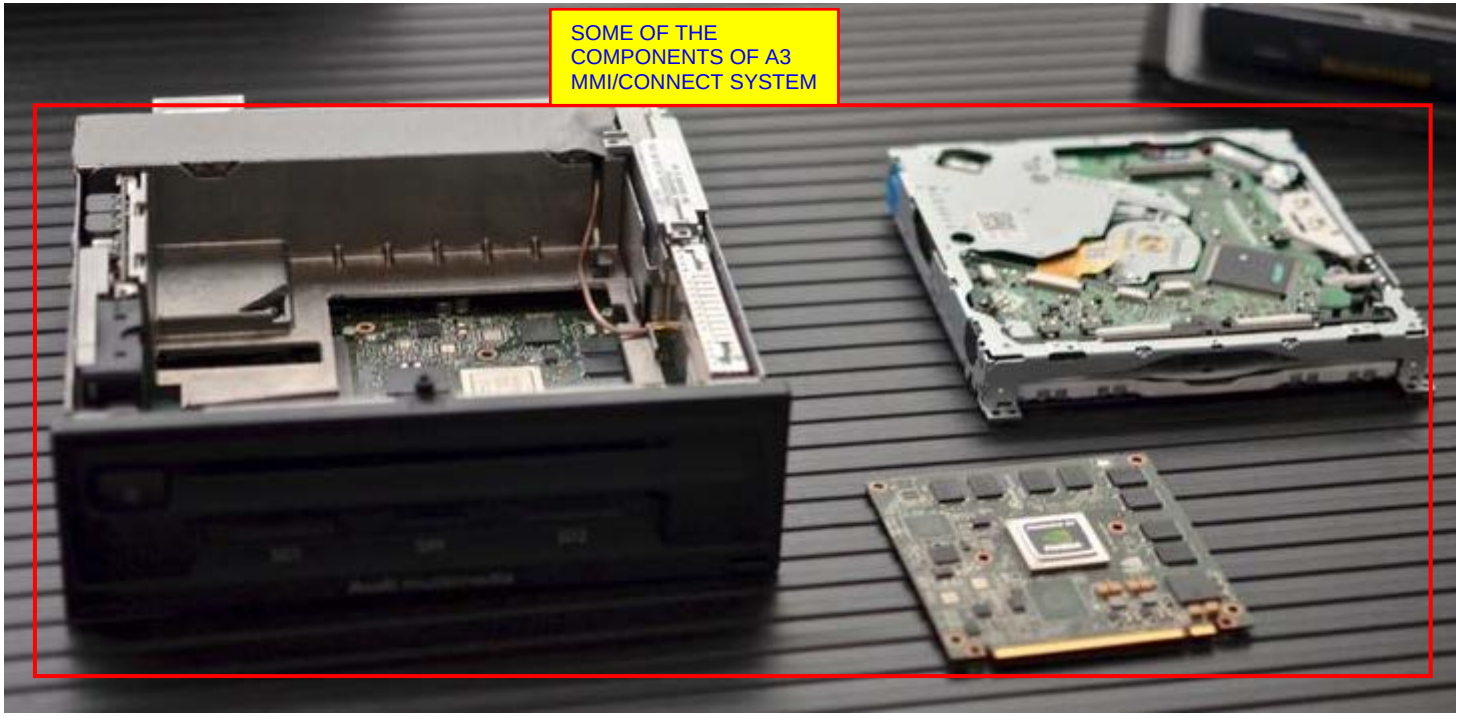
Audi connect features.

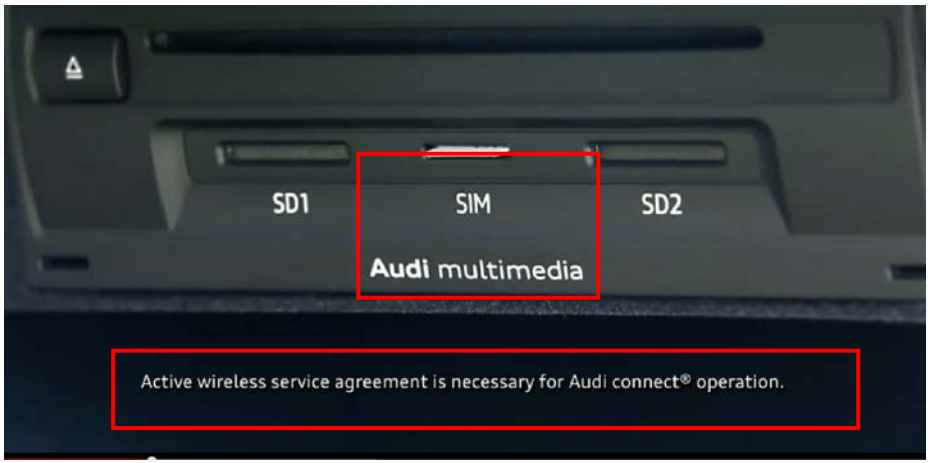
	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■
Parking information	■	■	■	■	■	■	■	■
Fuel prices	■	■	■	■	■	■	■	■
Flight information								■
Communication								
Facebook®								■
Twitter®								■
Infotainment								
Audi music stream[2]	■	■	■	■	■	■	■	■
Weather	■	■	■	■	■	■	■	■
Travel information	■	■	■	■	■	■	■	■
News	■	■	■	■	■	■	■	
Personalized news								■
City events	■	■	■	■	■	■	■	■
Google™ Local Search	■	■	■	■	■	■	■	■
Wi-Fi® hotspot	■	■	■	■	■	■	■	■
3G (HSPA/HSPA+)	■	■	■	■	■	■	■	
4G/LTE								■

FEATURES OF 2015 A3 WITH MMI AND CONNECT

[Audi connect brochure 2014]

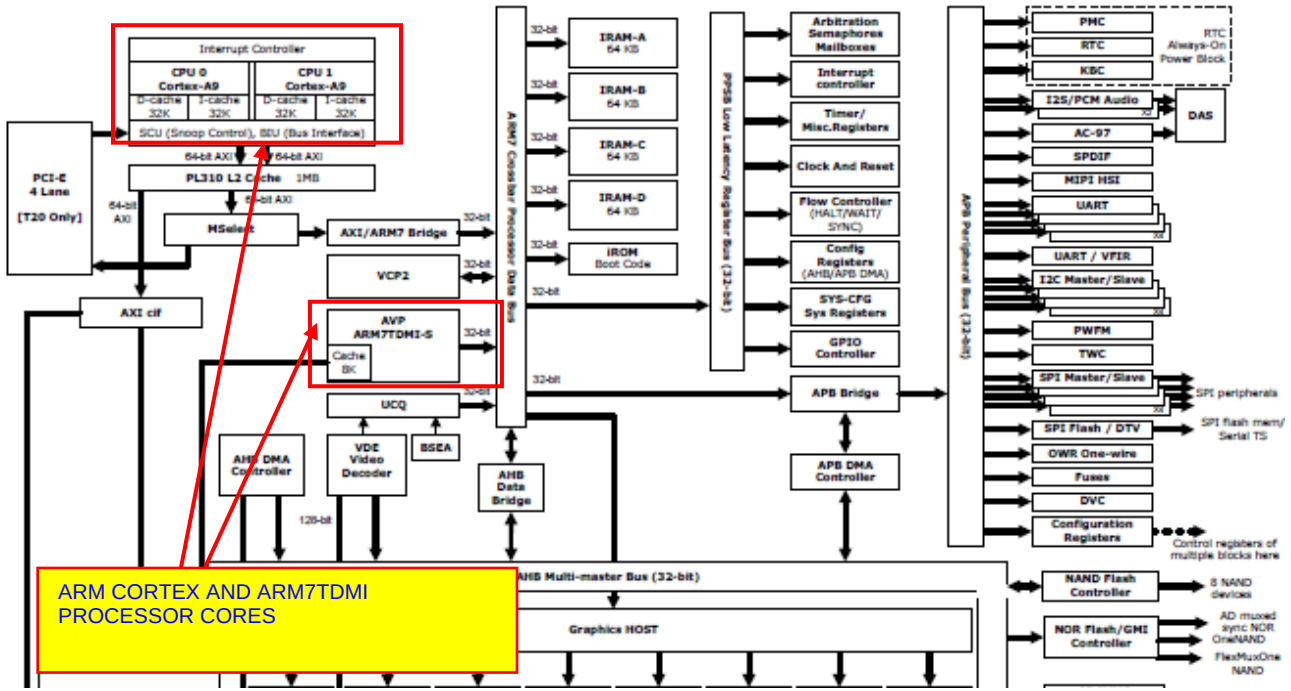
SEE TABLE ABOVE; THE A3 CONNECT SYSTEM PROVIDES NUMEROUS TYPES OF INFORMATION, MOST OF WHICH ARE PROVIDED VIA THE SYSTEMS EMBEDDED LTE INTERFACE (AS OPPOSED FOR EXAMPLE TO SIRIUSXM, WHICH IS SATELLITE/DOWNLINK BASED, AND WHICH REQUIRES A SEPARATE SUBSCRIPTION

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	FROM THE CONNECT SYSTEM OFFERED BY AUDI).  "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/]		
a wireless network interface;	**"Connectivity, Navigation, and Interface** The A3 has several new tech features that haven't made it to even Audi's top-of-the-line A8. It's the first Audi with 4G LTE wireless connectivity via AT&T, for example, while Facebook and Twitter apps are new additions and for now exclusive to the A3's Audi connect system.… Even if you are able to connect your portable device and have ample power, you don't really get much of a chance to use it—or its data plan—beyond listening to music or making calls via Bluetooth. Most of the A3's connected features are	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	dependent on having the AT&T data plan that's part of the Audi connect system and costs $99 for a six-month/5GB-total package or $499 for a 30-month/30GB-total package after a free six-month trial…. Instead of leveraging a smartphone to connect to the cloud, as with some systems, features such as Internet radio and Picture navigation are communicated via Audi Connect, and through the A3's onboard Wi-Fi connection that's part of the AT&T data plan. This means that if you allow your 4G subscription to lapse, you lose these features." [http://www.pcmag.com/article2/0,2817,2455739,00.asp]  **AUDI A3 CONNECT UTILIZES A 4G LTE MODEM AND SERVICE THROUGH AT&T. THIS IS THE PRIMARY WIRELESS INTERFACE FOR THE VEHICLE. THE LTE MODEM ALSO AFFORDS THE PASSENGERS WITH A WI-FI HOTSPOT (I.E., WI-FI AP INTERFACE TO USER DEVICES, WITH WI-FI AP COUPLED TO LTE FOR BROADBAND SERVICE)**		
processing apparatus in data communication with the network interface;	**THE MMI/CONNECT SYSTEM ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA 2 PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA 2 CHIP AND OTHER COMPONENTS.** **THE PROCESSING APPARATUS IS IN DATA COMMUNICATION WITH THE WIRELESS NETWORK (E.G., 4G LTE) INTERFACE DISCUSSED BELOW IN ORDER TO, *INTER ALIA*, RECEIVE AND PROCESS DATA FROM THE CONNECT REMOTE SERVERS.**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

Figure 1. Tegra 2 Series Block Diagram

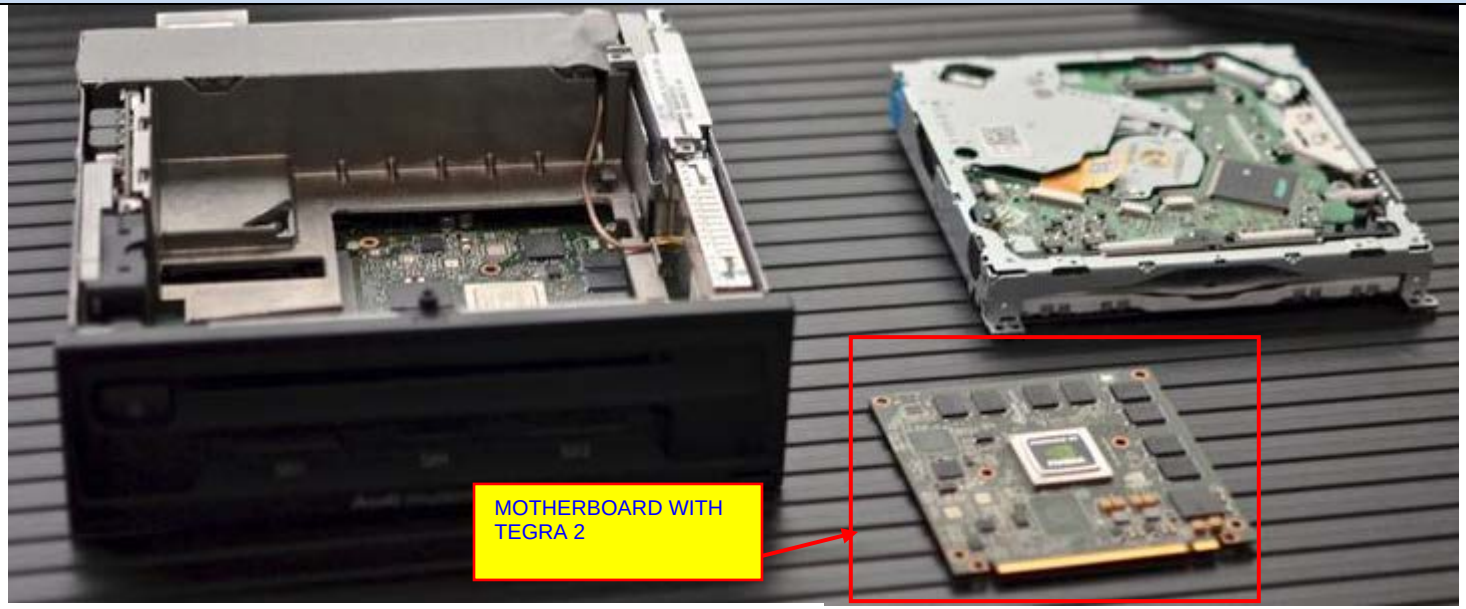


http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

"**The future of Audi is modular**

The A3's Multi Media Interface (MMI) infotainment system is powered by Nvidia's Tegra 2 processor and features crisply rendered 3D topographical map data for the navigation system and snappy, sharp menus. …

Right now, it's packing the Tegra 2 and 4G LTE connectivity, but next year it could be rocking a more powerful brain or a faster connection. …

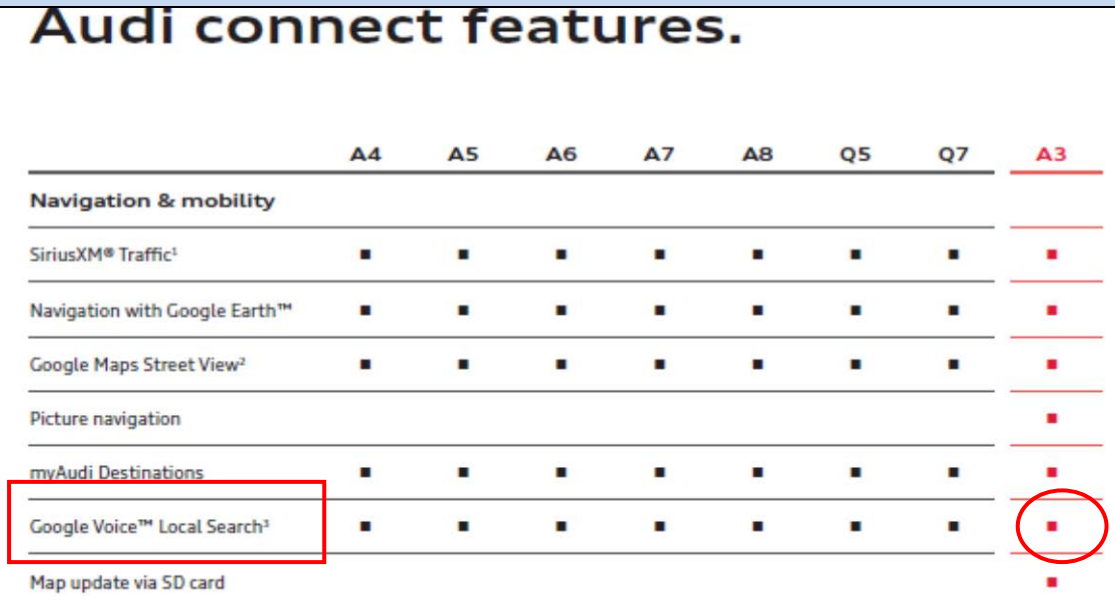
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	The A3's infotainment system's guts are designed to be modular. The brains of the entire system fit into a box that's about the same size as a single-DIN CD player." [http://www.cnet.com/products/2015-audi-a3-sedan/] *"Powered by Nvidia Tegra 2* Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra 4 with minimal retooling." "The central computer in the modular infotainment platform, such as the one Audi currently uses, comprises two units: the Radio Car Control Unit and what is known as the MMX board (MMX: Multi-Media eXtension). The latter is a high-performance plug-in module which integrates – in addition to the RAM and flash-memory modules – the latest Tegra processor from Nvidia. It handles all voice control, online, media, navigation and telephone functions. The new modular layout makes it easy to update the hardware; the fact that the MMX board can be replaced keeps the system at the cutting edge of technology." [http://www.cnet.com/products/2015-audi-a3-sedan/]		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
a display device configured to be viewable by an occupant of the land-mobile apparatus during use;		L, DOE	
and computerized logic configured to, when executed:	**SEE DISCUSSION OF TEGRA 2, ETC. ABOVE; MMI/CONNECT SYSTEM HAS COMPUTERIZED LOGIC (I.E., SOFTWARE, FIRMWARE) WHICH ARE USED TO PROVIDE THE INFORMATION SYSTEM FUNCTIONS.**	L, DOE	
obtain digitized speech generated based on speech received from the occupant,	**THE AUDI A3 UTILIZES VOICE DIGITIZATION APPARATUS/FUNCTIONS IN AT LEAST THREE AREAS; (I) GOOGLE LOCAL SEARCH; (II) VEHICLE (LOCAL) COMMANDS, AND (III) MESSAGING; THESE INPUTS ARE RECEIVED VIA A MICROPHONE BUILT INTO THE VEHICLE:** "Another new Audi connect service is the POI (Point Of Interest) search, which can be operated via the voice control system. The driver simply chooses a destination and specifies their interest – the name of a restaurant, for instance. The voice command, or "voice tag," is converted to a small data packet that is sent to the Google search engine." [http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/]	L, DOE	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	"October 11, 2012 08:00 AM Eastern Daylight Time BURLINGTON, Mass.--(BUSINESS WIRE)--Nuance Communications Inc. (NASDAQ: NUAN) today announced that its automotive-grade Dragon Drive! Messaging service for the connected car is powering the text message dictation in the new Audi A3, creating a hands-free messaging experience. With Audi connect Messaging, drivers can simply use their voice to dictate and send text messages while driving, as well as hear incoming text or e-mail messages.' … "Dragon Drive! Messaging's flexible and customizable architecture enables world-leading automotive brands like Audi to deeply integrate powerful voice capabilities as part of their unique in-car experience, without compromising quality or adding dangerous distractions." The Audi A3 deeply integrates Dragon Drive! Messaging as part of the in-car user interface. Drivers simply connect their phone via Bluetooth or insert their SIM card into the MMI Navigation plus to quickly and easily dictate and send text messages without having to take their hands off of the wheel. For example, just say "Dictate text message to John Smith" to quickly access the contact from a mobile address book, and then speak the message, "I am stuck in traffic and will be late for the meeting. Start without me." The message is read to the driver, and from there they can continue dictating, edit or send the message using simple voice commands. Nuance's natural, humanlike text-to-speech capabilities also read out incoming text and email messages, keeping Audi drivers connected to friends and family from anywhere. … Audi also integrates Nuance's voice command and control as part of Audi's voice user interface, letting drivers speak voice commands to search and access contacts and make calls on their phone, select Audi connect services and one-shot voice commands to input navigation address information." [http://www.businesswire.com/news/home/20121011005696/en/Nuance%E2%80%99s-Dragon-Drive!-Messaging-Powers-Text-Message#.U_PAdMVdXN8] **DEPENDING ON THE FUNCTION, DIFFERENT SPEECH DIGITIZATION /RECOGNITIONS APPARATUS AND FUNCTIONS ARE USED TO EFFECTUATE THE VOICE COMMAND/SEARCH TERM. FOR GOOGLE LOCAL SEARCH (AKA "ONLINE DESTINATIONS" FUNCTION), THE "GOOGLE VOICE" ALGORITHM IS USED FOR DIGITIZATION, AND THE "PACKET" REFERENCED ABOVE IS SENT TO THE REMOTE GOOGLE SERVICE FOR RECOGNITION AND SEARCH OF THE GOOGLE LOCAL DATABASE RELEVANT TO THE VEHICLE'S CURRENT LOCATION:** "For non-personalized services (such as Navigation enhanced by Google, information about parking, city events, flight information, weather, gas prices,) we share location information with the appropriate content providers as needed to respond to the requests, but we do not share information that directly identifies you or your Audi vehicle." http://www.audiusa.com/technology/intelligence/audi-connect/connect-privacy.html		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



Audi connect features.

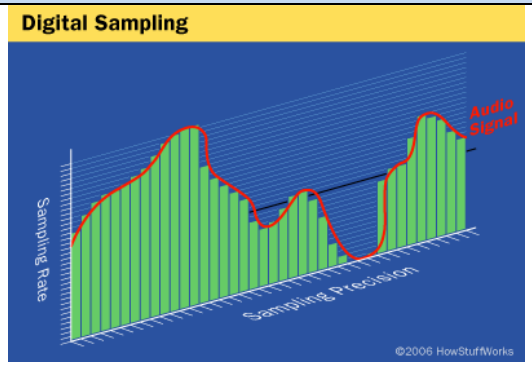
	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■

[Audi connect brochure 2014]

"How Voice Search works

Voice Search allows you to provide a voice query to a Google search client application on a device instead of typing that query. It uses pattern recognition to transcribe spoken words to written text. For each voice query made to Voice Search, we store the language, the country, the utterance and our system's guess of what was said. The stored audio data does not contain your Google Account ID unless you have selected otherwise. We do not send any utterances to Google unless you have indicated an intent to use the Voice Search function (for example, pressing the microphone icon in the quick search bar or in the virtual keyboard or saying "Google" when the quick search bar indicates that the Voice Search function is available). We send the utterances to Google servers in order to recognize what was said by you. We keep utterances to improve our services, including to train the system to better recognize the correct search query."
https://www.google.com/policies/technologies/pattern-recognition/

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



"An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality." http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm

"When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " http://www.wired.com/2013/02/android-neural-network/

"**Behind the Scenes**

Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec.

The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like:

…

After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string.

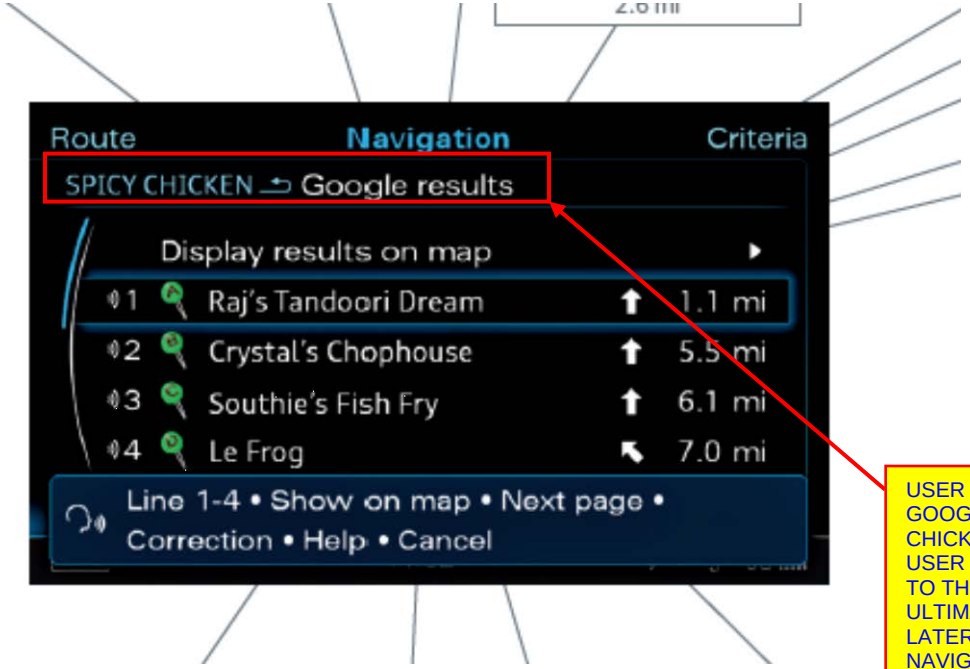
```
GET /complete/search?client=iphoneapp&hjson=t&types=t
    &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1
User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1
Accept: */*
Accept-Language: en-us
```

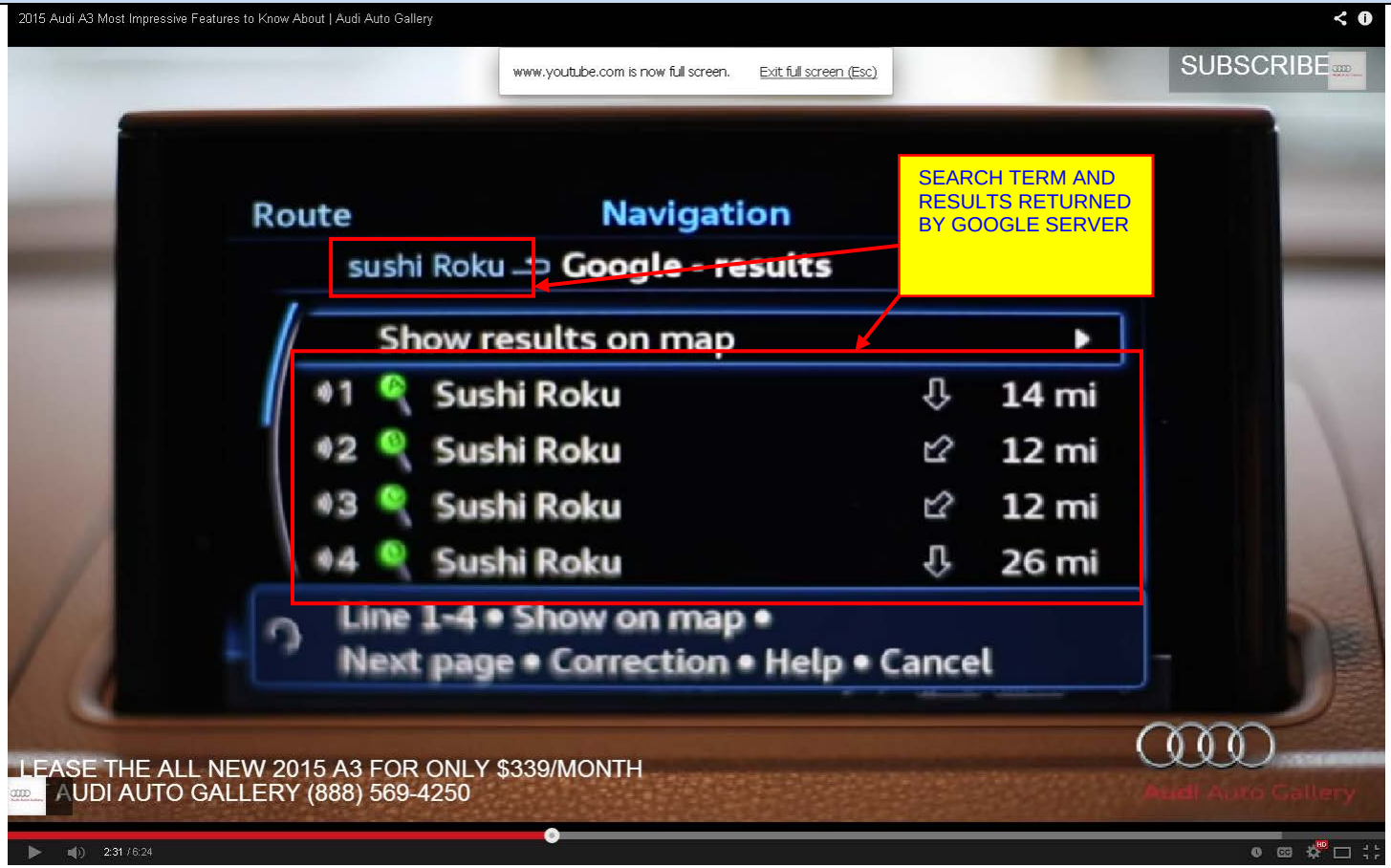
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

	`Accept-Encoding: gzip, deflate`
	`Pragma: no-cache`
	`Connection: keep-alive`
	`Connection: keep-alive`
	`Host: clients1.google.com`
	
	The response is an array of search terms in JSON format, for use in search autocompletion.
	
	`["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]]`
	[http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/]
	
	THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.		

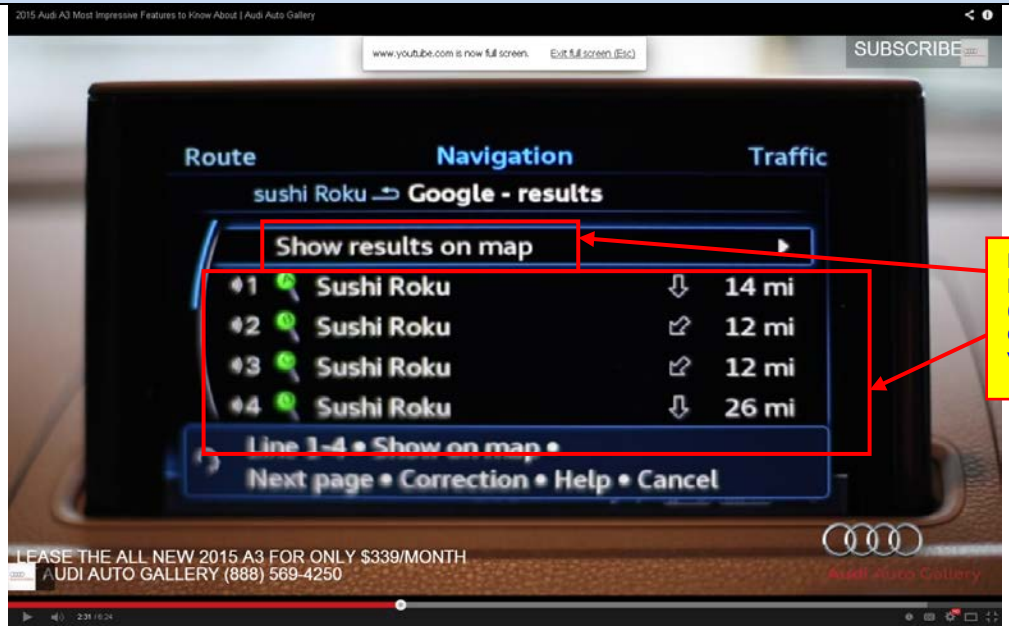
the received speech comprising a request for desired information which the occupant wishes to obtain;	**SO, AS ONE EXAMPLE, THE USER SAYS A SEARCH TERM UNDER THE "NAVIGATION/ONLINE DESTINATIONS" FUNCTION TO FIND A DESIRED RESTAURANT:**	**L, DOE**	

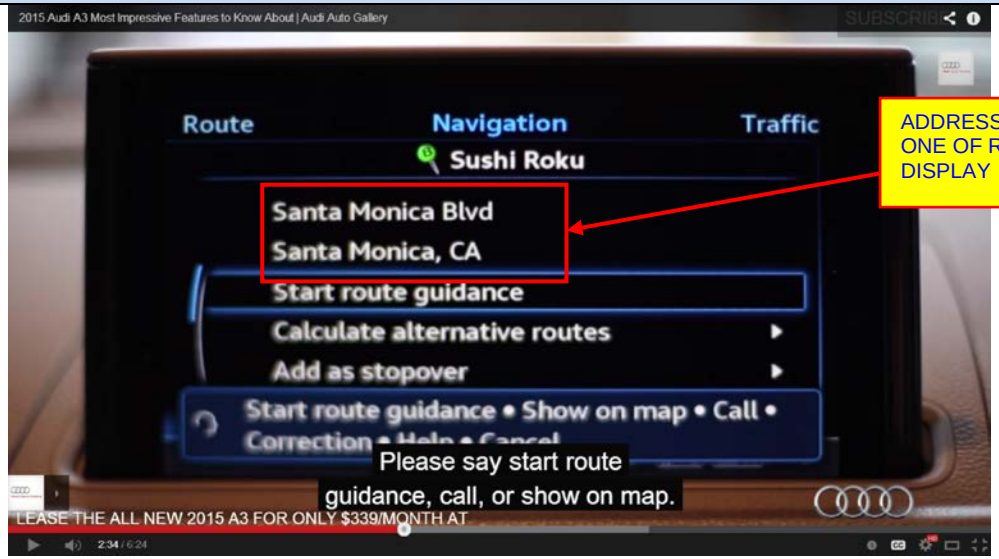
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Your destiny is on the tip of your tongue. Google Voice™ Local Search allows you to easily search via voice commands for restaurants, historical landmarks and places of interest, both near and far.[1] Imagine entering a destination address by just speaking the words—Audi connect® makes that possible. With the power of Google™ on the tip of your tongue, Audi connect brings a vast Internet database to you with the advanced engineering and style of Audi. The same ease of use and thorough location search capability you've come to expect from Google™ rolled into your every commute. Search nearby and faraway points of interest with the power of Google Voice™ Local Search. Need to take the client out for nine holes? Just tell Audi connect "golf course." Looking for a meal with a little kick? Just ask for "spicy chicken"—Google™ will populate your navigation display with restaurants or descriptions that match the phrase you speak. Select the destination that best suits your appetite, and style, and your Audi MMI® navigation system will guide you there in clear and accurate detail. More than just a companion on the road, Audi connect, once you use it, will become an integral part of the family.		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 [http://www.audiusa.com/content/dam/audiusa/Innovation/Audi%20connect/2015-Audi-connect-brochure-updated-2.pdf] **SEE VIDEO BELOW FOR ANOTHER EXAMPLE (SEARCH FOR "SUSHI ROKU"):**		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=pjoeoDxz06U		
cause, based at least in part on the digitized speech, access of a remote network entity via the network interface to	**SEE DISCUSSION ABOVE; FOR EXAMPLE OF GOOGLE LOCAL VOICE SEARCH, THE DIGITIZED USER'S VOICE IS SENT VIA THE LTE INTERFACE TO AN AUDI CONNECT SERVER, WHICH THEN FORWARDS THE REQUEST TO THE GOOGLE SERVER(S), THE LATTER WHICH: (I) PERFORM RECOGNITION ON THE DATA TO IDENTIFY ONE OR MORE WORDS, AND (II) SEARCH THE GOOGLE LOCAL DATABASE, ETC. FOR "MATCHING" ENTRIES (IN THE ILLUSTRATED EXAMPLE, SUSHI ROKU RESTAURANTS GENERALLY IN PROXIMITY TO THE USER'S VEHICLE).**	**L, DOE**	

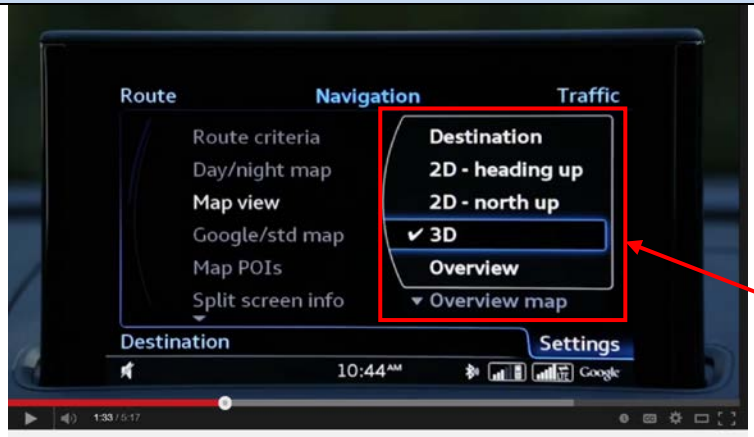
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
cause retrieval of the desired information;	"Audi's IT department is also on the job whenever an Audi driver requests certain Audi connect services such as weather information or the news. Such requests are transmitted via the mobile communications network to back-end servers in Ingolstadt, which identify the vehicle in question. Requests are then forwarded to content providers, which in turn deliver data directly to the customer's vehicle. Audi has already begun managing Audi connect data with cutting-edge precision. This is particularly intriguing in terms of the wireless use of media data via cloud computing, which Audi refers to as "seamless media." " [6]		
and receive the desired information via the network interface;	**THE REQUESTED INFORMATION (E.G., SPICY CHICKEN OR SUSHI ROKU LOCATIONS) IS SENT BACK VIA THE LTE WIRELESS INTERFACE TO THE VEHICLE.** **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/	**L, DOE**	

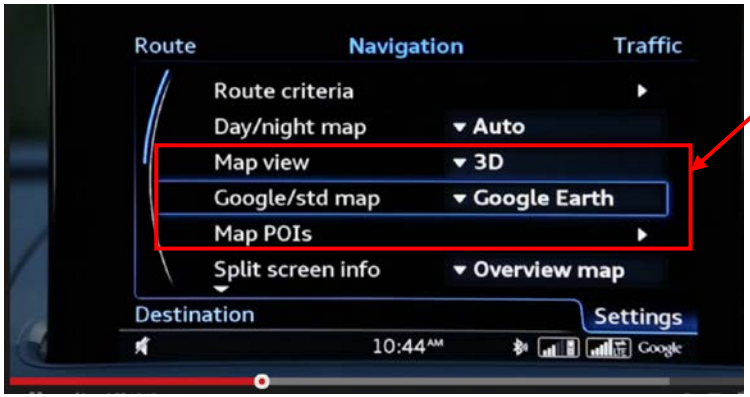
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
wherein the information and display apparatus is further configured to display at least a portion of the desired information on the display device,		**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
			
			

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
the information received via the network interface and selected based at least in part on the digitized speech;	**SEE ABOVE; DESIRED INFORMATION RECEIVED FROM GOOGLE SERVERS VIA LTE INTERFACE; THE GOOGLE SERVERS SELECT THE INFO BASED AT LEAST ON THE DIGITIZED SPEECH THEY RECEIVED AS PART OF SEARCH REQUEST**	**L, DOE**	
and wherein the desired information comprises at least one of a map and/or directions to a particular organization or entity accessible by the occupant.	**SEE ABOVE; DESIRED INFORMATION (I.E., LOCATION OF SUSHI ROKU IN THIS THIS EXAMPLE) DISPLAYED ON MAP:** 	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]





AUDI A3 OFFERS SEVERAL DIFFERENT DISPLAY MODES FOR GOOGLE-SUPPLIED MAPS

http://www.youtube.com/watch?v=xadb1vSXw7Q

SEE VIDEO BELOW, WHERE USER SAYS "SHOW ON MAP" AFTER SELECTING THE APPROPRIATE RESULT FROM THE LIST OR RETURNED RESULTS. AS SHOWN BELOW, THE SATELLITE (AND LATER STREET VIEW) DATA HAS TO BE DOWNLOADED FROM THE REMOTE SERVER (AND HENCE FUZZY IMAGE BELOW FOR A FEW SECONDS WHILE LOADING). HENCE, THE IMAGE DATA IS NOT "PRE-CACHED" ON THE VEHICLE:

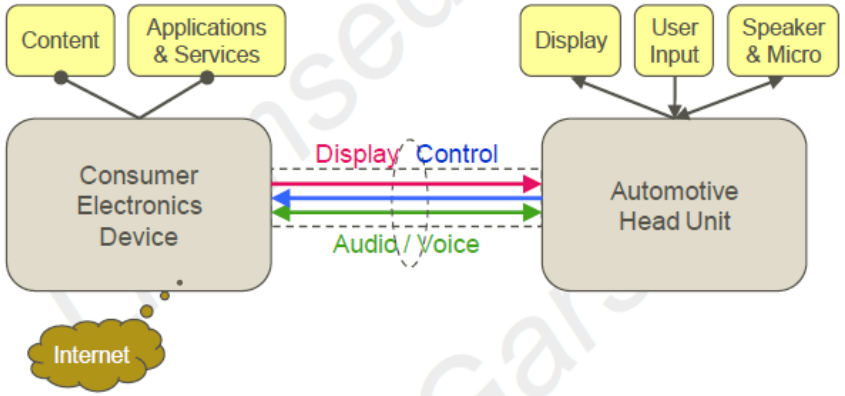
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 http://www.youtube.com/watch?v=ojzs8QZKoWA		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	2015/2016 VOLKSWAGEN (VW) GOLF GTI WITH MIB-II AND MIRRORLINK		
	This analysis is directed to the 2015/2016 VW Golf GTI with MIB-II infotainment system with MirrorLink functionality. "Later this year [*2015*], VW will introduce the second generation "modular infotainment platform" (MIB II) in the United States. Along with the new infotainment system, MirrorLink™ will also be made available for the first time, integrating the apps and operating layout of numerous smartphones (including Samsung, HTC, LG and Sony) into cars. When MirrorLink™ is introduced, two other interfaces will also be launched under the App-Connect label: … Android Auto™ (Google®). Simultaneously, VW will also launch … Android Auto™ in the European market." http://media.vw.com/release/908/ **NOTE THAT WHILE FOLLOWING ANALYSIS IS BASED ON THE INCIPIENT MIB-II SYSTEM, AN ACTUAL VEHICLE IS NOT YET ON SALE IN THE U.S. AS OF THE DATE OF THIS SUBMISSION. ACCORDINGLY, THE FOLLOWING IS PREDICATED AT LEAST IN PART ON THE EXTANT 2015 GOLF GTI (I.E., WITH PREDECESSOR TO MIB-II) NOW SOLD IN THE U.S., WITH DIFFERENCES NOTED AS APPLICABLE.**		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

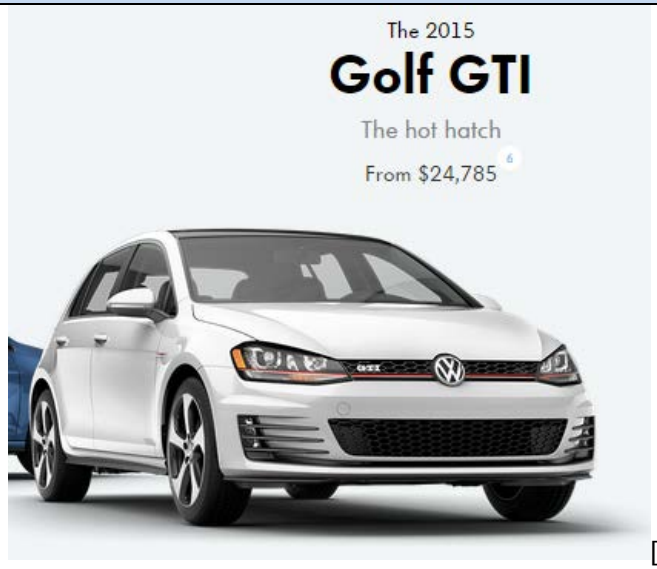
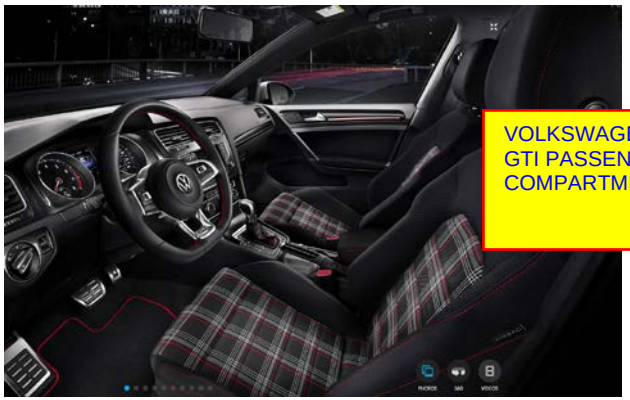
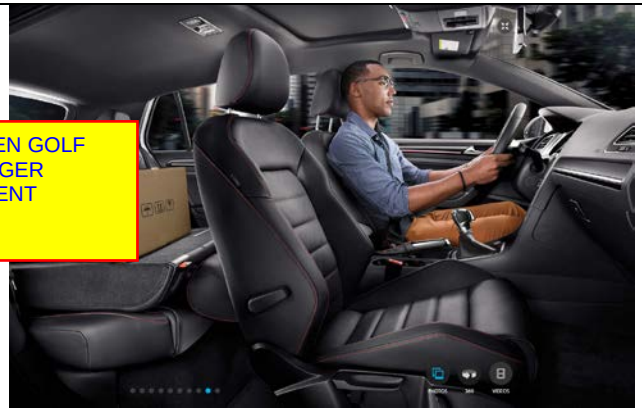
2 INTRODUCTION TO MIRRORLINK CONCEPT

MirrorLink provides a concept for integrating the mobile device (hereinafter referred to as the "MirrorLink server") and the vehicle head-unit (hereinafter referred to as the "MirrorLink client"). In a MirrorLink context, the control and interaction of applications and services running on the mobile device will be replicated into the vehicle environment. Diverting display and audio output to the vehicle head-unit come together with receiving key and voice control input from it are the main interaction streams, as shown in the following Figure 1.



MIRRORLINK USES MOBILE DEVICE IN CONJUNCTION WITH HEAD UNIT

"Car Connectivity Consortium," April 28, 2015

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
48. A land-mobile personnel transport device configured to transport one or more persons from one location to another, comprising:	 [THE 2015 VW Golf GTI] **VW GOLF GTI IS A LAND-MOBILE TRANSPORT DEVICE FOR MOVING PEOPLE BETWEEN LOCATIONS.**	**L, DOE**	**D, I**
a passenger compartment;:	 	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and computerized information and display apparatus disposed at least partly within the passenger compartment, the information and display apparatus comprising	 MIB-II SYSTEM WITH EXEMPLARY ANDROID SMARTPHONE ASSOCIATED THEREWITH VIA USB CABLE/PORT http://cars.reviewed.com/content/volkswagen-mib-ii-infotainment-system-first-impressions-review **SEE FEATURE MATRIX BELOW; CURRENT ANALYSIS IS BASED ON 2015 GOLF GTI WITH MIB-II AND MIRRORLINK, CAR-NET, AND REARVIEW CAMERA SYSTEM** **Golf GTI Specs** • Standard, no additional cost O Optional, additional cost – Not available 2D Standard on 2-Door only 4D Standard on 4-Door only DCC Available with Dynamic Chassis Control Package DAP Available with Driver Assistance Package PP Available with Performance Package LP Available with Lighting Package	**L, DOE**	

<table>
<tr><th>Claim Language</th><th>Exemplary Audi/Volkswagen Implementations</th><th>Literal / DOE[1]</th><th>Direct / Indirect[2]</th></tr>
<tr><td></td><td>
<table>
<tr><th>Technology</th><th>S</th><th>SE</th><th>Autobahn (4-Door only)</th></tr>
<tr><td>5.8" touchscreen sound system with proximity sensors and voice control, MP3- and WMA-compatible in-dash CD player, and SD memory card reader</td><td>●</td><td>●</td><td>–</td></tr>
<tr><td>Navigation system with 5.8" touchscreen with proximity sensors and voice control, and 2 SD memory card readers</td><td>–</td><td>–</td><td>●</td></tr>
<tr><td>8 speakers</td><td>●</td><td>–</td><td>–</td></tr>
<tr><td>Fender® Premium Audio System with 9 speakers including subwoofer</td><td>–</td><td>●</td><td>●</td></tr>
<tr><td>SiriusXM Satellite Radio All Access with 3-month trial subscription</td><td>●</td><td>●</td><td>●</td></tr>
</table>
<table>
<tr><th>Technology Cont.</th><th>S</th><th>SE</th><th>Autobahn (4-Door only)</th></tr>
<tr><td>Interior ambient lighting</td><td>●</td><td>●</td><td>●</td></tr>
<tr><td>SiriusXM Traffic™ with 4-year trial subscription</td><td>–</td><td>–</td><td>●</td></tr>
<tr><td>Bluetooth® with audio streaming*</td><td>●</td><td>●</td><td>●</td></tr>
<tr><td>Media Device Interface (MDI) with iPod® cable</td><td>●</td><td>●</td><td>●</td></tr>
<tr><td>Rearview camera</td><td>–</td><td>●</td><td>●</td></tr>
<tr><td>Keyless access with push-button start</td><td>–</td><td>●</td><td>●</td></tr>
<tr><td>Park Distance Control (PDC) system with front and rear proximity sensors</td><td>DAP</td><td>DAP</td><td>DAP</td></tr>
<tr><td>Forward Collision Warning</td><td>DAP</td><td>DAP</td><td>DAP</td></tr>
</table>
[THE 2015 VW Golf GTI STANDARD AND OPTIONAL EQUIPMENT]</td><td></td><td></td></tr>
<tr><td>a wireless network interface;</td><td>MirrorLink Specification 1.0.3 Page 8/12
Core Architecture
CCC-TS-001

1 1 ABOUT

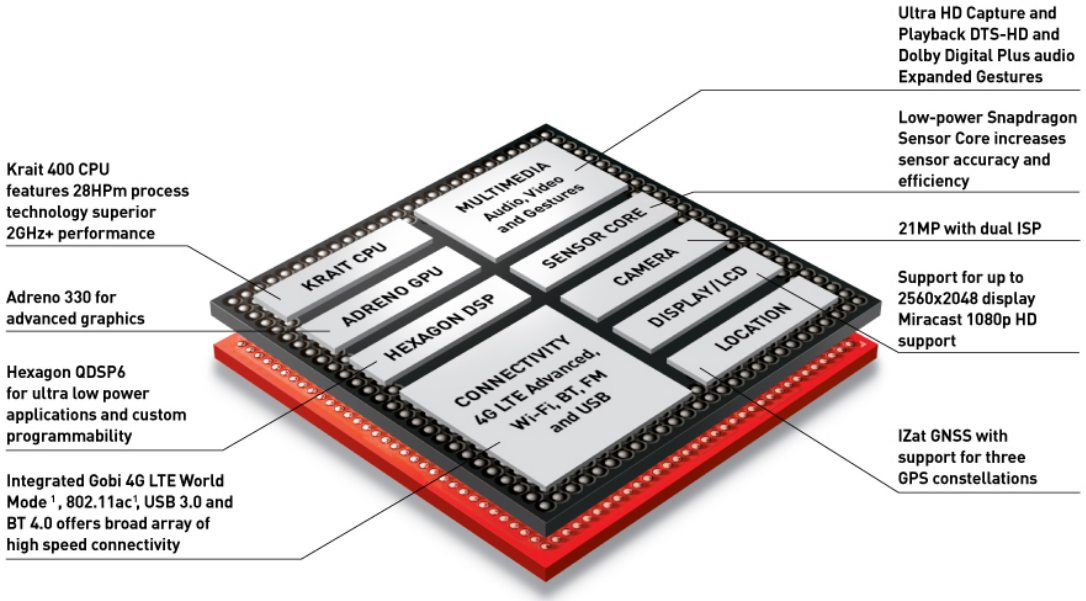
MIRRORLINK TECHNICAL SPECIFICATION REQUIRES PRESENCE OF WIRELESS CONNECTIVITY (SUCH AS CELLULAR BROADBAND OR WI-FI) VIA "MOBILE DEVICE" (E.G., SMARTPHONE)

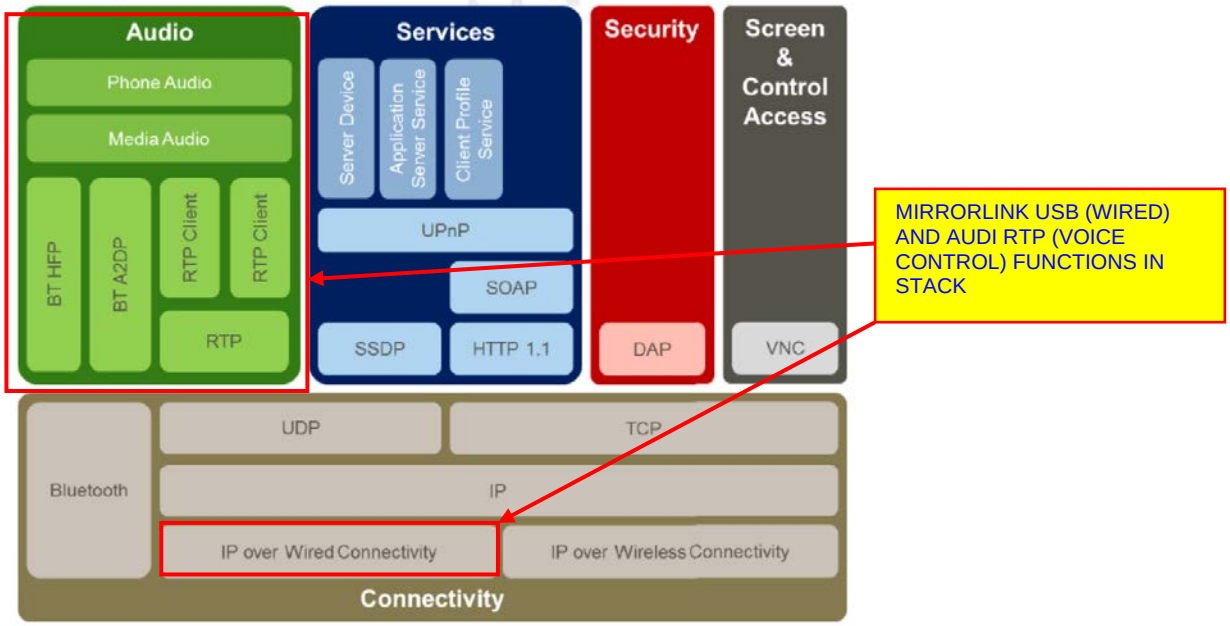
2 This document specifies an interface for enabling remote user interaction of a mobile device via another de-
3 vice. This specification is written having a vehicle head-unit to interact with the mobile device in mind, but
4 it will similarly apply for other devices, which do provide a colored display, audio input/output and user
5 input mechanisms.

["Car Connectivity Consortium," April 28, 2015]</td><td>L, DOE</td><td></td></tr>
</table>

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Figure 2: MirrorLink Architecture MirrorLink Architecture consists of a set of protocols, providing the following features: 1. Connectivity, as specified in [1], providing a. Wired and wireless IP based connection-oriented and connection-less connectivity, and b. Dedicated Bluetooth connectivity 2. UPnP based Services, providing a. Mechanisms for advertisement of MirrorLink enabled Server devices as specified in [7] b. Mechanisms for MirrorLink client profiles as specified in [6] and ["Car Connectivity Consortium," April 28, 2015] **AS SHOWN ABOVE, THE MOBILE DEVICE IS PAIRED TO THE VW MIB-II SYSTEM VIA A "USB" CABLE (E.G., MICRO-USB/USB OR SIMILAR). WIRELESS INTERFACE OF SMARTPHONE IS USED FOR EXTERNAL CONNECTIVITY.** 		
processing apparatus in data communication with the network interface;	**FOLLOWING RELATES TO EXTRA-U.S. VERSION OF MIB-II, LAUNCHED BEFORE U.S. MODEL:** **"Generation II of MIB systems:** **Ideally networked world with Car-Net, MirrorLink™ and SMS by TTS***	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	The new Passat is launching with Generation II of Volkswagen infotainment systems. The latest generation of this modular information toolkit (MIB) enables a maximum degree of connectivity in terms of coupling external devices. Its diverse interfaces include interfacing to smart phones and their apps via MirrorLink™. In addition, the systems were given much faster processors (optimised booting, quicker route calculation, smoother touchscreen performance, perfected language dialogues) and new higher-resolution displays (in the 6.5-inch systems). … **2. Faster processors.** The new generation of devices is characterised by better system performance. Consider the "Discover Media", the radio-navigation system with 6.5-inch display: Compared to the first generation, performance of the CPU (main processor) was more than doubled from 950 MIPS (million instructions per second) to 2,500 MIPS. … 4. MirrorLink™. For the first time in the Passat, MirrorLink™ is available – from the "Composition Media" it is optional, in the "Discover Pro" it is standard. MirrorLink™ makes it possible to integrate numerous apps or functions of Android smart phones into the infotainment system. Related apps will be offered directly from Volkswagen and from third party suppliers. The Volkswagen apps: "Mobile Office", "audioMOTION", "ThinkBlue. Trainer", "Shared Audio", "Drive&Track" and "My Guide". Third party apps include "Audioteka" (audio books), "Glympse" (social media), "Aupeo!" (Internet radio), "Life360″ (family locator) and "Kaliki" (news)." http://www.vwvortex.com/news/volkswagen-news/detail-new-passat-generation-8-2/ **HENCE, MIB-II SYSTEM HAS CPU, GPU, ETC. IN COMMUNICATION WITH EXEMPLARY ANDROID SMARTPHONE VIA USB.** **EXEMPLARY NEXUS 5 ANDROID SMARTPHONE (USED FOR PURPOSES OF ILLUSTRATION – OTHER ANDROID PHONES ARE EQUALLY APPLICABLE) HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE MIRRORLINK SYSTEM:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz" [https://support.google.com/nexus/answer/3467463?hl=en] **"Snapdragon 800**		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.  On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC." http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	THE CPU/GPU OF THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE COORDINATE VIA THE USB CABLE (USING INTERNET PROTOCOL OVER TOP OF THE USB PROTOCOL) TO PROVIDE, AMONG OTHER THINGS, THE EMULATION OF THE PHONE'S DISPLAY AND FUNCTIONS ON THE VEHICLE TOUCHSCREEN DISPLAY. The MirrorLink high-level architecture is shown in the following Figure 2.  Figure 2: MirrorLink Architecture ["Car Connectivity Consortium," April 28, 2015]		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

4 MIRRORLINK FEATURES

The following Table 1 specifies the requirements for the different MirrorLink features for the MirrorLink Server and Client.

Feature			Version	MirrorLink Server	MirrorLink Client
Connectivity	USB	USB Host	1.0	N/A	MUST
		USB Device	1.0	MUST	N/A
	WLAN	Access Point	1.0	MAY	MAY
		Device	1.0	MAY	MAY
	Bluetooth		1.0	MAY	MAY
UPnP based Services MirrorLink implements 2-Box pull model	UPnP Server Services Provided	Server Device	1.0	MUST	N/A
		Application Server Service	1.0	MUST	N/A
		Client Profile Service	1.0	MUST	N/A
	UPnP Control Point Services Supported	Server Device	1.0	N/A	MUST
		Application Server Service	1.0	N/A	MUST
		Client Profile Service	1.0	N/A	SHOULD
Screen & Control	VNC Server		1.0	MUST	N/A
	VNC Client		1.0	N/A	MUST
Audio	RTP	RTP Server	1.0	MUST	SHOULD
		RTP Client	1.0	SHOULD	MUST
	BT	BT HFP	1.0	SHOULD	SHOULD
		BT A2DP	1.0	MAY	MAY
Security	DAP	Server Endpoint	1.0	SHOULD	N/A
		Client Endpoint	1.0	N/A	SHOULD

Table 1: MirrorLink Feature Requirements

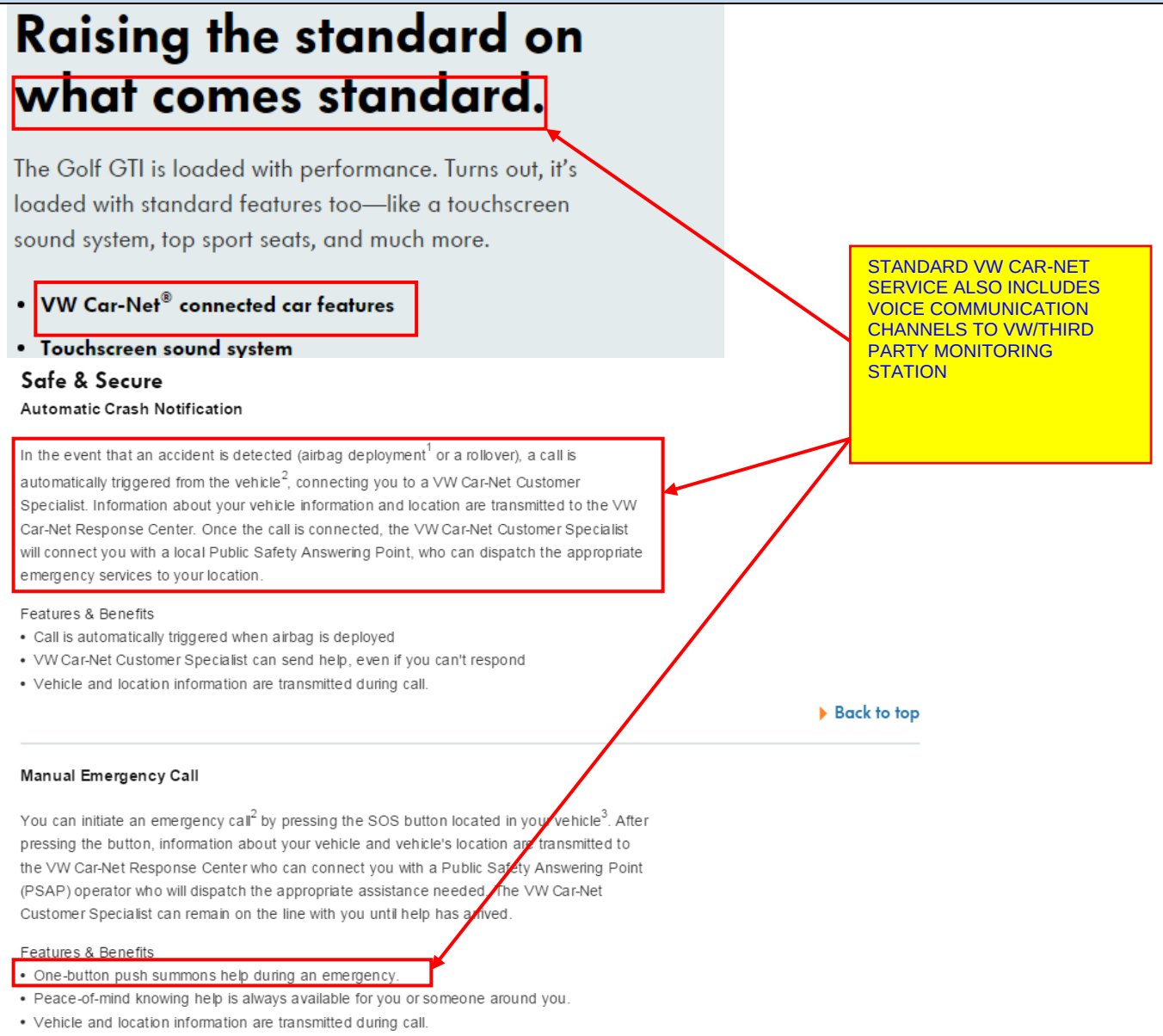
The MirrorLink Server MUST implement either the UPnP 1.0 stack or the UPnP 1.1 stack. In either case, it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 Control Points.

The MirrorLink Client MUST implement either an UPnP 1.0 control point or an UPnP 1.1 control point. In either case it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 services residing on the MirrorLink server.

"Car Connectivity Consortium," April 28, 2015

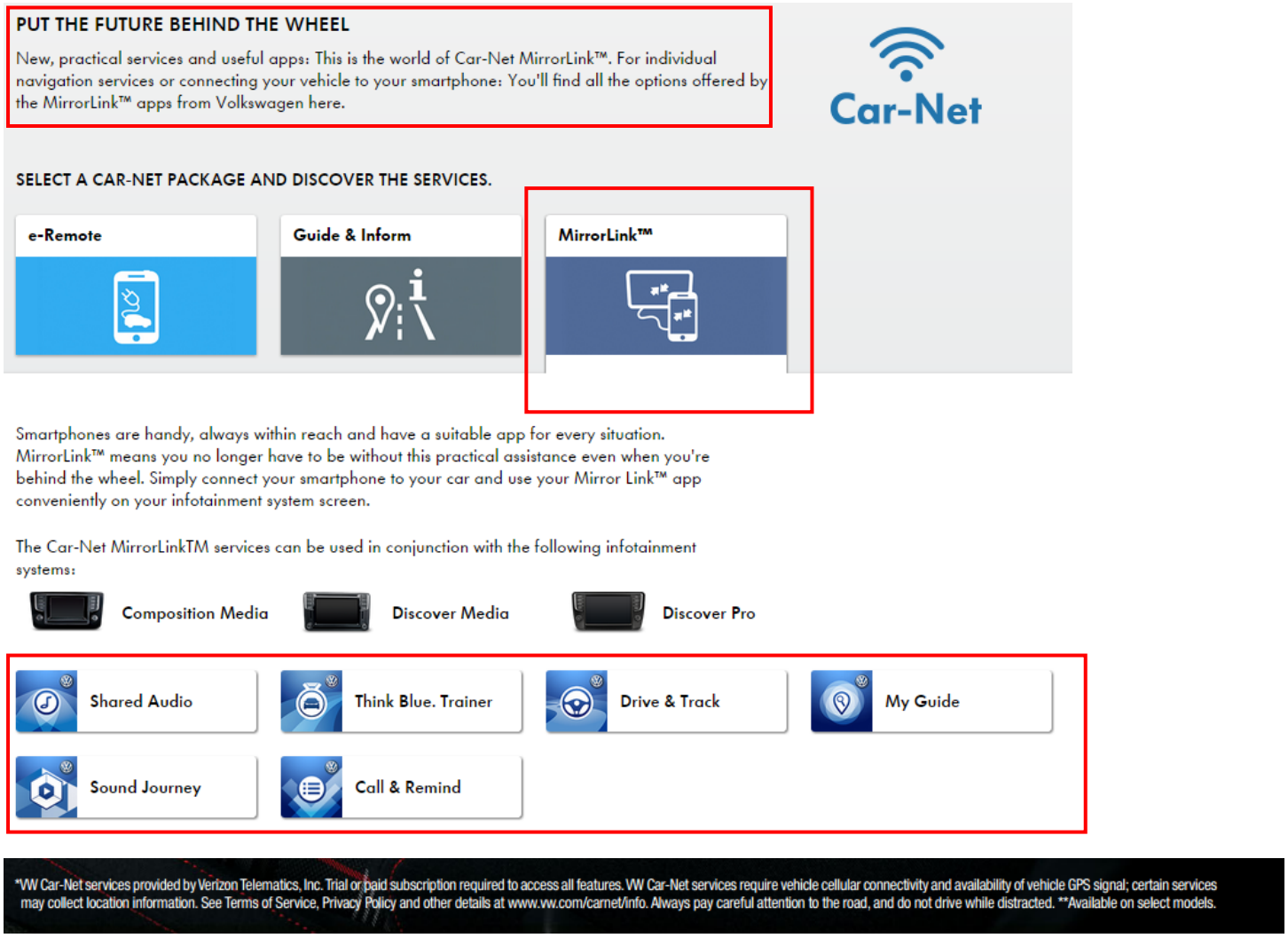
USB, RTP (REAL TIME PROTOCOL- FOR AUDIO INCLUDING VOICE RECOGNITION) AND VNC SCRREN/CONTROL **MANDATORY.** WLAN (WI-FI) AP OR DEVICE CAPABILITY MAY ALSO BE INCLUDED.

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

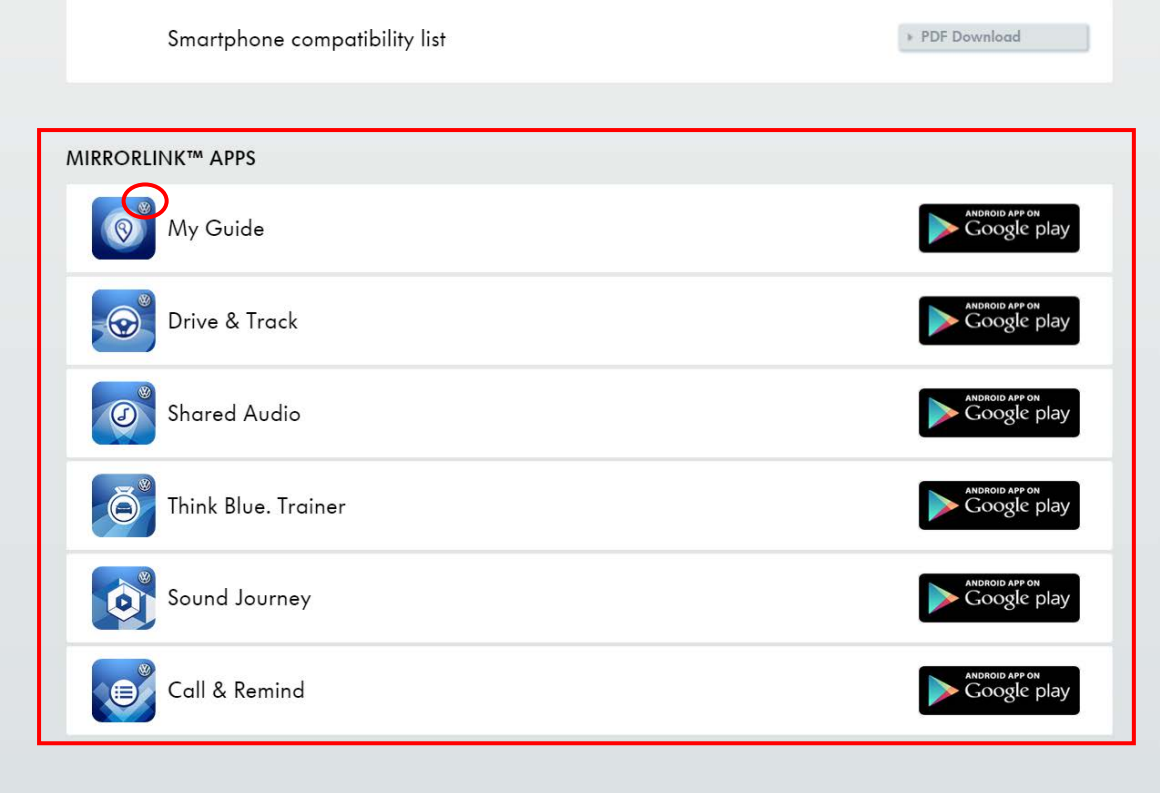


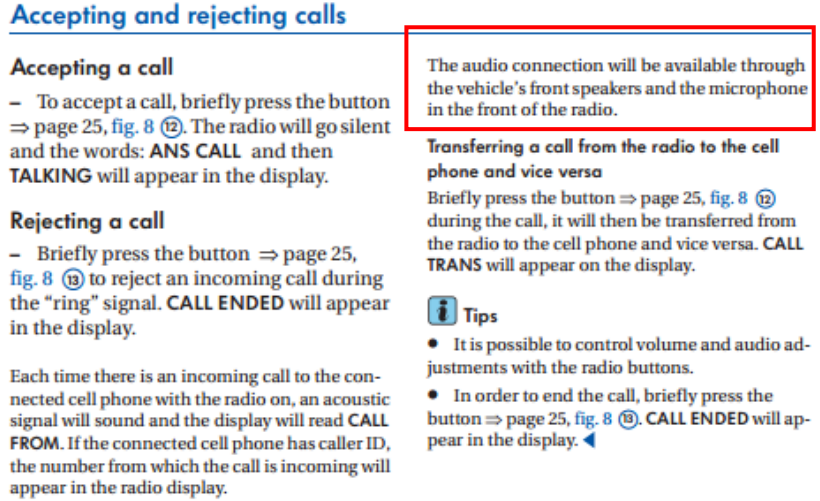
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

[THE 2015 VW Golf GTI STANDARD AND OPTIONAL EQUIPMENT.]



Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	7) Service is available soon The mobile online service (Car-Net) can only be used with the optional Discover Media and Discover Pro equipment. A mobile terminal (e.g. smartphone) with the ability to act as a mobile WLAN hotspot is also required. Alternatively, a mobile phone with a remote SIM Access Profile (rSAP) or a SIM card with call and data options can be used with the "Premium mobile phone interface" option. The Car-Net service is available only with an existing mobile phone contract or one which must be separately established between you and your mobile service provider, and only within the coverage of the individual mobile phone network. Additional fees (e.g. roaming charges) may arise when receiving data from the internet, depending on your particular mobile phone tariff and especially when using the service abroad. Due to the accumulation of data when using the Car-Net service, it is strongly recommended that you organise an unlimited data plan with your mobile service provider. A separate contract with Volkswagen AG must be set up online in order to use Car-Net. After the vehicle handover, the customer has 90 days to register the vehicle at www.volkswagen.com/Car-Net. The availability of the Car-Net service may vary depending on country. The service is available for the stipulated contract length and may be subject to content-related change during that time. More information on Car-Net can be found at www.volkswagen.com/Car-Net and at your Volkswagen dealership. Please contact your mobile service provider for information on mobile phone tariff conditions. [http://volkswagen-carnet.com/int/en/start/online-devices.html#tab/open/mirror-link] **NOTE THAT CAR-NET SERVICE IS STANDARD ON GOLF GTI, BUT REQUIRES PRESENCE OF WIRELESS CONNECTION (E.G., CELLULAR SMARTPHONE WITH WI-FI HOTSPOT CAPABILITY, WHICH IMPLIES THAT CAR DOES NOT HAVE ITS OWN INDIGENOUS CELLULAR MODEM.**		
a display device configured to be viewable by an occupant of the land-mobile apparatus during use;		**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and computerized logic configured to, when executed:	**SEE ABOVE; THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE, WHEN CONNECTED, COMPRISE NUMEROUS PROCESSORS, MEMORY, SOFTWARE, FIRMWARE, ETC. ("COMPUTERIZED LOGIC").** **VOLSWAGEN ALSO SUPPLIES APPLICATION-LAYER SOFTWARE (AKA "APPS") FOR VARIOUS FUNCTIONS FOR USE ON THE MATED ANDROID PHONE:**  http://volkswagen-carnet.com/int/en/start/app-download.html **HENCE, VW (I) PROVIDES THE MIB-II MIRRORLINK-ENABLED HEAD UNIT IN THE VEHICLE; (II) PROVIDES THE**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	VW-BRANDED APPLICATION SOFTWARE TO LOAD ON THE USER'S SMARTPHONE; AND (III) INSTRUCTS THE USER ON CONNECTION/UTILIZATION OF THE TWO DEVICES AS A SYSTEM.		
obtain digitized speech generated based on speech received from the occupant, the received speech comprising a request for desired information which the occupant wishes to obtain;	**GOLF GTI HAS INDIGENOUS MICROPHONE AND SPEAKERS TO SUPPORT, AMONG OTHER THINGS VOICE RECOGNITION FUNCTIONS:**  Accepting and rejecting calls Accepting a call – To accept a call, briefly press the button ⇒ page 25, fig. 8 ⑫. The radio will go silent and the words: **ANS CALL** and then **TALKING** will appear in the display. Rejecting a call – Briefly press the button ⇒ page 25, fig. 8 ⑬ to reject an incoming call during the "ring" signal. **CALL ENDED** will appear in the display. Each time there is an incoming call to the connected cell phone with the radio on, an acoustic signal will sound and the display will read **CALL FROM**. If the connected cell phone has caller ID, the number from which the call is incoming will appear in the radio display. The audio connection will be available through the vehicle's front speakers and the microphone in the front of the radio. Transferring a call from the radio to the cell phone and vice versa Briefly press the button ⇒ page 25, fig. 8 ⑫ during the call, it will then be transferred from the radio to the cell phone and vice versa. **CALL TRANS** will appear on the display. Tips • It is possible to control volume and audio adjustments with the radio buttons. • In order to end the call, briefly press the button ⇒ page 25, fig. 8 ⑬. **CALL ENDED** will appear in the display. [http://parts.vw.com/media/images/ecatalog/itemdocuments/1000/VW%20Sound%20System.pdf] **SEE BELOW; MIB-II UTILIZES E.G., RTP MEDIA PROTOCOL TO TRANSFER USER'S VOICE AUDIO IN DIGITAL FORMAT (I.E., RTP PACKETS) TO SMARTPHONE VOICE RECOGNITION INTERFACE:**	**L, DOE**	

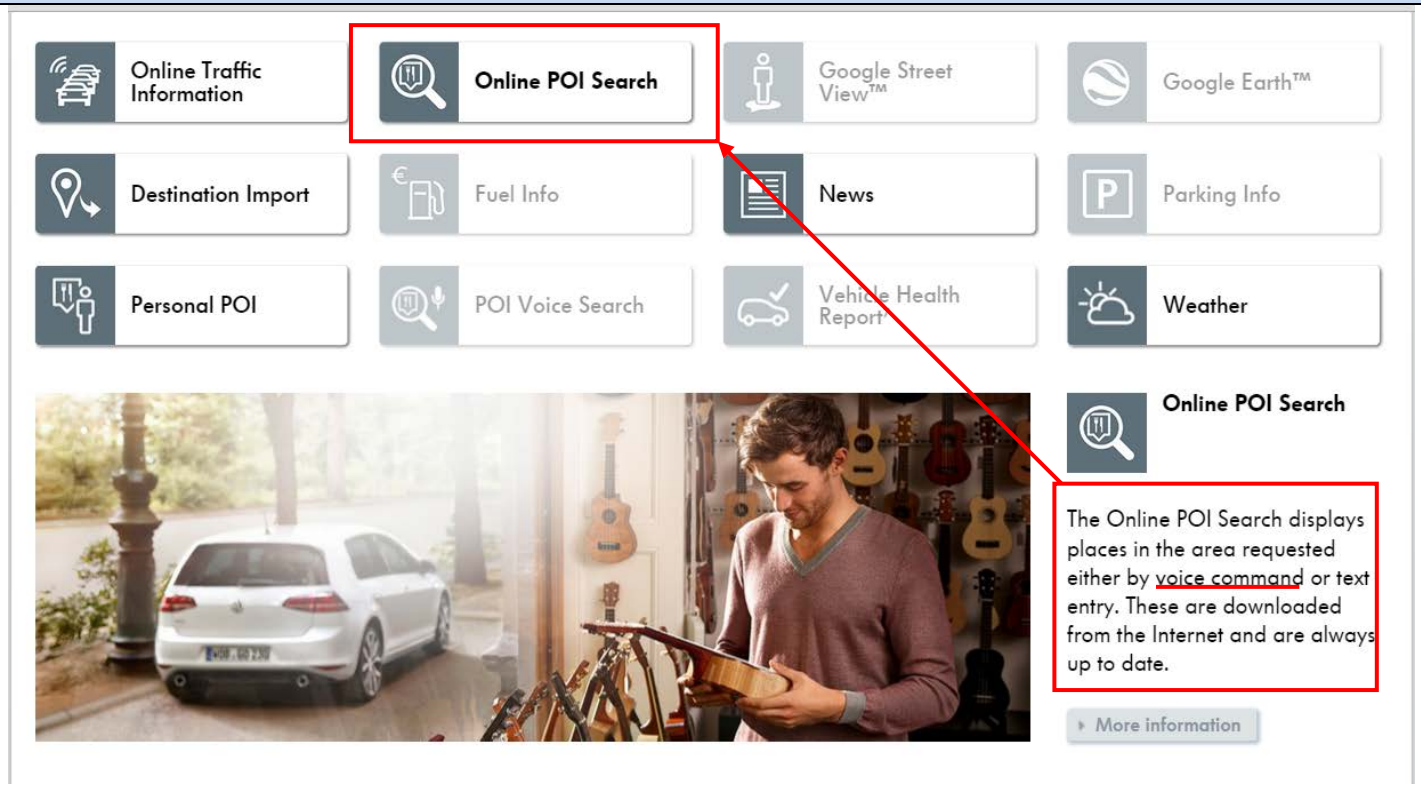
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

2 The Device Status Request message is given in Table 20.

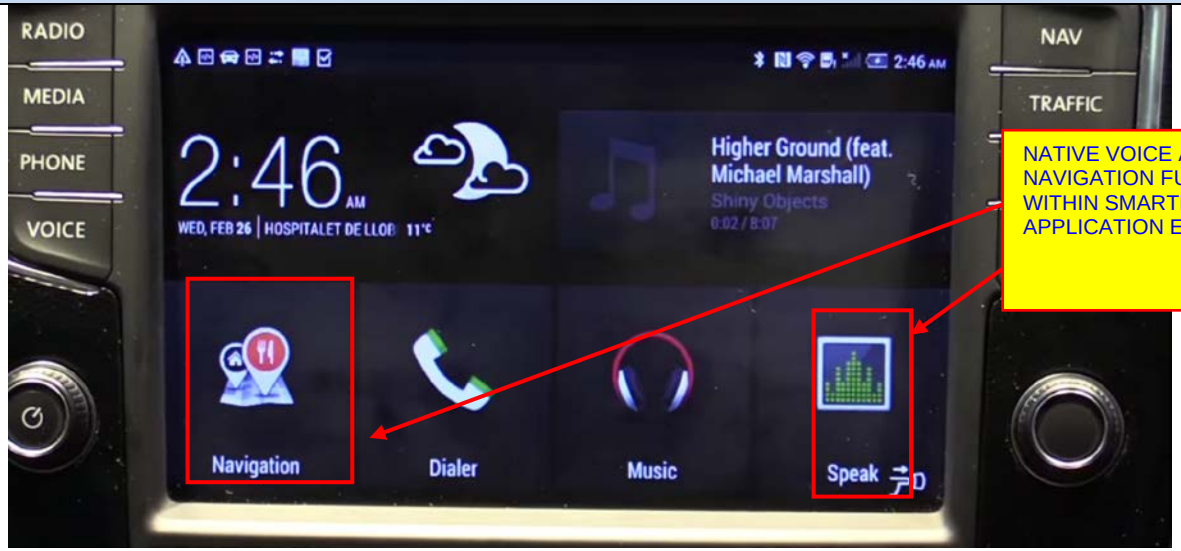
# bytes	Type	Value	Description
1	U8	128	Message-type
1	U8	12	Extension-type
2	U16	4	Payload length
4	U32	*Bit*	*Status of Device Features (00 = ignore, 01* = reserved *10 = disable, 11 = enable))*
		[1:0]	Key-lock (block key entry on the device)
		[3:2]	Device lock (block key entry on the device and from MirrorLink client)
		[5:4]	Screen saver (power-down the device screen)
		[7:6]	Night mode (run device in night mode)
		[9:8]	Voice input (route the incoming audio stream to a voice recognition engine on the mobile device)[12]
		[11:10]	Microphone input on MirrorLink Client routed from microphone to the MirrorLink server
		[17:16]	Driver Distraction Avoidance (MirrorLink Client is in restricted driving mode (enabled), non-restricted driving mode (disabled) or does not enforce a specific driving mode (ignore))
		[26:24]	Absolute Framebuffer rotation (clock-wise) (000 = ignore, 001, 010, 011 = reserved

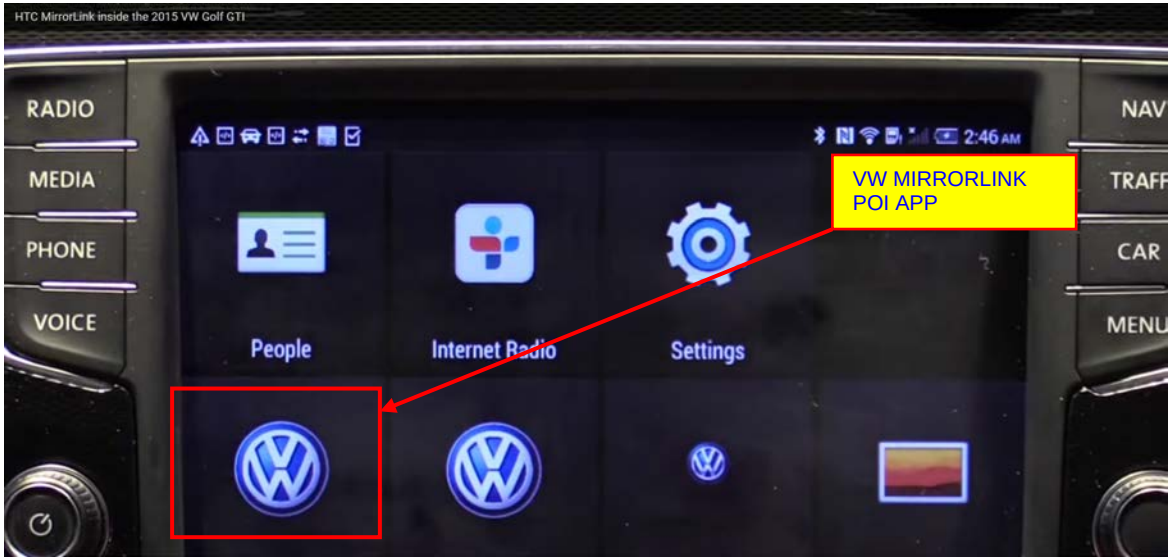
[12] The MirrorLink client MUST use this flag only if the voice command is streamed via RTP. In case an existing BT HFP connection is used and Voice Recognition Activation is supported by both Hands-Free unit and Audio Gateway, the MirrorLink client MUST use the BT HFP voice activation mechanism (AT + BVRA command as specified in **Error! Reference source not found.**) instead.

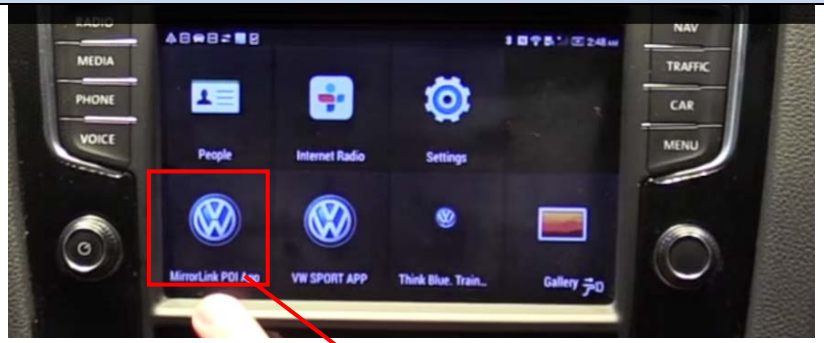
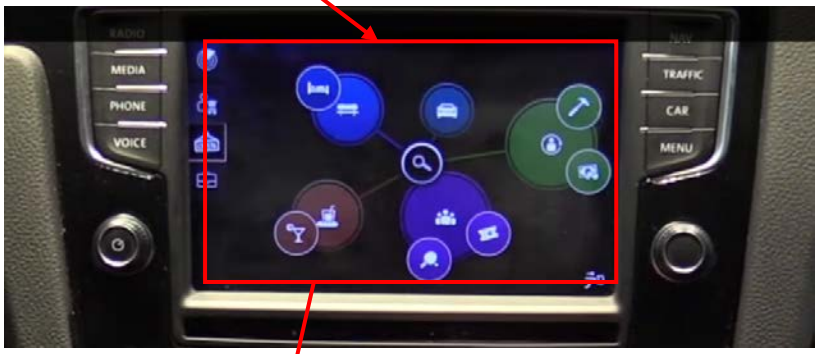
["Car Connectivity Consortium," April 28, 2015]

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 http://volkswagen-carnet.com/int/en/start/online-devices.html#130411dc-254f-4d9e-b8d6-e61f322d0417 **SEE FOLLOWING EXEMPLARY HTC-BASED ILLUSTRATION OF THE MIRRORLINK-ENABLED MIB-II IN 2015 GOLF GTI (OUTSIDE U.S.):** **https://www.youtube.com/watch?v=6J5KNaaVRoQ**		

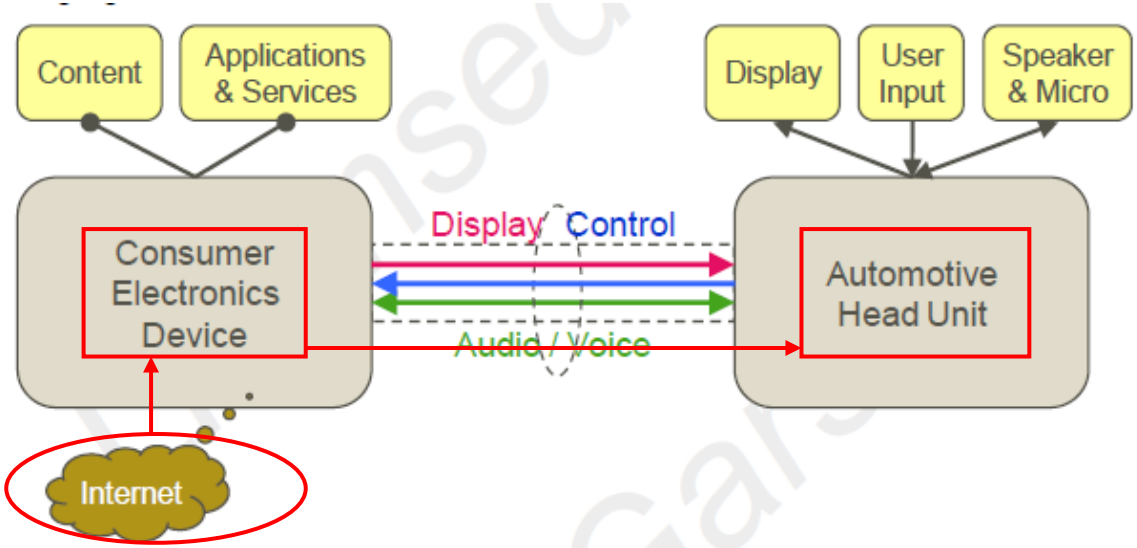
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

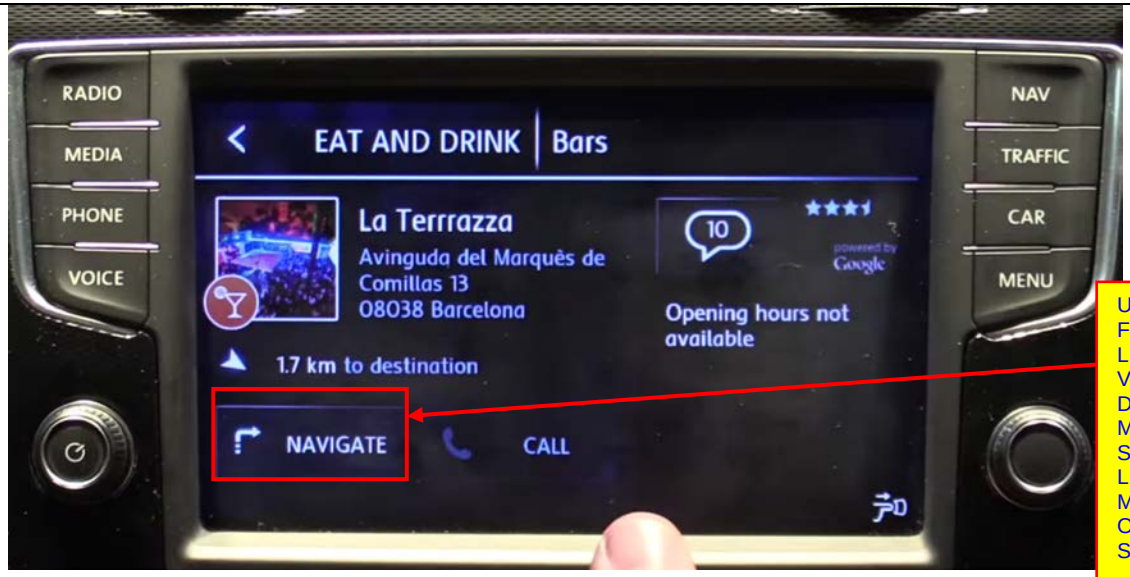


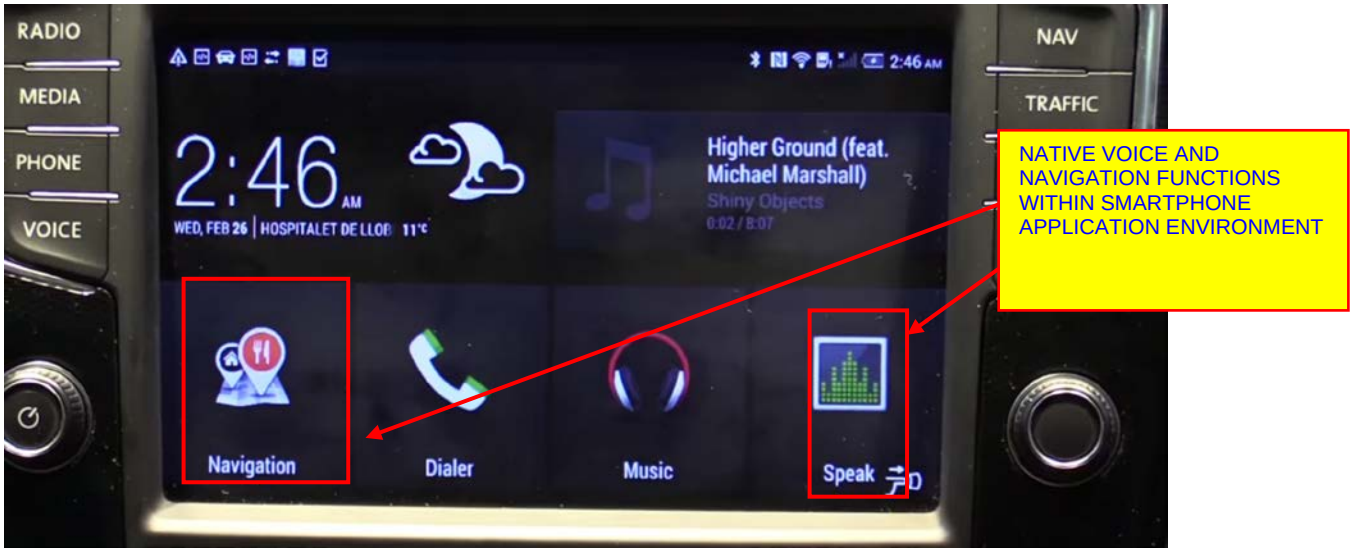


Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	   USER SELECTS VW MIRRORLINK POI APP, THEN "BARS AND RESTAURANTS" SUB-FUNCTION. NOTE THAT EACH OF THE FOREGOING CAN BE ACCOMPLISHED VIA VOICE COMMAND, AS NOTED ABOVE		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
cause, based at least in part on the digitized speech, access of a remote network entity via the network interface to cause retrieval of the desired information;	 USER SELECTS FIRST LISTED BAR/RESTAURANT (LA TERRRAZZA), WHICH AS NOTED, WAS OBTAINED BY GOOGLE SEARCH (I.E., ACCESS TO REMOTE SERVER VIA WIRELESS INTERFACE OF SMARTPHONE)	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and receive the desired information via the network interface;	**THE VW MIB-II RECEIVES THE INFORMATION FROM THE REMOTE SERVER VIA THE WIRELESS INTERFACE OF THE SMARTPHONE, AND THEN VIA USB CONNECTION BETWEEN PHONE AND VEHICLE:**  8 "Car Connectivity Consortium," April 28, 2015	**L, DOE**	
wherein the information and display apparatus is further configured to display at least a portion of the desired information on the display device,	**SEE ABOVE AND BELOW; "DESIRED INFORMATION" CAN INCLUDE ANY OF MAP/DIRECTIONS, ADDRESS, ETC., AND IS DISPLAYED ON TOUCH-SCREEN DISPLAY DEVICE OF GOLF GTI.**	**L, DOE**	
the information received via the network interface and selected based at least in part on the	**SEE ABOVE; ALL RELEVANT INFORMATION DESIRED BY THE USER (E.G., NAME/ADDRESS OF LOCAL BAR RESTAURANT, ETC.) IS NOT INDIIGENOUS ON THE VEHICLE, BUT RATHER OBTAINED FROM A REMOTE SERVER (E.G., GOOGLE MAPS OR SIMILAR) BASED ON PROCESSING OF THE USER'S DIGITIZED SPEECH (SEE DISCUSSION OF CLAIM 48 VERSUS AUDI MMI CONNECT SYSTEM ABOVE, REGARDING OPERATION OF GOOGLE VOICE SEARCHES).**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
digitized speech;			
and wherein the desired information comprises at least one of a map and/or directions to a particular organization or entity accessible by the occupant.	  USER SELECTS "NAVIGATE" FUNCTION AND OBTAINS AT LEAST MAP DISPLAY AND VISUAL DIRECTIONS ON DISPLAY SCREEN (NOTE: MAP IMAGE FROM VW AG SITE VERSUS VIDEO). AT LEAST PART OF THE MAP/DIRECTIONS HAS BEEN OBTAINED FROM REMOTE SERVER.	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2014/11/Innovation_workshop_2014/Networking.html **ALTERNATIVELY, THE MIB-II SYSTEM CAN UTILIZE THE "NATIVE" SMARTPHONE ENVIRONMENT (VERSUS VW MIRRORLINK POI APP) TO OBTAIN THE DESIRED INFORMATION AND DISPLAY IT ON THE DISPLAY SCREEN:**  **HENCE, USER CAN SPEAK INTO VEHICLE MICROPHONE, HIS/HER SPEECH DIGITIZED AND PASSED OVER TO THE PHONE'S VOICE RECOGNITION FUNCTION (E.G., VIA RTP PACKETS AS ABOVE), BUT THEN BE PROCESSED BY DIFFERENT APPLICATION LAYER SOFTWARE SUCH AS THE HTC "NAVIGATION" FUNCTION ABOVE. THAT FUNCTION RETURNS E.G., A GOOGLE MAP (VIA GOOGLE MAP API'S AS DISCUSSED ABOVE) WITH LAT/LON, ETC. (WHICH CAN ALSO INCLUDE USE OF THE *DIRECTIONSSERVICE* GOOGLE API FOR DIRECTIONS) FOR DISPLAY ON THE DISPLAY DEVICE OF THE GOLF GTI, AS SHOWN BELOW:**		

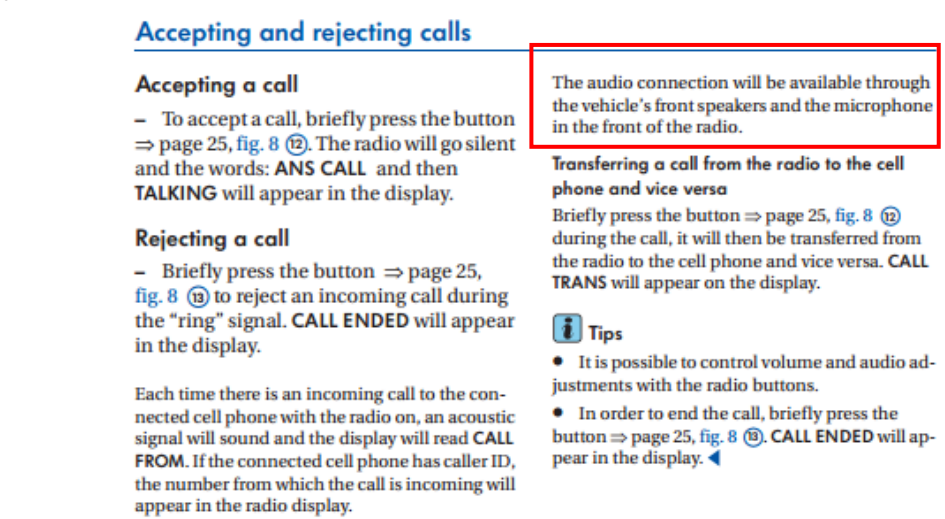
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=6J5KNaaVRoQ **NOTE ALSO THAT VW WEBSITE INDUCES USERS TO LOAD SUCH VW AND THIRD-PARTYAPPS ONTO THE VW MIB-II SYSTEM:** CAR-NET APP DOWNLOAD CENTER You can see an overview of all Volkswagen Car-Net apps and selected MirrorLink™ apps from other providers here. Follow the appropriate link to download an app for your smartphone operating system. If you're not sure whether your phone is supported, check the compatibility list. **SEVERAL OTHER APPROACHES/PERMUTATIONS ARE SUPPORTED BY MIB-II AND SMARTPHONE CONNECTED**		

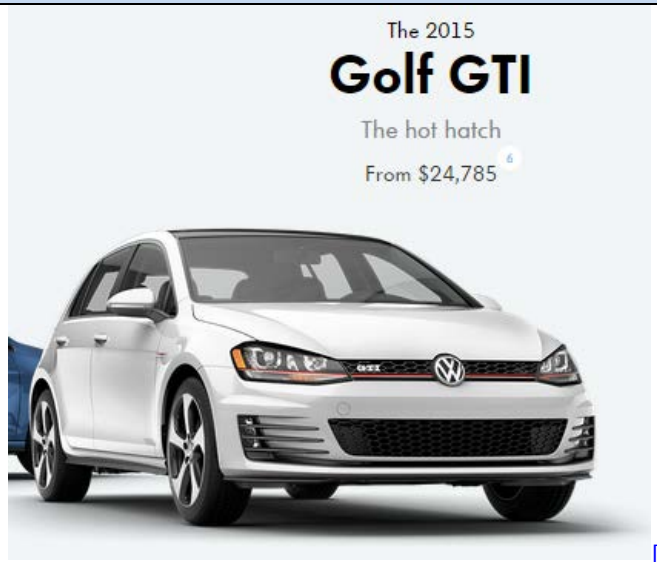
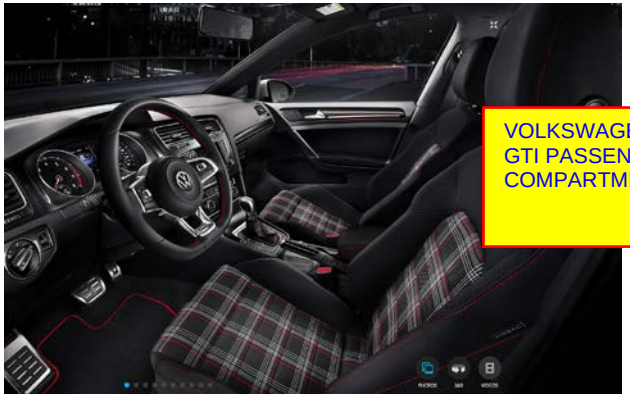
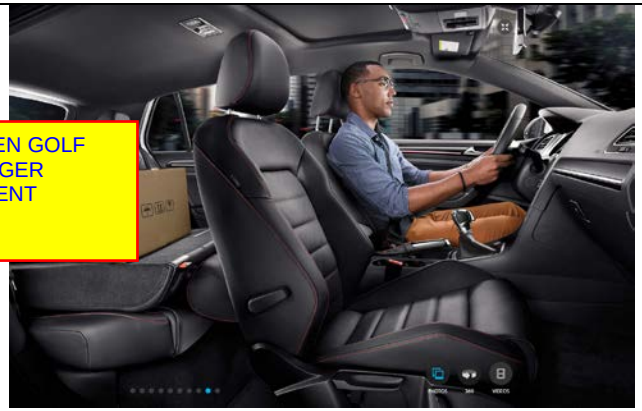
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	THERETO FOR OBTAINING DIRECTIONS, MAPS, OR OTHER DESIRED INFORMATION.		
71. The device of claim 48, wherein the display device is mounted substantially flush with a surface of the interior of the passenger compartment so as to be visible by at least the occupant, yet mitigate incidental contact therewith. (*Unselected claim 71 included because selected claim 75 depends hereon.*)		**L, DOE**	**D, I**

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
72. The device of claim 71, further comprising a plurality of doors which provide access to the passenger compartment. (*Unselected claim 72 included because selected claim 75 depends hereon.*)		**L, DOE**	**D, I**
73. The device of claim 72, further comprising video data apparatus in data communication with the processing apparatus and configured to enable video data to be generated and displayed on the display device, the video data generated by one or more cameras associated with the personnel transport device so		**L, DOE**	**D, I**

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
as to enable monitoring of one or more portions of an area surrounding the personnel transport device. (*Unselected claim 73 included because selected claim 75 depends hereon.*)	 https://www.youtube.com/watch?v=hupLSvX5l2E		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
75. The device of claim 73, further comprising a communication apparatus configured to enable at least voice communication by a passenger with a remote monitoring station while the transport device is in operation.	**Safe & Secure** **Automatic Crash Notification** In the event that an accident is detected (airbag deployment[1] or a rollover), a call is automatically triggered from the vehicle[2], connecting you to a VW Car-Net Customer Specialist. Information about your vehicle information and location are transmitted to the VW Car-Net Response Center. Once the call is connected, the VW Car-Net Customer Specialist will connect you with a local Public Safety Answering Point, who can dispatch the appropriate emergency services to your location. Features & Benefits • Call is automatically triggered when airbag is deployed • VW Car-Net Customer Specialist can send help, even if you can't respond • Vehicle and location information are transmitted during call. **Manual Emergency Call** You can initiate an emergency call[2] by pressing the SOS button located in your vehicle[3]. After pressing the button, information about your vehicle and vehicle's location are transmitted to the VW Car-Net Response Center who can connect you with a Public Safety Answering Point (PSAP) operator who will dispatch the appropriate assistance needed. The VW Car-Net Customer Specialist can remain on the line with you until help has arrived. Features & Benefits • One-button push summons help during an emergency. • Peace-of-mind knowing help is always available for you or someone around you. • Vehicle and location information are transmitted during call. GOLF GTI HAS VOICE COMMUNICATION CAPABILITY WITH REMOTE VW/THIRD PARTY MONITORING STATION SO THAT USER CAN SPEAK DIRECTLY WITH A PERSON DURING OPERATION OF THE VEHICLE, VIE THE VEHICLE'S INDIGENOUS SPEAKERS AND MICROPHONE(S). THI IS A STANDARD FEATURE ON GOLF GTI AS NOTED ABOVE.	**L, DOE**	**D, I**

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 **Accepting and rejecting calls** **Accepting a call** – To accept a call, briefly press the button ⇒ page 25, fig. 8 ⑫. The radio will go silent and the words: **ANS CALL** and then **TALKING** will appear in the display. **Rejecting a call** – Briefly press the button ⇒ page 25, fig. 8 ⑬ to reject an incoming call during the "ring" signal. **CALL ENDED** will appear in the display. Each time there is an incoming call to the connected cell phone with the radio on, an acoustic signal will sound and the display will read **CALL FROM**. If the connected cell phone has caller ID, the number from which the call is incoming will appear in the radio display. The audio connection will be available through the vehicle's front speakers and the microphone in the front of the radio. **Transferring a call from the radio to the cell phone and vice versa** Briefly press the button ⇒ page 25, fig. 8 ⑫ during the call, it will then be transferred from the radio to the cell phone and vice versa. **CALL TRANS** will appear on the display. **Tips** • It is possible to control volume and audio adjustments with the radio buttons. • In order to end the call, briefly press the button ⇒ page 25, fig. 8 ⑬. **CALL ENDED** will appear in the display. ◀ [http://parts.vw.com/media/images/ecatalog/itemdocuments/1000/VW%20Sound%20System.pdf]		
77. A land-mobile personnel transport device configured to transport one or more persons from one location to another, comprising:	**VW GOLF GTI IS A LAND-MOBILE TRANSPORT DEVICE FOR MOVING PEOPLE BETWEEN LOCATIONS.**	**L, DOE**	**D, I**

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 [THE 2015 VW Golf GTI]		
a passenger compartment;	  [THE 2015 VW Golf GTI]	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and computerized information and display apparatus disposed at least partly within the passenger compartment, the information and display apparatus comprising:	 MIB-II SYSTEM WITH EXEMPLARY ANDROID SMARTPHONE ASSOCIATED THEREWITH VIA USB CABLE/PORT http://cars.reviewed.com/content/volkswagen-mib-ii-infotainment-system-first-impressions-review **SEE FEATURE MATRIX BELOW; CURRENT ANALYSIS IS BASED ON 2015 GOLF GTI WITH MIB-II AND MIRRORLINK, CAR-NET, AND REARVIEW CAMERA SYSTEM** **Golf GTI Specs** • Standard, no additional cost O Optional, additional cost – Not available 2D Standard on 2-Door only 4D Standard on 4-Door only DCC Available with Dynamic Chassis Control Package DAP Available with Driver Assistance Package PP Available with Performance Package LP Available with Lighting Package	**L, DOE**	

<table>
<tr><th>Claim Language</th><th>Exemplary Audi/Volkswagen Implementations</th><th>Literal / DOE[1]</th><th>Direct / Indirect[2]</th></tr>
<tr><td></td><td>
<table>
<tr><th>Technology</th><th>S</th><th>SE</th><th>Autobahn (4-Door only)</th></tr>
<tr><td>5.8" touchscreen sound system with proximity sensors and voice control, MP3- and WMA-compatible in-dash CD player, and SD memory card reader</td><td>●</td><td>●</td><td>–</td></tr>
<tr><td>Navigation system with 5.8" touchscreen with proximity sensors and voice control, and 2 SD memory card readers</td><td>–</td><td>–</td><td>●</td></tr>
<tr><td>8 speakers</td><td>●</td><td>–</td><td>–</td></tr>
<tr><td>Fender® Premium Audio System with 9 speakers including subwoofer</td><td>–</td><td>●</td><td>●</td></tr>
<tr><td>SiriusXM Satellite Radio All Access with 3-month trial subscription</td><td>●</td><td>●</td><td>●</td></tr>
</table>
<table>
<tr><th>Technology Cont.</th><th>S</th><th>SE</th><th>Autobahn (4-Door only)</th></tr>
<tr><td>Interior ambient lighting</td><td>●</td><td>●</td><td>●</td></tr>
<tr><td>SiriusXM Traffic™ with 4-year trial subscription</td><td>–</td><td>–</td><td>●</td></tr>
<tr><td>Bluetooth® with audio streaming*</td><td>●</td><td>●</td><td>●</td></tr>
<tr><td>Media Device Interface (MDI) with iPod® cable</td><td>●</td><td>●</td><td>●</td></tr>
<tr><td>Rearview camera</td><td>–</td><td>●</td><td>●</td></tr>
<tr><td>Keyless access with push-button start</td><td>–</td><td>●</td><td>●</td></tr>
<tr><td>Park Distance Control (PDC) system with front and rear proximity sensors</td><td>DAP</td><td>DAP</td><td>DAP</td></tr>
<tr><td>Forward Collision Warning</td><td>DAP</td><td>DAP</td><td>DAP</td></tr>
</table>
[THE 2015 VW Golf GTI STANDARD AND OPTIONAL EQUIPMENT]</td><td></td><td></td></tr>
<tr><td>a wireless network interface means;</td><td>MirrorLink Specification 1.0.3 Page 8/12
Core Architecture
CCC-TS-001

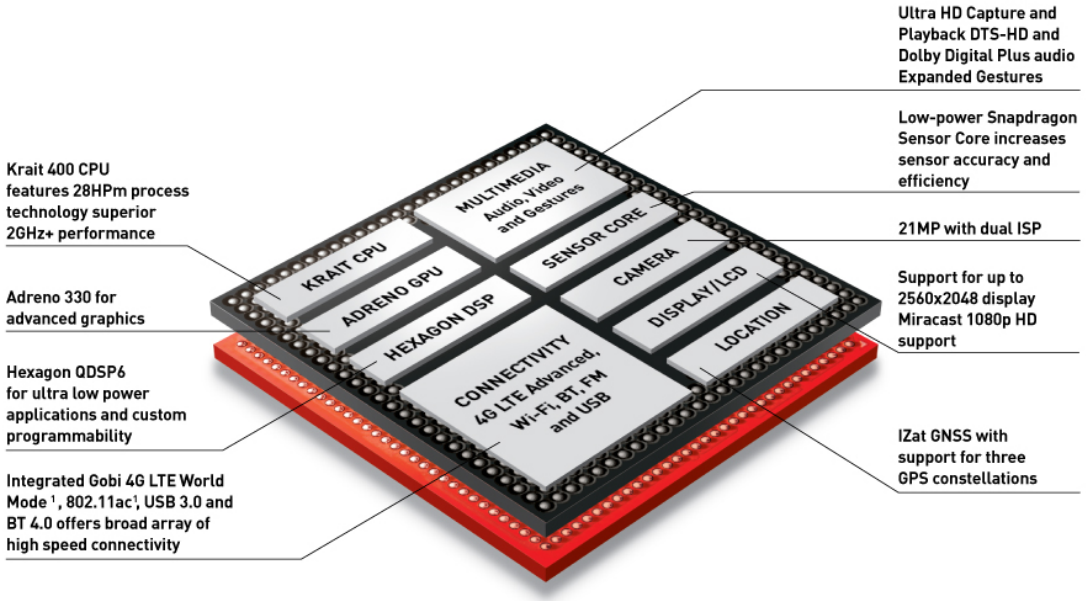
1 1 ABOUT

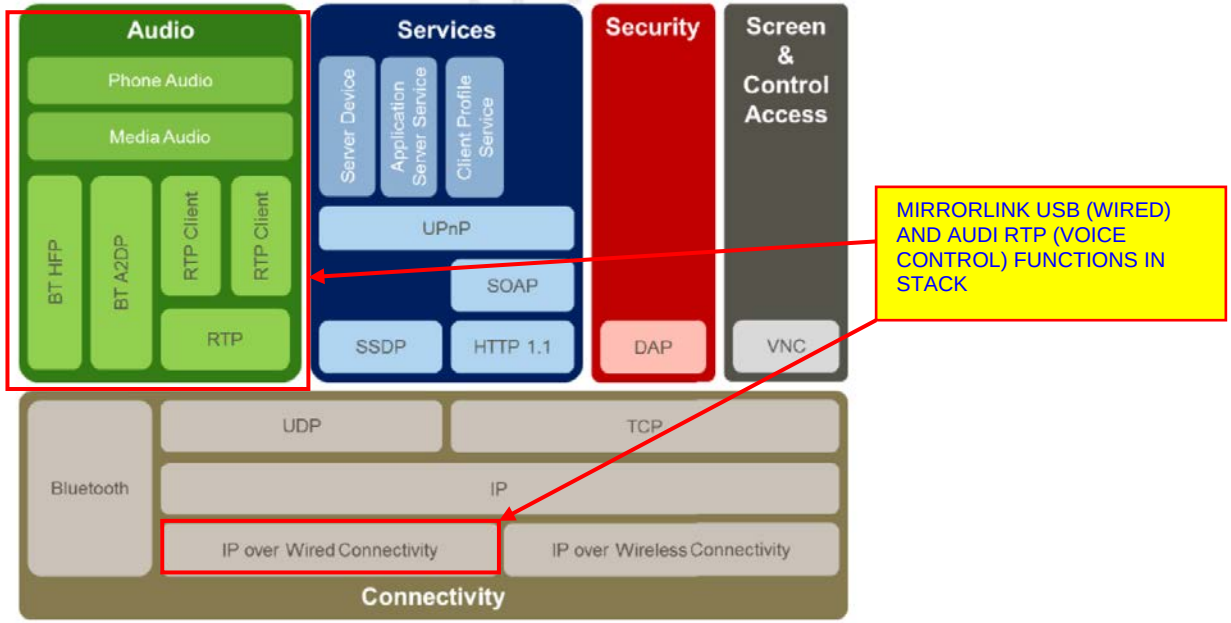
MIRRORLINK TECHNICAL SPECIFICATION REQUIRES PRESENCE OF WIRELESS CONNECTIVITY (SUCH AS CELLULAR BROADBAND OR WI-FI) VIA "MOBILE DEVICE" (E.G., SMARTPHONE)

2 This document specifies an interface for enabling remote user interaction of a mobile device via another de-
3 vice. This specification is written having a vehicle head-unit to interact with the mobile device in mind, but
4 it will similarly apply for other devices, which do provide a colored display, audio input/output and user
5 input mechanisms.</td><td>L, DOE</td><td></td></tr>
</table>

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	Figure 2: MirrorLink Architecture MirrorLink Architecture consists of a set of protocols, providing the following features: 1. Connectivity, as specified in [1], providing a. Wired and wireless IP based connection-oriented and connection-less connectivity, and b. Dedicated Bluetooth connectivity 2. UPnP based Services, providing a. Mechanisms for advertisement of MirrorLink enabled Server devices as specified in [7] b. Mechanisms for MirrorLink client profiles as specified in [6] and ["Car Connectivity Consortium," April 28, 2015] **AS SHOWN ABOVE, THE MOBILE DEVICE IS PAIRED TO THE VW MIB-II SYSTEM VIA A "USB" CABLE (E.G., MICRO-USB/USB OR SIMILAR). WIRELESS INTERFACE OF SMARTPHONE IS USED FOR EXTERNAL CONNECTIVITY.** 		
processing means in data communication with the network interface for processing data;	**FOLLOWING RELATES TO EXTRA-U.S. VERSION OF MIB-II, LAUNCHED BEFORE U.S. MODEL:** **"Generation II of MIB systems:** **Ideally networked world with Car-Net, MirrorLink™ and SMS by TTS***	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	The new Passat is launching with Generation II of Volkswagen infotainment systems. The latest generation of this modular information toolkit (MIB) enables a maximum degree of connectivity in terms of coupling external devices. Its diverse interfaces include interfacing to smart phones and their apps via MirrorLink™. In addition, the systems were given much faster processors (optimised booting, quicker route calculation, smoother touchscreen performance, perfected language dialogues) and new higher-resolution displays (in the 6.5-inch systems). … **2. Faster processors.** The new generation of devices is characterised by better system performance. Consider the "Discover Media", the radio-navigation system with 6.5-inch display: Compared to the first generation, performance of the CPU (main processor) was more than doubled from 950 MIPS (million instructions per second) to 2,500 MIPS. … 4. MirrorLink™. For the first time in the Passat, MirrorLink™ is available – from the "Composition Media" it is optional, in the "Discover Pro" it is standard. MirrorLink™ makes it possible to integrate numerous apps or functions of Android smart phones into the infotainment system. Related apps will be offered directly from Volkswagen and from third party suppliers. The Volkswagen apps: "Mobile Office", "audioMOTION", "ThinkBlue. Trainer", "Shared Audio", "Drive&Track" and "My Guide". Third party apps include "Audioteka" (audio books), "Glympse" (social media), "Aupeo!" (Internet radio), "Life360″ (family locator) and "Kaliki" (news)." http://www.vwvortex.com/news/volkswagen-news/detail-new-passat-generation-8-2/ **HENCE, MIB-II SYSTEM HAS CPU, GPU, ETC. IN COMMUNICATION WITH EXEMPLARY ANDROID SMARTPHONE VIA USB.** **EXEMPLARY NEXUS 5 ANDROID SMARTPHONE (USED FOR PURPOSES OF ILLUSTRATION – OTHER ANDROID PHONES ARE EQUALLY APPLICABLE) HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE MIRRORLINK SYSTEM:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz" [https://support.google.com/nexus/answer/3467463?hl=en]		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	"Snapdragon 800 Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.  On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	2 with its Snapdragon S4 Pro/Adreno 320 SoC." http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html **THE CPU/GPU OF THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE COORDINATE VIA THE USB CABLE (USING INTERNET PROTOCOL OVER TOP OF THE USB PROTOCOL) TO PROVIDE, AMONG OTHER THINGS, THE EMULATION OF THE PHONE'S DISPLAY AND FUNCTIONS ON THE VEHICLE TOUCHSCREEN DISPLAY.** The MirrorLink high-level architecture is shown in the following Figure 2.  Figure 2: MirrorLink Architecture ["Car Connectivity Consortium," April 28, 2015]		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

4 MIRRORLINK FEATURES

The following Table 1 specifies the requirements for the different MirrorLink features for the MirrorLink Server and Client.

Feature			Version	MirrorLink Server	MirrorLink Client
Connectivity	USB	USB Host	1.0	N/A	MUST
		USB Device	1.0	MUST	N/A
	WLAN	Access Point	1.0	MAY	MAY
		Device	1.0	MAY	MAY
	Bluetooth		1.0	MAY	MAY
UPnP based Services MirrorLink implements 2-Box pull model	UPnP Server Services Provided	Server Device	1.0	MUST	N/A
		Application Server Service	1.0	MUST	N/A
		Client Profile Service	1.0	MUST	N/A
	UPnP Control Point Services Supported	Server Device	1.0	N/A	MUST
		Application Server Service	1.0	N/A	MUST
		Client Profile Service	1.0	N/A	SHOULD
Screen & Control	VNC Server		1.0	MUST	N/A
	VNC Client		1.0	N/A	MUST
Audio	RTP	RTP Server	1.0	MUST	SHOULD
		RTP Client	1.0	SHOULD	MUST
	BT	BT HFP	1.0	SHOULD	SHOULD
		BT A2DP	1.0	MAY	MAY
Security	DAP	Server Endpoint	1.0	SHOULD	N/A
		Client Endpoint	1.0	N/A	SHOULD

Table 1: MirrorLink Feature Requirements

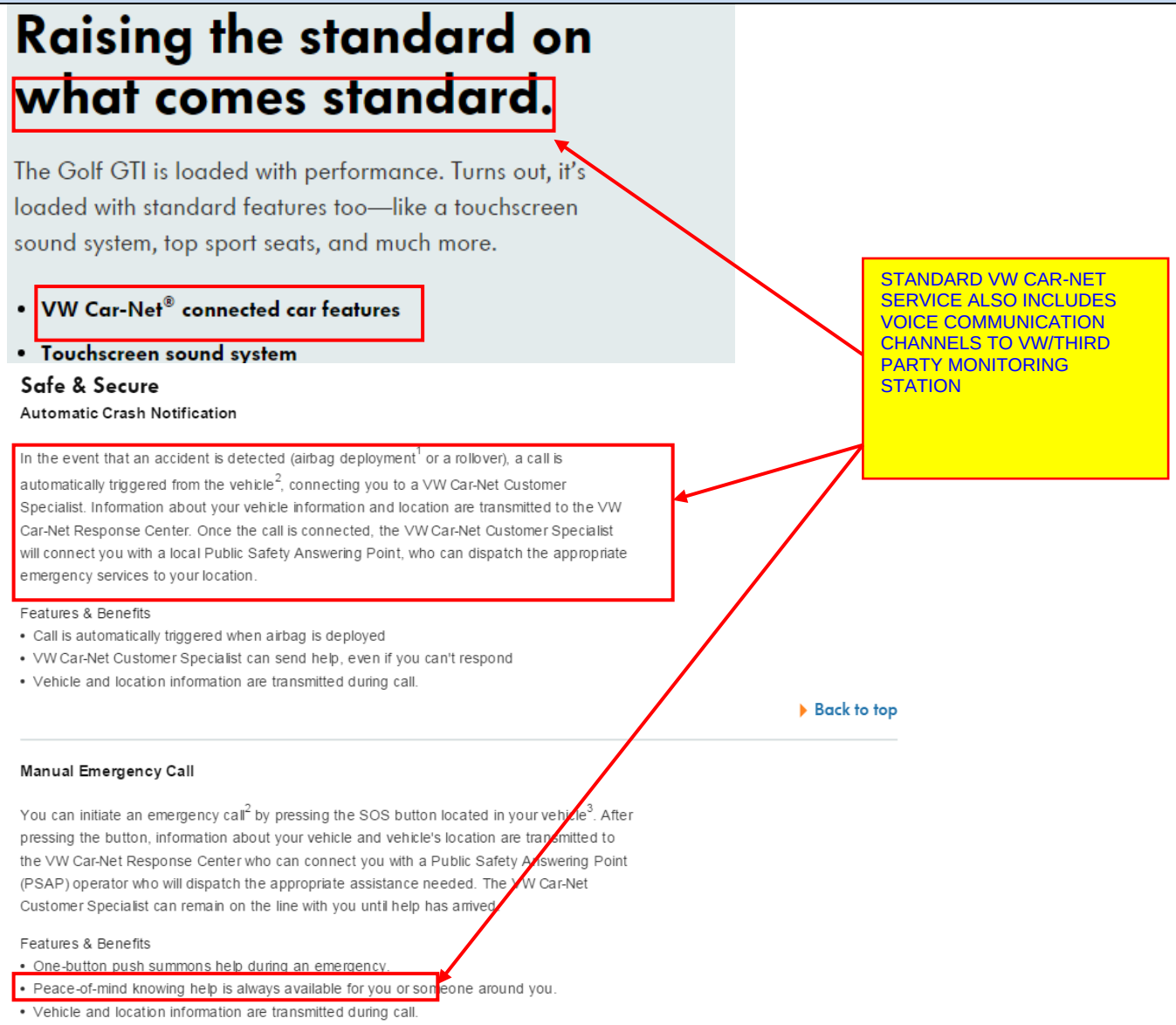
The MirrorLink Server MUST implement either the UPnP 1.0 stack or the UPnP 1.1 stack. In either case, it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 Control Points.

The MirrorLink Client MUST implement either an UPnP 1.0 control point or an UPnP 1.1 control point. In either case it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 services residing on the MirrorLink server.

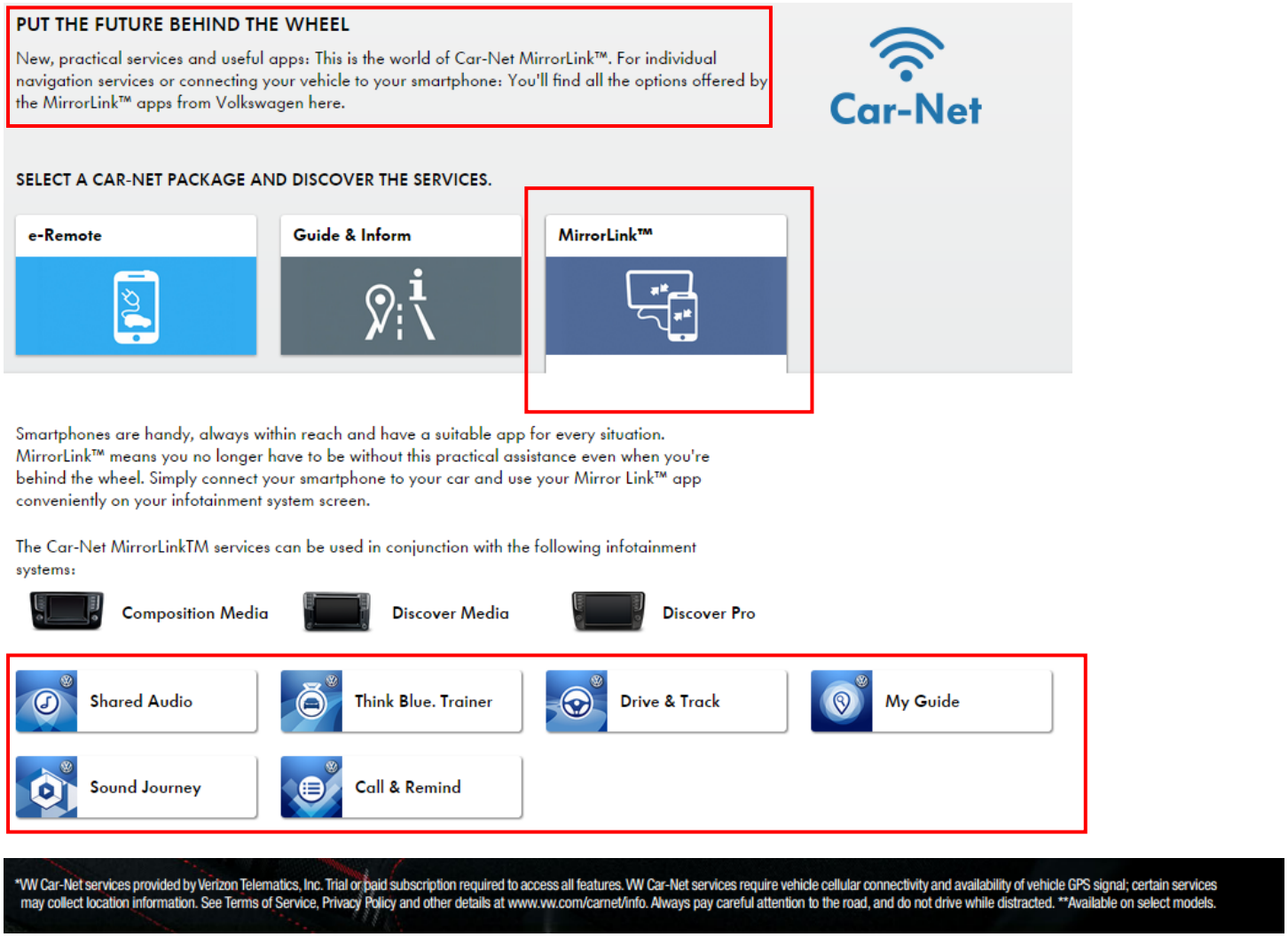
USB, RTP (REAL TIME PROTOCOL- FOR AUDIO INCLUDING VOICE RECOGNITION) AND VNC SCRREN/CONTROL **MANDATORY.** WLAN (WI-FI) AP OR DEVICE CAPABILITY MAY ALSO BE INCLUDED.

["Car Connectivity Consortium," April 28, 2015]

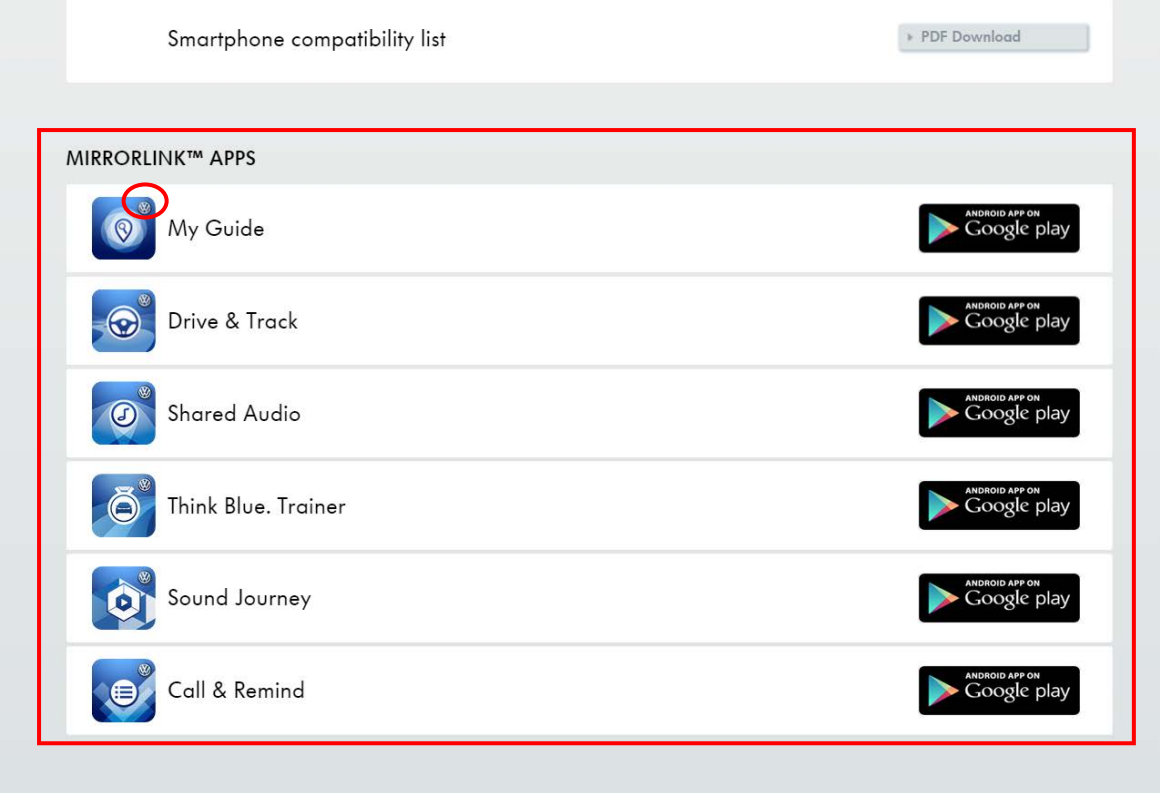
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

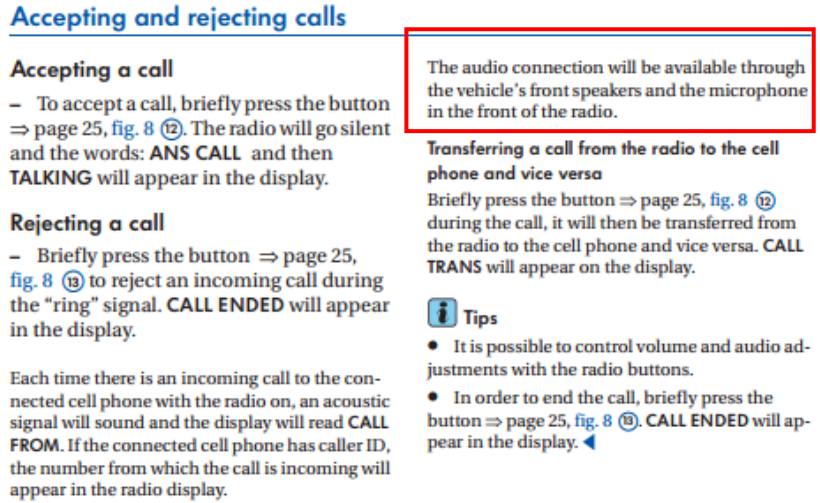


Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]



Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	7) Service is available soon The mobile online service (Car-Net) can only be used with the optional Discover Media and Discover Pro equipment. A mobile terminal (e.g. smartphone) with the ability to act as a mobile WLAN hotspot is also required. Alternatively, a mobile phone with a remote SIM Access Profile (rSAP) or a SIM card with call and data options can be used with the "Premium mobile phone interface" option. The Car-Net service is available only with an existing mobile phone contract or one which must be separately established between you and your mobile service provider, and only within the coverage of the individual mobile phone network. Additional fees (e.g. roaming charges) may arise when receiving data from the internet, depending on your particular mobile phone tariff and especially when using the service abroad. Due to the accumulation of data when using the Car-Net service, it is strongly recommended that you organise an unlimited data plan with your mobile service provider. A separate contract with Volkswagen AG must be set up online in order to use Car-Net. After the vehicle handover, the customer has 90 days to register the vehicle at www.volkswagen.com/Car-Net. The availability of the Car-Net service may vary depending on country. The service is available for the stipulated contract length and may be subject to content-related change during that time. More information on Car-Net can be found at www.volkswagen.com/Car-Net and at your Volkswagen dealership. Please contact your mobile service provider for information on mobile phone tariff conditions. http://volkswagen-carnet.com/int/en/start/online-devices.html#tab/open/mirror-link **NOTE THAT CAR-NET SERVICE IS STANDARD ON GOLF GTI, BUT REQUIRES PRESENCE OF WIRELESS CONNECTION (E.G., CELLULAR SMARTPHONE WITH WI-FI HOTSPOT CAPABILITY, WHICH IMPLIES THAT CAR DOES NOT HAVE ITS OWN INDIGENOUS CELLULAR MODEM.**		
display device means configured to be viewable by an occupant of the land-mobile apparatus during use for displaying information;		**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and computerized logic means configured to, when operated:	**SEE ABOVE; THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE, WHEN CONNECTED, COMPRISE NUMEROUS PROCESSORS, MEMORY, SOFTWARE, FIRMWARE, ETC. ("COMPUTERIZED LOGIC").** **VOLSWAGEN ALSO SUPPLIES APPLICATION-LAYER SOFTWARE (AKA "APPS") FOR VARIOUS FUNCTIONS FOR USE ON THE MATED ANDROID PHONE:**  http://volkswagen-carnet.com/int/en/start/app-download.html **HENCE, VW (I) PROVIDES THE MIB-II MIRRORLINK-ENABLED HEAD UNIT IN THE VEHICLE; (II) PROVIDES THE**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	VW-BRANDED APPLICATION SOFTWARE TO LOAD ON THE USER'S SMARTPHONE; AND (III) INSTRUCTS THE USER ON CONNECTION/UTILIZATION OF THE TWO DEVICES AS A SYSTEM.		
obtain digitized speech generated based on speech received from the occupant, the received speech comprising a request for desired information which the occupant wishes to obtain;	**GOLF GTI HAS INDIGENOUS MICROPHONE AND SPEAKERS TO SUPPORT, AMONG OTHER THINGS VOICE RECOGNITION FUNCTIONS:**  Accepting and rejecting calls Accepting a call – To accept a call, briefly press the button ⇒ page 25, fig. 8 ⑫. The radio will go silent and the words: **ANS CALL** and then **TALKING** will appear in the display. Rejecting a call – Briefly press the button ⇒ page 25, fig. 8 ⑬ to reject an incoming call during the "ring" signal. **CALL ENDED** will appear in the display. Each time there is an incoming call to the connected cell phone with the radio on, an acoustic signal will sound and the display will read **CALL FROM**. If the connected cell phone has caller ID, the number from which the call is incoming will appear in the radio display. The audio connection will be available through the vehicle's front speakers and the microphone in the front of the radio. Transferring a call from the radio to the cell phone and vice versa Briefly press the button ⇒ page 25, fig. 8 ⑫ during the call, it will then be transferred from the radio to the cell phone and vice versa. **CALL TRANS** will appear on the display. Tips • It is possible to control volume and audio adjustments with the radio buttons. • In order to end the call, briefly press the button ⇒ page 25, fig. 8 ⑬. **CALL ENDED** will appear in the display. [http://parts.vw.com/media/images/ecatalog/itemdocuments/1000/VW%20Sound%20System.pdf] **SEE BELOW; MIB-II UTILIZES E.G., RTP MEDIA PROTOCOL TO TRANSFER USER'S VOICE AUDIO IN DIGITAL FORMAT (I.E., RTP PACKETS) TO SMARTPHONE VOICE RECOGNITION INTERFACE:**	**L, DOE**	

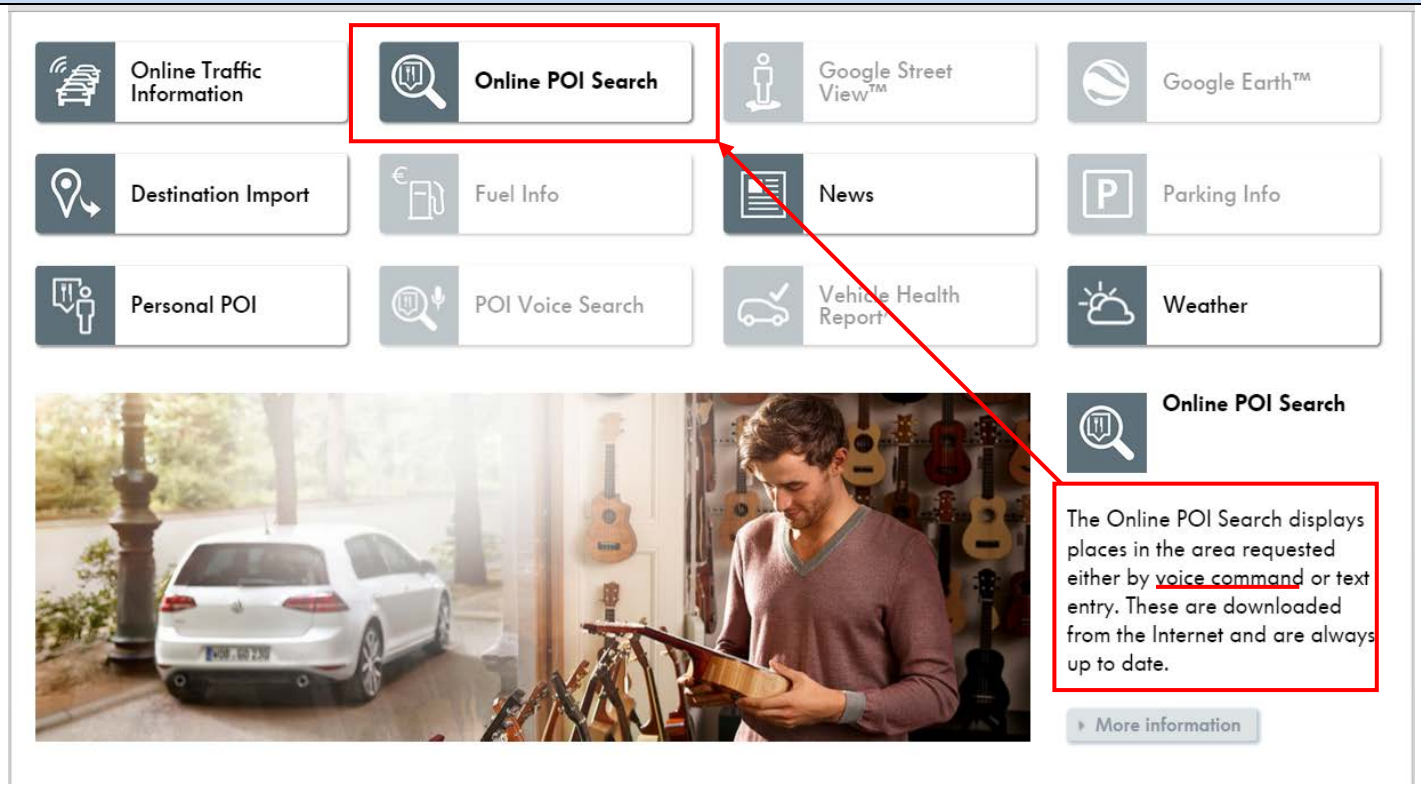
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

2 The Device Status Request message is given in Table 20.

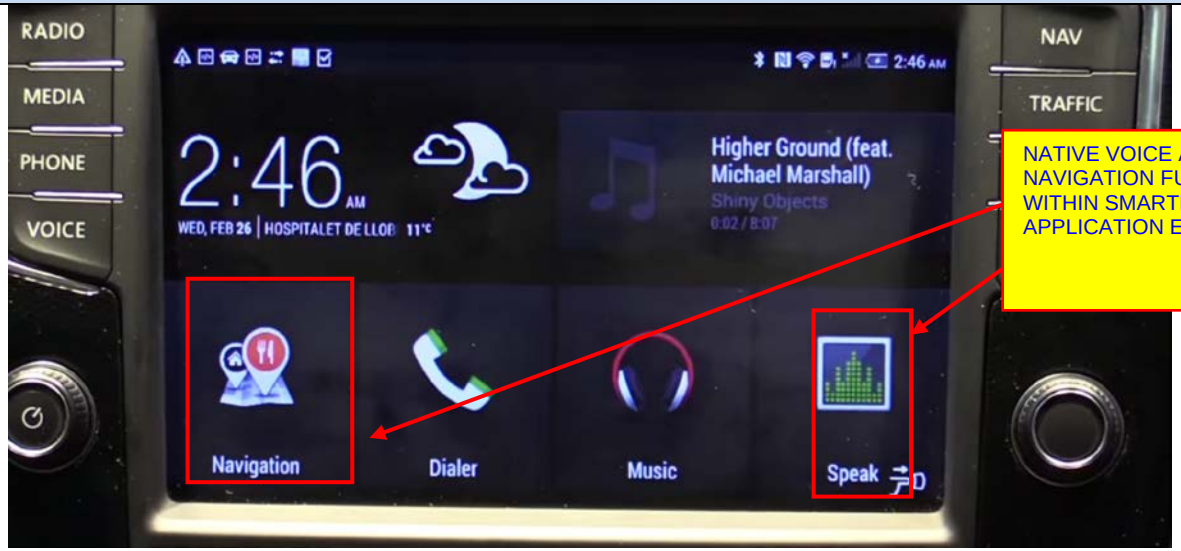
# bytes	Type	Value	Description
1	U8	128	Message-type
1	U8	12	Extension-type
2	U16	4	Payload length
4	U32	*Bit*	*Status of Device Features (00 = ignore, 01* = reserved *10 = disable, 11 = enable))*
		[1:0]	Key-lock (block key entry on the device)
		[3:2]	Device lock (block key entry on the device and from MirrorLink client)
		[5:4]	Screen saver (power-down the device screen)
		[7:6]	Night mode (run device in night mode)
		[9:8]	Voice input (route the incoming audio stream to a voice recognition engine on the mobile device)[12]
		[11:10]	Microphone input on MirrorLink Client routed from microphone to the MirrorLink server
		[17:16]	Driver Distraction Avoidance (MirrorLink Client is in restricted driving mode (enabled), non-restricted driving mode (disabled) or does not enforce a specific driving mode (ignore))
		[26:24]	Absolute Framebuffer rotation (clock-wise) (000 = ignore, 001, 010, 011 = reserved

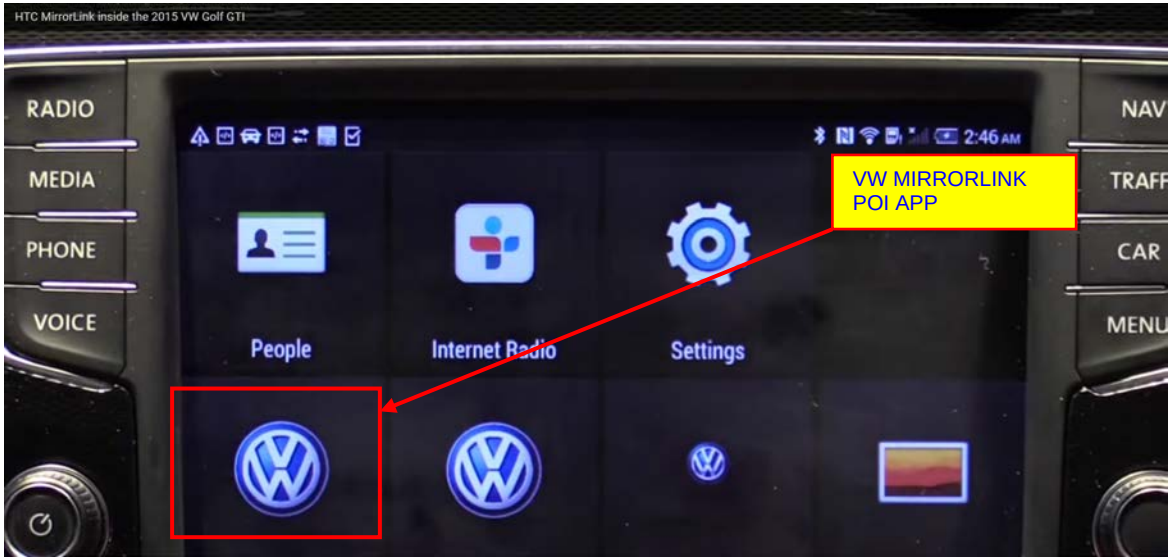
[12] The MirrorLink client MUST use this flag only if the voice command is streamed via RTP. In case an existing BT HFP connection is used and Voice Recognition Activation is supported by both Hands-Free unit and Audio Gateway, the MirrorLink client MUST use the BT HFP voice activation mechanism (AT + BVRA command as specified in **Error! Reference source not found.**) instead.

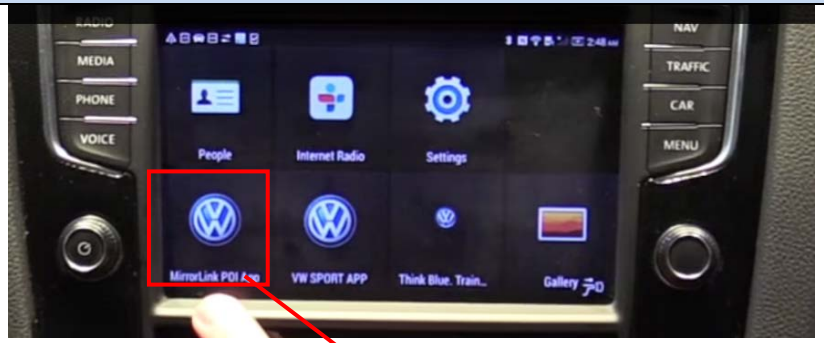
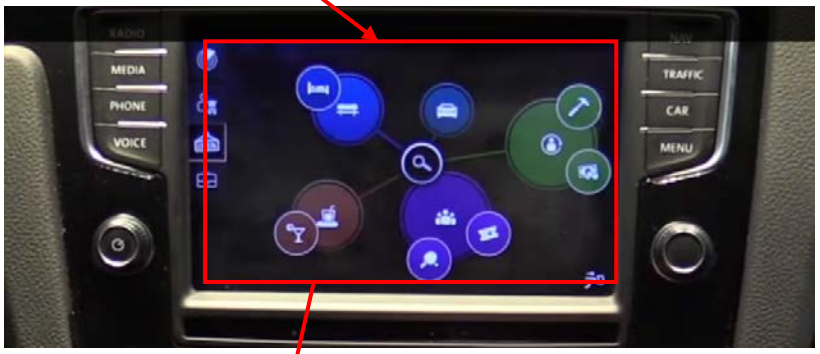
"Car Connectivity Consortium," April 28, 2015

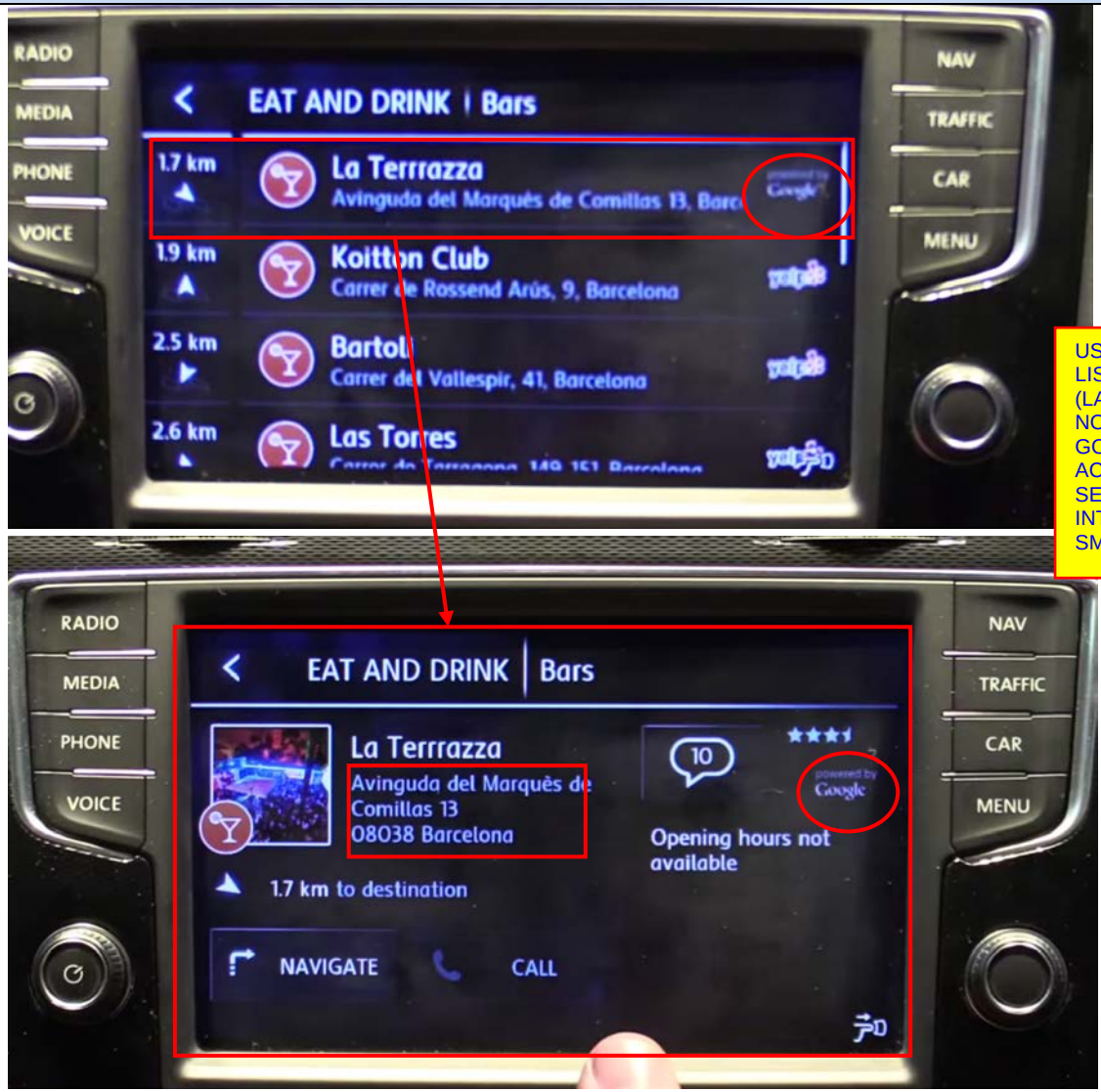
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 http://volkswagen-carnet.com/int/en/start/online-devices.html#130411dc-254f-4d9e-b8d6-e61f322d0417 **SEE FOLLOWING EXEMPLARY HTC-BASED ILLUSTRATION OF THE MIRRORLINK-ENABLED MIB-II IN 2015 GOLF GTI (OUTSIDE U.S.):** **https://www.youtube.com/watch?v=6J5KNaaVRoQ**		

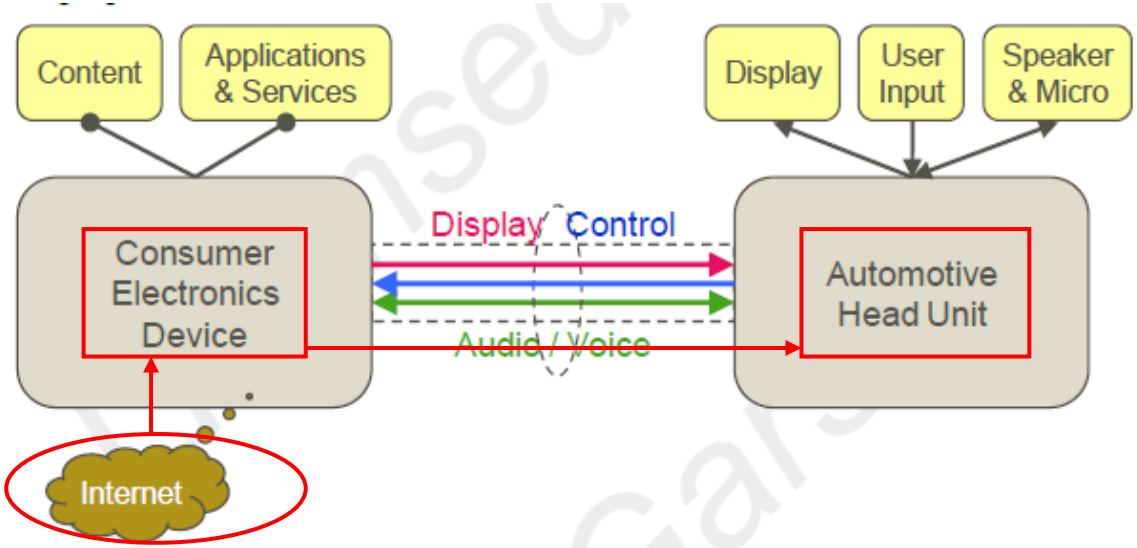
Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]

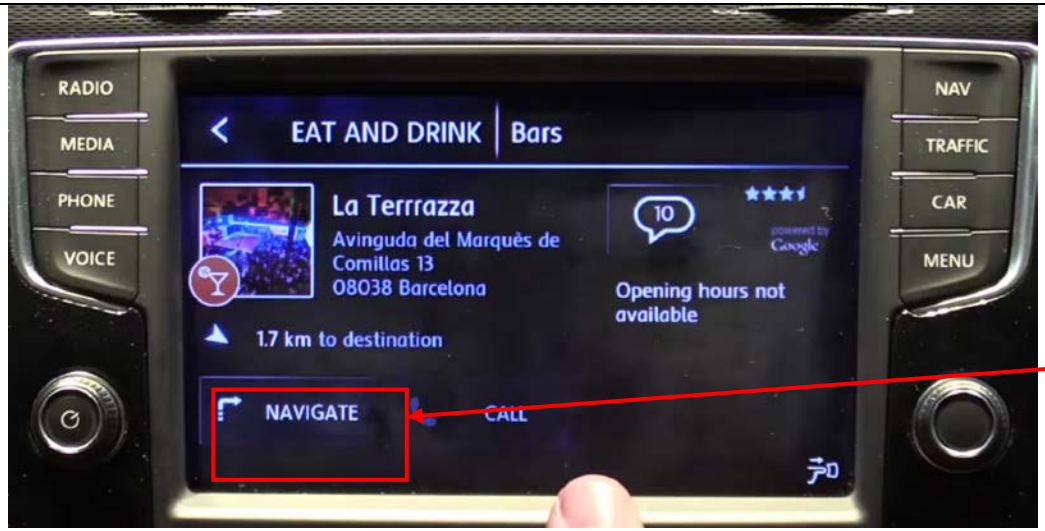


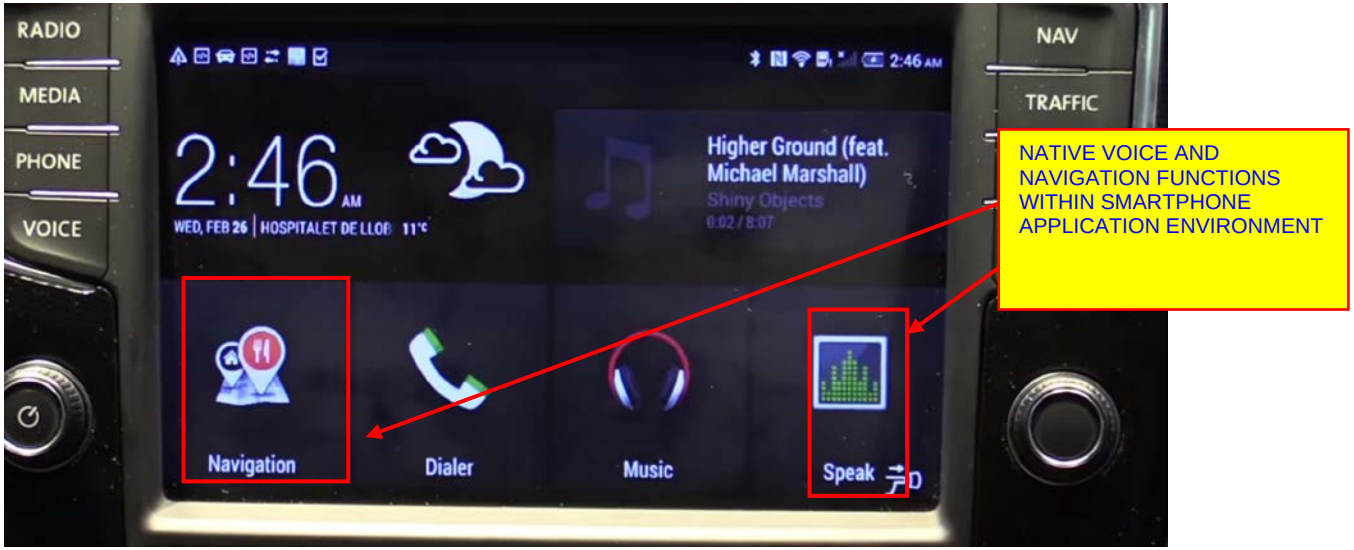


Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	   USER SELECTS VW MIRRORLINK POI APP, THEN "BARS AND RESTAURANTS" SUB-FUNCTION. NOTE THAT EACH OF THE FOREGOING CAN BE ACCOMPLISHED VIA VOICE COMMAND, AS NOTED ABOVE		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
cause, based at least in part on the digitized speech, access of a remote network entity via the network interface to cause retrieval of the desired information;	 USER SELECTS FIRST LISTED BAR/RESTAURANT (LA TERRRAZZA), WHICH AS NOTED, WAS OBTAINED BY GOOGLE SEARCH (I.E., ACCESS TO REMOTE SERVER VIA WIRELESS INTERFACE OF SMARTPHONE)	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
and receive the desired information via the network interface means;	**THE VW MIB-II RECEIVES THE INFORMATION FROM THE REMOTE SERVER VIA THE WIRELESS INTERFACE OF THE SMARTPHONE, AND THEN VIA USB CONNECTION BETWEEN PHONE AND VEHICLE:**  8 "Car Connectivity Consortium," April 28, 2015	**L, DOE**	
wherein the information and display apparatus is further configured to display at least a portion of the desired information on the display device means,	**SEE ABOVE AND BELOW; "DESIRED INFORMATION" CAN INCLUDE ANY OF MAP/DIRECTIONS, ADDRESS, ETC., AND IS DISPLAYED ON TOUCH-SCREEN DISPLAY DEVICE OF GOLF GTI.**	**L, DOE**	
the information received via the network interface means and selected based at least in part	**SEE ABOVE; ALL RELEVANT INFORMATION DESIRED BY THE USER (E.G., NAME/ADDRESS OF LOCAL BAR RESTAURANT, ETC.) IS NOT INDIIGENOUS ON THE VEHICLE, BUT RATHER OBTAINED FROM A REMOTE SERVER (E.G., GOOGLE MAPS OR SIMILAR) BASED ON PROCESSING OF THE USER'S DIGITIZED SPEECH (SEE DISCUSSION OF CLAIM 48 VERSUS AUDI MMI CONNECT SYSTEM ABOVE, REGARDING OPERATION OF GOOGLE VOICE SEARCHES).**	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
on the digitized speech;			
and wherein the desired information comprises a map and visual directions to a particular organization or entity accessible by the transport device,	 USER SELECTS "NAVIGATE" FUNCTION AND OBTAINS AT LEAST MAP DISPLAY AND VISUAL DIRECTIONS ON DISPLAY SCREEN (NOTE: MAP IMAGE FROM VW AG SITE VERSUS VIDEO). AT LEAST PART OF THE MAP/DIRECTIONS HAS BEEN OBTAINED FROM REMOTE SERVER.  http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2014/11/Innovation_workshop_2014/Networking.html	**L, DOE**	

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	ALTERNATIVELY, THE MIB-II SYSTEM CAN UTILIZE THE "NATIVE" SMARTPHONE ENVIRONMENT (VERSUS VW MIRRORLINK POI APP) TO OBTAIN THE DESIRED INFORMATION AND DISPLAY IT ON THE DISPLAY SCREEN:  **HENCE, USER CAN SPEAK INTO VEHICLE MICROPHONE, HIS/HER SPEECH DIGITIZED AND PASSED OVER TO THE PHONE'S VOICE RECOGNITION FUNCTION (E.G., VIA RTP PACKETS AS ABOVE), BUT THEN BE PROCESSED BY DIFFERENT APPLICATION LAYER SOFTWARE SUCH AS THE HTC "NAVIGATION" FUNCTION ABOVE. THAT FUNCTION RETURNS E.G., A GOOGLE MAP (VIA GOOGLE MAP API'S AS DISCUSSED ABOVE) WITH LAT/LON, ETC. (WHICH CAN ALSO INCLUDE USE OF THE *DIRECTIONSSERVICE* GOOGLE API FOR DIRECTIONS) FOR DISPLAY ON THE DISPLAY DEVICE OF THE GOLF GTI, AS SHOWN BELOW:**		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=6J5KNaaVRoQ **NOTE ALSO THAT VW WEBSITE INDUCES USERS TO LOAD SUCH VW AND THIRD-PARTY APPS ONTO THE VW MIB-II SYSTEM:** CAR-NET APP DOWNLOAD CENTER You can see an overview of all Volkswagen Car-Net apps and selected MirrorLink™ apps from other providers here. Follow the appropriate link to download an app for your smartphone operating system. If you're not sure whether your phone is supported, check the compatibility list. **SEVERAL OTHER APPROACHES/PERMUTATIONS ARE SUPPORTED BY MIB-II AND SMARTPHONE CONNECTED**		

Claim Language	Exemplary Audi/Volkswagen Implementations	Literal / DOE[1]	Direct / Indirect[2]
	THERETO FOR OBTAINING DIRECTIONS, MAPS, OR OTHER DESIRED INFORMATION.		
the visual directions comprising at least a visually differentiated line or arrow showing a direction of travel from one location to the organization or entity via one or more pre-established travel infrastructure.	**AFTER USER SELECTS APPROPRIATE ENTRY ABOVE, A MAP SUCH AS FOLLOWS IS SHOWN, SHOWING E.G., GRAPHICAL DIRECTIONS (COLORED LINES/ARROWS) TO THE ORGANIZATION/ENTITY ON E.G., ROADS, HIGHWAYS.** 	**L, DOE**	

CITED EXEMPLARY REFERENCES:

A3 with MMI Connect References:

[1] Audi connect brochure 2014

[2] http://www.pcmag.com/article2/0,2817,2455739,00.asp

[3] http://www.pcmag.com/article2/0,2817,2455739,00.asp

[4] http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

[5] http://www.cnet.com/products/2015-audi-a3-sedan/

[6] http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/

[7] http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/

[8] http://fourtitude.com/emAlbum/albums/Marques%20(Audi%20Brand%20Group)/Audi%20(Modern%20Era)/A3/from%202013%20(Type%208V,%20MQB)/Sportback/Technical/audi-connect-refuelling-stp-service-mmi-a3-18.jpg

[9] http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/

[10] http://www.audiusa.com/technology/intelligence/audi-connect/connect-privacy.html

[11] https://www.audi-mediaservices.com/publish/ms/content/en/public/hintergrundberichte/2014/01/07/next_generation__/infotainment_and_audi.html

[12] http://www.businesswire.com/news/home/20121011005696/en/Nuance%E2%80%99s-Dragon-Drive!-Messaging-Powers-Text-Message#.U_PAdMVdXN8

[13] https://pictures.dealer.com/aoa/d47887b20a0d02b701e481c10e83549f.pdf

[14] https://developers.google.com/places/

[15] http://www.martinshervington.com/what-is-google-local-and-how-to-set-up-a-page/

[16] http://www.audiusa.com/help/audi-connect#dtufilters/vehicleYear/null/vehicleName/null/

[17] http://www.cnet.com/news/google-maps-becoming-more-context-aware-and-emotional/

[18] http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm

[19] http://www.wired.com/2013/02/android-neural-network/

[20] http://www.cnet.com/products/2015-audi-a3-sedan/

[21] http://www.autotrader.com/research/article/car-news/219924/2015-audi-a3-price-starts-under-30000.jsp

[22] http://audiusanews.com/newsrelease.do?&id=3359&allImage=1&teaser=audi-introduces-all-new-technologically-advanced-2015-audi&mid=1

[23] http://www.audiusa.com/innovation/intelligence/audi-connect

[24] http://en.wikipedia.org/wiki/Google_Play

[25] https://play.google.com/about/music/allaccess/#/

[26] http://docs.oracle.com/javase/tutorial/networking/urls/definition.html

[27] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/

MIB-II With MirrorLink References:

[1] THE 2015 VW Golf GTI STANDARD AND OPTIONAL EQUIPMENT.

[2] "Car Connectivity Consortium," April 28, 2015

[3] http://volkswagen-carnet.com/int/en/start/online-devices.html#tab/open/mirror-link

[4] http://parts.vw.com/media/images/ecatalog/itemdocuments/1000/VW%20Sound%20System.pdf

EXHIBIT D

Audi/Volkswagen Vehicles and Services vs. U.S. Patent No. 8,682,673
"Computerized Information and Display Apparatus"

U.S. Patent No. 8,682,673 Data	Filed: 12/27/12 Issued: 3/25/14 Priority date: June 10, 1999 30 claims total - 4 independent, 26 dependent

Provided pursuant to Patent Local Rule 3.1 and June 10, 2015 Order;
Plaintiff reserves the right to supplement.

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	2015 AUDI A3 WITH MMI CONNECT		
	THIS ANALYSIS IS TARGETED AT 2015 AUDI A3 WITH CONNECT PROVIDING DRIVING DIRECTIONS/MAPS AND OTHER INFORMATION  [http://www.pcmag.com/article2/0,2817,2455739,00.asp]		

[1] West View denotes allegations of literal infringement as "L" and infringement under the doctrine of equivalents as "DOE," as applicable.
[2] West View denotes allegations of direct infringement as "D" and indirect or induced infringement as "I," as applicable.

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
1. Computerized information apparatus, comprising:	 **THE AUDI A3 CONNECT SYSTEM IS AN EMBEDDED SYSTEM (I.E., THE NAVIGATION SYSTEM AND MODEM AND RELATED COMPONENTS) ARE EACH PROVIDED WITH THE VEHICLE, AS OPPOSED TO A NON-EMBEDDED SYSTEM WHICH UTILIZES THE USER'S SMARTPHONE AS A BASIS FOR WIRELESS COMMUNICATION.**	**L, DOE**	**D, I**

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

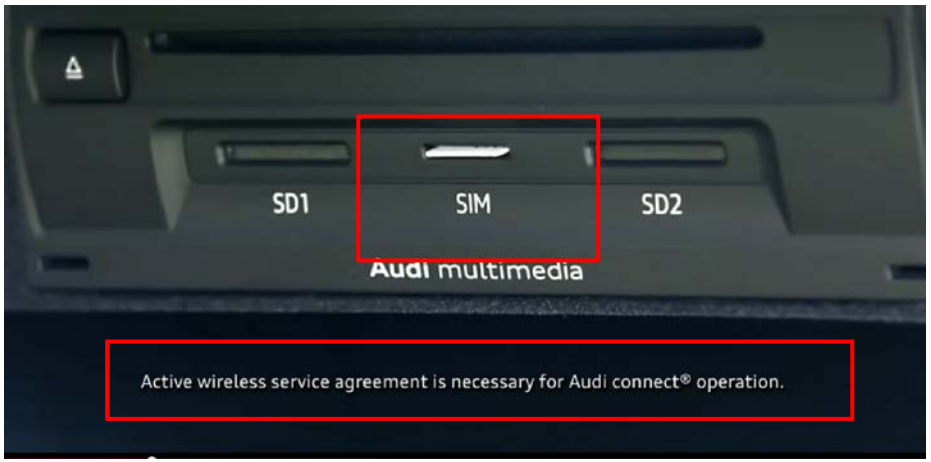
Audi connect features.

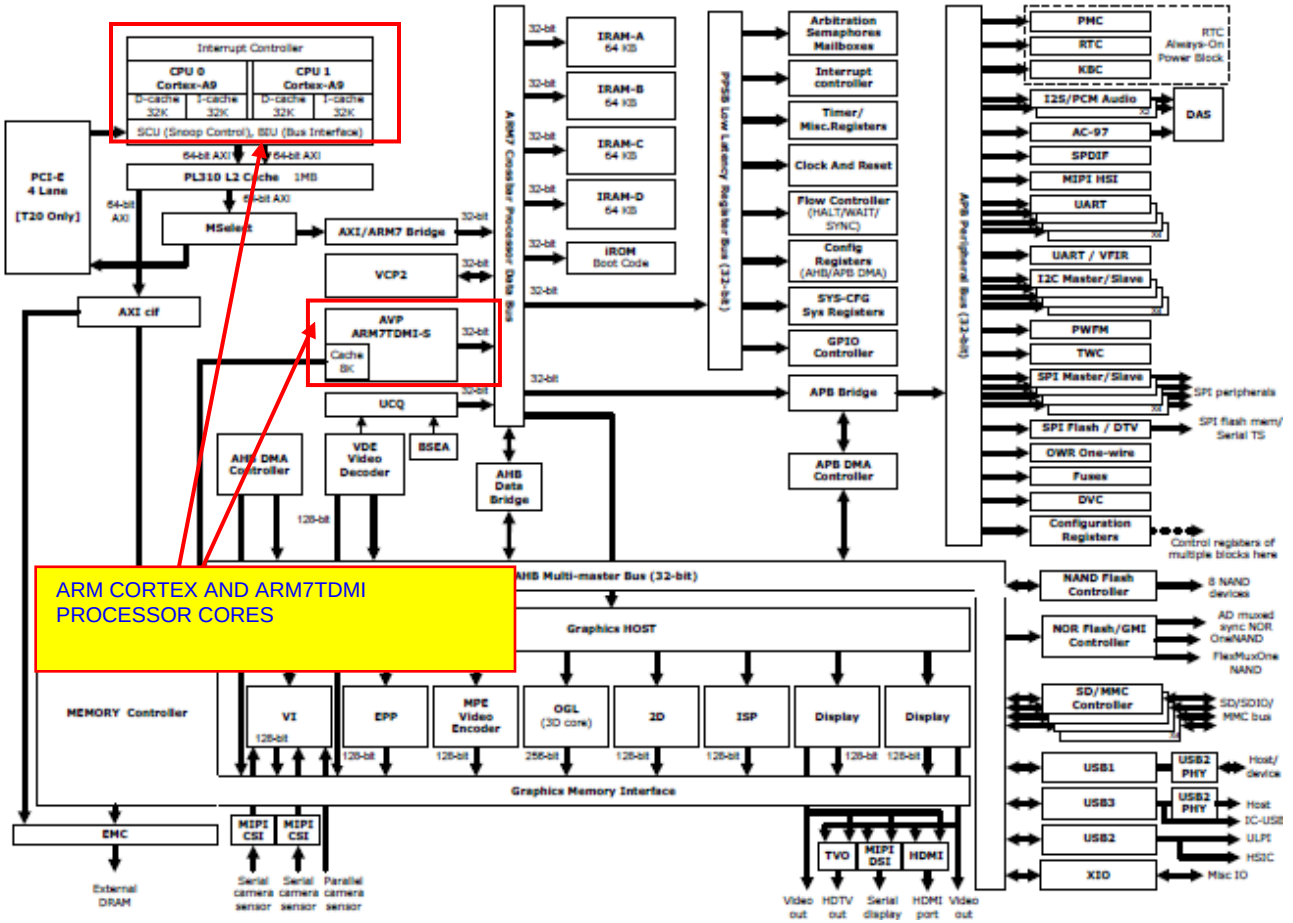
	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■
Parking information	■	■	■	■	■	■	■	■
Fuel prices	■	■	■	■	■	■	■	■
Flight information								■
Communication								
Facebook®								■
Twitter®								■
Infotainment								
Audi music stream[2]	■	■	■	■	■	■	■	■
Weather	■	■	■	■	■	■	■	■
Travel information	■	■	■	■	■	■	■	■
News	■	■	■	■	■	■	■	
Personalized news								■
City events	■	■	■	■	■	■	■	■
Google™ Local Search	■	■	■	■	■	■	■	■
Wi-Fi® hotspot	■	■	■	■	■	■	■	■
3G (HSPA/HSPA+)	■	■	■	■	■	■	■	
4G/LTE								■

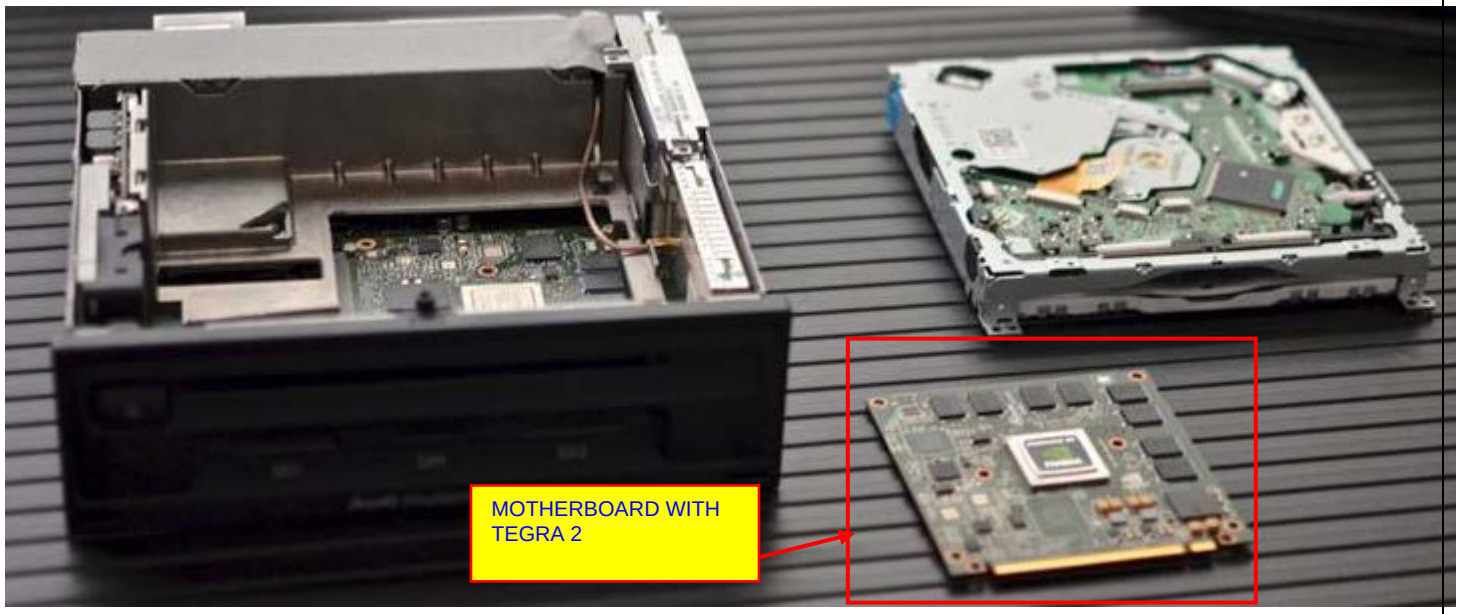
FEATURES OF 2015 A3 WITH MMI AND CONNECT

[Audi connect brochure 2014]

SEE TABLE ABOVE; THE A3 CONNECT SYSTEM PROVIDES NUMEROUS TYPES OF INFORMATION, MOST OF WHICH ARE PROVIDED VIA THE SYSTEMS EMBEDDED LTE INTERFACE (AS OPPOSED FOR EXAMPLE TO

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	SIRIUSXM, WHICH IS SATELLITE/DOWNLINK BASED, AND WHICH REQUIRES A SEPARATE SUBSCRIPTION FROM THE CONNECT SYSTEM OFFERED BY AUDI).		
a network interface;	**"Connectivity, Navigation, and Interface** The A3 has several new tech features that haven't made it to even Audi's top-of-the-line A8. It's the first Audi with 4G LTE wireless connectivity via AT&T, for example, while Facebook and Twitter apps are new additions and for now exclusive to the A3's Audi connect system.… Even if you are able to connect your portable device and have ample power, you don't really get much of a chance to use it—or its data plan—beyond listening to music or making calls via Bluetooth. Most of the A3's connected features are dependent on having the AT&T data plan that's part of the Audi connect system and costs $99 for a six-month/5GB-total package or $499 for a 30-month/30GB-total package after a free six-month trial.… Instead of leveraging a smartphone to connect to the cloud, as with some systems, features such as Internet radio and Picture navigation are communicated via Audi Connect, and through the A3's onboard Wi-Fi connection that's part of the AT&T data plan. This means that if you allow your 4G subscription to lapse, you lose these features." [http://www.pcmag.com/article2/0,2817,2455739,00.asp]  **AUDI A3 CONNECT UTILIZES A 4G LTE MODEM AND SERVICE THROUGH AT&T. THIS IS THE PRIMARY WIRELESS INTERFACE FOR THE VEHICLE.**	**L, DOE**	

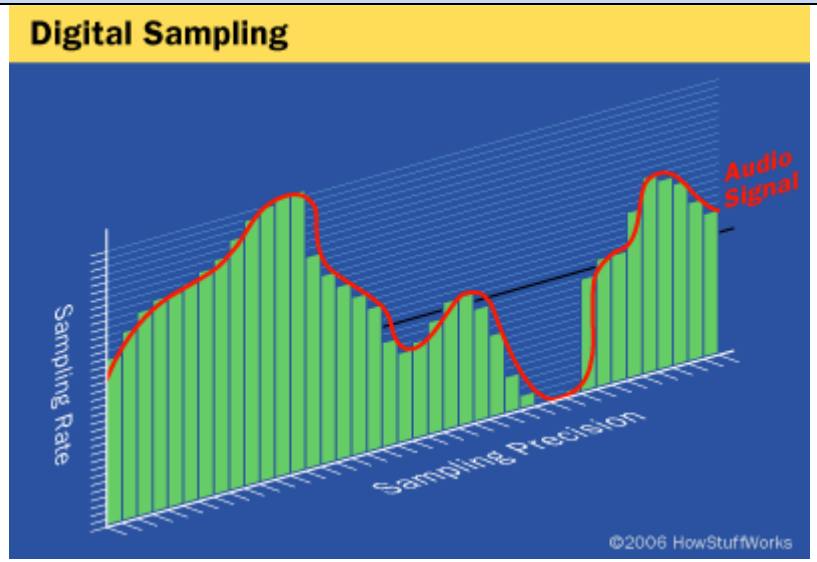
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
processing apparatus in data communication with the network interface;	**AUDI A3 MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA 2 PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA 2 CHIP AND OTHER COMPONENTS. THEPROCESSING APPARATUS IS IN DATA COMMUNICATION WITH THE NETWORK (E.G., 4G LTE) INTERFACE IN ORDER TO, *INTER ALIA*, RECEIVE AND PROCESS DATA FROM THE CONNECT REMOTE SERVERS.** Figure 1. Tegra 2 Series Block Diagram  	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	[http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp] "**The future of Audi is modular** The A3's Multi Media Interface (MMI) infotainment system is powered by Nvidia's Tegra 2 processor and features crisply rendered 3D topographical map data for the navigation system and snappy, sharp menus. … Right now, it's packing the Tegra 2 and 4G LTE connectivity, but next year it could be rocking a more powerful brain or a faster connection. …  		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 The A3's infotainment system's guts are designed to be modular. The brains of the entire system fit into a box that's about the same size as a single-DIN CD player." [http://www.cnet.com/products/2015-audi-a3-sedan/] *"Powered by Nvidia Tegra 2* Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra 4 with minimal retooling."		

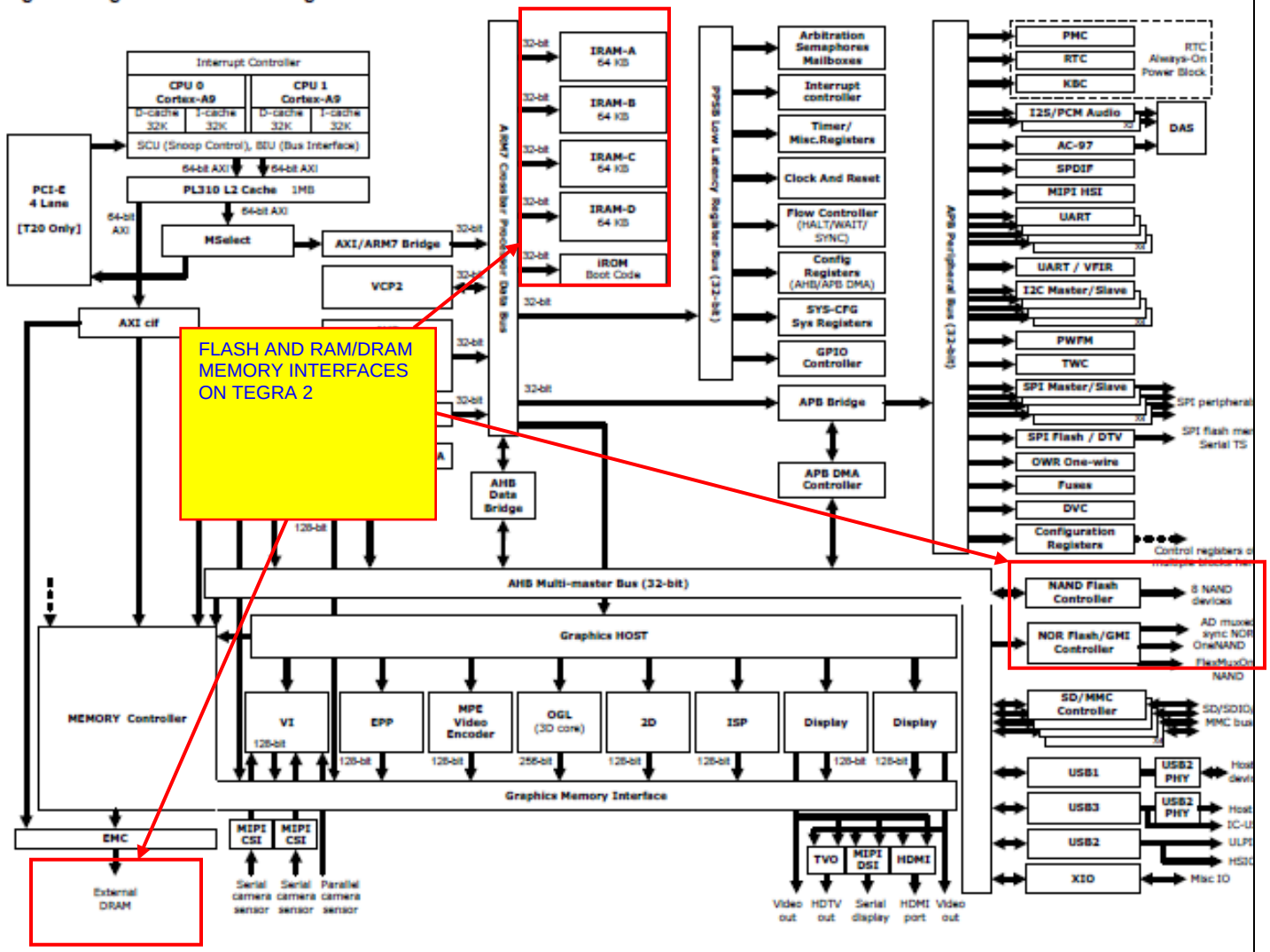
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
a display device;	 DISPLAY SCREEN (NOT TOUCH-SCREEN) [http://fourtitude.com/emAlbum/albums/Marques%20(Audi%20Brand%20Group)/Audi%20(Modern%20Era)/A3/from%202013%20(Type%208V,%20MQB)/Sportback/Technical/audi-connect-refuelling-stp-service-mmi-a3-18.jpg] **"The new monitor** In the new Audi A3, images are displayed on a 7-inch screen. Thanks to its very high contrast and resolution of 800 x 480 pixels, it delivers brilliant, very sharp 3D graphics; highly efficient LEDs supply its backlighting."[http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/]	**L, DOE**	
a speech digitization apparatus in data communication with the	**THE AUDI A3 UTILIZES VOICE DIGITIZATION FUNCTIONS IN AT LEAST THREE AREAS; (I) GOOGLE LOCAL SEARCH; (II) VEHICLE (LOCAL) COMMANDS, AND (III) MESSAGING**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
processing apparatus;	"Another new Audi connect service is the POI (Point Of Interest) search, which can be operated via the voice control system. The driver simply chooses a destination and specifies their interest – the name of a restaurant, for instance. The voice command, or "voice tag," is converted to a small data packet that is sent to the Google search engine." [http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/] "October 11, 2012 08:00 AM Eastern Daylight Time BURLINGTON, Mass.--(BUSINESS WIRE)--Nuance Communications Inc. (NASDAQ: NUAN) today announced that its automotive-grade Dragon Drive! Messaging service for the connected car is powering the text message dictation in the new Audi A3, creating a hands-free messaging experience. With Audi connect Messaging, drivers can simply use their voice to dictate and send text messages while driving, as well as hear incoming text or e-mail messages.' … "Dragon Drive! Messaging's flexible and customizable architecture enables world-leading automotive brands like Audi to deeply integrate powerful voice capabilities as part of their unique in-car experience, without compromising quality or adding dangerous distractions." The Audi A3 deeply integrates Dragon Drive! Messaging as part of the in-car user interface. Drivers simply connect their phone via Bluetooth or insert their SIM card into the MMI Navigation plus to quickly and easily dictate and send text messages without having to take their hands off of the wheel. For example, just say "Dictate text message to John Smith" to quickly access the contact from a mobile address book, and then speak the message, "I am stuck in traffic and will be late for the meeting. Start without me." The message is read to the driver, and from there they can continue dictating, edit or send the message using simple voice commands. Nuance's natural, humanlike text-to-speech capabilities also read out incoming text and email messages, keeping Audi drivers connected to friends and family from anywhere. … Audi also integrates Nuance's voice command and control as part of Audi's voice user interface, letting drivers speak voice commands to search and access contacts and make calls on their phone, select Audi connect services and one-shot voice commands to input navigation address information." [http://www.businesswire.com/news/home/20121011005696/en/Nuance%E2%80%99s-Dragon-Drive!-Messaging-Powers-Text-Message#.U_PAdMVdXN8]		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **"**An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality." [http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm] "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " [http://www.wired.com/2013/02/android-neural-network/] "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like:		

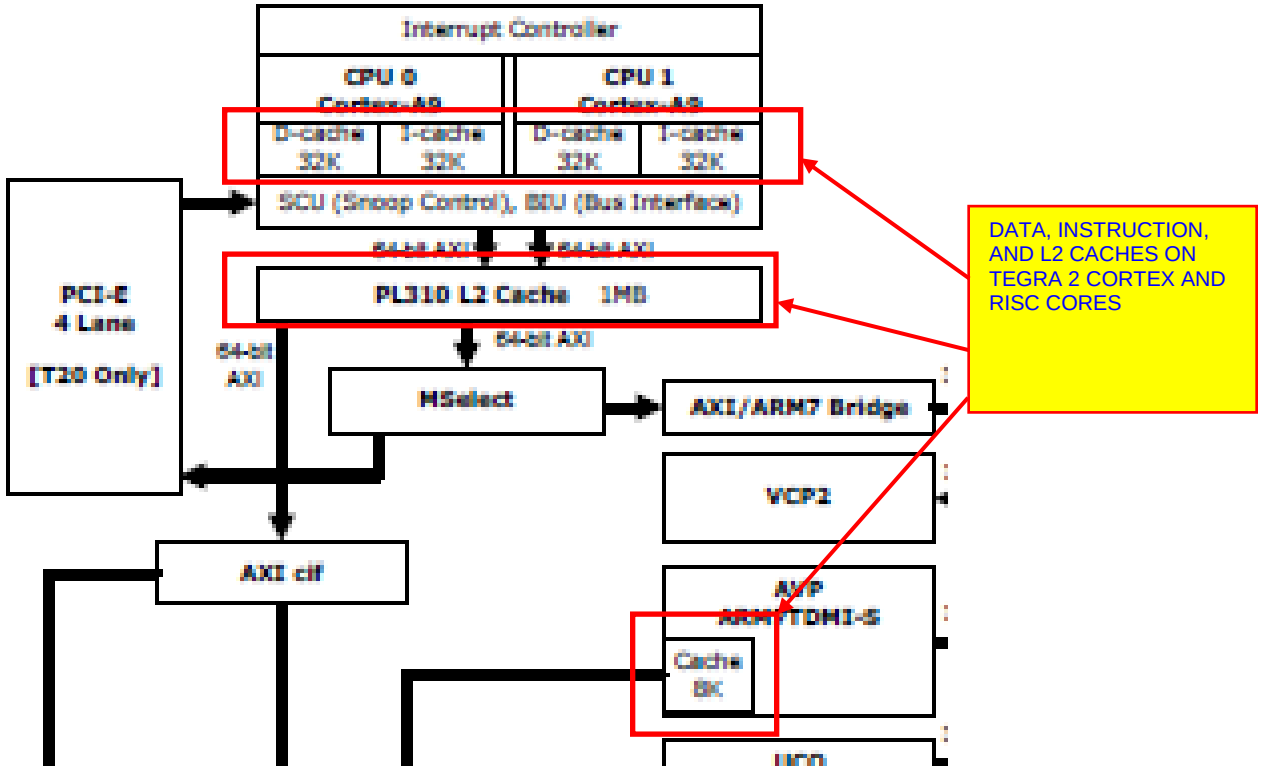
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

	…
	
	 After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string.
	
	 `GET /complete/search?client=iphoneapp&hjson=t&types=t &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1`
	 `User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1`
	 `Accept: */*`
	 `Accept-Language: en-us`
	 `Accept-Encoding: gzip, deflate`
	 `Pragma: no-cache`
	 `Connection: keep-alive`
	 `Connection: keep-alive`
	 `Host: clients1.google.com`
	
	 The response is an array of search terms in JSON format, for use in search autocompletion.
	
	 `["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]]`
	 [http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/]
	
	 THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
and a storage apparatus comprising at least one computer program,	Figure 1. Tegra 2 Series Block Diagram  [http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp]	L, DOE	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

Figure 1. Tegra 2 Series Block Diagram



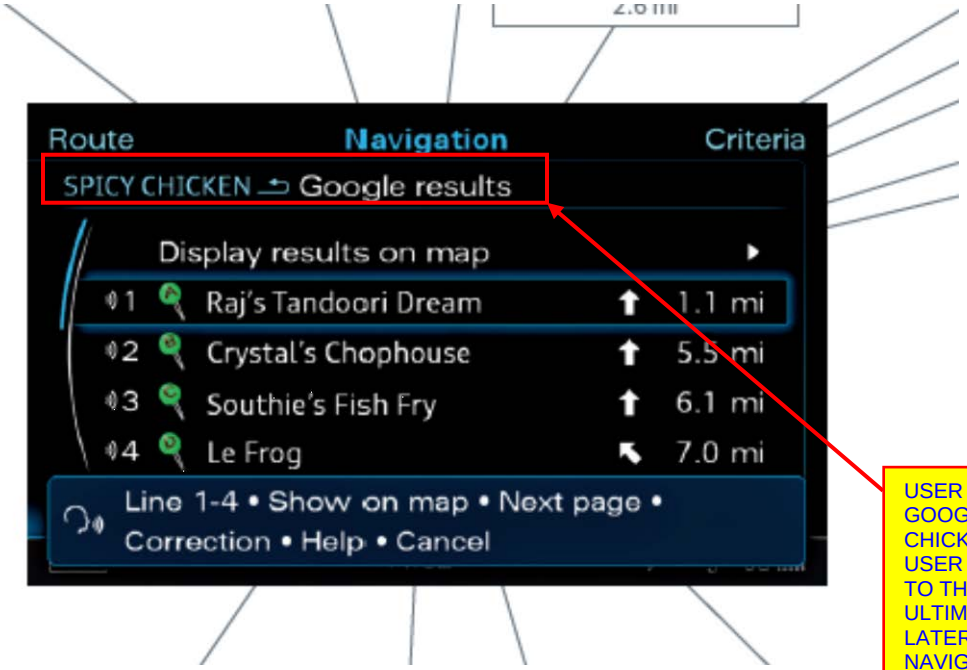
[http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp]

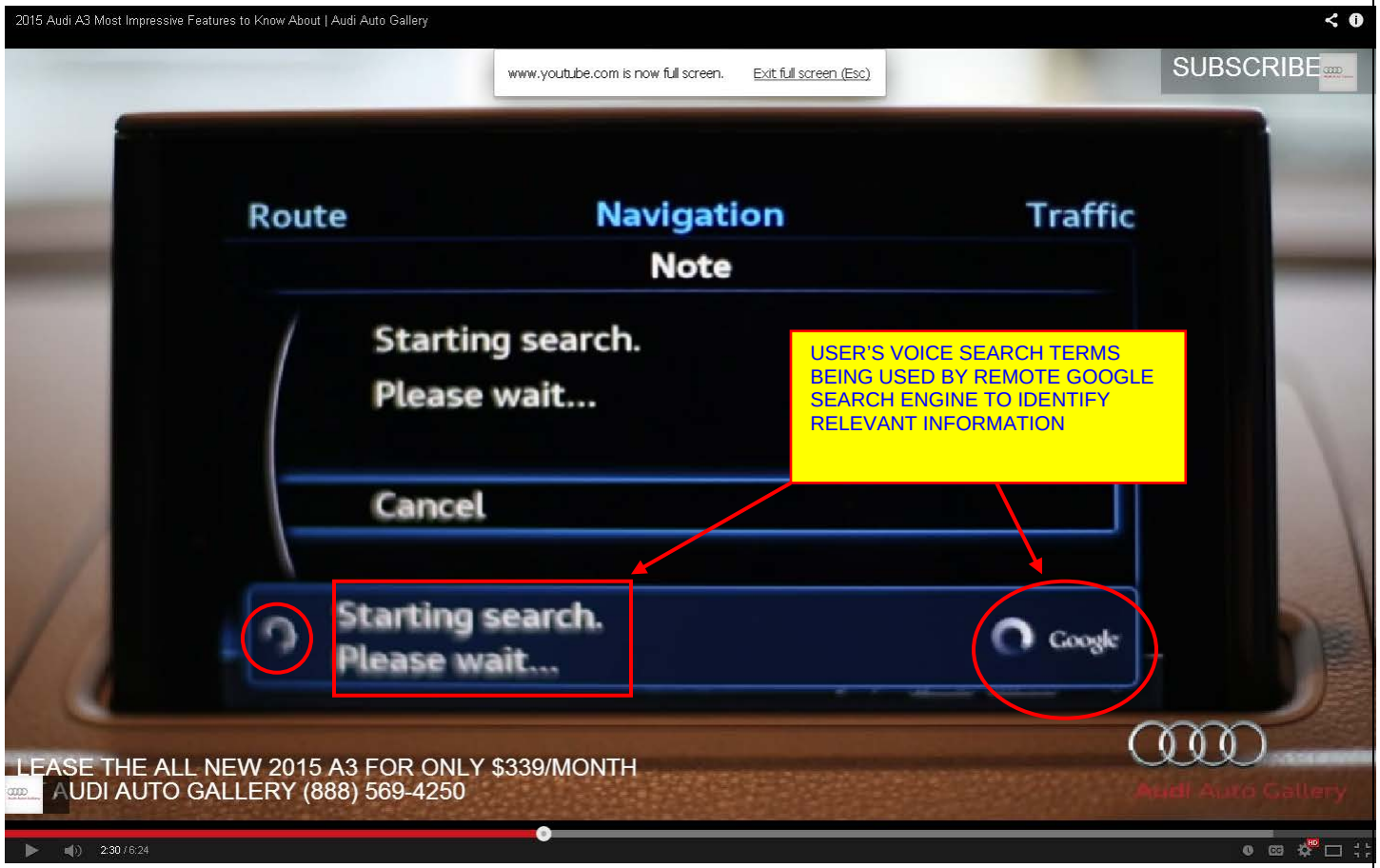
"Powered by Nvidia Tegra 2

Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	4 with minimal retooling."  [http://www.cnet.com/products/2015-audi-a3-sedan/] "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/]		
said at least one program being configured to, when executed on a	**THE VARIOUS PROGRAMS RESIDENT IN NON-VOLATILE STORAGE MUST BE EXECUTED ON A PROCESSOR, WHETHER CISC, RISC, OR DSP (E.G., CORTEX OR ARM7TDMI OF TEGRA 2)**	**L, DOE**	

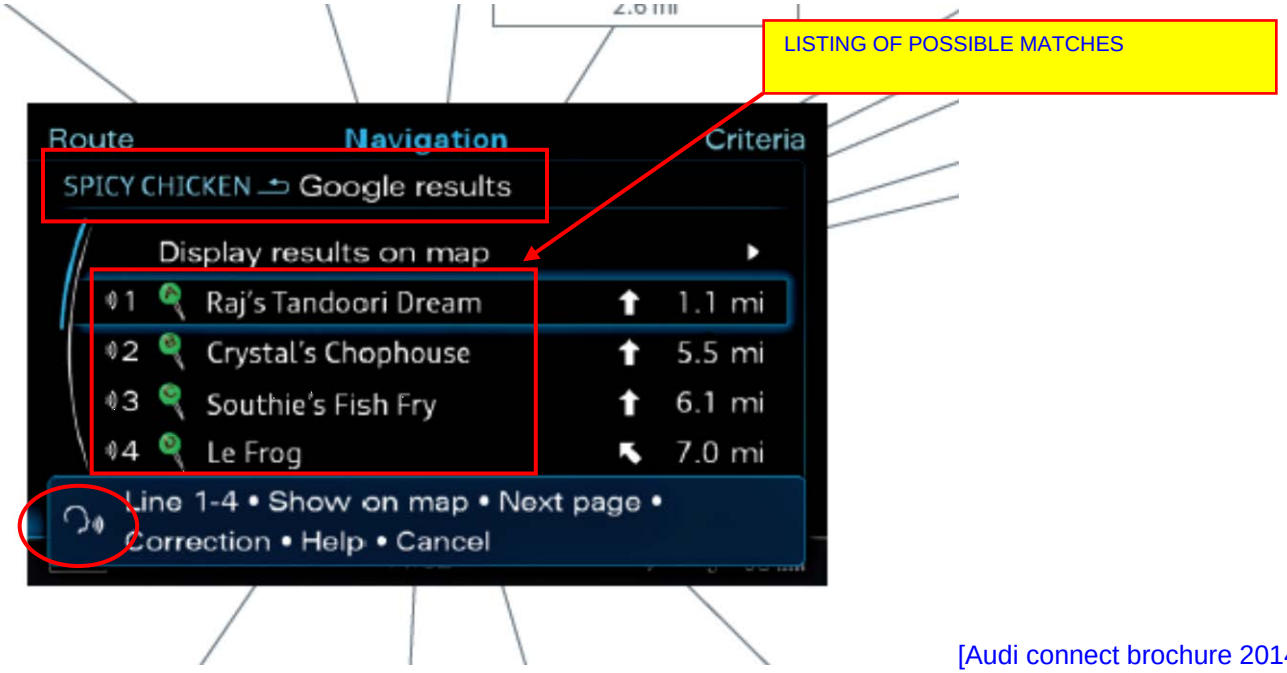
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
processing apparatus:			
receive a digitized speech input from the speech digitization apparatus, the input relating to desired information which a user wishes to locate;	"Another new Audi connect service is the POI (Point Of Interest) search, which can be operated via the voice control system. The driver simply chooses a destination and specifies their interest – the name of a restaurant, for instance. The voice command, or "voice tag," is converted to a small data packet that is sent to the Google search engine." [http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/] **SEE ABOVE; THE USER'S ANALOG SPEECH IS RECEIVED BY AN IN-VEHICLE MICROPHONE, AND PROCESSED BY A SPEECH ALGORITHM TO DIGITIZE IT FOR FURTHER PROCESSING.** **Your destiny is on the tip of your tongue.** Google Voice™ Local Search allows you to easily search via voice commands for restaurants, historical landmarks and places of interest, both near and far.[1] Imagine entering a destination address by just speaking the words—Audi connect® makes that possible. With the power of Google™ on the tip of your tongue, Audi connect brings a vast Internet database to you with the advanced engineering and style of Audi. The same ease of use and thorough location search capability you've come to expect from Google™ rolled into your every commute. Search nearby and faraway points of interest with the power of Google Voice™ Local Search. Need to take the client out for nine holes? Just tell Audi connect "golf course." Looking for a meal with a little kick? Just ask for "spicy chicken"—Google™ will populate your navigation display with restaurants or descriptions that match the phrase you speak. Select the destination that best suits your appetite, and style, and your Audi MMI® navigation system will guide you there in clear and accurate detail. More than just a companion on the road, Audi connect, once you use it, will become an integral part of the family.	**L, DOE**	

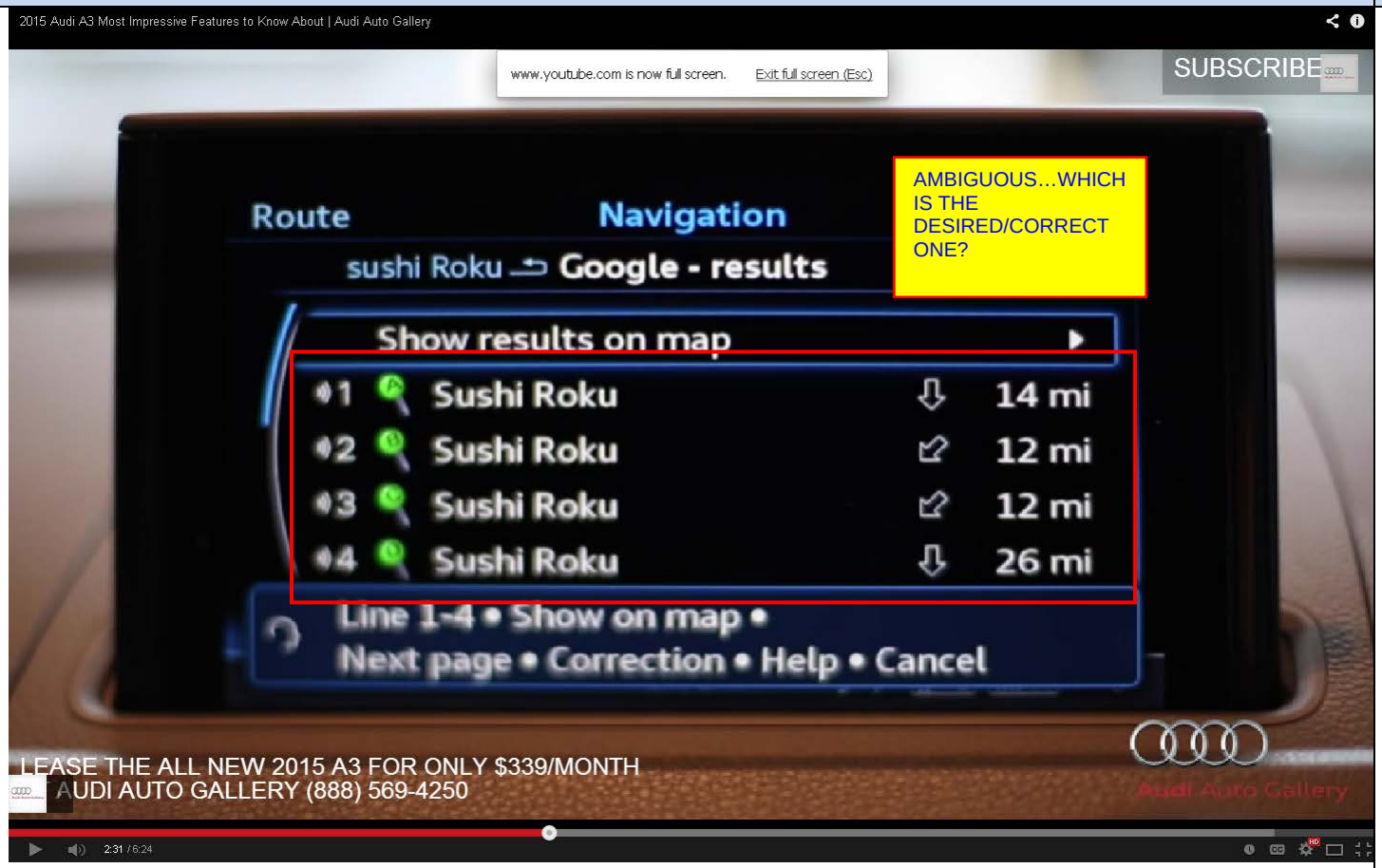
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 [Audi connect brochure 2014] **SEE E.G., FOLLOWING DEMO VIDEO (2:00 – 3:00)** **https://www.youtube.com/watch?v=pjoeoDxz06U**		
cause evaluation of the digitized speech input to identify one or more words or word strings within the digitized input; and cause, based at least in part on the one or more identified one or more words or word	**THE AUDI A3 NAVIGATION SYSTEM USES GOOGLE VOICE LOCAL SEARCH ENGINE FOR GOOGLE DESTINATION SEARCHES, RESIDENT ON (OR COMMUNICATING WITH) THE AUDI/GOOGLE CLOUD SERVERS. SPEECH DIGITIZATION IS PERFORMED IN-VEHICLE:** "Another new Audi connect service is the POI (Point Of Interest) search, which can be operated via the voice control system. The driver simply chooses a destination and specifies their interest – the name of a restaurant, for instance. The voice command, or "voice tag," is converted to a small data packet that is sent to the Google search engine." [http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/]	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
strings, access of a remote network entity to obtain the desired information,…	**…AND THE DIGITIZED REQUEST IS PASSED VIA THE VEHICLE'S 4G LTE WIRELESS INTERFACE TO THE REMOTE CLOUD SERVER FOR FURTHER PROCESSING, INCLUDING RETRIEVAL OF THE LOCATION AND ASSOCIATED DATA FOR THE REQUESTED ENTITY.**  https://www.youtube.com/watch?v=pjoeoDxz06U		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	"How Voice Search works Voice Search allows you to provide a voice query to a Google search client application on a device instead of typing that query. It uses pattern recognition to transcribe spoken words to written text. For each voice query made to Voice Search, we store the language, the country, the utterance and our system's guess of what was said. The stored audio data does not contain your Google Account ID unless you have selected otherwise. We do not send any utterances to Google unless you have indicated an intent to use the Voice Search function (for example, pressing the microphone icon in the quick search bar or in the virtual keyboard or saying "Google" when the quick search bar indicates that the Voice Search function is available). We send the utterances to Google servers in order to recognize what was said by you. We keep utterances to improve our services, including to train the system to better recognize the correct search query." [https://www.google.com/policies/technologies/pattern-recognition/] **"Information We Transmit or Collect** When you request an Audi connect service, your Audi vehicle transmits information to us so that we can process your request. These transmissions include information about the requests you make, information that serves to identify whether your Audi vehicle is authorized to receive Audi connect services, and, as appropriate, information that identifies your personalized services such as Facebook, Twitter, and RSS feeds. We store information about your service requests in log files. Those records include your myAudi user ID, the services you requested, the types of requests you made, the times you requested the services, and the vehicle identification number (VIN) associated with the requests. You may request information (including directions, parking information, or weather) about a location, including your current location. When you do so, we transmit your Audi vehicle's location to the appropriate content provider to process your request. We do not transmit to content providers information that directly identifies whether the location is your current location or a location distinct from where you are unless it is revealed by the nature of your request. …		

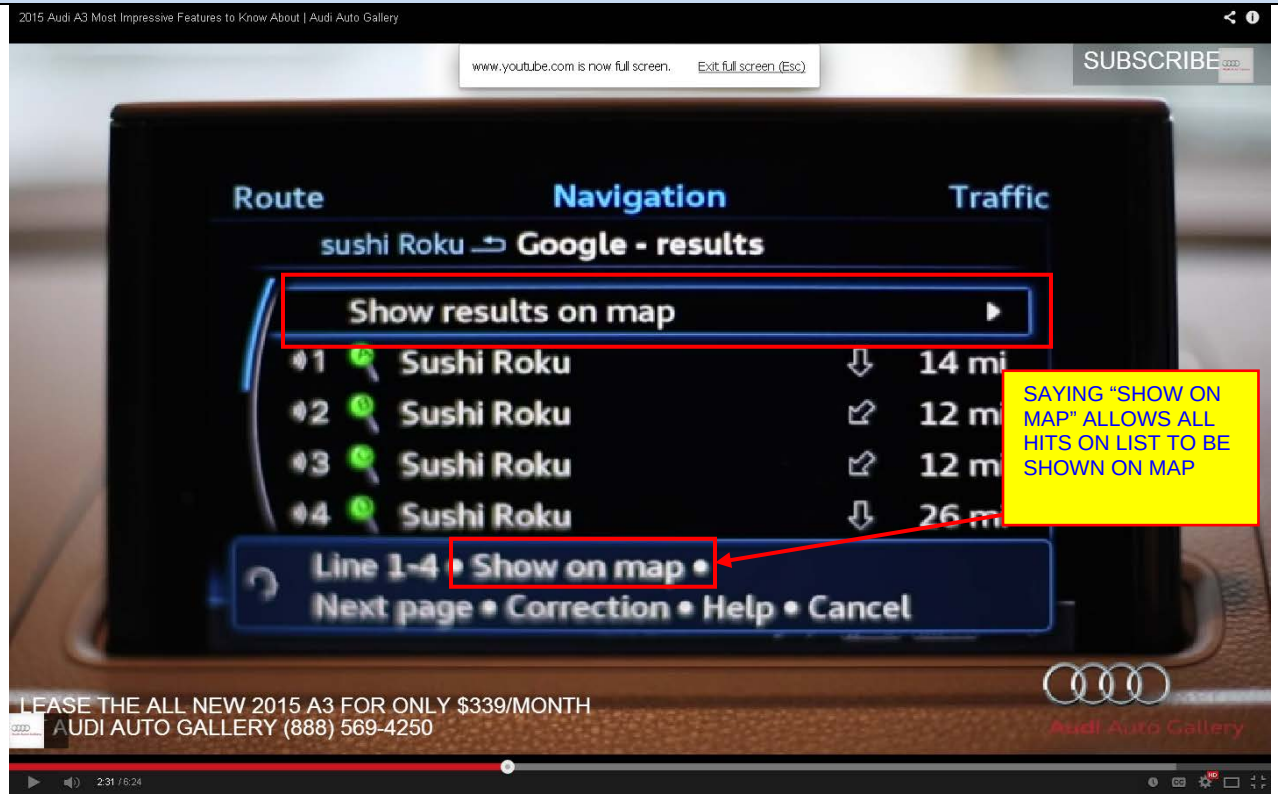
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	After you register certain personalized services in your myAudi account (such as Facebook and Twitter), we store an access token (not your username and password) on our servers so that you need not separately log into the personalized services when you use them. We transmit information you send when using the service (such as social media messages) and information you request from Audi connect services (such as information feeds, information about parking, travel information, etc.). We do not store the content of any messages you send or access or the locations associated with any information requests that you submit." [http://www.audiusa.com/technology/intelligence/audi-connect/connect-privacy.html] **REQUESTS FOR GOOGLE LOCAL SEARCH ("ONLINE DESTINATIONS"), WEATHER, NEWS, ETC. ARE ALL HANDLED BY AUDI CONNECT SERVERS, AT LEAST INITIALLY. TRAFFIC IS PROVIDED BY SIRIUSXM WITH SEPARATE SUBSCRIPTION, PRESUMABLY VIA SATELLITE LINK.** "Audi's IT department is also on the job whenever an Audi driver requests certain Audi connect services such as weather information or the news. Such requests are transmitted via the mobile communications network to back-end servers in Ingolstadt, which identify the vehicle in question. Requests are then forwarded to content providers, which in turn deliver data directly to the customer's vehicle. Audi has already begun managing Audi connect data with cutting-edge precision. This is particularly intriguing in terms of the wireless use of media data via cloud computing, which Audi refers to as "seamless media." " [http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/] **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." [http://fourtitude.com/news/Audi_News_1/ces-2014-infotainment-audi-connect/] **NOTE THAT CLAIM 1 DOES NOT REQUIRE THAT THE EVALUATION AND ACCESS OCCUR AT THE SAME LOCATION (I.E., REMOTE NETWORK SERVER); HENCE, THE CLAIM LIMITATIONS WOULD BE MET BY EITHER (I) RECOGNITION IN THE VEHICLE, AND ACCESS OF THE INFORMATION REMOTELY; OR (II) REMOTE**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	RECOGNITION AND ACCESS. **SEE CLAIM 6 BELOW, WHICH REQUIRES THAT BOTH BE PERFORMED BY "A REMOTE NETWORK ENTITY".**		
the obtainment of the desired information further comprising: causing generation of a listing of a plurality of possible matches to said input, thereby creating an ambiguity;	**THE AUDI/GOOGLE REMOTE SERVERS CAUSE THE CLIENT (VEHICLE) TO GENERATE, WHETHER AUDIBLY OR VISUALLY ON THE DISPLAY, A LISTING OF POSSIBLE MATCHES WHEN THE ACCESS OPERATION PRODUCES MULTIPLE "MATCHING" RESULTS.** **THE NAVIGATION SYSTEM (AND USER) IS THEN PRESENTED WITH AN AMBIGUITY; I.E., WHICH OF THE "POSSIBLES" RETURNED BY THE REMOTE SERVER IS THE DESIRED/CORRECT ONE?**  [Audi connect brochure 2014] **SEE VIDEO BELOW FOR EXAMPLE OF SEARCH FOR "SUSHI ROKU":**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **https://www.youtube.com/watch?v=pjoeoDxz06U**		

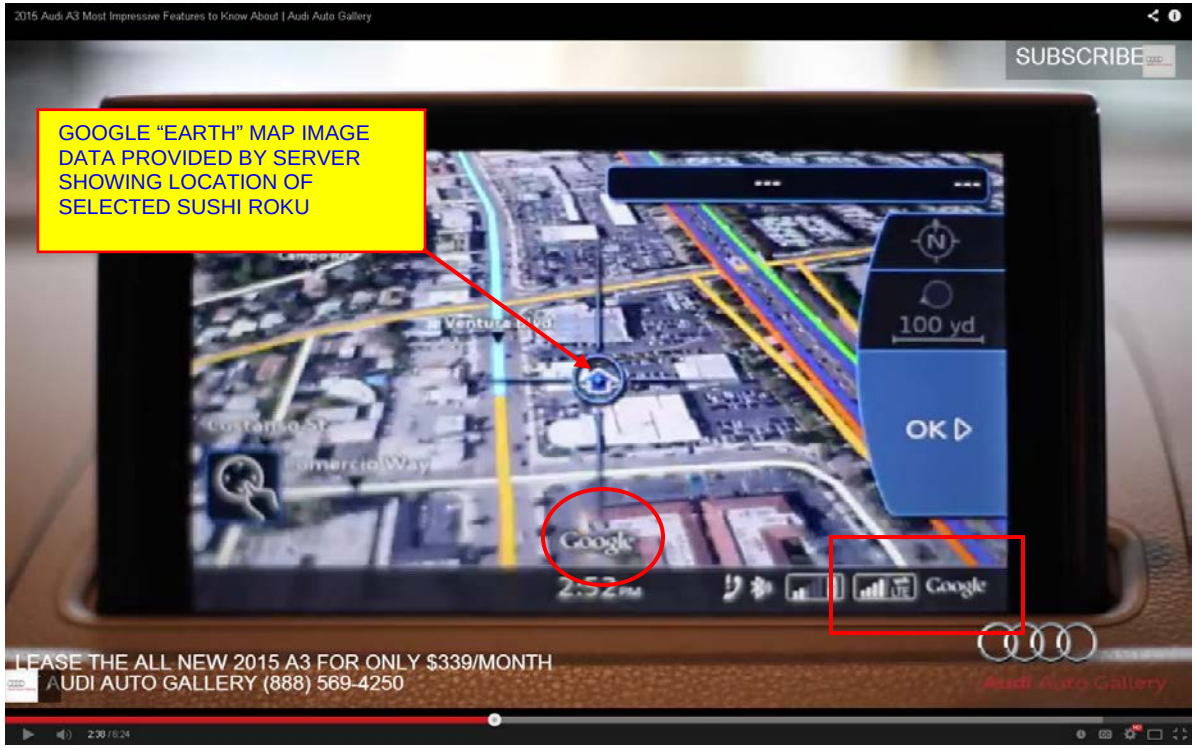
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

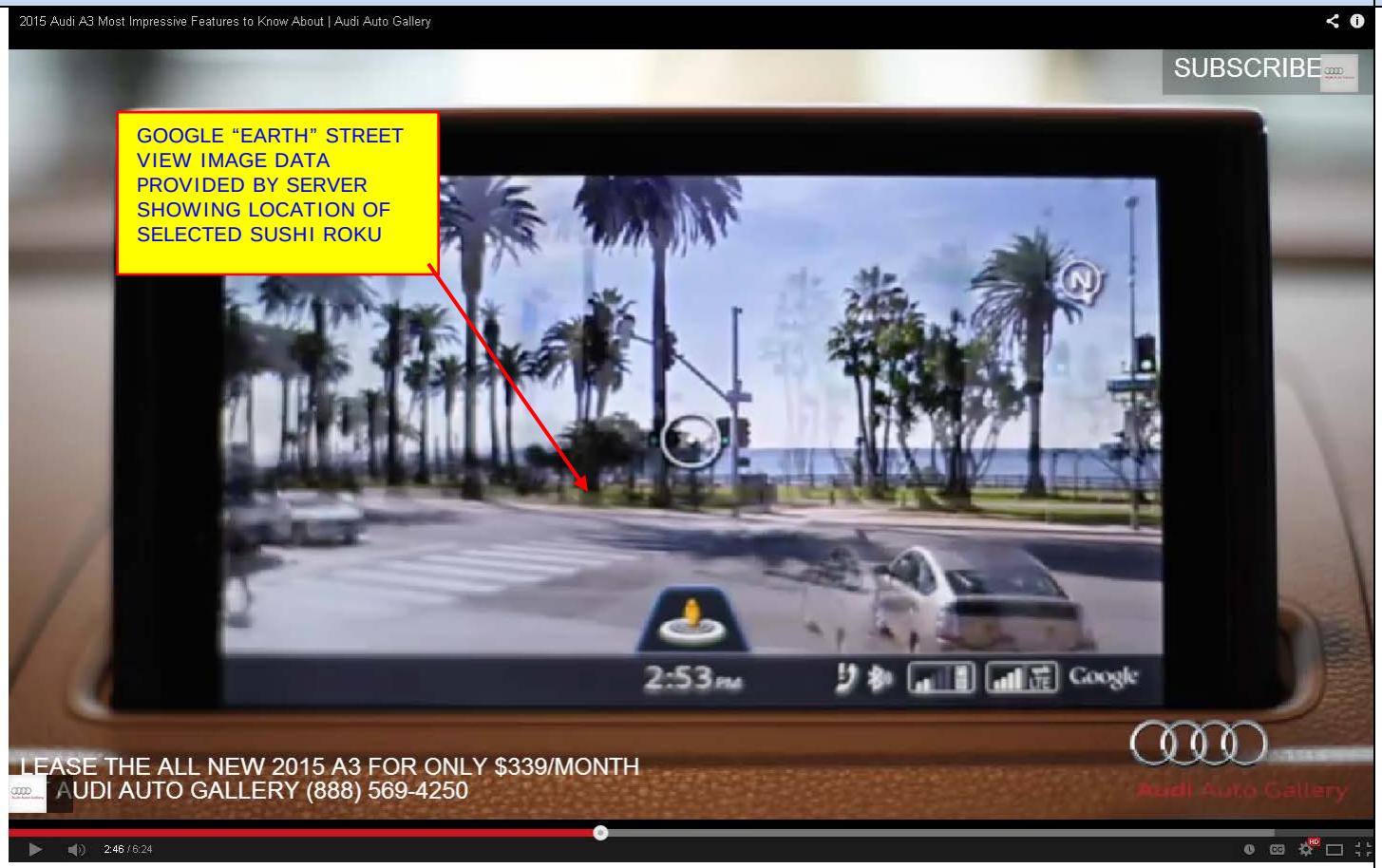


https://www.youtube.com/watch?v=pjoeoDxz06U

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
and receipt of further input regarding at least one of the listed plurality of possible matches to resolve the ambiguity;	**USER CAN EITHER SAY THE NUMBER OF THE APPROPRIATE CHOICE, OR ENTER/SELECT DESIRED LINE ITEM VIA THE MMI CONTROLLER (VERIFIED ON TEST DRIVE), THEREBY RESOLVING THE AMBIGUITY. NOTE THAT IT IS IMMATERIAL WHETHER THE SECOND INPUT IS PASSED UPSTREAM TO THE SERVER OR NOT.**  https://www.youtube.com/watch?v=pjoeoDxz06U	L, DOE	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
and wherein the computerized information apparatus is further configured to receive at least a portion of the obtained information via the network interface for display on the display device.	**AT LEAST A PORTION OF THE DESIRED INFORMATION IS RECEIVED VIA THE VEHICLE'S WIRELESS INTERFACE- E.G., LAT/LON OF SELECTED CHOICE, APPROPRIATE MAP IMAGE DATA (GOOGLE EARTH OVERVIEW OR STREET VIEW FOR EXAMPLE), ETC. RECEIVED IMAGE DATA AND LOCATION IS DISPLAYED ON DISPLAY DEVICE AS SHOWN BELOW:**  https://www.youtube.com/watch?v=pjoeoDxz06U	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]



https://www.youtube.com/watch?v=pjoeoDxz06U

"It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals.

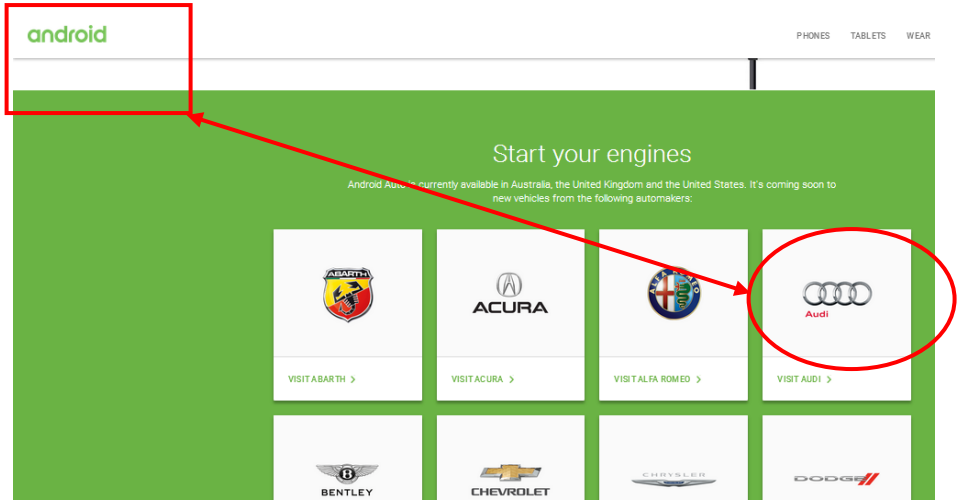
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	LTE makes it possible to provide these services everywhere, even in rural areas." [http://fourtitude.com/news/Audi_News_1/ces-2014-infotainment-audi-connect/]		
	AUDI ANDROID AUTO PRODUCTS (MAP FUNCTION)		
15. Computerized information apparatus, comprising:	**THIS ANALYSIS IS TARGETED AT THE EXEMPLARY 2016 Q7 WITH "ANDROID AUTO" (ANDROID SMARTPHONE INTEGRATION)**  **http://www.audiusa.com/search?query=2016+Q7#** "Audi plans to begin introducing Android Auto technology with all-new models **it launches in 2016**. **Audi was a founding member of – and the only luxury brand among them – the Open Automotive Alliance, a coalition of Google and other technology companies and auto-industry leaders that was formed in early 2014 with the objective of bringing the Android platform to cars.** Google demonstrated its Android Auto system for the first time at its I/O developer conference in San Francisco later in the year. Android Auto will provide a seamless link for Android mobile car apps to function through Audi connect. Motorists will be able to project apps and services optimized for voice commands and the driving environment, **using Audi connect displays and controls** optimized for safe and intuitive	**L, DOE**	**D, I**

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

operation on the road. The Open Automotive Alliance is dedicated to building an open ecosystem around a common digital-tech platform in order to drive innovation in connectivity." **http://www.audiusa.com/newsroom/topics/2014/audi-connect**

"Look for this in Audi cars starting with the **2016 Q7** when it starts hitting showrooms this year."
http://www.engadget.com/2015/01/08/audis-latest-supports-android-auto-and-carplay/

NOTE THAT ANDROID AUTO IS A COLLABORATION BETWEEN THE VEHICLE MANUFACTURER AND THE GOOGLE-CREATED "OPEN AUTOMOTIVE ALLIANCE" (OAA), OF WHICH AUDI WAS A FOUNDING MEMBER:



COMPONENTS OF THE CAR SUCH AS DISPLAY SCREEN, WIRELESS ANTENNAS, MICROPHONES/INDIGENOUS SPEECH PROCESSING, USB PORT, ETC. ARE USED IN CONJUNCTION WITH A COMPATIBLE ANDROID-BASED DEVICE (E.G., SMARTPHONE WITH LOLLIPOP 5.0 OR HIGHER) TO PROVIDE THE DESIRED FEATURES:

"Android Auto will be able to use in-car hardware

Android Auto runs on your phone, but that doesn't mean it's limited to your phone's hardware. Apps will be able to **access the car's own GPS and GPS antenna (if fitted), steering wheel controls, the sound**

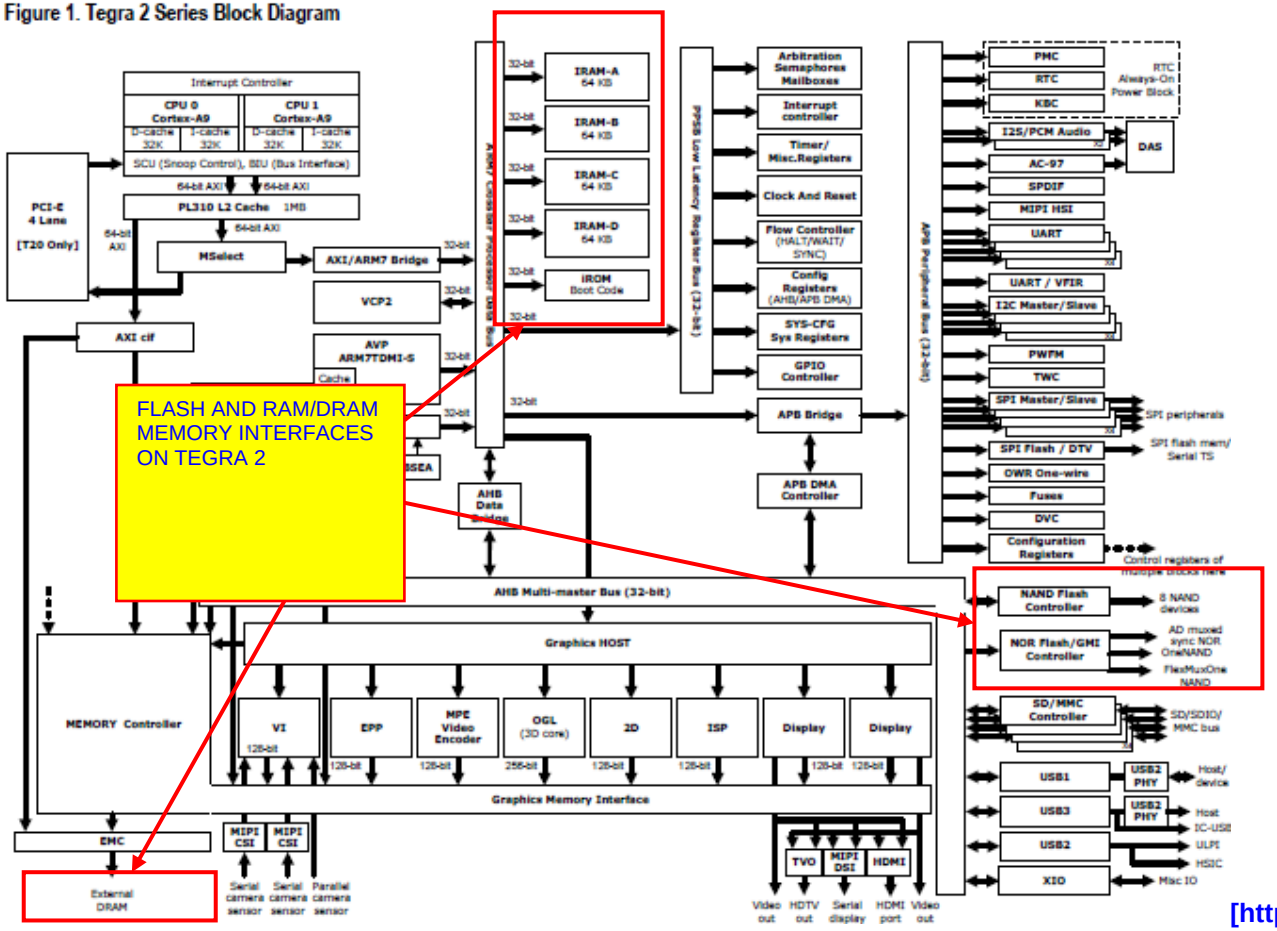
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	system, the car's wheel speed, its compass and any mobile antennas, and there are moves to access car data from the vehicle's own computer too…. *Android Auto cars aren't actually running Android* In many cases they'll be running **BlackBerry's QNX**, which many car firms have been using for a while." http://www.androidpit.com/android-auto "Audi's implementation of Android Auto will see it baked into the existing MMI in-car system, with drivers seeing a prompt when they connect up a compatible Android smartphone. It's important to remember that Android isn't taking over all of the running, **Audi still has its own proprietary system underneath Android Auto run on the QNX operating system**." http://www.androidcentral.com/audi-commits-android-auto-vehicles-2015 **HENCE, AUDI AND OAA/GOOGLE HAVE AFFIRMATIVELY COORDINATED AND COOPERATED TO BOTH (I) PRODUCE A VEHICLE THAT CAN PROVIDE THE ANDROID AUTO FUNCTIONALITY, AND (II) CAUSE USERS (CES PARTICIPANTS, DEALERS, CUSTOMERS OF HYUNDAI CARS SO EQUIPPED, ETC.) TO CONNECT THE USER'S SMARTPHONE AND PROVIDE THE FUNCTIONALITY DESCRIBED BELOW.** "After connecting an Android smartphone in a compatible Audi, drivers will see a prompt asking if they want their apps to function through the MMI touch display and controls. The graphics and audio streams, including microphone input and all control interfaces, will then operate with Android Auto which is seamlessly integrated into the Audi MMI mobile media application framework developed by the Audi software joint venture e.solutions on top of the QNX Car automotive operating system." http://www.androidcentral.com/audi-commits-android-auto-vehicles-2015 **SPECIALIZED SOFTWARE IS REQUIRED IN BOTH THE CAR AND THE PHONE (E.G., ANDROID AUTO SMARTPHONE "APP") TO MAKE THE VEHICLES INTEROPERATE, AND THESE SOFTWARE ELEMENTS (CAR AND PHONE) HAD TO BE DEVELOPED IN CONJUNCTION/COOPERATION WITH ONE ANOTHER TO ENSURE COMPATIBILITY.** **AUDI EVEN PROVIDES ITS CUSTOMERS WITH THE CABLE TO CONNECT THE TWO DEVICES:** "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android** …Once attached, the car takes over, routing calls and messages to Audi's pop-up display."		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html		
a network interface;	**THE 2016 Q7 (VEHICLE) INCLUDES EACH OF: (I) A CELLULAR NETWORK MODEM (LONG TERM EVOLUTION OR "LTE"); (II) WI-FI NETWORK MODEM ("HOTSPOT"); AND (III) A BT INTERFACE.** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example. **Internet with LTE speed:** **Audi connect** MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. The driver can use the tailored Audi connect services ranging from online traffic information to navigation with Google Earth and Google Street View to online media streaming. The new app provides access to Aupeo! personal web radio and the large Napster music library. The Q7 also has a new, top-of-the-line element of the Audi connect portfolio: The Audi smartphone interface brings …"Google Android Auto" on board. If an …Android cellular phone is connected to the USB port (…Android from Version 5.0 Lollipop), the … environment opens in the Audi smartphone interface. Both are tailored for use in the car. **The heart of this feature is online music.** In addition, both platforms offer navigation functions, missed call/appointment reminders and messaging functions. Over time, these will be joined by numerous third-party applications such as Pandora, Spotify and WhatsApp." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **ADDITIONALLY, THE EXEMPLARY NEXUS 5 (FOR ILLUSTRATION ONLY; SIMILAR LOGIC APPLIES TO OTHER ANDROID SMARTPHONES OR DEVICES THAT MAY BE CONNECTED TO Q7 SYSTEM) INCLUDES AT LEAST: (I) CELLULAR MODEM (E.G., LTE OR 3G); (II) WI-FI; (III) BLUETOOTH, AND (IV) NFC.** "**WIRELESS** DUAL-BAND WI-FI (2.4G/5G) 802.11 A/B/G/N/AC NFC (ANDROID BEAM)	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	BLUETOOTH 4.0 NETWORKS **2G/3G/4G LTE…** "**PORTS AND CONNECTORS** MICROUSB SLIMPORT™ ENABLED 3.5MM STEREO AUDIO JACK DUAL MICROPHONES CERAMIC POWER AND VOLUME BUTTONS" [HTTPS://SUPPORT.GOOGLE.COM/NEXUS/ANSWER/3467463?HL=EN] **THE NEXUS 5 COMES EQUIPPED FROM THE FACTORY WITH HARDWARE AND SOFTWARE SUPPORTING EACH OF THE FOREGOING TYPES OF INTERFACES.**		
processing apparatus in data communication with the network interface;	**SEE DISCUSSION BELOW REGARDING DETAILS ON 2015 AUDI A3 (MIB-BASED MMI SYSTEM BELIEVED TO BE FUNCTIONALLY SIMILAR TO WHAT WILL BE INSTALLED IN 2016 Q7 WHEN SOLD IN LATER 2015).** "The Audi Q7 also sets standards with respect to the operating concept, infotainment, connectivity and driver assistance systems. The second-generation modular infotainment platform is on board, as is the Audi virtual cockpit. **The new MMI all-in-touch control unit with large touchpad** makes operation child's play." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **AS DISCUSSED BELOW, MIB/MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA (2 OR 3) PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA SUCH AS MAP DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("PROCESSING APPARATUS" AND "STORAGE APPARATUS WITH AT LEAST ONE COMPUTER PROGRAM…" REFERENCED BELOW).**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

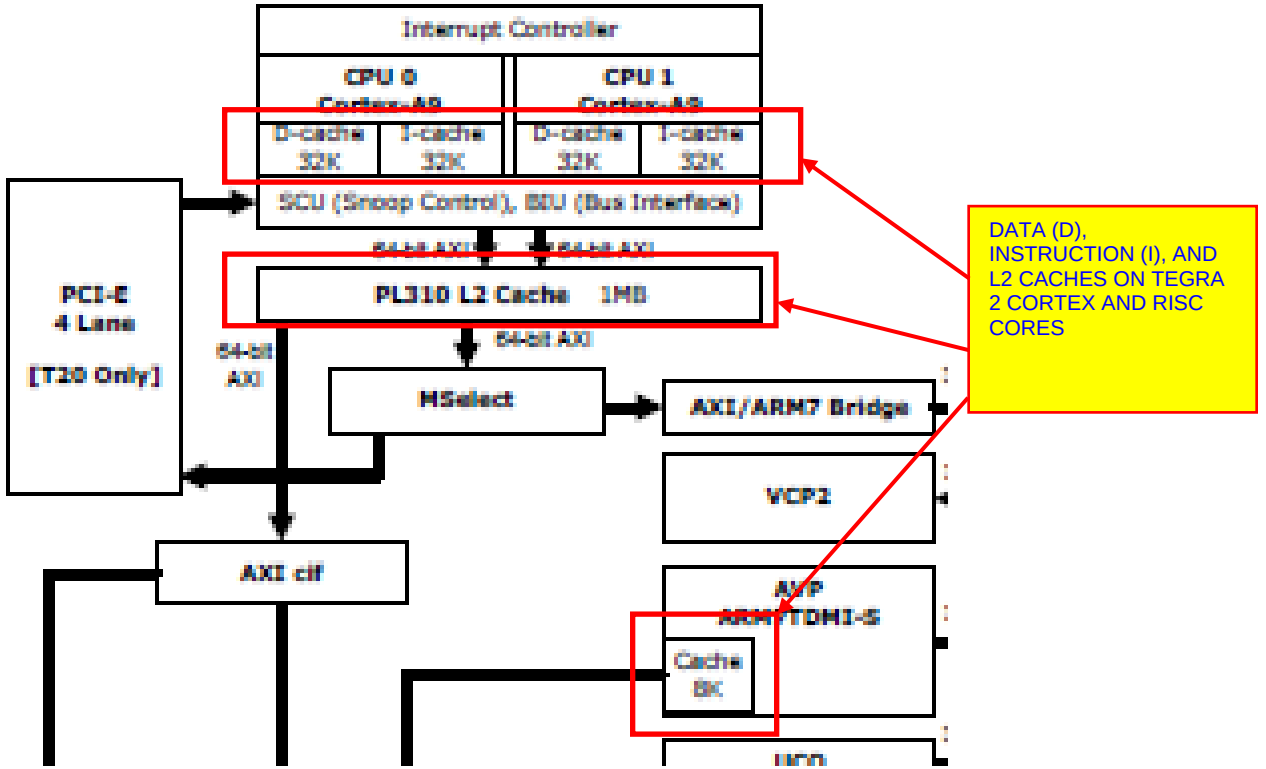
Figure 1. Tegra 2 Series Block Diagram



[http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp]

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

Figure 1. Tegra 2 Series Block Diagram



[http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp]

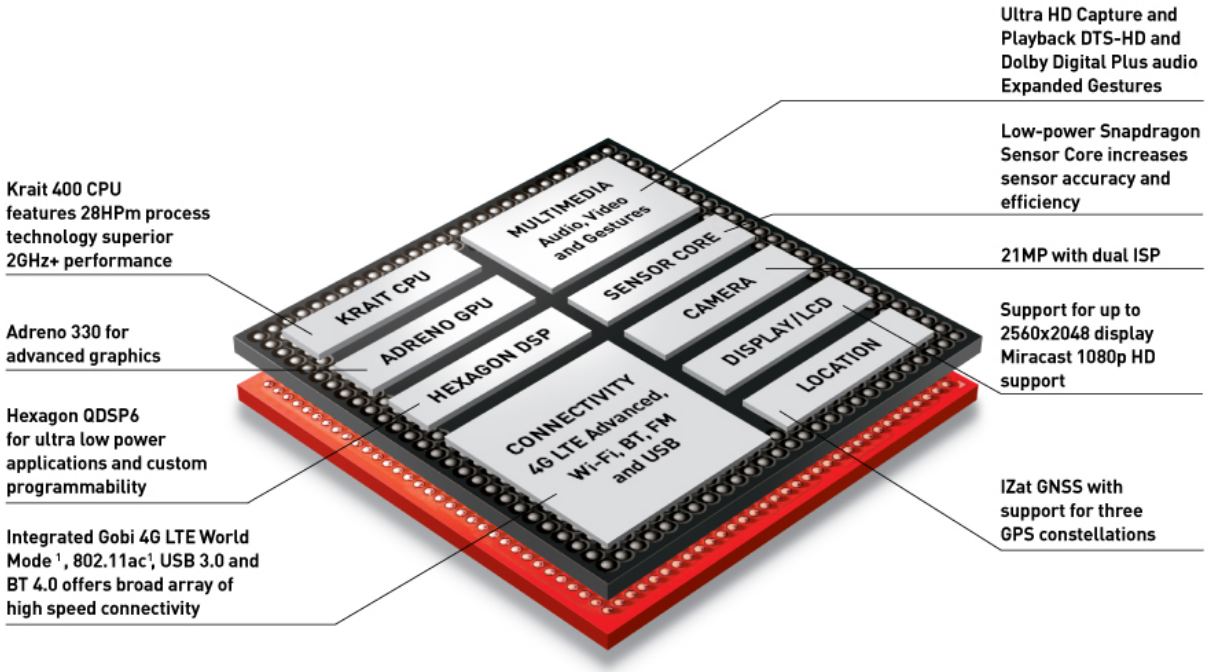
"Powered by Nvidia Tegra 2

Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	4 with minimal retooling."  "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/] **EXEMPLARY NEXUS 5 ANDROID PHONE HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE ANDROID AUTO SYSTEM (INCLUDING INTERFACING DIRECTLY OR INDIRECTLY WITH CAR'S MIMO ANTENNAS, TOUCH SCREEN, VOICE SYSTEMS, ETC. VIA QNX STACK:**		

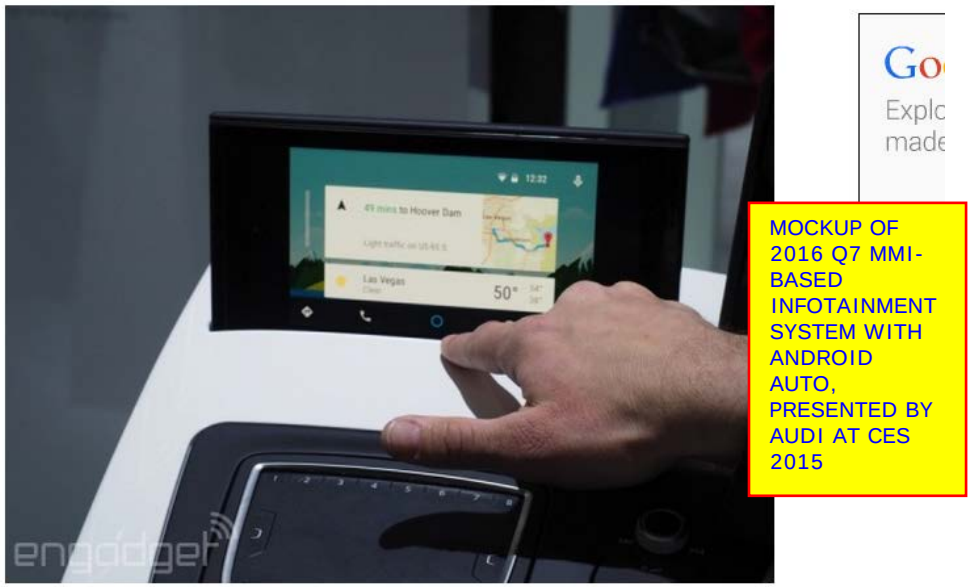
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	"PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz" [https://support.google.com/nexus/answer/3467463?hl=en] **"Snapdragon 800** Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

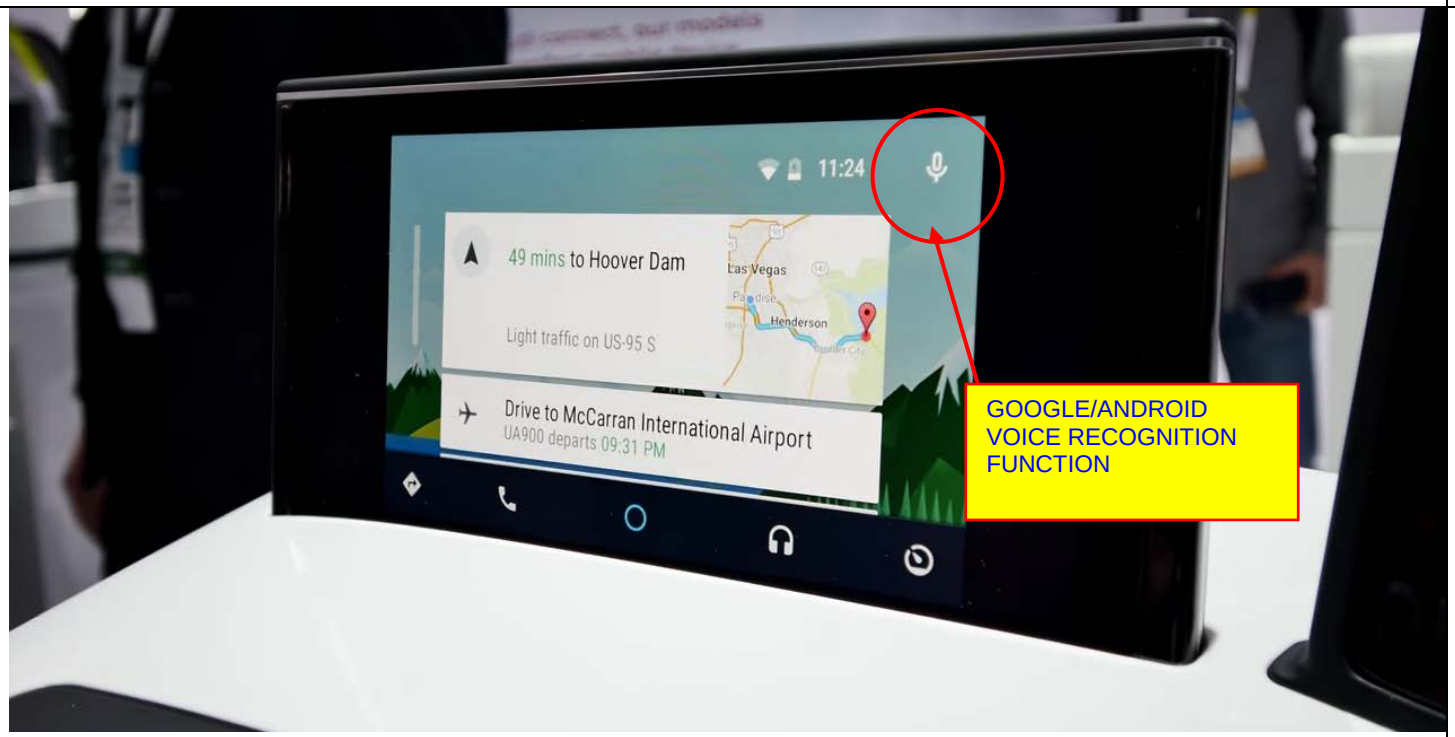


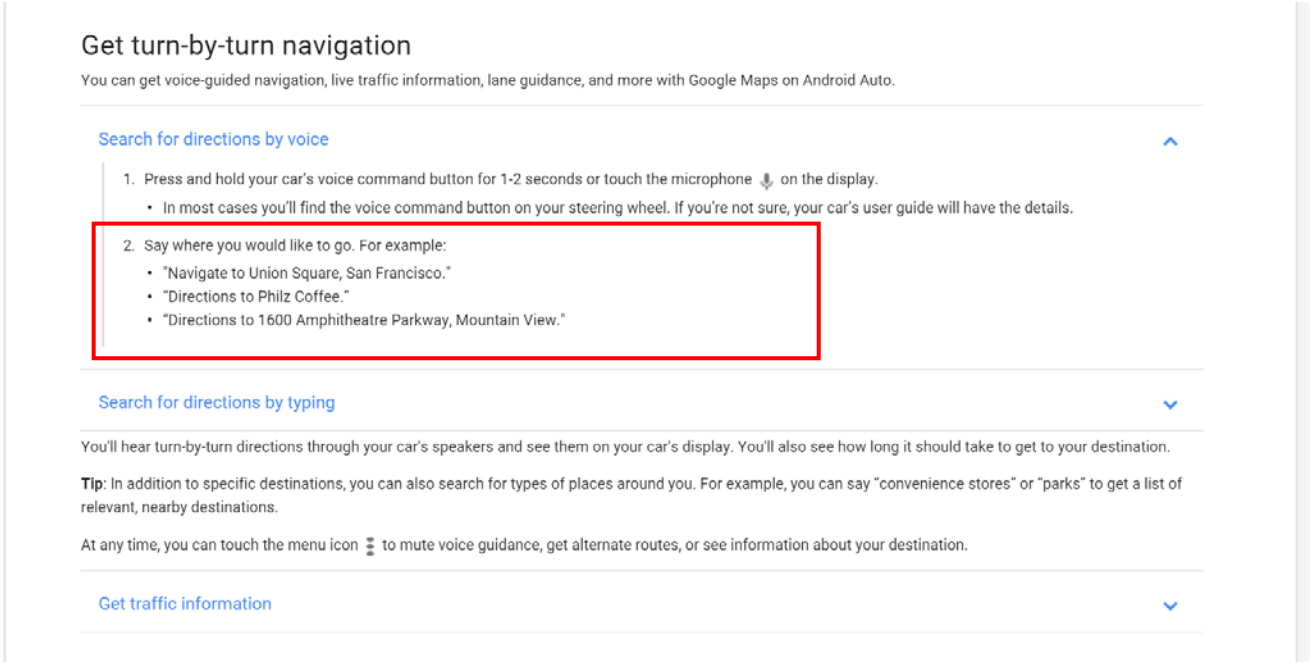
On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC."
[http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html]

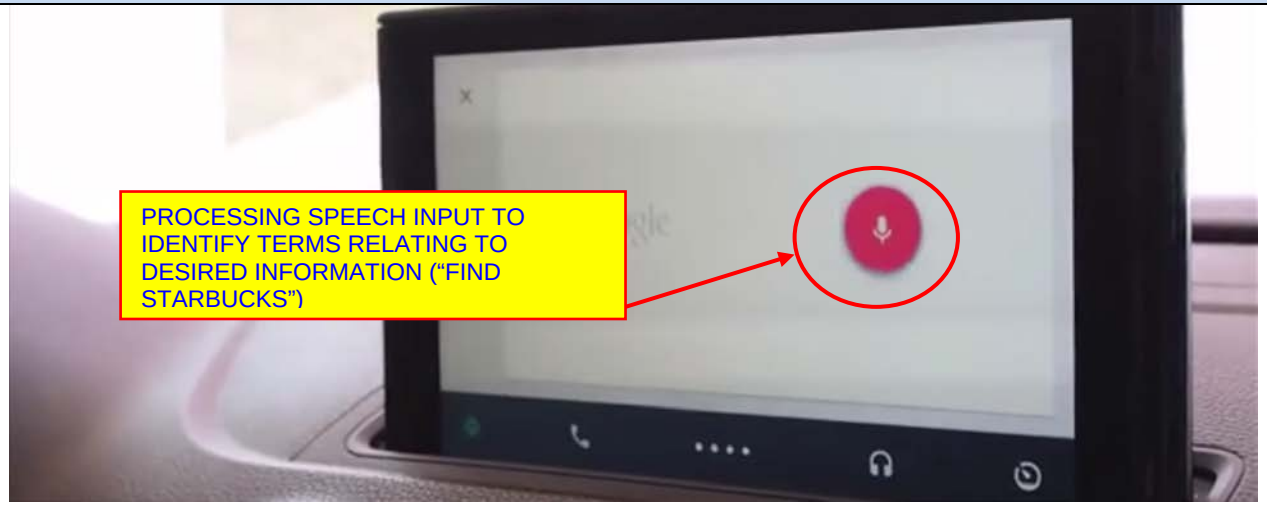
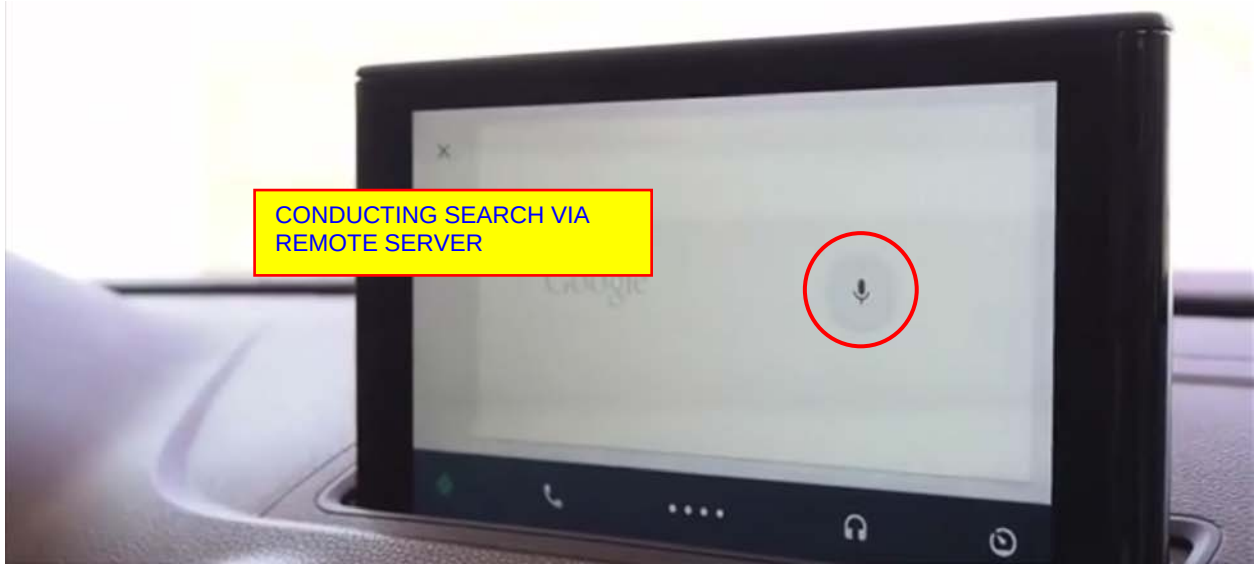
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
a display device;	 http://www.audiusa.com/search?query=2016+Q7#	**L, DOE**	

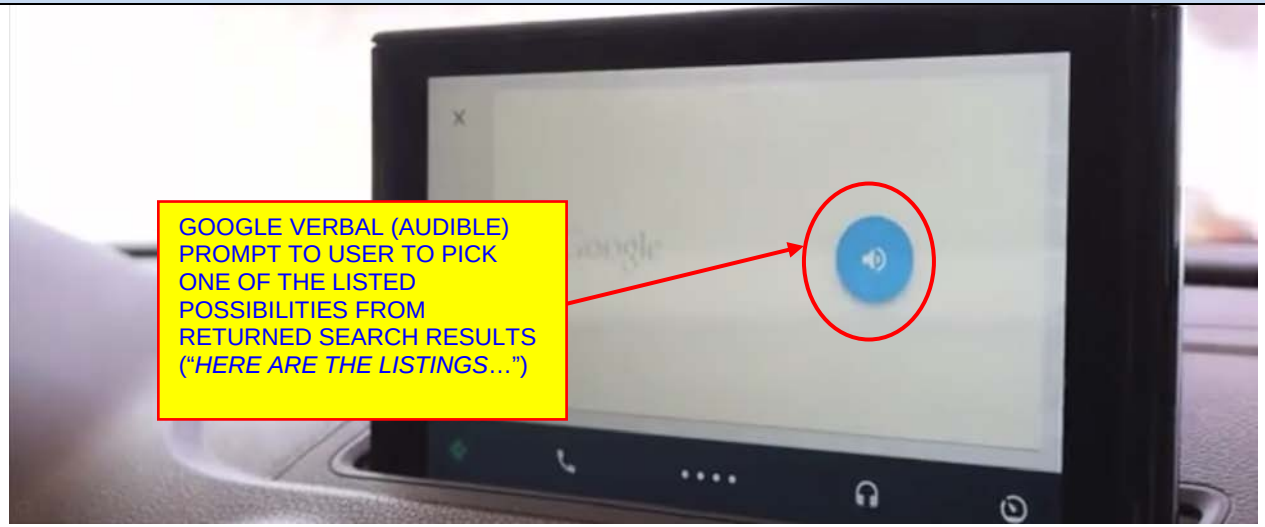
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	GALLERIES Audi's latest Q7 supports Android Auto Related Article SHARE: PREVIOUS  MOCKUP OF 2016 Q7 MMI-BASED INFOTAINMENT SYSTEM WITH ANDROID AUTO, PRESENTED BY AUDI AT CES 2015 **THE 2016 Q7 HAS (WILL HAVE) A COMPUTERIZED INFORMATION AND DISPLAY APPARATUS (NAVIGATION/INFOTAINMENT SYSTEM AS ASSOCIATED COMPONENTS) DISPOSED AT LEAST PARTLY WITHIN THE SHOWN PASSENGER COMPARTMENT (OSTENSIBLY AS SHOWN IN PASSENGER COMPARTMENT PHOTO ABOVE).**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=FNo-Cuzp3Rw		
a speech digitization apparatus in data communication with the processing apparatus;	**SEE DISCUSSION OF GOOGLE-BASED VOICE RECOGNITION BELOW; THE ANDROID AUTO SYSTEM USES THE VEHICLES SPEECH PROCESSING (DIGITIZATION) HARDWARE TO CAPTURE THE USER'S VOICE VIA THE INDIGENOUS VEHICLE MICROPHONE; SPEECH PROCESSING IS THEN PASSED OFF TO THE PHONE.**	**L, DOE**	
and a storage apparatus comprising at least one computer program, said at least one program	**SEE DISCUSSION OF PROCESSING APPARATUS ABOVE; 2016 Q7 (ASSUMING MIB/MMI AS NOTED ABOVE) HAS NUMEROUS TYPES OF STORAGE DEVICES WHICH CONTAIN COMPUTER CODE, FIRMWARE, ETC. TO DRIVE THE DISPLAY, INFOTAINMENT FEATURES, SPEECH RECOGNITION, ETC.**	**L, DOE**	

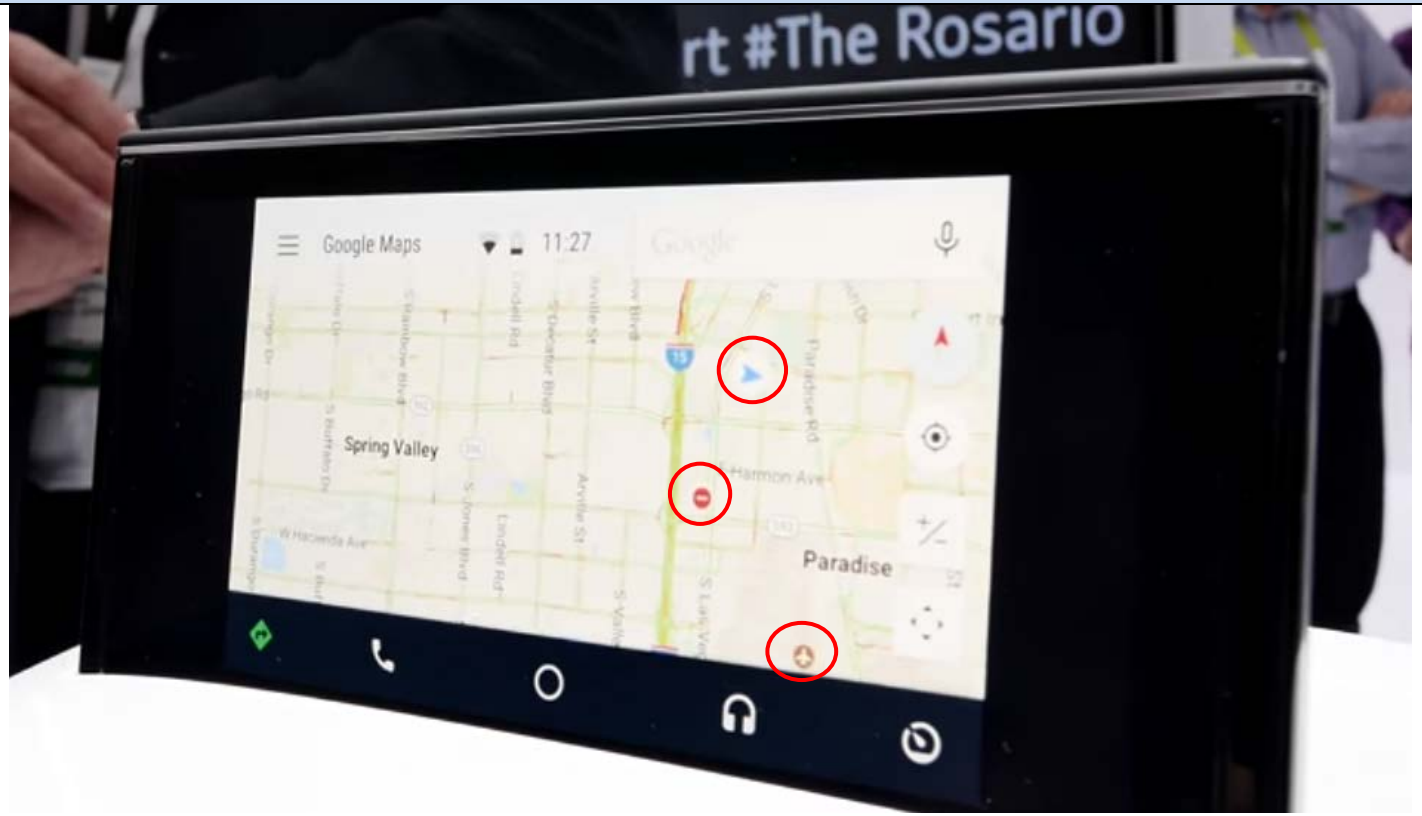
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
being configured to, when executed on a processing apparatus:	**MOREOVER, EXEMPLARY ANDROID PHONE (NEXUS 5) HAS NUMEROUS STORAGE DEVICES, SOFTWARE, FIRMWARE, ETC. AS WELL, AS SHOWN ABOVE.** "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android** …Once attached, the car takes over, routing calls and messages to Audi's pop-up display." http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html **WHEN CONNECTED BY E.G., A SERIAL BUS (E.G., MICRO-USB PROVIDED BY AUDI WITH VEHICLE DESCRIBED ABOVE), THE TWO DEVICES (SMARTPHONE AND VEHICLE MIB/HEAD UNIT) COOPERATE AND COORDINATE TO PASS DATA BACK AND FORTH, ETC. AS ONE SEAMLESS DEVICE. THE PHONE DISPLAY IS EFFECTIVELY LOCKED, AND THE CAR INTERFACES (I.E., MMI CONTROLLER, VOICE CONTROL SYSTEM, ETC.) ARE THE SOLE USER INTERFACES TO THE SYSTEM.**		
receive a digitized speech input from the speech digitization apparatus, the input relating to desired information which a user wishes to locate;		**L, DOE**	

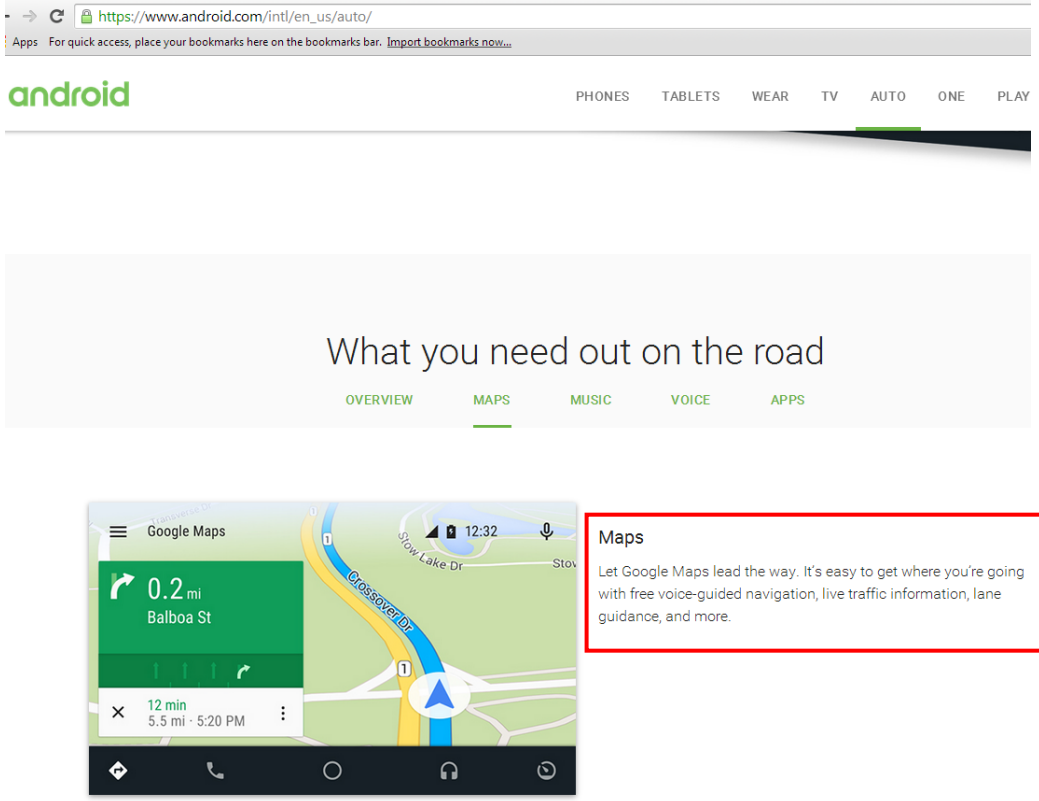
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **SEE EXPLICIT EXAMPLE IN VIDEO BELOW (AUDI A3, BUT FUNCTIONALITY SAME):** **https://www.youtube.com/watch?v=uXrVtUg61xs**		

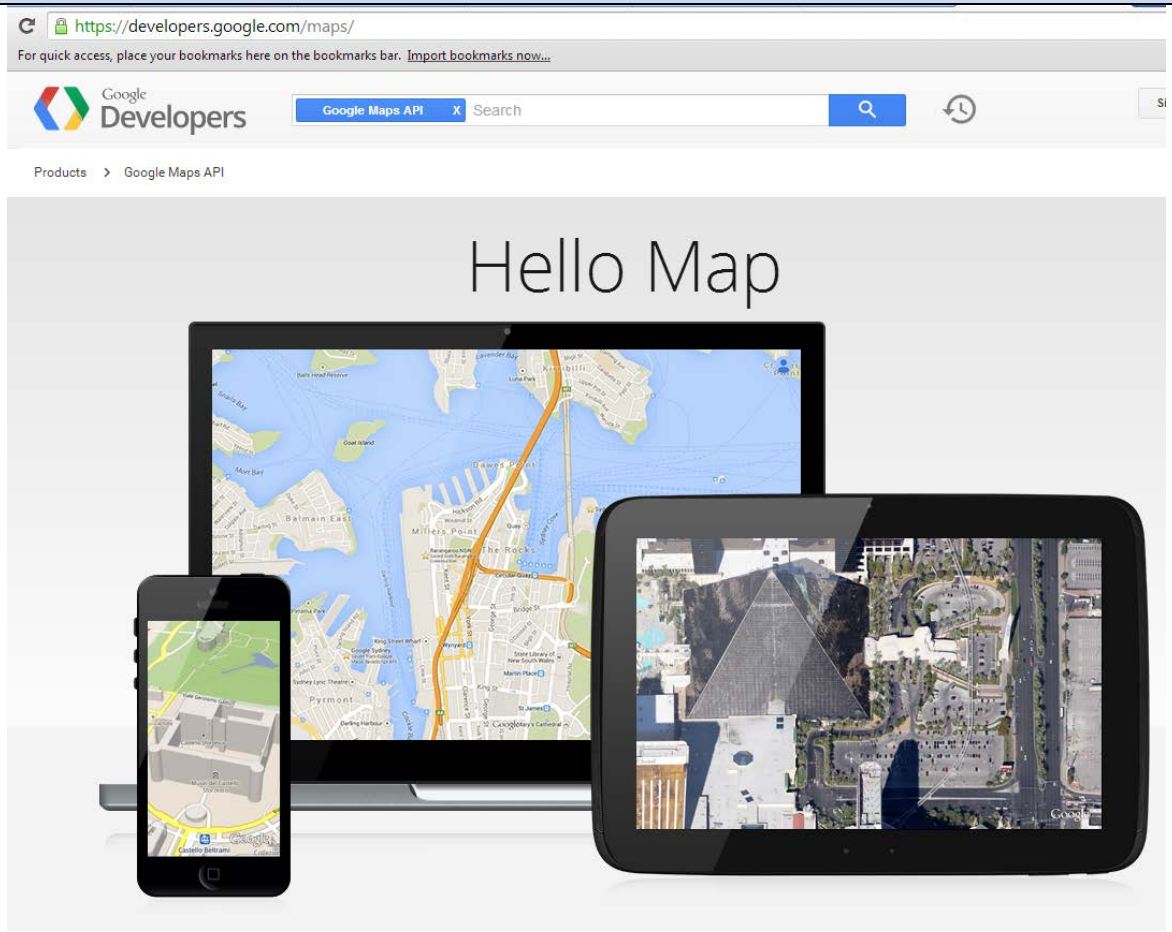
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
cause evaluation of the digitized speech input to identify one or more words or word strings within the digitized input, and access of a remote networked entity to obtain the desired information,	 **DEMONSTRATOR: "*FIND STARBUCKS*"** 	**L, DOE**	

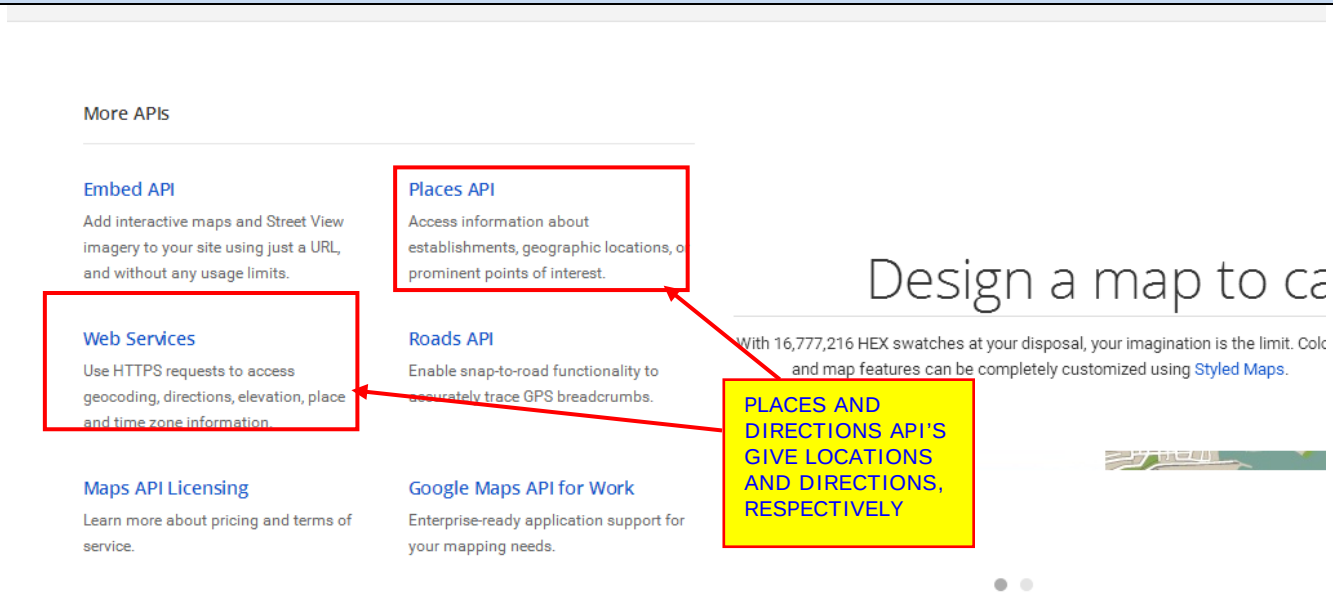
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
the obtainment of the desired information further comprising: causing identification of a plurality of possible matches to said input;	 **CAR: "*HERE ARE THE LISTINGS FOR STARBUSCKS WITH 0.8 MILES*"**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			
and receipt of further user input regarding at least one of the plurality of possible matches to identify at least one of the matches that is of interest to the user;	**AFTER USER SELECTS APPROPRIATE ENTRY ABOVE, A MAP SUCH AS FOLLOWS IS SHOWN (CES DEMO – Q7 MOCKUP, AND AA WEBSITE), SHOWING DESTINATION (GRAPHICALLY AND VIA ICON), NEARBY POI'S (SEE AIRPORT AT BOTTOM), GRAPHICAL DIRECTIONS (COLORED LINES/ARROWS), TEXTUAL DIRECTIONS, ETC.:**	**L, DOE**	

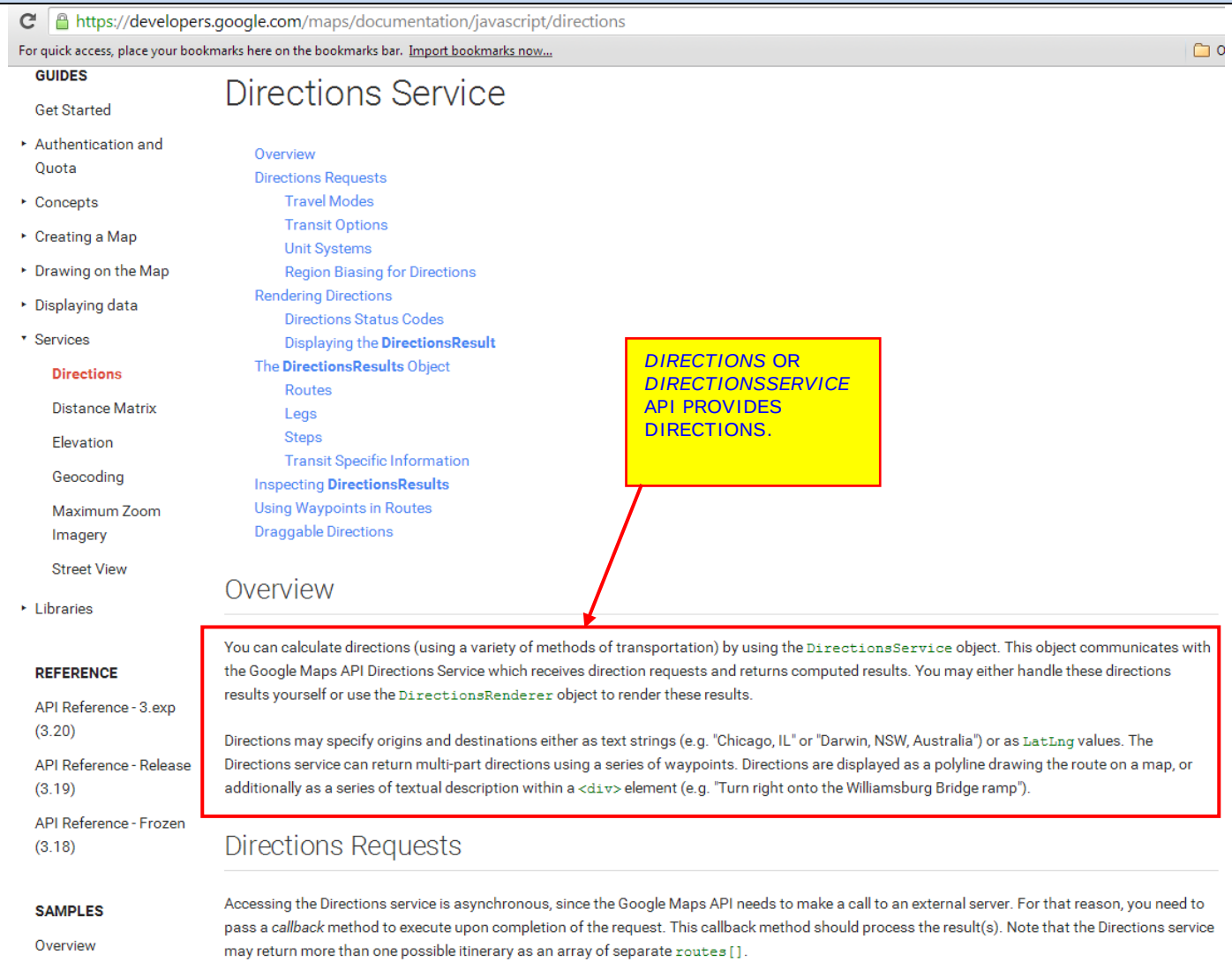
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
and wherein the computerized information apparatus is further configured to receive at least a portion of the obtained information via the network interface for display on the display device.	 **GOOGLE MAPS IN ANDROID AUTO USES BOTH GOOGLE "*PLACES*" OR SIMILAR API (APPLICATION PROGRAMMING INTERFACE) TO CALL FOR LOCATION DATA, AND GOOGLE "*DIRECTIONS*" OR "*DIRECTIONSSERVICE*" API'S TO GENERATE LOCATION OF ENTITY AND ROUTE TO ENTITY:**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

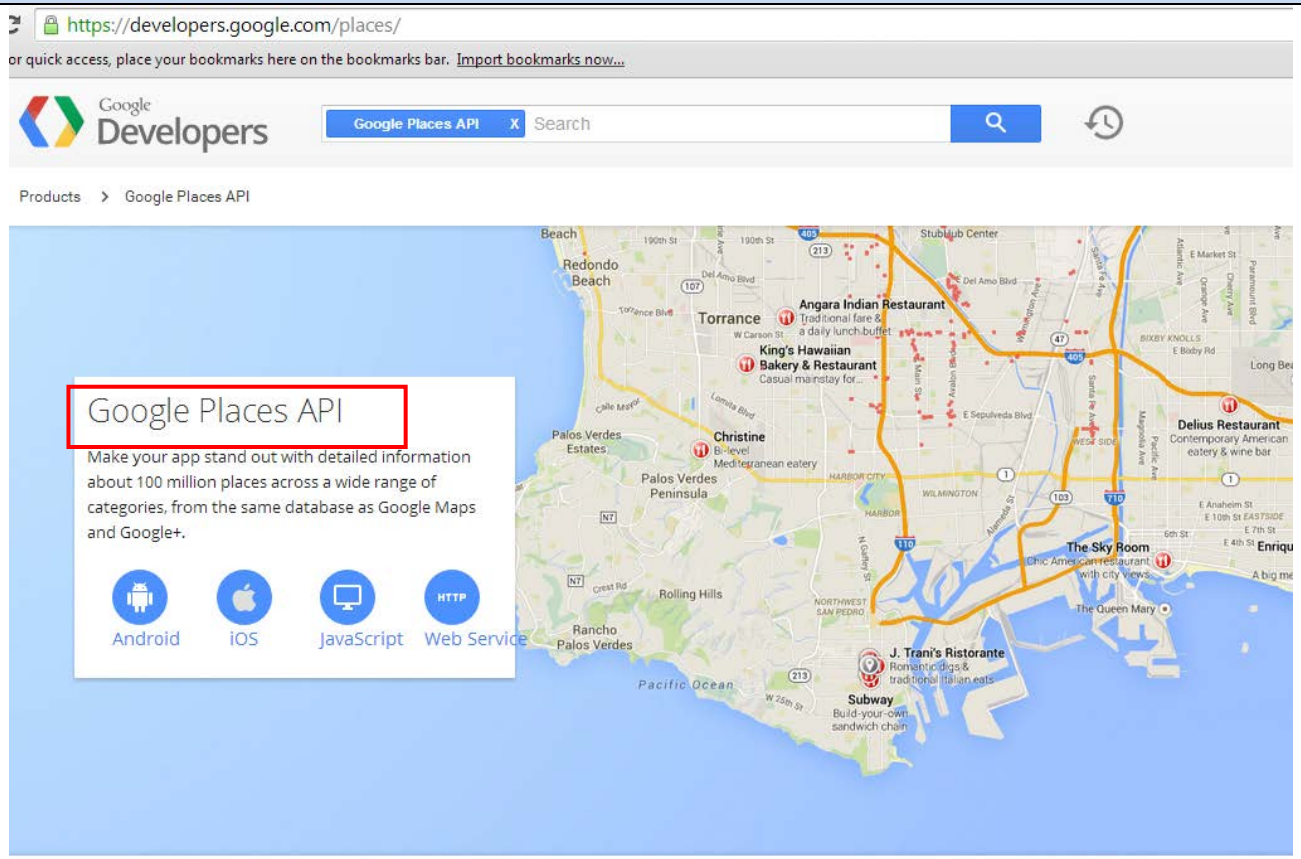
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 https://developers.google.com/maps/		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

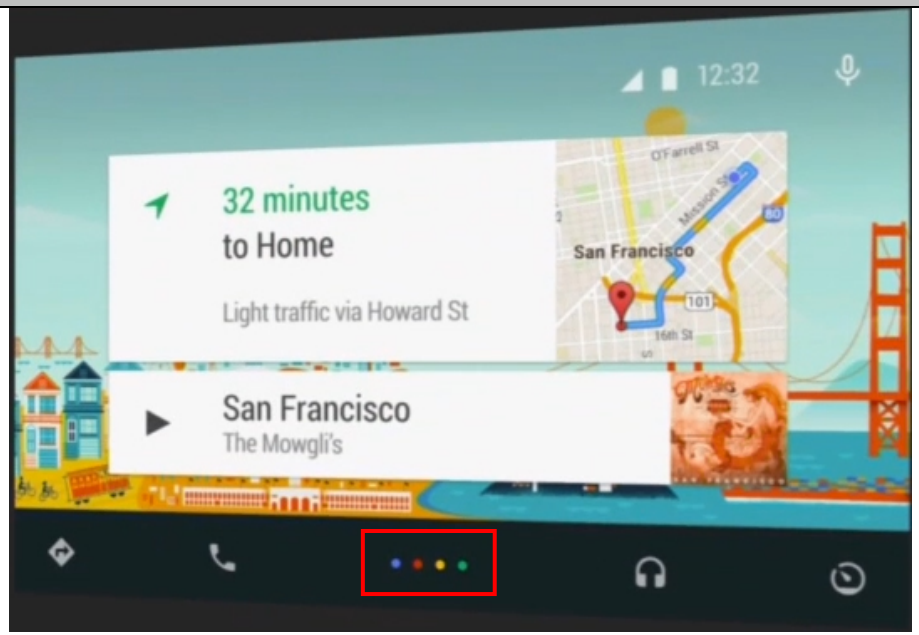


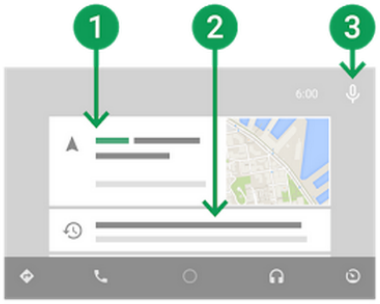
https://developers.google.com/maps/documentation/javascript/directions

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]



https://developers.google.com/places/

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
23. The apparatus of claim 15, wherein the obtained information is configured at least in part according to a profile specific to the user before or during provision thereof to the user.	 **ANDROID AUTO EFFECTIVELY INTEGRATES MOST ALL "GOOGLE NOW" FUNCTIONALITY AND CONTEXT, THE LATTER WHICH IS (I) RETAINED ON ONE OR MORE REMOTE GOOGLE CONTEXT SERVERS, AND (II) AND IS PARTICULAR TO THE INDIVIDUAL.**	**L, DOE**	**D, I**

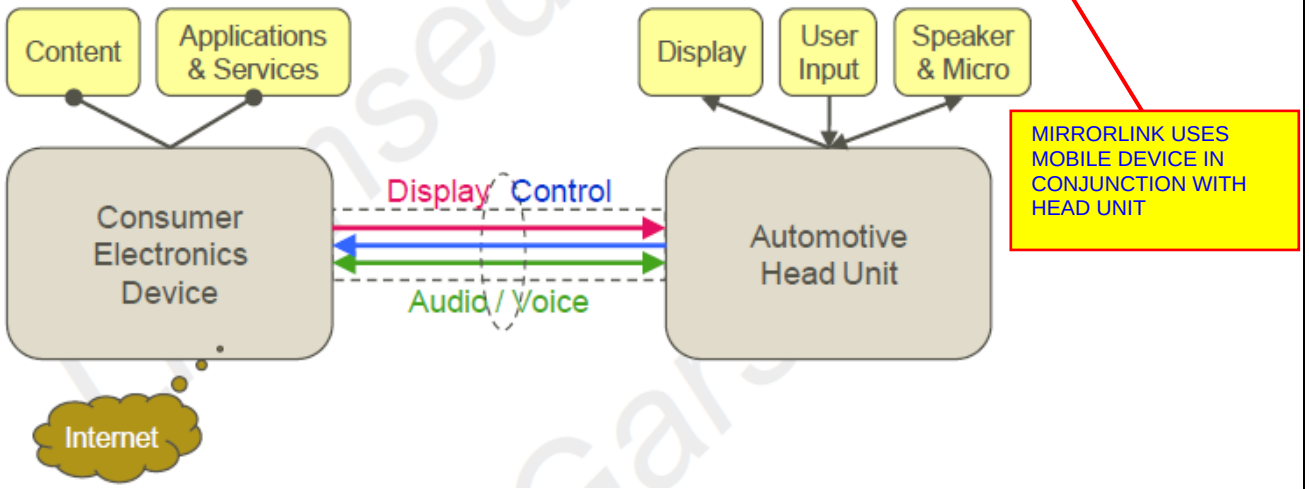
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	Getting around Android Auto Home screen Once your phone's connected, you'll see the Android Auto home screen on your car's display. The home screen shows you personally relevant and trip related information like time to your destination, reminders, the current song, and Google Now cards.  https://support.google.com/androidauto#6140477 **THE CONFIGURATION CAN BE ACTIVE (I.E., THE USER ENTERS INFORMATION, SETTINGS, PREFERENCES, ETC. AND THE GOOGLE NOW FUNCTION TAILORS DELIVERY OF ANY REQUESTED INFORMATION BASED ON THE SUPPLIED INFORMATION), OR PASSIVE (I.E., THE GOOGLE NO SERVERS JUST PASSIVELY OBSERVE THE INDIVIDUALS "BEHAVIOR" AND DETERMINE CONTEXT AND INFORMATIO DELIVERY FROM THAT).**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	2015/2016 VW GOLF GTI WITH MIB-II AND MIRRORLINK		
	THIS ANALYSIS IS DIRECTED TO THE 2015/2016 VW GOLF GTI WITH MIB-II INFOTAINMENT SYSTEM WITH MIRRORLINK FUNCTIONALITY.  [Audi connect brochure 2014] "Later this year [*2015*], VW will introduce the second generation "modular infotainment platform" (MIB II) in the United States. Along with the new infotainment system, MirrorLink™ will also be made available for the first time, integrating the apps and operating layout of numerous smartphones (including Samsung, HTC, LG and Sony) into cars. When MirrorLink™ is introduced, two other interfaces will also be launched under the App-Connect label: … Android Auto™ (Google®). Simultaneously, VW will also launch … Android Auto™ in the European market." http://media.vw.com/release/908/		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	NOTE THAT WHILE FOLLOWING ANALYSIS IS BASED ON THE INCIPIENT MIB-II SYSTEM, AN ACTUAL VEHICLE IS NOT YET ON SALE IN THE U.S. AS OF THE DATE OF THIS SUBMISSION. ACCORDINGLY, THE FOLLOWING IS PREDICATED AT LEAST IN PART ON THE EXTANT 2015 GOLF GTI (I.E., WITH PREDECESSOR TO MIB-II) NOW SOLD IN THE U.S., WITH DIFFERENCES NOTED AS APPLICABLE.		

2 INTRODUCTION TO MIRRORLINK CONCEPT

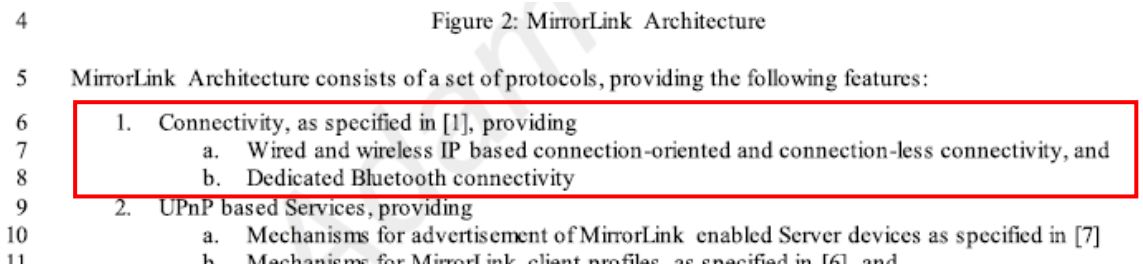
MirrorLink provides a concept for integrating the mobile device (hereinafter referred to as the "MirrorLink server") and the vehicle head-unit (hereinafter referred to as the "MirrorLink client"). In a MirrorLink context, the control and interaction of applications and services running on the mobile device will be replicated into the vehicle environment. Diverting display and audio output to the vehicle head-unit come together with receiving key and voice control input from it are the main interaction streams, as shown in the following Figure 1.



[Car Connectivity Consortium Mirrorlink, Core Architechture, Version 1.0.3 (CCC-TS-001)]

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
15. Computerized information apparatus, comprising:	**THE MIB-II SYSTEM WITH MIRRORLINK IS A COMPUTERIZED INFORMATION (INFOTAINMENT) APPARATUS.**  MIB-II SYSTEM WITH EXEMPLARY ANDROID SMARTPHONE ASSOCIATED THEREWITH VIA USB CABLE/PORT http://cars.reviewed.com/content/volkswagen-mib-ii-infotainment-system-first-impressions-review **SEE FEATURE MATRIX BELOW; CURRENT ANALYSIS IS BASED ON 2015 GOLF GTI WITH MIB-II AND MIRRORLINK.**	**L, DOE**	**D, I**

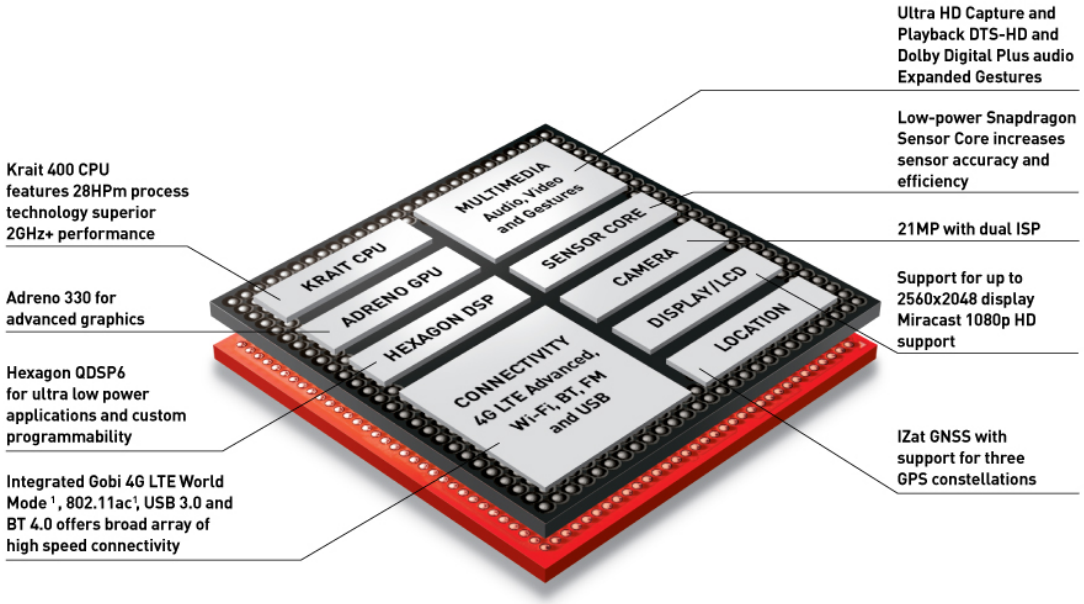
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	Golf GTI Specs ● Standard, no additional cost O Optional, additional cost – Not available 2D Standard on 2-Door only 4D Standard on 4-Door only DCC Available with Dynamic Chassis Control Package DAP Available with Driver Assistance Package PP Available with Performance Package LP Available with Lighting Package **Technology** / S / SE / Autobahn (4-Door only) 5.8" touchscreen sound system with proximity sensors and voice control, MP3- and WMA-compatible in-dash CD player, and SD memory card reader: ● / ● / – Navigation system with 5.8" touchscreen with proximity sensors and voice control, and 2 SD memory card readers: – / – / ● 8 speakers: ● / – / – Fender® Premium Audio System with 9 speakers including subwoofer: – / ● / ● SiriusXM Satellite Radio All Access with 3-month trial subscription: ● / ● / ● **Technology Cont.** / S / SE / Autobahn (4-Door only) Interior ambient lighting: ● / ● / ● SiriusXM Traffic™ with 4-year trial subscription: – / – / ● Bluetooth® with audio streaming*: ● / ● / ● Media Device Interface (MDI) with iPod® cable: ● / ● / ● Rearview camera: – / ● / ● Keyless access with push-button start: – / ● / ● Park Distance Control (PDC) system with front and rear proximity sensors: DAP / DAP / DAP Forward Collision Warning: DAP / DAP / DAP		
a network interface;	MirrorLink Specification 1.0.3 Core Architecture CCC-TS-001 Page 8/12 MIRRORLINK TECHNICAL SPECIFICATION REQUIRES PRESENCE OF WIRELESS CONNECTIVITY (SUCH AS CELLULAR BROADBAND OR WI-FI) VIA "MOBILE DEVICE" (E.G., SMARTPHONE) 1 **1 ABOUT** 2 This document specifies an interface for enabling remote user interaction of a mobile device via another de- 3 vice. This specification is written having a vehicle head-unit to interact with the mobile device in mind, but 4 it will similarly apply for other devices, which do provide a colored display, audio input/output and user 5 input mechanisms.	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 Figure 2: MirrorLink Architecture MirrorLink Architecture consists of a set of protocols, providing the following features: 1. Connectivity, as specified in [1], providing a. Wired and wireless IP based connection-oriented and connection-less connectivity, and b. Dedicated Bluetooth connectivity 2. UPnP based Services, providing a. Mechanisms for advertisement of MirrorLink enabled Server devices as specified in [7] b. Mechanisms for MirrorLink client profiles as specified in [6], and **[Car Connectivity Consortium Mirrorlink, Core Architecture, Version 1.0.3 (CCC-TS-001)]** **AS SHOWN ABOVE, THE MOBILE DEVICE IS PAIRED TO THE VW MIB-II SYSTEM VIA A "USB" CABLE (E.G., MICRO-USB/USB OR SIMILAR). WIRELESS INTERFACE OF SMARTPHONE IS USED FOR EXTERNAL CONNECTIVITY.**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			
processing apparatus in data communication with the network interface;	**FOLLOWING RELATES TO EXTRA-U.S. VERSION OF MIB-II, LAUNCHED BEFORE U.S. MODEL:** **"Generation II of MIB systems:** **Ideally networked world with Car-Net, MirrorLink™ and SMS by TTS*** The new Passat is launching with Generation II of Volkswagen infotainment systems. The latest generation of this modular information toolkit (MIB) enables a maximum degree of connectivity in terms of coupling external devices. Its diverse interfaces include interfacing to smart phones and their apps via MirrorLink™. In addition, the systems were given much faster processors (optimised booting, quicker route calculation, smoother touchscreen performance, perfected language dialogues) and new higher-resolution displays (in the 6.5-inch systems)… **2. Faster processors.** The new generation of devices is characterised by better system performance. Consider the	**L, DOE**	

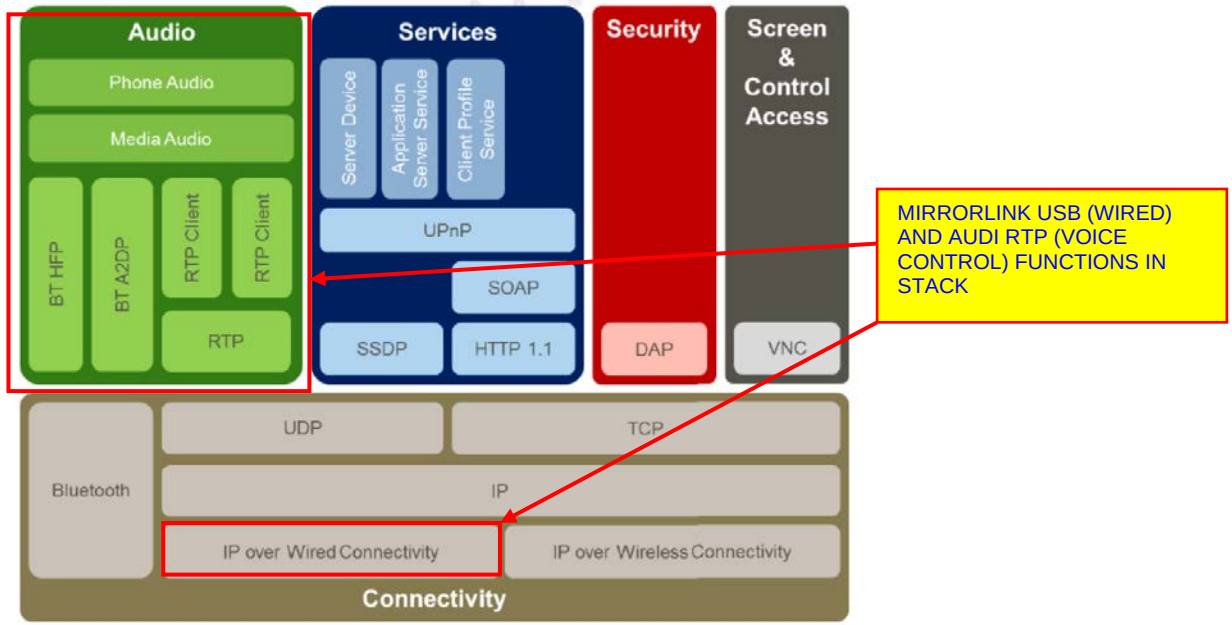
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	"Discover Media", the radio-navigation system with 6.5-inch display: Compared to the first generation, performance of the CPU (main processor) was more than doubled from 950 MIPS (million instructions per second) to 2,500 MIPS. … 4. MirrorLink™. For the first time in the Passat, MirrorLink™ is available – from the "Composition Media" it is optional, in the "Discover Pro" it is standard. MirrorLink™ makes it possible to integrate numerous apps or functions of Android smart phones into the infotainment system. Related apps will be offered directly from Volkswagen and from third party suppliers. The Volkswagen apps: "Mobile Office", "audioMOTION", "ThinkBlue. Trainer", "Shared Audio", "Drive&Track" and "My Guide". Third party apps include "Audioteka" (audio books), "Glympse" (social media), "Aupeo!" (Internet radio), "Life360″ (family locator) and "Kaliki" (news)." http://www.vwvortex.com/news/volkswagen-news/detail-new-passat-generation-8-2/ **HENCE, MIB-II SYSTEM HAS CPU, GPU, ETC. IN COMMUNICATION WITH EXEMPLARY ANDROID SMARTPHONE VIA USB.** **EXEMPLARY NEXUS 5 ANDROID SMARTPHONE (USED FOR PURPOSES OF ILLUSTRATION – OTHER ANDROID PHONES ARE EQUALLY APPLICABLE) HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE MIRRORLINK SYSTEM:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz" [https://support.google.com/nexus/answer/3467463?hl=en] **"Snapdragon 800** Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]



On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC."
[http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html]

THE CPU/GPU OF THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE COORDINATE VIA THE USB CABLE (USING INTERNET PROTOCOL OVER TOP OF THE USB PROTOCOL) TO PROVIDE, AMONG OTHER THINGS, THE EMULATION OF THE PHONE'S DISPLAY AND FUNCTIONS ON THE VEHICLE TOUCHSCREEN DISPLAY.

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	The MirrorLink high-level architecture is shown in the following Figure 2.  Figure 2: MirrorLink Architecture [http://www.m2mapps.com/files/product/cb09194f001307847b13a2d445a06eeb.pdf]		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

4 MIRRORLINK FEATURES

The following Table 1 specifies the requirements for the different MirrorLink features for the MirrorLink Server and Client.

Feature			Version	MirrorLink Server	MirrorLink Client
Connectivity	USB	USB Host	1.0	N/A	MUST
		USB Device	1.0	MUST	N/A
	WLAN	Access Point	1.0	MAY	MAY
		Device	1.0	MAY	MAY
	Bluetooth		1.0	MAY	MAY
UPnP based Services MirrorLink implements 2-Box pull model	UPnP Server Services Provided	Server Device	1.0	MUST	N/A
		Application Server Service	1.0	MUST	N/A
		Client Profile Service	1.0	MUST	N/A
	UPnP Control Point Services Supported	Server Device	1.0	N/A	MUST
		Application Server Service	1.0	N/A	MUST
		Client Profile Service	1.0	N/A	SHOULD
Screen & Control	VNC Server		1.0	MUST	N/A
	VNC Client		1.0	N/A	MUST
Audio	RTP	RTP Server	1.0	MUST	SHOULD
		RTP Client	1.0	SHOULD	MUST
	BT	BT HFP	1.0	SHOULD	SHOULD
		BT A2DP	1.0	MAY	MAY
Security	DAP	Server Endpoint	1.0	SHOULD	N/A
		Client Endpoint	1.0	N/A	SHOULD

Table 1: MirrorLink Feature Requirements

The MirrorLink Server MUST implement either the UPnP 1.0 stack or the UPnP 1.1 stack. In either case, it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 Control Points.

The MirrorLink Client MUST implement either an UPnP 1.0 control point or an UPnP 1.1 control point. In either case it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 services residing on the MirrorLink server.

USB, RTP (REAL TIME PROTOCOL- FOR AUDIO INCLUDING VOICE RECOGNITION) AND VNC SCRREN/CONTROL **MANDATORY.** WLAN (WI-FI) AP OR DEVICE CAPABILITY MAY ALSO BE INCLUDED.

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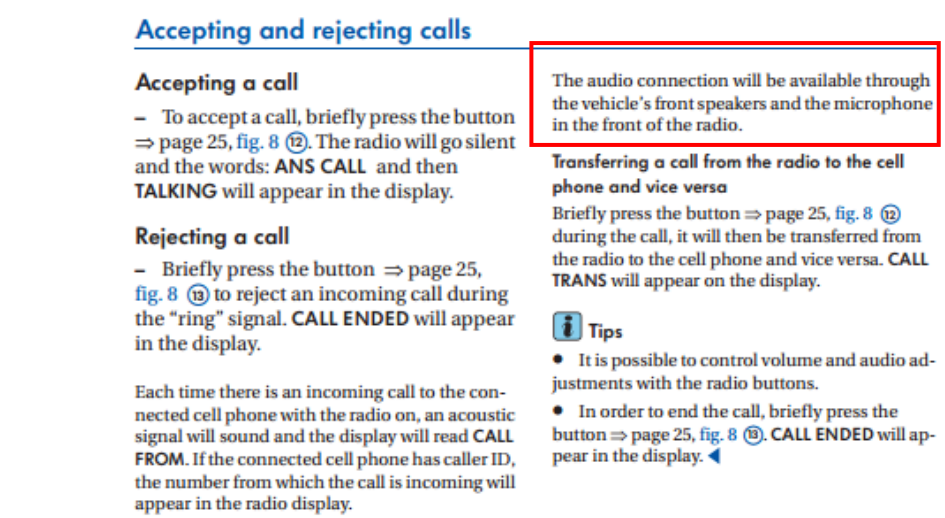
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	[Car Connectivity Consortium Mirrorlink, Core Architechture, Version 1.0.3 (CCC-TS-001)]		
a display device;		**L, DOE**	
a speech digitization apparatus in data communication with the processing apparatus;	**GOLF GTI HAS INDIGENOUS MICROPHONE AND VOICE RECOGNITION:**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

Accepting and rejecting calls

Accepting a call

– To accept a call, briefly press the button ⇒ page 25, fig. 8 ⑫. The radio will go silent and the words: **ANS CALL** and then **TALKING** will appear in the display.

Rejecting a call

– Briefly press the button ⇒ page 25, fig. 8 ⑬ to reject an incoming call during the "ring" signal. **CALL ENDED** will appear in the display.

Each time there is an incoming call to the connected cell phone with the radio on, an acoustic signal will sound and the display will read **CALL FROM**. If the connected cell phone has caller ID, the number from which the call is incoming will appear in the radio display.

The audio connection will be available through the vehicle's front speakers and the microphone in the front of the radio.

Transferring a call from the radio to the cell phone and vice versa

Briefly press the button ⇒ page 25, fig. 8 ⑫ during the call, it will then be transferred from the radio to the cell phone and vice versa. **CALL TRANS** will appear on the display.

Tips

- It is possible to control volume and audio adjustments with the radio buttons.
- In order to end the call, briefly press the button ⇒ page 25, fig. 8 ⑬. **CALL ENDED** will appear in the display. ◀

SEE BELOW; MIB-II UTILIZES E.G., RTP MEDIA PROTOCOL TO TRANSFER USER'S VOICE AUDIO IN DIGITAL FORMAT (I.E., RTP PACKETS) TO SMARTPHONE VOICE RECOGNITION INTERFACE UNDER MIRRORLINK CONFIGURATION:

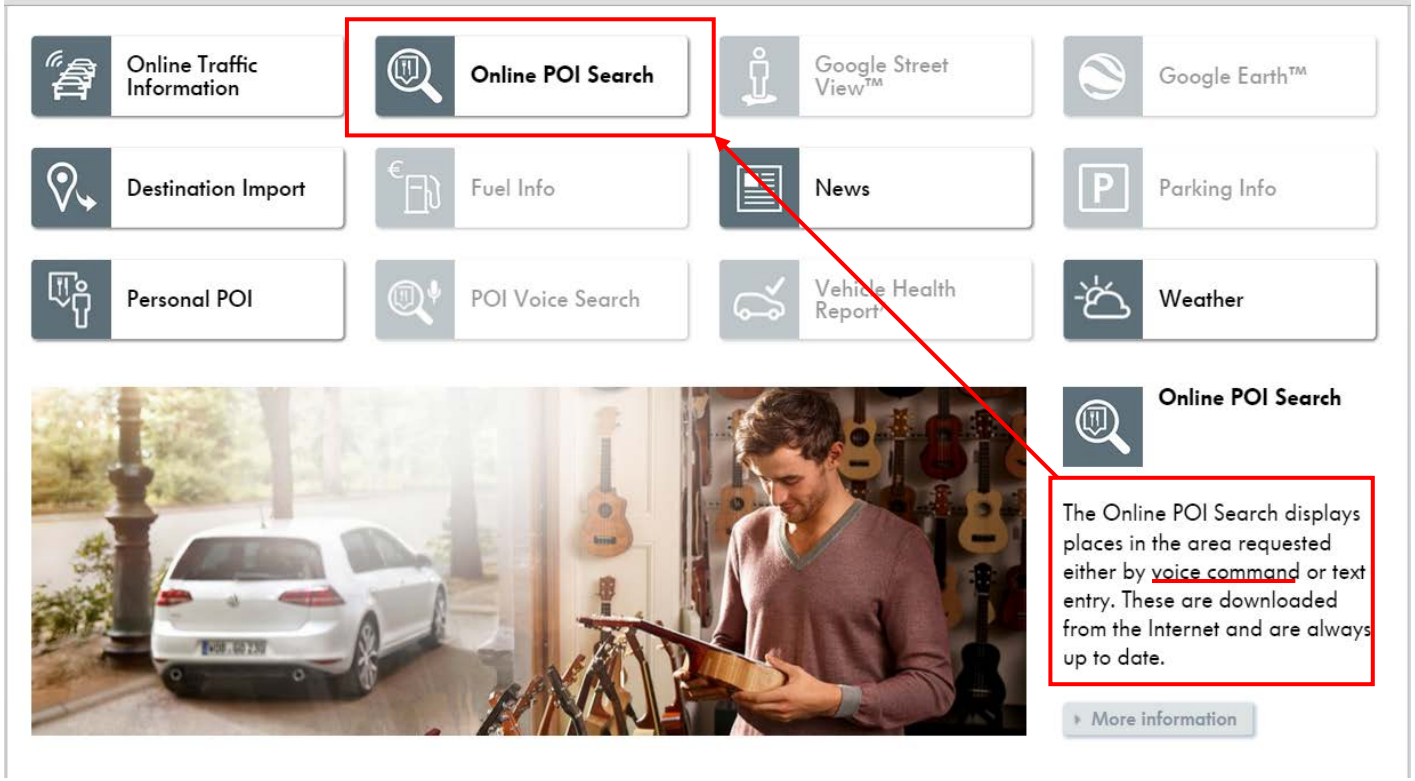
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

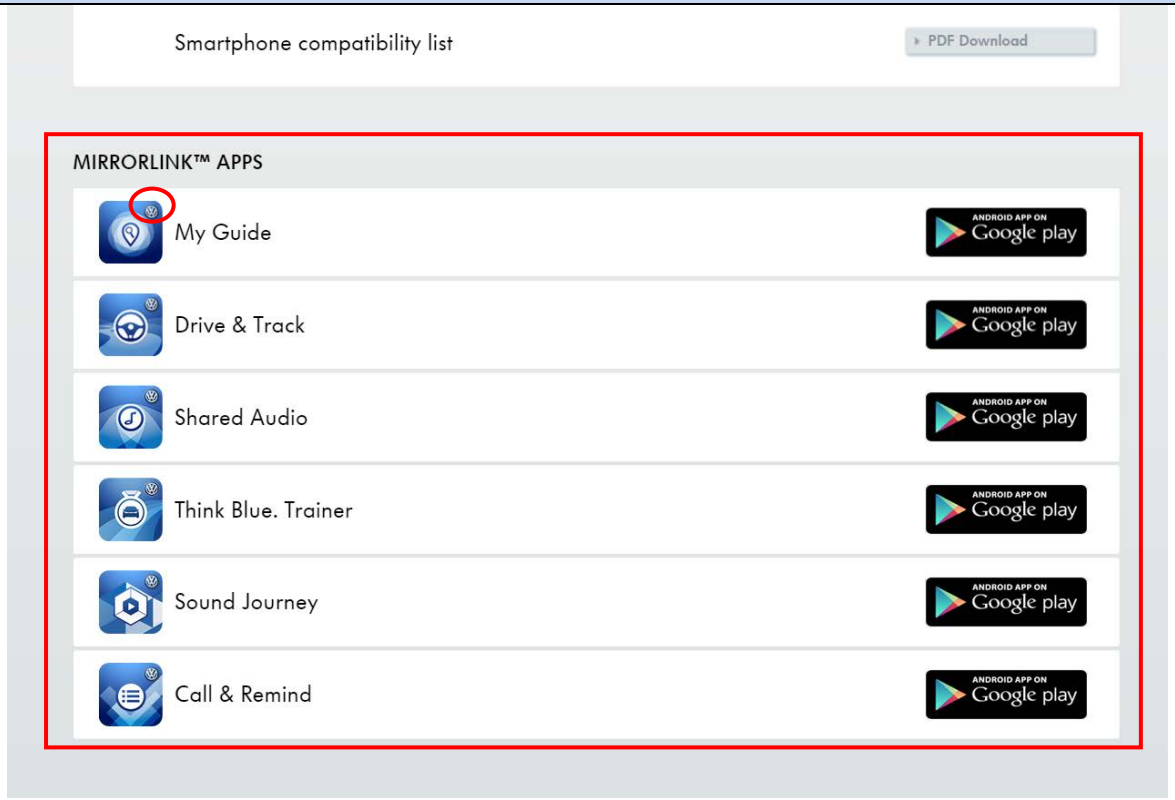
2 The Device Status Request message is given in Table 20.

# bytes	Type	Value	Description
1	U8	128	Message-type
1	U8	12	Extension-type
2	U16	4	Payload length
4	U32	*Bit*	*Status of Device Features (00 = ignore, 01* = reserved *10 = disable, 11 = enable))*
		[1:0]	Key-lock (block key entry on the device)
		[3:2]	Device lock (block key entry on the device and from MirrorLink client)
		[5:4]	Screen saver (power-down the device screen)
		[7:6]	Night mode (run device in night mode)
		[9:8]	Voice input (route the incoming audio stream to a voice recognition engine on the mobile device)[12]
		[11:10]	Microphone input on MirrorLink Client routed from microphone to the MirrorLink server
		[17:16]	Driver Distraction Avoidance (MirrorLink Client is in restricted driving mode (enabled), non-restricted driving mode (disabled) or does not enforce a specific driving mode (ignore))
		[26:24]	Absolute Framebuffer rotation (clock-wise) (000 = ignore, 001, 010, 011 = reserved

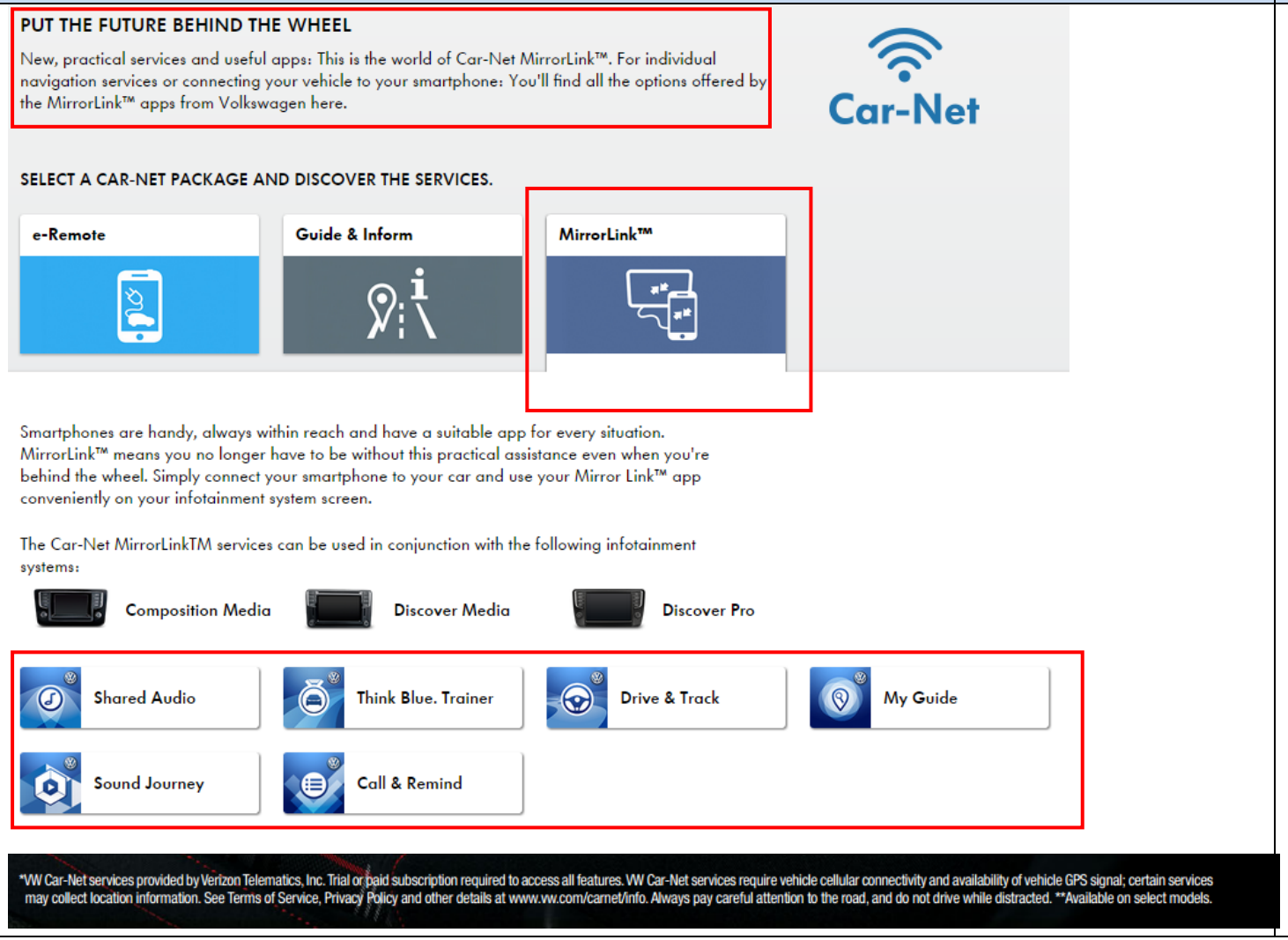
[12] The MirrorLink client MUST use this flag only if the voice command is streamed via RTP. In case an existing BT HFP connection is used and Voice Recognition Activation is supported by both Hands-Free unit and Audio Gateway, the MirrorLink client MUST use the BT HFP voice activation mechanism (AT + BVRA command as specified in **Error! Reference source not found.**) instead.

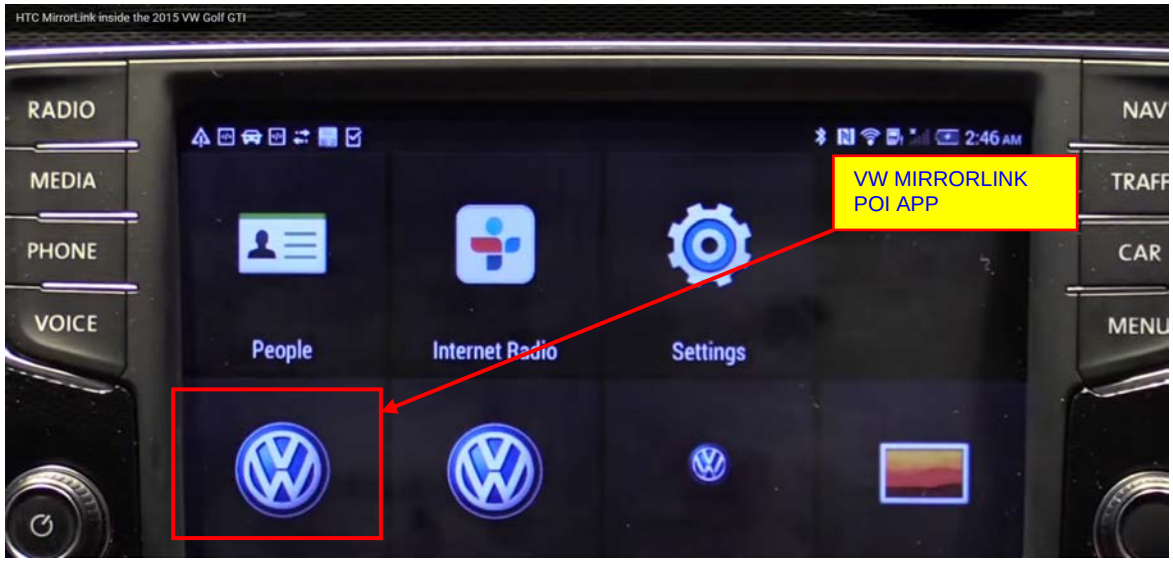
[Car Connectivity Consortium Mirrorlink, Core Architechture, Version 1.0.3 (CCC-TS-001)]

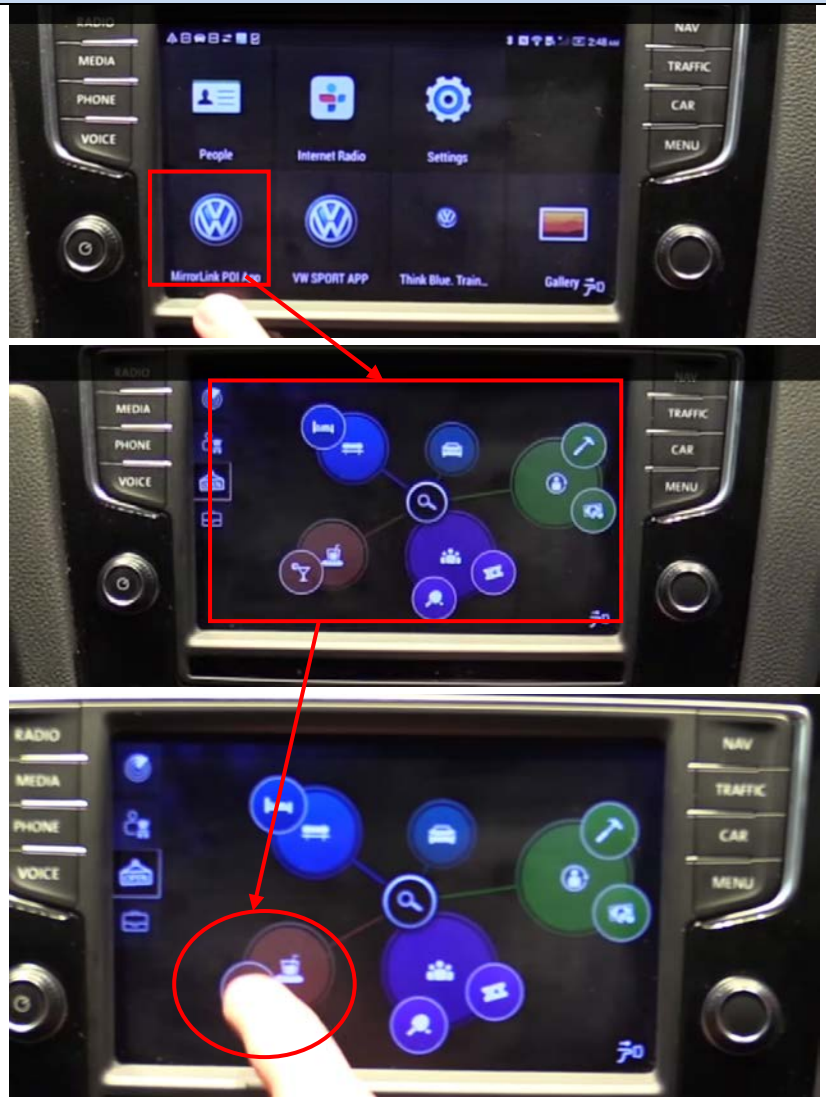
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 http://volkswagen-carnet.com/int/en/start/online-devices.html#130411dc-254f-4d9e-b8d6-e61f322d0417		
and a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed on a processing apparatus:	**SEE ABOVE; THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE, WHEN CONNECTED, COMPRISE NUMEROUS PROCESSORS, MEMORY (E.G., RAM, ROM, FLASH), SOFTWARE, FIRMWARE, ETC. WITH NUMEROUS COMPUTER PROGRAMS OPERATIVE TO RUN THEREON TO RENDER GRAPHICS, ESTABLISH USB CONNECTIVITY, PROCESS SPEECH INPUTS, ETC.** **VOLSWAGEN ALSO SUPPLIES APPLICATION-LAYER SOFTWARE (AKA "APPS") FOR VARIOUS FUNCTIONS FOR USE ON THE MATED ANDROID PHONE:**	**L, DOE**	

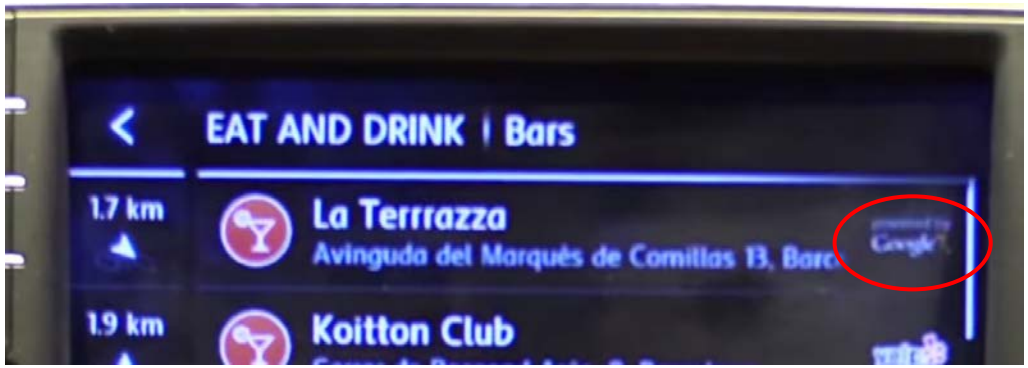
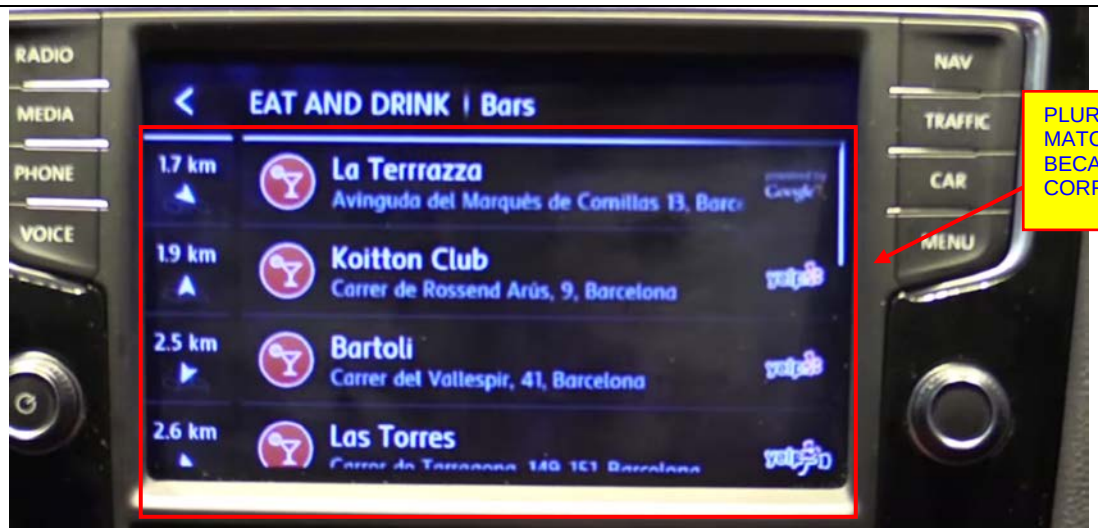
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 http://volkswagen-carnet.com/int/en/start/app-download.html **HENCE, VW (I) PROVIDES THE MIB-II MIRRORLINK-ENABLED HEAD UNIT IN THE VEHICLE; (II) PROVIDES THE VW-BRANDED APPLICATION SOFTWARE TO LOAD ON THE USER'S SMARTPHONE; AND (III) INSTRUCTS THE USER ON CONNECTION/UTILIZATION OF THE TWO DEVICES AS A SYSTEM.**		

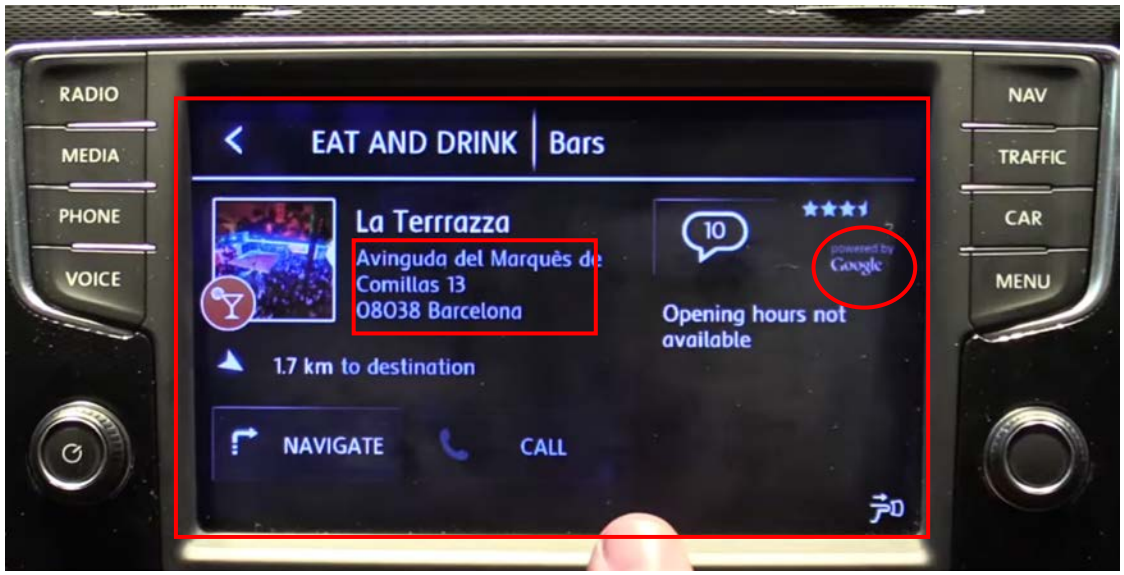
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

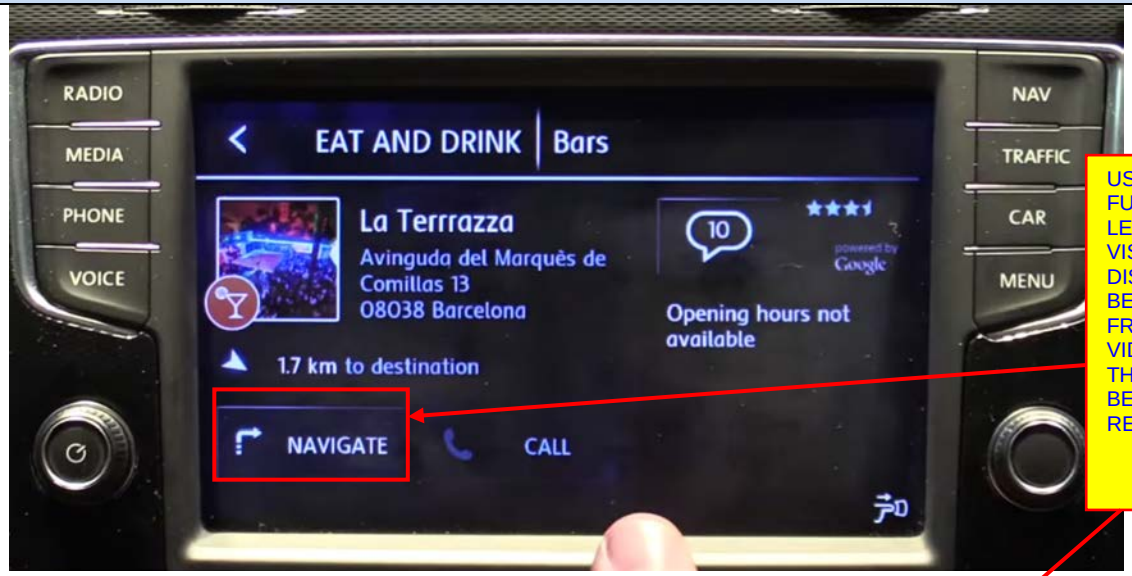


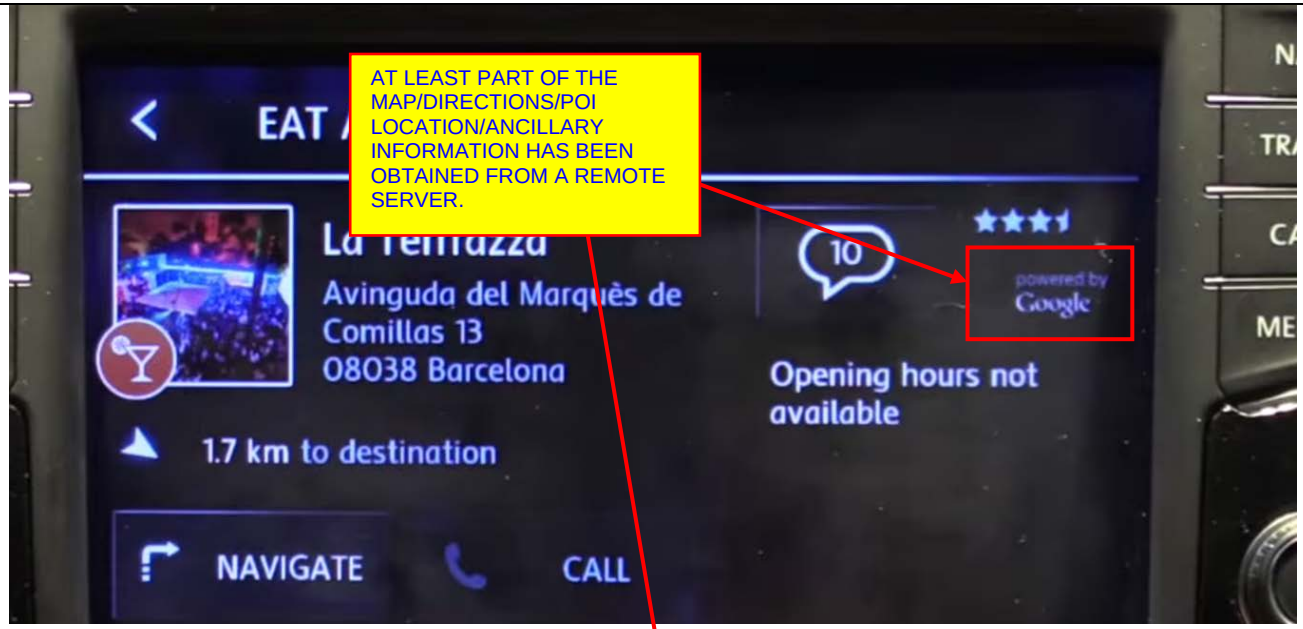
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	7) Service is available soon The mobile online service (Car-Net) can only be used with the optional Discover Media and Discover Pro equipment. A mobile terminal (e.g. smartphone) with the ability to act as a mobile WLAN hotspot is also required. Alternatively, a mobile phone with a remote SIM Access Profile (rSAP) or a SIM card with call and data options can be used with the "Premium mobile phone interface" option. The Car-Net service is available only with an existing mobile phone contract or one which must be separately established between you and your mobile service provider, and only within the coverage of the individual mobile phone network. Additional fees (e.g. roaming charges) may arise when receiving data from the internet, depending on your particular mobile phone tariff and especially when using the service abroad. Due to the accumulation of data when using the Car-Net service, it is strongly recommended that you organise an unlimited data plan with your mobile service provider. A separate contract with Volkswagen AG must be set up online in order to use Car-Net. After the vehicle handover, the customer has 90 days to register the vehicle at [http://volkswagen-carnet.com/uk/en/start/online-devices.html#tab/open/app-connect] **NOTE THAT CAR-NET SERVICE IS STANDARD ON GOLF GTI, BUT REQUIRES PRESENCE OF WIRELESS CONNECTION (E.G., CELLULAR SMARTPHONE WITH WI-FI HOTSPOT CAPABILITY, WHICH IMPLIES THAT CAR DOES NOT HAVE ITS OWN INDIGENOUS CELLULAR MODEM.**		
receive a digitized speech input from the speech digitization apparatus, the input relating to desired information which a user wishes to locate;	**SEE FOLLOWING EXEMPLARY HTC-BASED ILLUSTRATION OF THE MIRRORLINK-ENABLED MIB-II IN 2015 GOLF GTI (OUTSIDE U.S.):** **https://www.youtube.com/watch?v=6J5KNaaVRoQ** 	**L, DOE**	

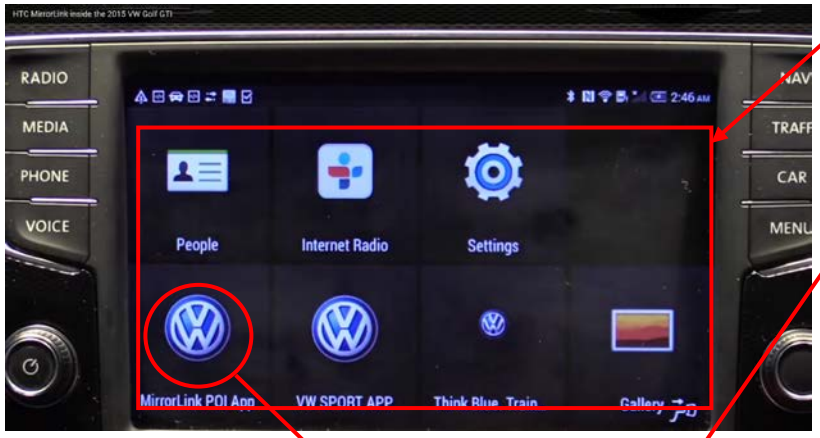
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 USER SELECTS VW MIRRORLINK POI APP, THEN "BARS AND RESTAURANTS" SUB-FUNCTION. NOTE THAT EACH OF THE FOREGOING CAN BE ACCOMPLISHED VIA VOICE COMMAND, AS NOTED ABOVE		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
cause evaluation of the digitized speech input to identify one or more words or word strings within the digitized input, and access of a remote networked entity to obtain the desired information,	**THE MIB-II SYSTEM CONTAINS NDIGENOUS VOICE RECOGNITION CAPABILITY (SEE ABOVE REGARIND DISCUSSION OF EXTRA-U.S.. PREDECESSOR), AS DO GOOGLE REMOTE SERVERS. HENCE, THE USER'S VOICE INPUT IS, DEPENDING ON CONFIGURATION, EITHER:** **(I) LOCALLY DIGITIZED AND SENT TO A REMOTE GOOGLE SERVER FOR RECOGNITION AND FURTHER SEARCH AND PROCESSING; OR** **(II) LOCALLY RECOGNIZED AND THE RESULTS OF THE RECOGNITION SENT TO A REMOTE GOOGLE SERVER (E.G., AS DIGITAL REPRESENTATION OF TEXT) FOR FURTHER SEARCH AND PROCESSING.** 	**L, DOE**	
the obtainment of the desired information further comprising: causing identification of a plurality of possible matches to said input;		**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
and receipt of further user input regarding at least one of the plurality of possible matches to identify at least one of the matches that is of interest to the user;	 	**L, DOE**	

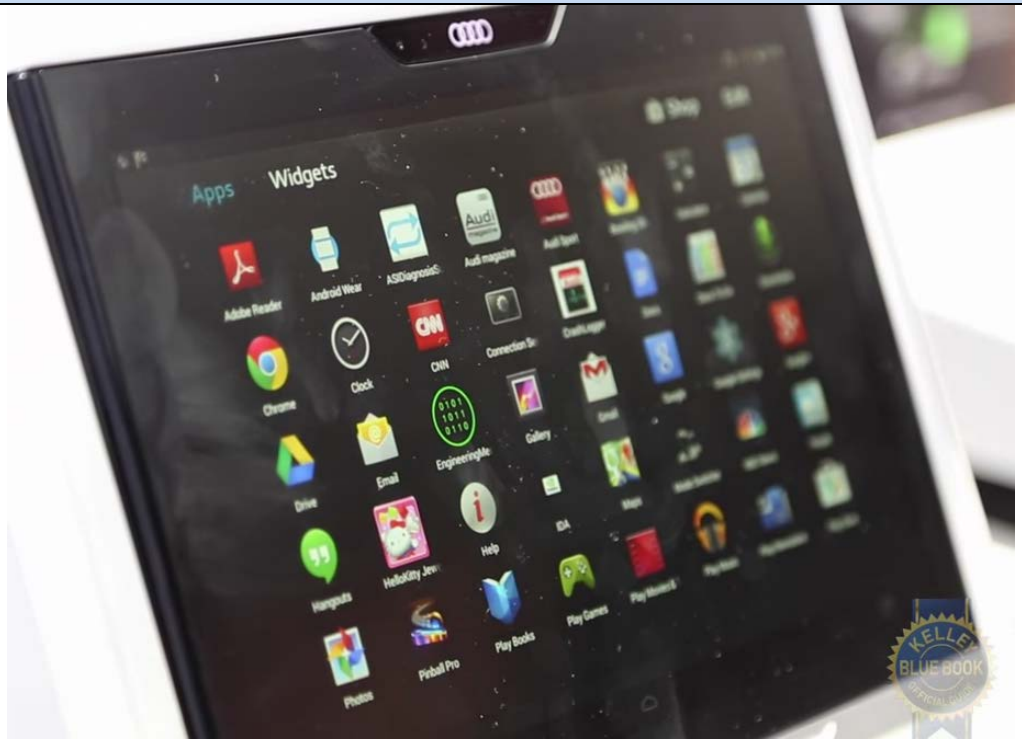
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2014/11/Innovation_workshop_2014/Networking.html		
and wherein the computerized information apparatus is further configured to receive at least a portion of the obtained information via the network interface for display on the display device.	 7) Service is available soon *) The mobile online service (Car-Net) can only be used with the optional Discover Media and Discover Pro equipment. A mobile terminal (e.g. smartphone) with the ability to act as a mobile WLAN hotspot is also required. Alternatively, a mobile phone with a remote SIM Access Profile (rSAP) or a SIM card with call and data options can be used with the "Premium mobile phone interface" option. The Car-Net service is available only with an existing mobile phone contract or one which must be separately established between you and your mobile service provider, and only within the coverage of the individual mobile phone network. Additional fees (e.g. roaming charges) may arise when receiving data from the internet, depending on your particular mobile phone tariff and especially when using the service abroad. Due to the accumulation of data when using the Car-Net service, it is strongly recommended that you organise an unlimited data plan with your mobile service provider. A separate contract with Volkswagen AG must be set up online in order to use Car-Net. After the vehicle handover, the customer has 90 days to register the vehicle at	**L, DOE**	

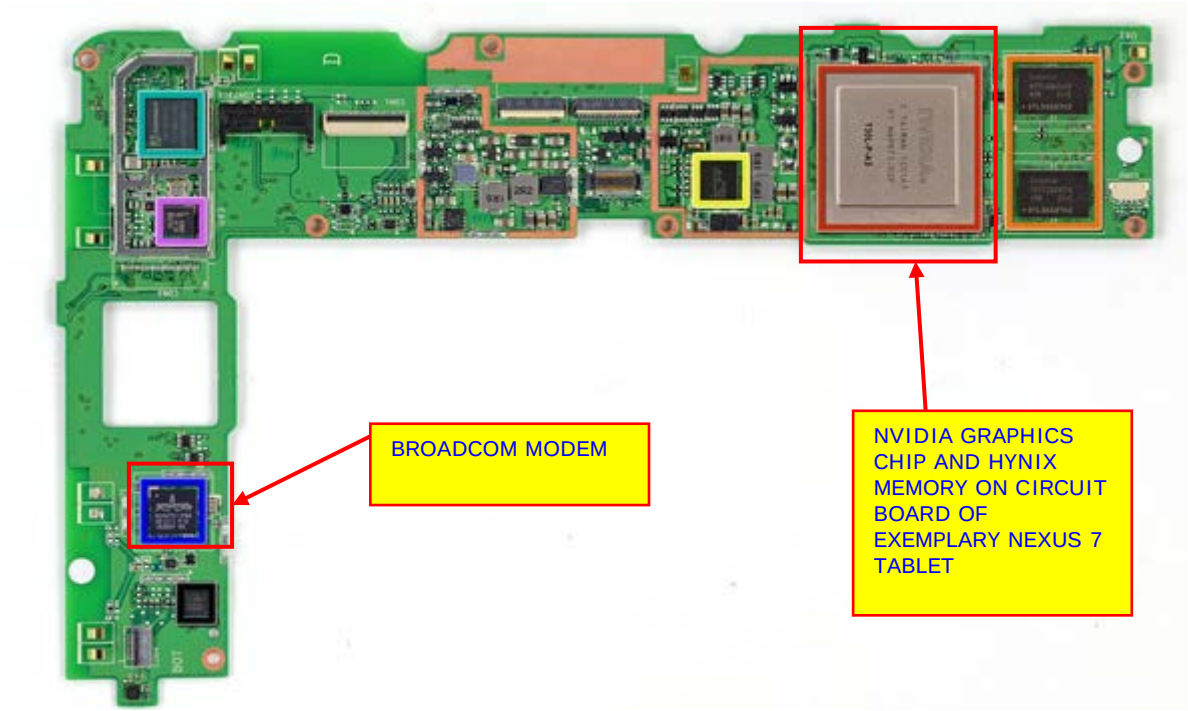
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
18. The apparatus of claim 15, wherein the computerized apparatus further comprises a touch-screen input device, whereby a user touching a screen of the input device can select one or more predetermined functions or topical areas. (***Unselected claim 18 is included because selected claim 19 depends hereon***)	   TOUCH SCREEN INPUT WITH PREDETERMINED TOPICAL AREAS, AT MULTIPLE LEVELS OF MENU HIERARCHY (I.E., OUTSIDE OF A GIVEN "APP" OR WITHIN)	**L, DOE**	**D, I**

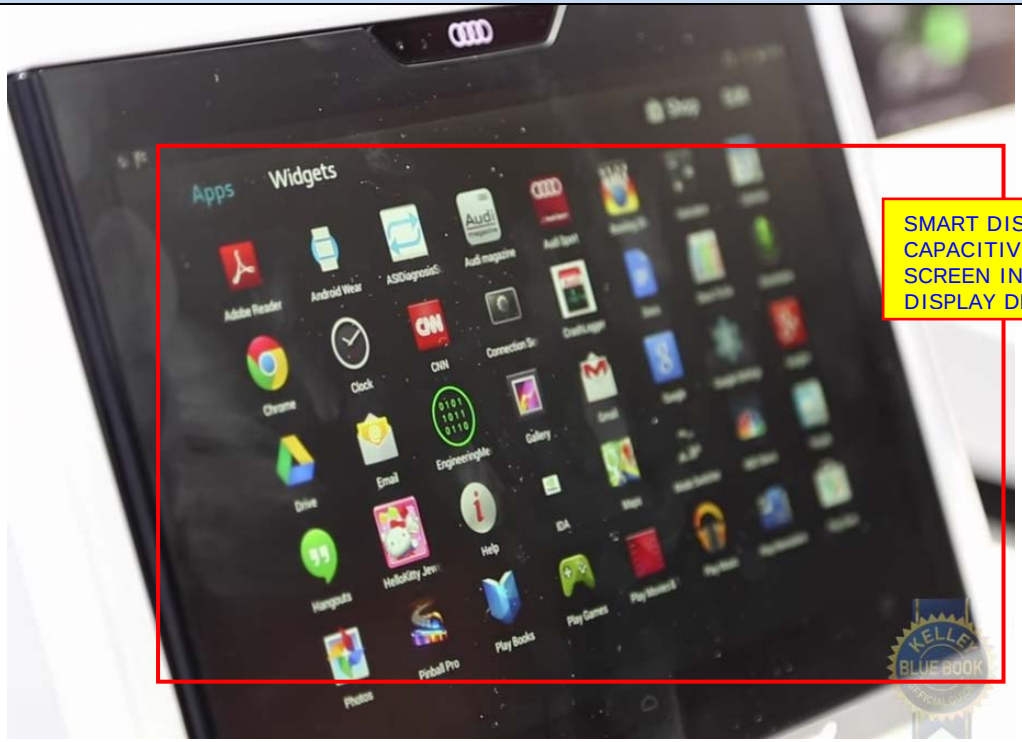
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
19. The apparatus of claim 18, wherein the speech digitization apparatus and the touch-screen input device are substantially co-located within a first structure, and the network interface and processing apparatus are substantially co-located in a second structure physically separate from but in data communication with the first structure.	 http://cars.reviewed.com/content/volkswagen-mib-ii-infotainment-system-first-impressions-review **NOTE THAT:** **(I) TOUCH SCREEN AND SPEECH DIGITIZATION FUNCTIONS ARE PERFORMED BY THE MIB-II HEAD UNIT (FIRST STRUCTURE), AND** **(II) WIRELESS NETWORK INTERFACE AND PROCESSING FUNCTIONS (E.G., EXECUTION OF VW APP TO ENABLE CONNECTIVITY AND EMULATION ON HEAD UNIT TOUCH SCREEN DISPLAY) ARE PERFORMED BY SMARTPHONE (SECOND STRUCTURE).** **THE TWO STRUCTURES ARE PHYSICALLY SEPARATE BUT IN DATA COMMUNICATION VIA USB INTERFACE.**	**L, DOE**	**D, I**

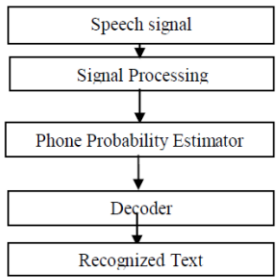
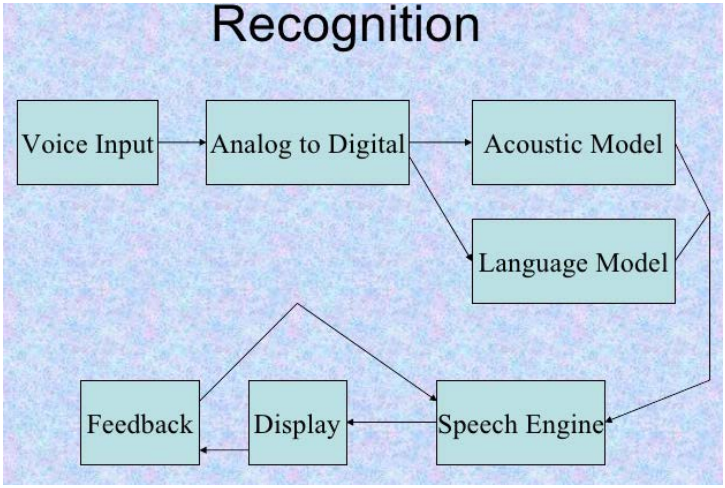
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	THIS ANALYSIS IS BASED ON THE SMART DISPLAY TABLET (OFFERED WITH E.G., THE 2016 AUDI Q7) 	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
15. Computerized information apparatus, comprising:	 https://www.youtube.com/watch?v=QcfIgdDl-IE "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html	**L, DOE**	**D, I**
a network interface;	"A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort	**L, DOE**	

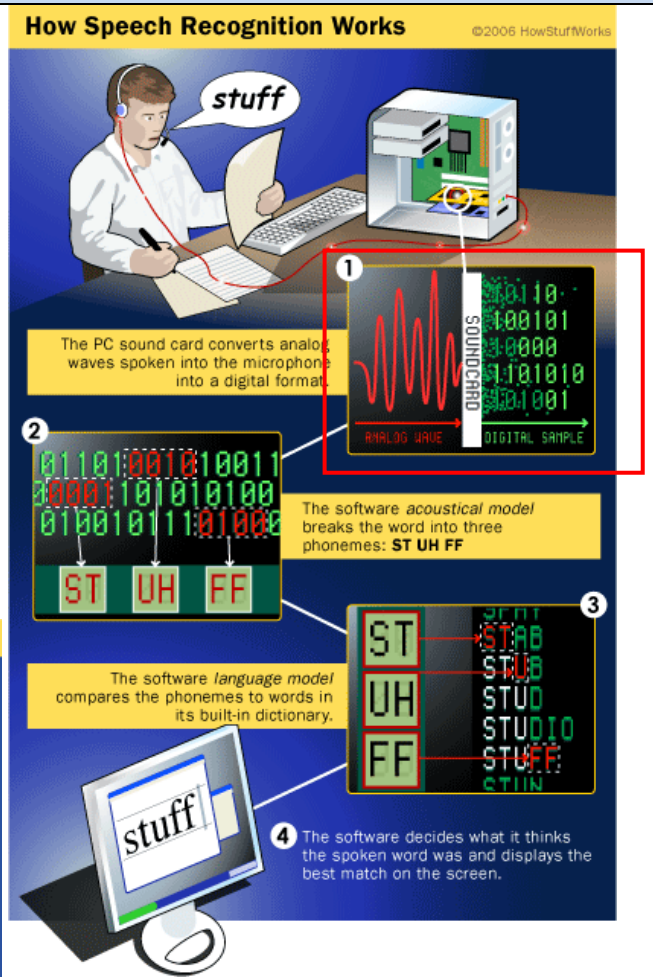
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
processing apparatus in data communication with the network interface;	**WHILE THE INTERNALS OF THE AUDI TABLET ARE PRESENTLY UNDISCLOSED, IT IS HIGHLY SIMILAR IN FUNCTION, O/S, ETC. TO E.G., THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4.**  NEXUS 7 (TOP) VS. AUDI SMART DISPLAY (BOTTOM)  **THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT PROCESSING AND STORAGE DEVICES, INCLUDING NVIDIA PROCESSOR, CPU, MODEM PROCESSOR, ETC.**	**L, DOE**	

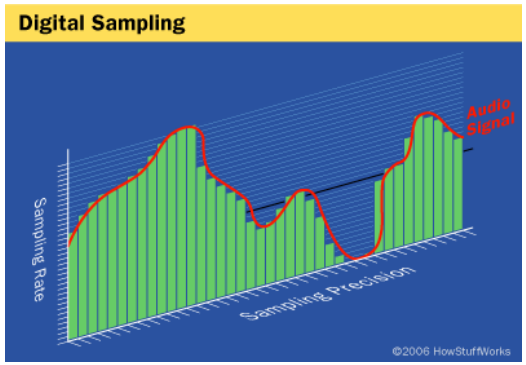
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.  https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
a display device;		L, DOE	
a speech digitization apparatus in data communication with the processing apparatus;	**ALL SPEECH RECOGNITION SYSTEMS INHERENTLY DIGITIZE THE SPEAKER'S ANALOG VOICE:**	L, DOE	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	2. SPEECH RECOGNITION Speech recognition is the task of converting any speech signal into its orthographic representation. **2.1 Phases of Speech Recognition** **2.1.1 Speech signal.** The word spoken is received as sounds and digitized using microphone. The digitized signal is delivered to signal processing unit at a sampling rate not above 8 KHz because sampling rate higher than 8 KHz have less recognition accuracy.  **Figure 1: Phases of Speech Recognition** **2.1.2 Signal processing.** This phase performs feature extraction. Converting linear amplitude signal into spectral like representation [6]. It reduces the data rate of the raw audio input, thereby decreasing the computational load of the fore coming phases.  http://www.ijcta.com/documents/volumes/vol3issue4/ijcta2012030418.pdf; http://www.slideshare.net/charujoshi/speech-recognition		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]



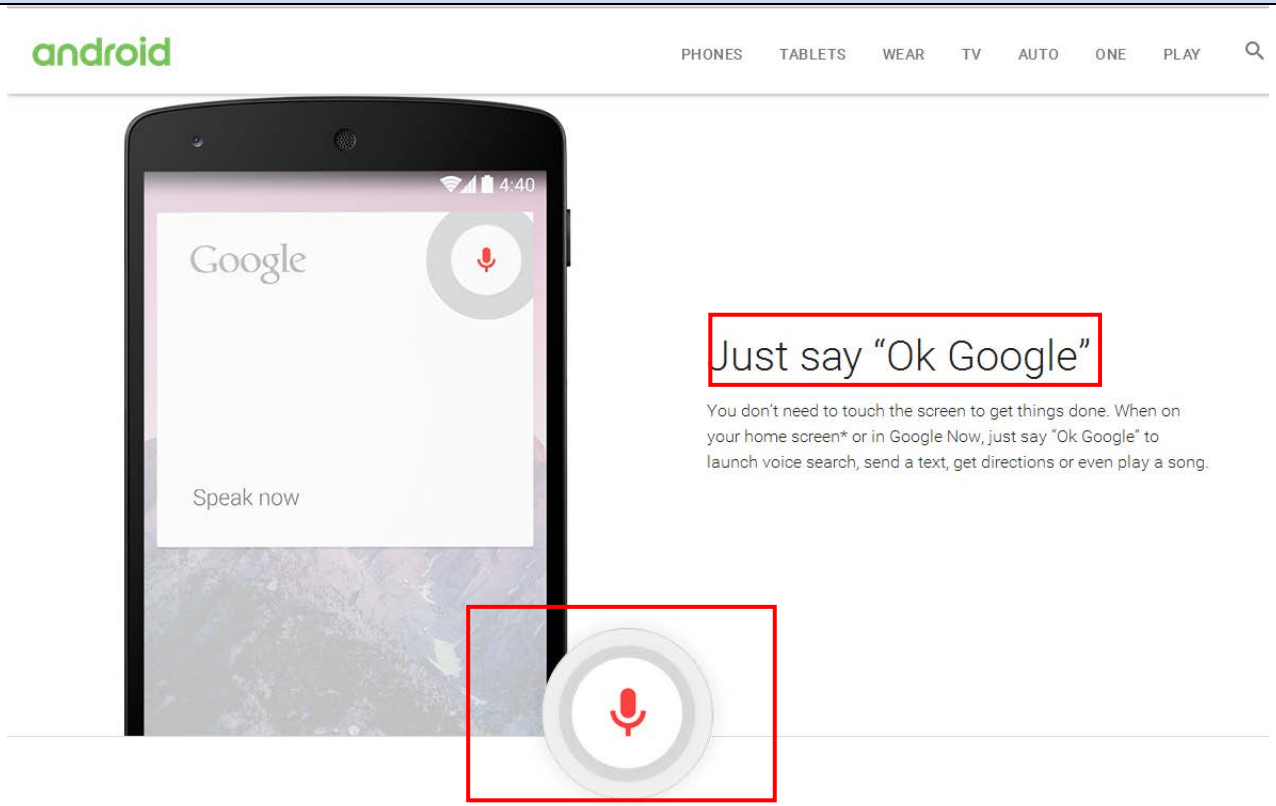


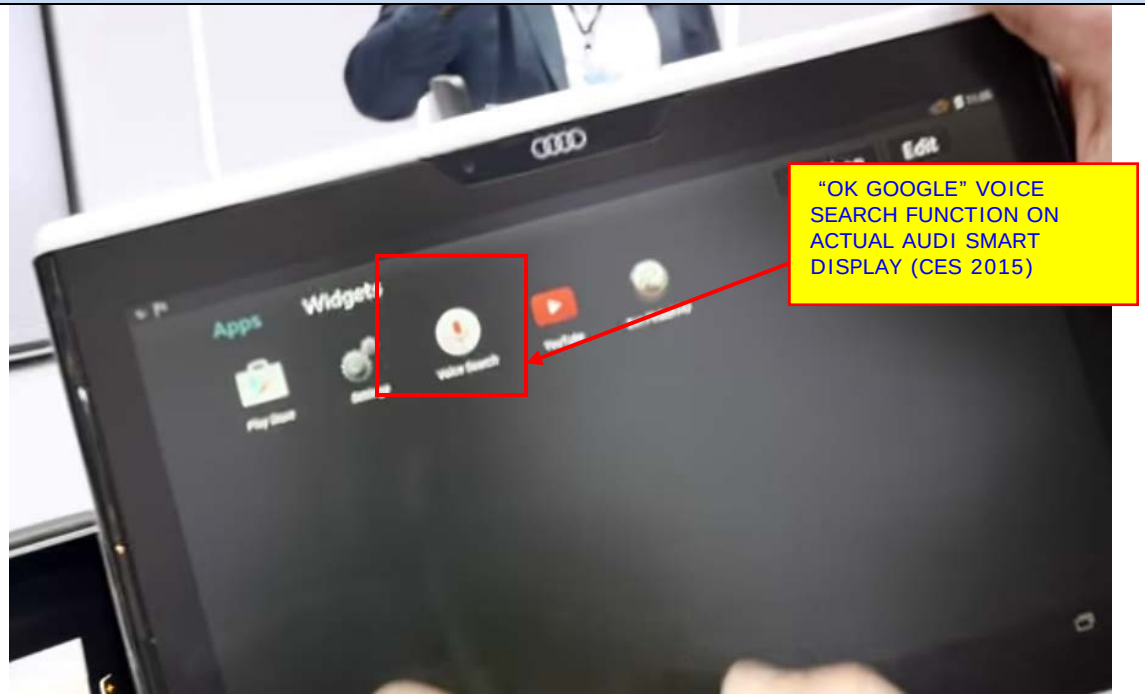
"An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality."

http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	GOOGLE NEXUS 5 INCLUDES A SPEECH DIGITIZATION APPARATUS (I.E., GOOGLE VOICE ALGORITHMS RUNNING ON THE PLATFORM) TO DIGITIZE THE USERS ANALOG VOICE INTO A FORM USEFUL FOR RECOGNITION PURPOSES (E.G., AN FFT–DERIVED SPECTROGRAM): "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " http://www.wired.com/2013/02/android-neural-network/; http://arxiv.org/ftp/arxiv/papers/1003/1003.4083.pdf **WHILE FOR DIFFERENT O/S, FOLLOWING IS ILLUSTRATIVE:** "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like: … After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string. GET /complete/search?client=iphoneapp&hjson=t&types=t &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1 User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1 Accept: */* Accept-Language: en-us Accept-Encoding: gzip, deflate Pragma: no-cache Connection: keep-alive Connection: keep-alive Host: clients1.google.com		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	The response is an array of search terms in JSON format, for use in search autocompletion. ["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.** **THE PROCESSING APPARATUS MUST BE IN COMMUNICATION WITH THE SPEECH DIGITIZATION APPARATUS IN ORDER TO, E.G., PROCESS SPEECH INPUTS FOR TRANSMISSION OVER THE WIRELESS INTERFACE TO GOOGLE SERVERS, ETC.** **AS ONE PARTICULAR EXAMPLE, THE "GOOGLE MAPS" FUNCTIONS OF "GOOGLE NOW" FUNCTIONALITY PRESENT ON THE ANDROID KITKAT 4.4 O/S IS EVALUATED, ALTHOUGH VARIOUS OTHER TYPES OF FUNCTIONS MAY BE USED AS THE BASIS OF DEMONSTRATION AS WELL.** **THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION:** **1) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA HANDS FREE), FOLLOWED BY VOICE SEARCH TERM;**		

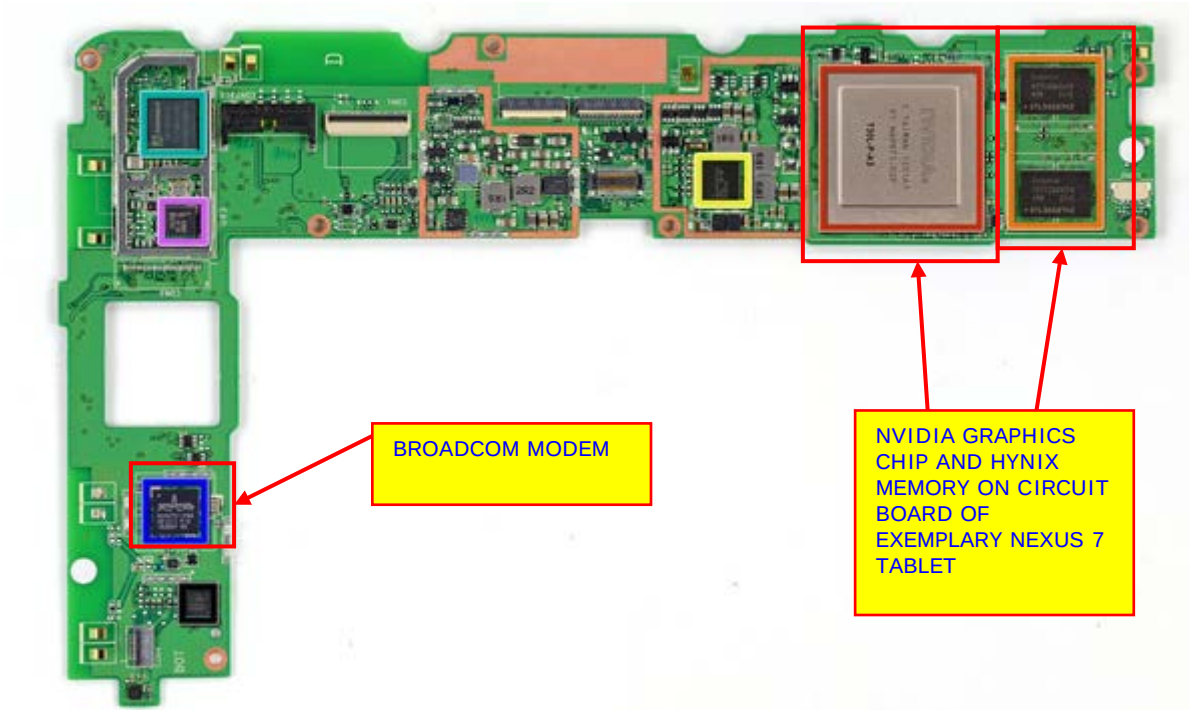
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

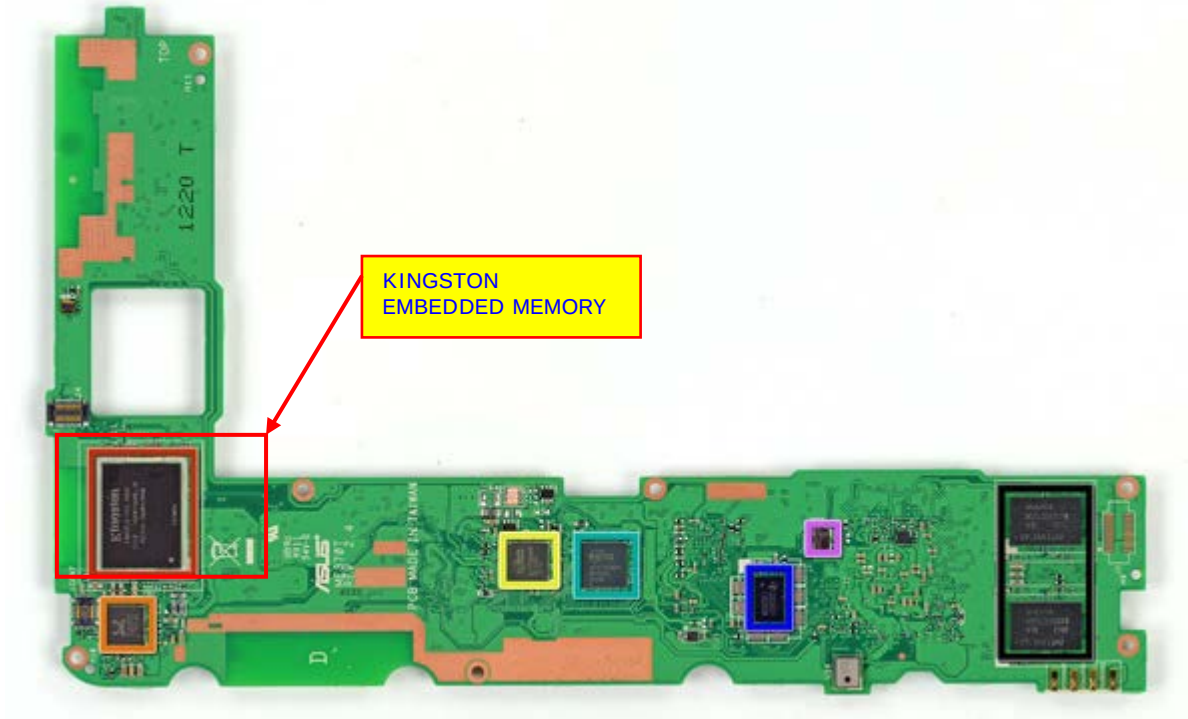
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **2) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:** **"General Commands** • "Search for [*chicken recipes*]?" • "Say [*where is the supermarket*] in [*Spanish*]?" • "What is [*Schrodinger's cat*]?" • "Who invented [*the internet*]?"		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	• "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" … **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know POSSIBLE INPUTS FROM USER FOR E.G., MAPS/DIRECTIONS **SEE ALSO DISCUSSION BELOW REGARDING ABILITY TO CONDUCT VOICE SEARCHES IN AUDI APPLICATION-LAYER UI (PRESUMABLY VIA AT LEAST PARTLY COMMON SPEECH PROCESSING APPARATUS ON THE SMART DISPLAY).**		
and a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed on a processing apparatus:	**THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ETC.** **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

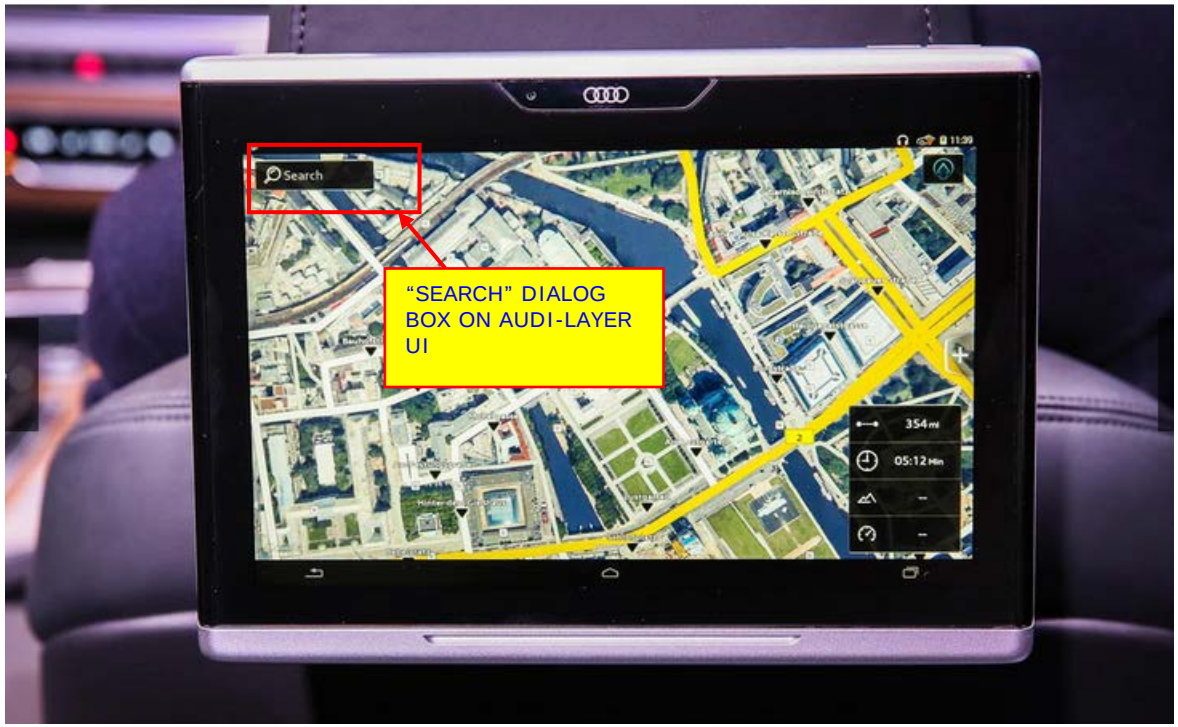
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		
receive a digitized speech input from the speech digitization apparatus, the input relating to desired information which a user wishes to locate;	**AS NOTED ABOVE, AT LEAST TWO DISTINCT WAYS OF PERFORMING VOICE-BASED POI OR OTHER SEARCHES USING SMART DISPLAY:** **1) ANDROID O/S - GOOGLE VOICE QUERIES ON ANDROID TABLETS CAN TAKE ANY NUMBER OF DIFFERENT FORMS, MANY OF WHICH RELATE TO ORGANIZATIONS OR ENTITIES (AND FINDINGTHEM). SOME EXAMPLES INCLUDE:** **Maps & Navigation** • "Map of [*Flagstaff*]"	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

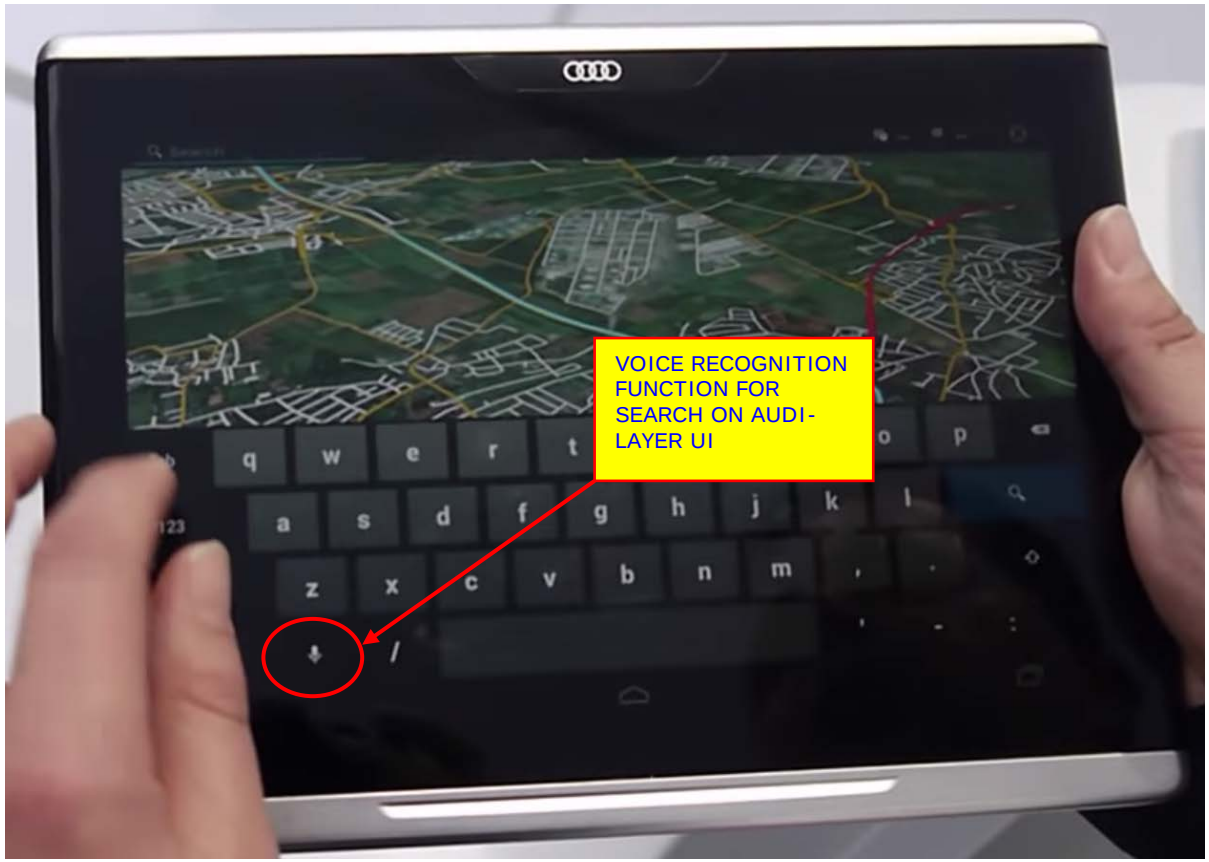
- "Show me the nearby [*restaurant*] on map"
- "Navigate to [*Munich*] on car"
- "How far is [*Berlin*] from [*Munich*]?"
- "Directions to [*address / business name / other destination*]"

http://www.androidpit.com/google-now-commands-how-many-do-you-know

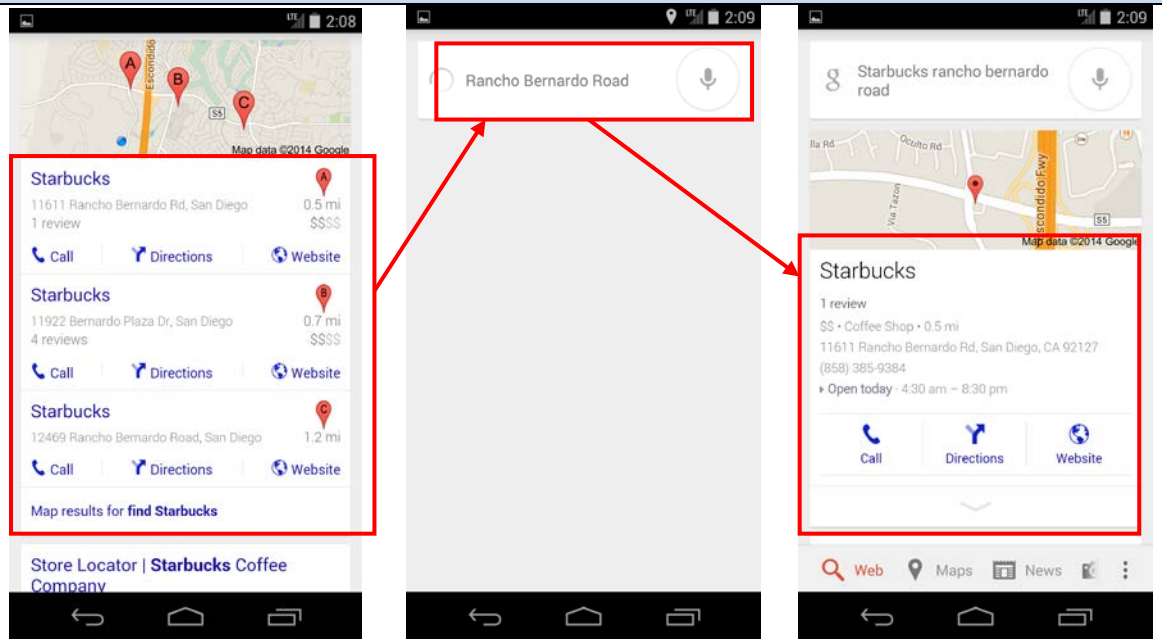
2) ADDITIONALLY, THE AUDI-LAYER SEARCH FUNCTION INCLUDES THE ABILITY TO PERFORM VOICE-BASED-SEARCHES:

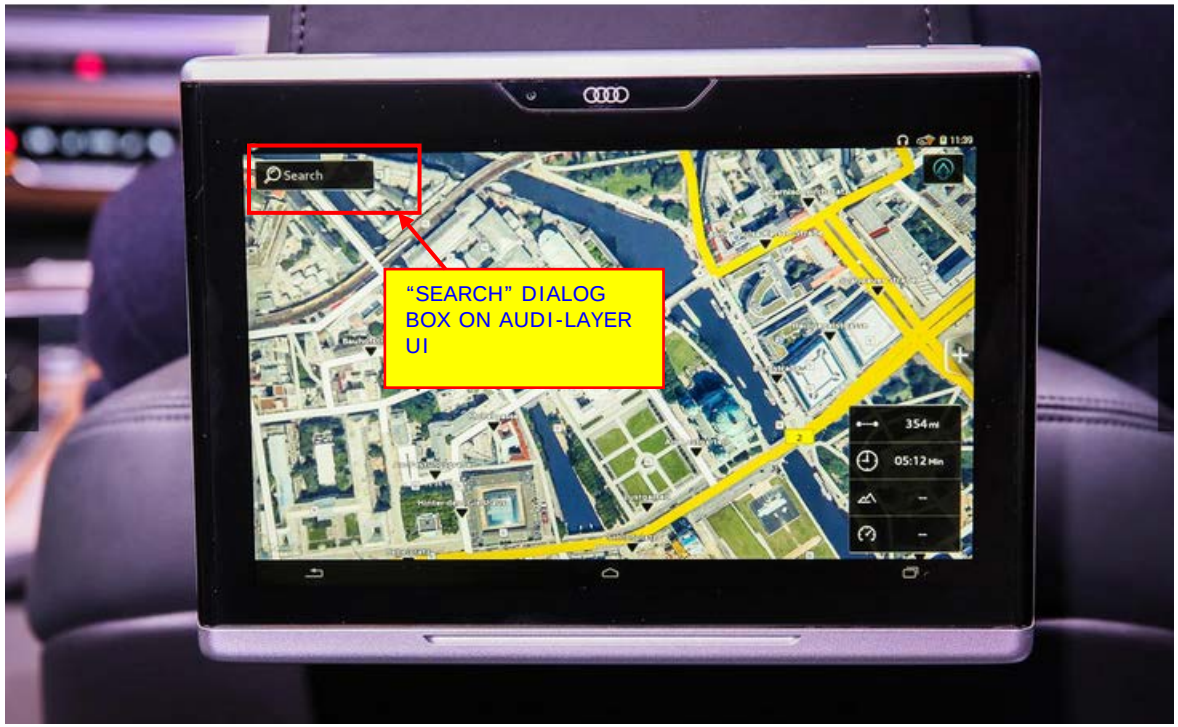


SEE VIDEO BELOW; DEMONSTRATOR TOUCHES "SEARCH" DIALOG BOX, AND THEN DISPLAYS ENTRY

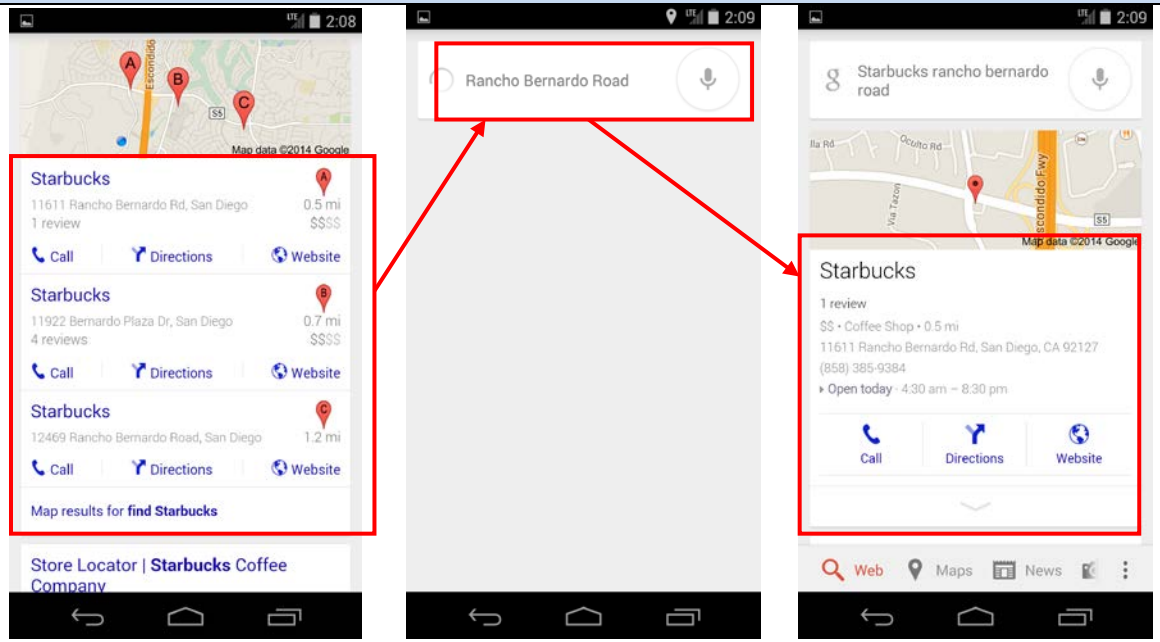
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	SOFT KEYS (WHICH INCLUDE A VOICE RECOGNITION FUNCTION):  https://www.youtube.com/watch?v=2D32beCtCvs		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
cause evaluation of the digitized speech input to identify one or more words or word strings within the digitized input, and access of a remote networked entity to obtain the desired information,	**AT VERY LEAST, THE SMART DISPLAY CAN ACCESS THE INTERNET (INCLUDING GOOGLE MAPS SERVERS) VIA ITS WI-FI INTERFACE, VIA: (I) THE Q7 WI-FI HOTSPOT AND LTE CELLULAR MODEM; AND (II) ANY EXTERNAL WI-FI AP/NETWORK (E.G., USER'S HOUSE):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **THE REMOTE GOOGLE SERVER(S) RECEIVE THE USER'S VOICE SEARCH DATA (DIGITIZED) AND PROCESS IT TO IDENTIFY ONE OR MORE MATCHING ENTITIES (AND LOCATIONS ASSOCIATED THEREWITH).** **FOLLOWING TEST CONDUCTED ON GOOGLE NEXUS 5 WITH KITKAT 4.4 O/S (GENERALLY COMPARABLE TO AUDI SMART DISPLAY, AND SAME O/S), USING "OK GOOGLE" FUNCTION:** **USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **MOREOVER, THE AUDI APPLICATION LAYER U/I (I.E., AUDI-SPECIFIC USER INTERFACE SHOWN BELOW) CAN BE UTILIZED TO INVOKE VOICE SEARCH FOR AN ENTITY:**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **SEE VIDEO BELOW; DEMONSTRATOR CAN ACCESS VARIOUS CAR FUNCTIONS FROM SOFTWARE ON TABLET, VIA E.G., WI-FI TO CAR, INCLUDING MAPS/NAVIGATION:** **https://www.youtube.com/watch?v=9YNbPboYA6Y**		

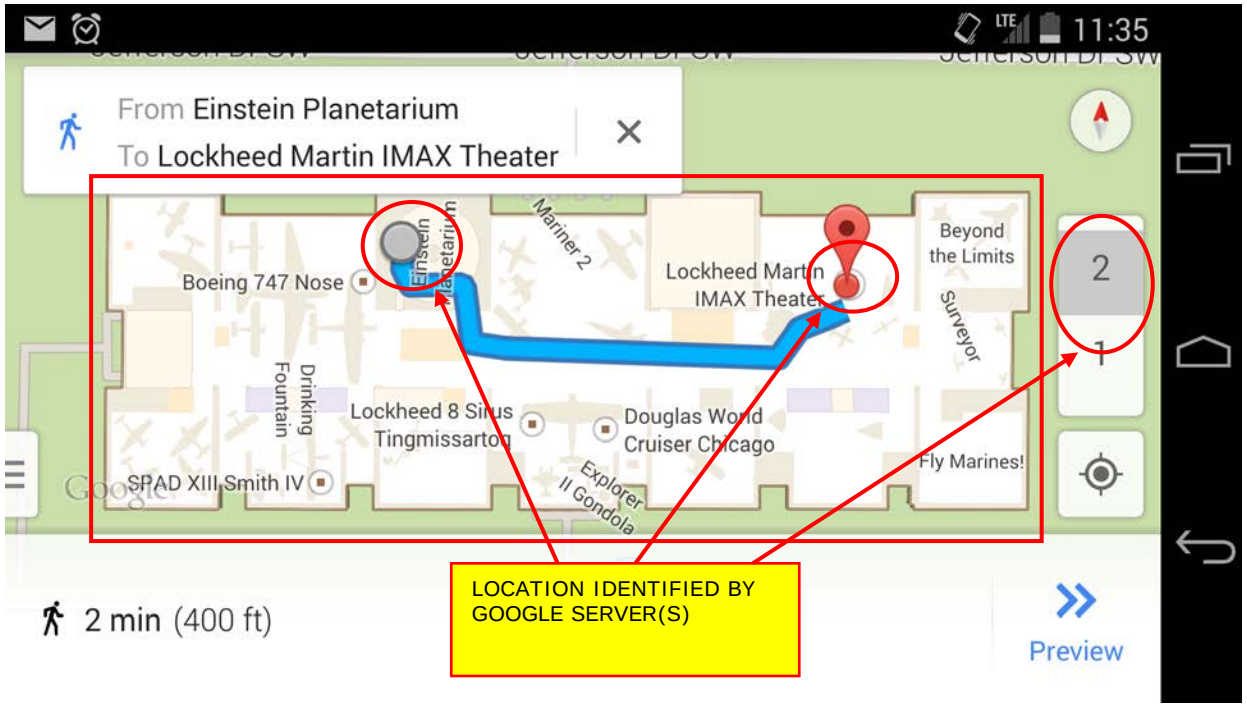
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **THIS FUNCTION ALSO PRESUMABLY INCLUDES ABILITY FOR TABLET USER TO SEARCH (USING E.G., DIALOG BOX SHOWN ABOVE) BOTH INTERNET (E.G., GOOGLE) AND LOCAL (E.G., HDD/SD CARD NAVIGATION DATA STORED ON THE VEHICLE).**		
the obtainment of the desired information further comprising: causing identification of a plurality of possible matches to said input;	**SEE BELOW; FOR ANDROID LAYER, USER IS PRESENTED WITH LISTING OF POSSIBLE MATCHES ON TOUCH SCREEN DISPLAY:**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **SEE BELOW; FOR AUDI LAYER, USER IS PRESENTED WITH LISTING OF POSSIBLE MATCHES ON TOUCH SCREEN DISPLAY:**		

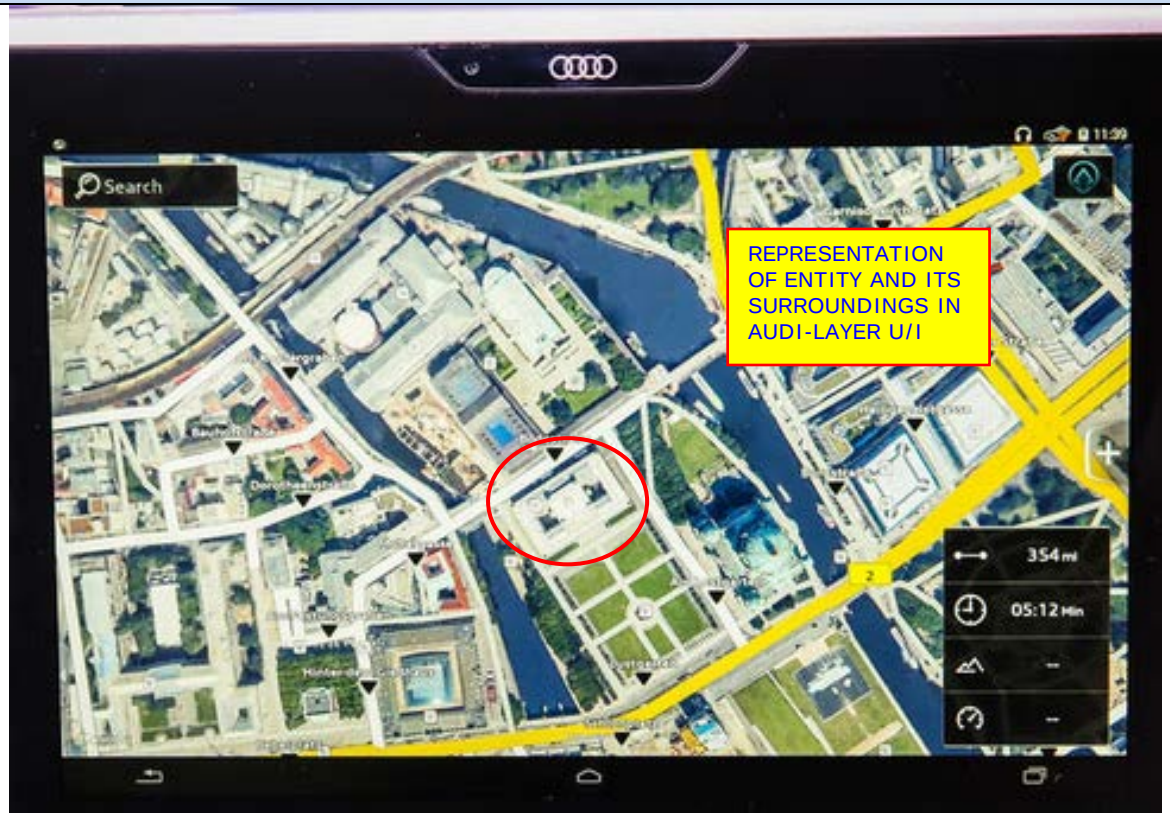
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **https://www.youtube.com/watch?v=2D32beCtCvs**		
and receipt of further user input regarding at least one of the plurality of possible matches to identify at least one of the matches that is of interest to the user;	**SEE ABOVE; FOR ANDROID LAYER, THE USER CAN EITHER PROVIDE VERBAL INPUT TO SELECT, OR TOUCH THE APPROPRIATE REGION OF THE TOUCH SCREEN.** **SEE ABOVE; FOR ANDROID LAYER, THE USER CAN TOUCH THE APPROPRIATE REGION OF THE TOUCH SCREEN; TO BE VERIFIED IN DISCOVERY IF VERBAL INPUT CAN BE USED TO SELECT AS WELL.**	**L, DOE**	

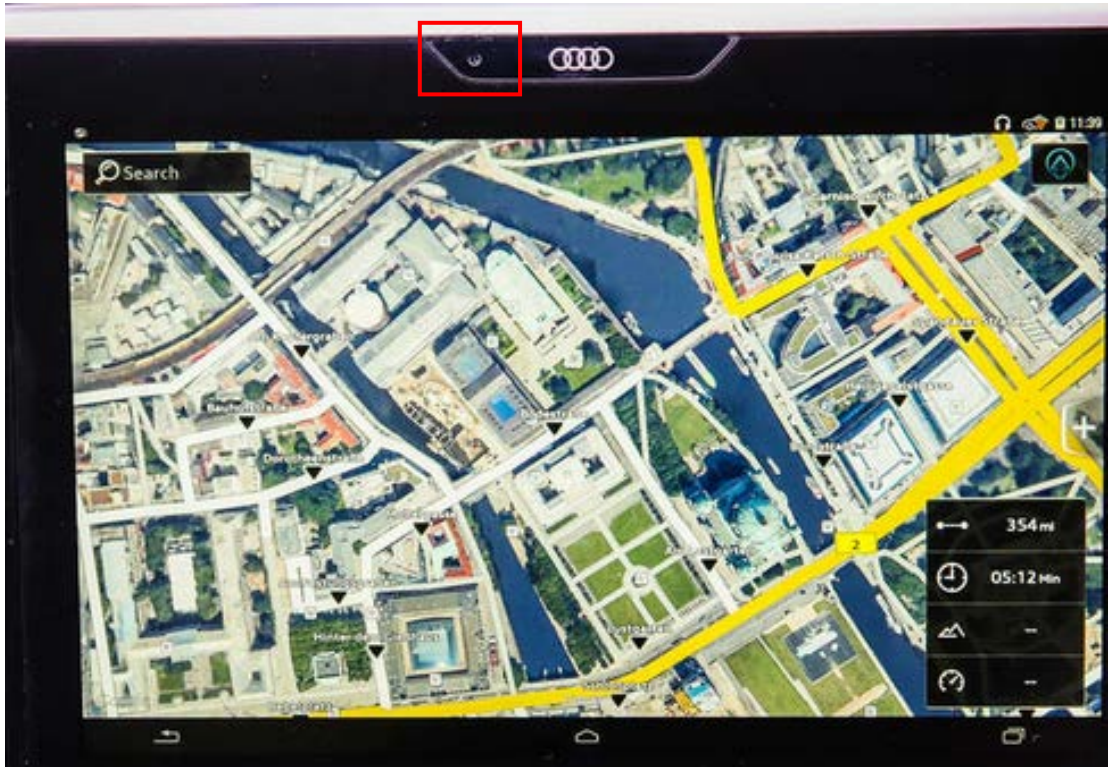
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
and wherein the computerized information apparatus is further configured to receive at least a portion of the obtained information via the network interface for display on the display device.	 **https://www.youtube.com/watch?v=GrBY2GmdTwA** **IN SELECTED EXAMPLE (GOOGLE MAPS), THE GOOGLE MAPS SERVER RETURNS, *INTER ALIA*, LAT/LON DATA ASSOCIATED WITH THE LOCATION OF THE ENTITY. SEE ALSO GRAPHIC MAP BELOW, WHEREIN LOCATION IS DETERMINED TO BE INSIDE A BUILDING (I.E., NATIONAL AIR AND SPACE MUSEUM).** "Latitude and longitude coordinates You can search for a place using its latitude and longitude coordinates, as well as get the coordinates of a place you've	**L, DOE**	

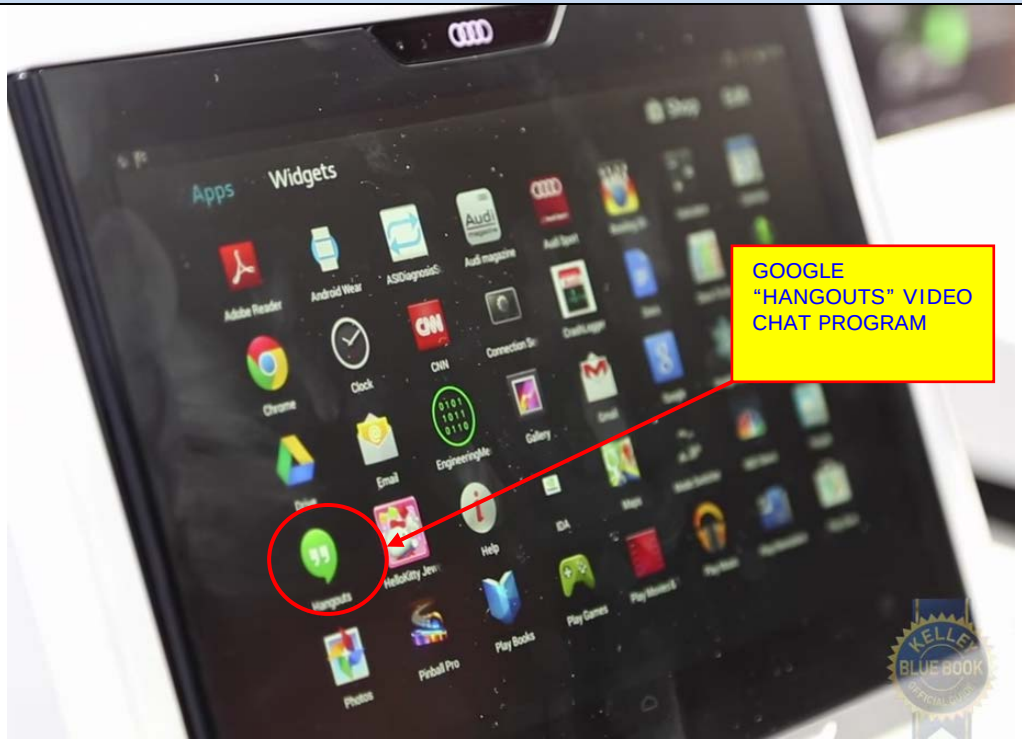
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	already found on Google Maps." https://support.google.com/maps/answer/18539		

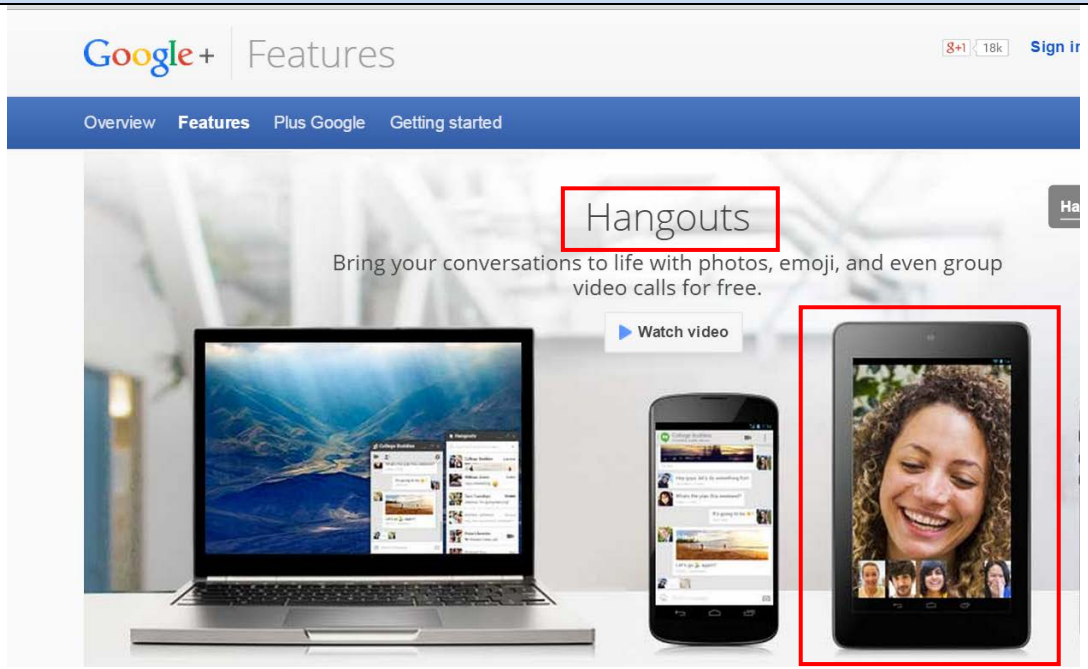


SIMILARLY, IN THE AUDI-SPECIFI U/I, THE FUNCTION (E.G., FIND AND SHOW A DESTINATION) IS PERFORMED:

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html		
25. The apparatus of claim 15, further comprising a video enabled camera in data communication with the processing apparatus and capable of generating video data for	"The Smart Display features Bluetooth, NFC (near field communication) and an inbuilt microphone and speakers, so that a variety of apps and appliances can be used with it. For example, the sound from it can be linked to the car's audio sound system or Bluetooth headsets for a quieter alternative. Likewise, the integrated camera and microphone can be used for Skype or similar video calling software available in the Android marketplace." http://www.autovolt-magazine.com/audi-smart-display-tablet-shows-future-of-vehicle-connectivity/ **USER CAN CLEARLY SPEAK FOR E.G., VOICE RECOGNITION OR SKYPE, WHILE VIEWING THE DISPLAY**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
display on the display device, the computerized apparatus further being configured to cause the video data to be sent to a remote location for viewing thereat.	**(NOTE THAT SKYPE REQUIRES USER TO BE ABLE TO ACCESS BOTH CAMERA AND MICROPHONE FUNCTIONALITIES SIMULTANEOUSLY, AND CAMERA IS MOUNTED ON FRONT FACE JUST ABOVE DISPLAY):** 		

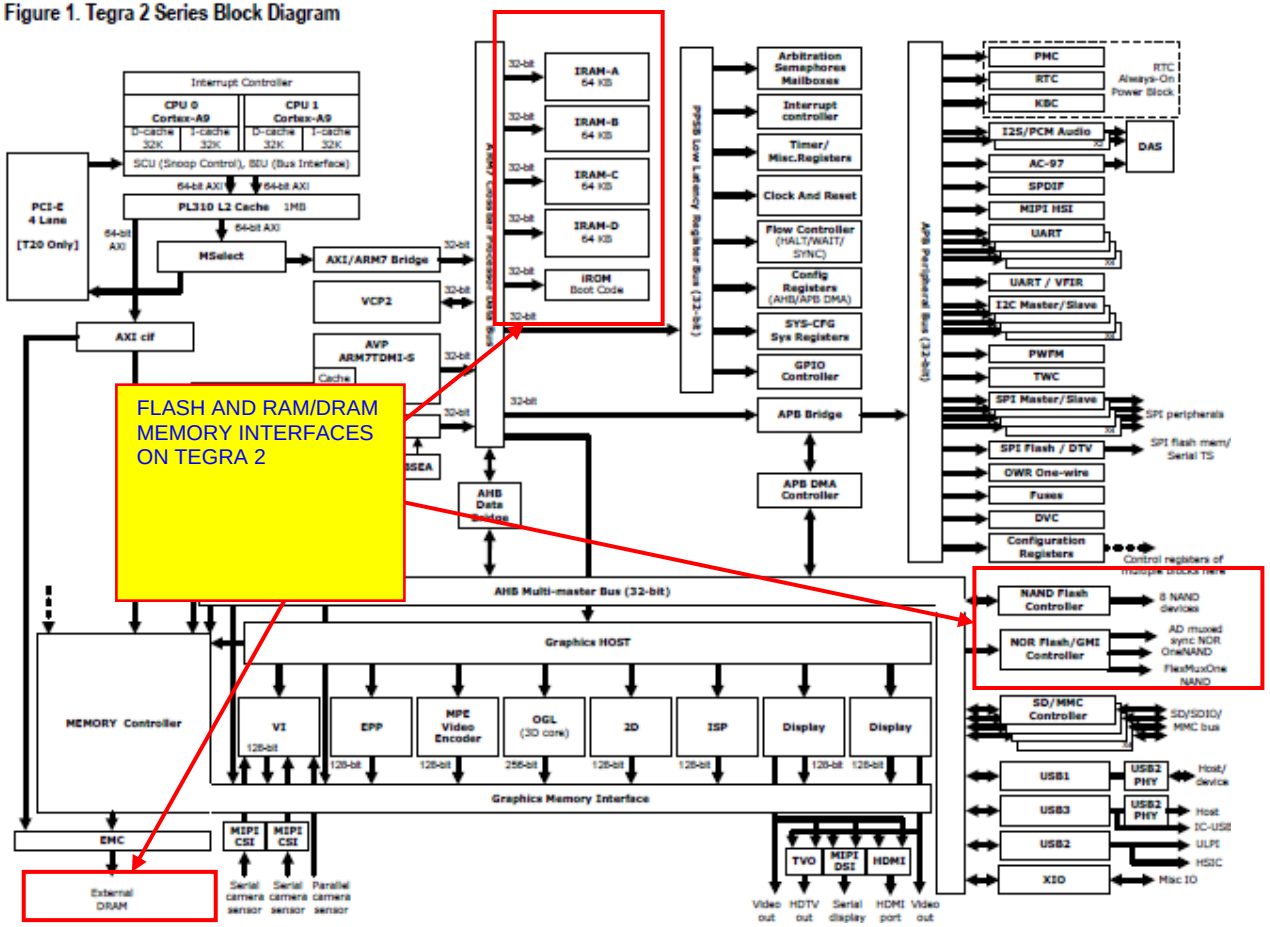
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 **GOOGLE "HANGOUTS" IS BUT ONE OF MANY SKYPE-LIKE APPLICATIONS INSTALLED ON SMART DISPLAY THAT ALLOW THE USER TO GENERATE VIDEO DATA (USING CAMERA ABOVE) AND SEND VIA WIRELESS INTERFACE TO A REMOTE LOCATION FOR VIEWINGTHEREAT (I.E., BY OTHER PARTICIPANT(S)).**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	2016 Audi Q7 Implementation		
	THIS ANALYSIS IS TARGETED AT THE EXEMPLARY 2016 AUDI Q7 WITH MMI and "Smart Display"  **http://www.audiusa.com/search?query=2016+Q7#**		

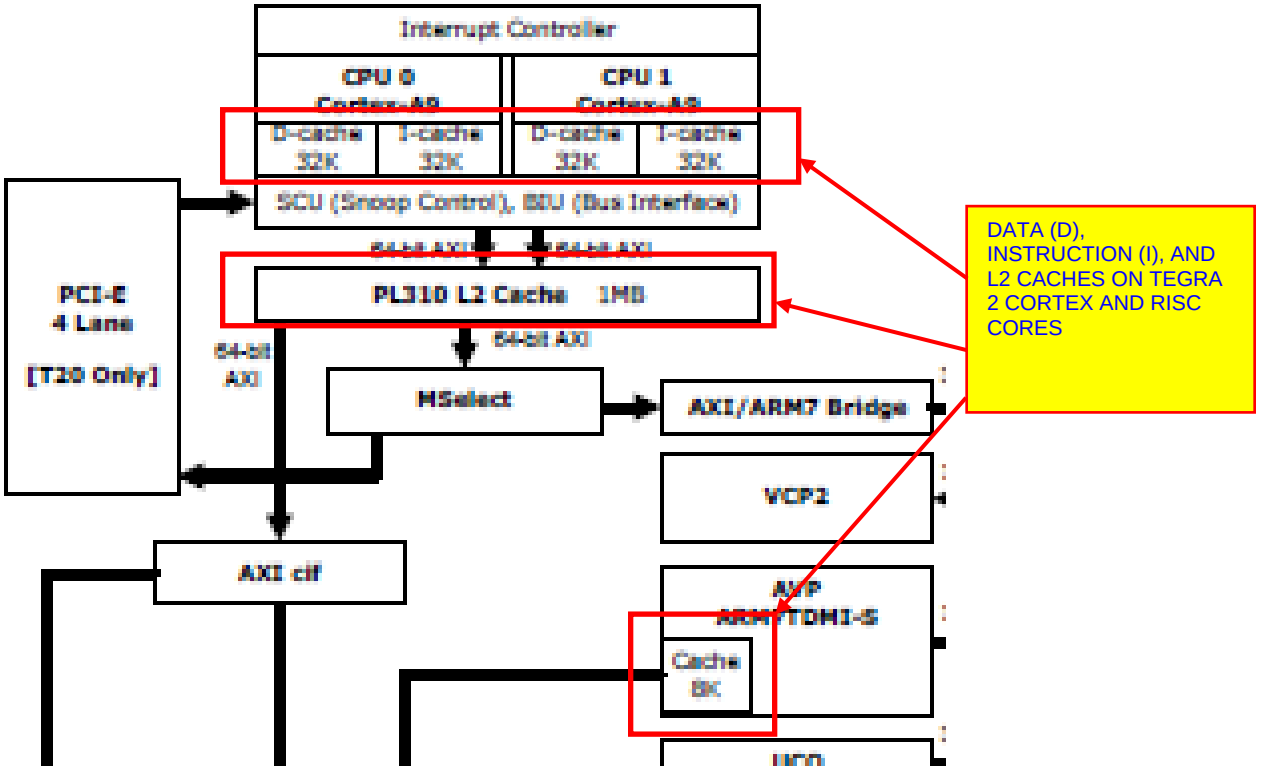
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 http://www.audiusa.com/search?query=2016+Q7# 		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	http://www.audiusa.com/search?query=2016+Q7#		
27. Computerized information apparatus, comprising:		**L, DOE**	**D, I**
a network interface;	**"Internet with LTE speed:** **Audi connect** MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. The driver can use the tailored Audi connect services ranging from online traffic information to navigation with Google Earth and Google Street View to online media streaming. The new app provides access to Aupeo! personal web radio and the large Napster music library." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
processing apparatus in data communication with the network interface;	**MIB/MMI WITH CONNECT ARCHITECTURE:** Figure 1. Tegra 2 Series Block Diagram  **[http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp]**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

Figure 1. Tegra 2 Series Block Diagram

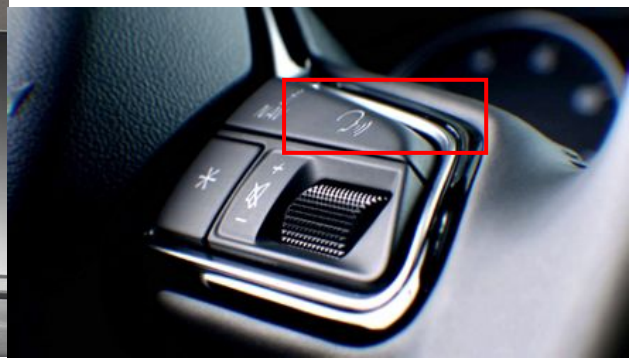


[http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp]

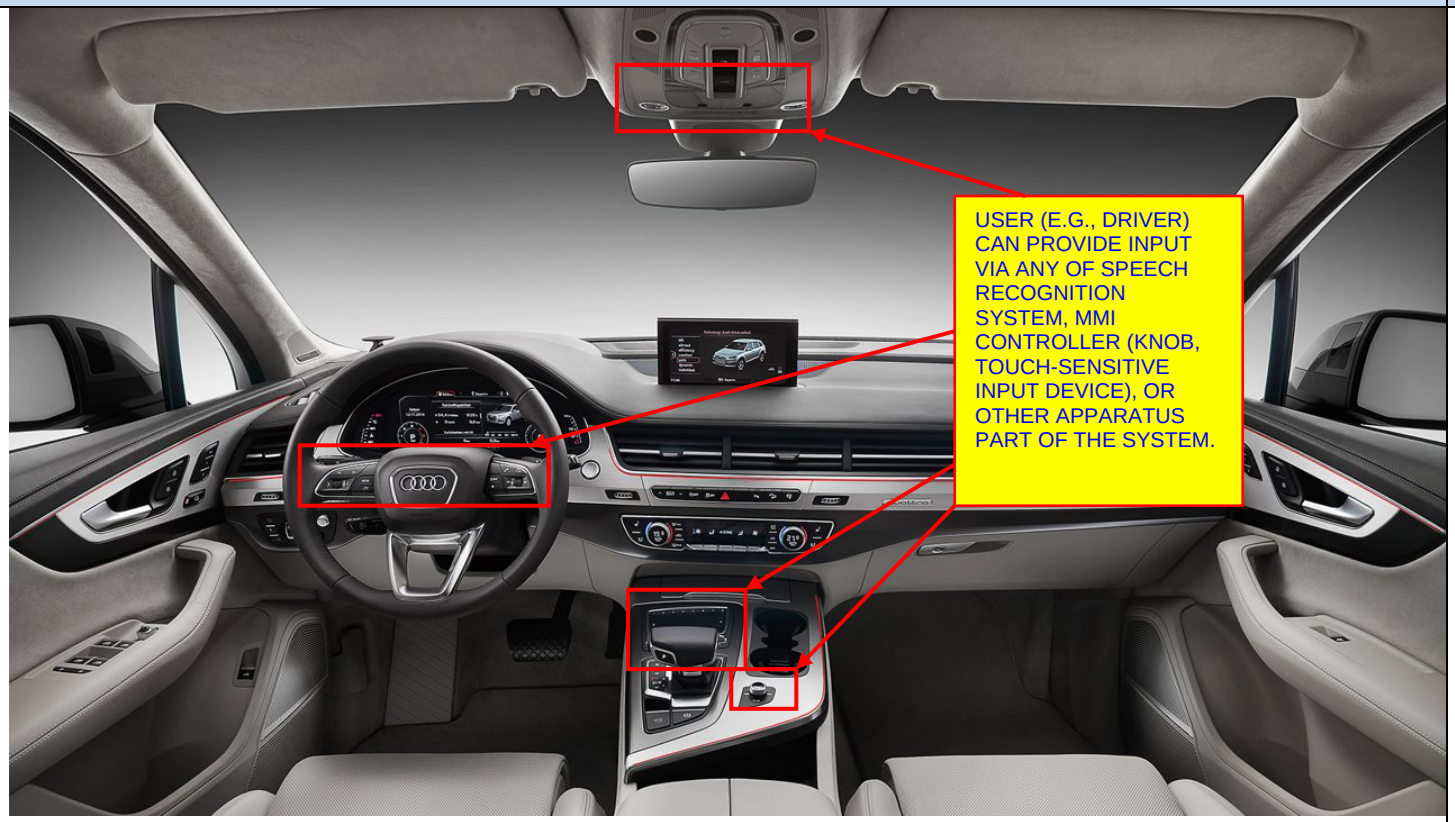
"Powered by Nvidia Tegra 2

Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB

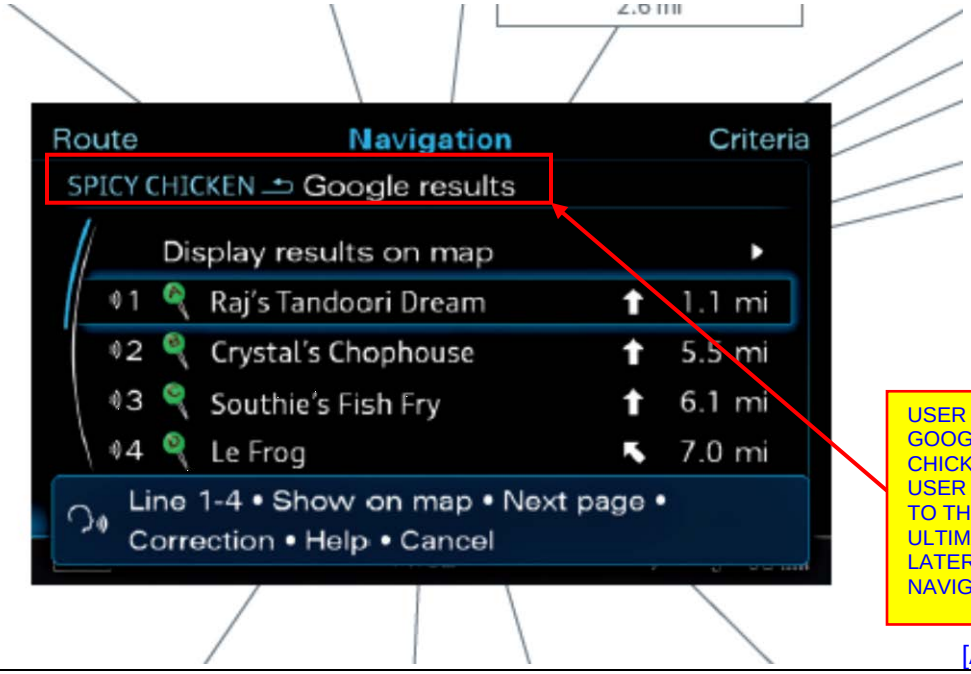
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra 4 with minimal retooling."  "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/]		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
a display device;		**L, DOE**	
a speech digitization apparatus in data communication with the processing apparatus;	**2016 Q7 HAS EMBEDDED MICROPHONE AND SPEECH PROCEESING HARDWARE/SOFTWARE RUNNING ON THE MMI FOR E.G., VOICE CONTROL AND NAVIGATION FUNCTIONS, AS SHOWN BELOW:**  	**L, DOE**	

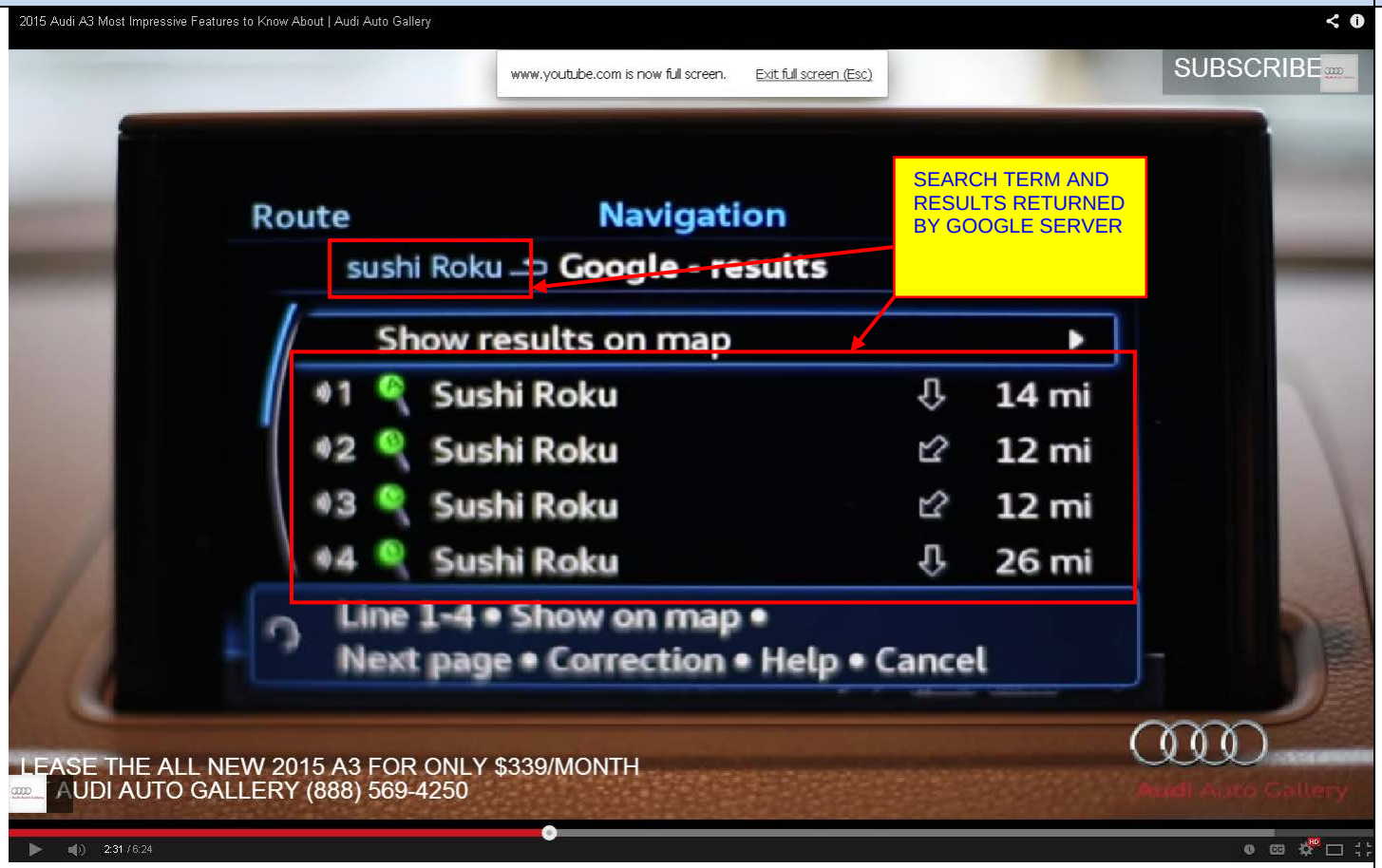
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	"The voice recognition system is said to be much simpler. Drivers no longer have to stick to predefined commands. The system understands phrasings from everyday language, meaning that hundreds of command variations are possible for each function. In the telephone menu, calling a contact is as easy as saying "I want to talk to Peter" or "Connect me to Peter." But the navigation system also reacts to simple commands such as "Where can I get gas?" or "I want to eat something."" http://www.motorauthority.com/news/1088667_2016-audi-q7-revealed-at-2015-detroit-auto-show-live-photos-video		
and a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed on a processing apparatus:	**SEE DISCUSSION BELOW REGARDING DETAILS ON 2015 AUDI A3 (MIB-BASED MMI SYSTEM BELIEVED TO BE FUNCTIONALLY SIMILAR TO WHAT WILL BE INSTALLED IN 2016 Q7 WHEN SOLD IN LATER 2015).** "The Audi Q7 also sets standards with respect to the operating concept, infotainment, connectivity and driver assistance systems. The second-generation modular infotainment platform is on board, as is the Audi virtual cockpit. **The new MMI all-in-touch control unit with large touchpad** makes operation child's play." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **AS DISCUSSED BELOW, MIB/MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA (2 OR 3) PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("STORAGE APPARATUS COMPRISING AT LEAST ONE COMPUTER PROGRAM…" REFERENCED BELOW).**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
receive a digitized speech input from the speech digitization apparatus, the input relating to desired information which a user wishes to locate;	 **AS BUT ONE EXAMPLE, CONSIDER THE CLAIMED "DESIRED FUNCTION" TO BE FINDING THE LOCATION/DIRECTIONS TO A RESTAURANT VIA THE "GOOGLE SEARCH" FUNCTION OF THE CONNECT SYSTEM (E.G., USER SAYS A SEARCH TERM UNDER THE "NAVIGATION/ONLINE DESTINATIONS" FUNCTION TO FIND A DESIRED RESTAURANT) – DEMONSTRATED ON 2015 A3 WITH MMI/CONNECT BELOW, WHICH IS BELIEVED TO HAVE SIMILAR/IDENTICAL FUNCTIONALITY TO INCIPIENT 2016 Q7:**	**L, DOE**	

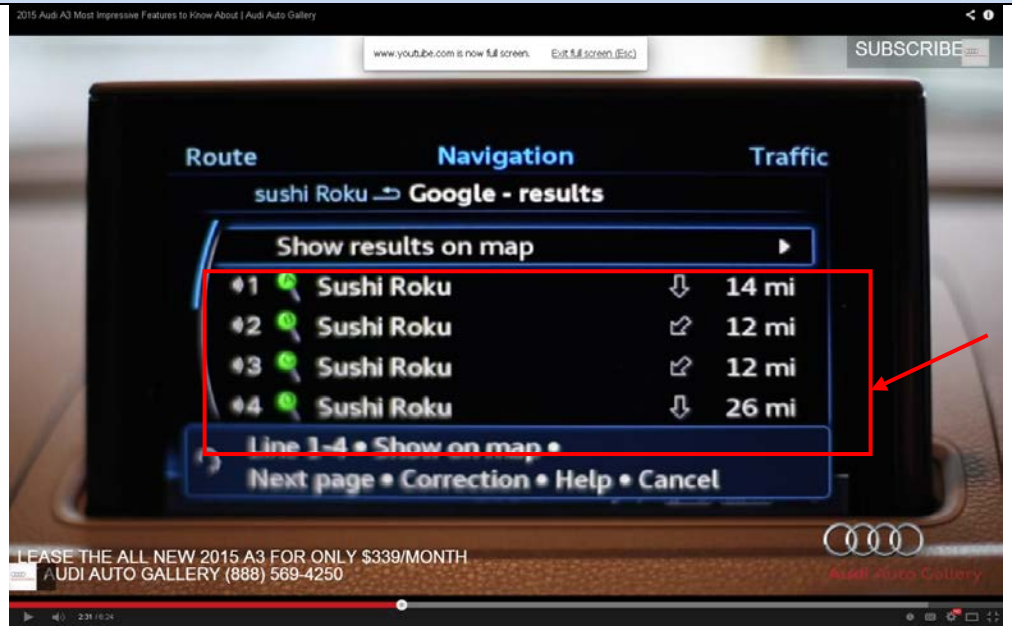
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	Your destiny is on the tip of your tongue. Google Voice™ Local Search allows you to easily search via voice commands for restaurants, historical landmarks and places of interest, both near and far.[1] Imagine entering a destination address by just speaking the words—Audi connect® makes that possible. With the power of Google™ on the tip of your tongue, Audi connect brings a vast Internet database to you with the advanced engineering and style of Audi. The same ease of use and thorough location search capability you've come to expect from Google™ rolled into your every commute. Search nearby and faraway points of interest with the power of Google Voice™ Local Search. Need to take the client out for nine holes? Just tell Audi connect "golf course." Looking for a meal with a little kick? Just ask for "spicy chicken"—Google™ will populate your navigation display with restaurants or descriptions that match the phrase you speak. Select the destination that best suits your appetite, and style, and your Audi MMI® navigation system will guide you there in clear and accurate detail. More than just a companion on the road, Audi connect, once you use it, will become an integral part of the family.		

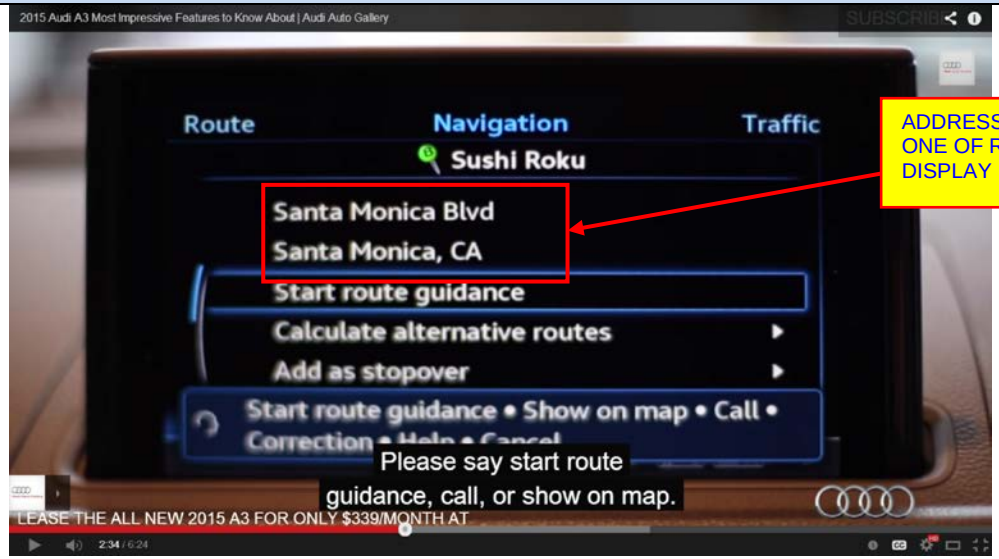
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 [Audi connect brochure 2014]		
cause evaluation of the digitized speech input to identify one or more words or word strings within the digitized input;	**SEE EXAMPLE ABOVE CONCERNING EVALUATION OF THE DIGITIZED SPEECH INPUT.**	**L, DOE**	
and cause, based at least in part on the identified one or more words or word strings, access of a remote network entity to obtain the desired information;	**SEE VIDEO BELOW FOR ANOTHER EXAMPLE (SEARCH FOR "SUSHI ROKU"):**	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

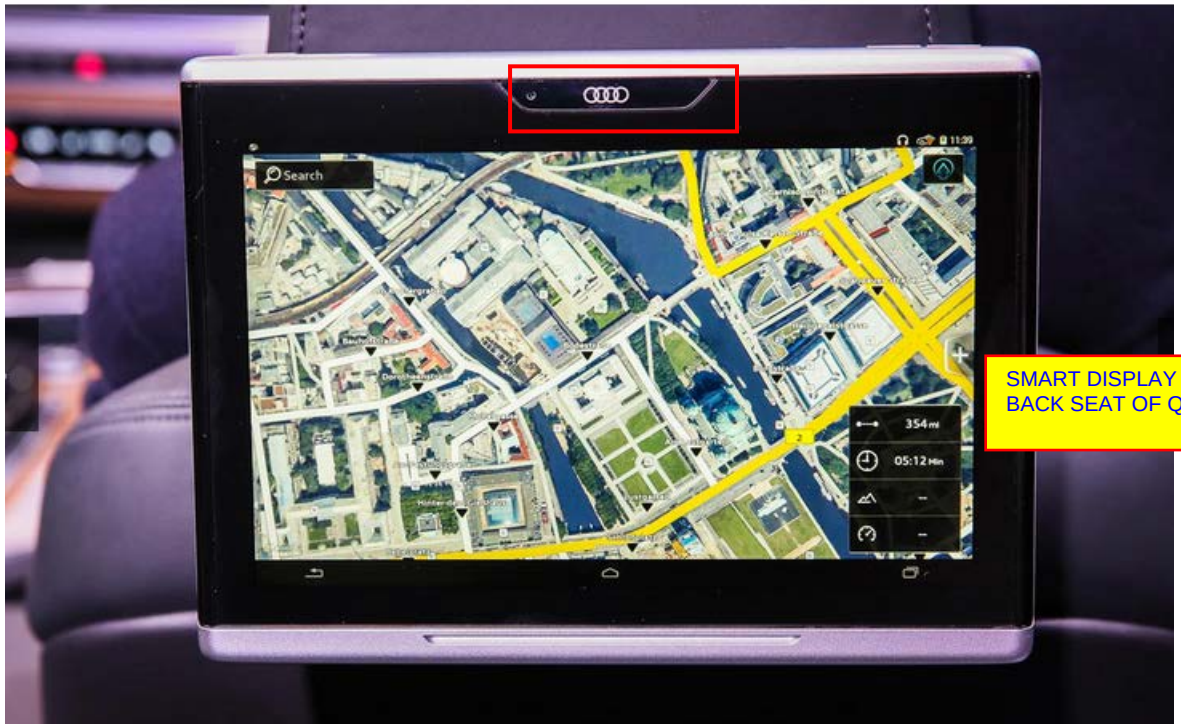


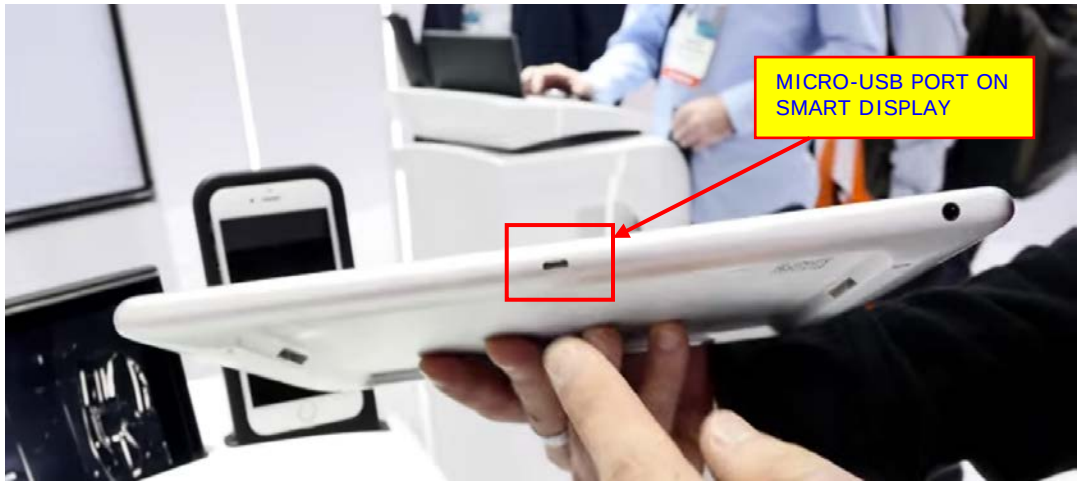
https://www.youtube.com/watch?v=pjoeoDxz06U

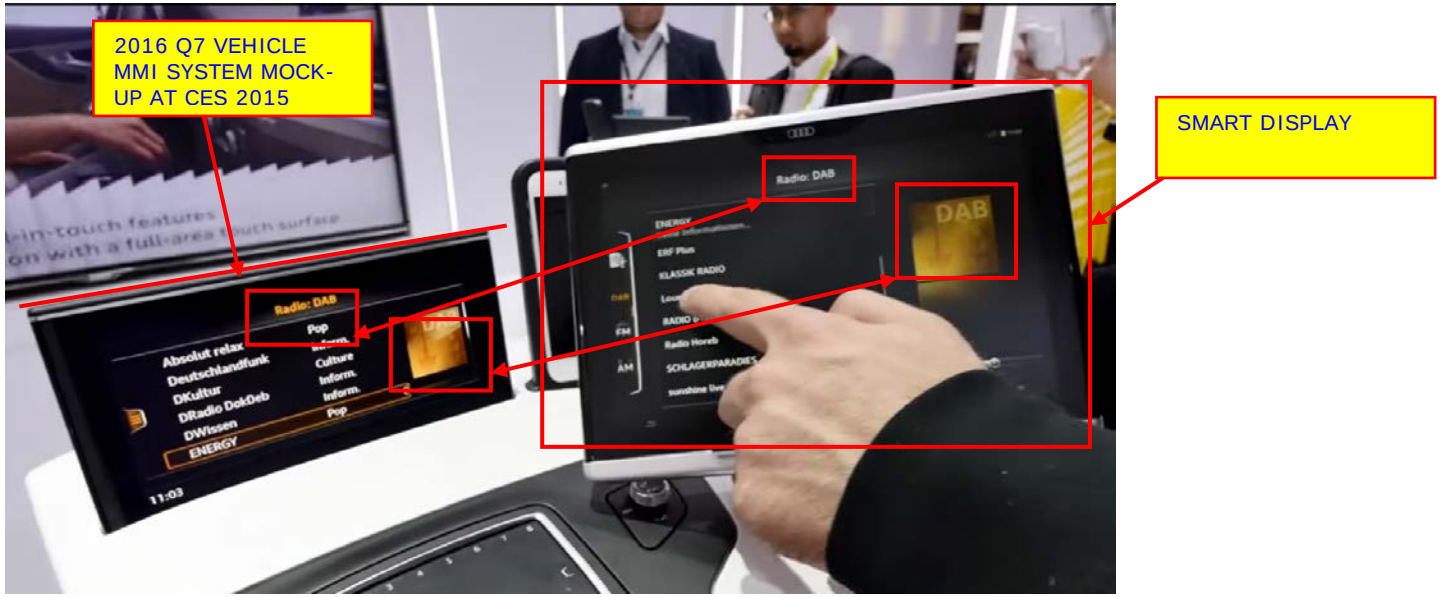
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 		

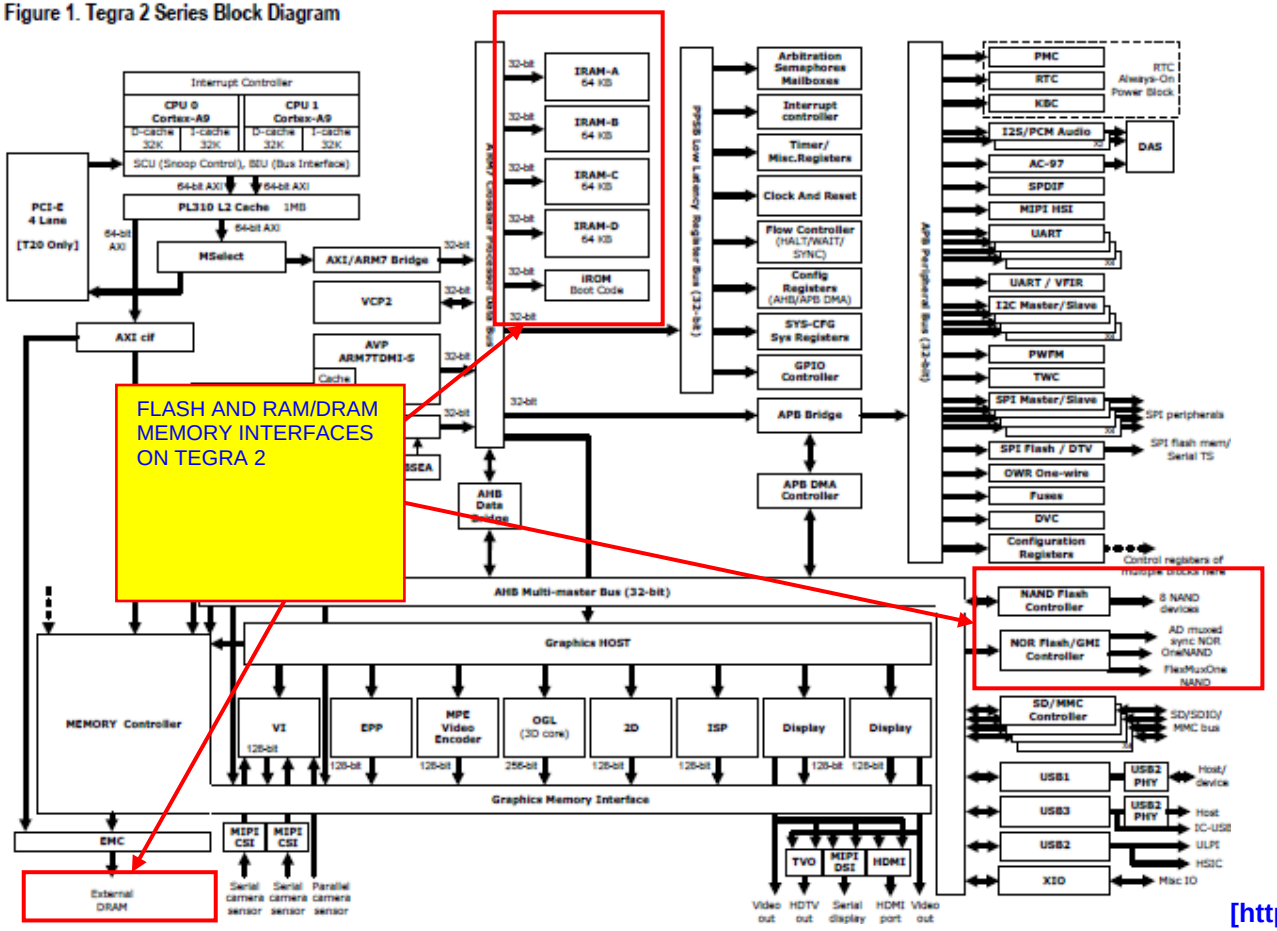
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 EXAMPLE OF LOCATION AND DIRECTIONS SHOWN ON MAP ON DISPLAY (ALONG WITH OTHERS OF THE RETURNED RESULTS, SHOWN AS GREEN ICONS WITH LETTERS WHICH CORRELATE TO LINE NUMBERS ON LIST ABOVE)		
wherein the computerized information apparatus is further configured to receive at least a portion of the obtained information via the network interface for display on the display device;	**THE REQUESTED INFORMATION (E.G., SPICY CHICKEN OR SUSHI ROKU LOCATIONS) IS SENT BACK VIA THE LTE WIRELESS INTERFACE TO THE VEHICLE AND DISPLAYED ON THE DISPLAY DEVICE (SEE ABOVE).** **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." [http://fourtitude.com/news/Audi_News_1/ces-2014-infotainment-audi-connect/]	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
and wherein the computerized information apparatus is configured to download at least a portion of the obtained and received information to a mobile personal electronic device (PED) of the user placed in data communication with the computerized information apparatus.	 "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **2016 Q7 MMI SYSTEM INCLUDES A WI-FI INTERFACE SPECIFICALLY FOR COMMUNICATION WITH THE SMART DISPLAY TABLET(S):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example."	**L, DOE**	

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **BLUETOOTH LINKS CAN BE AD HOC:** **SEE BELOW; BOTH THE VEHICLE AND THE TABLET HAVE BLUETOOTH INTERFACES, AND THE TABLET CAN PRESUMABLY BE PAIRED TO THE VEHICLE (MMI SYSTEM) AND EXCHANGE DATA SUCH AS CONTACT LISTS/ADDRESS BOOKS, DIGITAL MEDIA (E.G., MP3), ETC.** **FOR SIMILAR REASONS, USB LINKS CAN BE USED (E.G., MICRO-USB TO USB).** "The Q7 also has a new, top-of-the-line element of the Audi connect portfolio: The Audi smartphone interface brings …"Google Android Auto" on board. If an …Android cellular phone is connected to the USB port (… Android from Version 5.0 Lollipop), the … environment opens in the Audi smartphone interface. Both are tailored for use in the car. The heart of this feature is online music. In addition, both platforms offer navigation functions, missed call/appointment reminders and messaging functions. Over time, these will be joined by numerous third-party applications such as Pandora, Spotify and WhatsApp." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort  **AUDI EVEN WILL PROVIDE ITS 2016 Q7 CUSTOMERS WITH THE CABLE THAT ENABLES CONNECTION OF THE**		

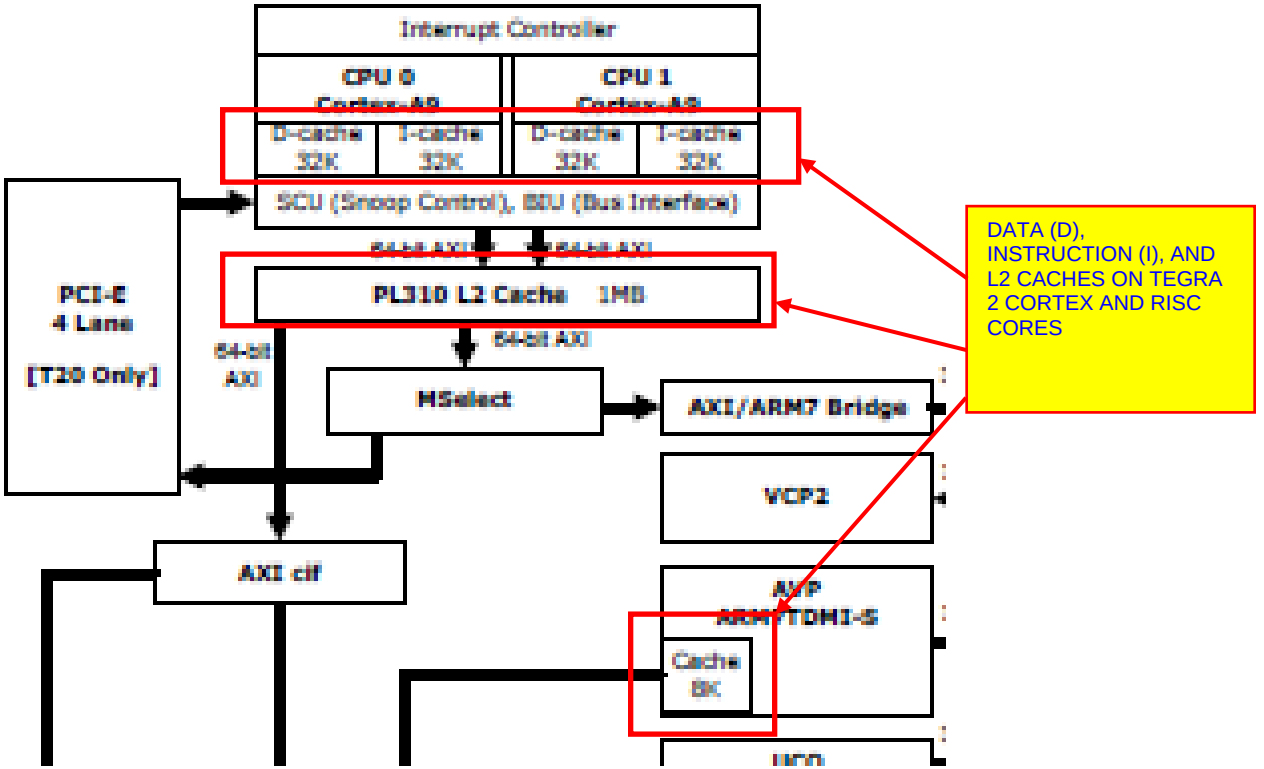
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	DEVICES (I.E., USB PORT ON Q7 TO MICRO-USB ON SMART DISPLAY): "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android**…" http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html **SEE VIDEO BELOW; THERE IS SEEMINGLY COMPLETE TWO-WAY INTEGRATION (I.E., CAR TO TABLET, AND TABLET TO CAR) OF THE SYSTEM OVER AT LEAST WI-FI, INCLUDING SEARCHING FOR AND PASSING INFORMATION BROUGHT DOWN OVER THE LET INTERFACE FROM E.G., THE INTERNET (SUCH AS THE "SUSHI ROKU" INFORMATION IN THE PREVIOUS EXAMPLE) BETWEEN THE DEVICES:**  https://www.youtube.com/watch?v=ykbzKkffo0Y		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
28. Computerized information apparatus, comprising:			
a network interface;	**"Internet with LTE speed:** **Audi connect** MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. The driver can use the tailored Audi connect services ranging from online traffic information to navigation with Google Earth and Google Street View to online media streaming. The new app provides access to Aupeo! personal web radio and the large Napster music library." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
processing apparatus in data communication with the network interface;	**MIB/MMI WITH CONNECT ARCHITECTURE:** Figure 1. Tegra 2 Series Block Diagram  FLASH AND RAM/DRAM MEMORY INTERFACES ON TEGRA 2 **[http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp]**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

Figure 1. Tegra 2 Series Block Diagram

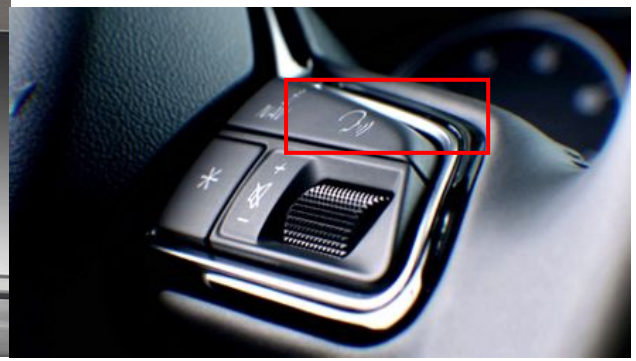


[http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf][http://www.pcmag.com/article2/0,2817,2455739,00.asp]

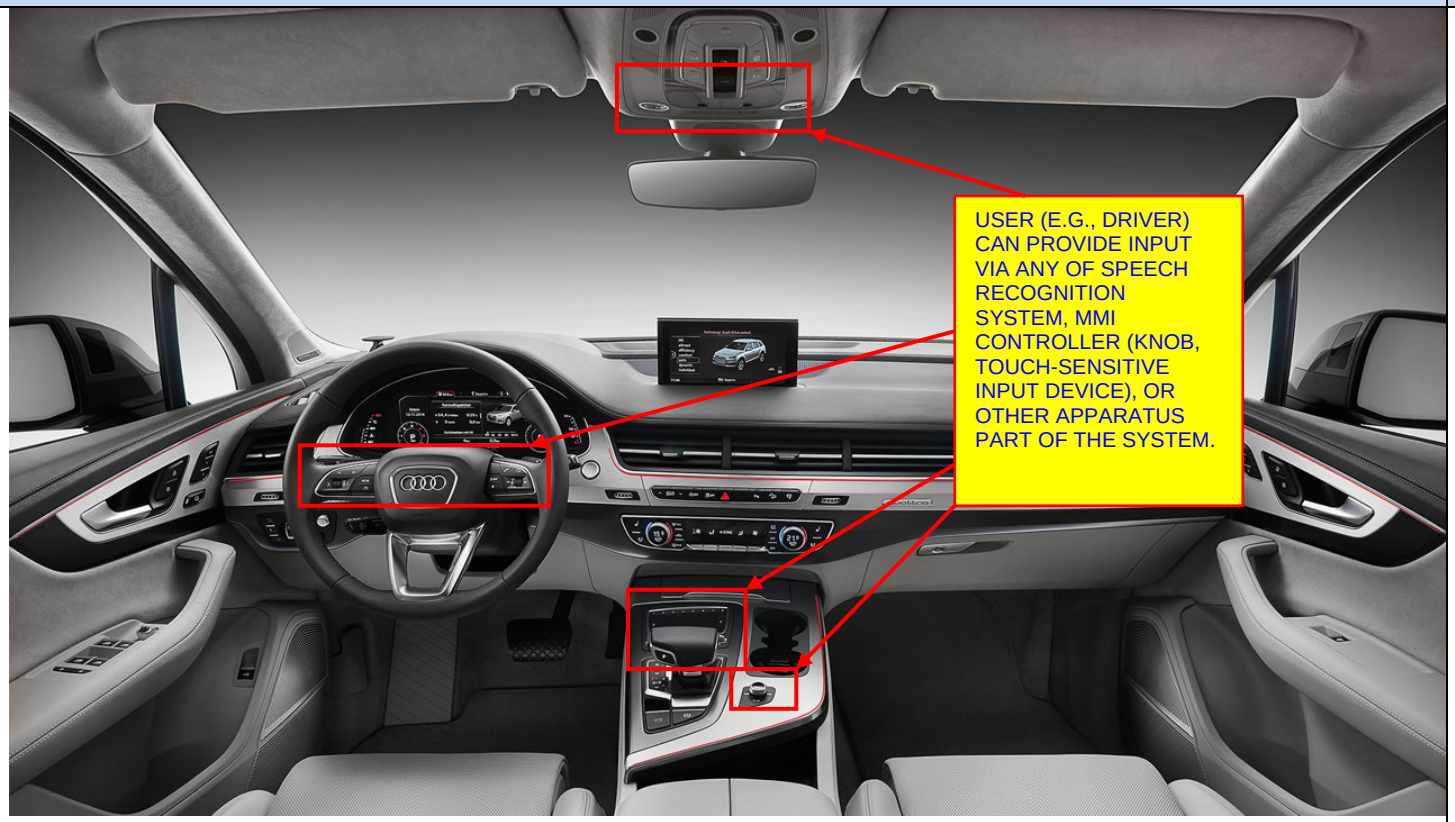
"Powered by Nvidia Tegra 2

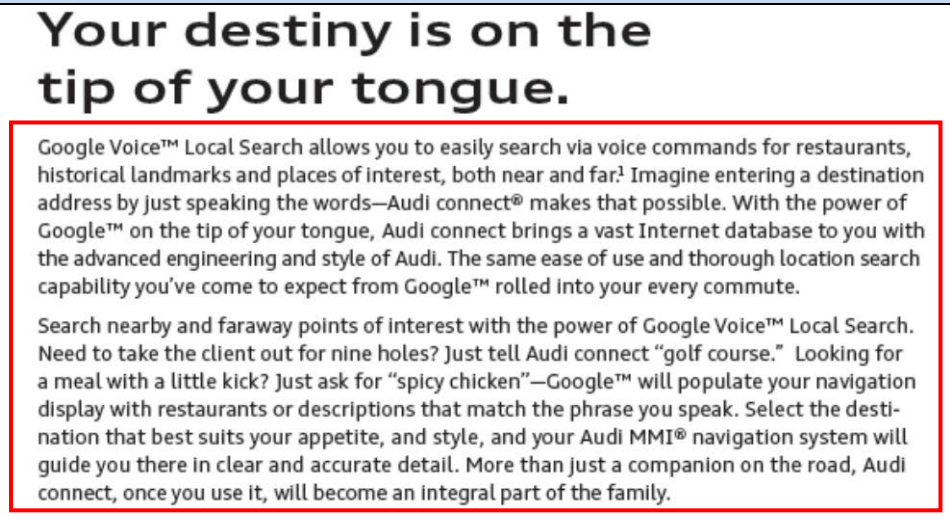
Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra

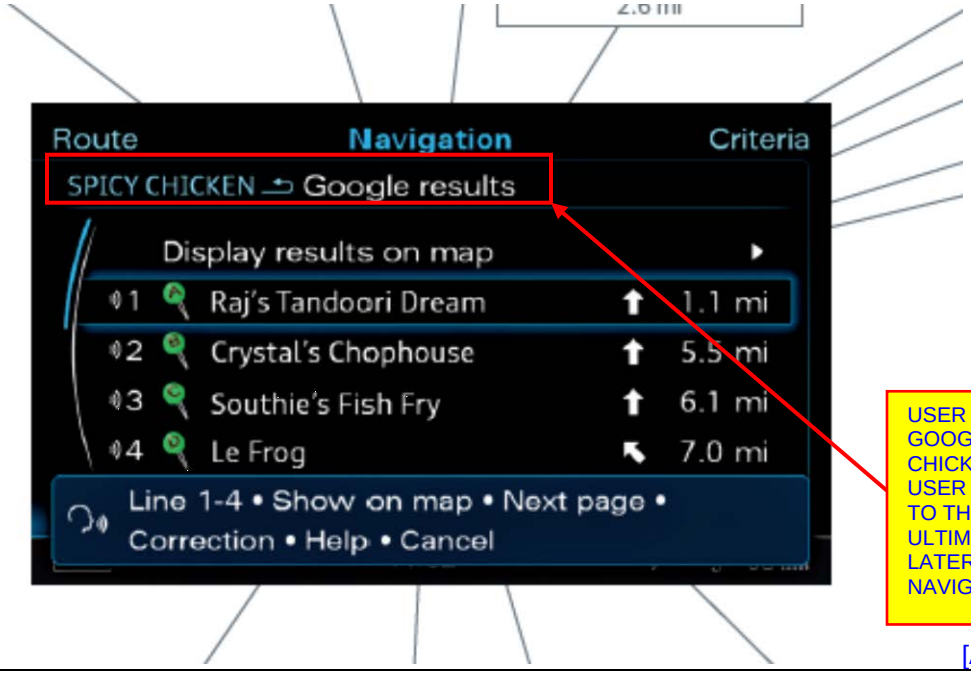
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	4 with minimal retooling."  "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/]		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
a display device;			
a speech digitization apparatus in data communication with the processing apparatus;	**2016 Q7 HAS EMBEDDED MICROPHONE AND SPEECH PROCEESING HARDWARE/SOFTWARE RUNNING ON THE MMI FOR E.G., VOICE CONTROL AND NAVIGATION FUNCTIONS, AS SHOWN BELOW:**  		

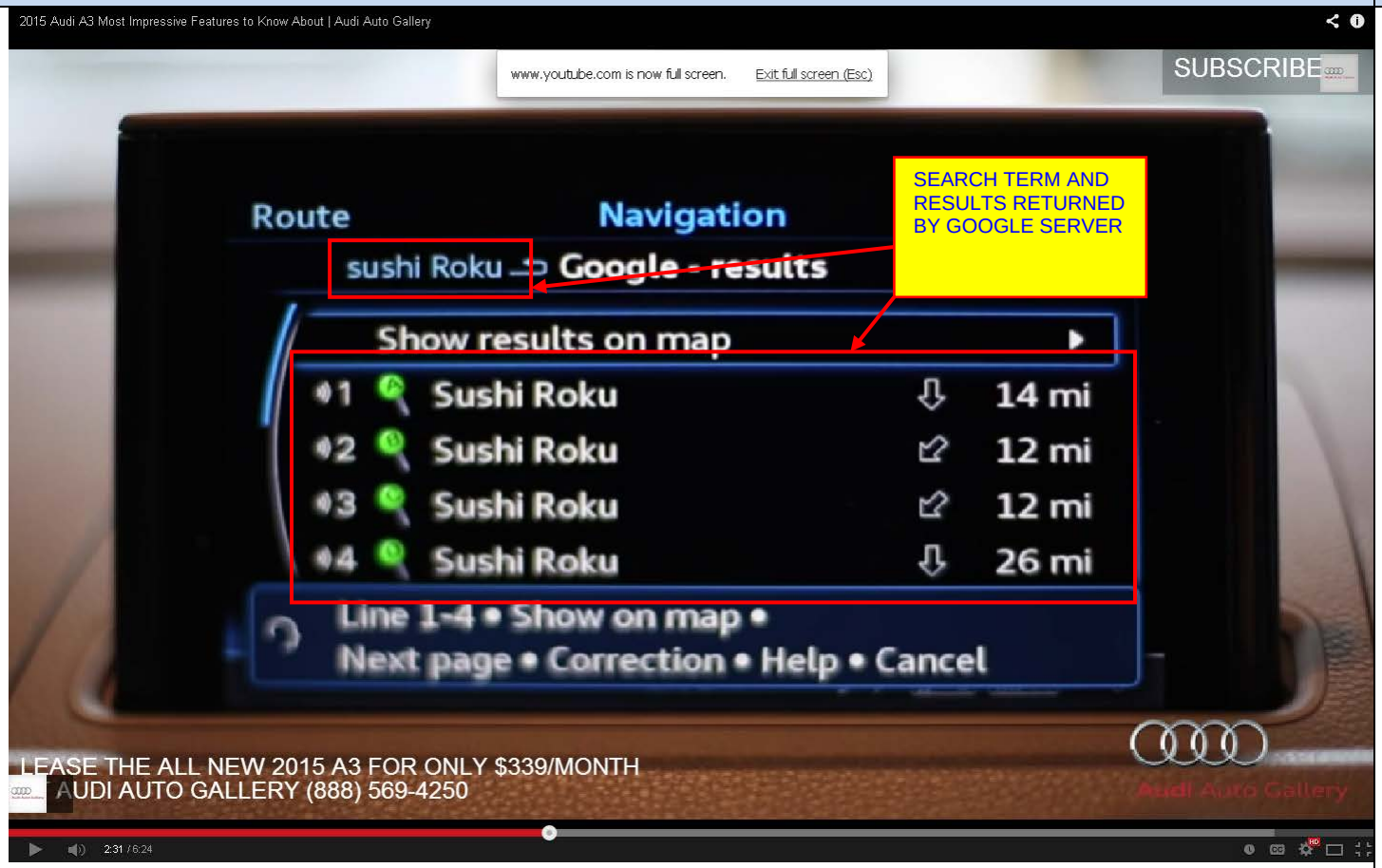
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	"The voice recognition system is said to be much simpler. Drivers no longer have to stick to predefined commands. The system understands phrasings from everyday language, meaning that hundreds of command variations are possible for each function. In the telephone menu, calling a contact is as easy as saying "I want to talk to Peter" or "Connect me to Peter." But the navigation system also reacts to simple commands such as "Where can I get gas?" or "I want to eat something."" http://www.motorauthority.com/news/1088667_2016-audi-q7-revealed-at-2015-detroit-auto-show-live-photos-video		
and a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed on a processing apparatus:	**SEE DISCUSSION BELOW REGARDING DETAILS ON 2015 AUDI A3 (MIB-BASED MMI SYSTEM BELIEVED TO BE FUNCTIONALLY SIMILAR TO WHAT WILL BE INSTALLED IN 2016 Q7 WHEN SOLD IN LATER 2015).** "The Audi Q7 also sets standards with respect to the operating concept, infotainment, connectivity and driver assistance systems. The second-generation modular infotainment platform is on board, as is the Audi virtual cockpit. **The new MMI all-in-touch control unit with large touchpad** makes operation child's play." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **AS DISCUSSED BELOW, MIB/MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA (2 OR 3) PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("STORAGE APPARATUS COMPRISING AT LEAST ONE COMPUTER PROGRAM…" REFERENCED BELOW).**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
receive a digitized speech input from the speech digitization apparatus, the input relating to desired information which a user wishes to locate;	 **AS BUT ONE EXAMPLE, CONSIDER THE CLAIMED "DESIRED FUNCTION" TO BE FINDING THE LOCATION/DIRECTIONS TO A RESTAURANT VIA THE "GOOGLE SEARCH" FUNCTION OF THE CONNECT SYSTEM (E.G., USER SAYS A SEARCH TERM UNDER THE "NAVIGATION/ONLINE DESTINATIONS" FUNCTION TO FIND A DESIRED RESTAURANT) – DEMONSTRATED ON 2015 A3 WITH MMI/CONNECT BELOW, WHICH IS BELIEVED TO HAVE SIMILAR/IDENTICAL FUNCTIONALITY TO INCIPIENT 2016 Q7:**		

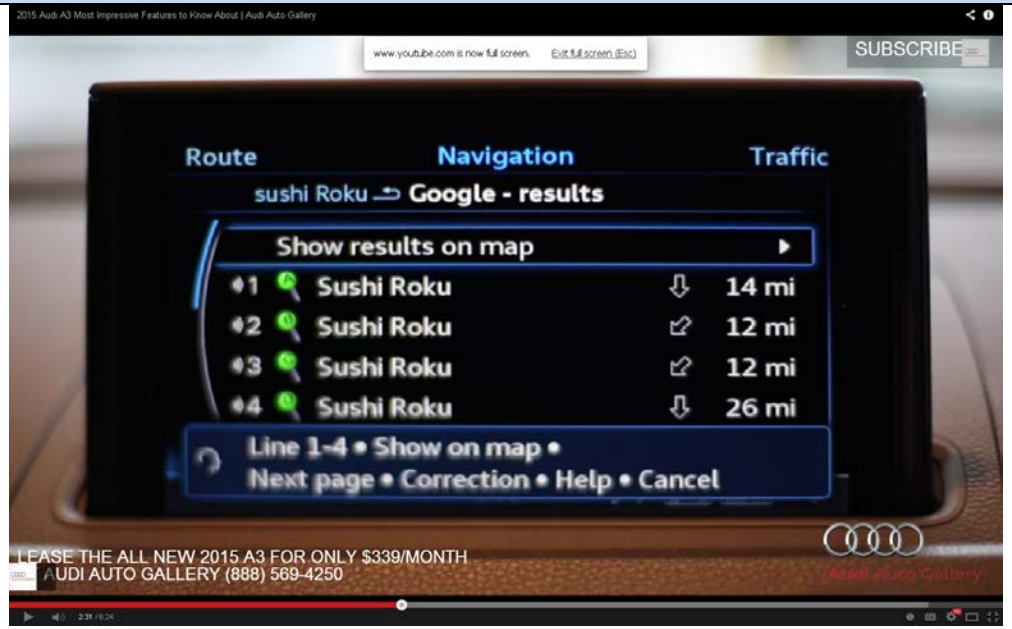
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

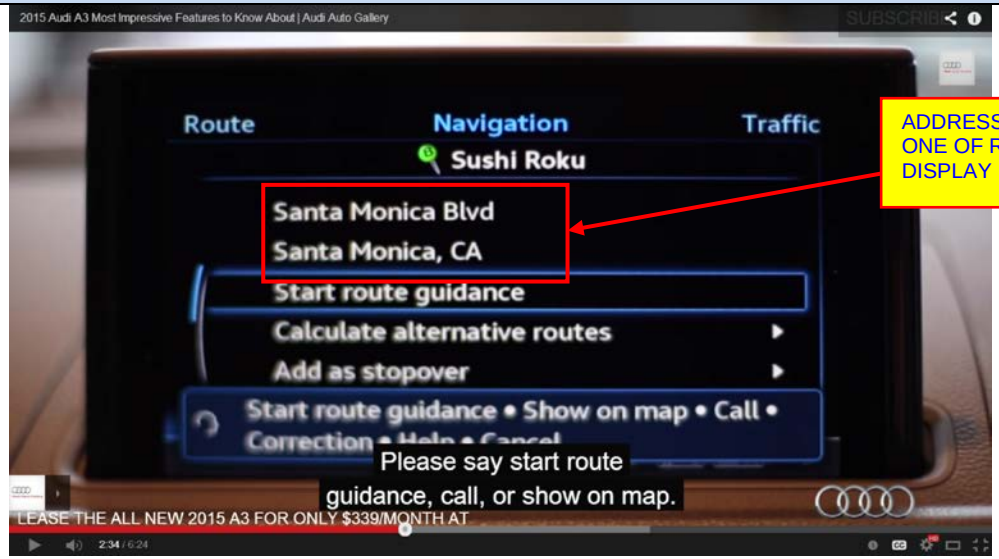
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 [Audi connect brochure 2014]		
cause identification of one or more words or word strings within the digitized input; and cause, based at least in part on the identified one or more words or word strings, access of a remote network server to obtain the desired information;	**SEE VIDEO BELOW FOR ANOTHER EXAMPLE (SEARCH FOR "SUSHI ROKU"):**		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]

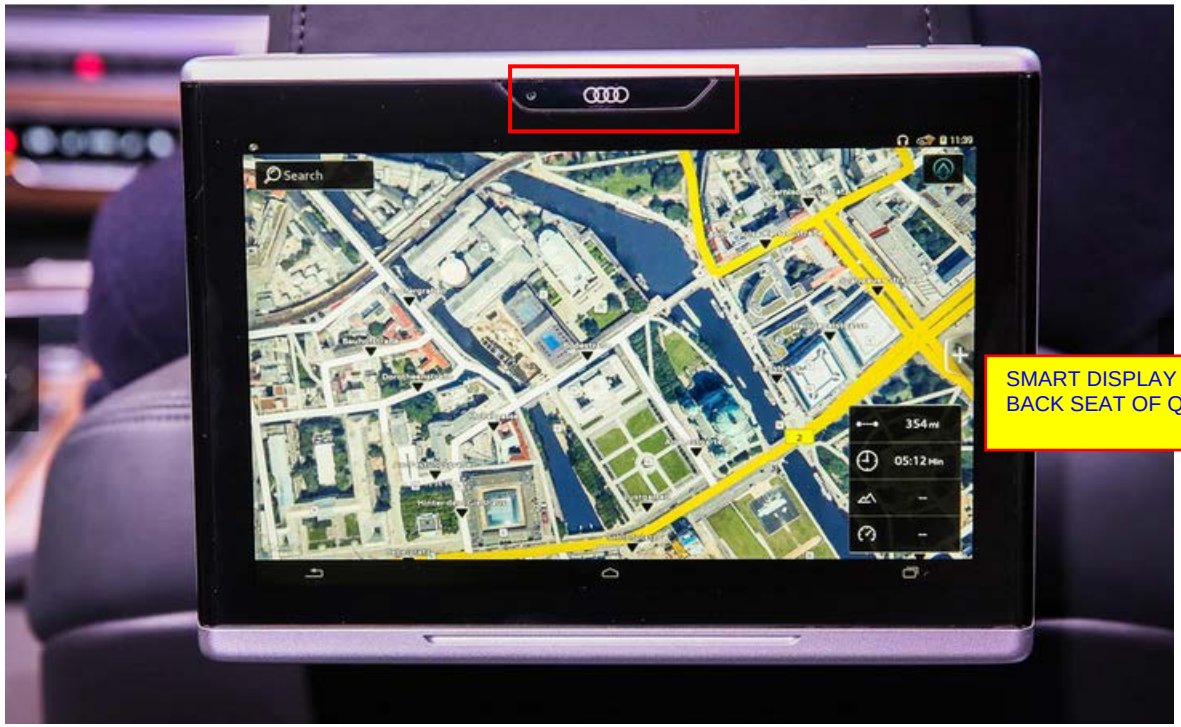


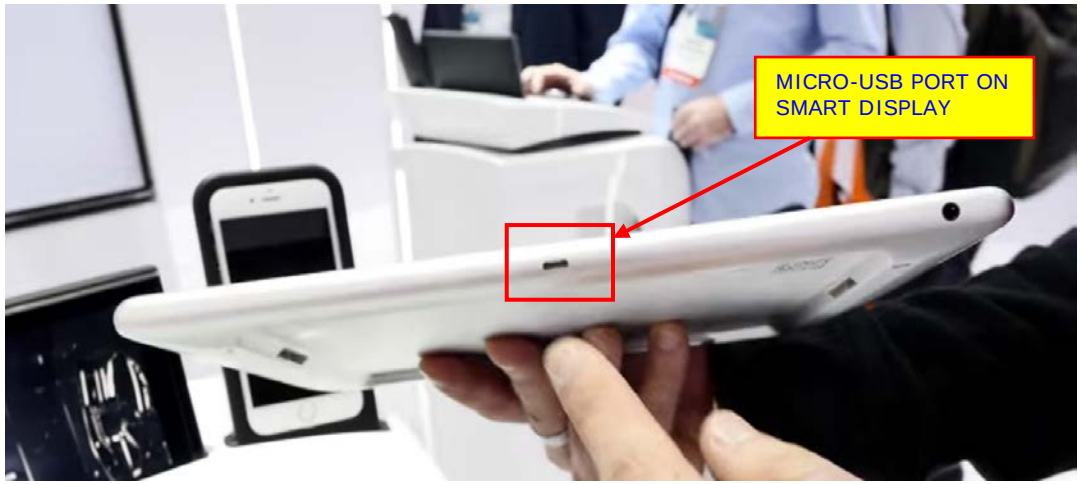
https://www.youtube.com/watch?v=pjoeoDxz06U

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	 EXAMPLE OF LOCATION AND DIRECTIONS SHOWN ON MAP ON DISPLAY (ALONG WITH OTHERS OF THE RETURNED RESULTS, SHOWN AS GREEN ICONS WITH LETTERS WHICH CORRELATE TO LINE NUMBERS ON LIST ABOVE)		
wherein the computerized information apparatus is further configured to receive at least a portion of the obtained information via the network interface,	**THE REQUESTED INFORMATION (E.G., SPICY CHICKEN OR SUSHI ROKU LOCATIONS) IS SENT BACK VIA THE LTE WIRELESS INTERFACE TO THE VEHICLE.** **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." [11]		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
and to download at least a portion of the received at least portion of the obtained information to a mobile personal electronic device (PED) of the user placed in data communication with the computerized information apparatus for viewing on the mobile PED.	 "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **2016 Q7 MMI SYSTEM INCLUDES A WI-FI INTERFACE SPECIFICALLY FOR COMMUNICATION WITH THE SMART DISPLAY TABLET(S):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example."		

Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **BLUETOOTH LINKS CAN BE AD HOC:** **SEE BELOW; BOTH THE VEHICLE AND THE TABLET HAVE BLUETOOTH INTERFACES, AND THE TABLET CAN PRESUMABLY BE PAIRED TO THE VEHICLE (MMI SYSTEM) AND EXCHANGE DATA SUCH AS CONTACT LISTS/ADDRESS BOOKS, DIGITAL MEDIA (E.G., MP3), ETC.** **FOR SIMILAR REASONS, USB LINKS CAN BE USED (E.G., MICRO-USB TO USB).** "The Q7 also has a new, top-of-the-line element of the Audi connect portfolio: The Audi smartphone interface brings …"Google Android Auto" on board. If an …Android cellular phone is connected to the USB port (… Android from Version 5.0 Lollipop), the … environment opens in the Audi smartphone interface. Both are tailored for use in the car. The heart of this feature is online music. In addition, both platforms offer navigation functions, missed call/appointment reminders and messaging functions. Over time, these will be joined by numerous third-party applications such as Pandora, Spotify and WhatsApp." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort  **AUDI EVEN WILL PROVIDE ITS 2016 Q7 CUSTOMERS WITH THE CABLE THAT ENABLES CONNECTION OF THE**		

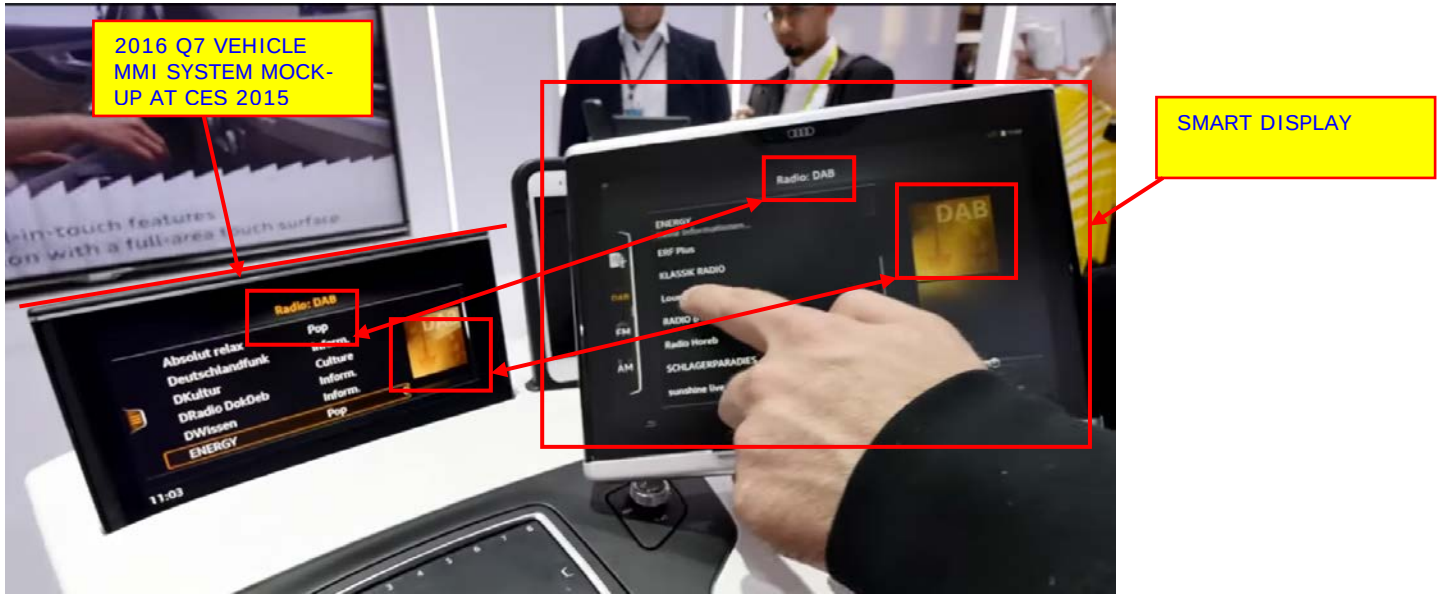
Claim Language	IMPLEMENTATION	Literal / DOE[1]	Direct / Indirect[2]
	DEVICES (I.E., USB PORT ON Q7 TO MICRO-USB ON SMART DISPLAY): "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android**…" http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html **SEE VIDEO BELOW; THERE IS SEEMINGLY COMPLETE TWO-WAY INTEGRATION (I.E., CAR TO TABLET, AND TABLET TO CAR) OF THE SYSTEM OVER AT LEAST WI-FI, INCLUDING SEARCHING FOR AND PASSING INFORMATION BROUGHT DOWN OVER THE LET INTERFACE FROM E.G., THE INTERNET (SUCH AS THE "SUSHI ROKU" INFORMATION IN THE PREVIOUS EXAMPLE) BETWEEN THE DEVICES:**  https://www.youtube.com/watch?v=ykbzKkffo0Y		

EXHIBIT E

Audi/Volkswagen Products vs. U.S. Patent No. 8,296,146
"COMPUTERIZED INFORMATION PRESENTATION APPARATUS"

U.S. Patent No. 8,296,146 **Data**	Filed: 2/24/12 Issued: 10/23/12 Priority Date: June 10, 1999 34 Claims Total - 5 Independent, 29 Dependent

Provided pursuant to Patent Local Rule 3.1 and June 10, 2015 Order;
Plaintiff reserves the right to supplement.

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	2015 AUDI A3 WITH MMI/CONNECT IMPLEMENTATION		
	This analysis is targeted at 2015 Audi A3 with Connect providing driving directions/maps and other information  http://www.pcmag.com/article2/0,2817,2455739,00.asp		

[1] West View denotes allegations of literal infringement as "L" and infringement under the doctrine of equivalents as "DOE," as applicable.
[2] West View denotes allegations of direct infringement as "D" and indirect or induced infringement as "I," as applicable.

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **THE AUDI A3 CONNECT SYSTEM IS AN EMBEDDED SYSTEM (I.E., THE NAVIGATION SYSTEM AND MODEM AND RELATED COMPONENTS) ARE EACH PROVIDED WITH THE VEHICLE, AS OPPOSED TO A NON-EMBEDDED SYSTEM WHICH UTILIZES THE USER'S SMARTPHONE AS A BASIS FOR WIRELESS COMMUNICATION.**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

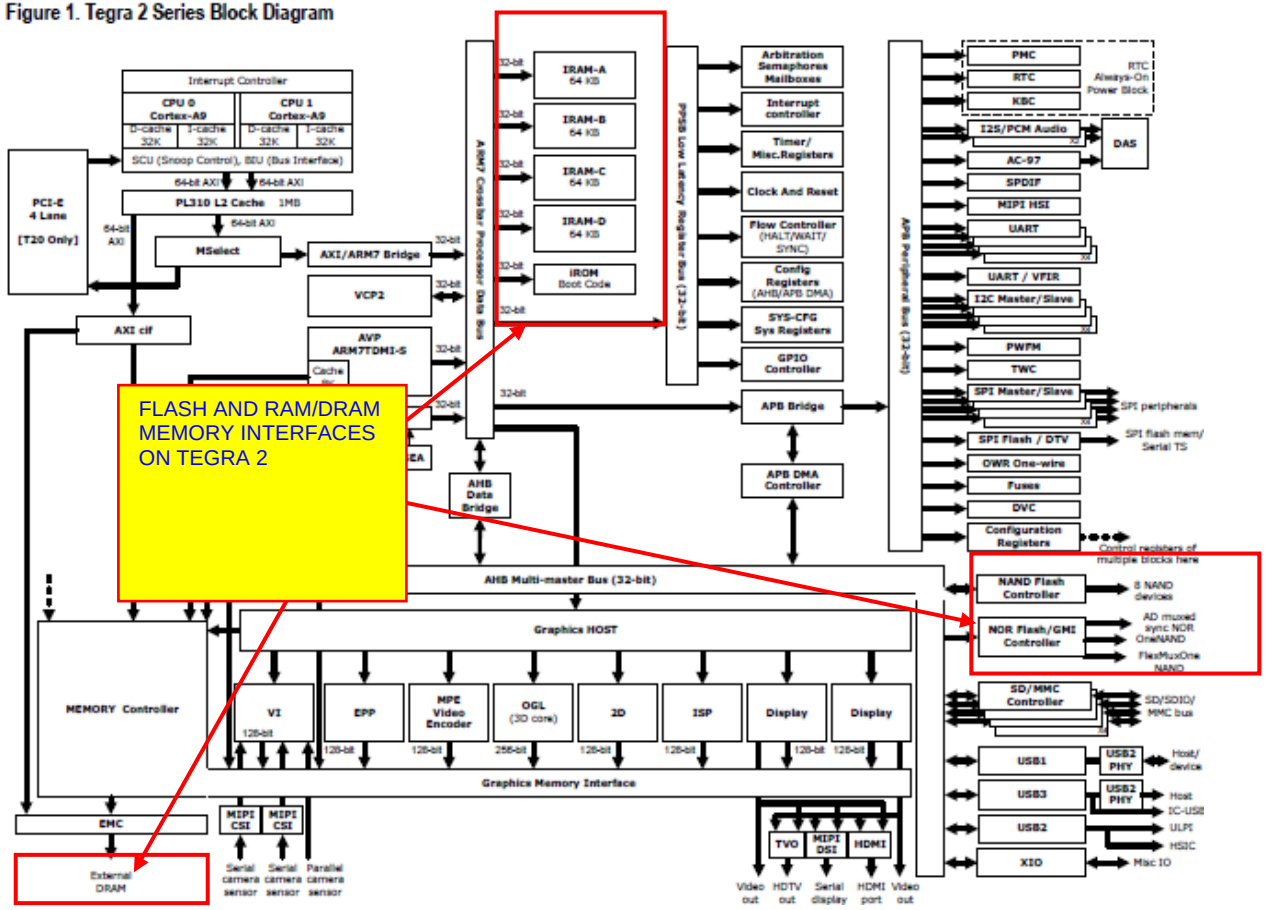
Audi connect features.

	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■
Parking information	■	■	■	■	■	■	■	■
Fuel prices	■	■	■	■	■	■	■	■
Flight information								■
Communication								
Facebook®								■
Twitter®								■
Infotainment								
Audi music stream[2]	■	■	■	■	■	■	■	■
Weather	■	■	■	■	■	■	■	■
Travel information	■	■	■	■	■	■	■	■
News	■	■	■	■	■	■	■	
Personalized news								■
City events	■	■	■	■	■	■	■	■
Google™ Local Search	■	■	■	■	■	■	■	■
Wi-Fi® hotspot	■	■	■	■	■	■	■	■
3G (HSPA/HSPA+)	■	■	■	■	■	■	■	
4G/LTE								■

FEATURES OF 2015 A3 WITH MMI AND CONNECT

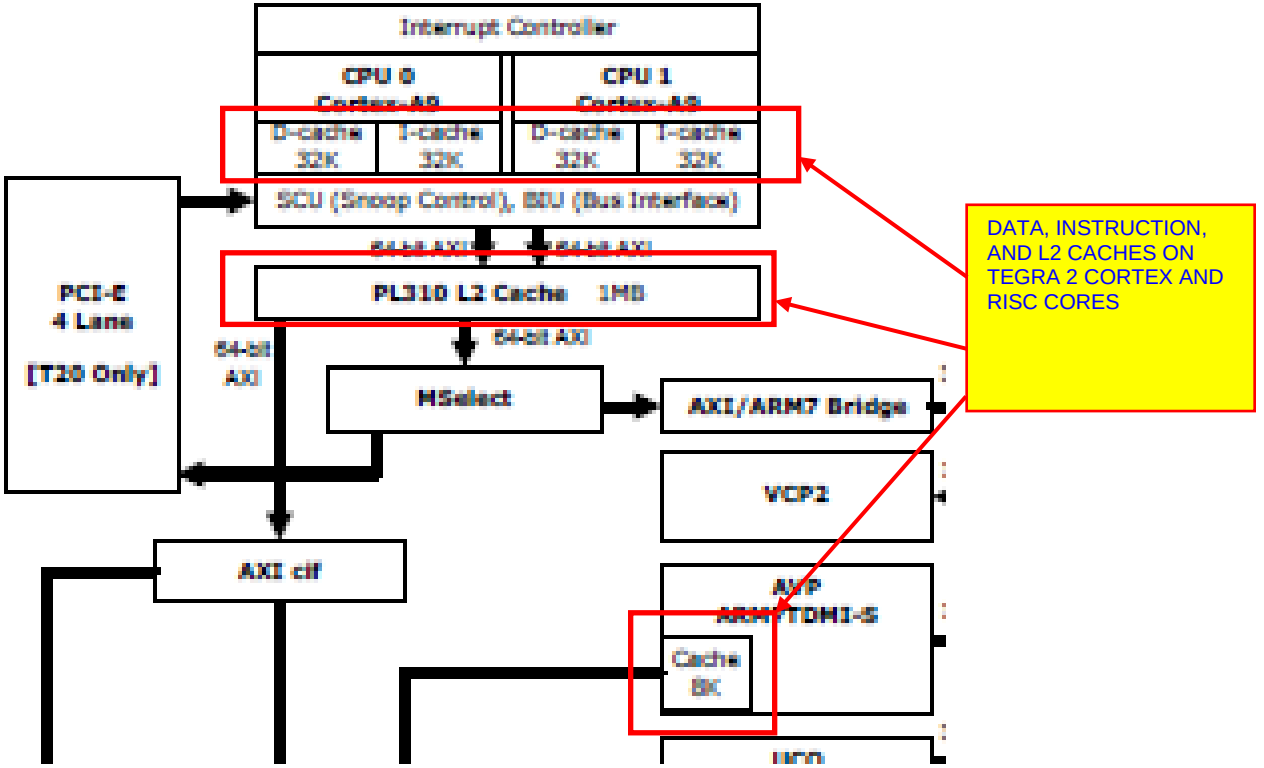
[Audi connect brochure 2014]

SEE TABLE ABOVE; THE A3 CONNECT SYSTEM PROVIDES NUMEROUS TYPES OF INFORMATION, MOST OF WHICH ARE PROVIDED VIA THE SYSTEMS EMBEDDED LTE INTERFACE (AS OPPOSED FOR EXAMPLE TO SIRIUSXM, WHICH IS SATELLITE/DOWNLINK BASED, AND WHICH REQUIRES A SEPARATE SUBSCRIPTION FROM THE CONNECT SYSTEM OFFERED BY AUDI).

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
1. Computer readable apparatus comprising a storage medium,	**AS DISCUSSED BELOW, AUDI A3 MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA 2 PROCESSOR AND VARIOUS STORAGE DEVICES ("COMPUTER READABLE APPARATUS") SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA 2 CHIP AND OTHER COMPONENTS.** Figure 1. Tegra 2 Series Block Diagram  **http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf**	**L, DOE**	**D, I**

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

Figure 1. Tegra 2 Series Block Diagram

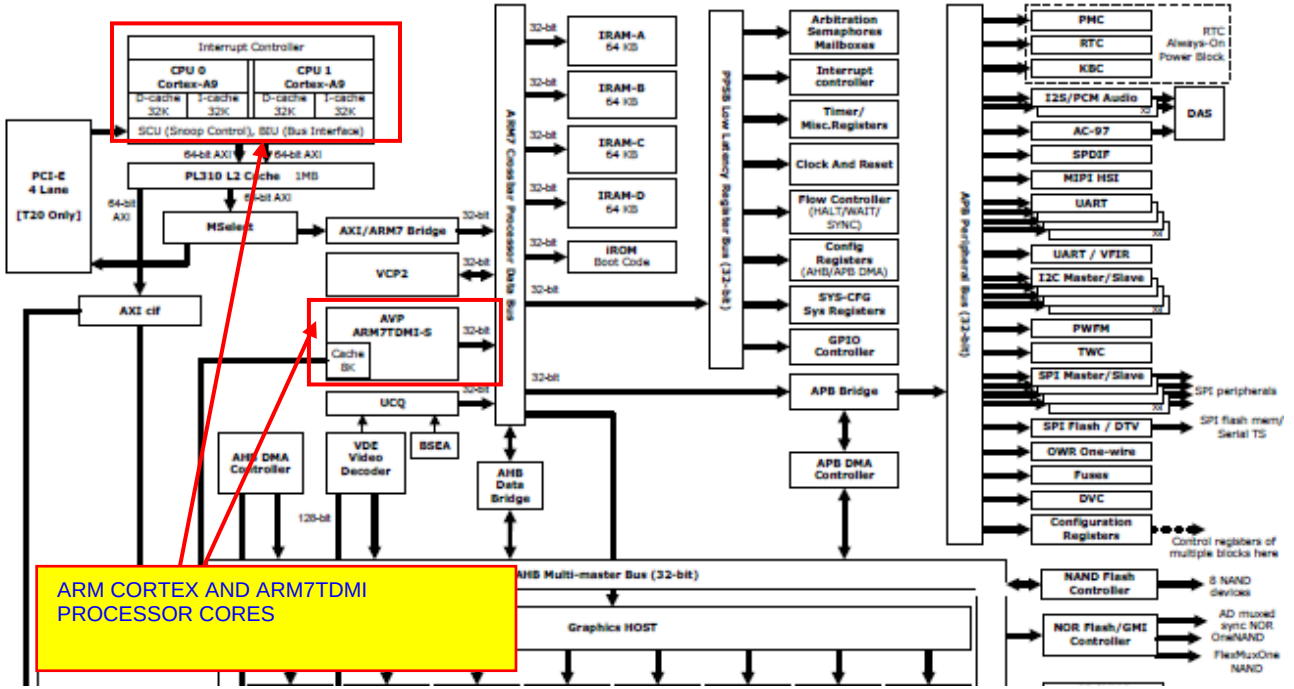


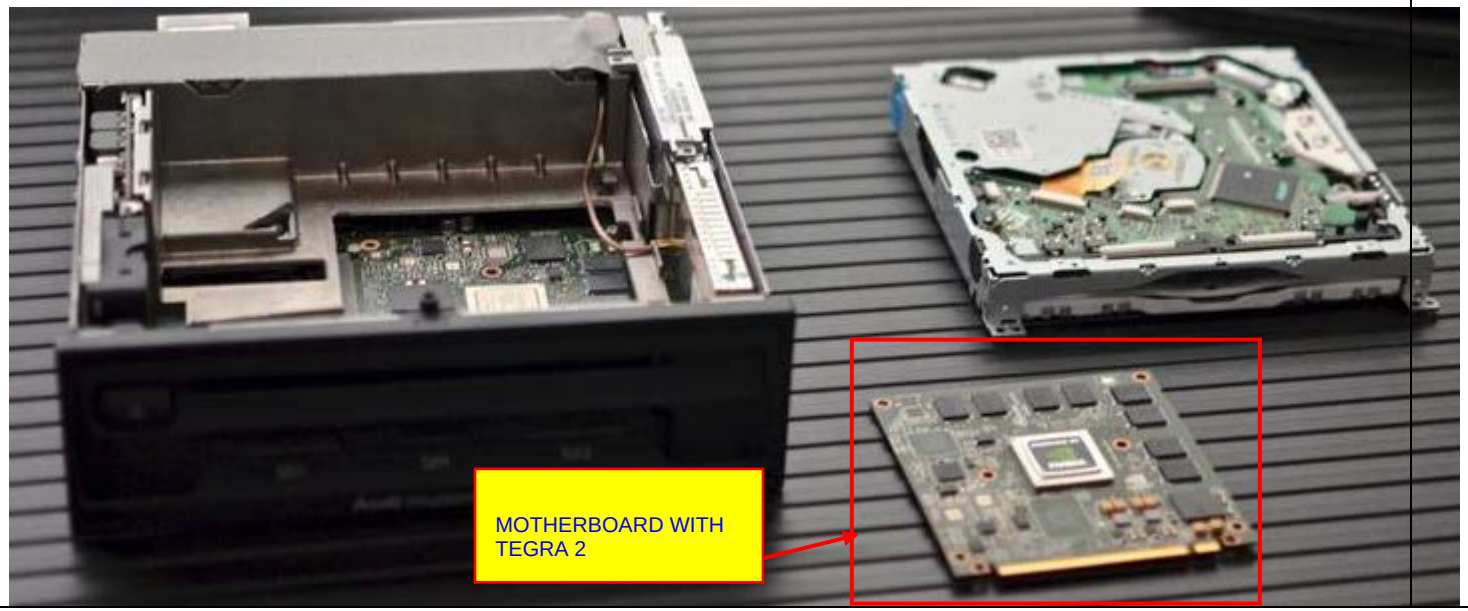
http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

"Powered by Nvidia Tegra 2

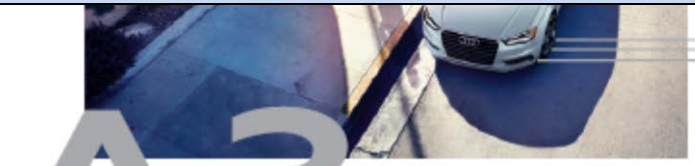
Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be

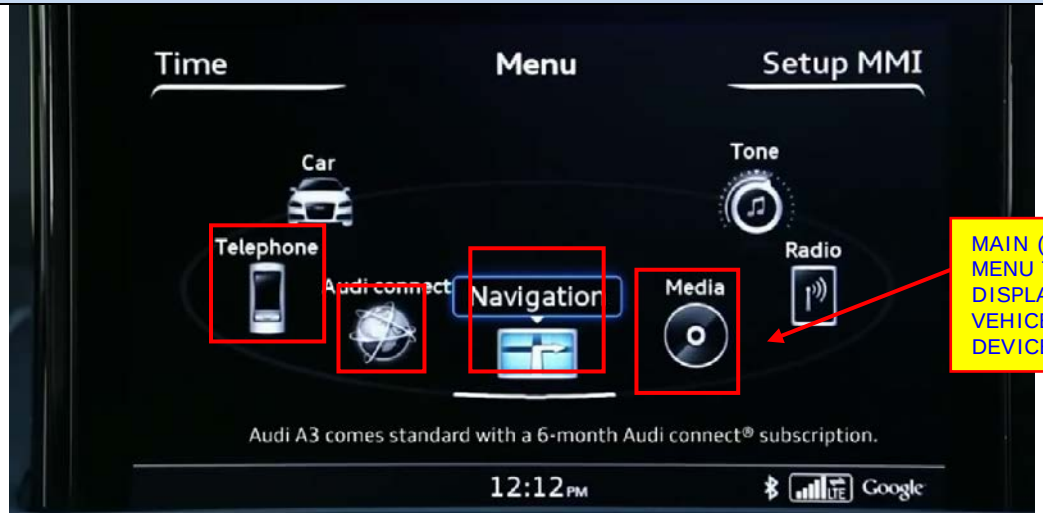
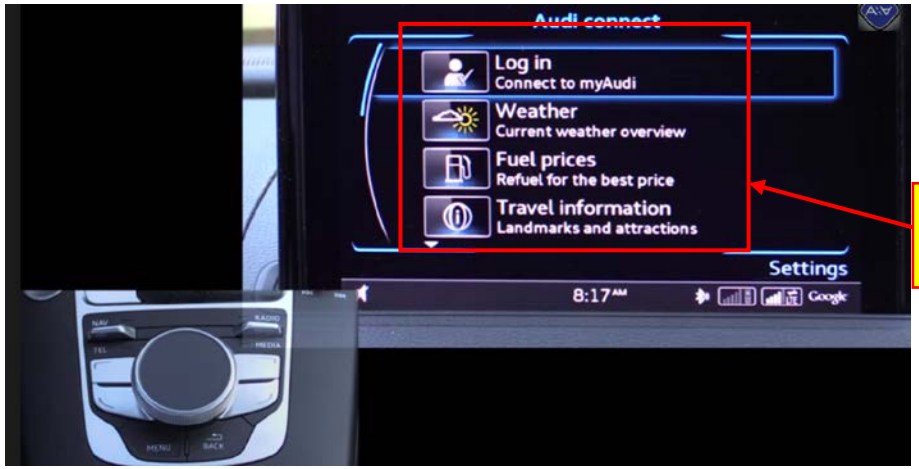
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	powered by a Tegra 4 with minimal retooling."  http://www.cnet.com/pictures/audi-evolves-the-2015-audi-a3-into-a-4g-lte-connected-sedan-pictures/19/ "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." http://www.superstreetonline.com/cars/new-car-reviews/1407-2015-audi-a3-sedan-first-drive/		
said storage medium comprising at least one computer program with a plurality of instructions,	**THE STORAGE MEDIA ABOVE INCLUDE SOFTWARE/FIRMWARE WHICH OPERATE THE INFORMATION SYSTEM WHEN EXECUTED ON THE SOC (TEGRA 2 PROCESSOR).**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
the computer readable apparatus being part of a computerized information system disposed on or within a transport apparatus configured to transport at least one person from one location to another,	**AUDI A3 MMI WITH MMI/CONNECT IS A TRANSPORT APPARATUS, AND INCLUDES A COMPUTERIZED INFORMATION SYSTEM EMBEDDED WITHIN THE VEHICLE. THE SYSTEM ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA 2 PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA 2 CHIP AND OTHER COMPONENTS.** **THEPROCESSING APPARATUS IS IN DATA COMMUNICATION WITH THE WIRELESS NETWORK (E.G., 4G LTE) INTERFACE DISCUSSED BELOW IN ORDER TO, *INTER ALIA*, RECEIVE AND PROCESS DATA FROM THE CONNECT REMOTE SERVERS.** Figure 1. Tegra 2 Series Block Diagram 	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf "**The future of Audi is modular** The A3's Multi Media Interface (MMI) infotainment system is powered by Nvidia's Tegra 2 processor and features crisply rendered 3D topographical map data for the navigation system and snappy, sharp menus. … Right now, it's packing the Tegra 2 and 4G LTE connectivity, but next year it could be rocking a more powerful brain or a faster connection. …  		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 The A3's infotainment system's guts are designed to be modular. The brains of the entire system fit into a box that's about the same size as a single-DIN CD player." http://www.cnet.com/products/2015-audi-a3-sedan/ *"Powered by Nvidia Tegra 2* Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra 4 with minimal retooling." http://www.cnet.com/pictures/audi-evolves-the-2015-audi-a3-into-a-4g-lte-connected-sedan-pictures/19/		

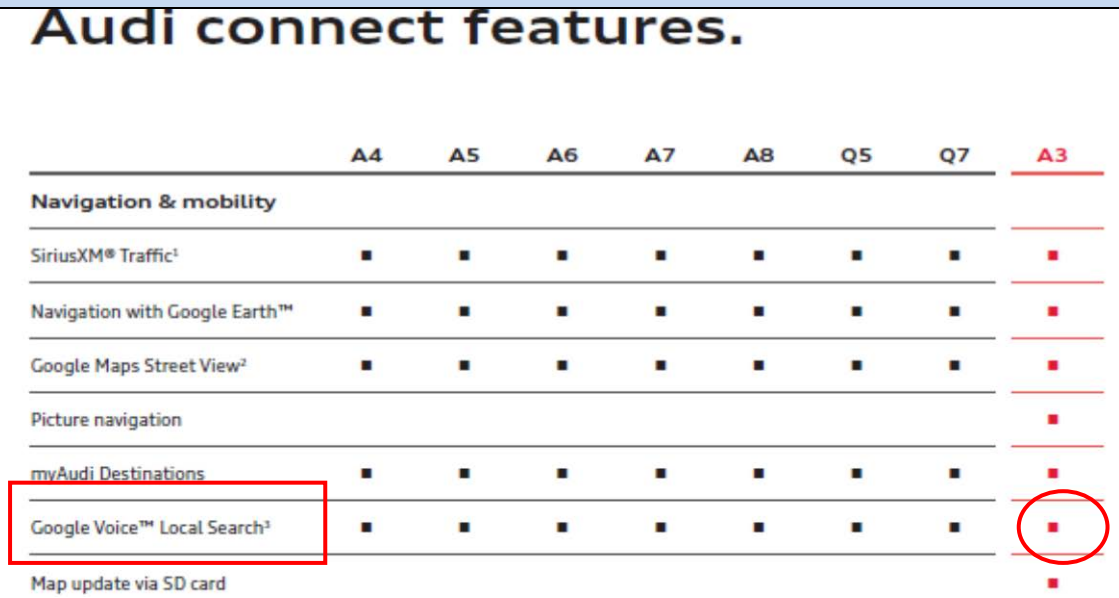
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
the computerized information system being configured to adaptively provide a user with desired information relating to a plurality of topical areas,	 **Giving "mobile device" a whole new meaning.** The all-new Audi A3 integrates social media with your automobile as never before through Audi connect®. Real-time updates of your Twitter® and Facebook® feeds, along with your very own RSS feed customized through my.Audiusa.com, help keep you fully informed while enhancing your commute with real-time weather and traffic updates. As an added feature to the existing Audi connect, the system will constantly calculate reroutes and prompt you if the system determines you can shave more than four minutes off of your ETA. [Audi connect brochure 2014] **THE AUDI A3 CONNECT SYSTEM IS DYNAMIC/ADAPTIVE (I.E,, UPDATES VARIOUS TYPES OF INFORMATION IN REAL TIME, AND ALSO REMEMBERS PRIOR USER INPUTS/SELECTIONS)** **A3/CONNECT PROVIDES INFORMATION ON MULTIPLE TOPICS, INCLUDING FOR EXAMPLE NAVIGATION/DIRECTIONS, WEATHER, NEWS, TRAFFIC, PARKING, ETC.**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 MAIN (TOP LEVEL) MENU TOPICAL AREAS DISPLAYED ON IN-VEHICLE DISPLAY DEVICE  "AUDI CONNECT" SUB-MENU TOPICAL AREAS		
said at least one program being configured to:	**THE A3 INFORMATION SYSTEM IS SOFTWARE/FIRMWARE CONTROLLED, AND HENCE ITS COMPUTER PROGRAMS ARE EXECUTED ON THE PROCESSOR(S) TO, *INTER ALIA*, RENDER DISPLAYS/GRAPHICS, GENERATE MENUS, ETC.**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	"The central computer in the modular infotainment platform, such as the one Audi currently uses, comprises two units: the Radio Car Control Unit and what is known as the MMX board (MMX: Multi-Media eXtension). The latter is a high-performance plug-in module which integrates – in addition to the RAM and flash-memory modules – the latest Tegra processor from Nvidia. It handles all voice control, online, media, navigation and telephone functions. The new modular layout makes it easy to update the hardware; the fact that the MMX board can be replaced keeps the system at the cutting edge of technology." http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/		
receive a digitized representation of a speech input of the user of the transport apparatus via a speech recognition apparatus in communication with the computerized information system,	**THE AUDI A3 UTILIZES VOICE DIGITIZATION APPARATUS/FUNCTIONS IN AT LEAST THREE AREAS; (I) GOOGLE LOCAL SEARCH; (II) VEHICLE (LOCAL) COMMANDS, AND (III) MESSAGING; THESE INPUTS ARE RECEIVED VIA A MICROPHONE BUILT INTO THE VEHICLE:** "Another new Audi connect service is the POI (Point Of Interest) search, which can be operated via the voice control system. The driver simply chooses a destination and specifies their interest – the name of a restaurant, for instance. The voice command, or "voice tag," is converted to a small data packet that is sent to the Google search engine." [http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/] "October 11, 2012 08:00 AM Eastern Daylight Time BURLINGTON, Mass.--(BUSINESS WIRE)--Nuance Communications Inc. (NASDAQ: NUAN) today announced that its automotive-grade Dragon Drive! Messaging service for the connected car is powering the text message dictation in the new Audi A3, creating a hands-free messaging experience. With Audi connect Messaging, drivers can simply use their voice to dictate and send text messages while driving, as well as hear incoming text or e-mail messages.' … "Dragon Drive! Messaging's flexible and customizable architecture enables world-leading automotive brands like Audi to deeply integrate powerful voice capabilities as part of their unique in-car experience, without compromising quality or adding dangerous distractions." The Audi A3 deeply integrates Dragon Drive! Messaging as part of the in-car user interface. Drivers simply connect their phone via Bluetooth or insert their SIM card into the MMI Navigation plus to quickly and easily dictate and send text messages without having to take their hands off of the wheel. For example, just say "Dictate text message to John Smith" to quickly access the contact from a mobile address book, and then speak the message, "I am stuck in	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	traffic and will be late for the meeting. Start without me." The message is read to the driver, and from there they can continue dictating, edit or send the message using simple voice commands. Nuance's natural, humanlike text-to-speech capabilities also read out incoming text and email messages, keeping Audi drivers connected to friends and family from anywhere. … Audi also integrates Nuance's voice command and control as part of Audi's voice user interface, letting drivers speak voice commands to search and access contacts and make calls on their phone, select Audi connect services and one-shot voice commands to input navigation address information." http://www.businesswire.com/news/home/20121011005696/en/Nuance%E2%80%99s-Dragon-Drive!-Messaging-Powers-Text-Message#.VYsxLflVhBd **DEPENDING ON THE FUNCTION, DIFFERENT SPEECH DIGITIZATION /RECOGNITIONS APPARATUS AND FUNCTIONS ARE USED TO EFFECTUATE THE VOICE COMMAND/SEARCH TERM. FOR GOOGLE LOCAL SEARCH (AKA "ONLINE DESTINATIONS" FUNCTION), THE "GOOGLE VOICE" ALGORITHM IS USED FOR DIGITIZATION, AND THE "PACKET" REFERENCED ABOVE IS SENT TO THE REMOTE GOOGLE SERVICE FOR RECOGNITION AND SEARCH OF THE GOOGLE LOCAL DATABASE RELEVANT TO THE VEHICLE'S CURRENT LOCATION:** "For non-personalized services (such as Navigation enhanced by Google, information about parking, city events, flight information, weather, gas prices,) we share location information with the appropriate content providers as needed to respond to the requests, but we do not share information that directly identifies you or your Audi vehicle." http://www.audiusa.com/technology/intelligence/audi-connect/connect-privacy.html		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]



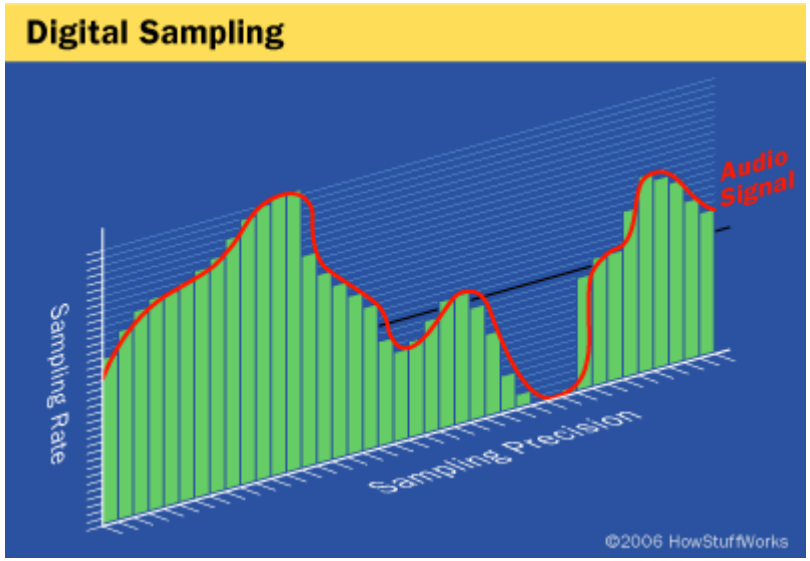
Audi connect features.

	A4	A5	A6	A7	A8	Q5	Q7	A3
Navigation & mobility								
SiriusXM® Traffic[1]	■	■	■	■	■	■	■	■
Navigation with Google Earth™	■	■	■	■	■	■	■	■
Google Maps Street View[2]	■	■	■	■	■	■	■	■
Picture navigation								■
myAudi Destinations	■	■	■	■	■	■	■	■
Google Voice™ Local Search[3]	■	■	■	■	■	■	■	■
Map update via SD card								■

[Audi connect brochure 2014]

"How Voice Search works

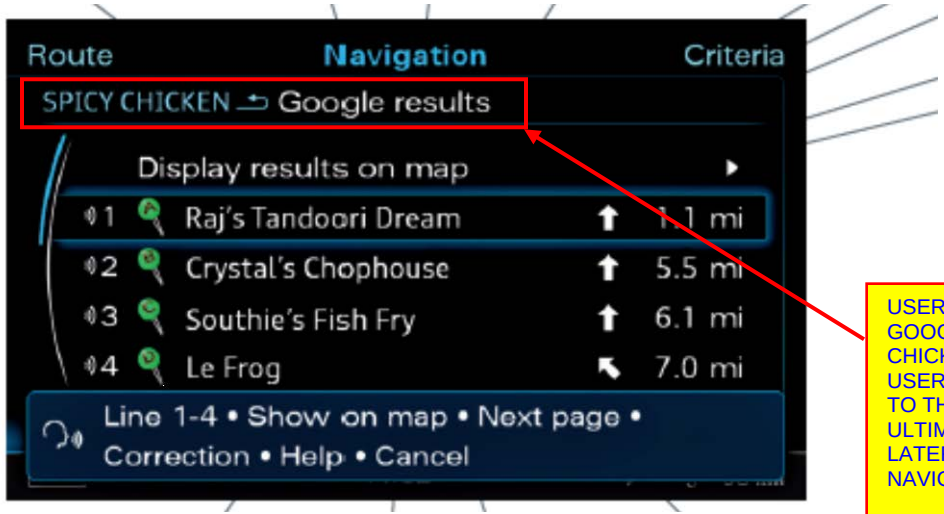
Voice Search allows you to provide a voice query to a Google search client application on a device instead of typing that query. It uses pattern recognition to transcribe spoken words to written text. For each voice query made to Voice Search, we store the language, the country, the utterance and our system's guess of what was said. The stored audio data does not contain your Google Account ID unless you have selected otherwise. We do not send any utterances to Google unless you have indicated an intent to use the Voice Search function (for example, pressing the microphone icon in the quick search bar or in the virtual keyboard or saying "Google" when the quick search bar indicates that the Voice Search function is available). We send the utterances to Google servers in order to recognize what was said by you. We keep utterances to improve our services, including to train the system to better recognize the correct search query." https://www.google.com/policies/technologies/pattern-recognition/

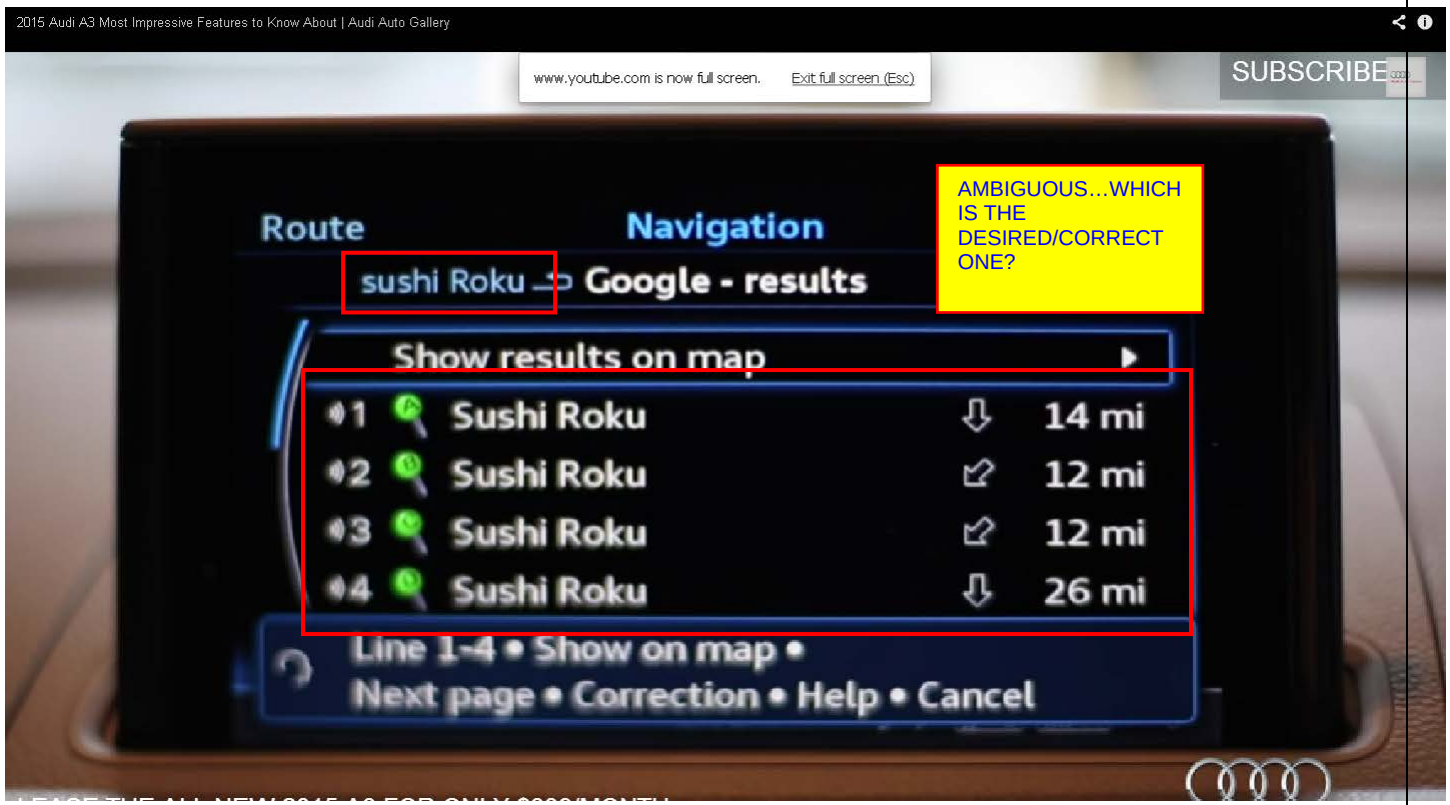
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 "An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality." http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " http://www.wired.com/2013/02/android-neural-network/ "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like:…		

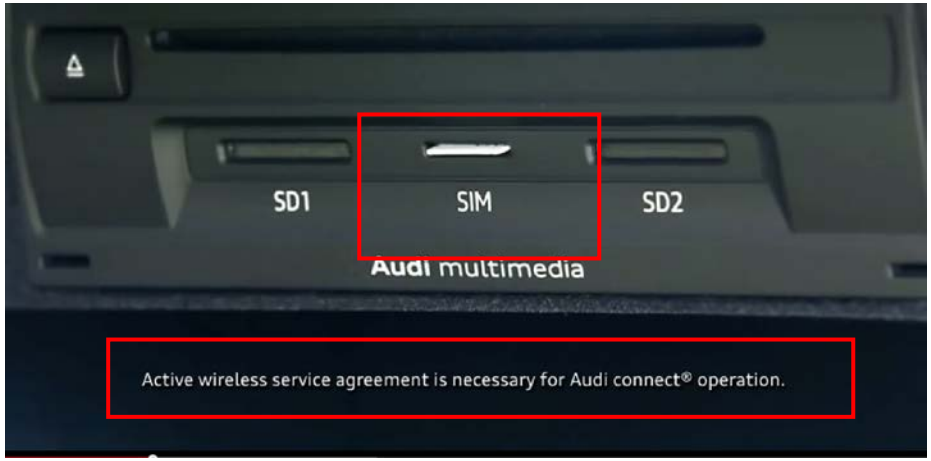
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

	After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string.
	
	`GET /complete/search?client=iphoneapp&hjson=t&types=t`
	`&spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1`
	`User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1`
	`Accept: */*`
	`Accept-Language: en-us`
	`Accept-Encoding: gzip, deflate`
	`Pragma: no-cache`
	`Connection: keep-alive`
	`Connection: keep-alive`
	`Host: clients1.google.com`
	
	The response is an array of search terms in JSON format, for use in search autocompletion.
	
	`["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]]`
	http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/
	
	THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.		

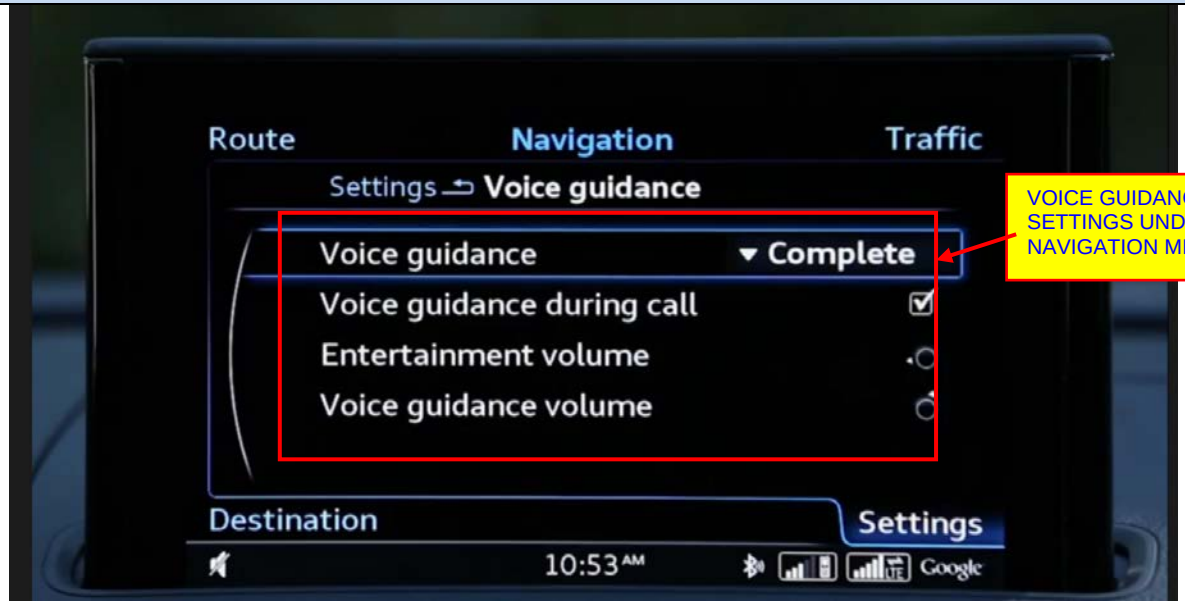
the speech input relating to a desired function to be performed by the computerized information system,	**SO, AS ONE EXAMPLE, THE USER SAYS A SEARCH TERM UNDER THE "NAVIGATION/ONLINE DESTINATIONS" FUNCTION TO FIND A DESIRED RESTAURANT:**	**L, DOE**	

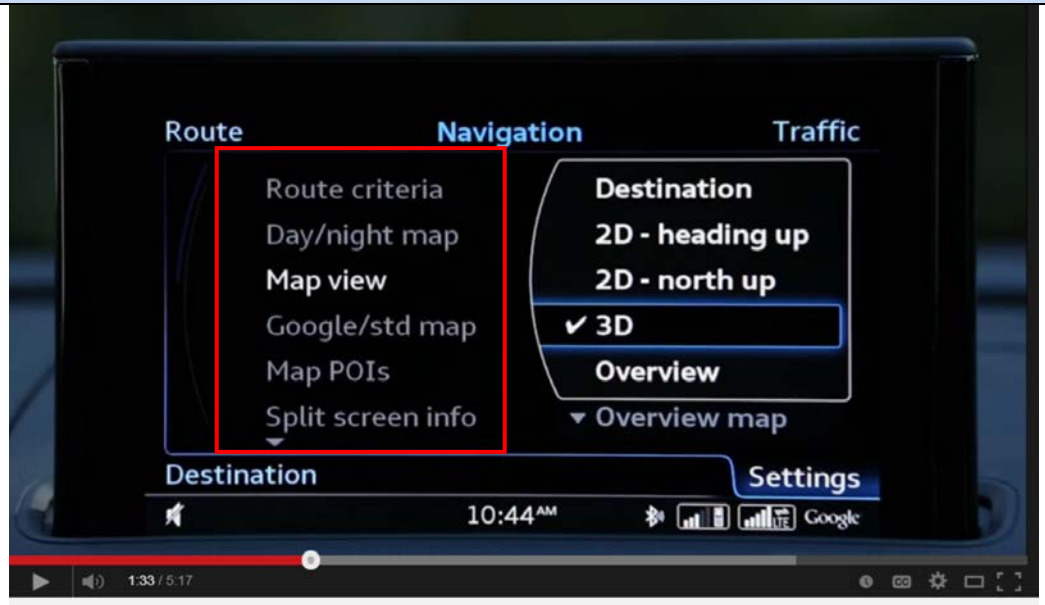
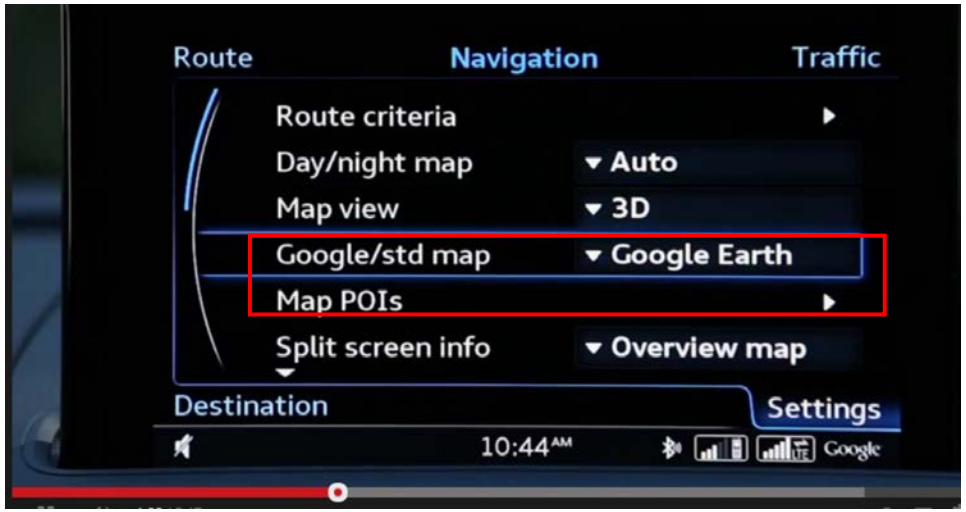
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	Your destiny is on the tip of your tongue. Google Voice™ Local Search allows you to easily search via voice commands for restaurants, historical landmarks and places of interest, both near and far.[1] Imagine entering a destination address by just speaking the words—Audi connect® makes that possible. With the power of Google™ on the tip of your tongue, Audi connect brings a vast Internet database to you with the advanced engineering and style of Audi. The same ease of use and thorough location search capability you've come to expect from Google™ rolled into your every commute. Search nearby and faraway points of interest with the power of Google Voice™ Local Search. Need to take the client out for nine holes? Just tell Audi connect "golf course." Looking for a meal with a little kick? Just ask for "spicy chicken"—Google™ will populate your navigation display with restaurants or descriptions that match the phrase you speak. Select the destination that best suits your appetite, and style, and your Audi MMI® navigation system will guide you there in clear and accurate detail. More than just a companion on the road, Audi connect, once you use it, will become an integral part of the family.  USER SPEECH INPUT FOR GOOGLE SEARCH OF "SPICY CHICKEN" (IMPLIED THAT THE USER WANTS TO NAVIGATE TO THIS LOCATION ULTIMATELY, BUT THEY LATER HAVE THE OPTION TO NAVIGATE OR NOT NAVIGATE) http://www.audiusa.com/content/dam/audiusa/Innovation/Audi%20connect/2015-Audi-connect-brochure-updated-2.pdf		

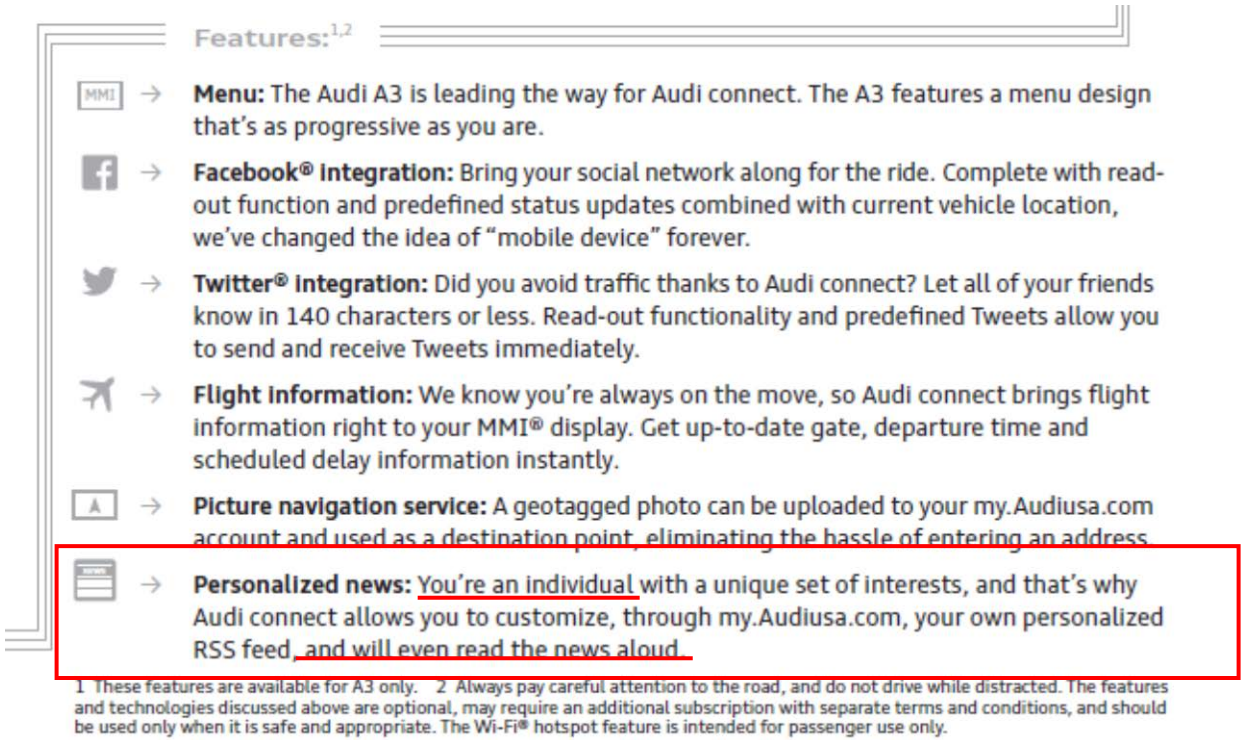
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	SEE VIDEO BELOW FOR ANOTHER EXAMPLE (SEARCH FOR "SUSHI ROKU"):  **https://www.youtube.com/watch?v=pjoeoDxz06U**		
the desired function relating to at least one of the topical areas;	**SEE ABOVE; THE DESIRED FUNCTION HERE (FINDING A SPICY CHICKEN OR SUSHI ROKU RESTAURANT) RELATES TO ONE OF THE TOPICAL AREAS (I.E., "NAVIGATION/ONLINE DESTINATIONS")**	**L, DOE**	

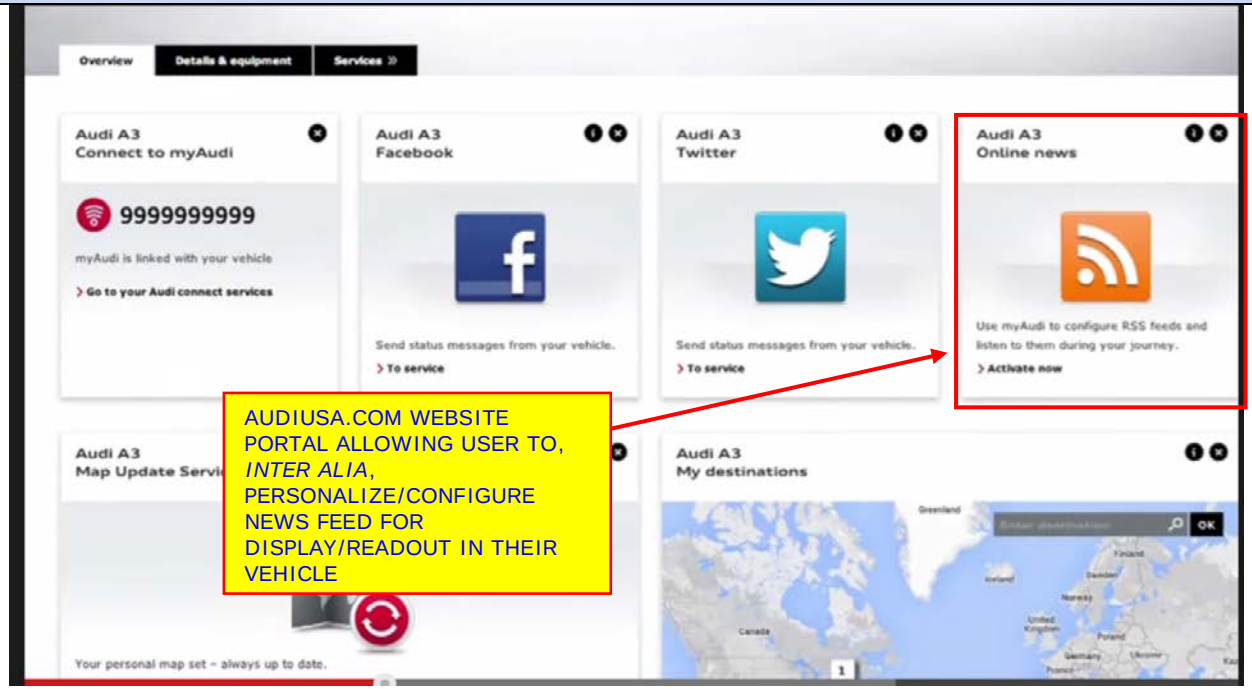
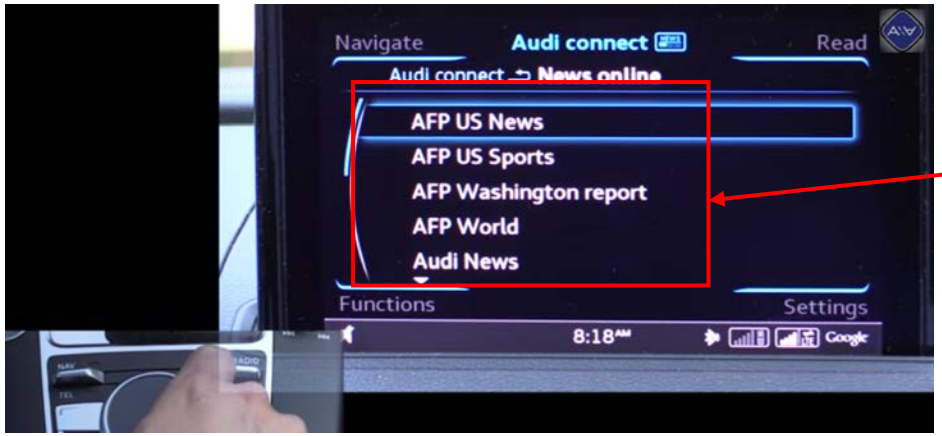
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
cause wireless access of a remote server to access information necessary to perform the desired function;	**"Connectivity, Navigation, and Interface** The A3 has several new tech features that haven't made it to even Audi's top-of-the-line A8. It's the first Audi with 4G LTE wireless connectivity via AT&T, for example, while Facebook and Twitter apps are new additions and for now exclusive to the A3's Audi connect system.… http://www.pcmag.com/article2/0,2817,2455739,00.asp Even if you are able to connect your portable device and have ample power, you don't really get much of a chance to use it—or its data plan—beyond listening to music or making calls via Bluetooth. Most of the A3's connected features are dependent on having the AT&T data plan that's part of the Audi connect system and costs $99 for a six-month/5GB-total package or $499 for a 30-month/30GB-total package after a free six-month trial.… Instead of leveraging a smartphone to connect to the cloud, as with some systems, features such as Internet radio and Picture navigation are communicated via Audi Connect, and through the A3's onboard Wi-Fi connection that's part of the AT&T data plan. This means that if you allow your 4G subscription to lapse, you lose these features." http://www.pcmag.com/article2/0,2817,2455743,00.asp  **AUDI A3 CONNECT UTILIZES A 4G LTE MODEM AND SERVICE THROUGH AT&T. THIS IS THE PRIMARY WIRELESS INTERFACE FOR THE VEHICLE.** **FOR THE EXAMPLE ABOVE (NAVIGATION/ONLINE DESTINATIONS), THE WIRELESS INTERFACE IS USED TO FORWARD THE SEARCH QUERY TO THE REMOTE GOOGLE SERVERS:**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	"Another new Audi connect service is the POI (Point Of Interest) search, which can be operated via the voice control system. The driver simply chooses a destination and specifies their interest – the name of a restaurant, for instance. The voice command, or "voice tag," is converted to a small data packet that is sent to the Google search engine." http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/		
receive accessed information obtained from the remote server via the wireless interface;	"Audi's IT department is also on the job whenever an Audi driver requests certain Audi connect services such as weather information or the news. Such requests are transmitted via the mobile communications network to back-end servers in Ingolstadt, which identify the vehicle in question. Requests are then forwarded to content providers, which in turn deliver data directly to the customer's vehicle. Audi has already begun managing Audi connect data with cutting-edge precision. This is particularly intriguing in terms of the wireless use of media data via cloud computing, which Audi refers to as "seamless media." " http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/ **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." https://www.audi-mediacenter.com/en **THE REQUESTED INFORMATION (E.G., SPICY CHICKEN OR SUSHI ROKU LOCATIONS) IS SENT BACK VIA THE LTE WIRELESS INTERFACE TO THE VEHICLE.**	**L, DOE**	

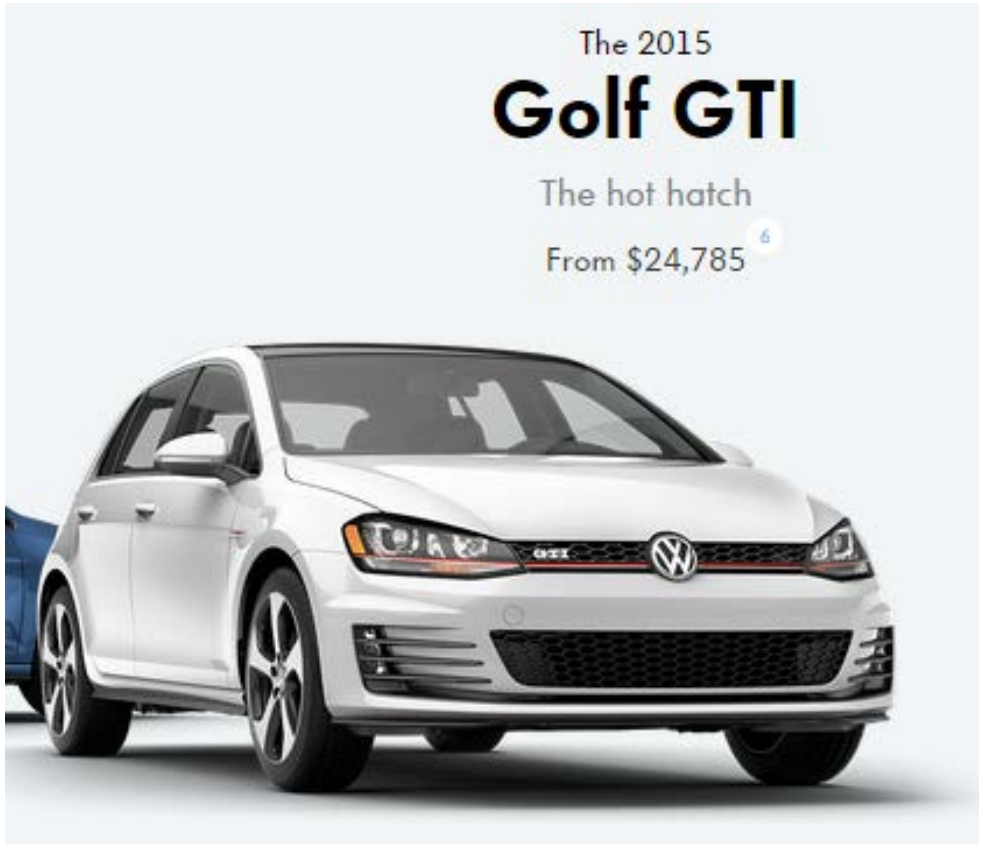
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
and implement the desired function on the computerized information system using at least a portion of the received information and at least one of: (i) a touch-screen display and input device of the computerized information system; and/or (ii) a speech synthesis apparatus of the computerized information system.	 **THE REQUESTED INFORMATION (E.G., SPICY CHICKEN OR SUSHI ROKU LOCATION/ADDRESS AND TURN-BY-TURN DIRECTIONS) IS READ ALOUD TO THE USER AFTER THE USER SELECTS ONE OF THE LISTED OPTIONS VIA "START ROUTE GUIDANCE" VOICE COMMAND OR SAYING THE NUMERICAL LINE ITEM (VERIFIED IN VEHICLE).** **NOTE THAT THE DESIRED FUNCTION COULD NOT BE COMPLETED WITHOUT THE INFORMATION DOWNLOADED FROM THE REMOTE SERVER; THE IN-VEHICLE NAVIGATION SYSTEM HAS NO IDEA WHERE SPICY CHICKEN OR SUSHI ROKU RESTAURANTS ARE UNTIL THE (REMOTE) GOOGLE SEARCH IS COMPLETED AND THE LOCATION(S) IDENTIFIED.**	**L, DOE**	
10. The apparatus of claim 1, wherein said received information is configured specifically for the user, said configuration specifically for the user based at least in part on	**BOTH AUDI SERVERS AND THE VEHICLE ITSELF MAINTAIN USER-SPECIFIC (PERSONALIZED) INFORMATION AND DATA.** **FOR EXAMPLE, THE GOOGLE EARTH/STREET VIEW DATA IS SELECTED BYTHE USER AS A USER PREFERENCE (PROFILE) WITHIN THE VEHICLE NAV. SYSTEM:**	**L, DOE**	**D, I**

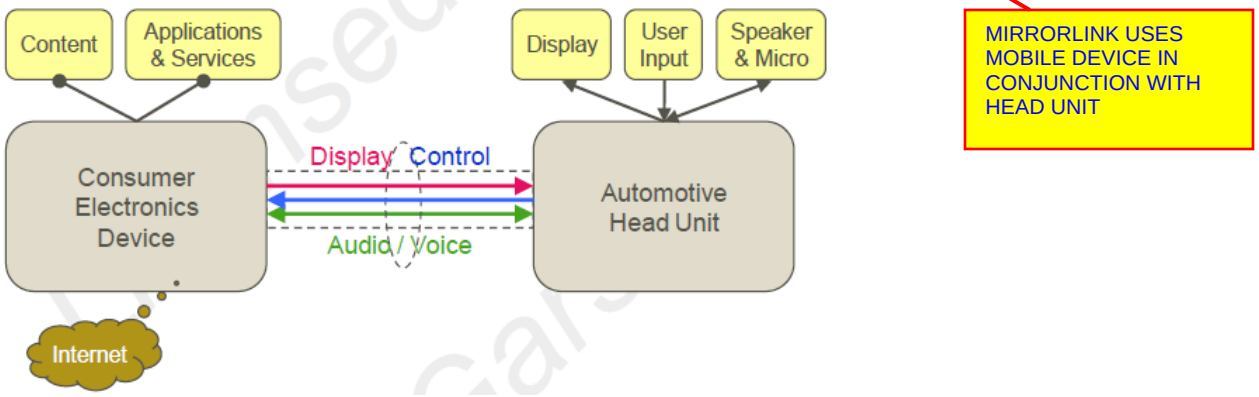
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
data previously stored and relating specifically to that user. (*Unselected claim 10 included because selected claim 11 depends hereon.*)	 		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	ON MYAUDI.COM (WWW.AUDIUSA/MYAUDI), USER'S CAN CONFIGURE, E.G., NEWS FEEDS (WHICH ARE OBTAINED FROM THE CLOUD VIA AN AUDI SERVICE PROVIDER) FOR THAT PARTICULAR USER: "Audi's IT department is also on the job whenever an Audi driver requests certain Audi connect services such as weather information or the news. Such requests are transmitted via the mobile communications network to back-end servers in Ingolstadt, which identify the vehicle in question. Requests are then forwarded to content providers, which in turn deliver data directly to the customer's vehicle. Audi has already begun managing Audi connect data with cutting-edge precision. This is particularly intriguing in terms of the wireless use of media data via cloud computing, which Audi refers to as "seamless media." " http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/  Features:[1,2] **Menu:** The Audi A3 is leading the way for Audi connect. The A3 features a menu design that's as progressive as you are. **Facebook® Integration:** Bring your social network along for the ride. Complete with read-out function and predefined status updates combined with current vehicle location, we've changed the idea of "mobile device" forever. **Twitter® Integration:** Did you avoid traffic thanks to Audi connect? Let all of your friends know in 140 characters or less. Read-out functionality and predefined Tweets allow you to send and receive Tweets immediately. **Flight information:** We know you're always on the move, so Audi connect brings flight information right to your MMI® display. Get up-to-date gate, departure time and scheduled delay information instantly. **Picture navigation service:** A geotagged photo can be uploaded to your my.Audiusa.com account and used as a destination point, eliminating the hassle of entering an address. **Personalized news:** You're an individual with a unique set of interests, and that's why Audi connect allows you to customize, through my.Audiusa.com, your own personalized RSS feed, and will even read the news aloud. 1 These features are available for A3 only. 2 Always pay careful attention to the road, and do not drive while distracted. The features and technologies discussed above are optional, may require an additional subscription with separate terms and conditions, and should be used only when it is safe and appropriate. The Wi-Fi® hotspot feature is intended for passenger use only. [Audi connect brochure 2014]		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.youtube.com/watch?v=xadb1vSXw7Q		
11. The apparatus of claim 10, wherein said data is stored on a remote server and relates specifically to that user based at least in part on one or more previously supplied user-selected configuration parameters.	**SEE DISCUSSION OF CLAIM 10 ABOVE; AUDI RETAINS E.G., USER NEWS FEED PERSONALIZED CONFIGURATIONS ON THEIR SERVER FOR LATER USE – CONFIGURATIONS MUST BE SAVED IN ADVANCE BEFORE USING IN THE VEHICLE.**	**L, DOE**	**D, I**

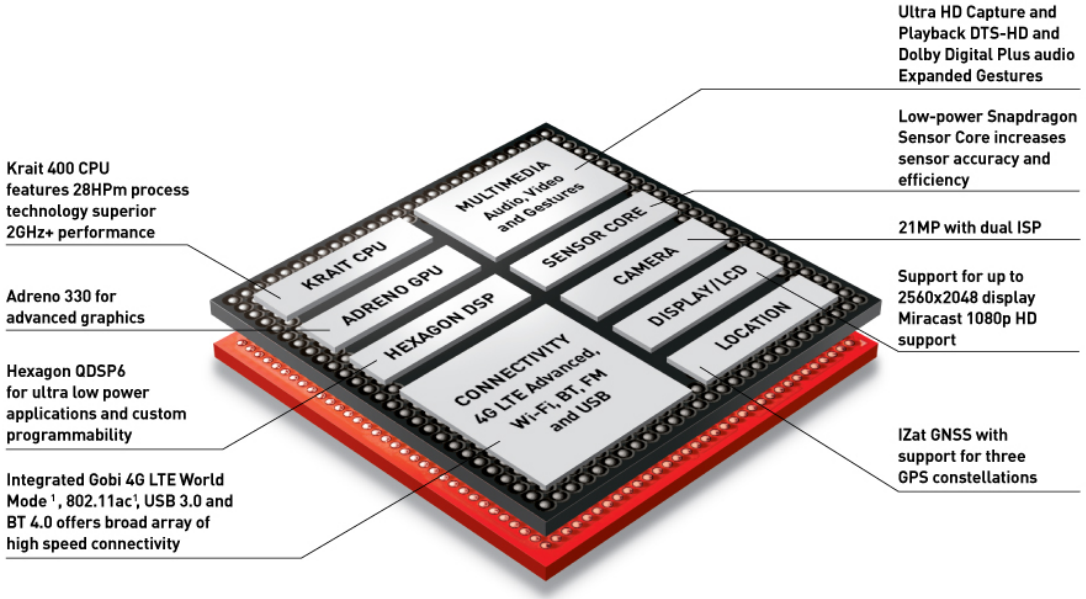
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	2015/2016 VW GOLF GTI WITH MIB-II INFOTAINMENT SYSTEM WITH MIRRORLINK		
	THIS ANALYSIS IS DIRECTED TO THE 2015/2016 VW GOLF GTI WITH MIB-II INFOTAINMENT SYSTEM WITH MIRRORLINK FUNCTIONALITY. 		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	"Later this year [*2015*], VW will introduce the second generation "modular infotainment platform" (MIB II) in the United States. Along with the new infotainment system, MirrorLink™ will also be made available for the first time, integrating the apps and operating layout of numerous smartphones (including Samsung, HTC, LG and Sony) into cars. When MirrorLink™ is introduced, two other interfaces will also be launched under the App-Connect label: … Android Auto™ (Google®). Simultaneously, VW will also launch … Android Auto™ in the European market." http://media.vw.com/release/908/ **NOTE THAT WHILE FOLLOWING ANALYSIS IS BASED ON THE INCIPIENT MIB-II SYSTEM, AN ACTUAL VEHICLE IS NOT YET ON SALE IN THE U.S. AS OF THE DATE OF THIS SUBMISSION. ACCORDINGLY, THE FOLLOWING IS PREDICATED AT LEAST IN PART ON THE EXTANT 2015 GOLF GTI (I.E., WITH PREDECESSOR TO MIB-II) NOW SOLD IN THE U.S., WITH DIFFERENCES NOTED AS APPLICABLE.** **2 INTRODUCTION TO MIRRORLINK CONCEPT** MirrorLink provides a concept for integrating the mobile device (hereinafter referred to as the "MirrorLink server") and the vehicle head-unit (hereinafter referred to as the "MirrorLink client"). In a MirrorLink context, the control and interaction of applications and services running on the mobile device will be replicated into the vehicle environment. Diverting display and audio output to the vehicle head-unit come together with receiving key and voice control input from it are the main interaction streams, as shown in the following Figure 1. 		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
17. Computer readable apparatus comprising a storage medium,	**AS SHOWN BELOW, THE USER'S MOBILE DEVICE (E.G., AN EXEMPLARY ANDROID-BASED DEVICE) IS PAIRED TO THE VW MIB-II SYSTEM VIA A "USB" CABLE (E.G., MICRO-USB/USB OR SIMILAR). THE WIRELESS INTERFACE OF SMARTPHONE IS USED FOR EXTERNAL CONNECTIVITY.** 	**L, DOE**	**D, I**
said storage medium comprising at least one computer program with a plurality of instructions,	**FOLLOWING RELATES TO EXTRA-U.S. VERSION OF MIB-II, LAUNCHED BEFORE U.S. MODEL:** **"Generation II of MIB systems:** **Ideally networked world with Car-Net, MirrorLink™ and SMS by TTS*** The new Passat is launching with Generation II of Volkswagen infotainment systems. The latest generation of this modular information toolkit (MIB) enables a maximum degree of connectivity in terms of coupling external devices. Its diverse interfaces include interfacing to smart phones and their apps via MirrorLink™. In addition, the systems were given much faster processors (optimised booting, quicker route calculation, smoother touchscreen performance, perfected language dialogues) and new higher-resolution displays (in the 6.5-inch systems). …	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	2. Faster processors. The new generation of devices is characterised by better system performance. Consider the "Discover Media", the radio-navigation system with 6.5-inch display: Compared to the first generation, performance of the CPU (main processor) was more than doubled from 950 MIPS (million instructions per second) to 2,500 MIPS. … 4. MirrorLink™. For the first time in the Passat, MirrorLink™ is available – from the "Composition Media" it is optional, in the "Discover Pro" it is standard. MirrorLink™ makes it possible to integrate numerous apps or functions of Android smart phones into the infotainment system. Related apps will be offered directly from Volkswagen and from third party suppliers. The Volkswagen apps: "Mobile Office", "audioMOTION", "ThinkBlue. Trainer", "Shared Audio", "Drive&Track" and "My Guide". Third party apps include "Audioteka" (audio books), "Glympse" (social media), "Aupeo!" (Internet radio), "Life360″ (family locator) and "Kaliki" (news)." http://www.vwvortex.com/news/volkswagen-news/detail-new-passat-generation-8-2/ **HENCE, MIB-II SYSTEM HAS CPU, GPU, ETC. IN COMMUNICATION WITH EXEMPLARY ANDROID SMARTPHONE VIA USB.** **EXEMPLARY NEXUS 5 ANDROID SMARTPHONE (USED FOR PURPOSES OF ILLUSTRATION – OTHER ANDROID PHONES ARE EQUALLY APPLICABLE) HAS NUMEROUS PROCESSING AND STORAGE APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE MIRRORLINK SYSTEM:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz" [https://support.google.com/nexus/answer/3467463?hl=en] **"Snapdragon 800** Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.		

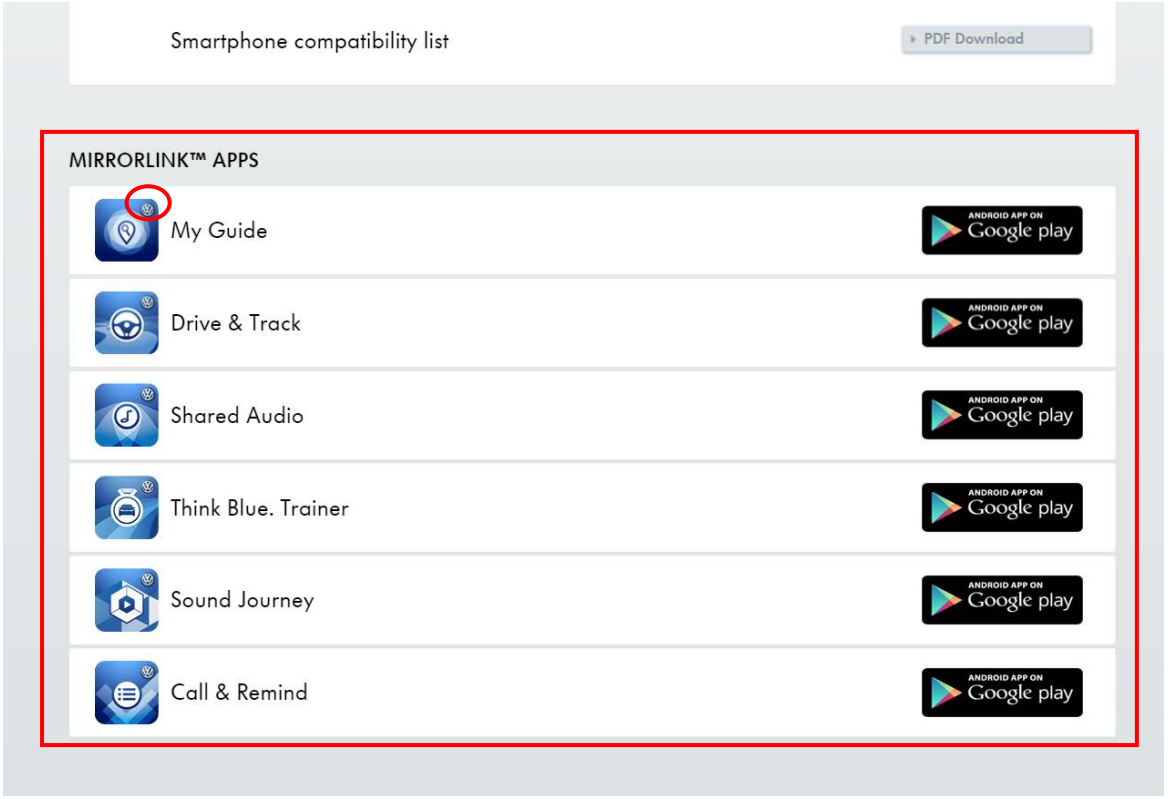
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

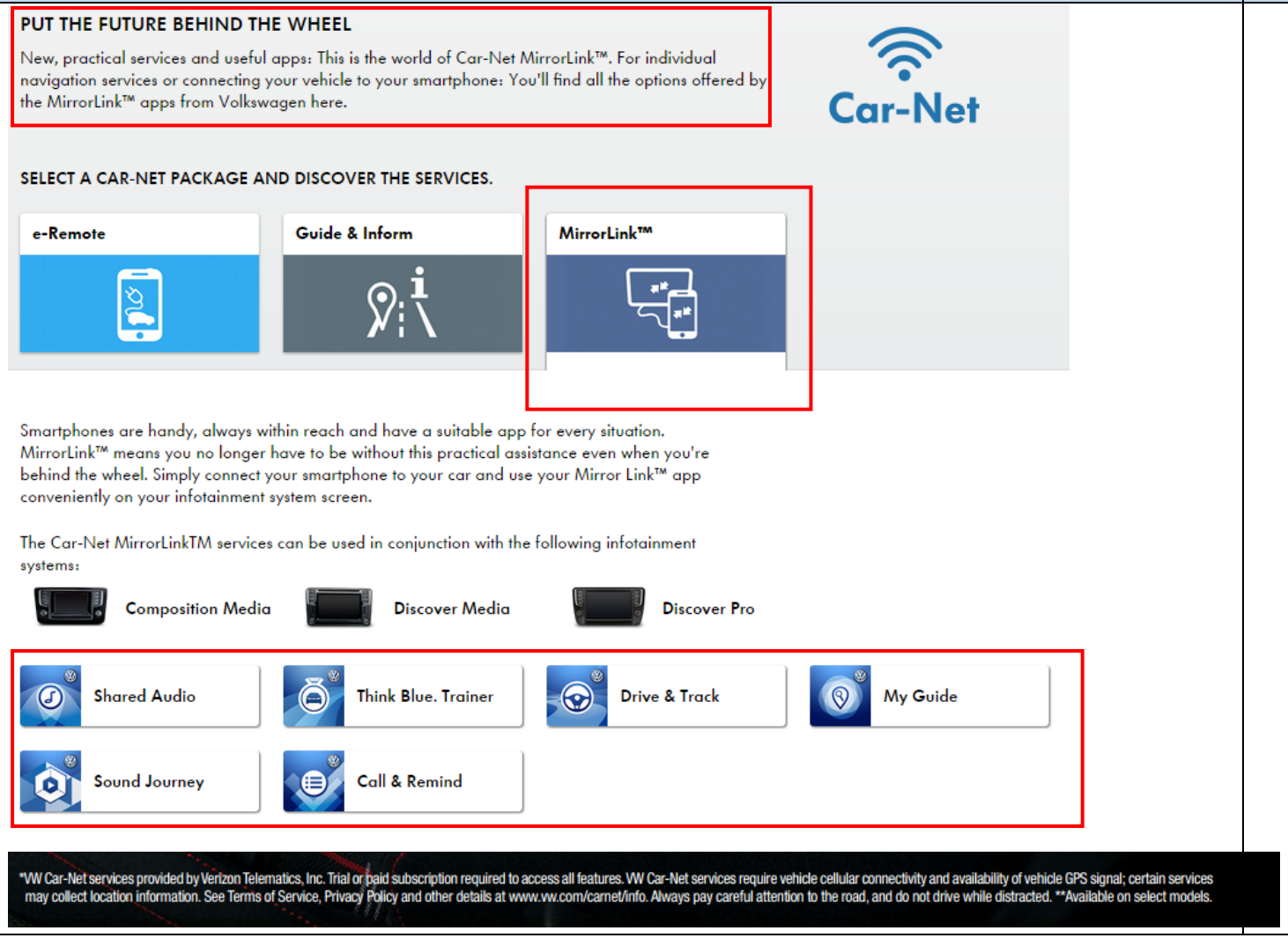


On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC." [http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html]

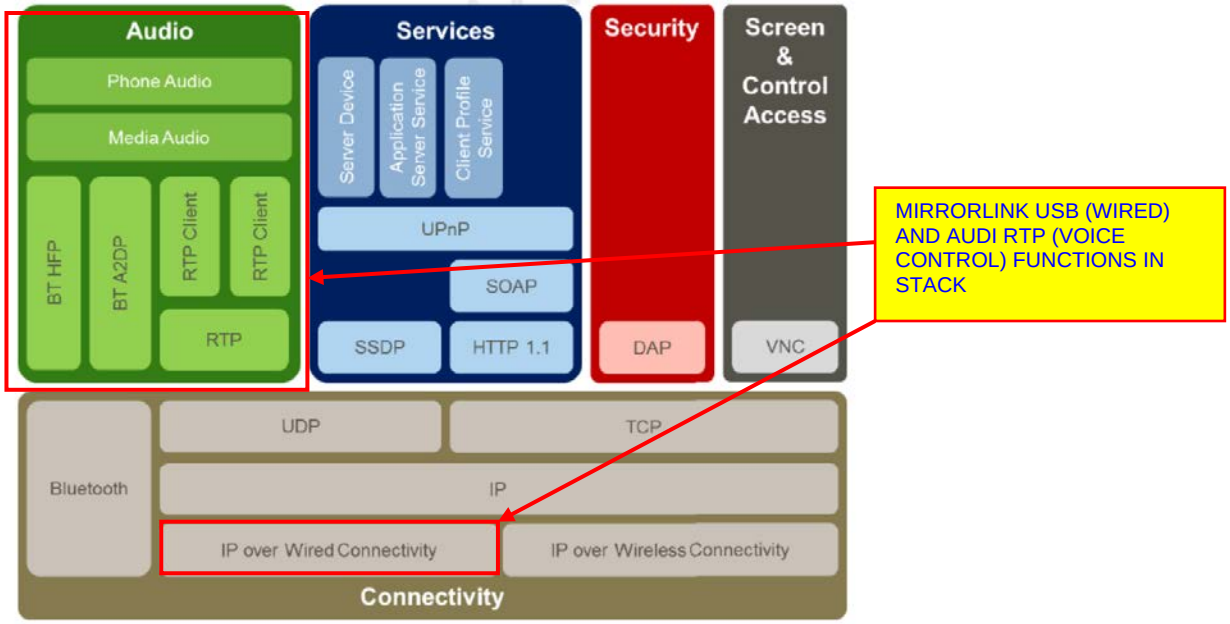
THE CPU/GPU OF THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE COORDINATE VIA THE USB CABLE (USING INTERNET PROTOCOL OVER TOP OF THE USB PROTOCOL) TO PROVIDE, AMONG OTHER THINGS, THE EMULATION OF THE PHONE'S DISPLAY AND FUNCTIONS ON THE VEHICLE TOUCHSCREEN DISPLAY.

SEE ABOVE; THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE, WHEN CONNECTED, COMPRISE NUMEROUS PROCESSORS, MEMORY (E.G., RAM, ROM, FLASH), SOFTWARE, FIRMWARE, ETC. WITH NUMEROUS COMPUTER PROGRAMS OPERATIVE TO RUN THEREON TO RENDER GRAPHICS, ESTABLISH USB CONNECTIVITY, PROCESS SPEECH INPUTS, ETC.

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	VOLSWAGEN ALSO SUPPLIES APPLICATION-LAYER SOFTWARE (AKA "APPS") FOR VARIOUS FUNCTIONS FOR USE ON THE MATED ANDROID PHONE:  http://volkswagen-carnet.com/int/en/start/app-download.html **HENCE, VW (I) PROVIDES THE MIB-II MIRRORLINK-ENABLED HEAD UNIT IN THE VEHICLE; (II) PROVIDES THE VW-BRANDED APPLICATION SOFTWARE TO LOAD ON THE USER'S SMARTPHONE; AND (III) INSTRUCTS THE USER ON CONNECTION/UTILIZATION OF THE TWO DEVICES AS A SYSTEM.**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	7) Service is available soon *) The mobile online service (Car-Net) can only be used with the optional Discover Media and Discover Pro equipment. A mobile terminal (e.g. smartphone) with the ability to act as a mobile WLAN hotspot is also required. Alternatively, a mobile phone with a remote SIM Access Profile (rSAP) or a SIM card with call and data options can be used with the "Premium mobile phone interface" option. The Car-Net service is available only with an existing mobile phone contract or one which must be separately established between you and your mobile service provider, and only within the coverage of the individual mobile phone network. Additional fees (e.g. roaming charges) may arise when receiving data from the internet, depending on your particular mobile phone tariff and especially when using the service abroad. Due to the accumulation of data when using the Car-Net service, it is strongly recommended that you organise an unlimited data plan with your mobile service provider. A separate contract with Volkswagen AG must be set up online in order to use Car-Net. After the vehicle handover, the customer has 90 days to register the vehicle at [http://volkswagen-carnet.com/int/en/start/online-devices.html#tab/open/mirror-link] **NOTE THAT CAR-NET SERVICE IS STANDARD ON GOLF GTI, BUT REQUIRES PRESENCE OF WIRELESS CONNECTION (E.G., CELLULAR SMARTPHONE WITH WI-FI HOTSPOT CAPABILITY, WHICH IMPLIES THAT CAR DOES NOT HAVE ITS OWN INDIGENOUS CELLULAR MODEM.**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	The MirrorLink high-level architecture is shown in the following Figure 2.  Figure 2: MirrorLink Architecture ["Car Connectivity Consortium," April 28, 2015]		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

4 MIRRORLINK FEATURES

The following Table 1 specifies the requirements for the different MirrorLink features for the MirrorLink Server and Client.

Feature			Version	MirrorLink Server	MirrorLink Client
Connectivity	USB	USB Host	1.0	N/A	MUST
		USB Device	1.0	MUST	N/A
	WLAN	Access Point	1.0	MAY	MAY
		Device	1.0	MAY	MAY
	Bluetooth		1.0	MAY	MAY
UPnP based Services MirrorLink implements 2-Box pull model	UPnP Server Services Provided	Server Device	1.0	MUST	N/A
		Application Server Service	1.0	MUST	N/A
		Client Profile Service	1.0	MUST	N/A
	UPnP Control Point Services Supported	Server Device	1.0	N/A	MUST
		Application Server Service	1.0	N/A	MUST
		Client Profile Service	1.0	N/A	SHOULD
Screen & Control	VNC Server		1.0	MUST	N/A
	VNC Client		1.0	N/A	MUST
Audio	RTP	RTP Server	1.0	MUST	SHOULD
		RTP Client	1.0	SHOULD	MUST
	BT	BT HFP	1.0	SHOULD	SHOULD
		BT A2DP	1.0	MAY	MAY
Security	DAP	Server Endpoint	1.0	SHOULD	N/A
		Client Endpoint	1.0	N/A	SHOULD

Table 1: MirrorLink Feature Requirements

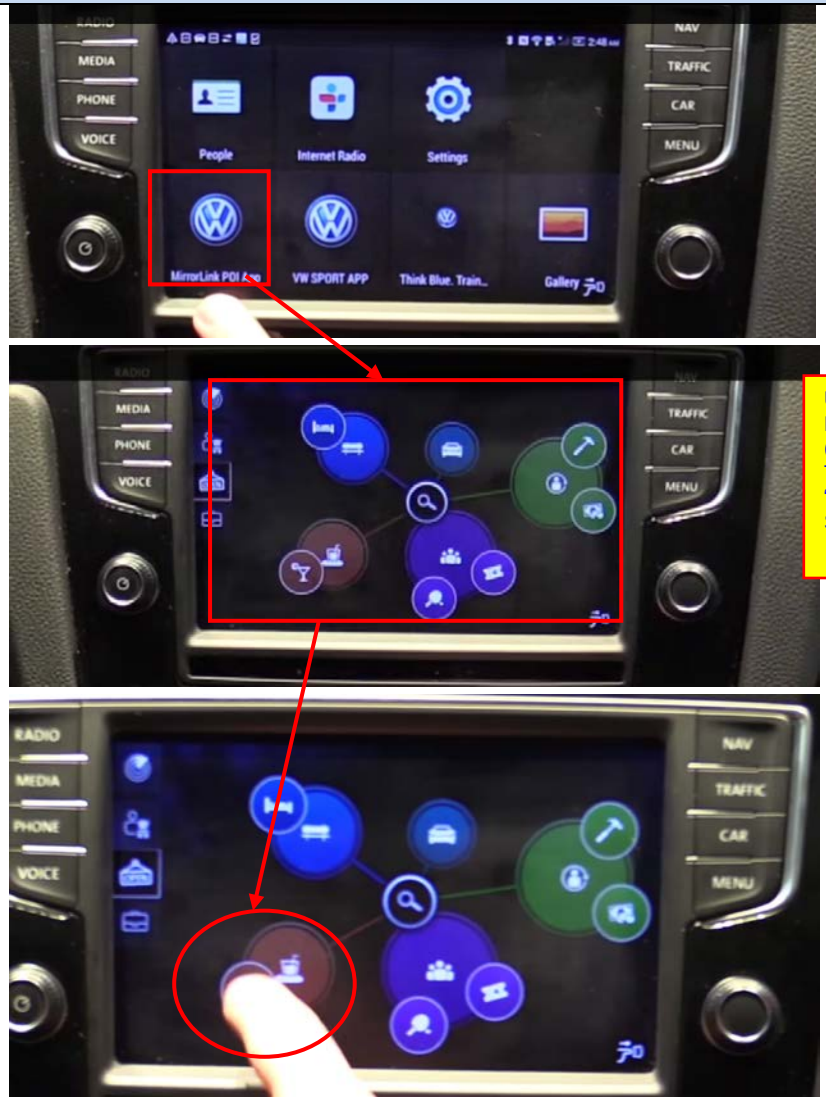
The MirrorLink Server MUST implement either the UPnP 1.0 stack or the UPnP 1.1 stack. In either case, it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 Control Points.

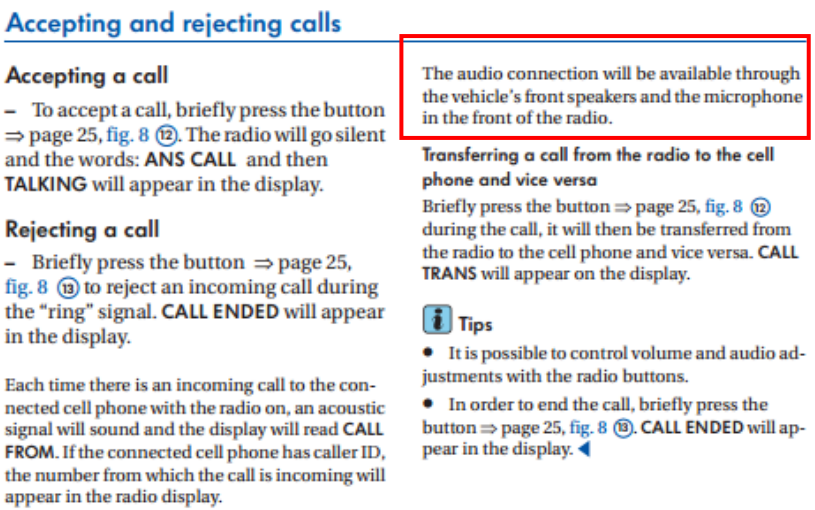
The MirrorLink Client MUST implement either an UPnP 1.0 control point or an UPnP 1.1 control point. In either case it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 services residing on the MirrorLink server.

USB, RTP (REAL TIME PROTOCOL- FOR AUDIO INCLUDING VOICE RECOGNITION) AND VNC SCRREN/CONTROL **MANDATORY.** WLAN (WI-FI) AP OR DEVICE CAPABILITY MAY ALSO BE INCLUDED.

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
the computer readable apparatus being part of a computerized information system disposed on or within a transport apparatus configured to transport at least one person from one location to another,	 http://cars.reviewed.com/content/volkswagen-mib-ii-infotainment-system-first-impressions-review	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	SEE FEATURE MATRIX BELOW; CURRENT ANALYSIS IS BASED ON 2015 GOLF GTI (TRANSPORT APPARATUS) WITH MIB-II AND MIRRORLINK.		
	Golf GTI Specs ● Standard, no additional cost O Optional, additional cost – Not available 2D Standard on 2-Door only 4D Standard on 4-Door only DCC Available with Dynamic Chassis Control Package DAP Available with Driver Assistance Package PP Available with Performance Package LP Available with Lighting Package		
	Technology / S / SE / Autobahn (4-Door only) 5.8" touchscreen sound system with proximity sensors and voice control, MP3- and WMA-compatible in-dash CD player, and SD memory card reader: ● / ● / – Navigation system with 5.8" touchscreen with proximity sensors and voice control, and 2 SD memory card readers: – / – / ● 8 speakers: ● / – / – Fender® Premium Audio System with 9 speakers including subwoofer: – / ● / ● SiriusXM Satellite Radio All Access with 3-month trial subscription: ● / ● / ●		
	Technology Cont. / S / SE / Autobahn (4-Door only) Interior ambient lighting: ● / ● / ● SiriusXM Traffic™ with 4-year trial subscription: – / – / ● Bluetooth® with audio streaming*: ● / ● / ● Media Device Interface (MDI) with iPod® cable: ● / ● / ● Rearview camera: – / ● / ● Keyless access with push-button start: – / ● / ● Park Distance Control (PDC) system with front and rear proximity sensors: DAP / DAP / DAP Forward Collision Warning: DAP / DAP / DAP		
	[THE 2015 VW Golf GTI STANDARD AND OPTIONAL EQUIPMENT]		
the computerized information system being configured to adaptively provide a user with desired information relating to a plurality of topical areas,	**SEE EXEMPLARY VW MIRRORLINK APP U/I BELOW; NUMEROUS TOPICAL AREAS PRESENTED ADAPTIVELY TO USER (E.G., RESPONSES CHANGE BASED ON PRIOR USER INPUTS, AND IN RESPONSE TO AVAILABLE INFORMATION AND CONNECTIVITY):**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 USER SELECTS VW MIRRORLINK POI APP, (WHICH HAS MULTIPLE TOPICAL AREAS), THEN "BARS AND RESTAURANTS" SUB-FUNCTION.		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
said at least one program being configured to: receive a digitized representation of a speech input of the user of the transport apparatus via a speech recognition apparatus in communication with the computerized information system,	**GOLF GTI HAS INDIGENOUS MICROPHONE AND SPEAKERS TO SUPPORT, AMONG OTHER THINGS VOICE RECOGNITION FUNCTIONS:**  **Accepting and rejecting calls** **Accepting a call** – To accept a call, briefly press the button ⇒ page 25, fig. 8 ⑫. The radio will go silent and the words: **ANS CALL** and then **TALKING** will appear in the display. **Rejecting a call** – Briefly press the button ⇒ page 25, fig. 8 ⑬ to reject an incoming call during the "ring" signal. **CALL ENDED** will appear in the display. Each time there is an incoming call to the connected cell phone with the radio on, an acoustic signal will sound and the display will read **CALL FROM**. If the connected cell phone has caller ID, the number from which the call is incoming will appear in the radio display. The audio connection will be available through the vehicle's front speakers and the microphone in the front of the radio. **Transferring a call from the radio to the cell phone and vice versa** Briefly press the button ⇒ page 25, fig. 8 ⑫ during the call, it will then be transferred from the radio to the cell phone and vice versa. **CALL TRANS** will appear on the display. **Tips** • It is possible to control volume and audio adjustments with the radio buttons. • In order to end the call, briefly press the button ⇒ page 25, fig. 8 ⑬. **CALL ENDED** will appear in the display. ◀ [http://parts.vw.com/media/images/ecatalog/itemdocuments/1000/VW%20Sound%20System.pdf] **SEE BELOW; MIB-II UTILIZES E.G., RTP MEDIA PROTOCOL TO TRANSFER USER'S VOICE AUDIO IN DIGITAL FORMAT (I.E., RTP PACKETS) TO SMARTPHONE VOICE RECOGNITION INTERFACE:**	**L, DOE**	

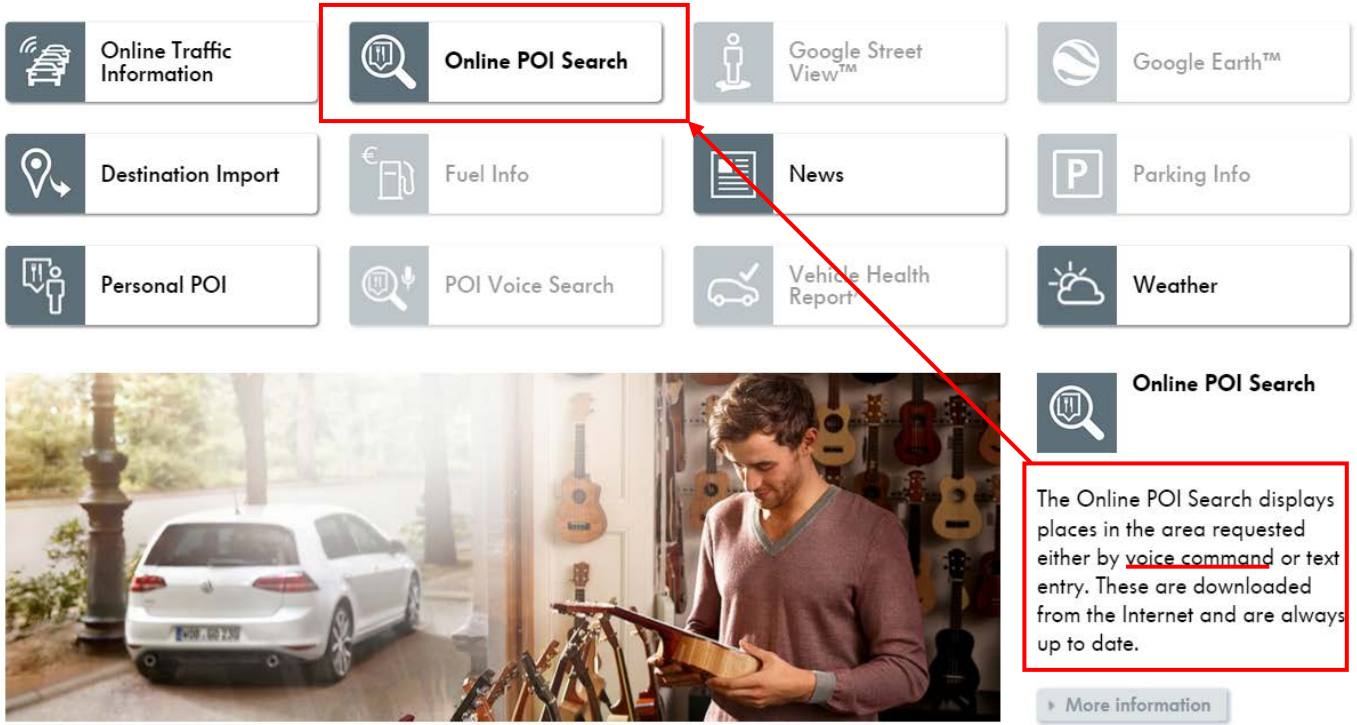
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

2 The Device Status Request message is given in Table 20.

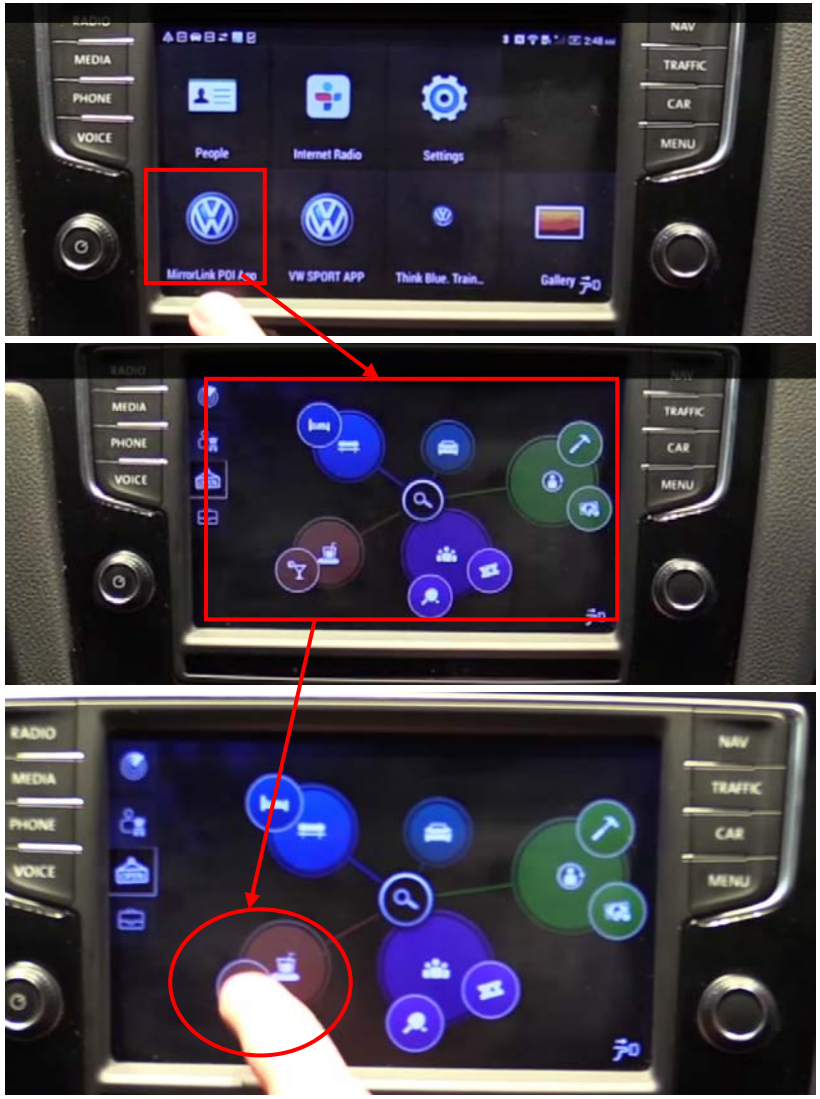
# bytes	Type	Value	Description
1	U8	128	Message-type
1	U8	12	Extension-type
2	U16	4	Payload length
4	U32	*Bit*	*Status of Device Features (00 = ignore, 01* = reserved *10 = disable, 11 = enable))*
		[1:0]	Key-lock (block key entry on the device)
		[3:2]	Device lock (block key entry on the device and from MirrorLink client)
		[5:4]	Screen saver (power-down the device screen)
		[7:6]	Night mode (run device in night mode)
		[9:8]	Voice input (route the incoming audio stream to a voice recognition engine on the mobile device)[12]
		[11:10]	Microphone input on MirrorLink Client routed from microphone to the MirrorLink server
		[17:16]	Driver Distraction Avoidance (MirrorLink Client is in restricted driving mode (enabled), non-restricted driving mode (disabled) or does not enforce a specific driving mode (ignore))
		[26:24]	Absolute Framebuffer rotation (clock-wise) (000 = ignore, 001, 010, 011 = reserved

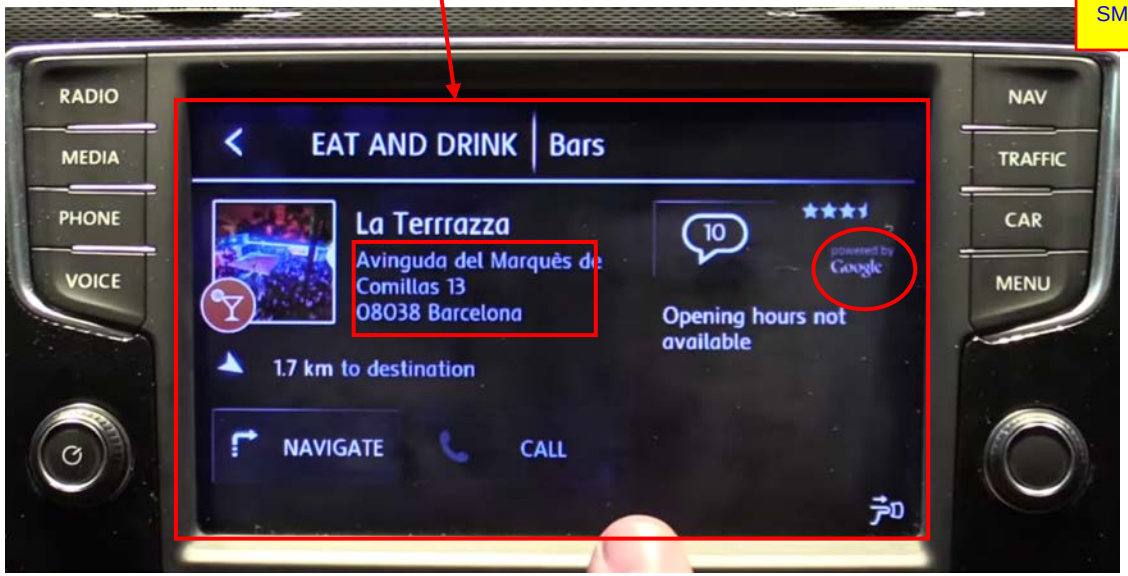
[12] The MirrorLink client MUST use this flag only if the voice command is streamed via RTP. In case an existing BT HFP connection is used and Voice Recognition Activation is supported by both Hands-Free unit and Audio Gateway, the MirrorLink client MUST use the BT HFP voice activation mechanism (AT + BVRA command as specified in **Error! Reference source not found.**) instead.

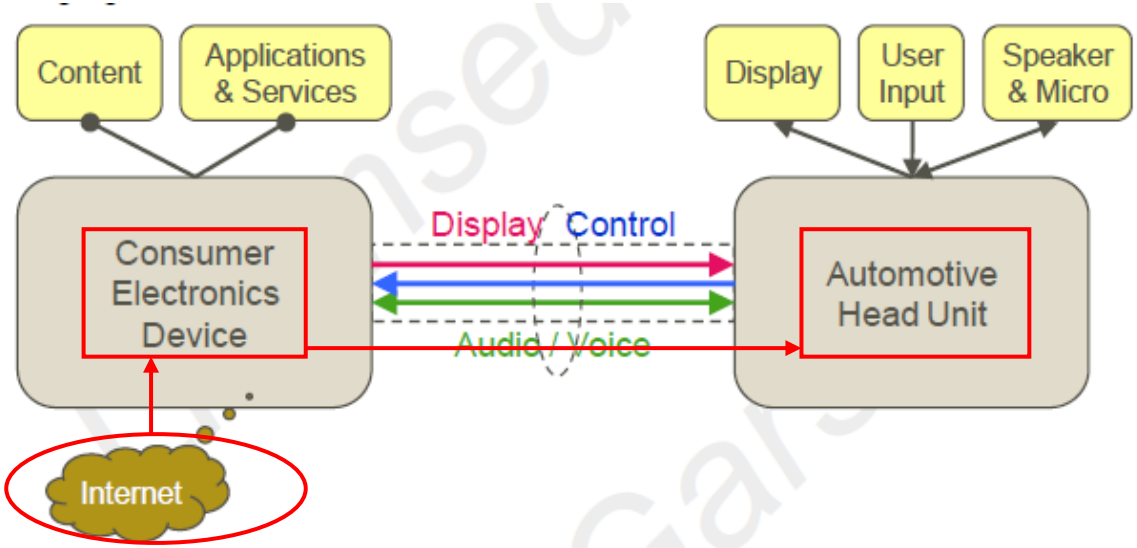
["Car Connectivity Consortium," April 28, 2015]

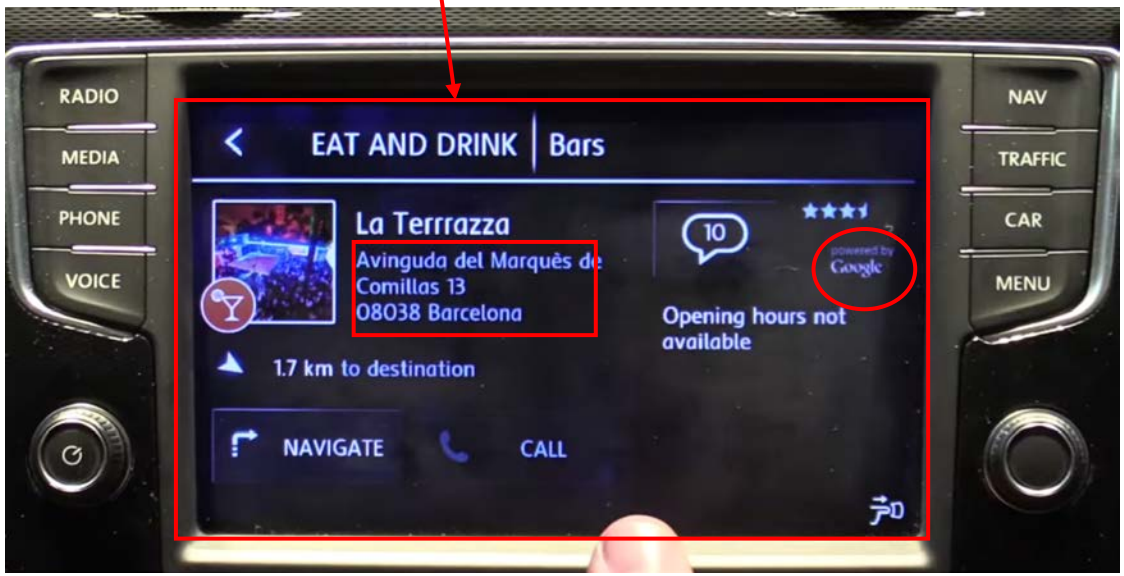
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 http://volkswagen-carnet.com/int/en/start/online-devices.html#130411dc-254f-4d9e-b8d6-e61f322d0417		
the speech input relating to a desired function to be performed by the computerized information system;	**SEE FOLLOWING EXEMPLARY HTC-BASED ILLUSTRATION OF THE MIRRORLINK-ENABLED MIB-II IN 2015 GOLF GTI (OUTSIDE U.S.), WHEREIN EXAMPLE OF "DESIRED FUNCTION" (E.G., LOCATING A BAR/RESTAURANT) IS DEMONSTRATED – NOTE THAT THE SEARCH CAN BE CONDUCTED USING VOICE AS WELL:** **https://www.youtube.com/watch?v=6J5KNaaVRoQ**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 USER SELECTS VW MIRRORLINK POI APP, THEN "BARS AND RESTAURANTS" SUB-FUNCTION. NOTE THAT EACH OF THE FOREGOING CAN BE ACCOMPLISHED VIA VOICE COMMAND, AS NOTED ABOVE		

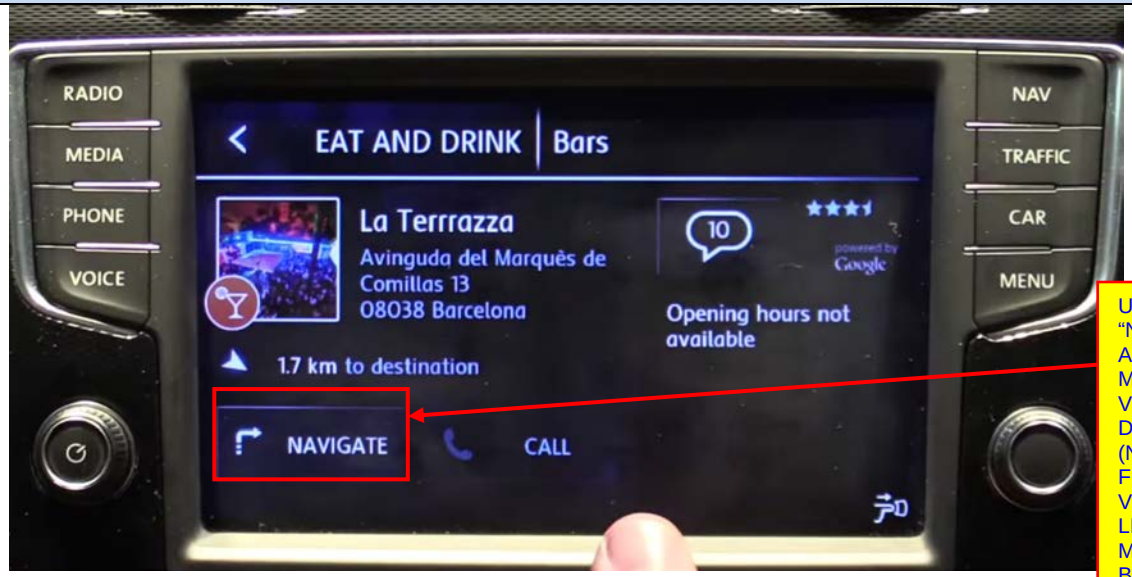
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	  USER SELECTS FIRST LISTED BAR/RESTAURANT (LA TERRRAZZA), WHICH AS NOTED, WAS OBTAINED BY GOOGLE SEARCH (I.E., ACCESS TO REMOTE SERVER VIA WIRELESS INTERFACE OF SMARTPHONE)		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
cause wireless access of a network in order to access information stored on a remote server and necessary to perform the desired function;	**THE VW MIB-II RECEIVES THE INFORMATION FROM THE REMOTE SERVER VIA THE WIRELESS INTERFACE OF THE SMARTPHONE, AND THEN VIA USB CONNECTION BETWEEN PHONE AND VEHICLE:**  8 [“Car Connectivity Consortium,” April 28, 2015]	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
receive accessed information obtained from the remote server via the wireless interface;	 RESULTS CLEARLY BASED ON NETWORK-OBTAINED DATA 	**L, DOE**	

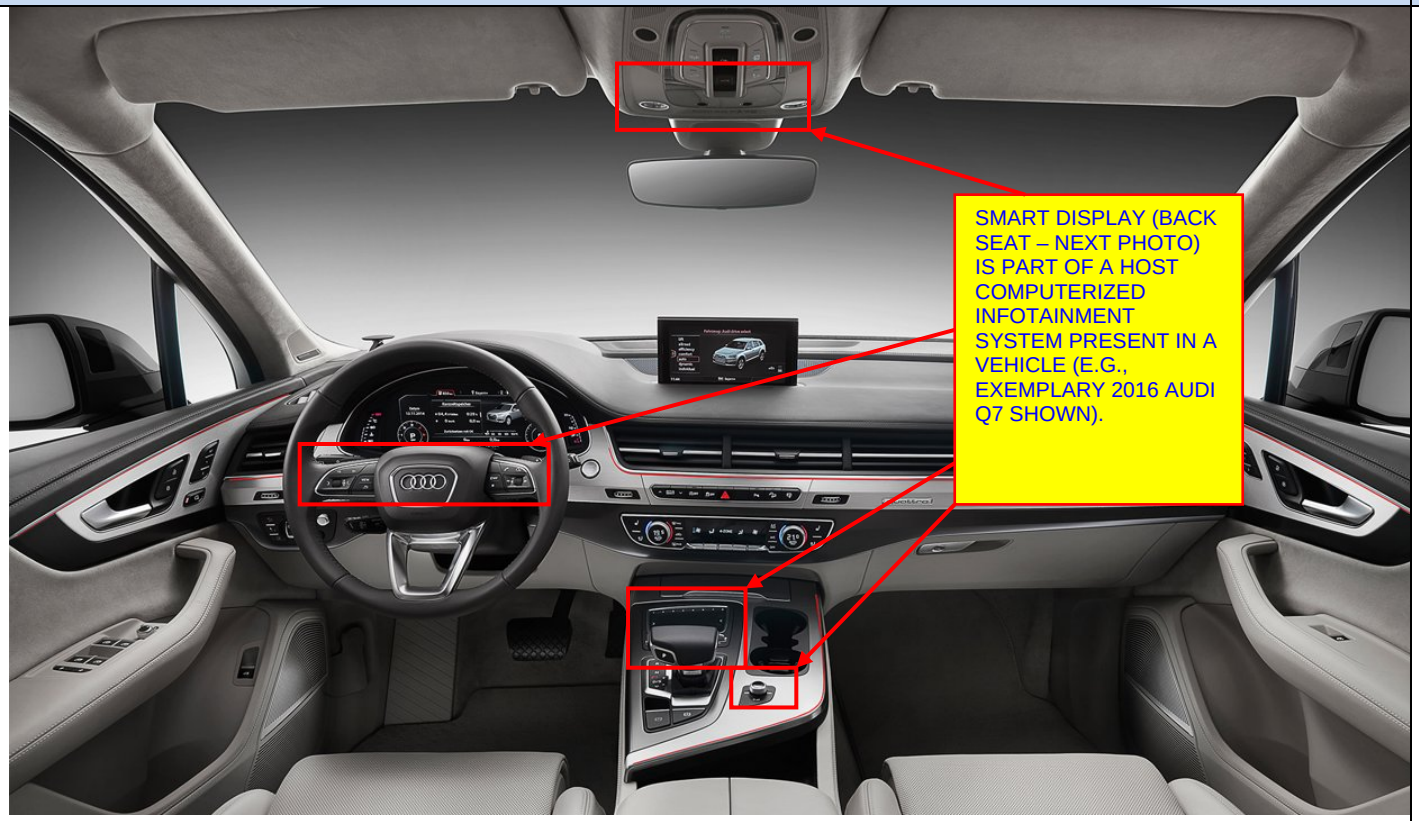
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
and implement the desired function on the computerized information system using at least a portion of the received information and at least one of (i) a touch-screen display and input device of the computerized information system; and/or (ii) a speech synthesis apparatus of the computerized information system;	**SEE ABOVE; TOUCH SCREEN DISPLAY IND INPUT DEVICE USED TO IMPLEMENT DISPLAY OF THE DESIRED FUNCTION, INCLUDING GENERATION OF MAP (SHOWN BELOW)**	**L, DOE**	
wherein: said input relating to a desired function comprises an input to obtain information relating to a particular destination or entity;	**SEE ABOVE EXAMPLE; SEARCHED-FOR BAR/RESTAURANT IS A DESTINATION/ENTITY DESIRED BY USER.**	**L, DOE**	
said computerized information system is further configured to generate a synthesized speech output via the speech synthesis apparatus,	**TO BE VERIFIED IN DISCOVERY; PRIOR GENERATIONS OF VW MIB AND OTHER SYSTEMS INCLUDE SPEECH SYNTHESIS CAPABILITY (E.G., FOR TURN-BY-TURN DIRECTIONS, VOICE PROMPT/RESPONSE, ETC.)**	**L, DOE**	
and iteratively receive digitized representations of subsequent user speech inputs via the speech recognition apparatus, the subsequent inputs being used to traverse a menu structure comprising a plurality of possible	**TO BE VERIFIED IN DISCOVERY; PRIOR GENERATIONS OF VW MIB AND OTHER SYSTEMS INCLUDE ITERATIVE SPEECH ENTRY CAPABILITY (E.G., FOR ENTRY OF INITIAL QUERY, SELECTION OF OPTIONS, ETC.)**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
matching entries;			
said computerized information system is fixedly mounted within said transport apparatus such that at least a portion of said touch-screen input and display device is substantially flush with at least one surface of said transport apparatus and viewable by the user while operating the transport apparatus;		**L, DOE**	

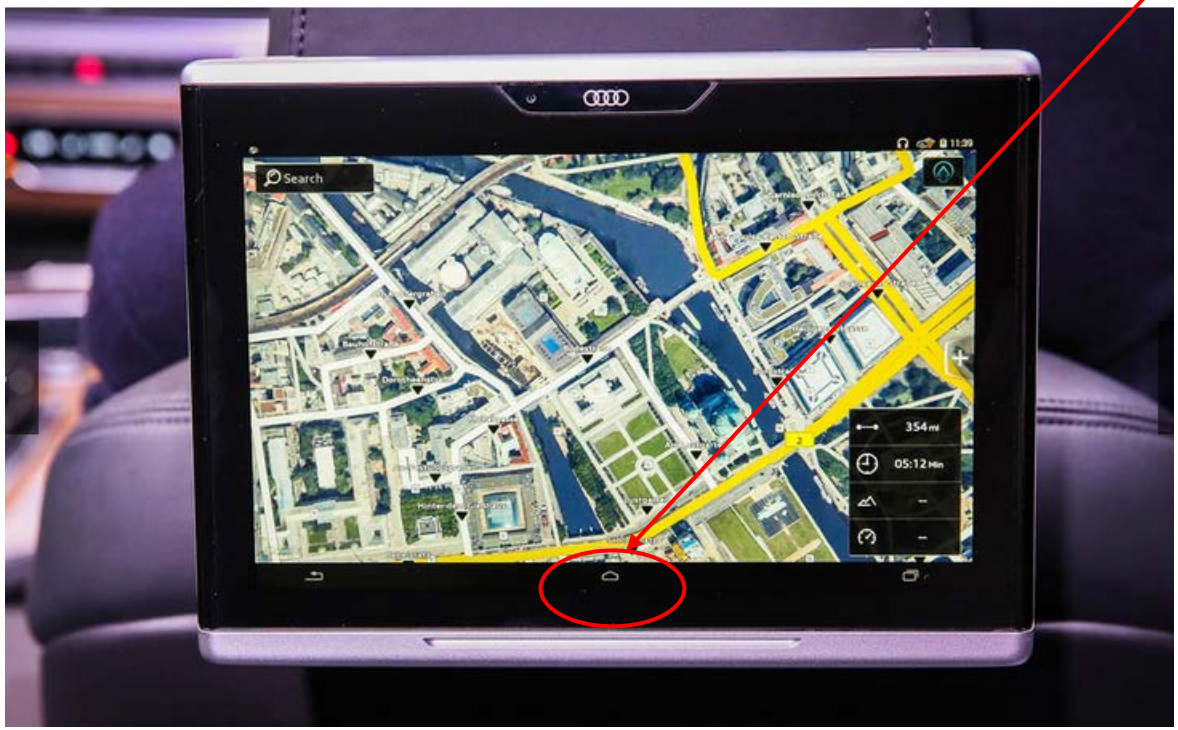
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
and the provision of at least a portion of the accessed information relating to the directions to the business or entity via at least one of: (i) a touch screen input and display device of the computerized system; and/or (ii) a speech synthesis apparatus, comprises provision of at least a map graphic showing the location of the destination or entity and other entities proximate thereto,	  USER SELECTS "NAVIGATE" FUNCTION AND OBTAINS AT LEAST MAP DISPLAY AND VISUAL DIRECTIONS ON DISPLAY SCREEN (NOTE: MAP IMAGE FROM VW AG SITE VERSUS VIDEO). AT LEAST PART OF THE MAP/DIRECTIONS HAS BEEN OBTAINED FROM REMOTE SERVER.	**L, DOE**	

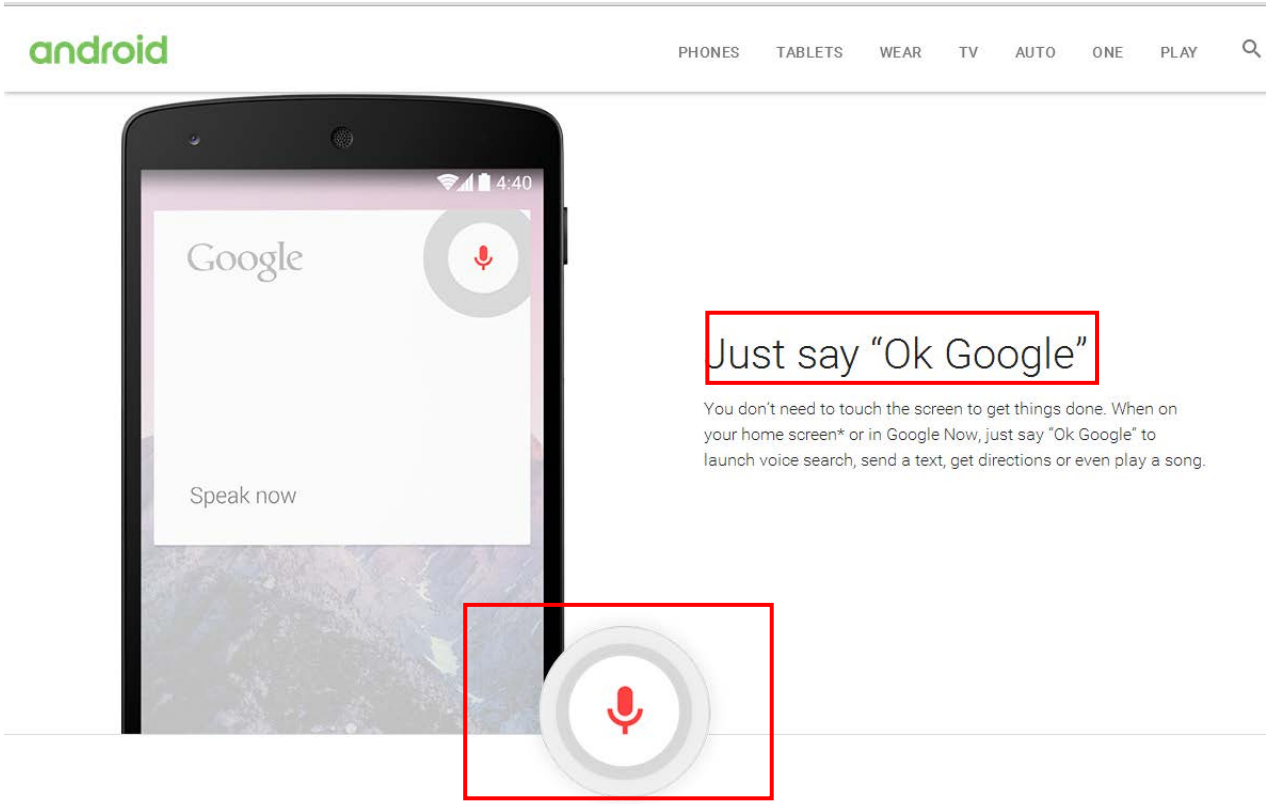
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2014/11/Innovation_workshop_2014/Networking.html		
the map graphic further comprising an arrow graphic differentiated at least in color from the map graphic so as to guide the user from a current location to the destination or entity.	 http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2014/11/Innovation_workshop_2014/Networking.html	**L, DOE**	

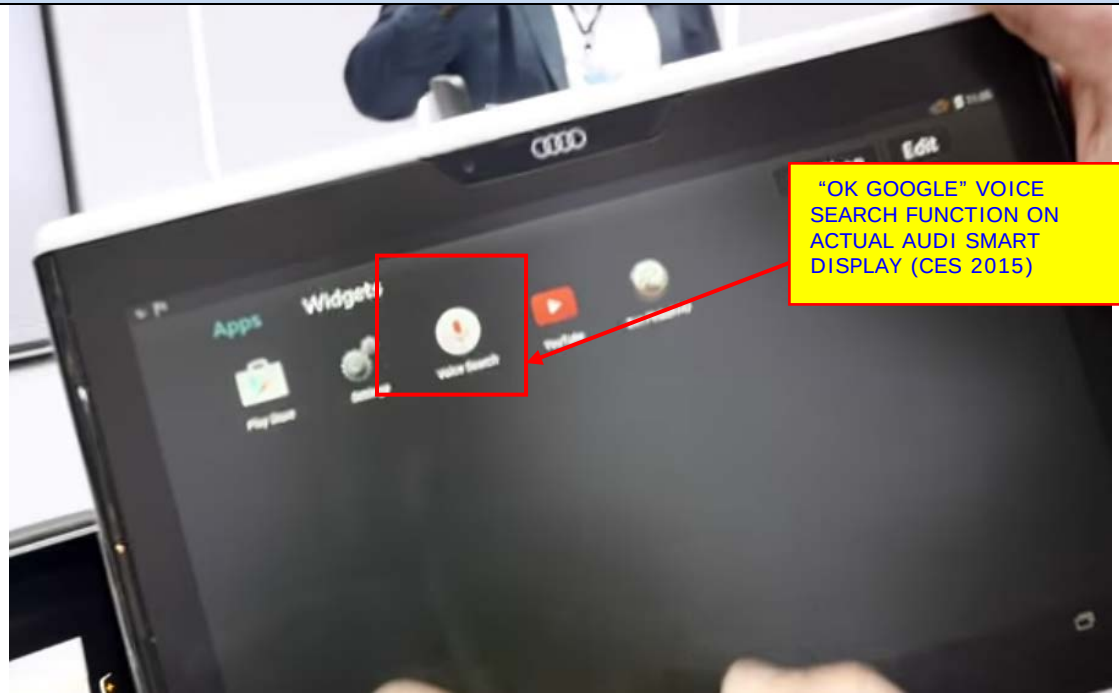
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	AUDI SMART DISPLAY TABLET		
	THIS ANALYSIS IS BASED ON THE SMART DISPLAY TABLET (OFFERED WITH E.G., THE 2016 AUDI Q7) 		

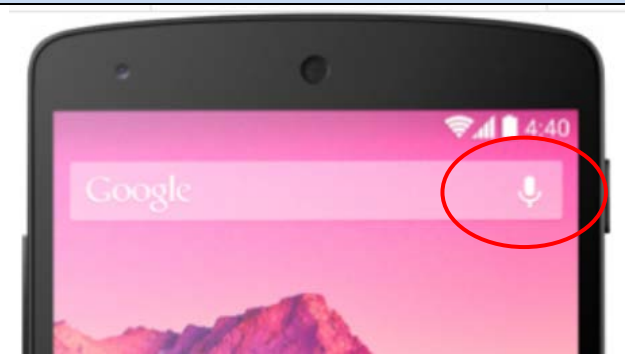
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
18. Computer readable apparatus of a computerized information system,		**L, DOE**	**D, I**

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
			
the apparatus comprising a storage apparatus, the storage apparatus having computerized means configured to:	**THE SMART DISPLAY IS IN LARGE PART A STANDARD ANDROID-BASED TABLET, AND INCLUDES NUMEROUS DATA STORAGE APPARATUS (E.G., RAM, ROM, FLASH, ETC.), WHICH EACH HAVE THEIR OWN ACCESIBLE STORAGE MEDIA (E.G., MEMORY CELLS, MAGNETIC DISK DRIVE SECTORS, ETC.), AND HENCE THE OVERALL DEVICE (AND EACH OF THE STORAGE COMPONENTS) ARE "COMPUTER READABLE". AS BUT A FEW EXAMPLES:** **1) THE HOST SYSTEM CAN ACCESS THE SMART DISPLAY (AND VICE VERSA) VIA WI-FI;** **2) THE SMART DISPLAY CAN ACCESS EACH OF ITS INTERNAL STORAGE COMPONENTS;** **3) AN EXTERNAL DEVICE (E.G., BLUTOOTH-CONNECTED SMARTPHONE. OR USB-CONNECTED TABLET OR SMARTPHONE, OR WI-FI CONNECTED AP) CAN ACCESS THE SMART DISPLAY STORAGE DEVICES.** **THE STORAGE DEVICES CONTAIN DATA AND/OR, IN THE CASE OF E.G., PROGRAM MEMORY, HDD, ETC., PROGRAM INSTRUCTIONS WHICH ARE EXECUTED ON ONE OR MORE PROCESSING DEVICES IN THE SMART DISPLAY ('COMPUTERIZED MEANS").**	**L, DOE**	

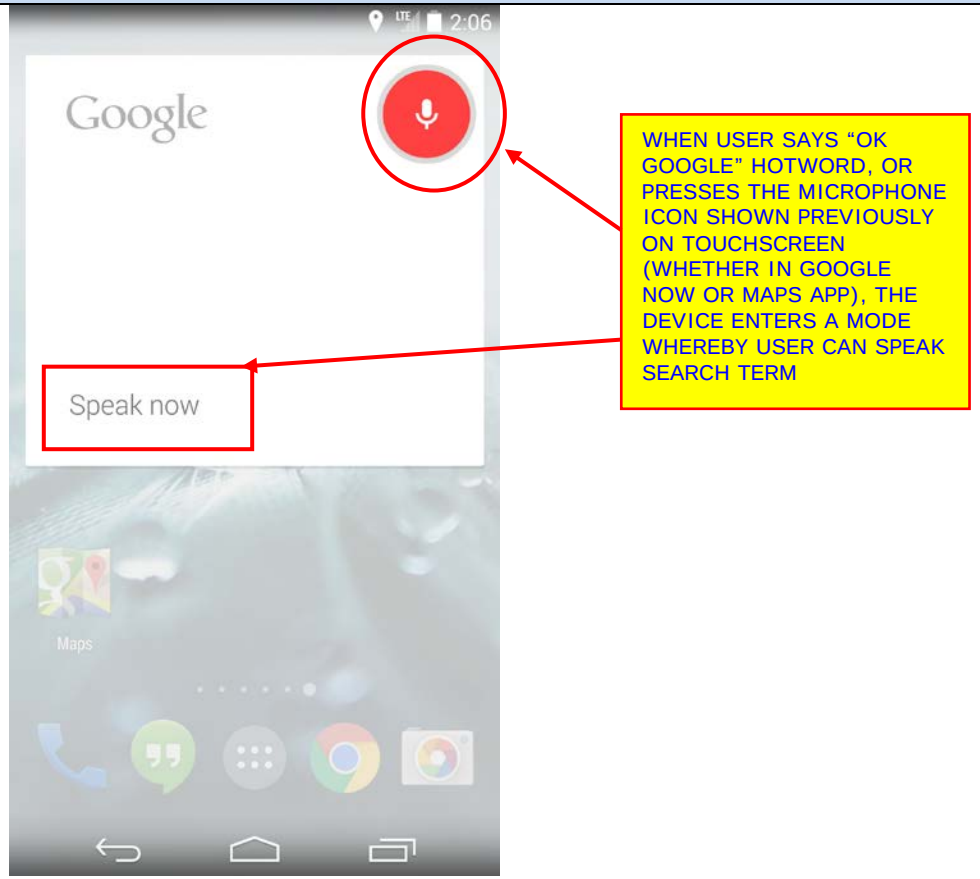
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
receive, via a speech recognition means of the computerized information system, an input from the user,	**THE SMART DISPLAY HAS BOTH AN UNDERLYING COMPLETE ANDROID KITKAT 4.4 OPERATING SYSTEM (WHICH INCLUDES INDIGENOUS SPEECH RECOGNITION CAPABILITY) AND A HIGHER-LAYER AUDI-SPECIFIC USER INTERFACE (U/I). USER CAN TOGGLE BETWEEN LAYERS USING E.G., HOME BUTTON ON TABLET:**  **IN THE FIRST CASE (ANDROID LAYER), INDIGENOUS "GOOGLE MAPS" FUNCTIONS OF "GOOGLE NOW" FUNCTIONALITY OF KITKAT 4.4 O/S IS PRESENT. FOLLOWING EXAMPLE WILL DEMONSTRATE THE FOREGOING FUNCTIONS (BASED ON A COUNTERPART GOOGLE NEXUS DEVICE WITH SAME ANDROID KITKAT 4.4 O/S), ALTHOUGH VARIOUS OTHER TYPES OF FUNCTIONS MAY BE USED AS THE BASIS OF DEMONSTRATION AS WELL.** **THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION IN ADROID**	**L, DOE**	

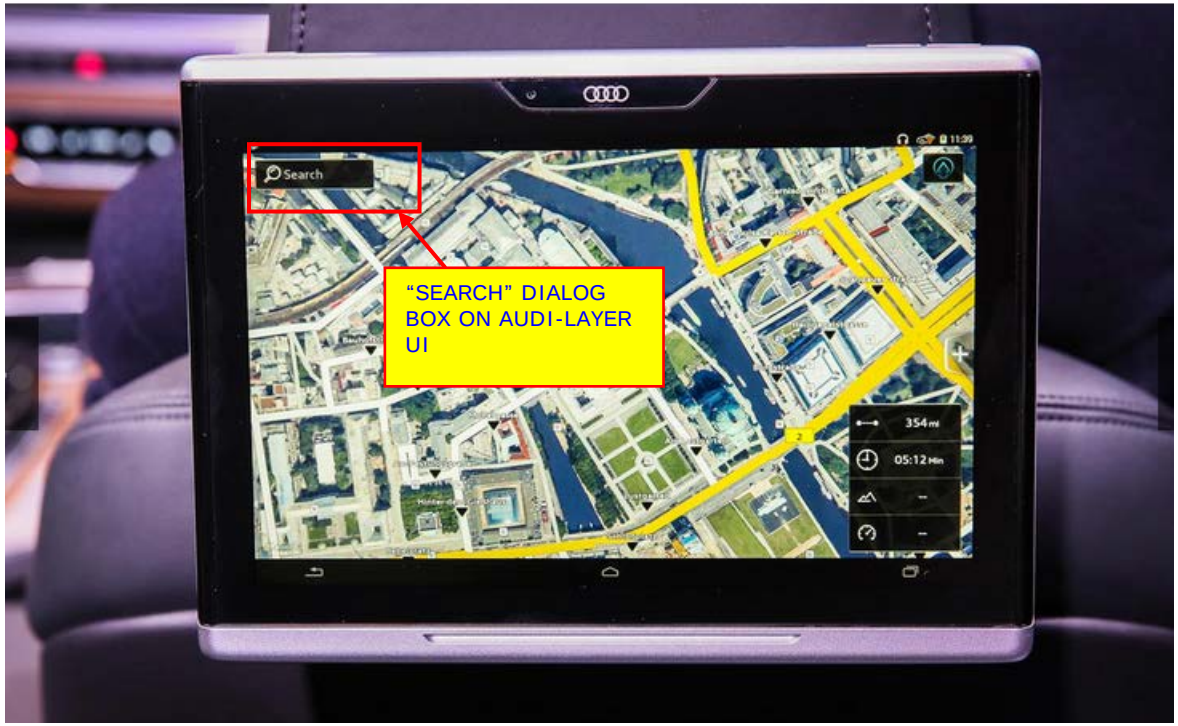
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	LAYER OF SMART DISPLAY: **1) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA HANDS FREE), FOLLOWED BY VOICE SEARCH TERM;** 		

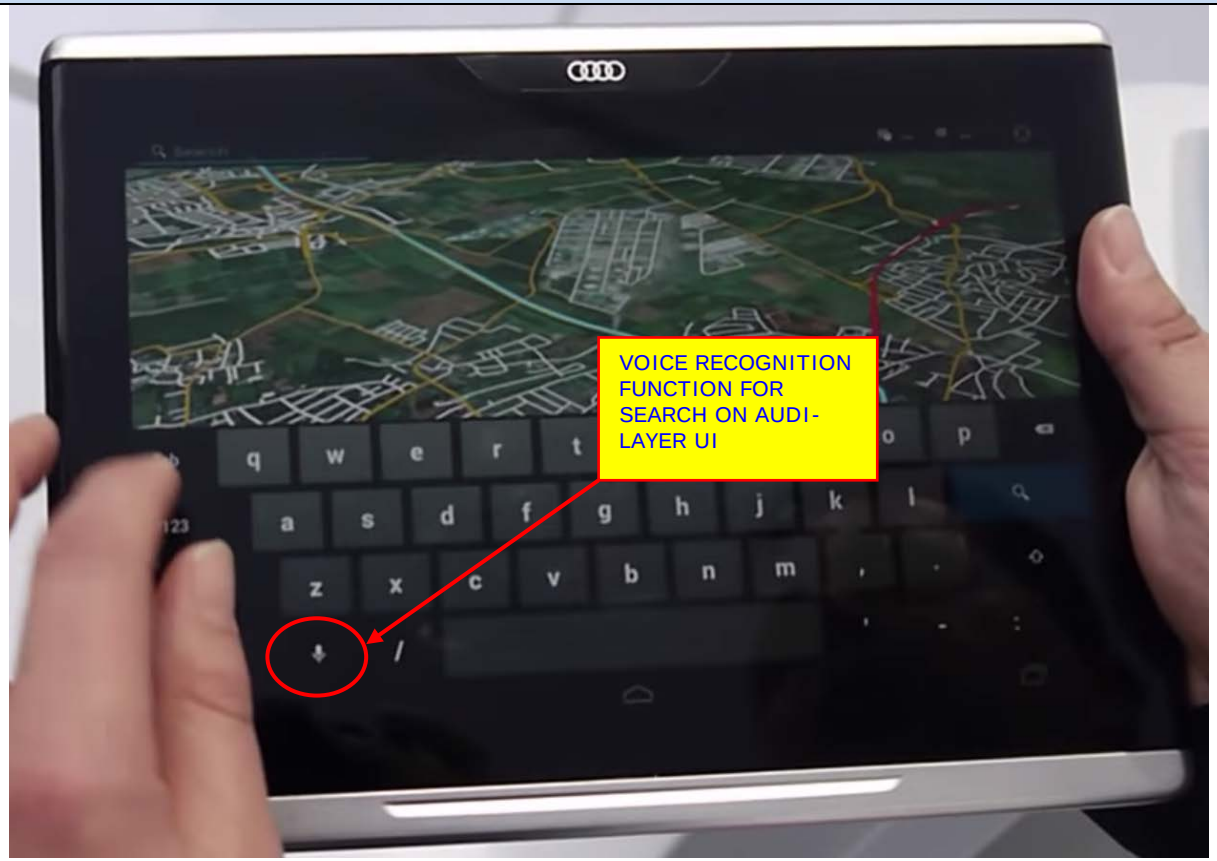
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **2) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	https://www.youtube.com/watch?v=ykbzKkffo0Y **THE VOICE COMMAND (OR DEPRESSING ICON) CAUSE THE DEVICE TO ENTER A MODE WHEREIN THE USER CAN SAY THE INPUT (E.G., NAME OF AN ENTITY) ALOUD, THE USER'S VOICE PICKED UP BY THE MICROPHONE OF THE TABLET DEVICE:**		

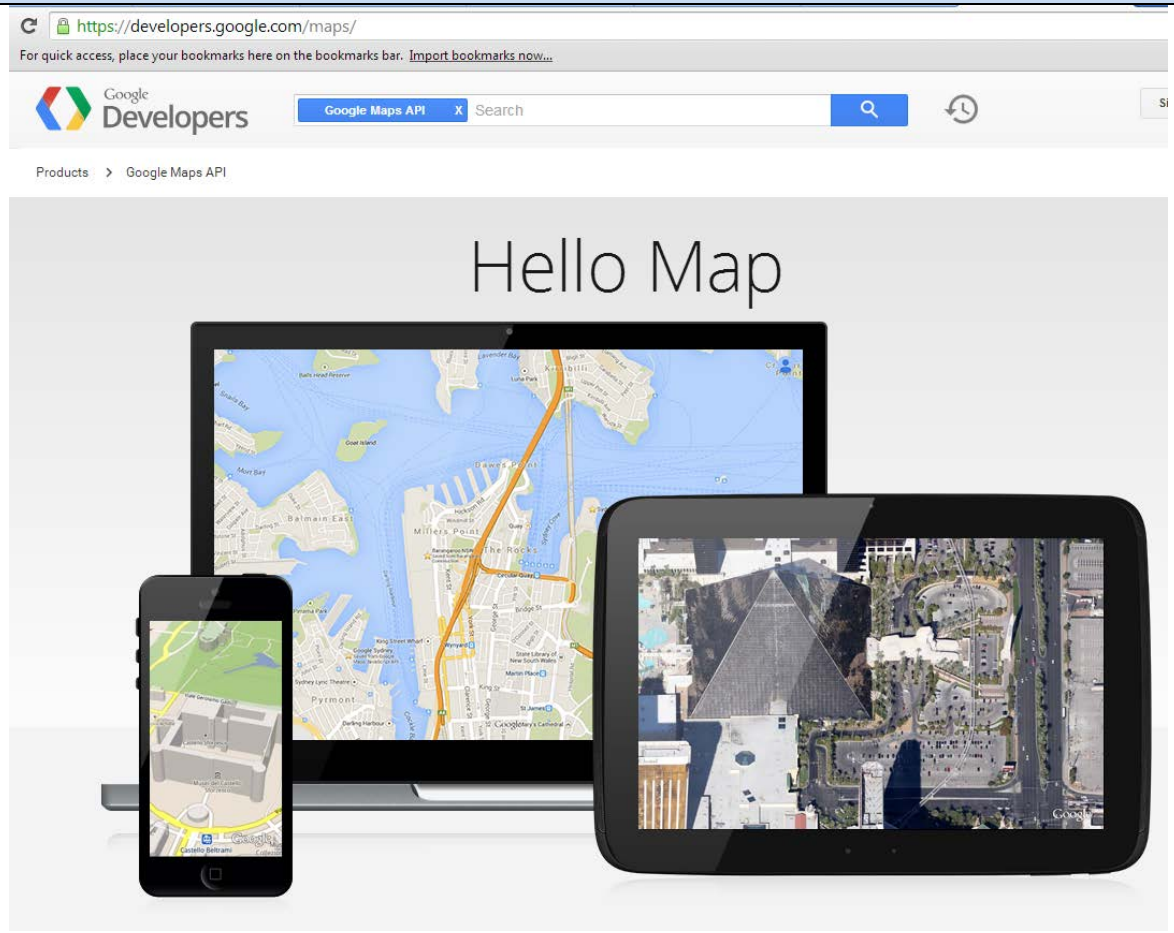
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **ADDITIONALLY, THE AUDI-LAYER SEARCH FUNCTION INCLUDES THE ABILITY TO PERFORM VOICE-BASED-SEARCHES (PRESUMABLY VIA AT LEAST PARTLY COMMON SPEECH PROCESSING APPARATUS ON THE SMART DISPLAY):**		

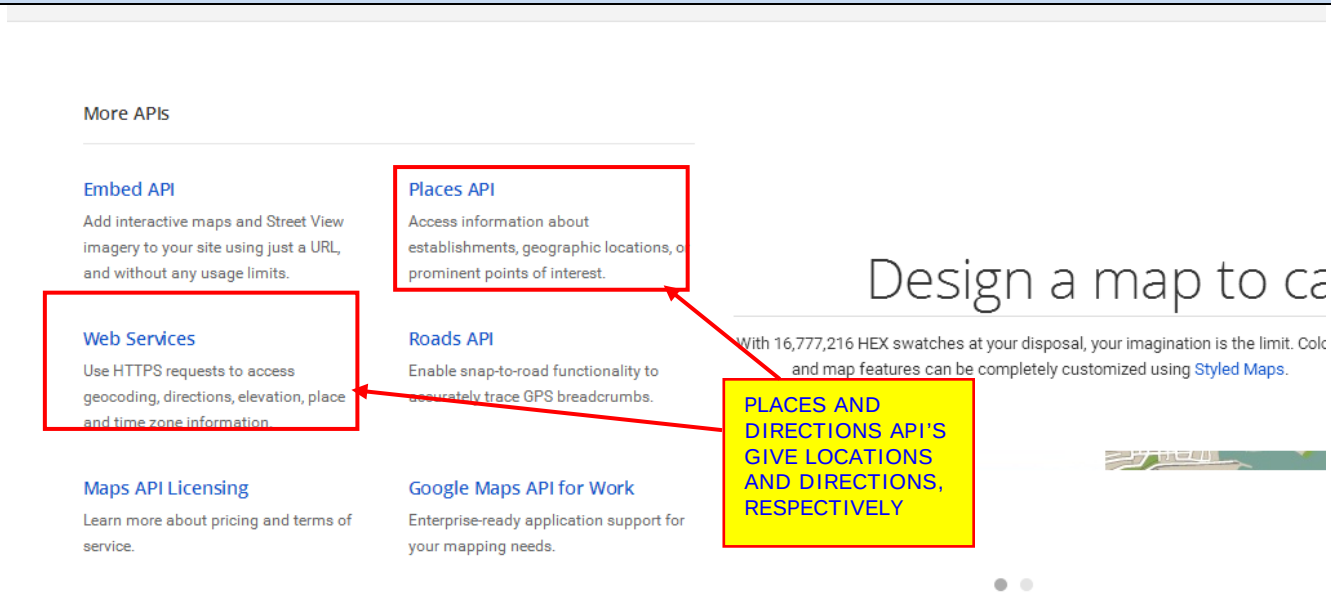
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **SEE VIDEO BELOW; DEMONSTRATOR TOUCHES "SEARCH" DIALOG BOX, AND THEN DISPLAYS ENTRY SOFT KEYS (WHICH INCLUDE A VOICE RECOGNITION FUNCTION):**		

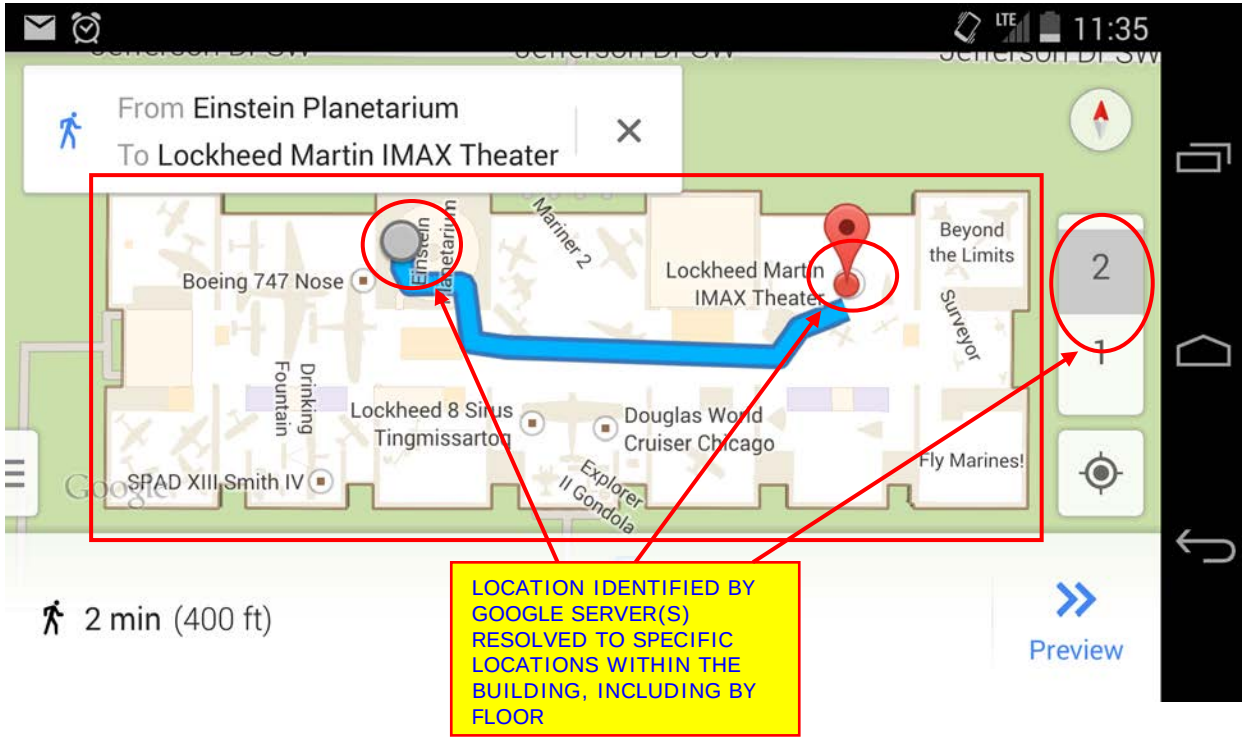
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2D32beCtCvs		
the input relating to a user's request to obtain directions to a business or entity from the computerized information system;	**GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:** **"General Commands** • "Search for [*chicken recipes*]?"	**L, DOE**	

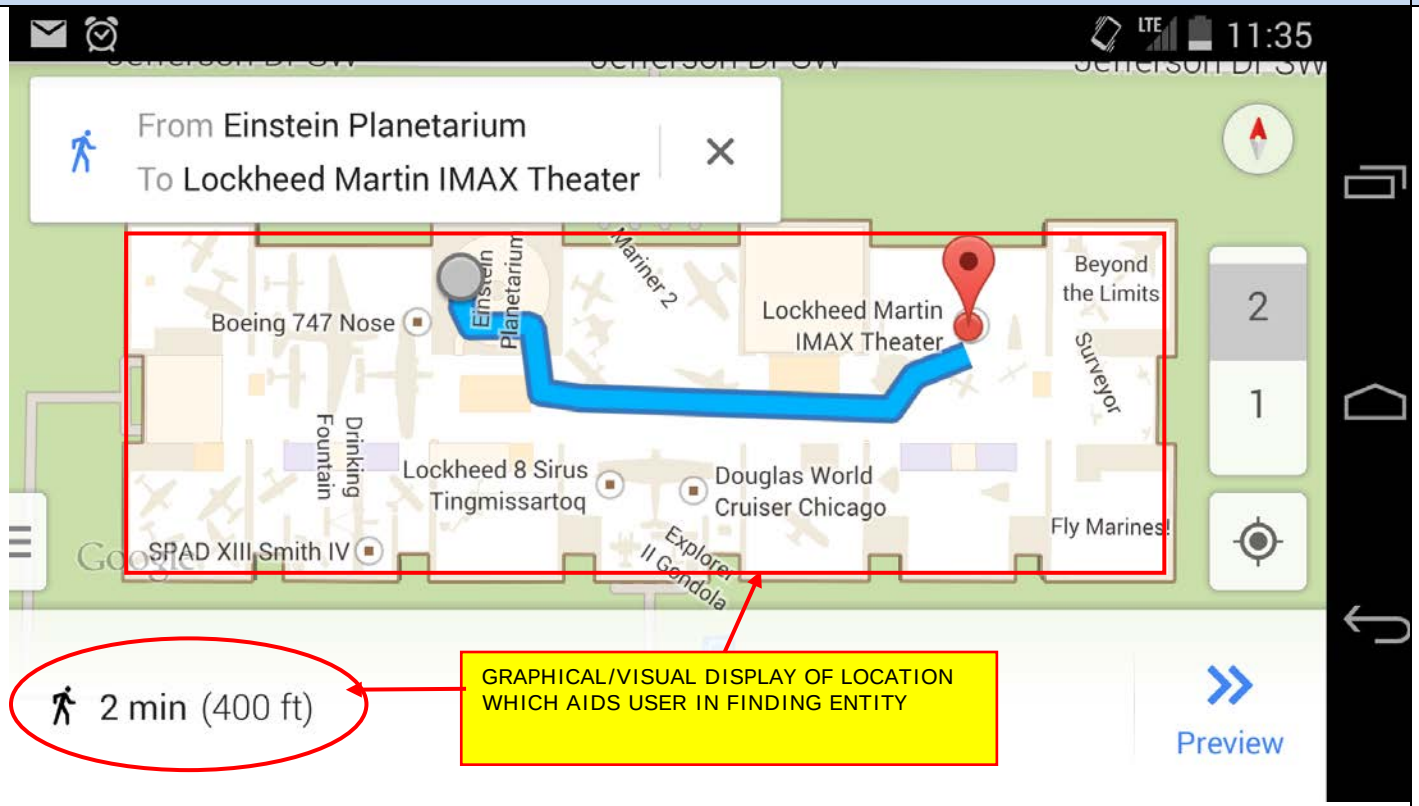
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	• "Say [*where is the supermarket*] in [*Spanish*]?" • "What is [*Schrodinger's cat*]?" • "Who invented [*the internet*]?" • "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" **…** **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know POSSIBLE INPUTS FROM USER FOR E.G., MAPS/DIRECTIONS OR BUSINESSES/ENTITIES		
cause utilization of a wireless interface and a means for networking in order to access information disposed on a remote server or	**THE SMART DISPLAY CAN USE EITHER (I) THE LTE INTERFACE OF THE HOST VEHICLE (E.G., Q7), VIA ITS WI-FI INTERFACE TO THE VEHICLE, TO ACCESS AN EXTERNAL NETWORK (WHICH INCLUDES THE LTE CELLULAR NETWORK), OR (II) ITS OWN INDIGENOUS WI-FI INTERFACE TO AN EXTERNAL NETWORK (E.G., WI-FI AP TO SERVICE-PROVIDER NETWORK TO INTERNET, TO ACCESS A REMOTE SERVER (E.G., GOOGLE MAPS SERVER):**	**L, DOE**	

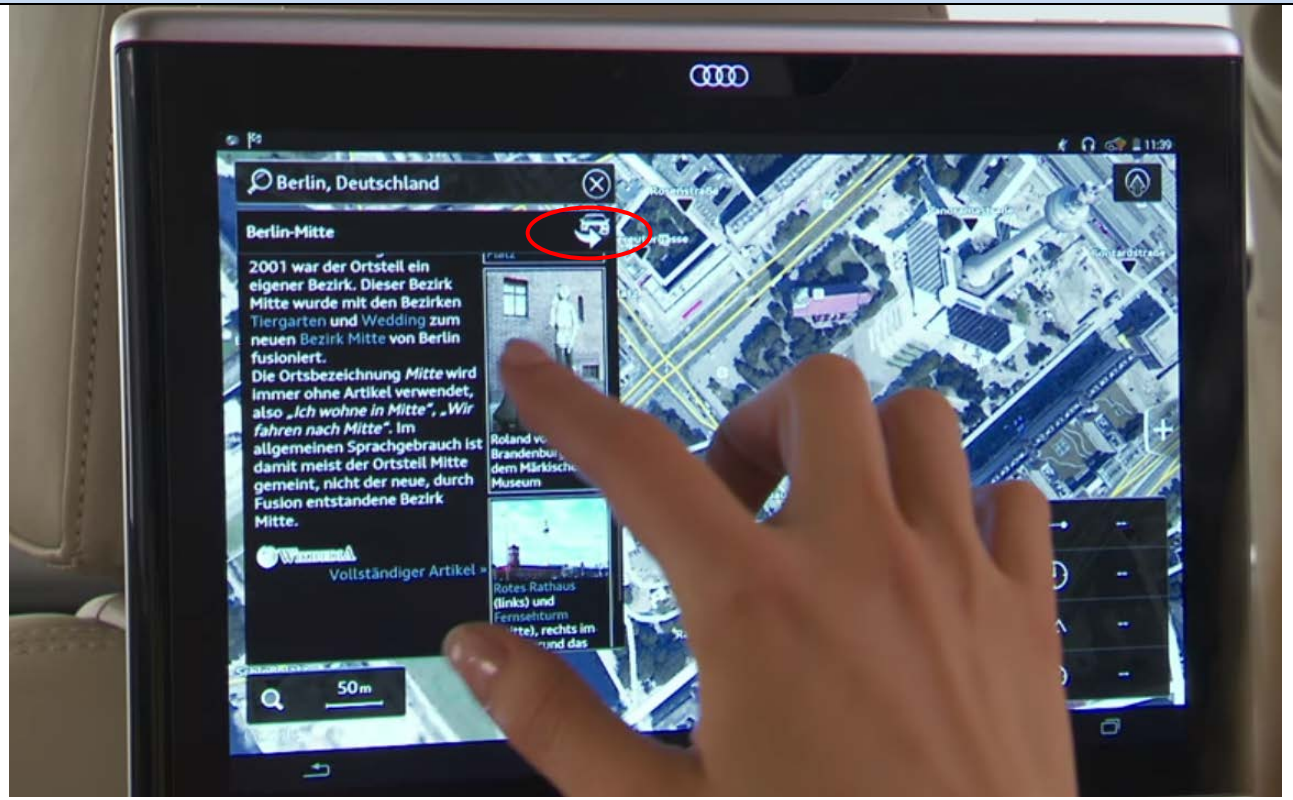
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
database,	"A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort		
the information relating to the directions to the business or entity, the business or entity disposed at least partly within a building;	**Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know **SEE ABOVE – IN THE ANDROID O/S LAYER, ANY OF THE AFOREMENTIONED ACCESS TECHNIQUES (I.E., GOOGLE NOW/"OK GOOGLE", CHROME BROWSER, ETC.) CAN ACCEPT A REQUEST FOR DIRECTIONS TO A GIVEN LOCATION, AND RECEIVE SUCH INFORMATION IN RETURN (USING E.G., GOOGLE "*PLACES*" OR SIMILAR API (APPLICATION PROGRAMMING INTERFACE) TO CALL FOR LOCATION DATA, AND GOOGLE "*DIRECTIONS*" OR "*DIRECTIONSSERVICE*" API'S TO GENERATE LOCATION OF ENTITY AND ROUTE TO ENTITY):**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://developers.google.com/maps/ **GOOGLE MAPS RETURNS, *INTER ALIA*, LAT/LON DATA ASSOCIATED WITH THE LOCATION OF THE ENTITY. SEE ALSO GRAPHIC MAP BELOW, WHEREIN LOCATION IS DETERMINED TO BE INSIDE A BUILDING (I.E., NATIONAL AIR AND SPACE MUSEUM). THE GOOGLE MAPS FUNCTION CAN ALSO RESOLVE AS TO FLOOR NUMBER IN MULTI-FLOOR BUILDINGS.** "Latitude and longitude coordinates You can search for a place using its latitude and longitude coordinates, as well as get the coordinates of a place you've already found on Google Maps." https://support.google.com/maps/answer/18539 **THE GOOGLE MAPS API'S CAN ALSO RETURN DIRECTIONS, EITHER OUTSIDE OR INSIDE THE BUILDING (OR BOTH):**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

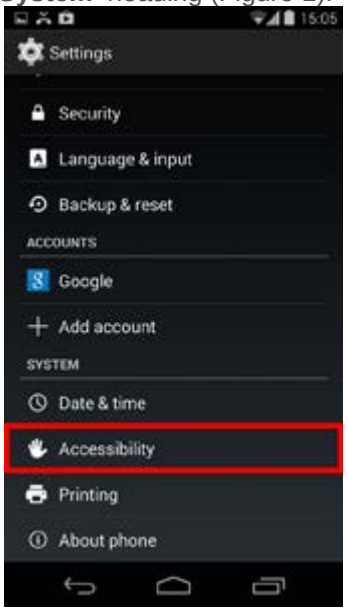
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **FOR AUDI APPLICATION LAYER, THE SMART DISPLAY CAN CLEARLY "BROWSE" THE INTERNET, SUCH AS USING VOICE SEARCH FUNCTION ABOVE, AND LOOK FOR DESTINATIONS, WHICH CAN THEN BE SENT TO THE CAR'S HEAD UNIT:**		

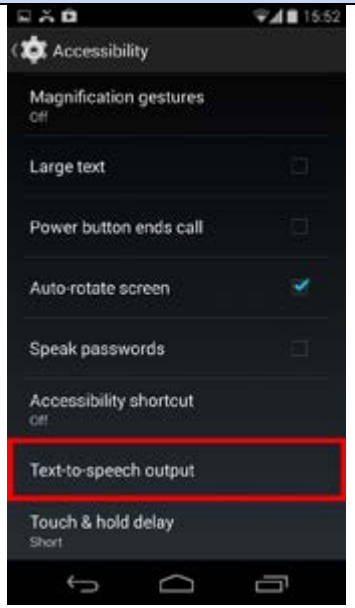
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2Yg6cPnFpII		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2D32beCtCvs		
receive the accessed information received via the wireless interface;	**SEE ABOVE; FOR ANDROID LAYER, INFORMATION OBTAINED FROM REMOTE SERVER IS RETURNED VIA EITHER LTE-WI-FI LINK TO SMART DISPLAY, OR DIRECTLY VIA WI-FI LINK. CLEARLY, THE EXEMPLARY INFORMATION SHOWN ABOVE IS NOT RESIDENT ON THE SMART DISPLAY (I.E., UNTIL THE USER AFFIRMATIVELY SEARCHES FOR IT ON THE INTERNET). NOTE THAT IN THIS CASE, THE HEAD UNIT OF THE Q7 IS IN NO WAY INVOLVED (OTHER THAN PERHAPS AS LTE/WI-FI "PASS THROUGH"), AND HENCE DATA RETURNED IS NOT LOCALLY CACHED OR CALCULATED.** **FOR AUDI LAYER, THE ONLINE SEARCH RESULTS (E.G., LOCATION DATA, AND ANCILLARY INFORMATION) ARE OBTAINED IN ANY CASE (WHETHER VIA HEAD UNIT OR DIRECT EXTERNAL SEARCH)**	**L, DOE**	

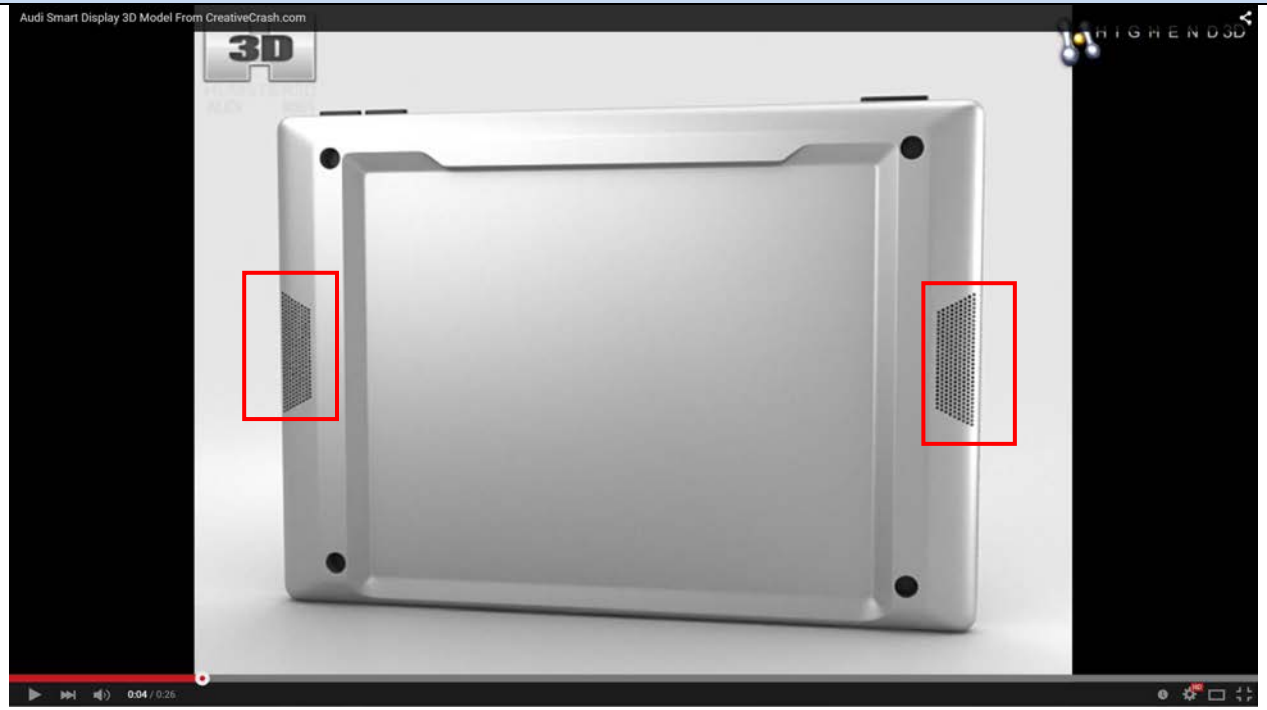
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	BY THE WI-FI INTERFACE OF THE SMART DISPLAY.		
and provide the user with at least a portion of the accessed information relating to the directions to the business or entity via at least one of: (i) a touch screen input and display device of the computerized information system; and/or (ii) a means for speech synthesis; wherein the computerized information system is:	 **FOR AUDI LAYER, TOUCHSCREEN CAN ALSO BE USED TO DISPLAY SEARCHED-FOR INFORMATION:**	**L, DOE**	

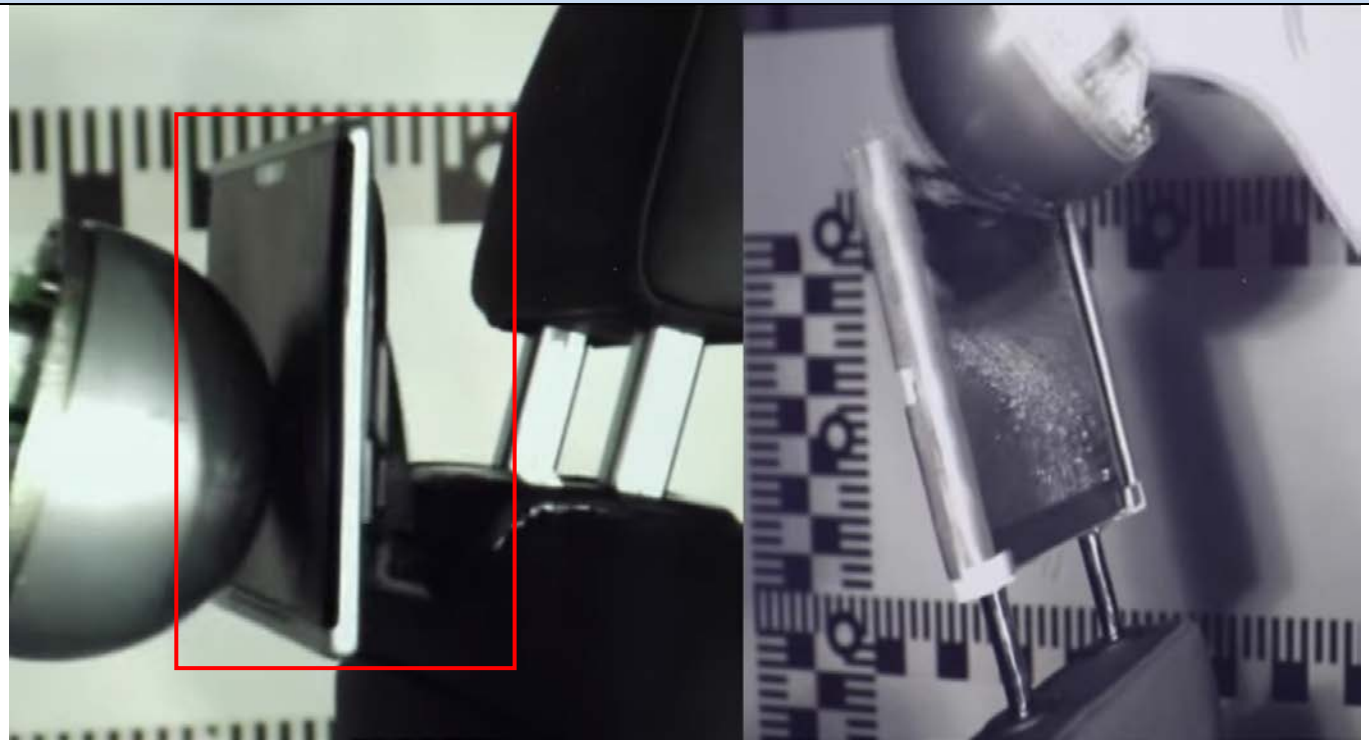
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2D32beCtCvs **NOTE ALSO THAT SMART DISPLAY HAS SPEAKERS (SHOWN BELOW) AND HEADPHONE INTERFACE (JACK, OR BLUETOOTH WIRELESS), AND CAN PRESUMABLY SYNTHESIZE E.G., GOOGLE NOW RESPONSES/PROMPTS AS PART OF STANDARD KITKAT 4.4 REGIME:** **"Android KitKat 4.4.2 – Text to Speech Output** **Text to speech output** is an Accessibility Service for Android which converts language text into spoken synthetic speech.		

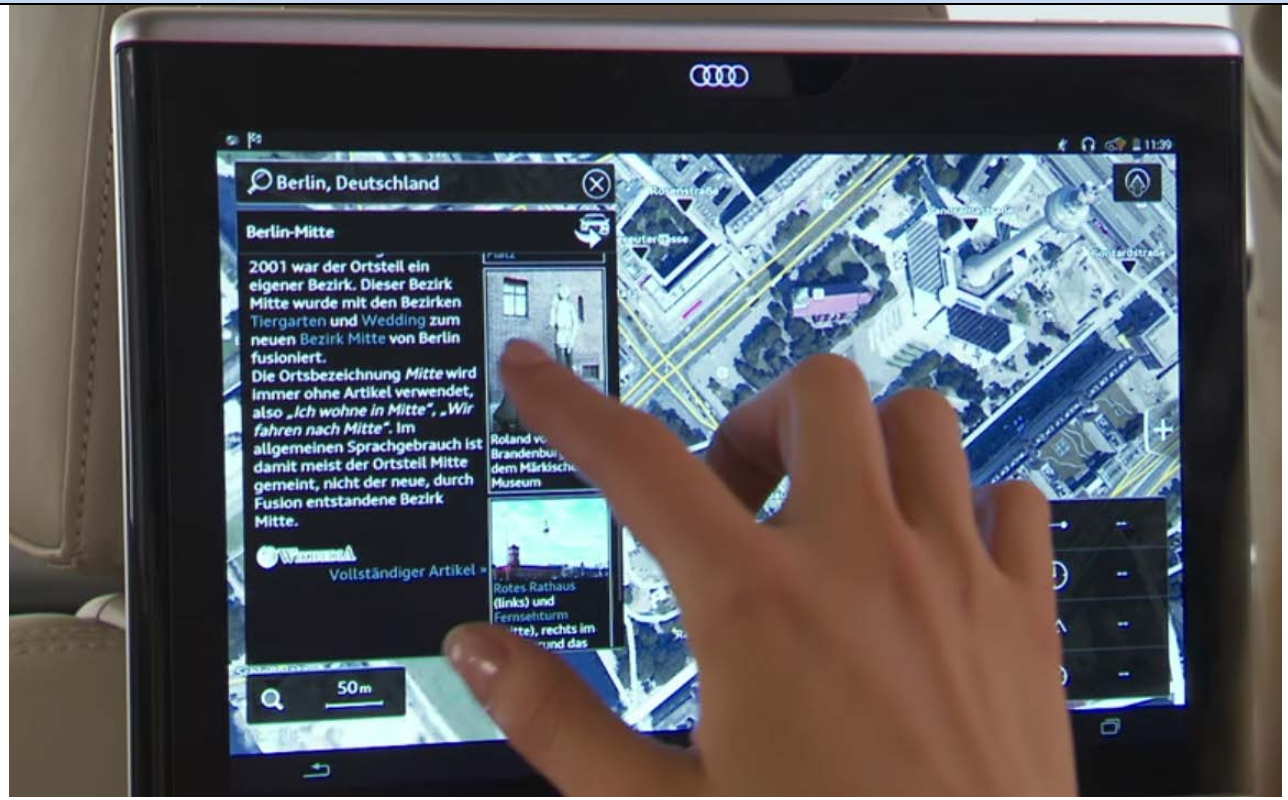
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	… To access the **Accessibility** features on your Android device select the**'Settings'** icon then **'Accessibility'** from the list under the **'System'** heading (Figure 1).  Figure 1 – Accessibility Settings. Select 'Text-to-speech output' from the list (Figure 2).		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 Figure 2 – Text to Speech Option. ***Preferred Engine*** **By default the Google Text-to-speech engine is selected.** Tap to select the 'Settings' option you can change the Language (Figure 3).		

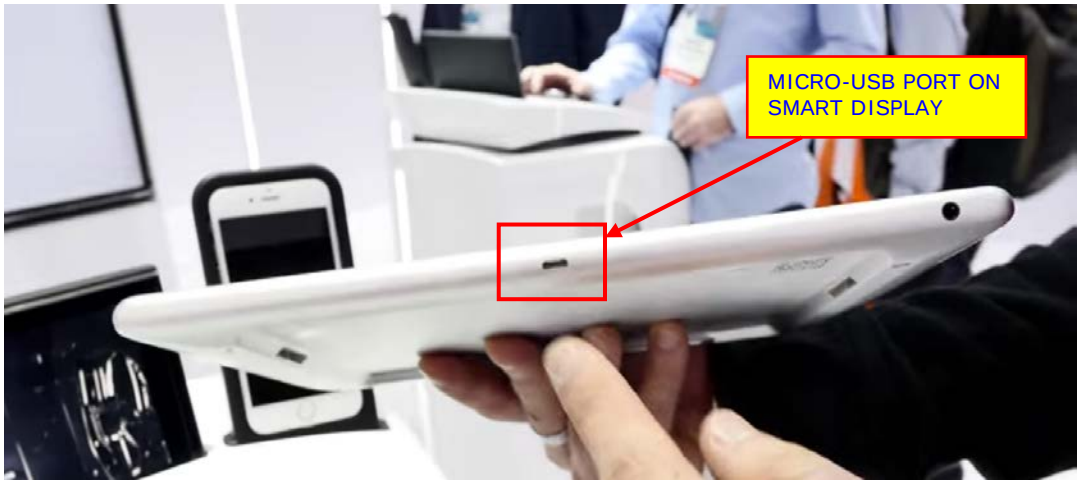
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 Figure 3 – Text to Speech Settings Icon." https://mcmw.abilitynet.org.uk/android-kitkat-4-4-2-text-to-speech-output/ **TO BE DETERMINED DURING DISCOVERY IF/HOW AUDI LAYER ACCESSES SPEECH SYNTHESIS/TTS FUNCTIONS (NOTE, HOWEVER, "OR" LANGUAGE OF CLAIM 18 REGARDING TOUCHSCREEN OR SPEECH SYNTHESIS)**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=P1DvqViTKu4		
fixedly mounted within a transport apparatus, the transport apparatus capable of transport multiple persons including the user from one location to another,	**AUDI SMART DISPLAY (INCLUDING WHEN MOUNTED IN PASSENGER COMPARTMENT OF Q7) IS CRASH-TESTED TO ENSURE, *INTER ALIA*, THAT IT IS "FIXEDLY MOUNTED" TO SEAT BACK (SEE VIDEO BELOW STARTING AT 0:14):**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=9YNbPboYA6Y		
the fixed mounting such that the user can interface with each of the touch screen input and display device, the speech synthesis means, and the speech recognition means, while operating the transport apparatus;	**SEE VIDEO BELOW; AUDI SMART DISPLAY IS MOUNTED ON REAR SEAT(S) SO THAT USER CAN ACCESS TOUCH SCREEN, HEAR MUSIC, ETC. FROM SPEAKERS, AND INTERFACE WITH VOICE RECOGNITION FUNCTION SIMULTANEOUSLY WHILE OPERATING* OTHER ASPECTS OF THE VEHICLE.** *NOTE THAT REAR SEAT USER CAN INVOKE CONTROL OF VARIOUS FRONT SEAT FUNCTIONS SUCH AS DETERMINING DESTINATION FOR NAVIGATION SYSTEM, SELECTING MEDIA TO PLAY IN THE VEHICLE, ETC. USING THE SMART DISPLAY IN REAR SEAT(S), AND HENCE IS IN ALL REGARDS AN "OPERATOR" OF THE VEHICLE.	**L, DOE**	

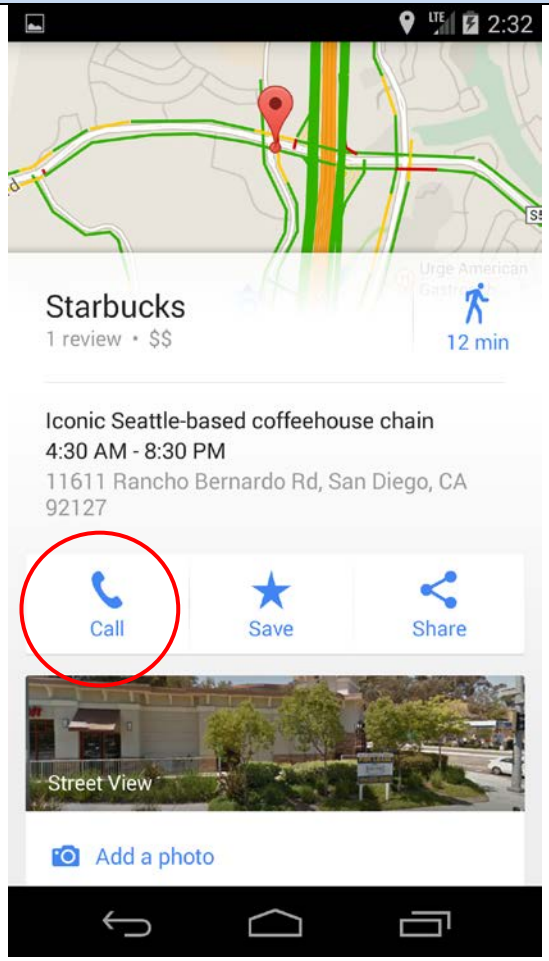
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2Yg6cPnFpII		
and configured to support an ad hoc communication link with a portable electronic device of the user,	**AT THE ANDROID LAYER, THE USER CAN UTILIZE ANY NUMBER OF DIFFERENT MODALITIES TO TRANSFER DATA BETWEEN THE SMART DISPLAY AND AN EXTERNAL DEVICE (E.G., FLASH DRIVE, SMARTPHONE, ANOTHER TABLET, ETC.):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications,	**L, DOE**	

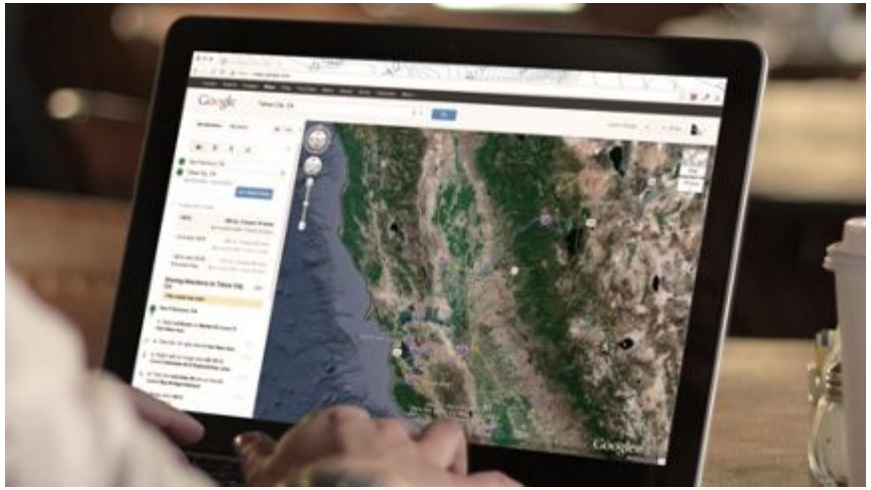
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **WI-FI LINKS CAN BE AD HOC:** "A wireless ad hoc network is a decentralized type of wireless network. [1][2] The network is ad hoc because it does not rely on a pre existing infrastructure, such as routers in wired networks or access points in managed (infrastructure) wireless networks. Instead, each node participates in routing by forwarding data for other nodes, so the determination of which nodes forward data is made dynamically on the basis of network connectivity. In addition to the classic routing, ad hoc networks can use flooding for forwarding data. … An ad hoc network typically refers to any set of networks where all devices have equal status on a network and are free to associate with any other ad hoc network device in link range. Ad hoc network often refers to a mode of operation of IEEE 802.11 wireless networks." http://en.wikipedia.org/wiki/Wireless_ad_hoc_network [22] **SMART DISPLAY TABLET(S) INCLUDES A WI-FI INTERFACE FOR COMMUNICATION WITH, E.G., EXTERNAL NETWORKS OR OTHER WI-FI ENABLED PORTABLE DEVICES (E.G., A USER'S CELLULAR PHONE ACTING AS A "HOTSPOT")** **BLUETOOTH LINKS CAN BE AD HOC:** "Ad hoc network is often local area network or other small area network formed by wireless devices. In Latin, ad hoc literally means "for this," further meaning "for this purpose only," and thus usually temporary. The area of ad hoc networking has gathered much research interests in the past years. Bluetooth is one of the technologies that can be used for ad hoc networking. The original idea of Bluetooth concept was that of cable replacement between portable and/or fixed electronic device. According to the specification, when two Bluetooth devices come into each other's communication range, one of them assumes the role of master of the communication and the other becomes the slave. This simple "one hop" network is called a piconet, and may include up to seven active slaves connected to one		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	master." http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=4147524&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3D4147524 [21] **SEE BELOW; THE TABLET HAS A BLUETOOTH INTERFACE, AND THE TABLET CAN PRESUMABLY BE PAIRED TO ANOTHER DEVICE (SUCH AS THE AFOREMENTIONED USER'S SMARTPHONE) AND EXCHANGE DATA SUCH AS CONTACT LISTS/ADDRESS BOOKS, DIGITAL MEDIA (E.G., MP3), ETC.** **FOR SIMILAR REASONS, USB LINKS CAN BE AD HOC, WHETHER WIRED (E.G., USB 2.0/3.0 CONNECTOR) OR WIRELESS (E.G., WLAN USB DONGLE).**  **AUDI EVEN WILL PROVIDE ITS 2016 Q7 CUSTOMERS WITH THE CABLE THAT ENABLES CONNECTION OF THE DEVICES (I.E., MICRO-USB ON SMART DISPLAY TO USB-ENABLED DEVICE SUCH AS LAPTP COMPUTER, PRINTER, ETC.):** "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android**…" http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html		

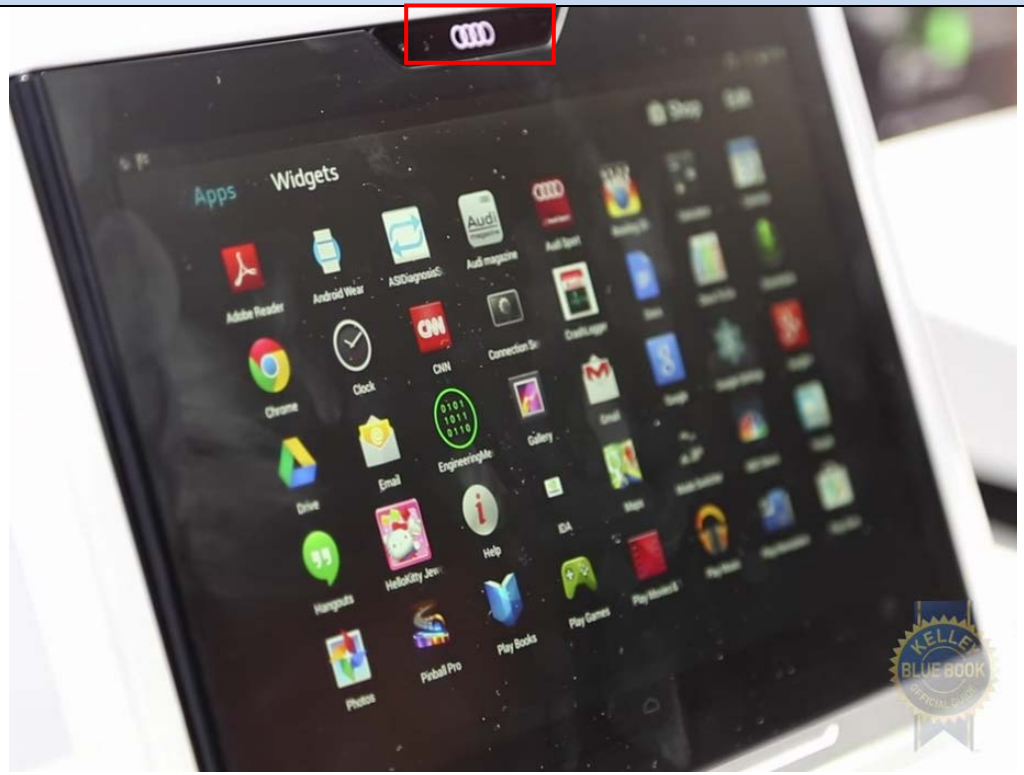
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
the ad hoc link being used to transfer data between the computerized information system and the portable electronic device, the data relating at least in part to the user's request to obtain directions.	**AS NOTED ABOVE, THE SMART DISPLAY IS AN ANDROID O/S DEVICE (TABLET) WHICH CAN OSTENSIBLY TRANSFER ANY NUMBER OF FILES, DATA TYPES, DATA STREAMS, ETC. OVER ITS INTERFACES.** **AS BUT A FEW EXAMPLES:** **(I) FILE TRANSFER OF "PICTURE BOOK" OF PHOTOS RELATING TO THE SEARCHED-FOR DESTINATION OR ENTITY OBTAINED OFF THE INTERNET BY THE SMART DISPLAY TO THE USER'S SMARTPHONE OR LAPTOP (E.G., VIA PTP) VIA MICRO-USB (SEE ALSO "PICTURE NAVIGATION" EXAMPLE BELOW);**  ***"Picture navigation*** Program a destination by selecting a picture on the MMI®. Pictures uploaded to the vehicle are displayed in a carousel, and the system uses geo-coordinates embedded in the picture to program the destination." http://www.audiusa.com/technology/intelligence/audi-connect	**L, DOE**	

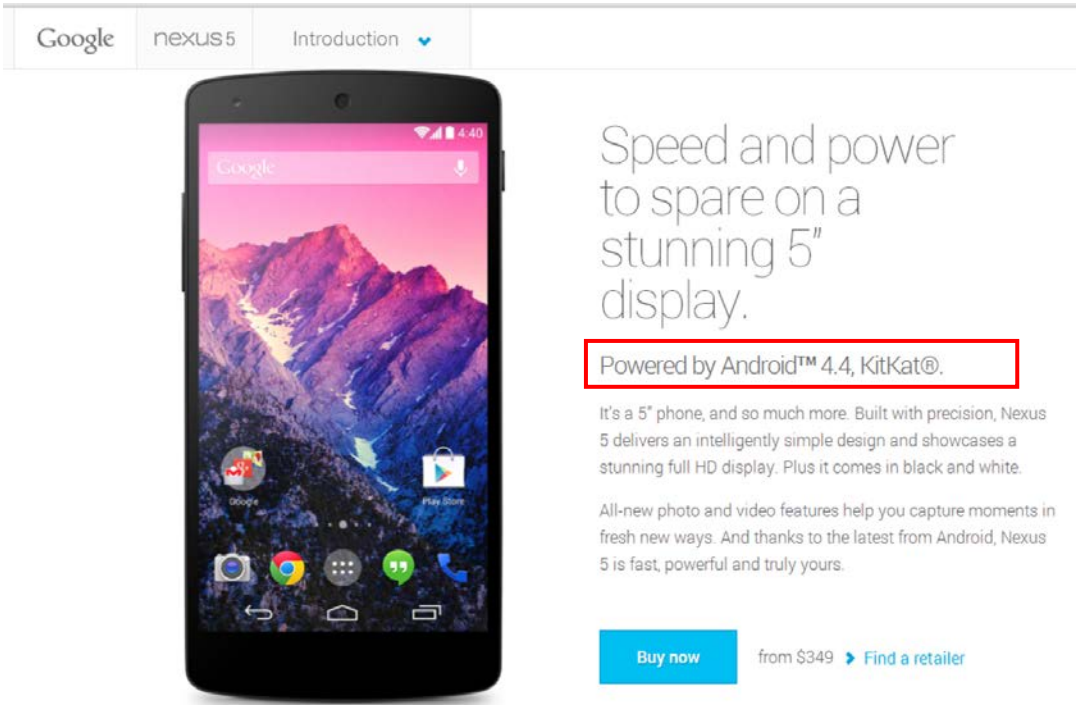
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	(II) MEDIA TRANSFER PROTOCOL (MTP) VIA MICRO-USB; **(III) TRANSFER CONTACTS (ADDRESS BOOK) VIA BLUETOOTH USING INDIGENOUS ANDROID "EXPORT" FUNCTION (SEE E.G., https://www.youtube.com/watch?v=yE-K0lj4uC8);** **(IV) TRANSFER A TELEPHONE NUMBER FROM A GOOGLE OR OTHER "CALL" SOFT FUNCTION (VIA BLUETOOTH) TO USER'S SMARTPHONE TO MAKE CALL;**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **(V) TRANSFER FILES, DATA, CONTACTS, ETC. VIA WI-FI CONNECTION TO SMARTPHONE, WITH SMARTPHONE ACTING AS WI-FI AP ('HOTSPOT"), SUCH AS IN "MYAUDI" OR "PICTURE NAVIGATION" EXAMPLES BELOW:**		

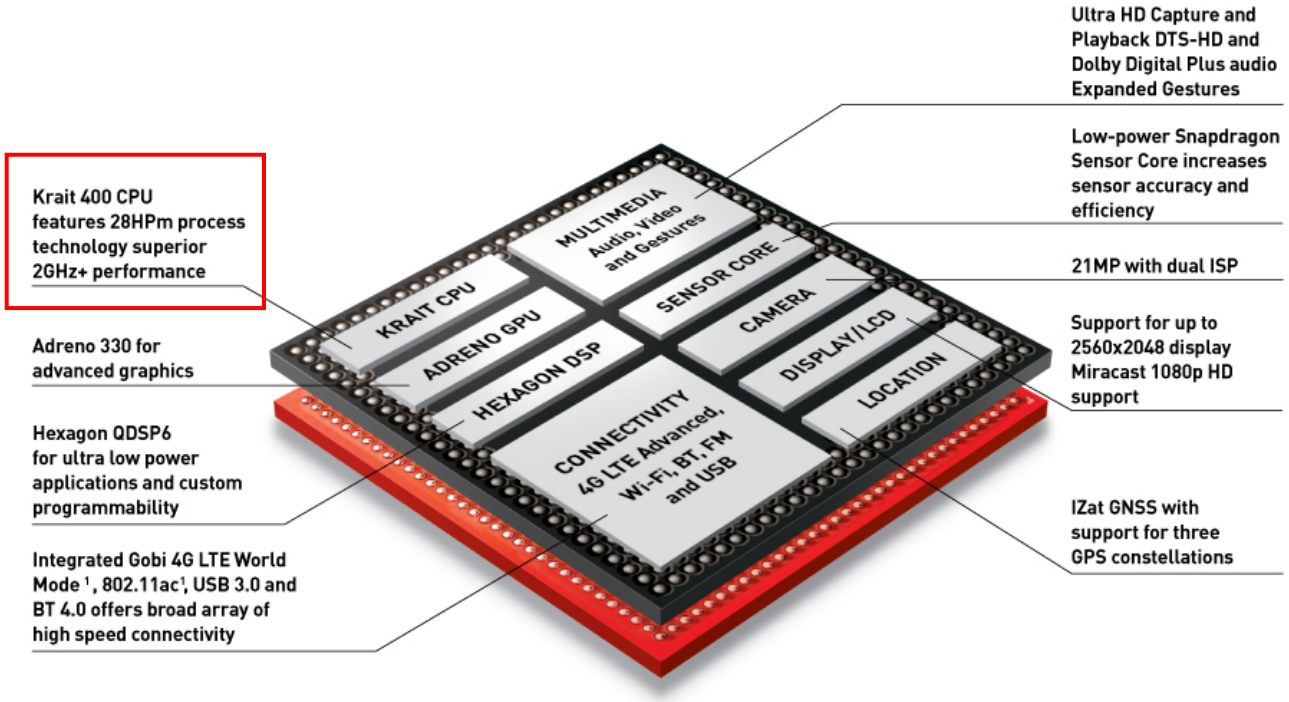
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 ***"myAudi destinations*** Use Google Maps in any browser to send your favorite destinations directly from your computer or web-enabled mobile device to your myAudi account, accessed from the MMI." http://www.audiusa.com/technology/intelligence/audi-connect		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	AUDI "SMART DISPLAY" TABLET WITH 2016 Q7		
	THIS ANALYSIS IS TARGETED AT THE AUDI SMART DISPLAY TABLET AS EMBODIED IN THE 2016 Q7 		
19. Computer readable apparatus of a computerized information system, the apparatus comprising…	**THE AUDI SMART DISPLAY TABLET IS A TOUCH-SCREEN COMPUTERIZED INFORMATION SYSTEM (WHICH IS A REMOVABLE PART OF A "HOST" COMPUTERIZED INFORMATION SYSTEM; I.E., THE Q7 MMI SYSTEM) THAT OPERATES ON THE ANDROID "KITKAT" 4.4 OPERATING SYSTEM:** "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html	**L, DOE**	**D, I**

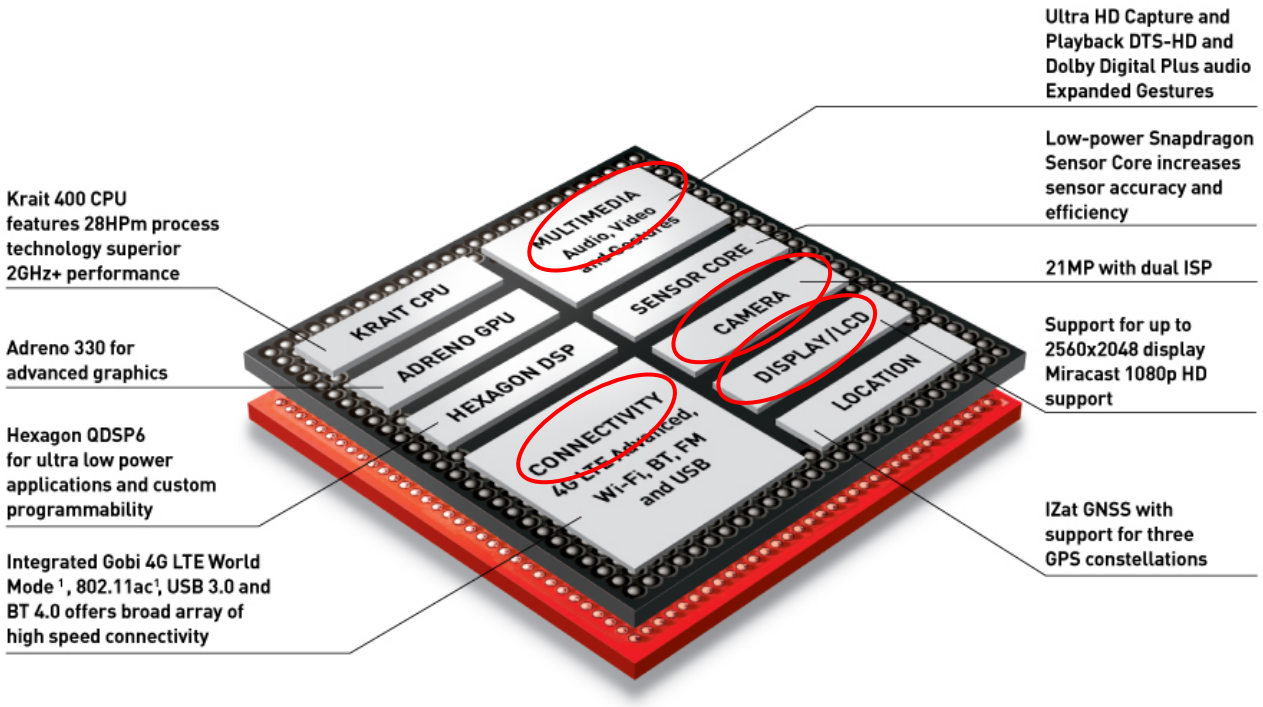
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=QcfIgdDl-lE "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort		

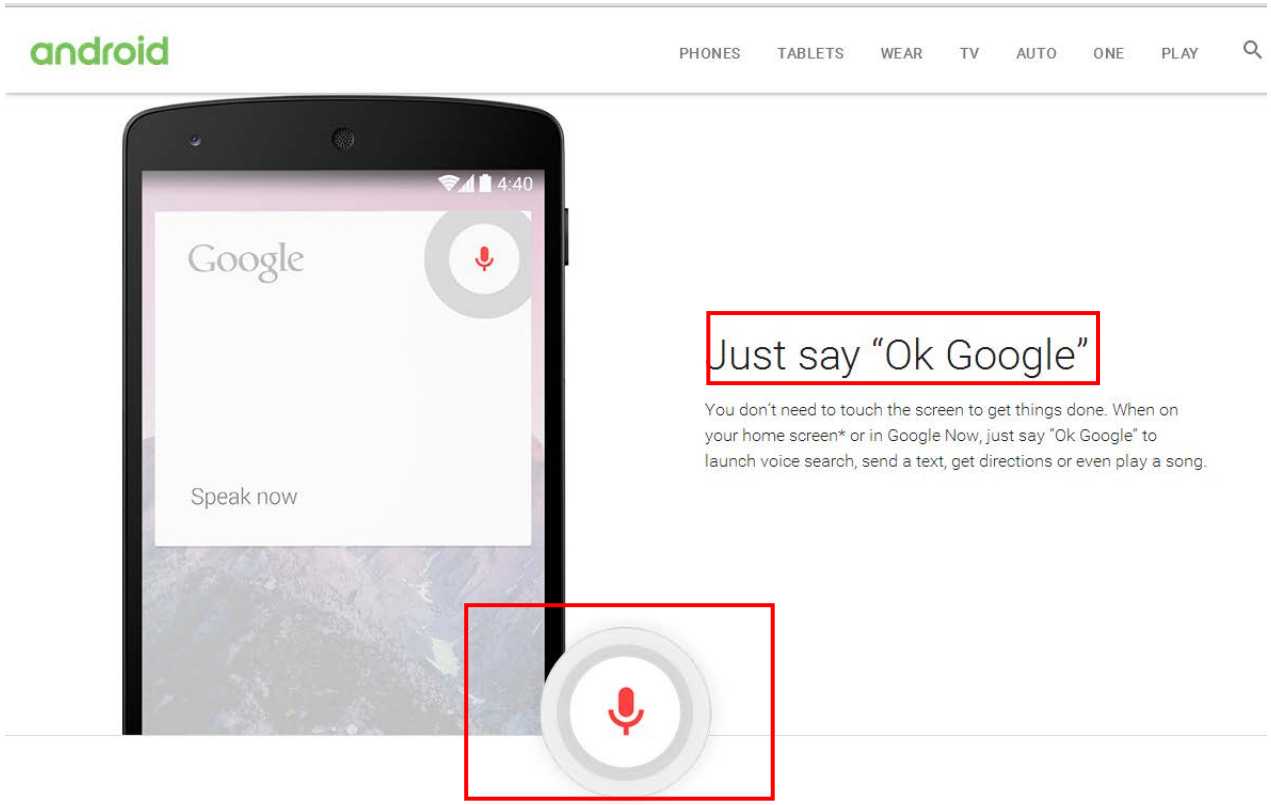
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	WHILE THE INTERNALS OF THE AUDI TABLET ARE UNKNOWN, IT IS HIGHLY SIMILAR IN FUNCTION, O/S, ETC. TO E.G., THE GOOGLE (ANDROID) NEXUS 5 PHONE WITH KITKAT 4.4, USED AS AN EXEMPLAR REPRESENTATIVE GENERALLY OF KITKAT O/S FUNCTIONALITY.  http://www.google.com/nexus/5/		

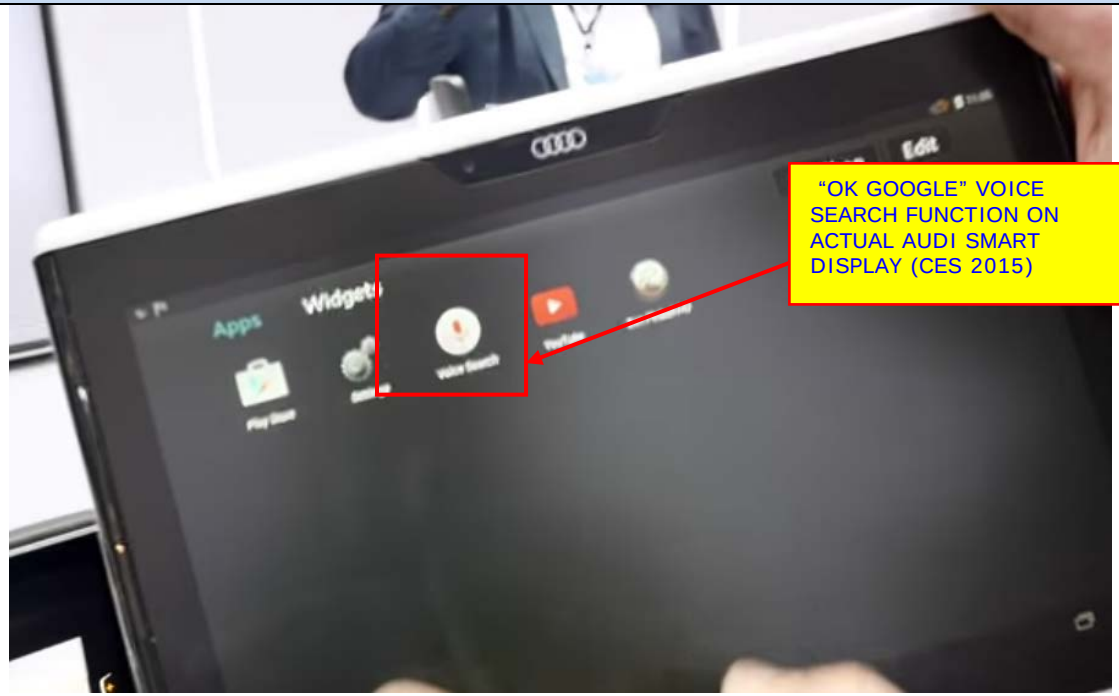
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 “PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz” **“Snapdragon 800** Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to		

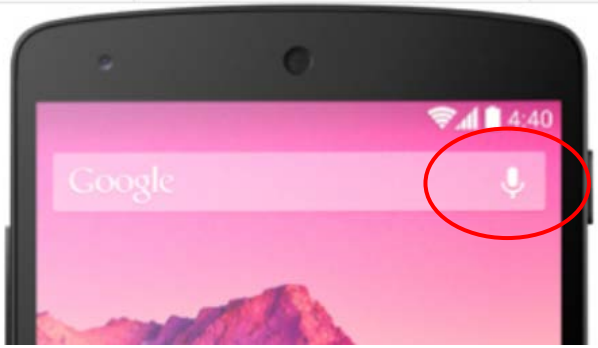
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	the APQ8064's 1.5 GHz Krait 200 architecture. The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.  On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC."		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	http://en.wikipedia.org/wiki/Krait_%28CPU%29; http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html http://www.legitreviews.com/google-nexus-5-using-synaptics-clearpad-3350-capacitive-touchscreen_129328		
… a storage apparatus, the storage apparatus having computerized logic configured to:	"MEMORY Choose 16GB or 32GB internal storage (actual formatted capacity will be less) 2GB RAM" "DDR3L" http://www.google.com/nexus/5/ "Overview • 11 stage integer pipeline with 3-way decode and 4-way out-of-order speculative issue superscalar execution • Pipelined VFPv4[2] and 128-bit wide NEON (SIMD) • 7 execution ports • 4 KB + 4 KB direct mapped L0 cache • 16 KB + 16 KB 4-way set associative L1 cache • 1 MB 8-way set associative (dual-core) or 2 MB (quad-core) L2 cache • Dual or quad-core configurations • Performance (DMIPS/MHz): Krait 200: 3.3 (28 nm LP) Krait 300: 3.39[3] (28 nm LP) Krait 400: 3.39 (28 nm HPm) Krait 450: 3.51 (28 nm HPm)" https://en.wikipedia.org/wiki/Krait_(CPU) **SEE ABOVE; THE GOOGLE (ANDROID) NEXUS 5 WITH KITKAT 4.4 (AND HENCE PRESUMABLY THE AUDI SMART DISPLAY) INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ("COMPUTER READABLE APPARATUS").**	**L, DOE**	

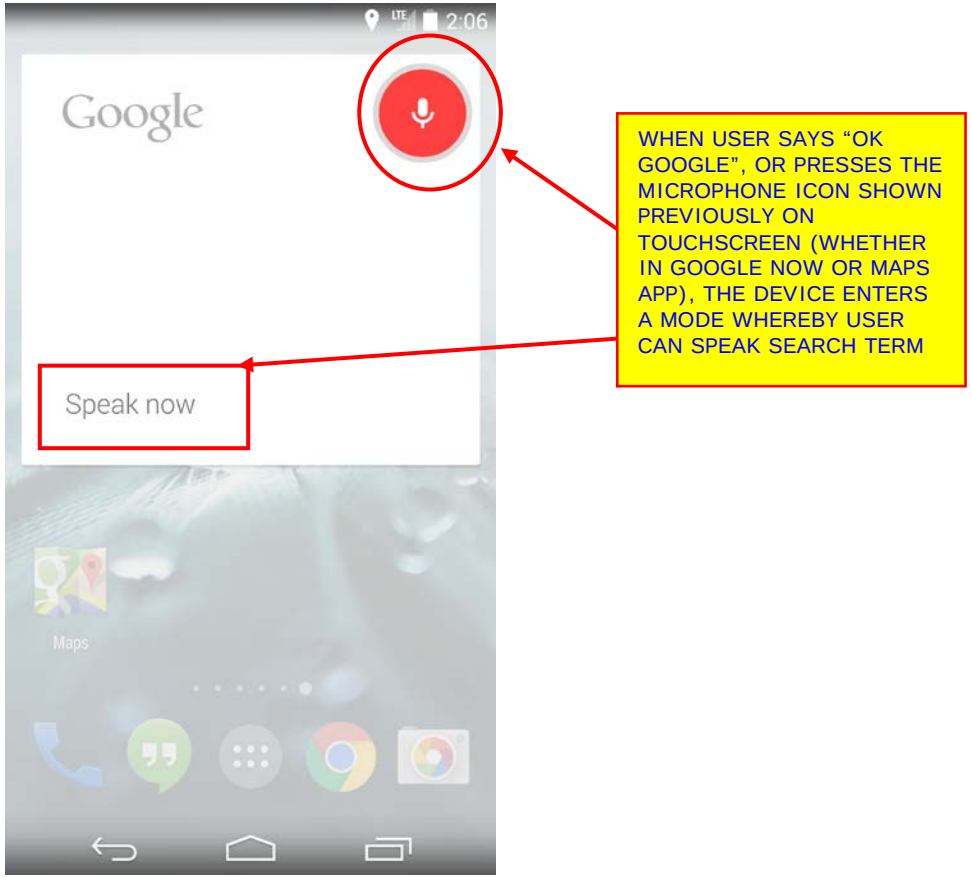
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	THE FOREGOING DEVICES HAVE COMPUTER PROGRAMS/SOFTWARE/FIRMWARE STORED THEREIN (E.G., PROGRAM MEMORY) AND OPERATIVE TO RUN ON THE PROCESSORS TO EXECUTE VARIOUS FUNCTIONS INCLUDING GRAPHICS/VIDEO RENDERING, AUDIO RENDING, WIRELESS/WIRELINE (E.G., USB) CONNECTIVITY, AND SO FORTH:  http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html		
receive, via a speech recognition apparatus of the computerized information system, an input from the user,	**IN THIS PARTICULAR EXAMPLE, THE "GOOGLE MAPS" FUNCTIONS OF "GOOGLE NOW" FUNCTIONALITY PRESENT ON THE ANDROID KITKAT 4.4 O/S IS EVALUATED, ALTHOUGH VARIOUS OTHER TYPES OF FUNCTIONS MAY BE USED AS THE BASIS OF DEMONSTRATION AS WELL.** **THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION:**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	3) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA HANDS FREE), FOLLOWED BY VOICE SEARCH TERM; 		

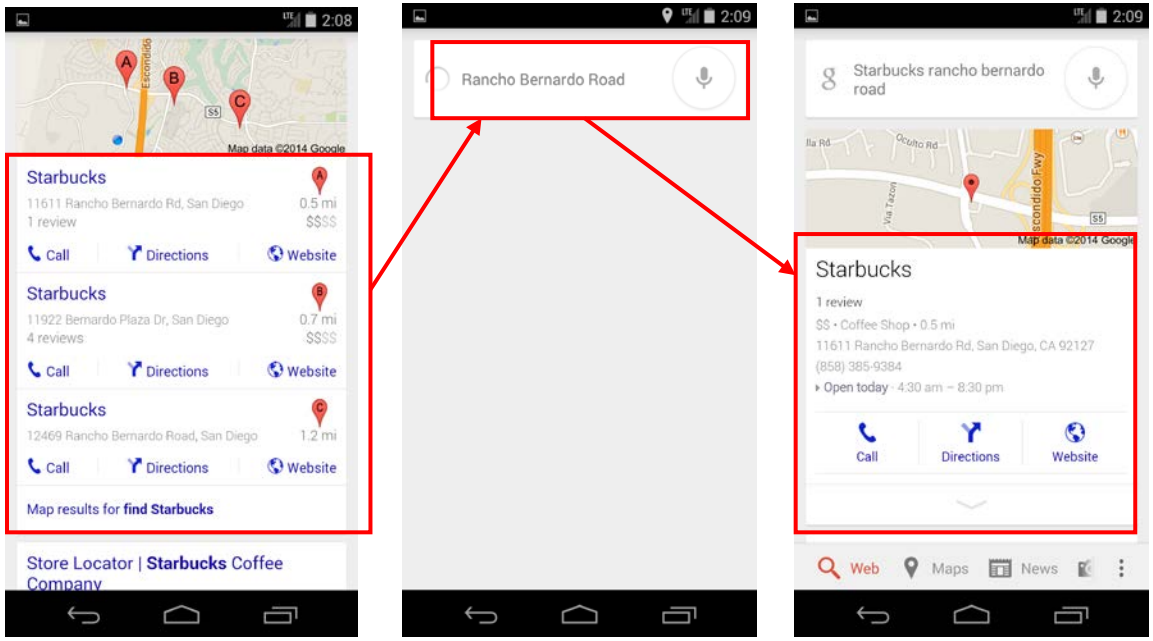
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **4) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;**		

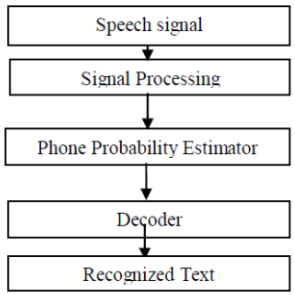
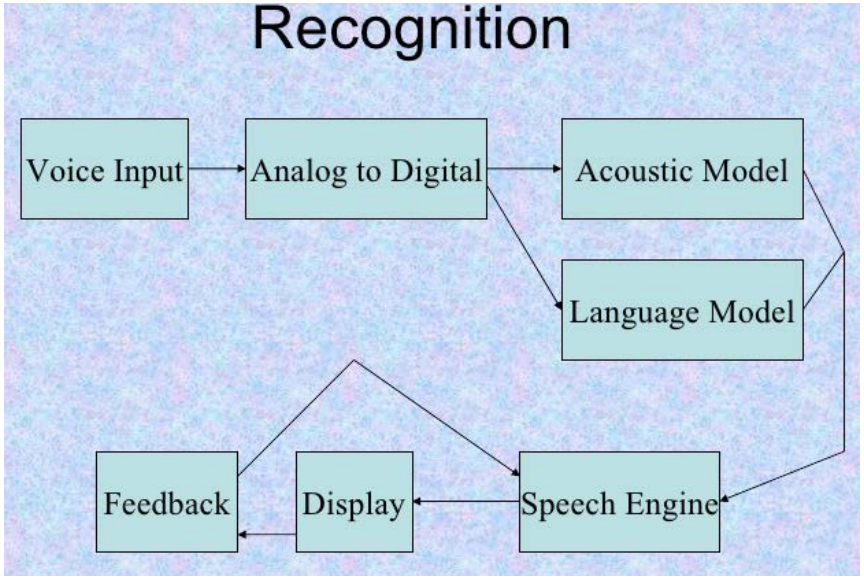
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **THE VOICE COMMAND (OR DEPRESSING ICON) CAUSE THE DEVICE TO ENTER A MODE WHEREIN THE USER CAN SAY THE NAME OF AN ENTITY ALOUD, THE USER'S VOICE PICKED UP BY THE MICROPHONE OF THE TABLET DEVICE:**		

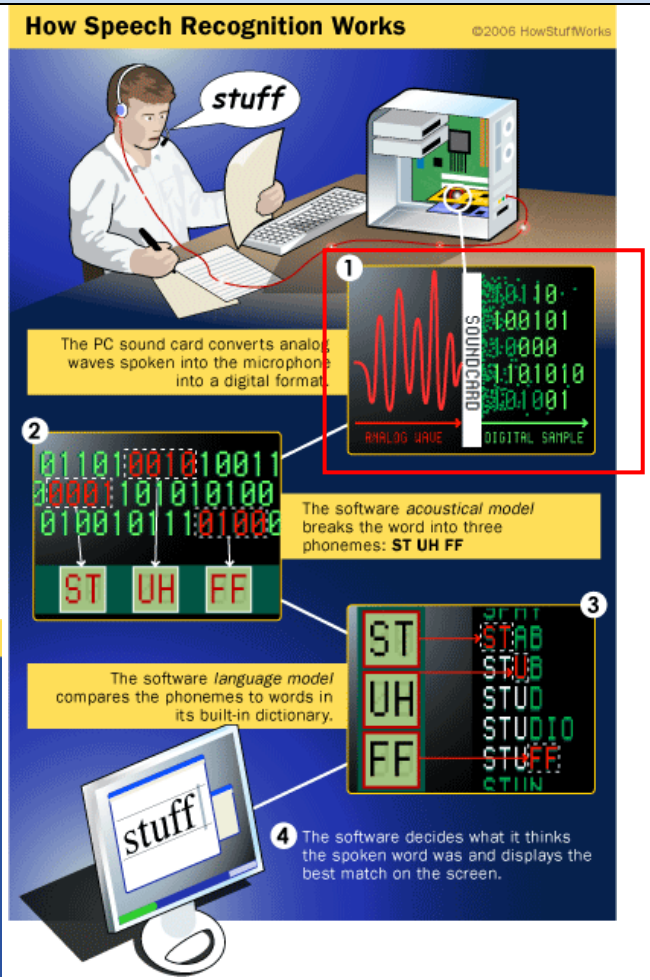
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:**		

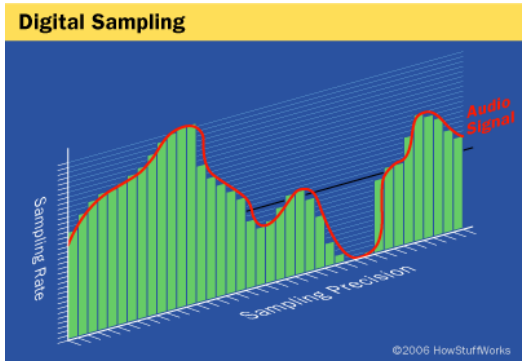
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	"General Commands • "Search for [*chicken recipes*]?" • "Say [*where is the supermarket*] in [*Spanish*]?" • "What is [*Schrodinger's cat*]?" • "Who invented [*the internet*]?" • "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" **…** **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know POSSIBLE INPUTS FROM USER FOR E.G., MAPS/DIRECTIONS		
the input relating to a user's desire to obtain directions to a business or	**FOLLOWING TEST CONDUCTED ON GOOGLE NEXUS 5:**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
entity from the computerized information system;	**USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"** 		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	ALL SPEECH RECOGNITION SYSTEMS INHERENTLY DIGITIZE THE SPEAKER'S ANALOG VOICE: **2. SPEECH RECOGNITION** Speech recognition is the task of converting any speech signal into its orthographic representation. **2.1 Phases of Speech Recognition** **2.1.1 Speech signal.** The word spoken is received as sounds and digitized using microphone. The digitized signal is delivered to signal processing unit at a sampling rate not above 8 KHz because sampling rate higher than 8 KHz have less recognition accuracy.  **Figure 1: Phases of Speech Recognition** **2.1.2 Signal processing.** This phase performs feature extraction. Converting linear amplitude signal into spectral like representation [6]. It reduces the data rate of the raw audio input, thereby decreasing the computational load of the fore coming phases.  http://www.ijcta.com/documents/volumes/vol3issue4/ijcta2012030418.pdf http://www.slideshare.net/charujoshi/speech-recognition		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

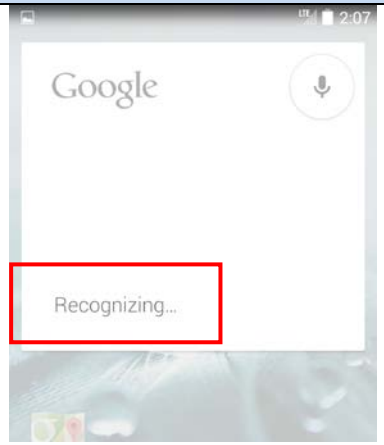


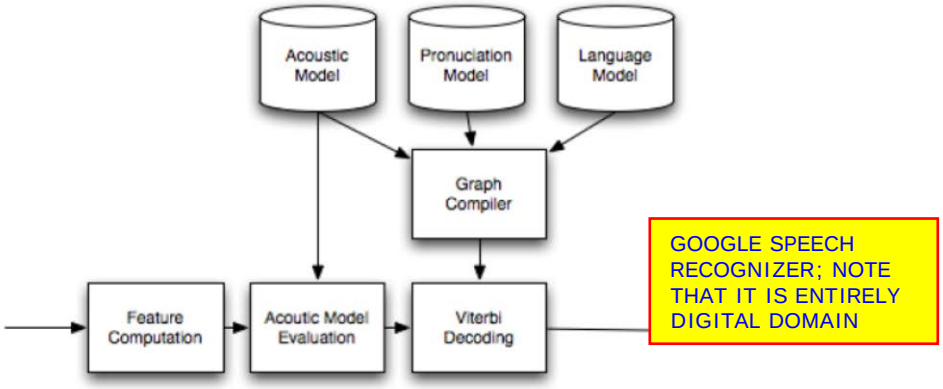


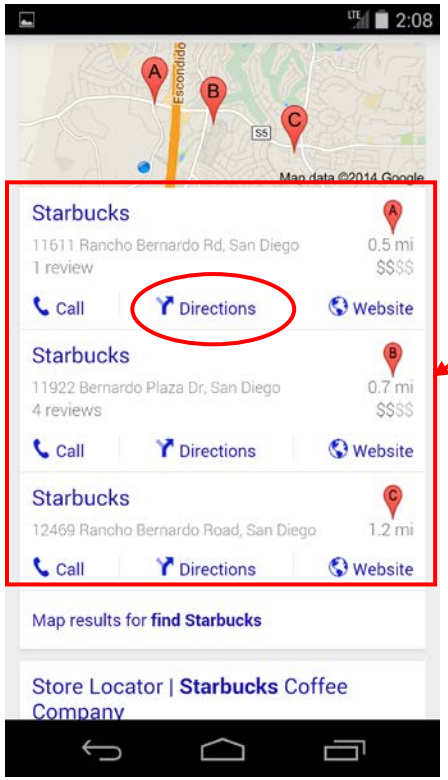
"An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality." http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm

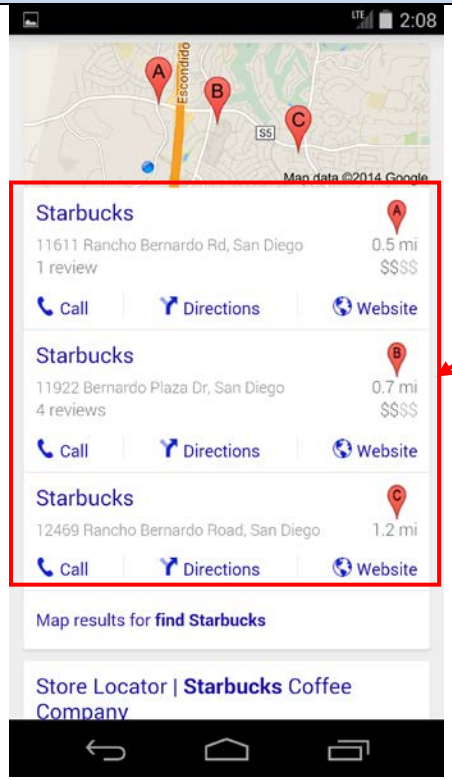
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	GOOGLE NEXUS 5 INCLUDES A SPEECH DIGITIZATION APPARATUS (I.E., GOOGLE VOICE ALGORITHMS RUNNING ON THE PLATFORM) TO DIGITIZE THE USERS ANALOG VOICE INTO A FORM USEFUL FOR RECOGNITION PURPOSES (E.G., AN FFT–DERIVED SPECTROGRAM): "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. "http://www.wired.com/2013/02/android-neural-network/ **WHILE FOR DIFFERENT O/S, FOLLOWING IS ILLUSTRATIVE:** "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like: … After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string. GET /complete/search?client=iphoneapp&hjson=t&types=t &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1 User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1 Accept: */* Accept-Language: en-us Accept-Encoding: gzip, deflate		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	Pragma: no-cache Connection: keep-alive Connection: keep-alive Host: clients1.google.com The response is an array of search terms in JSON format, for use in search autocompletion. ["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.** **THE PROCESSING APPARATUS OF THE NEXUS 5 MUST BE IN COMMUNICATION WITH THE SPEECH DIGITIZATION APPARATUS IN ORDER TO, E.G., PROCESS SPEECH INPUTS FOR TRANSMISSION OVER THE WIRELESS INTERFACE TO GOOGLE SERVERS, ETC.** **SEE DISCUSSION ABOVE; WHEN THE USER SPEAKS THE SEARCH TERM (E.G., "*FIND STARBUCKS*"), THEIR ANALOG VOICE IS RECEIVED BY THE MICROPHONE AND DIGITIZED BY THE SOFTWARE OF THE NEXUS 5. THE DIGITIZED SPEECH IS DERIVED FROM THE USER'S VERBAL COMMAND/SEARCH TERM.**		
cause utilization of a wireless interface and a network to access information disposed on a remote server,	**SEE DISCUSSION ABOVE; THE DIGITIZED VOICE IS SENT TO THE GOOGLE (REMOTE) SERVER(S) FOR WORD RECOGNITION AND SEARCH.**	**L, DOE**	

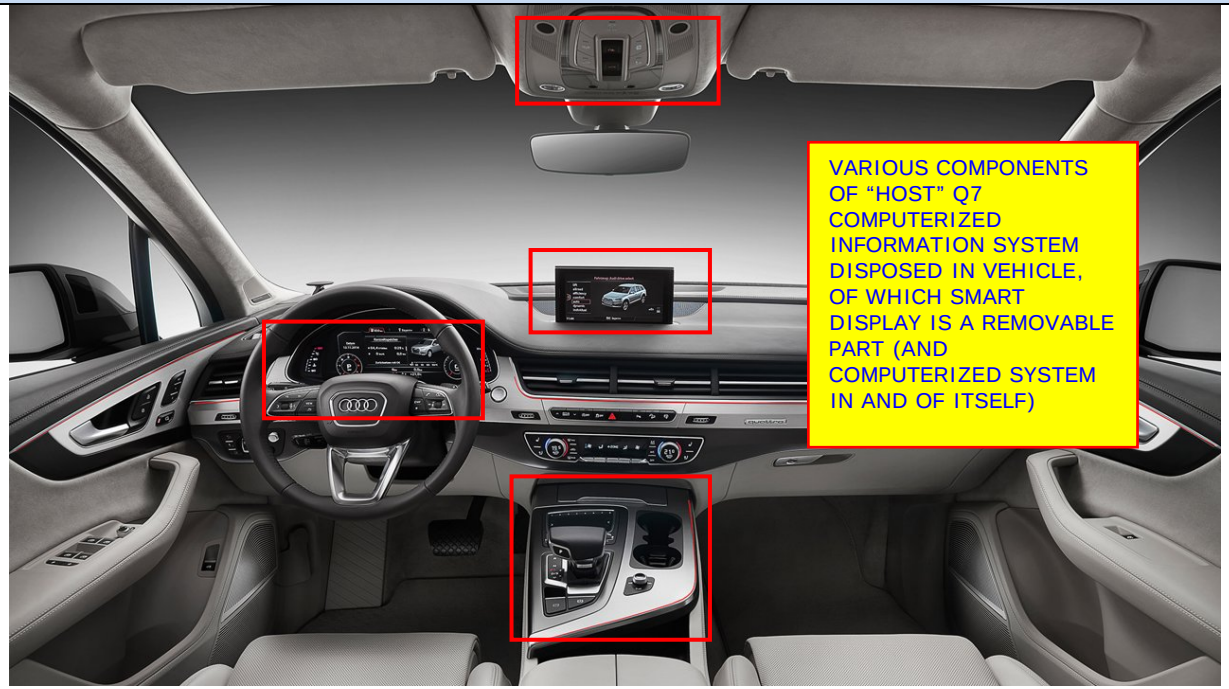
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **"Server types** *Google's* server infrastructure is divided into several types, each assigned to a different purpose: • Web servers coordinate the execution of queries sent by users, then format the result into an HTML page. The execution consists of sending queries to index servers, merging the results, computing their rank, retrieving a summary for each hit (using the document server), asking for suggestions from the spelling servers, and finally getting a list of advertisements from the ad server. • Data-gathering servers are permanently dedicated to spidering the Web. Google's web crawler is known as GoogleBot. They update the index and document databases and apply Google's algorithms to assign ranks to pages. • Each index server contains a set of index shards. They return a list of document IDs ("docid"), such that documents corresponding to a certain docid contain the query word. These servers need less disk space, but suffer the greatest CPU workload. • Document servers store documents. Each document is stored on dozens of document servers. When performing a search, a document server returns a summary for the document based on query words. They can also fetch the complete document when asked. These servers need more disk space. • Ad servers manage advertisements offered by services like AdWords and AdSense." https://en.wikipedia.org/wiki/Google_platform "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent		

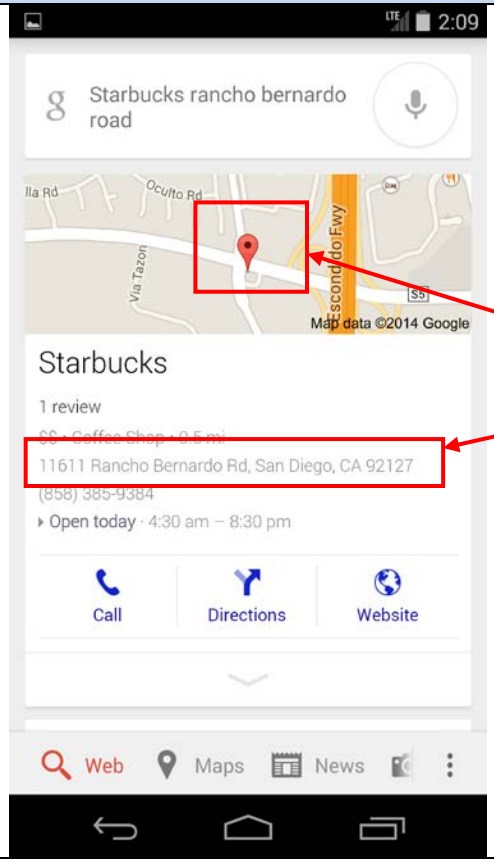
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	to eight different computers housed in Google's vast worldwide army of servers. It's then processed, using the neural network models built by Vanhoucke and his team. Google happens to be very good at breaking up big computing jobs like this and processing them very quickly, and to figure out how to do this, Google turned to Jeff Dean and his team of engineers, a group that's better known for reinventing the way the modern data center works." http://www.wired.com/2013/02/android-neural-network/  Figure 5: Basic block diagram of a speech recognizer. "Figure 5 depicts the basic system architecture of the recognizer behind Google search by Voice." http://static.googleusercontent.com/external_content/untrusted_dlcp/research.google.reverse-proxy.org/en/us/pubs/archive/36340.pdf		

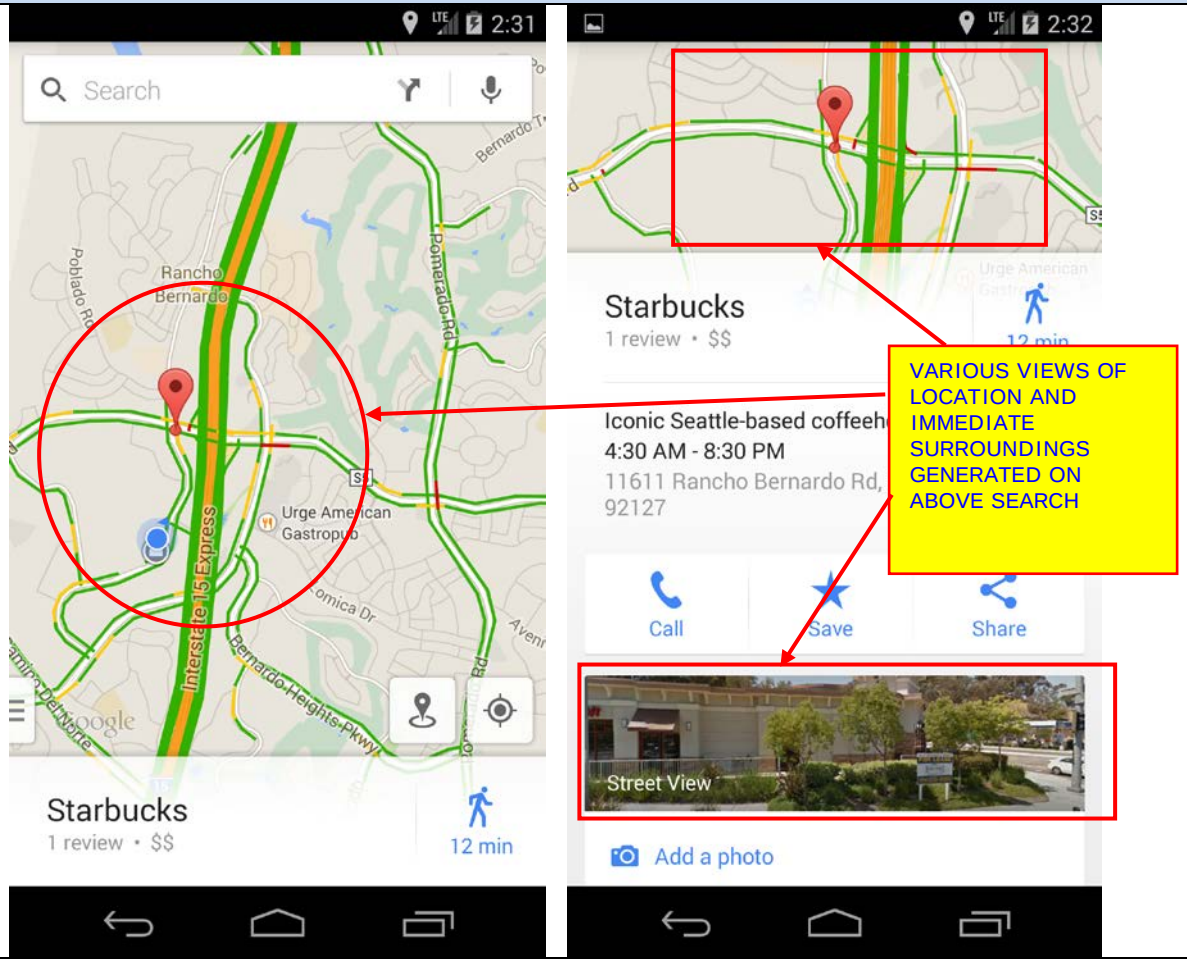
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
the information relating to the directions to the business or entity;	 LIST OF MATCHES WITH MATCHING NAME (QUERY WAS "*FIND STARBUCKS*") **USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"**	**L, DOE**	

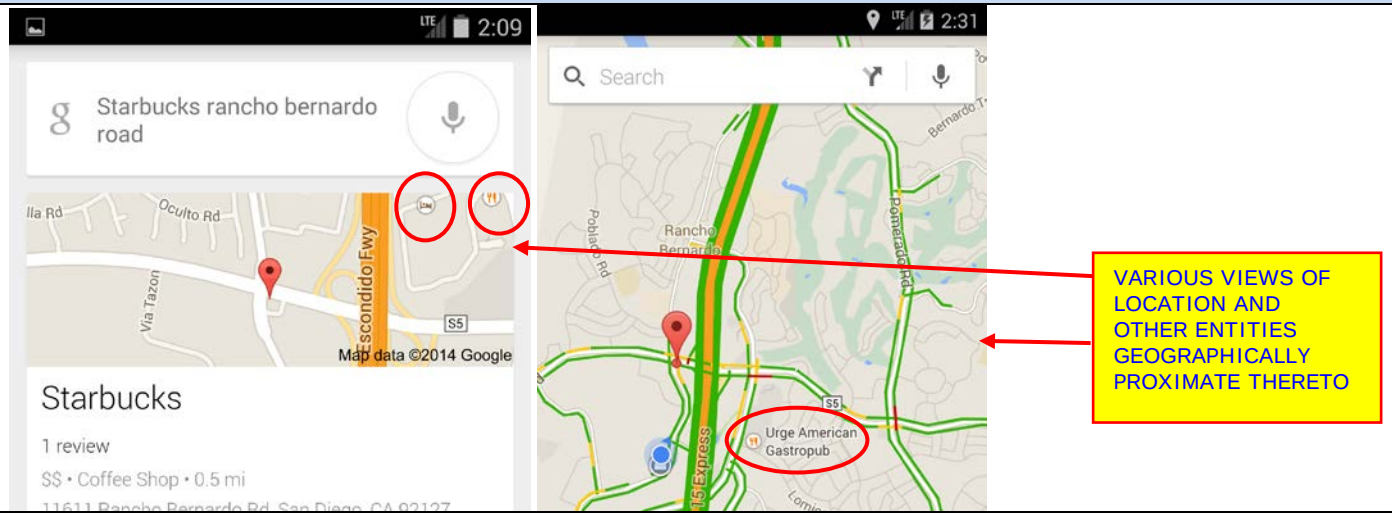
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **SEE EXEMPLARY SEQUENCE ABOVE; IN RESPONSE TO USER VOICE QUERY OF "FIND STARBUCKS" ON NEXUS 5, THE PHONE RETURNS A LISTING OF NEARBY STARBUCKS IN SAN DIEGO AND SAYS *"HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES."* (I.E., IDENTIFIES THAT A PLURALITY OF MATCHES EXIST)**		

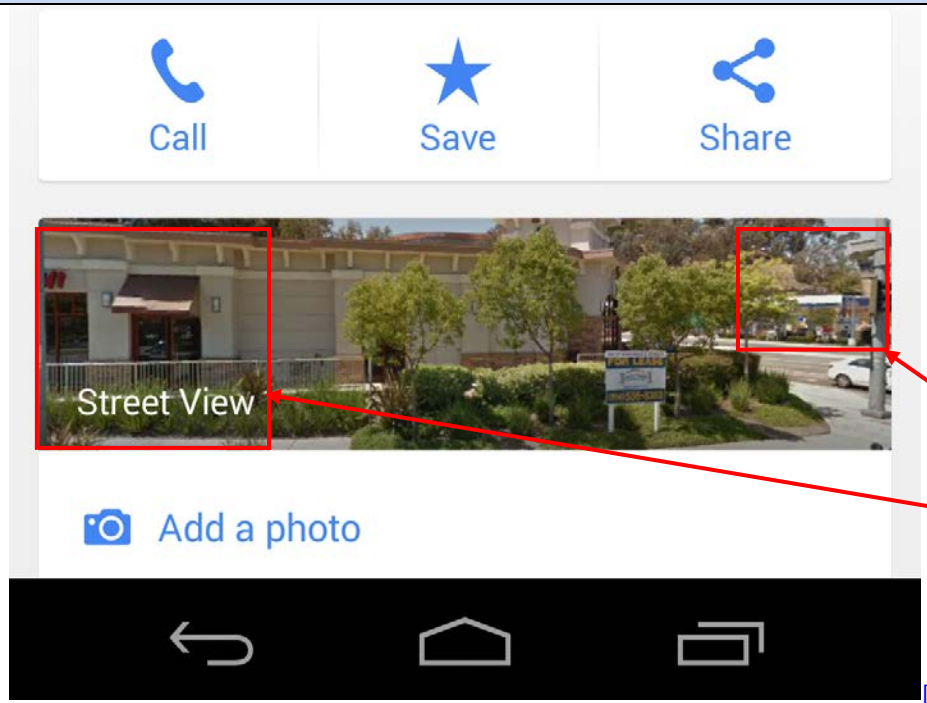
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
receive the accessed information received via the wireless interface;	**EXEMPLARY ANDROID DEVICE RECEIVES THE SEARCH RESULTS FROM GOOGLE SERVERS (BASED ON E.G., API CALLS TO GOOGLE PLACES AND DIRECTIONS API'S) VIA E.G., THE WI-FI INTERFACE, AND DISPLAYS THE INFORMATION ON THE DISPLAY FOR THE USER (WHETHER THE INITIAL LISTING, OR ONE OF THE SELECTED MATCHES, AS SHOWN BELOW).**	**L, DOE**	
and provide the user with at least a portion of the accessed information relating to the directions to the business or entity via at least one of: (i) a touch screen input and display device of the computerized system; and/or (ii) a speech synthesis apparatus;	**SEE ABOVE; ANDROID KITKAT 4.4 HAS BOTH TOUCH-SCREEN SUPPORT (AUDI SMART DISPLAY HAS TOUCH SCREEN) AND SPEECH SYNTHESIS, SO INFORMATION CAN BE PROVIDED VIA EITHER OR BOTH AS DESIRED BY THE USER.**	**L, DOE**	

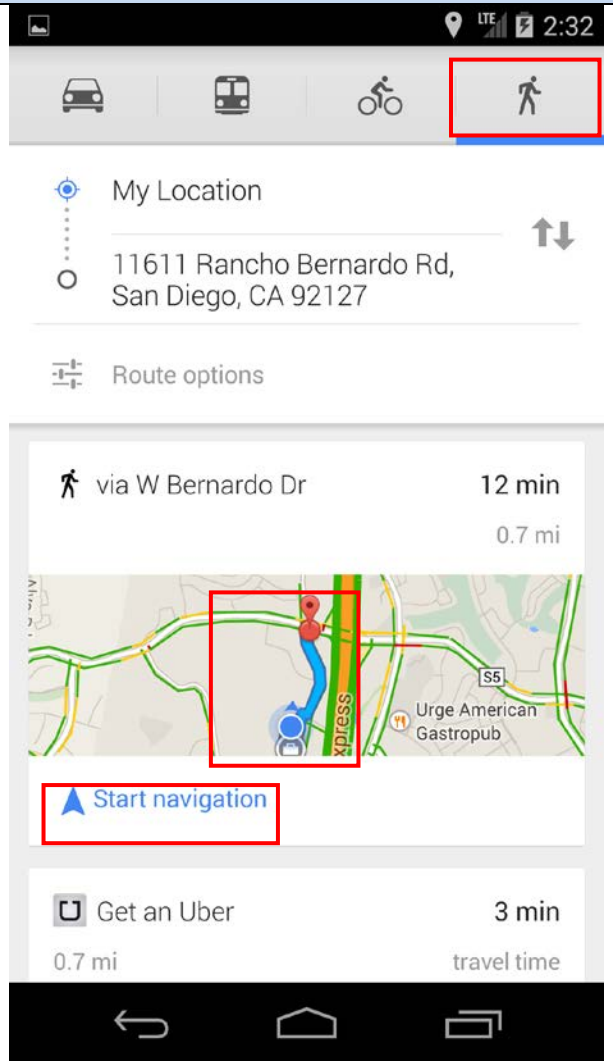
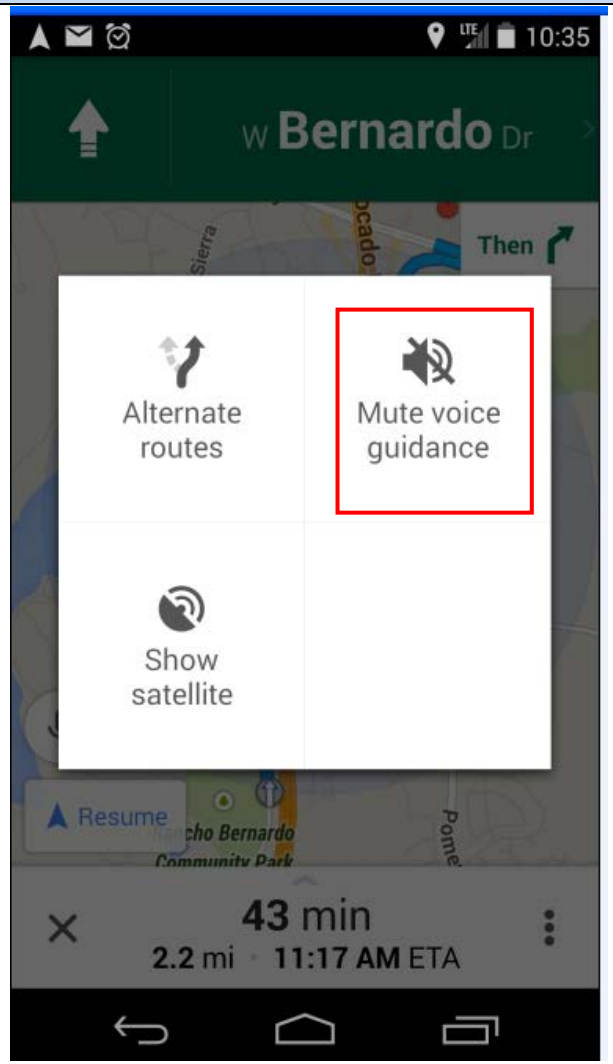
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
wherein the computerized information system is disposed on or within a transport apparatus, the transport apparatus configured to transport at least one person from one location to another;		**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
and wherein the provision of at least a portion of the accessed information comprises provision of at least a map graphic showing the location of the business or entity and other businesses or entities proximate thereto,		**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
the map graphic further comprising an arrow graphic differentiated at least in color from the map graphic so as to guide the user from a current location to the business or entity.		**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 [13]		

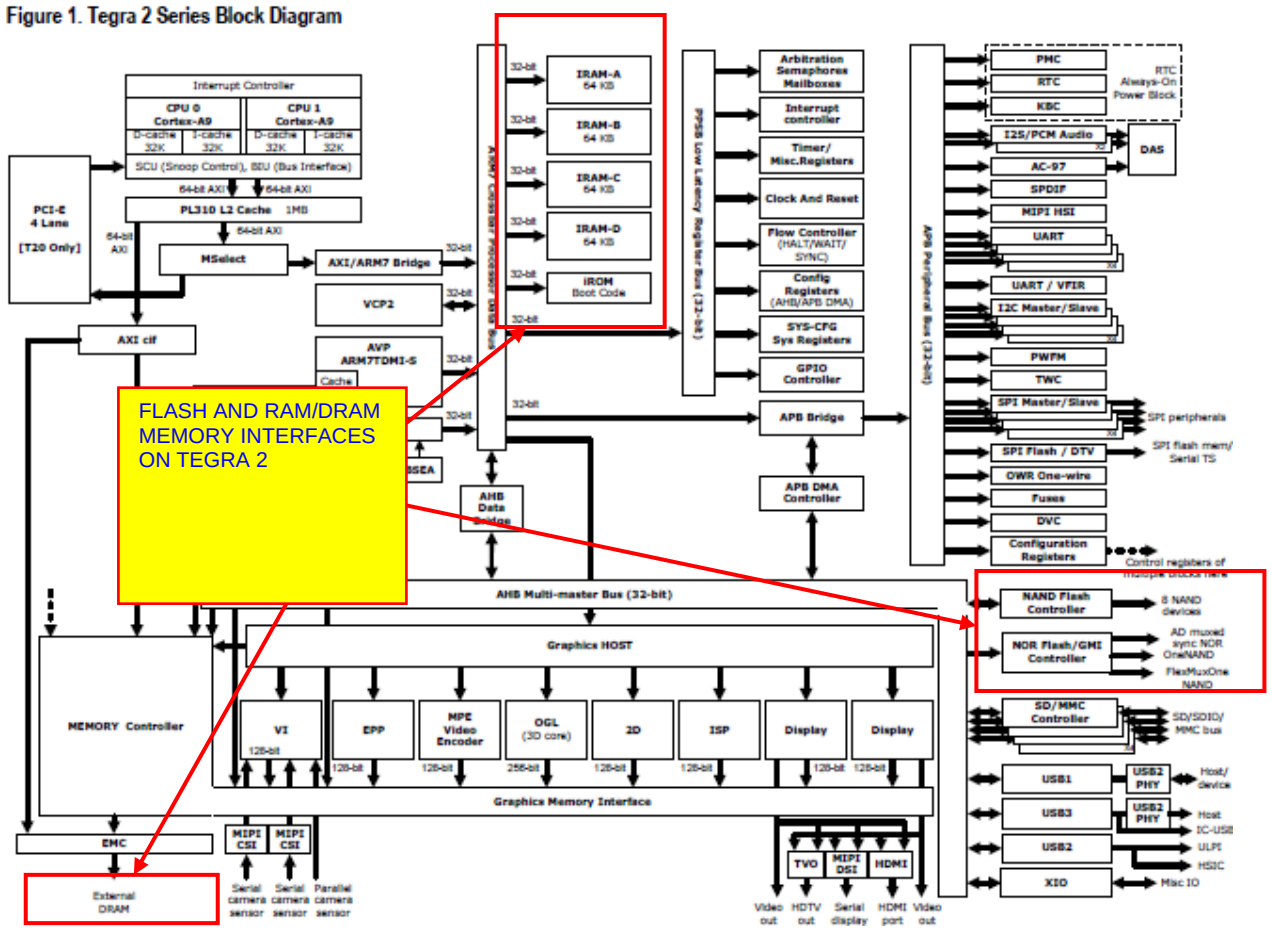
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	  **GOOGLE NOW CAN ISSUE AUDIBLE TURN-BY-TURN NAVIGATION INSTRUCTIONS ("VOICE GUIDANCE") IN VARIOUS MODES, INCLUDING IN CAR AND WALKING (LATTER SHOWN ABOVE)**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	2016 Q7 WITH MMI AND "SMART DISPLAY"		
	THIS ANALYSIS IS TARGETED AT THE EXEMPLARY 2016 Q7 WITH MMI AND "SMART DISPLAY"  **http://www.audiusa.com/search?query=2016+Q7#**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.audiusa.com/search?query=2016+Q7# 		

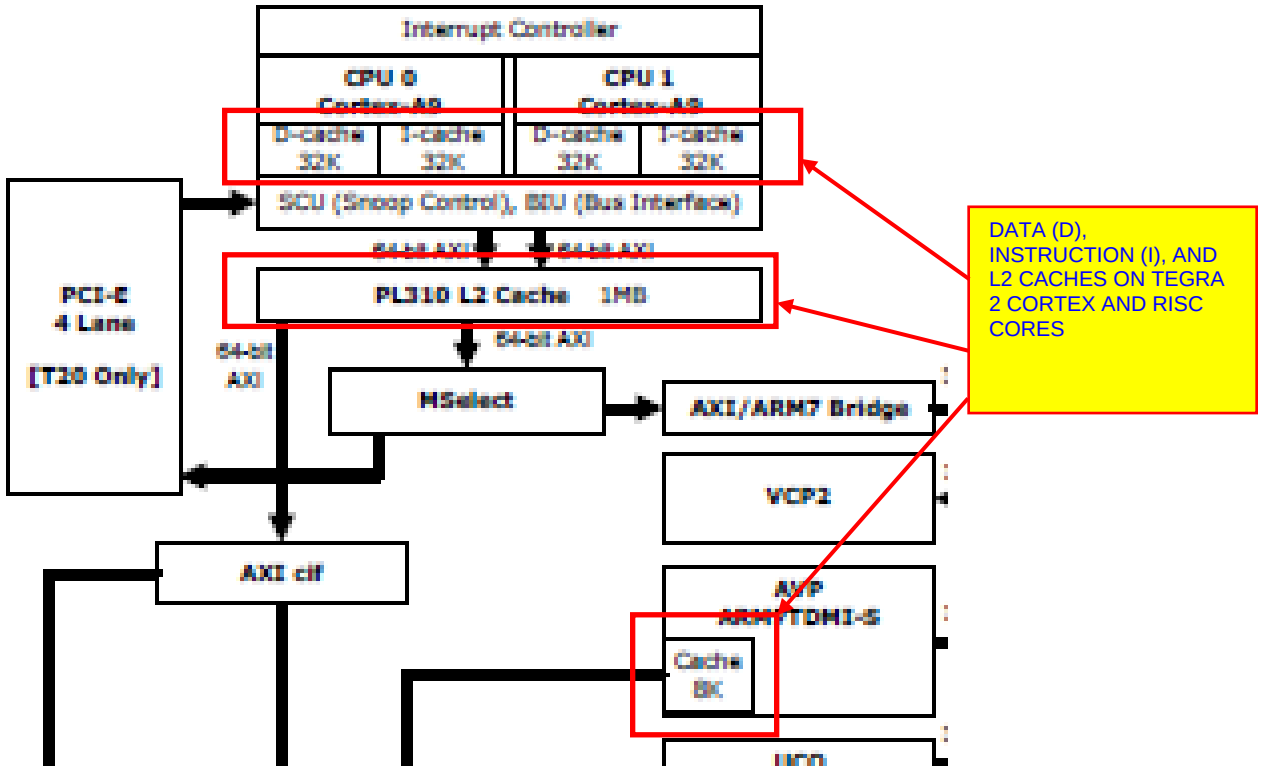
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	http://www.audiusa.com/search?query=2016+Q7#		
27. Computer readable apparatus of a computerized information system, …	**SEE DISCUSSION BELOW REGARDING DETAILS ON 2015 AUDI A3 (MIB-BASED MMI SYSTEM BELIEVED TO BE FUNCTIONALLY SIMILAR TO WHAT WILL BE INSTALLED IN 2016 Q7 WHEN SOLD IN LATER 2015).** "The Audi Q7 also sets standards with respect to the operating concept, infotainment, connectivity and driver assistance systems. The second-generation modular infotainment platform is on board, as is the Audi virtual cockpit. **The new MMI all-in-touch control unit with large touchpad** makes operation child's play." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **AS DISCUSSED BELOW, MIB/MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA (2 OR 3) PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("STORAGE APPARATUS COMPRISING AT LEAST ONE COMPUTER PROGRAM…" (REFERENCED BELOW).**	**L, DOE**	**D, I**

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
the apparatus comprising a storage apparatus, the storage apparatus having computerized logic configured to:	 **MIB/MMI WITH CONNECT ARCHITECTURE:**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	Figure 1. Tegra 2 Series Block Diagram 		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

Figure 1. Tegra 2 Series Block Diagram

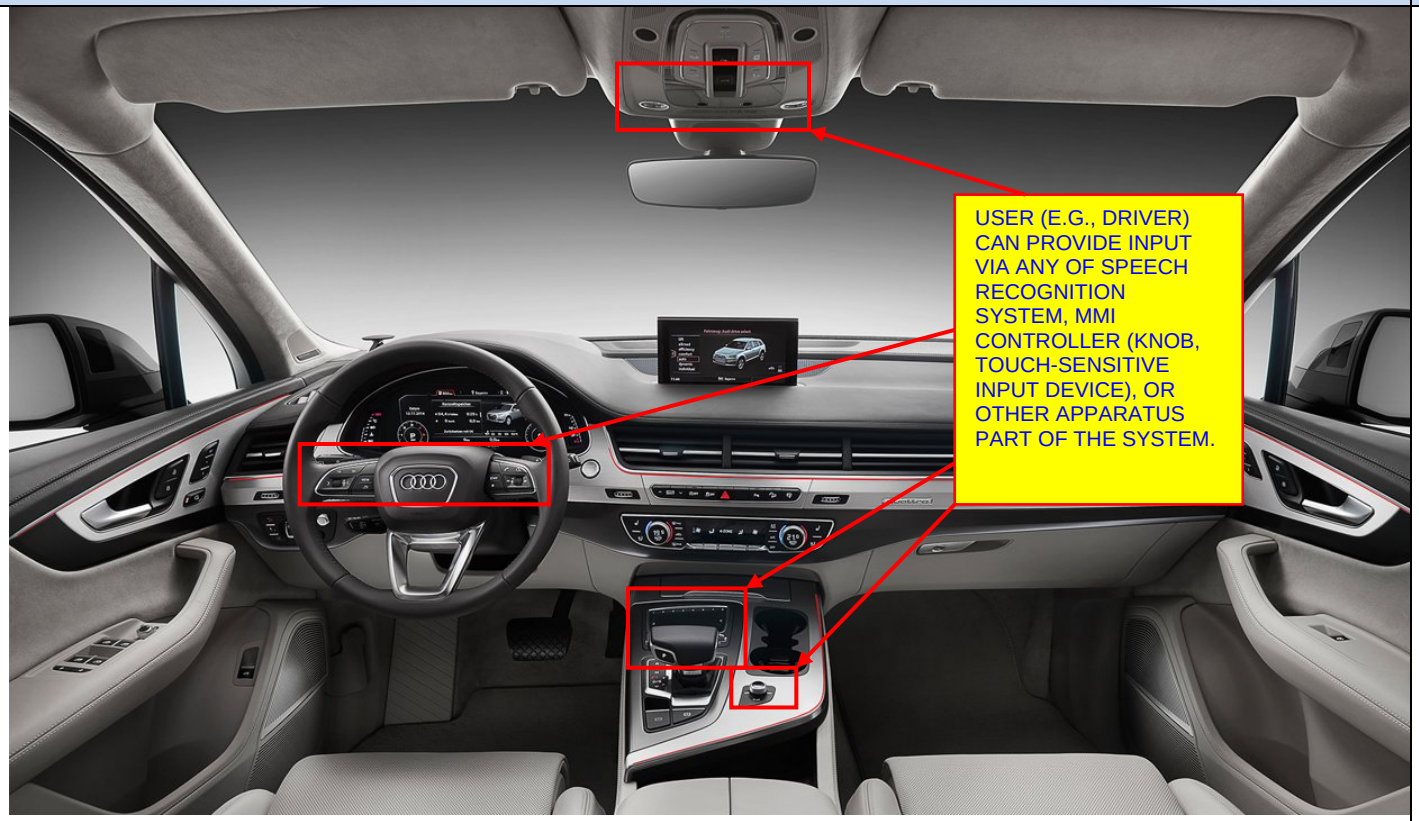


http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

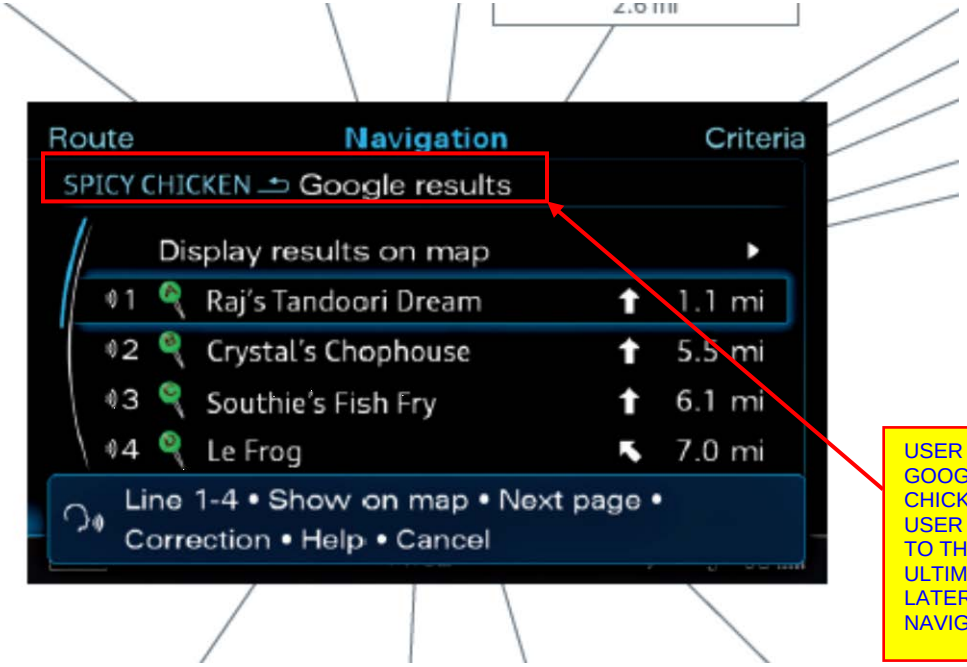
"Powered by Nvidia Tegra 2

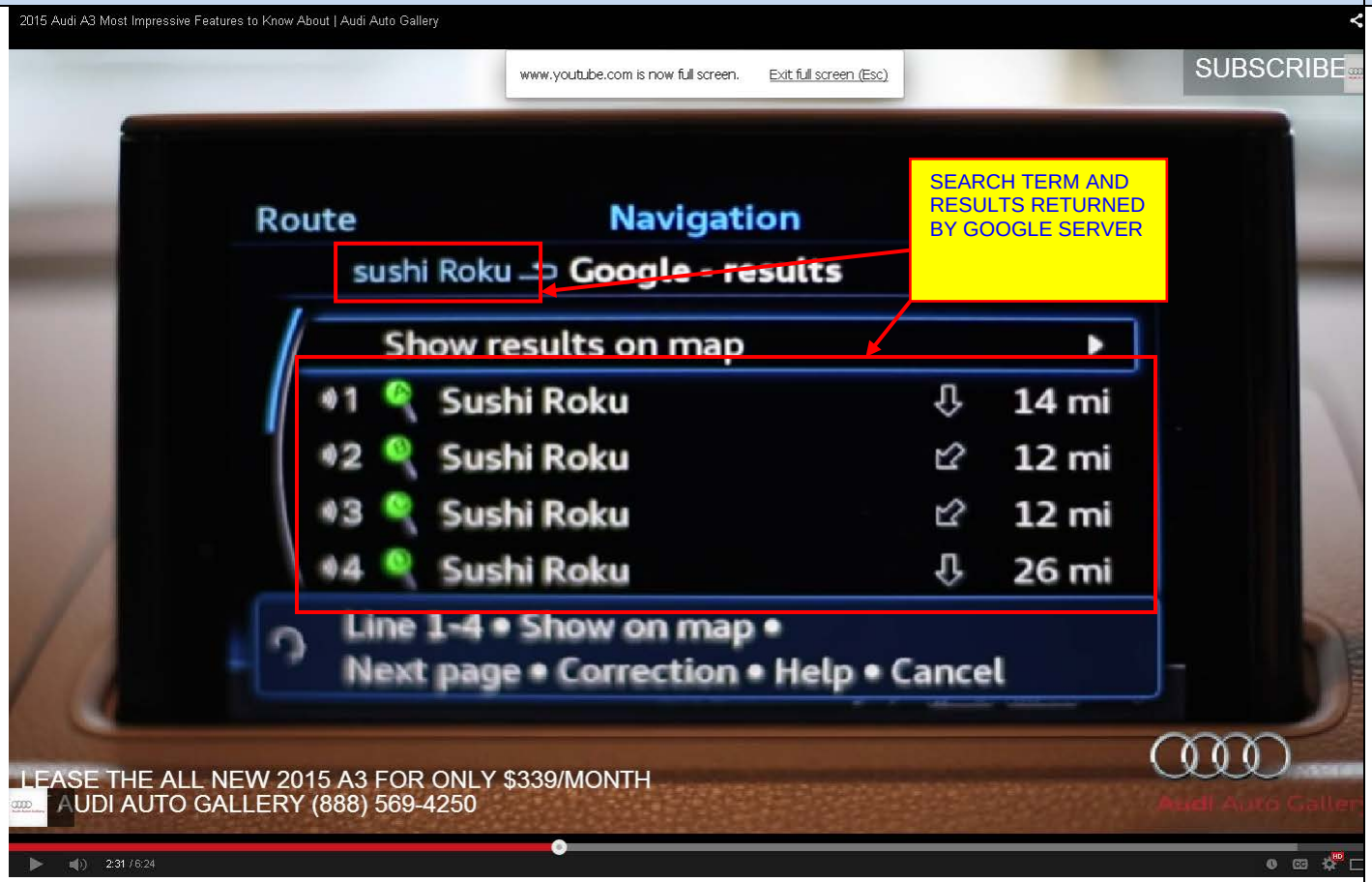
Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be

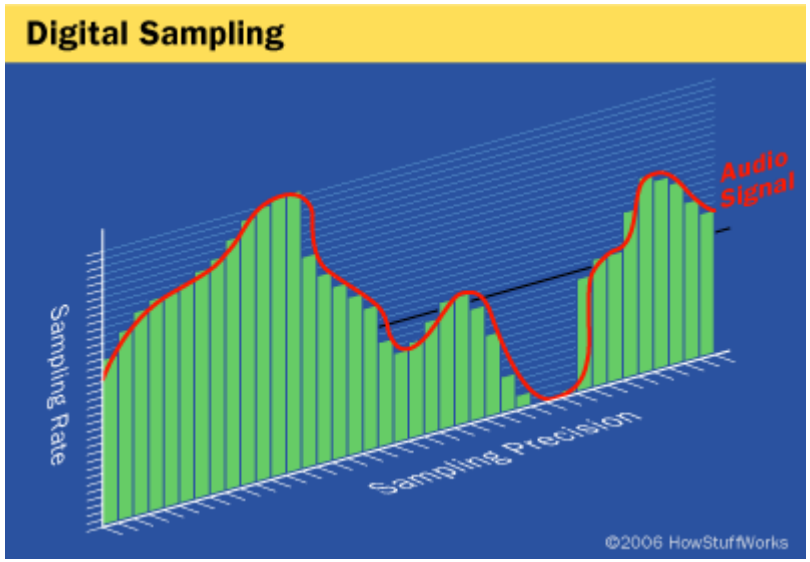
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	powered by a Tegra 4 with minimal retooling."  "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." http://www.cnet.com/products/2015-audi-a3-sedan/		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
receive, via a speech recognition apparatus of the computerized information system, an input from the user, the input relating to a user's desire to obtain directions to a business or entity from the computerized information system;	 **AS BUT ONE EXAMPLE, CONSIDER THE CLAIMED "DESIRED FUNCTION" TO BE FINDING THE LOCATION/DIRECTIONS TO A RESTAURANT VIA THE "GOOGLE SEARCH" FUNCTION OF THE CONNECT SYSTEM (E.G., USER SAYS A SEARCH TERM UNDER THE "NAVIGATION/ONLINE DESTINATIONS" FUNCTION TO FIND A DESIRED RESTAURANT) – DEMONSTRATED ON 2015 A3 WITH MMI/CONNECT BELOW, WHICH IS BELIEVED TO HAVE SIMILAR/IDENTICAL FUNCTIONALITY TO INCIPIENT 2016 Q7:**	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	Your destiny is on the tip of your tongue. Google Voice™ Local Search allows you to easily search via voice commands for restaurants, historical landmarks and places of interest, both near and far.[1] Imagine entering a destination address by just speaking the words—Audi connect® makes that possible. With the power of Google™ on the tip of your tongue, Audi connect brings a vast Internet database to you with the advanced engineering and style of Audi. The same ease of use and thorough location search capability you've come to expect from Google™ rolled into your every commute. Search nearby and faraway points of interest with the power of Google Voice™ Local Search. Need to take the client out for nine holes? Just tell Audi connect "golf course." Looking for a meal with a little kick? Just ask for "spicy chicken"—Google™ will populate your navigation display with restaurants or descriptions that match the phrase you speak. Select the destination that best suits your appetite, and style, and your Audi MMI® navigation system will guide you there in clear and accurate detail. More than just a companion on the road, Audi connect, once you use it, will become an integral part of the family.		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 [Audi connect brochure 2014] **SEE VIDEO BELOW FOR ANOTHER EXAMPLE (SEARCH FOR "SUSHI ROKU"):**		

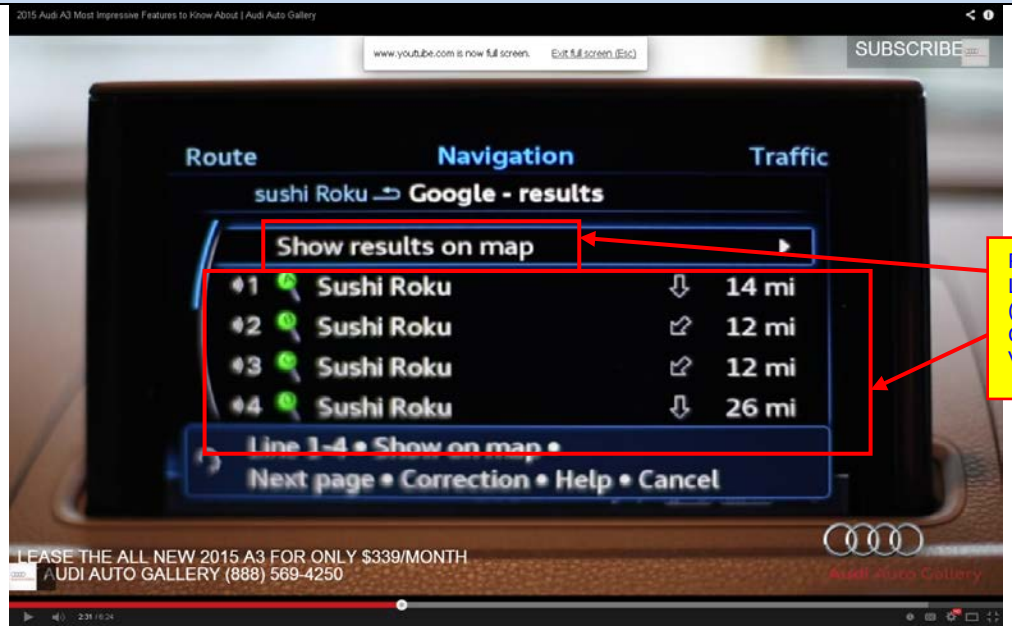
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=pjoeoDxz06U		

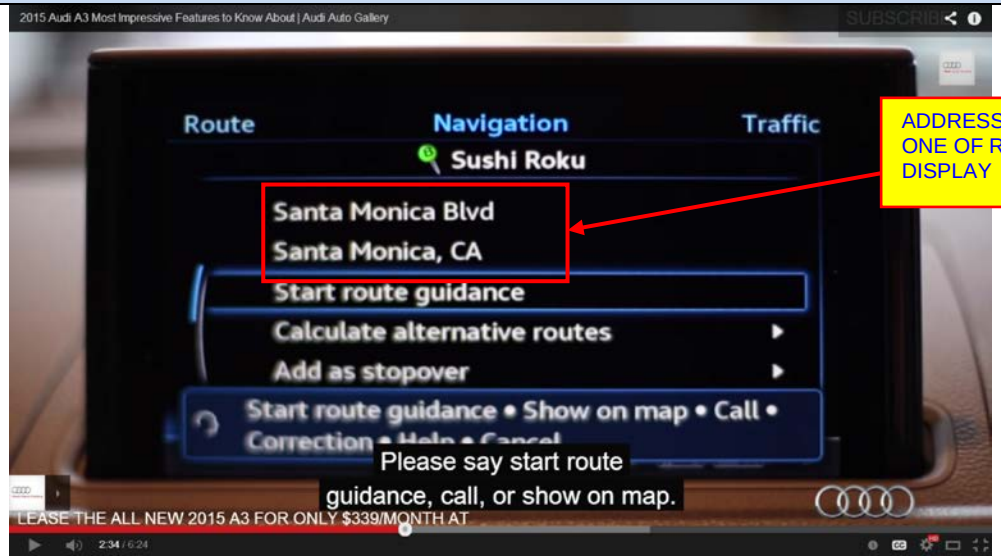
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
cause utilization of a wireless interface and a network to access information disposed on a remote server, the information relating to the directions to the business or entity;	***"How Voice Search works*** Voice Search allows you to provide a voice query to a Google search client application on a device instead of typing that query. It uses pattern recognition to transcribe spoken words to written text. For each voice query made to Voice Search, we store the language, the country, the utterance and our system's guess of what was said. The stored audio data does not contain your Google Account ID unless you have selected otherwise. We do not send any utterances to Google unless you have indicated an intent to use the Voice Search function (for example, pressing the microphone icon in the quick search bar or in the virtual keyboard or saying "Google" when the quick search bar indicates that the Voice Search function is available). We send the utterances to Google servers in order to recognize what was said by you. We keep utterances to improve our services, including to train the system to better recognize the correct search query." https://www.google.com/policies/technologies/pattern-recognition/  "An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]

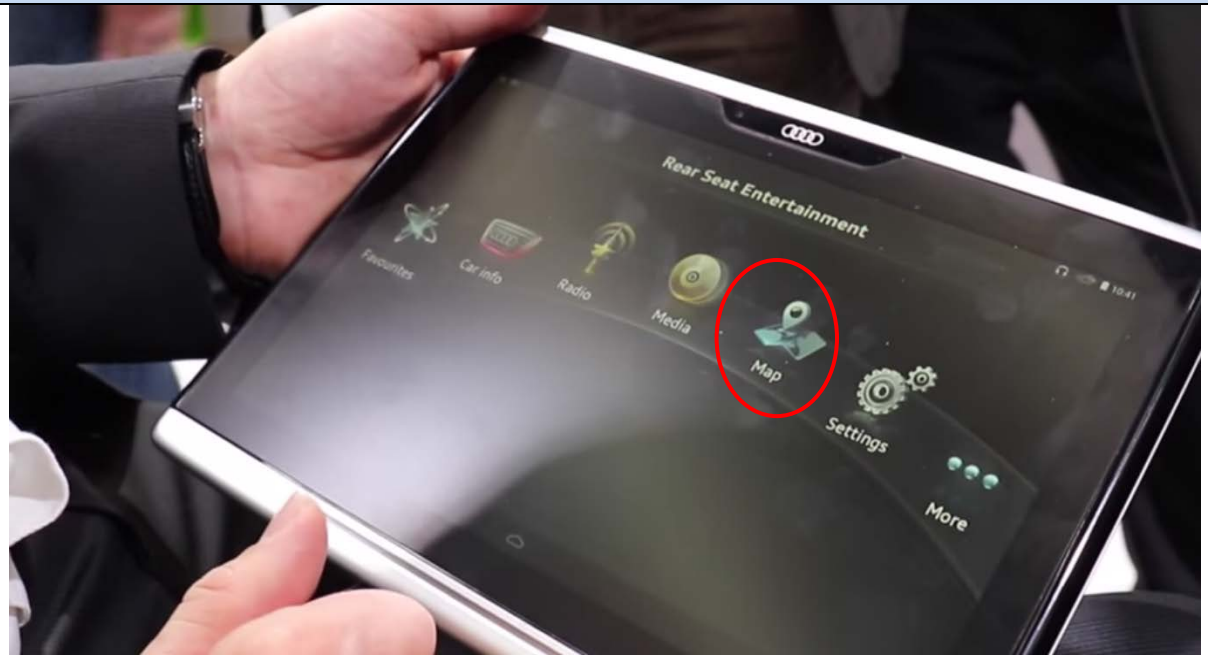
	and precision rates, the higher the quality." http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm
	"When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " http://www.wired.com/2013/02/android-neural-network/
	
	"**Behind the Scenes**
	
	Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec.
	
	The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like:…
	
	After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string.
	
	`GET /complete/search?client=iphoneapp&hjson=t&types=t`
	`&spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1`
	`User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1`
	`Accept: */*`
	`Accept-Language: en-us`
	`Accept-Encoding: gzip, deflate`
	`Pragma: no-cache`
	`Connection: keep-alive`
	`Connection: keep-alive`
	`Host: clients1.google.com`
	
	The response is an array of search terms in JSON format, for use in search autocompletion.
	
	`["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the`		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.**		
receive the accessed information received via the wireless interface;	**THE REQUESTED INFORMATION (E.G., SPICY CHICKEN OR SUSHI ROKU LOCATIONS) IS SENT BACK VIA THE LTE WIRELESS INTERFACE TO THE VEHICLE.** **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." [https://www.audi-mediacenter.com/en]	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
provide the user with at least a portion of the accessed information relating to the directions to the business or entity via at least one of: (i) a touch screen input and display device of the computerized system; and/or (ii) a speech synthesis apparatus;		**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

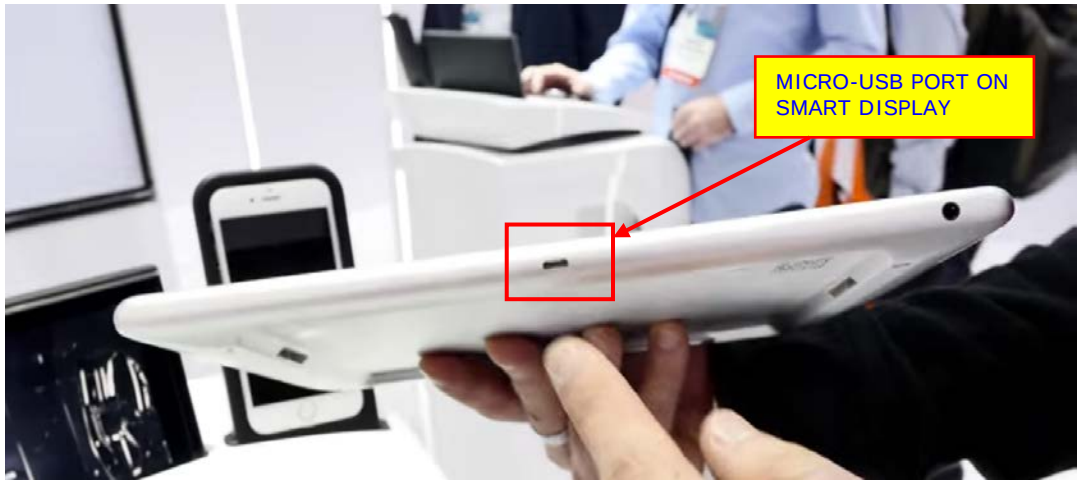
Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **USING WI-FI INTERFACE BETWEEN MMI Q7 AND SMART DISPLAY TABLET, NAVIGATION INFO CAN BE PASSED FROM THE MMI HOST TO THE TABLET AS SHOWN BELOW:**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=9YNbPboYA6Y		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ZUS46a0XdZE **IN ADDITION TO DISPLAY ON TOUCH SCREEN OF TABLET, VEHICLE (MMI SYSTEM) CAN ITERATIVELY PRESENT USER WITH PROMPTS TO ENTER ADDITIONAL VOICE COMMANDS TO ISOLATE THE ONE DESIRED DESTINATION, AND READ OUT THE DIRECTIONS VIA SPEECH SYNTHESIS APPARATUS IN THE CAR.** **FOR EXAMPLE, A TYPICAL ONLINE SEARCH MIGHT GO AS FOLLOWS (FUNCTIONALITY VERIFIED IN VEHICLE):** **USER: "ONLINE DESTINATIONS"**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	A3: "ONLINE DESTINATIONS" **USER: "SUSHI ROKU"** **A3: "SUSHI ROKU"…** **A3: "SUSHI ROKU HAVE BEEN LOADED…PLEASE SAY …"** **USER: "LINE 2"** **A3: "LINE 2 – PLEASE SAY START ROUTE GUIDANCE…"** **USER: "START ROUTE GUIDANCE"** **A3: [STARTS READING OUT DIRECTIONS…]**		
and enable an ad hoc communication link with a portable electronic device of a user of the transport apparatus,	**WI-FI LINKS CAN BE AD HOC:** "A wireless ad hoc network is a decentralized type of wireless network. [1][2] The network is ad hoc because it does not rely on a pre existing infrastructure, such as routers in wired networks or access points in managed (infrastructure) wireless networks. Instead, each node participates in routing by forwarding data for other nodes, so the determination of which nodes forward data is made dynamically on the basis of network connectivity. In addition to the classic routing, ad hoc networks can use flooding for forwarding data. … An ad hoc network typically refers to any set of networks where all devices have equal status on a network and are free to associate with any other ad hoc network device in link range. Ad hoc network often refers to a mode of operation of IEEE 802.11 wireless networks." http://en.wikipedia.org/wiki/Wireless_ad_hoc_network **2016 Q7 MMI SYSTEM INCLUDES A WI-FI INTERFACE SPECIFICALLY FOR COMMUNICATION WITH THE SMART DISPLAY TABLET(S):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	premium-comfort **BLUETOOTH LINKS CAN BE AD HOC:** "Ad hoc network is often local area network or other small area network formed by wireless devices. In Latin, ad hoc literally means "for this," further meaning "for this purpose only," and thus usually temporary. The area of ad hoc networking has gathered much research interests in the past years. Bluetooth is one of the technologies that can be used for ad hoc networking. The original idea of Bluetooth concept was that of cable replacement between portable and/or fixed electronic device. According to the specification, when two Bluetooth devices come into each other's communication range, one of them assumes the role of master of the communication and the other becomes the slave. This simple "one hop" network is called a piconet, and may include up to seven active slaves connected to one master." http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=4147524&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3D4147524 **SEE BELOW; BOTH THE VEHICLE AND THE TABLET HAVE BLUETOOTH INTERFACES, AND THE TABLET CAN PRESUMABLY BE PAIRED TO THE VEHICLE (MMI SYSTEM) AND EXCHANGE DATA SUCH AS CONTACT LISTS/ADDRESS BOOKS, DIGITAL MEDIA (E.G., MP3), ETC.** **FOR SIMILAR REASONS, USB LINKS CAN BE AD HOC, WHETHER WIRED (E.G., USB 2.0/3.0 CONNECTOR) OR WIRELESS (E.G., WLAN USB DONGLE).** **"Internet with LTE speed:** **Audi connect** MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. The driver can use the tailored Audi connect services ranging from online traffic information to navigation with Google Earth and Google Street View to online media streaming. The new app provides access to Aupeo! personal web radio and the large Napster music library. The Q7 also has a new, top-of-the-line element of the Audi connect portfolio: The Audi smartphone interface brings …"Google Android Auto" on board. If an …Android cellular phone is connected to the USB port (…Android from Version 5.0 Lollipop), the … environment opens in the Audi smartphone interface. Both are tailored for use in the car. The heart of this feature is online music. In addition, both platforms offer navigation functions, missed call/appointment reminders and messaging functions. Over time, these will be joined by numerous third-party		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	applications such as Pandora, Spotify and WhatsApp." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort  **AUDI EVEN WILL PROVIDE ITS 2016 Q7 CUSTOMERS WITH THE CABLE THAT ENABLES CONNECTION OF THE DEVICES (I.E., USB PORT ON Q7 TO MICRO-USB ON SMART DISPLAY, PHONE, TABLET, ETC.):** "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android**…" http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html **HENCE, Q7 CAN TRANSFER DATA VIA ANY NUMBER OF DIFFERENT WIRED OR WIRELESS MODALITIES TO ANY NUMBER OF DIFFERENT PERSONAL ELECTRONIC DEVICES, INCLUDING BUT NOT LIMITED TO THE SMART DISPLAY ITSELF.** **MOREOVER, IF ONE CONSIDERS THE SMART DISPLAY TABLET TO BE PART OF THE COMPUTERIZED INFORMATION SYSTEM (IT IS FULLY INTEGRATED THEREWITH), THEN THE AD HOC LINK COULD COMPRISE ANY OF THE INTERFACES OUT OF THE SMART DISPLAY (E.G., WI-FI ON TABLET, AS CONTRASTED TO WI-FI HOTSPOT IN MMI SYSTEM), BLUETOOTH ON TABLET, MICRO-USB ON TABLET), ETC.**		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
the ad hoc link being configured to transfer data between the computerized information system and the portable electronic device;	**DATA TRASFERS CAN INCLUDE FOR EXAMPLE IMPORT/EXPORT ADDRESS BOOKS, MAPS, FILES, ETC.**	**L, DOE**	
wherein the computerized information system is disposed on or within a transport apparatus, the transport apparatus configured to transport at least one person from one location to another.	 http://www.audiusa.com/search?query=2016+Q7#	**L, DOE**	

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.audiusa.com/search?query=2016+Q7#		

Claim Language	Audi/Volkswagen Implementation	Literal / DOE[1]	Direct / Indirect [2]
30. The apparatus of claim 27, wherein the logic is configured to transfer data between the computerized information system and the portable electronic device via the ad hoc link relating to a map of the local area.	 **MOREOVER, BOTH THE HEAD UNIT AND TABLET CAN COMMUNICATE MAP-RELATED DATA/IMAGES VIA THEIR INTERFACES (E.G., WI-FI FROM HEAD UNIT, WI-FI/MICRO-USB FROM TABLET).**	**L, DOE**	**D, I**

[1] Audi connect brochure 2014

[2] http://www.pcmag.com/article2/0,2817,2455739,00.asp

[3] http://www.pcmag.com/article2/0,2817,2455739,00.asp

[4] http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

[5] http://www.cnet.com/products/2015-audi-a3-sedan/

[6] http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/

[7] http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/

[8] http://fourtitude.com/emAlbum/albums/Marques%20(Audi%20Brand%20Group)/Audi%20(Modern%20Era)/A3/from%202013%20(Type%208V,%20MQB)/Sportback/Technical/audi-connect-refuelling-stp-service-mmi-a3-18.jpg

[9] http://www.audiworld.com/articles/audi-connect-the-car-in-the-cloud/

[10] http://www.audiusa.com/innovation/intelligence/audi-connect/connect-privacy.html

[11] https://www.audi-mediaservices.com/publish/ms/content/en/public/hintergrundberichte/2014/01/07/next_generation__/infotainment_and_audi.html

[12] http://www.businesswire.com/news/home/20121011005696/en/Nuance%E2%80%99s-Dragon-Drive!-Messaging-Powers-Text-Message#.U_PAdMVdXN8

[13] https://pictures.dealer.com/aoa/d47887b20a0d02b701e481c10e83549f.pdf

[14] https://developers.google.com/places/

[15] http://www.martinshervington.com/what-is-google-local-and-how-to-set-up-a-page/

[16] http://www.audiusa.com/help/audi-connect#dtufilters/vehicleYear/null/vehicleName/null/

[17] http://www.cnet.com/news/google-maps-becoming-more-context-aware-and-emotional/

[18] http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm

[19] http://www.wired.com/2013/02/android-neural-network/

[20] http://www.cnet.com/products/2015-audi-a3-sedan/

[21] http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=4147524&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3D4147524

[22] http://en.wikipedia.org/wiki/Wireless_ad_hoc_network

[23] http://www.audiusa.com/innovation/intelligence/audi-connect

[24] http://en.wikipedia.org/wiki/Speech_synthesis

[25] http://www.ee.columbia.edu/~dpwe/e6820/lectures/L05-speechmodels.pdf

[26] http://www.haskins.yale.edu/featured/heads/synthesis.html

[27] https://www.google.com/policies/technologies/pattern-recognition/

[28] http://audiraleighblog.com/audi-new-entry-level-sedan-2015-a3-test-drive-review/

[29] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/

EXHIBIT F

2016 Audi Q7 with Smart Display Integration vs. U.S. Patent No. 8,065,156
"Adaptive Information Presentation Apparatus and Methods"

U.S. Patent No. 8,065,156 Data	Filed: 2/24/10 Issued: 11/22/11 Priority date: June 10, 1999 38 claims total - 5 independent, 33 dependent

Provided pursuant to Patent Local Rule 3.1 and June 10, 2015 Order;
Plaintiff reserves the right to supplement.

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	THIS ANALYSIS IS TARGETED AT THE EXEMPLARY 2016 Q7 WITH MMI AND "SMART DISPLAY"  **http://www.audiusa.com/search?query=2016+Q7#**		

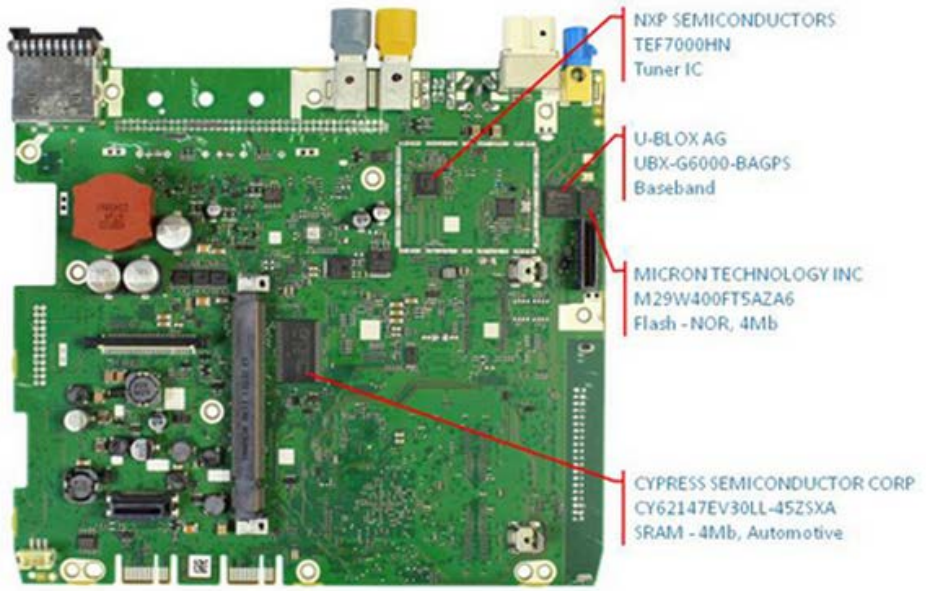
[1] West View denotes allegations of literal infringement as "L" and infringement under the doctrine of equivalents as "DOE," as applicable.
[2] West View denotes allegations of direct infringement as "D" and indirect or induced infringement as "I," as applicable.

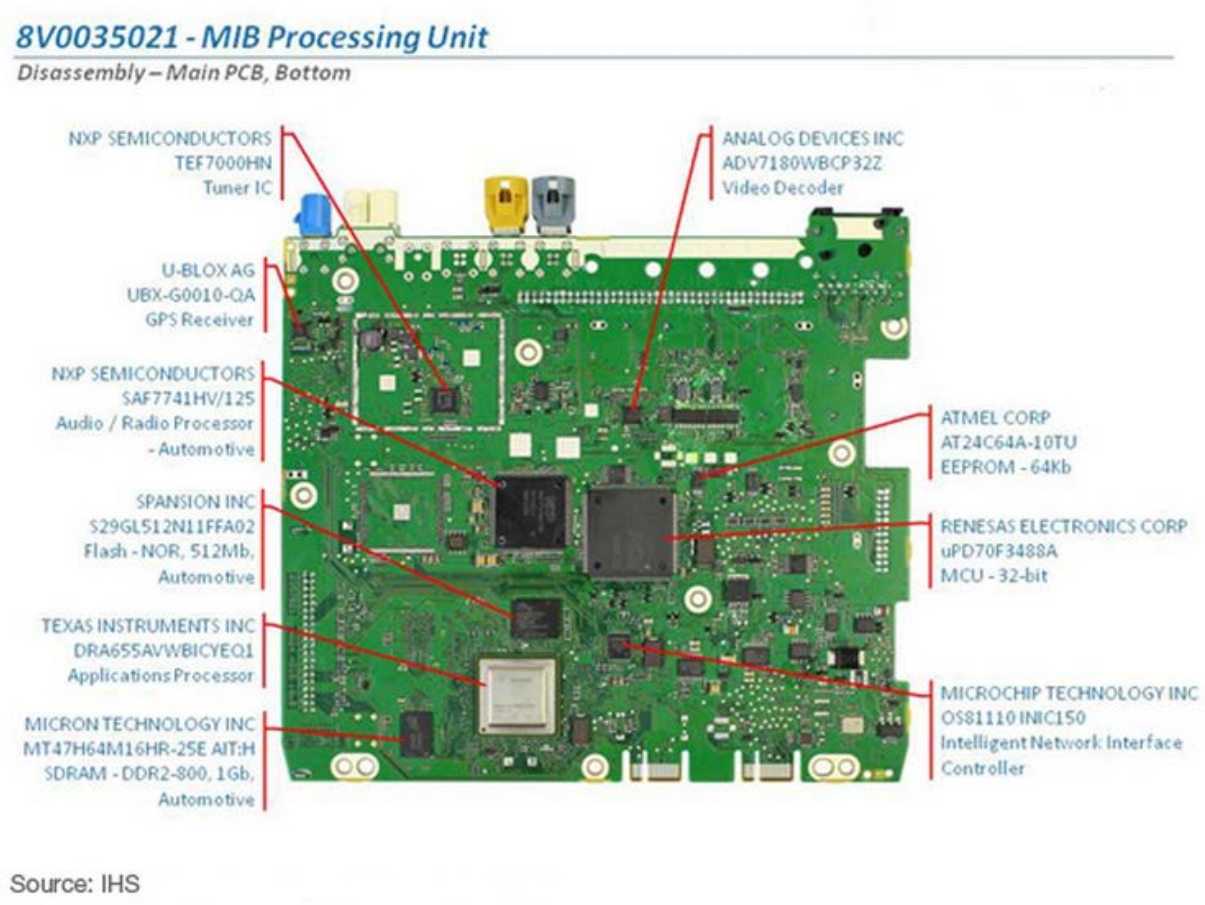
2016 Audi Q7 with Smart Display Integration vs. U.S. Patent No. 8,065,156
"Adaptive Information Presentation Apparatus and Methods"

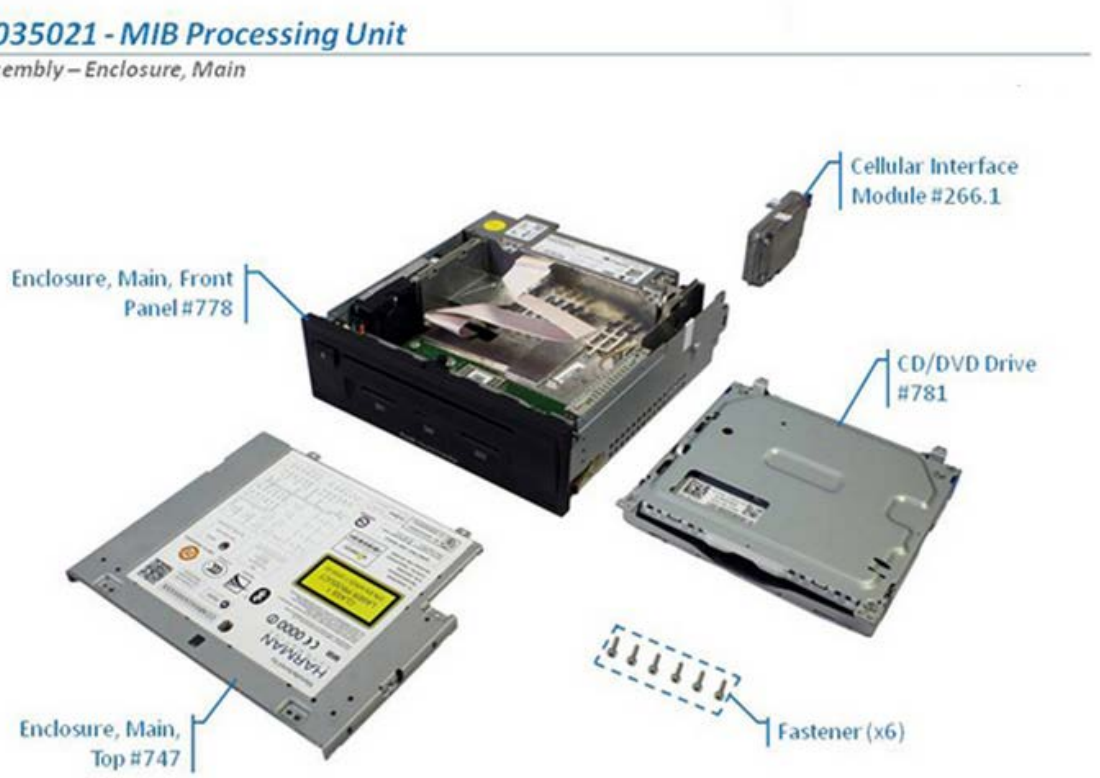
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.audiusa.com/search?query=2016+Q7#		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.audiusa.com/search?query=2016+Q7#		
10. Computer readable apparatus comprising a storage medium, said storage medium comprising at least one computer program with a plurality of instructions,	"The Audi Q7 also sets standards with respect to the operating concept, infotainment, connectivity and driver assistance systems. The second-generation modular infotainment platform is on board, as is the Audi virtual cockpit. **The new MMI all-in-touch control unit with large touchpad** makes operation child's play." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort DEMONSTRATED ON 2015 A3 WITH MMI/CONNECT BELOW, WHICH IS BELIEVED TO HAVE SIMILAR/IDENTICAL FUNCTIONALITY TO INCIPIENT 2016 Q7 **AS DISCUSSED BELOW, MIB/MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA (2 OR 3) PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("STORAGE APPARATUS COMPRISING AT LEAST ONE COMPUTER PROGRAM…" REFERENCED BELOW).**	**L, DOE**	**D, I**

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
the storage medium being part of a computerized information system disposed on or within a transport apparatus configured to transport at least one person from one location to another,		**L, DOE**	

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	8V0035021 - MIB Processing Unit *Disassembly – Main PCB, Top*  Source: IHS **Audi MIB High (8V0035021 - MIB Processing Unit) Infotainment - Main PCB Top** Audi MIB High (8V0035021 - MIB Processing Unit) Infotainment - Main PCB Top https://technology.ihs.com/435873/teardown-analysis-audi-mib-high-8v0035021-mib-processing-unit-infotainment		

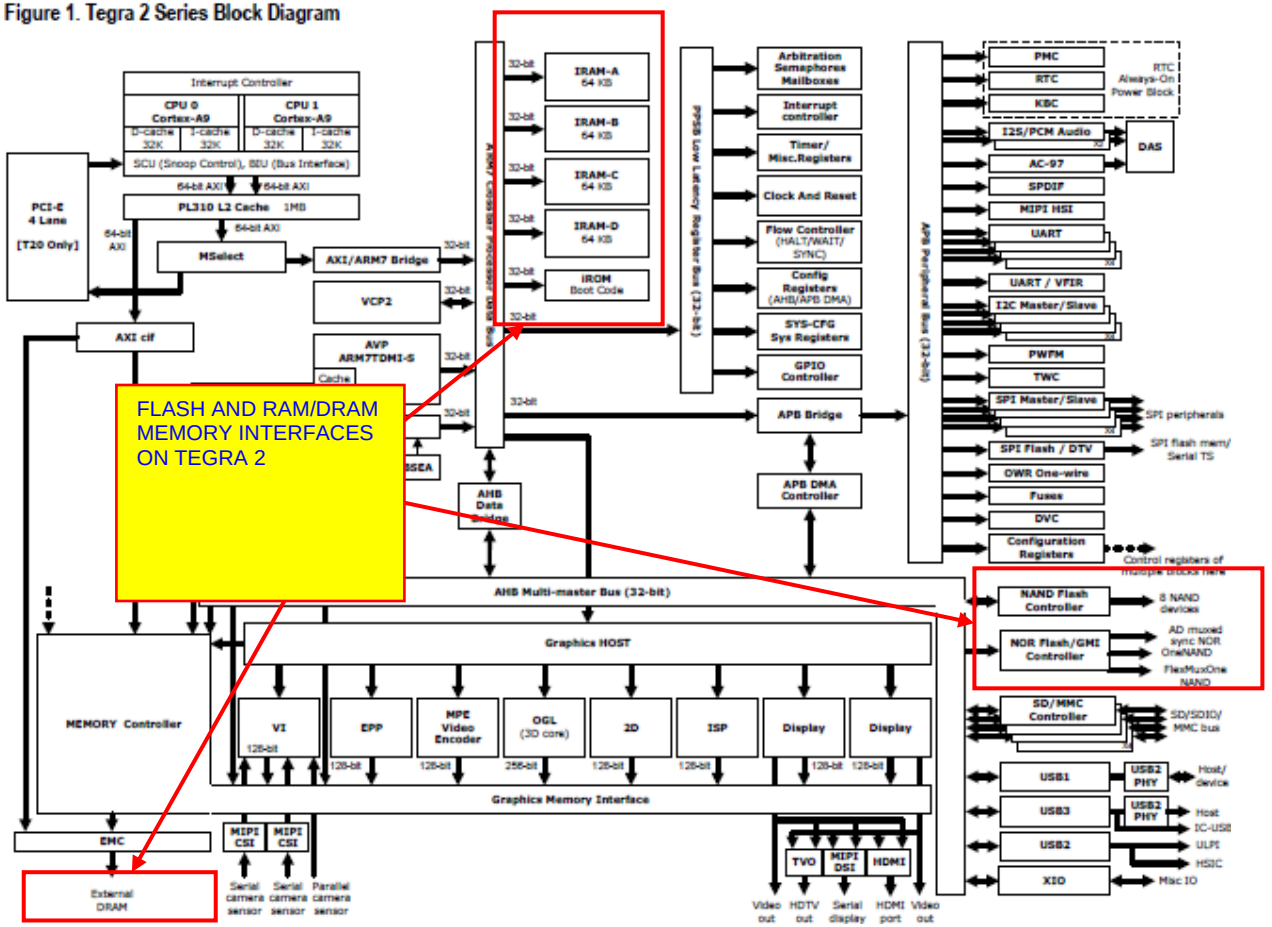
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **Audi MIB High (8V0035021 - MIB Processing Unit) Infotainment - Main PCB Bottom**		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **Audi MIB High (8V0035021 - MIB Processing Unit) Infotainment - Disassembly View 1** Audi MIB High (8V0035021 - MIB Processing Unit) Infotainment - Disassembly View 1 https://technology.ihs.com/435873/teardown-analysis-audi-mib-high-8v0035021-mib-processing-unit-infotainment		

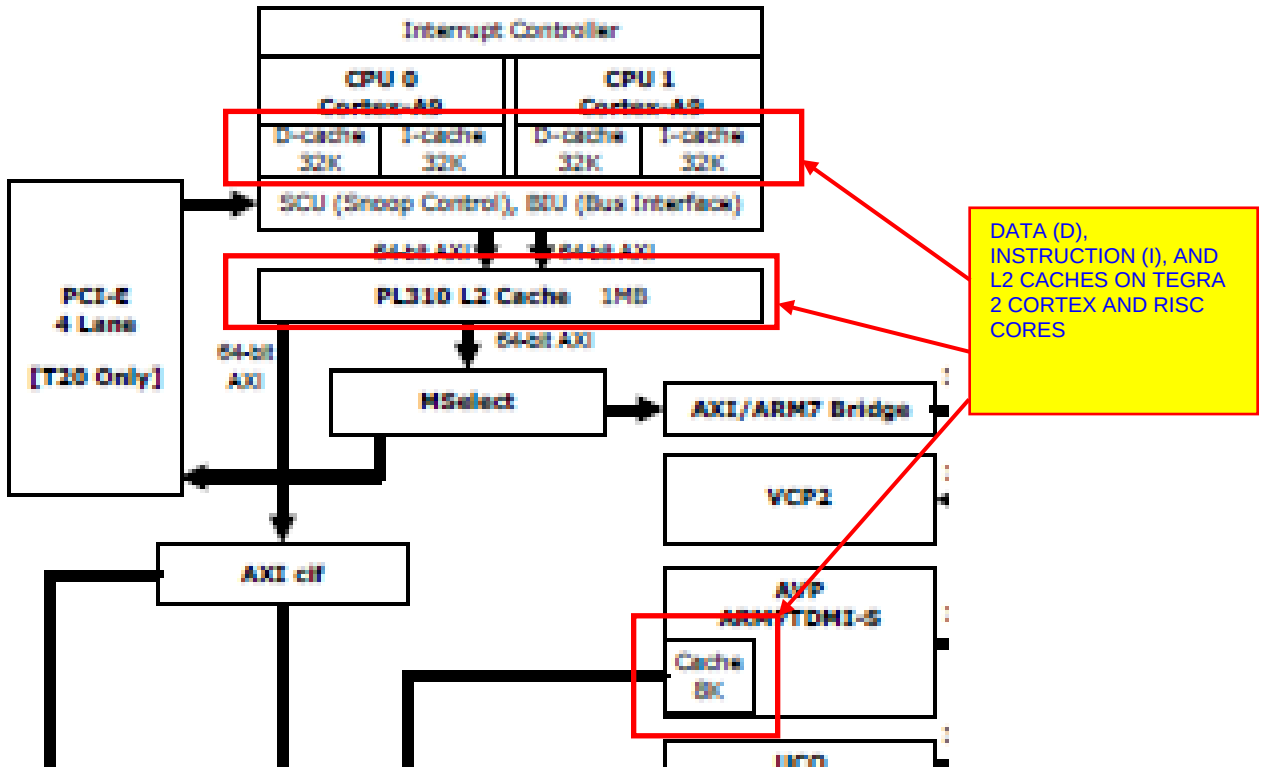
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]

MIB/MMI WITH CONNECT ARCHITECTURE:

Figure 1. Tegra 2 Series Block Diagram

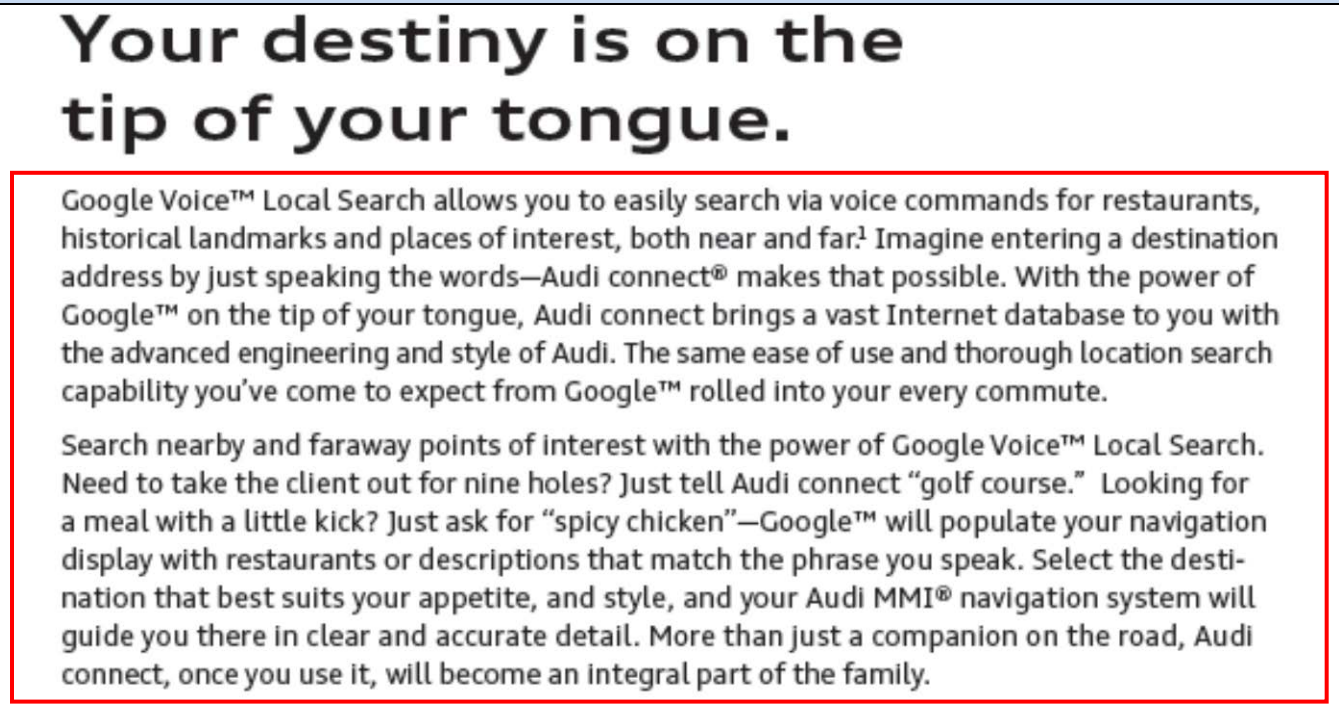


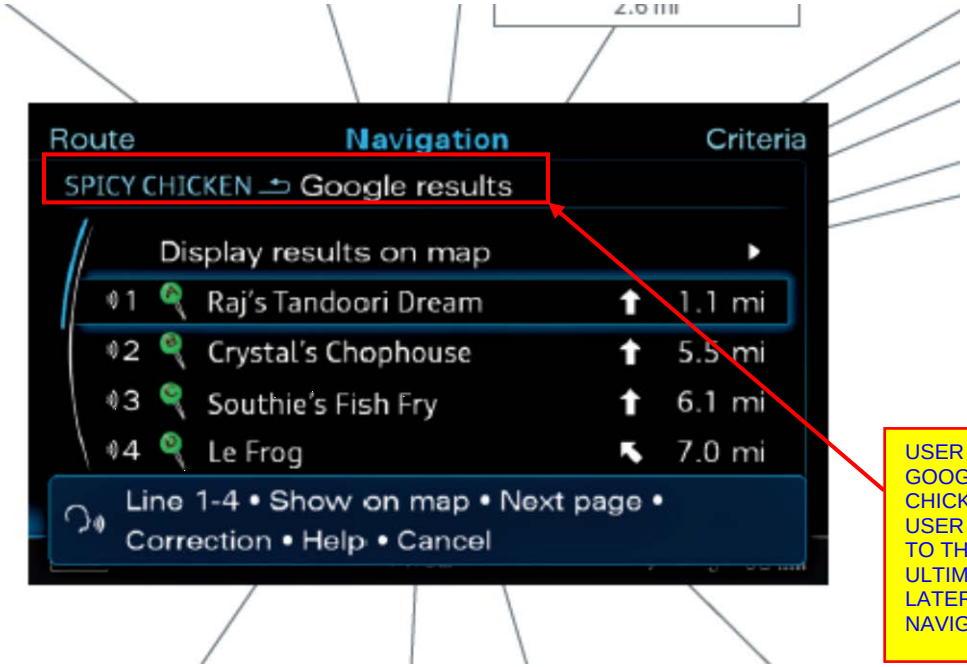
http://www.chiark.greenend.org.uk/~theom/riscos/docs/Tegra2_TRM_DP04508001v01p.pdf

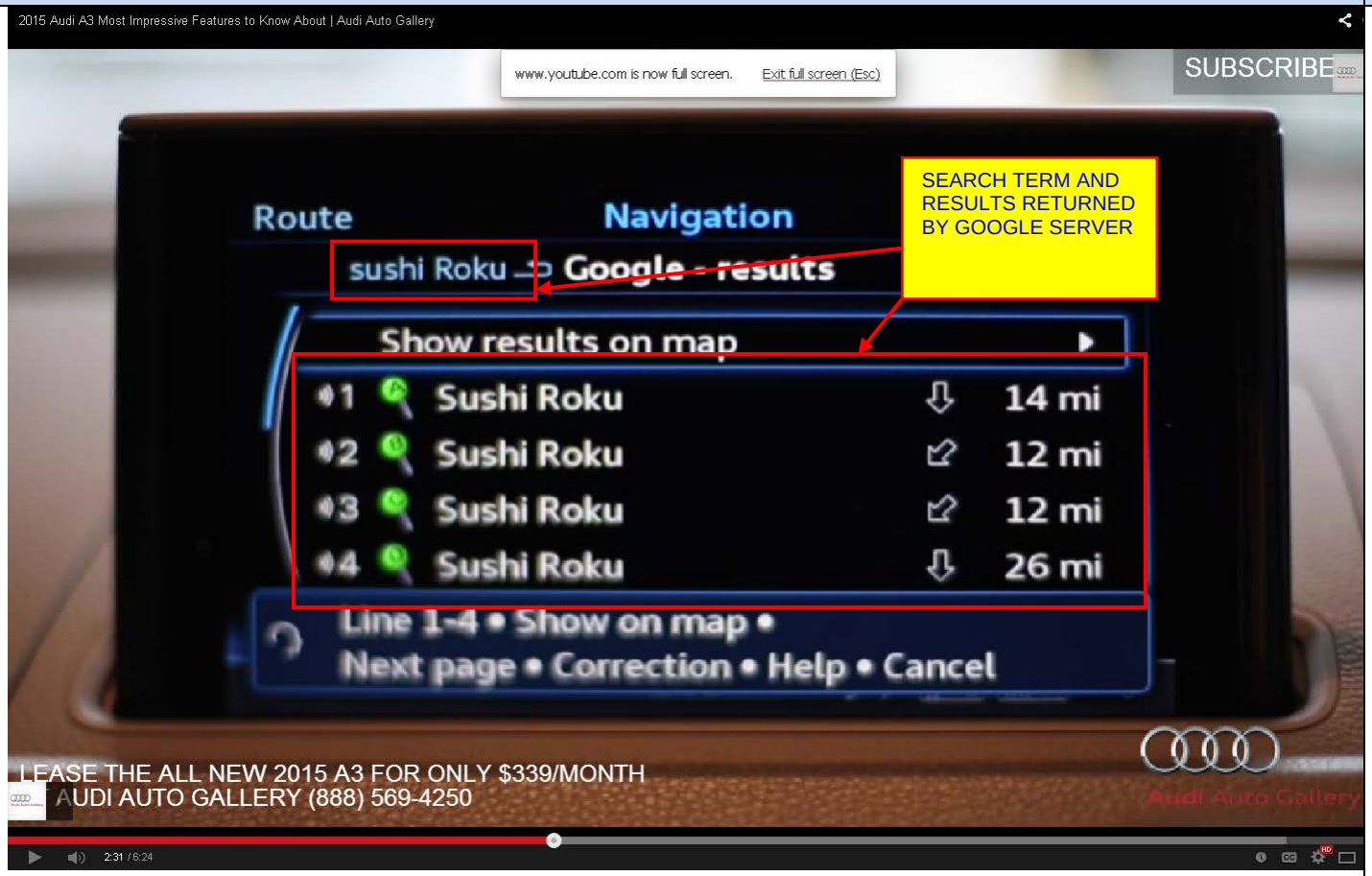
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	Figure 1. Tegra 2 Series Block Diagram  *"Powered by Nvidia Tegra 2* **Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could**		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	just as easily be powered by a Tegra 4 with minimal retooling."  **"We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input."** http://www.europeancarweb.com/firstlook/1407_2015_audi_a3_sedan_first_drive/		

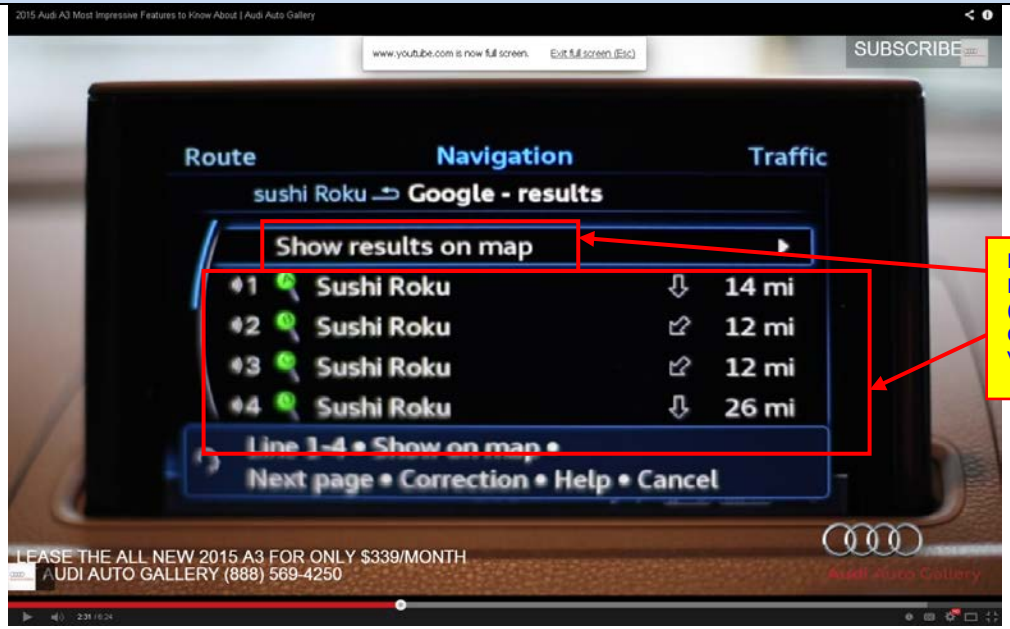
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
said at least one program being configured to: receive an input from a user of the transport apparatus, the input relating to a desired function;	 **AS BUT ONE EXAMPLE, CONSIDER THE CLAIMED "DESIRED FUNCTION" TO BE FINDING THE LOCATION/DIRECTIONS TO A RESTAURANT VIA THE "GOOGLE SEARCH" FUNCTION OF THE CONNECT SYSTEM (E.G., USER SAYS A SEARCH TERM UNDER THE "NAVIGATION/ONLINE DESTINATIONS" FUNCTION TO FIND A DESIRED RESTAURANT)**	**L, DOE**	

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 Audi connect brochure (2014)		

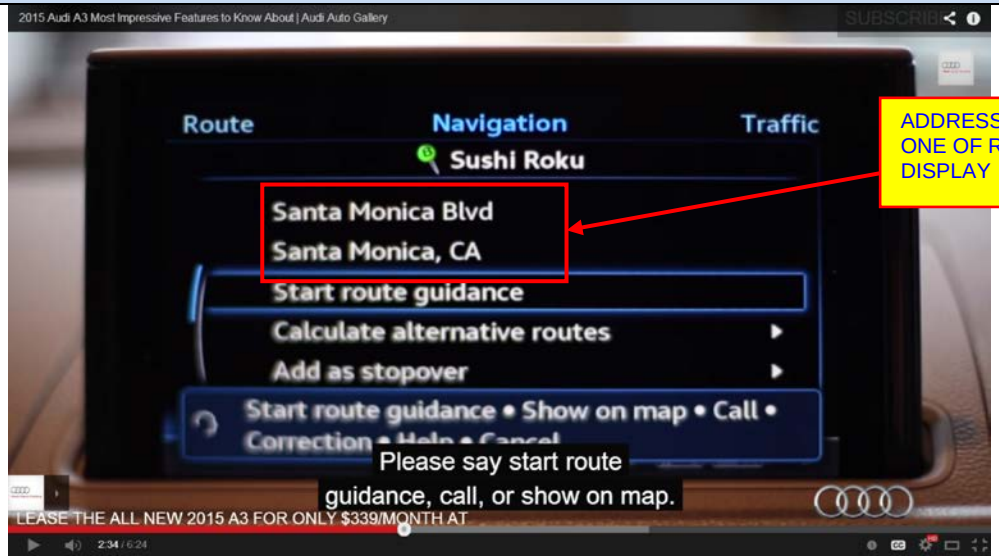
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 Audi connect brochure (2014) **SEE VIDEO BELOW FOR ANOTHER EXAMPLE (SEARCH FOR "SUSHI ROKU"):**		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=pjoeoDxz06U		

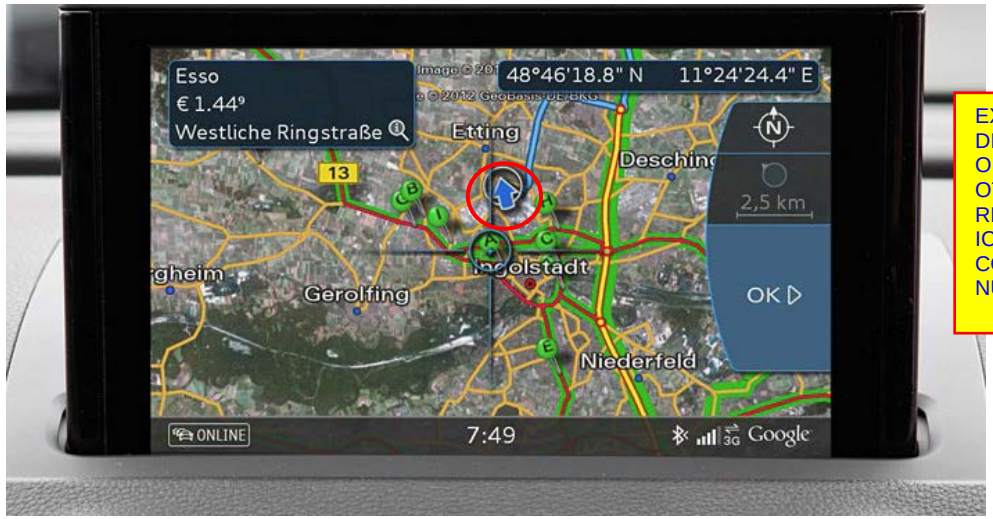
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
cause access of a remote server via an associated wireless interface to access information relating to the desired function;	**SEE ABOVE; A "GOOGLE VOICE LOCAL SEARCH" CONDUCTED BY MMI/CONNECT SYSTEM USER ACCESSES REMOTE SERVER(S) TO RETRIEVE INFORMATION INCLUDING POSSIBLE MATCHES, LOCATIONS, STREET VIEW, GOOGLE EARTH MAP, ETC.**	**L, DOE**	
receive accessed information via the wireless interface;	**THE REQUESTED INFORMATION (E.G., SPICY CHICKEN OR SUSHI ROKU LOCATIONS) IS SENT BACK VIA THE LTE WIRELESS INTERFACE TO THE VEHICLE.** **LTE INTERFACE ENABLES SUFFICIENT BANDWIDTH FOR E.G., GOOGLE EARTH IMAGE/STREET VIEW DOWNLOADS:** "It was important during the development process to not only provide a high-speed Internet connection mobile devices, but also to provide high-speed Internet access for the car's internal systems. This enables Audi connect services such as navigation with Google Earth and Google Street View to load and display much, much faster. Full integration of LTE and the associated fast transfer of data will enable the targeted expansion of the Audi connect range in the years ahead, from cloud-based music services to car-to-X services such as wireless payment or communication with traffic signals. LTE makes it possible to provide these services everywhere, even in rural areas." https://www.audi-mediaservices.com/publish/ms/content/en/public/hintergrundberichte/2014/01/07/next_generation__/infotainment_and_audi.html	**L, DOE**	

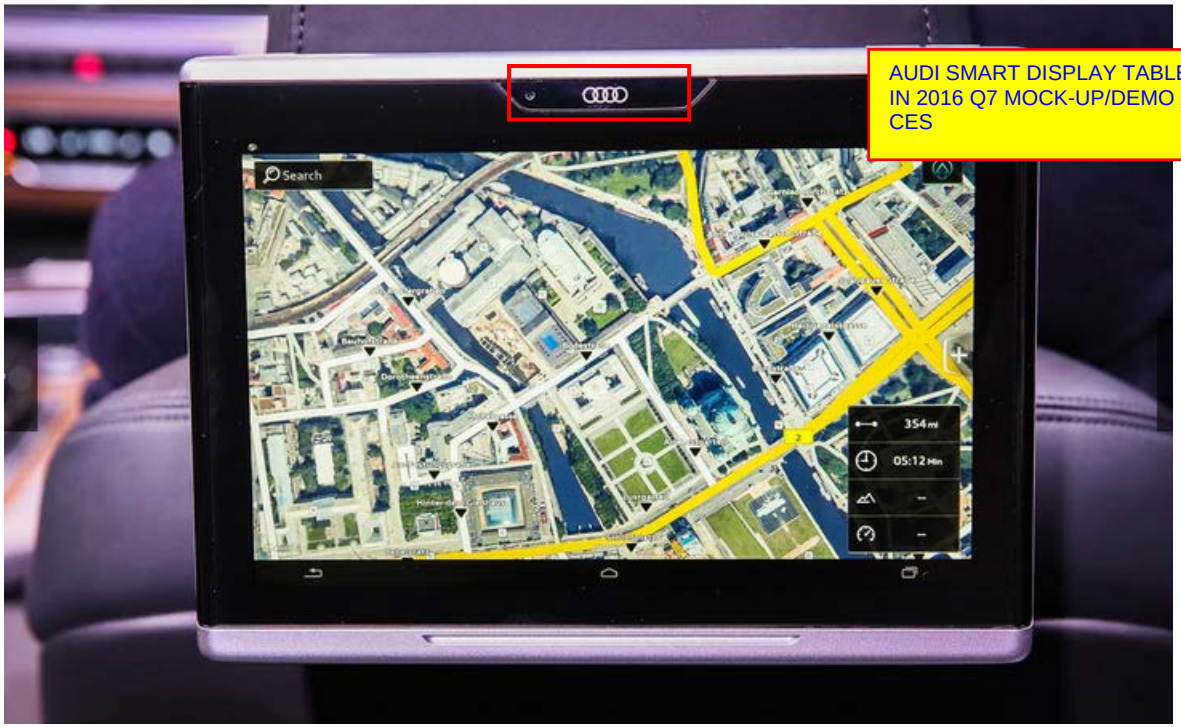
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
and implement the desired function using at least a portion of the received information;		**L, DOE**	

2016 Audi Q7 with Smart Display Integration vs. U.S. Patent No. 8,065,156
"Adaptive Information Presentation Apparatus and Methods"

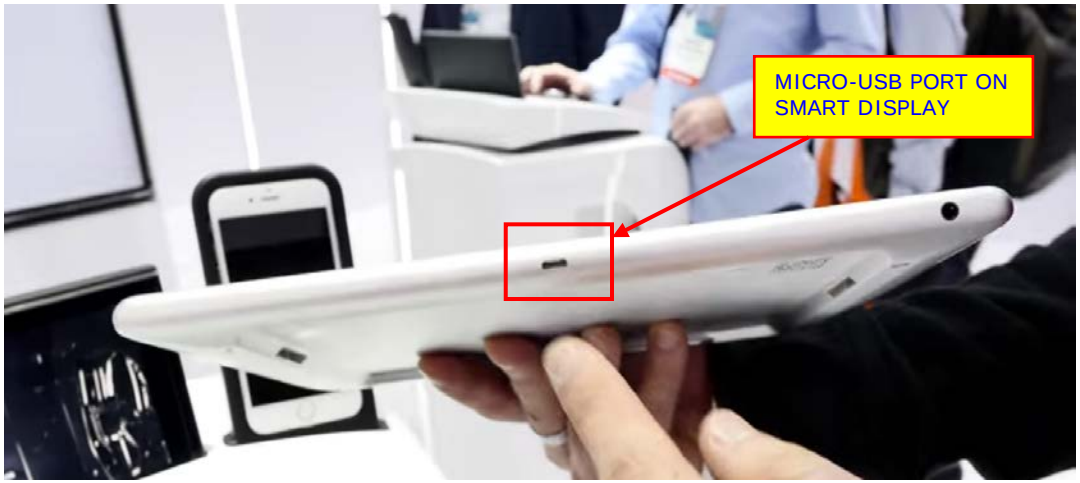
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
			

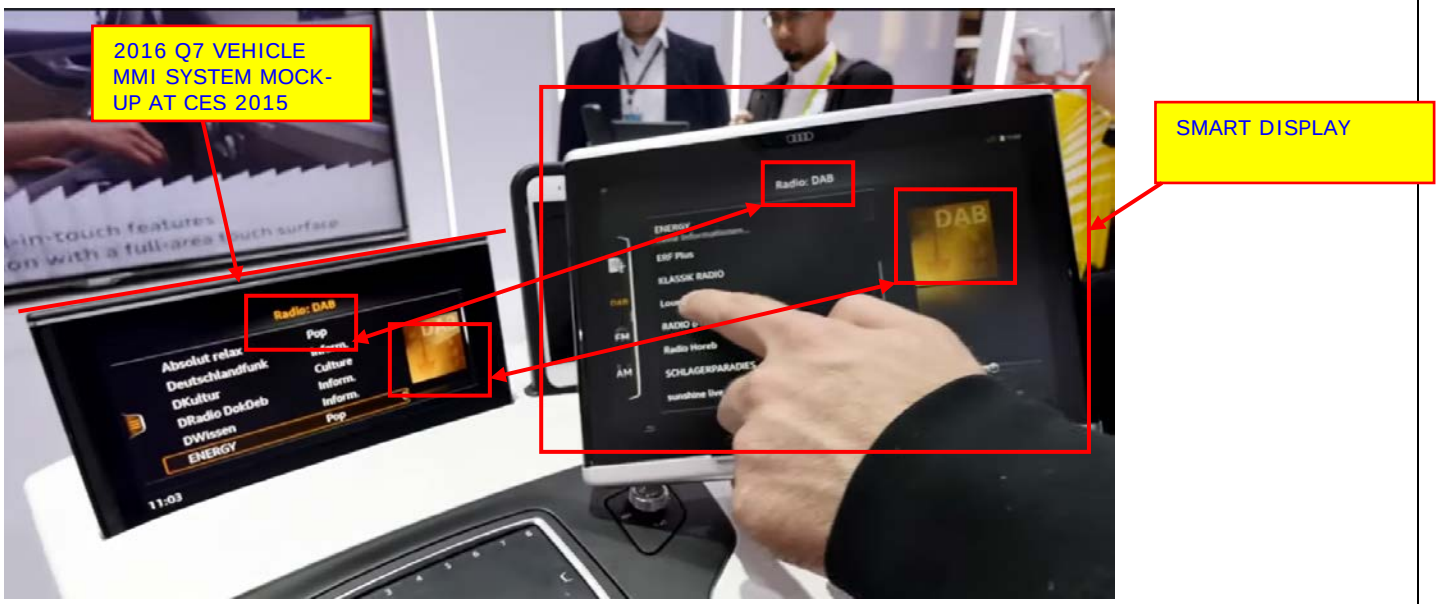
2016 Audi Q7 with Smart Display Integration vs. U.S. Patent No. 8,065,156
"Adaptive Information Presentation Apparatus and Methods"

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
wherein said at least one program is further configured to: establish an ad hoc communication link with a portable computerized device of a user of the transport apparatus;	 "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **WI-FI LINKS CAN BE AD HOC:** "A wireless ad hoc network is a decentralized type of wireless network. [1][2] The network is ad hoc because it does not rely on a pre existing infrastructure, such as routers in wired networks or access points in managed (infrastructure) wireless networks. Instead, each node participates in routing by forwarding data for other nodes, so the determination of which nodes forward data is made dynamically on the basis of network connectivity. In addition to the classic routing, ad hoc networks can use flooding for forwarding data.	**L, DOE**	

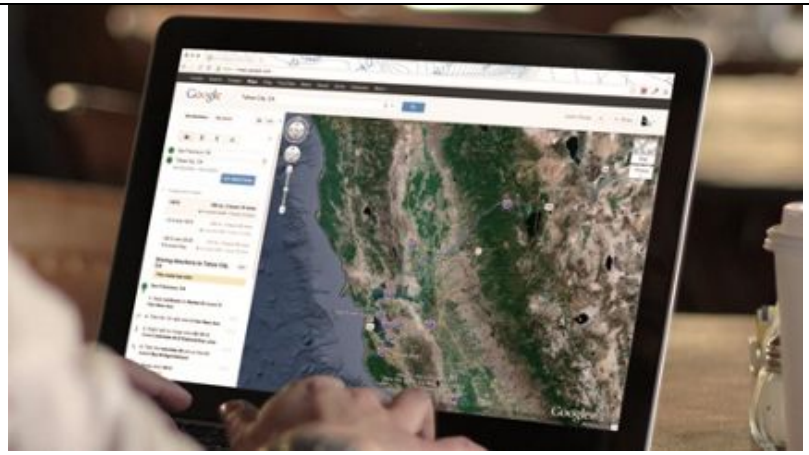
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	… An ad hoc network typically refers to any set of networks where all devices have equal status on a network and are free to associate with any other ad hoc network device in link range. Ad hoc network often refers to a mode of operation of IEEE 802.11 wireless networks." http://en.wikipedia.org/wiki/Wireless_ad_hoc_network **2016 Q7 MMI SYSTEM INCLUDES A WI-FI INTERFACE SPECIFICALLY FOR COMMUNICATION WITH THE SMART DISPLAY TABLET(S):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **BLUETOOTH LINKS CAN BE AD HOC:** "Ad hoc network is often local area network or other small area network formed by wireless devices. In Latin, ad hoc literally means "for this," further meaning "for this purpose only," and thus usually temporary. The area of ad hoc networking has gathered much research interests in the past years. Bluetooth is one of the technologies that can be used for ad hoc networking. The original idea of Bluetooth concept was that of cable replacement between portable and/or fixed electronic device. According to the specification, when two Bluetooth devices come into each other's communication range, one of them assumes the role of master of the communication and the other becomes the slave. This simple "one hop" network is called a piconet, and may include up to seven active slaves connected to one master." http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=4147524&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3D4147524 **SEE BELOW; BOTH THE VEHICLE AND THE TABLET HAVE BLUETOOTH INTERFACES, AND THE TABLET CAN PRESUMABLY BE PAIRED TO THE VEHICLE (MMI SYSTEM) AND EXCHANGE DATA SUCH AS CONTACT LISTS/ADDRESS BOOKS, DIGITAL MEDIA (E.G., MP3), ETC.**		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	FOR SIMILAR REASONS, USB LINKS CAN BE AD HOC, WHETHER WIRED (E.G., USB 2.0/3.0 CONNECTOR) OR WIRELESS (E.G., WLAN USB DONGLE). **"Internet with LTE speed:** **Audi connect** MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. The driver can use the tailored Audi connect services ranging from online traffic information to navigation with Google Earth and Google Street View to online media streaming. The new app provides access to Aupeo! personal web radio and the large Napster music library. The Q7 also has a new, top-of-the-line element of the Audi connect portfolio: The Audi smartphone interface brings …"Google Android Auto" on board. If an …Android cellular phone is connected to the USB port (…Android from Version 5.0 Lollipop), the … environment opens in the Audi smartphone interface. Both are tailored for use in the car. The heart of this feature is online music. In addition, both platforms offer navigation functions, missed call/appointment reminders and messaging functions. Over time, these will be joined by numerous third-party applications such as Pandora, Spotify and WhatsApp." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort  		

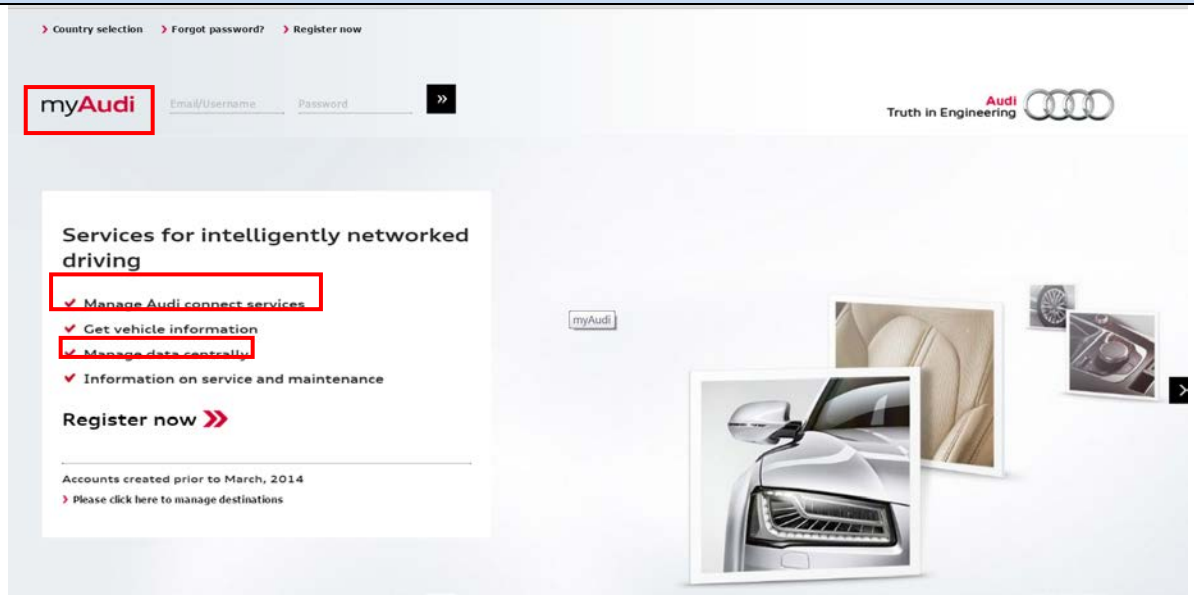
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	AUDI EVEN WILL PROVIDE ITS 2016 Q7 CUSTOMERS WITH THE CABLE THAT ENABLES CONNECTION OF THE DEVICES (I.E., USB PORT ON Q7 TO MICRO-USB ON SMART DISPLAY): "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android**…" http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html		
and download at least a portion of the received information to the portable computerized device via the communication link.	**SEE VIDEO BELOW; THERE IS SEEMINGLY COMPLETE TWO-WAY INTEGRATION (I.E., CAR TO TABLET, AND TABLET TO CAR) OF THE SYSTEM, INCLUDING SEARCHING FOR AND PASSING INFORMATION BROUGHT DOWN OVER THE LET INTERFACE FROM E.G., THE INTERNET (SUCH AS THE "SUSHI ROKU" INFORMATION IN THE PREVIOUS EXAMPLE) BETWEEN THE DEVICES:**  https://www.youtube.com/watch?v=ykbzKkffo0Y	**L, DOE**	
11. The apparatus of claim 10, wherein said download of said at least	**SEE VIDEO BELOW; DEMONSTRATOR CAN ACCESS VARIOUS CAR FUNCTIONS FROM SOFTWARE ON TABLET, VIA E.G., WI-FI TO CAR:**	**L, DOE**	**D, I**

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
a portion of the received information to the portable computerized device via the communication link is initiated by software resident on the portable device.	https://www.youtube.com/watch?v=9YNbPboYA6Y 		
15. The apparatus of claim 10, wherein: said remote server is in communication with a database of business entities, said database being searchable at least by a name of a business entity; and said input comprises a digitized representation of a speech input, the speech input being received via a microphone located within said transport apparatus, the speech comprising said name of said business entity.	**SEE ABOVE; THE IDENTIFIED WORDS/PHRASES ARE USED BY THE GOOGLE SERVER(S) TO CONDUCT THE SEARCH OF THE GOOGLE DATABASE(S) FOR POSSIBLE MATCHES:** "How similar keywords match to search terms Your ads are eligible to appear based on the similarity of your keywords to the search terms a person enters when they're searching on Google or our search partner sites. Only one keyword can trigger an ad per search term. Check out the examples below to learn what happens when multiple keywords in your account match a search at the same time." https://support.google.com/adwords/answer/2756257?hl=en "Welcome to the Google Places API Power your location-based app with the Google Places API, which can be used to find detailed information about places across a wide range of categories. Backed by the same database used by Google Maps and Google+ Local, the Google Places API features over 95 million businesses and points of interest that are updated frequently through owner-verified listings and user-moderated contributions."	**L, DOE**	**D, I**

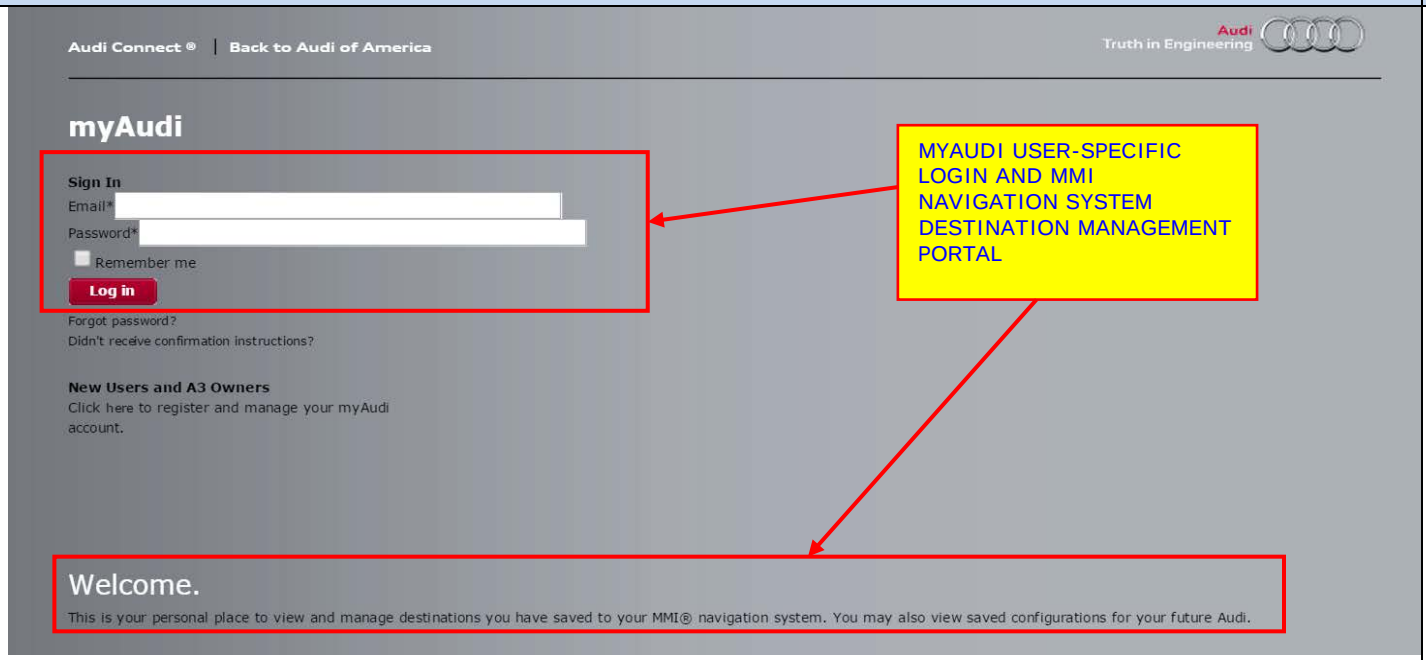
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	https://developers.google.com/places/ (circa Fall 2014) **AS SHOWN IN ABOVE EXAMPLE, NAME OF BUSINESS ENTITY CAN BE USED AS SEARCH QUERY (INPUT).** **2016 Q7 HAS EMBEDDED MICROPHONE FOR E.G., VOICE CONTROL AND NAVIGATION FUNCTIONS, AS SHOWN BELOW:**   "**Google Voice ™ Local Search** Google Voice™ interprets voice requests and displays an up-to-date list of points-of-interest. The search engine accepts free text queries such as "delicatessen", or even "spicy chicken." Images, user reviews, and more can also be displayed if available." http://www.audiusa.com/technology/intelligence/audi-connect		
18. The apparatus of claim 10, wherein the implementation of the desired function comprises synthesizing speech for playout over one or more speakers disposed within said transport apparatus, the	**AUDI MMI SYSTEM HAS VOICE SYNTHESIS FOR A VARIETY OF DIFFERENT FUNCTIONS, INCLUDING NAVIGATION (SEE *SUSHI ROKU* EXAMPLE ABOVE (AND CLAIM 24 BELOW), WHERE SYSTEM READS BACK COMMANDS, PROMPTS USER FOR INPUTS, PROVIDES TURN-BY-TURN DIRECTIONS, ETC.).**	**L, DOE**	**D, I**

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
speech being synthesized based at least in part on said received information.			
20. The apparatus of claim 10, wherein said received information is configured specifically for the user.	 ***"myAudi destinations*** Use Google Maps in any browser to send your favorite destinations directly from your computer or web-enabled mobile device to **your myAudi account, accessed from the MMI**." **"MYAUDI" ONLINE ACCOUNT IS USER-SPECIFIC AND INCLUDES, E.G., USER-SPECIFIC DESTINATIONS WHICH CAN BE SENT TO THE VEHICLE VIA WIRELESS LTE MODEM.**	**L, DOE**	**D, I**

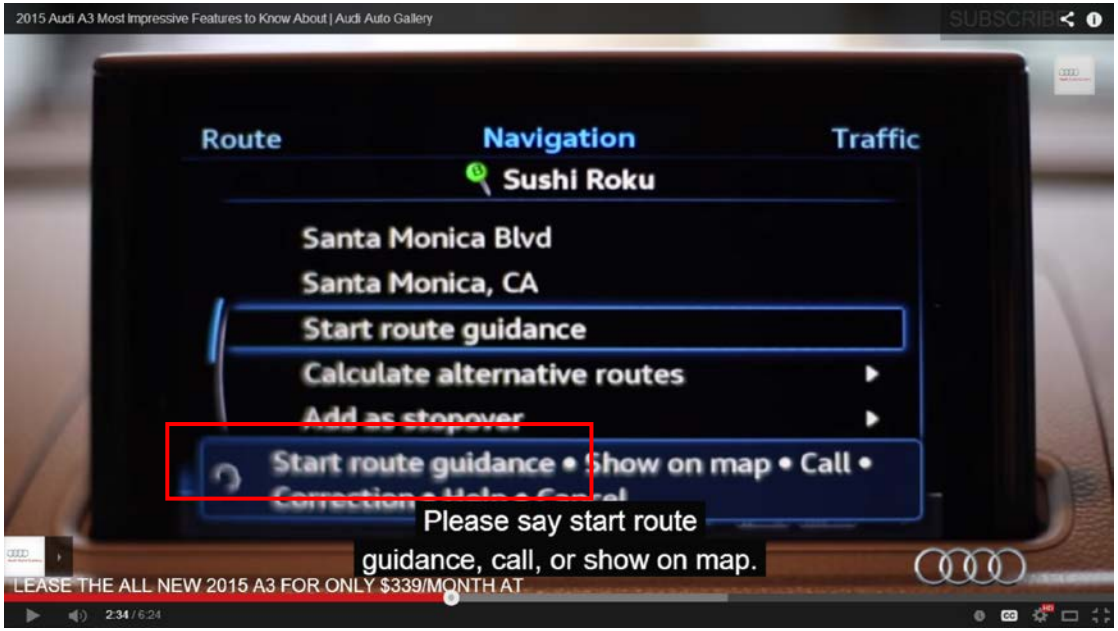
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 ***"Audi MMI® connect App*** The Audi MMI® connect App **enhances the Online and Picture Destinations features of myAudi, adds CarFinder, and provides access to more than 7,000 web radio stations**." **"AUDI MMI CONNECT APP" IS ALSO USER-SPECIFIC AND INCLUDES, E.G., USER-SPECIFIC DESTINATIONS (SUCH AS VIA ONLINE SEARCH), AND INCLUDES NUMEROUS USER-SELECTED/SPECIFIC INTERNET RADIO STATIONS SUCH AS PANDORA RADIO®THAT CAN BE STREAMED TO THE Q7 AND THE SMART DISPLAY VIA WIRELESS LTE MODEM AND THE WI-FI INTERFACE, RESPECTIVELY (SUCH RADIO STATIONS HAVING USER-SPECIFIC AND USER-CONFIGURED PLAYLISTS, GENRE, HISTORY, PREFERENCES, ETC.).** http://www.audiusa.com/technology/intelligence/audi-connect		
21. The apparatus of claim 20, wherein said configuration specifically for the user is based at least in part on data stored on a remote server, the data relating	**SEE DISCUSSION OF CLAIM 20 ABOVE; USER-SPECIFIC MYAUDI ACCOUNT IS RETAINED ON REMOTE SERVER (BELIEVED TO BE AUDI INGOLSTADT, GERMANY), AND IS SPECIFIC/PRIVATE TO EACH DIFFERENT USER.**	**L, DOE**	**D, I**

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
specifically to that user.[3]	 https://my.audi.com/content/us/myaudi/en/home.html **SEE ALSO DISCUSSION OF INTERNET RADIO ABOVE; EACH SUCH STATION MAINTAINS USER-SPECIFIC CONFIGURATION DATAT IN AN ACCOUNT (WHETHER FREE OR PAID) ON A REMOTE SERVER (WEB SERVER).**		
22. The apparatus of claim 21, wherein said data stored on a remote server relating specifically to that user is based at least in part on one or more previously supplied user-selected	**SEE DISCUSSION OF CLAIM 21 ABOVE; MYAUDI ACCOUNT ALLOWS USERS TO PRE-CONFIGURE VARIOUS NAVIGATION, INFORMATION, AND OTHER PARAMETERS BEFORE GETTING IN THEIR VEHICLE. THIS USER-CONFIGURATION IS DONE WITH A WEB PORTAL AS SHOWN.**	**L, DOE**	**D, I**

[3] This claim is included because selected claim 22 depends on claim 21.

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
configuration parameters.	 **SEE ALSO DISCUSSION OF INTERNET RADIO STATIONS ABOVE, REGARDING PREVIOUSLY SUPPLIED USER PREFERENCES/PARAMETERS.**		
23. The apparatus of claim 10, wherein said input relating to a desired function comprises an input to obtain information relating to a particular destination or entity.[4]	**SEE NUMEROUS EXAMPLES ABOVE, SUCH AS "*SUSHI ROKU*" EXAMPLE, WHEREIN INPUT COMPRISES VOICE INPUT TO LOCATE PARTICULAR SUSHI RESTAURANT.** **SUCH DESTINATIONS/ENTITIES CAN BE FOR EXAMPLE PEOPLE, PLACES (E.G., PARKS, MUSEUMS), BUSINESSES, ETC.**	**L, DOE**	**D, I**
24. The apparatus of	**SEE *SUSHI ROKU* EXAMPLE ABOVE – MMI-EQUIPPED (A3) VEHICLE ITERATIVELY PRESENTS USER WITH**	**L, DOE**	**D, I**

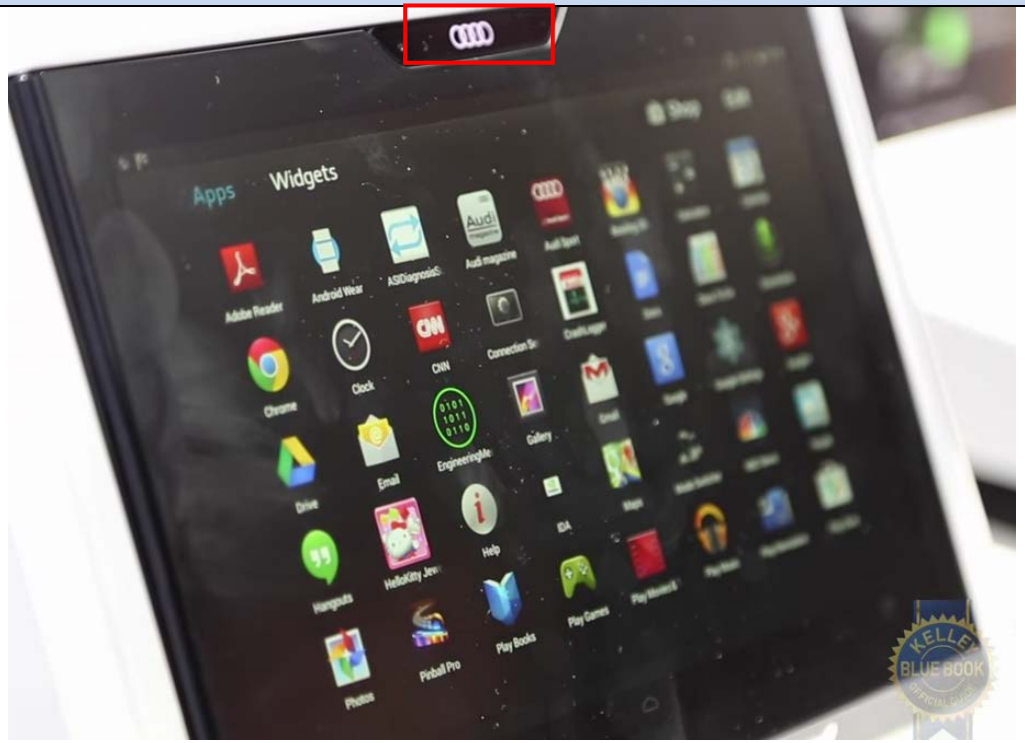
[4] This claim is included because selected claim 24 depends on claim 23.

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
claim 23, wherein said at least one program is further configured to receive a second digitized representation of speech input relating to the particular destination or entity in order to resolve one or more ambiguities associated therewith.	**PROMPTS TO ENTER ADDITIONAL VOICE COMMANDS TO ISOLATE THE ONE DESIRED DESTINATION. FOR EXAMPLE, A TYPICAL ONLINE SEARCH MIGHT GO AS FOLLOWS (SEE VIDEO):** **USER: "ONLINE DESTINATIONS"** **A3: "ONLINE DESTINATIONS"** **USER: "SUSHI ROKU"** **A3: "SUSHI ROKU"…** **A3: "SUSHI ROKU HAVE BEEN LOADED…PLEASE SAY …"** **USER: "LINE 2"** **A3: "LINE 2 – PLEASE SAY START ROUTE GUIDANCE…"** **USER: "START ROUTE GUIDANCE"** **A3: [STARTS READING OUT DIRECTIONS…]**  **AS ANOTHER EXAMPLE, THE SEARCH MIGHT GO AS FOLLOWS:**		

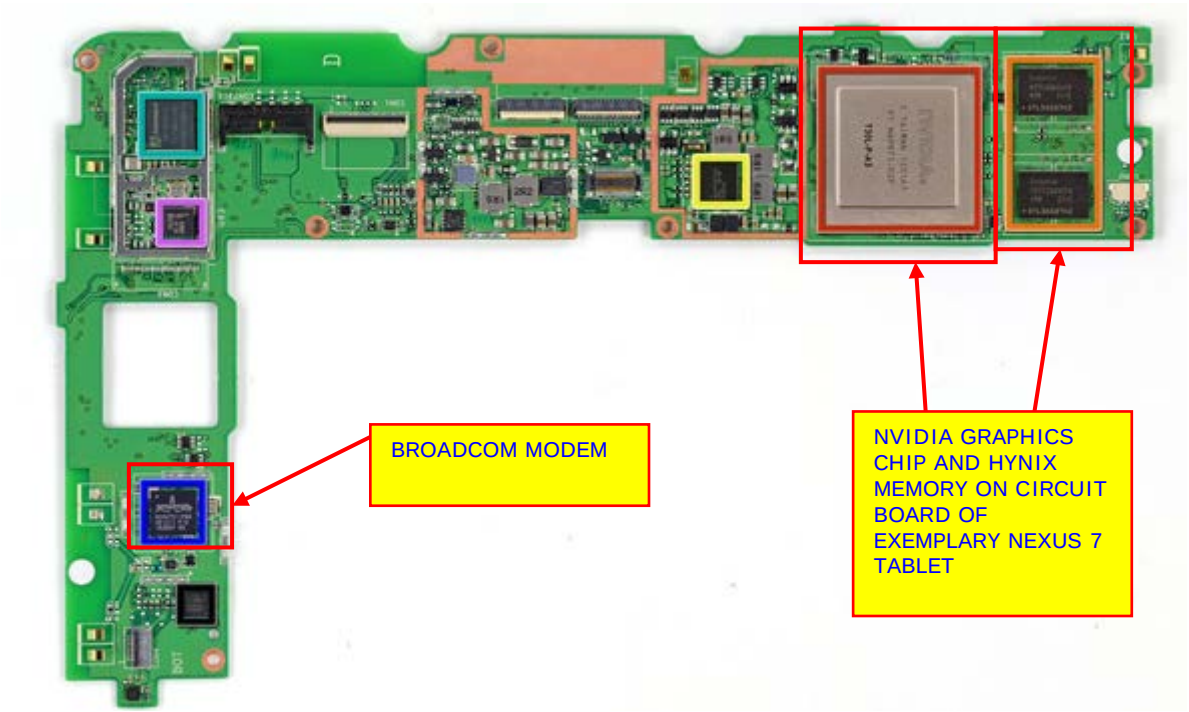
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	USER: "ONLINE DESTINATIONS" **A3: "ONLINE DESTINATIONS"** **USER: "SUSHI"** **A3: "SUSHI"…** **[A LONG, MULTI-PAGE LIST OF OSTENSIBLY MATCHING ENTITIES IS RETURNED BY THE MMI]** **USER: "CORRECTION"** **A3: "CORRECTION"** **USER: "SUSHI ROKU"** **A3: "SUSHI ROKU HAVE BEEN LOADED…PLEASE SAY …"** **USER: "LINE 2"** **A3: "LINE 2 – PLEASE SAY START ROUTE GUIDANCE…"** **USER: "START ROUTE GUIDANCE"** **IN BOTH CASES, AMBIGUITIES WERE PRESENTED TO THE USER BY THE MMI SYSTEM (IE.., WHICH SUSHI RESTAURANT, OR WHICH PARTICULAR SUSHI ROKU RESTAURANT, IS DESIRED), AND RESOLVED BY FURTHER USER VOICE INPUT.**		

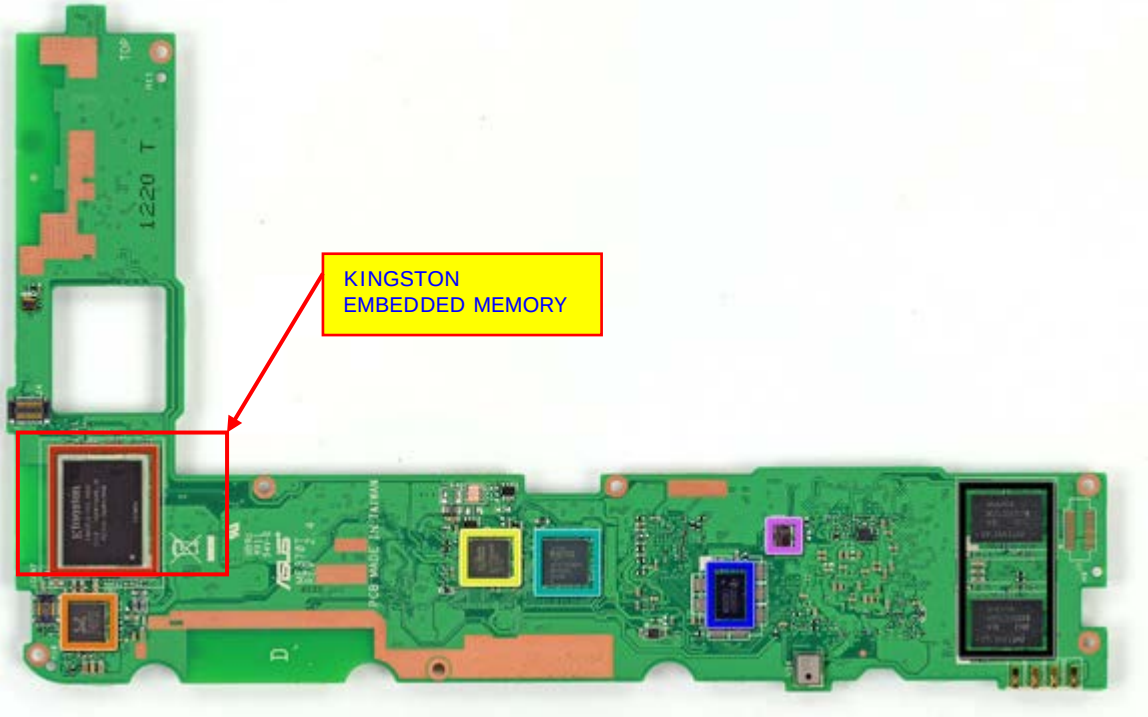
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	Audi "Smart Display" Tablet Implementation with 2016 Q7		
10. Computer readable apparatus comprising a storage medium, said storage medium comprising at least one computer program with a plurality of instructions,	**THIS ANALYSIS IS BASED ON THE SMART DISPLAY TABLET ITSELF (IN CONTRAST TO ABOVE, WHICH IS ILLUSTRATED FOR THE SMART DISPLAY IN CONJUNCTION WITH THE 2016 Q7)** 	**L, DOE**	**D, I**

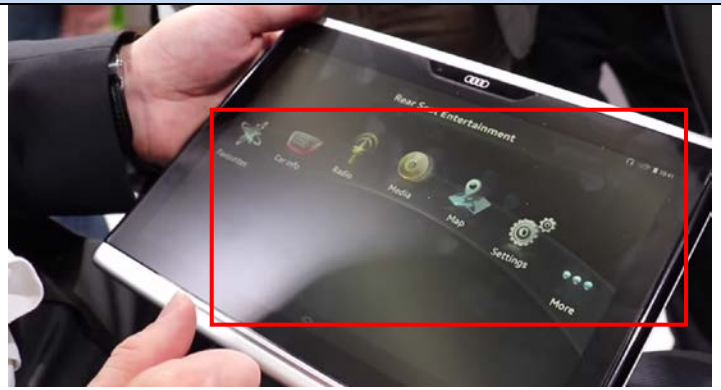
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
the storage medium being part of a computerized information system disposed on or within a transport apparatus configured to transport at least one person from one location to another,	 **2016 Q7 MMI WITH SMART DISPLAY IS AN INTEGRATED COMPUTERIZED INFORMATION SYSTEM DISPOSED IN A TRANSPORT APPARATUS (I.E., THE Q7). THE SMART DISPLAY IS AN ANDROID O/S-BASED TABLET WITH TOUCH SCREEN, VOICE RECOGNITION, WI-FI, BLUETOOTH, NFC, HD CAMERA, ETC., AND OPERATES ON THE ANDROID "KITKAT" 4.4 OPERATING SYSTEM:**	**L, DOE**	

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=QcfIgdDl-lE "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	comfort **WHILE THE INTERNALS OF THE AUDI TABLET ARE PRESENTLY UNDISCLOSED, IT IS HIGHLY SIMILAR IN FUNCTION, O/S, ETC. TO E.G., THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4.**  NEXUS 7 (TOP) VS. AUDI SMART DISPLAY (BOTTOM)  **THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE**		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ETC. **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**  		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		
said at least one program being configured to: receive an input from a user of the transport apparatus, the input relating to a desired function;	**THE AUDI TABLET CAN RECEIVE ANY NUMBER OF INPUTS FROM A USER, VIA (AS BUT A FEW EXAMPLES):** **(I) VIA ITS "AUDI" APPLICATION LAYER (RUNNING OVER TOP OF INDIGENOUS ANDROID ENVIRONMENT):**	**L, DOE**	

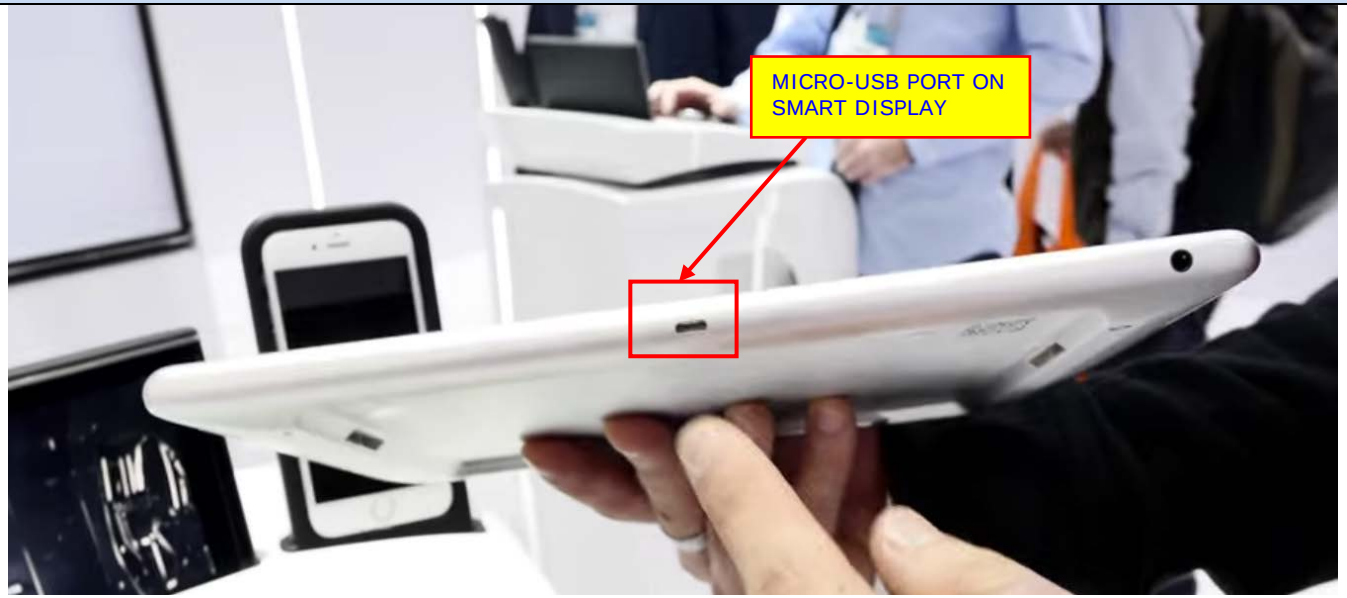
Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more." **(II) VIA ITS UNDERLYING ANDROID KITKAT OS (WHICH IS DIRECTLY ACCESSIBLE TO THE USER):**		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 "At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **INPUTS FROM THE USER CAN BE VIA THE TOUCHSCREEN INTERFACE, VOICE RECOGNITION (E.G., UNDERLYING GOOGLE VOICE OR "GOOGLE NOW" CAPABILITY IN THE O/S, OR YET OTHER MODES.** **INPUTS CAN BE TO OBTAIN NAVIGATION LOCATIONS (E.G., VIA GOOGLE SEARCH), CONTACTS, OBTAIN/RENDER MEDIA OR "APPS" (SUCH AS FROM GOOGLE PLAY STORE), ETC. ("DESIRED FUNCTION").**		
cause access of a remote server via an associated wireless interface to access information relating to the desired	**SEE ABOVE; ANY NUMBER OF DIFFERENT MODALITIES BY WHICH SMART DISPLAY CAN ACCESS SERVER VIA WIRELESS INTERFACE (S) INDIGENOUS TO THE SMART DISPLAY, INDIGENOUS TO THE Q7 VEHICLE, OR BOTH. FOR EXAMPLE:** **(I) SMART DISPLAY VIA WI-FI TO MMI OF Q7; THEN OUT VIA LTE OF Q7:**	**L, DOE**	

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
function;	**"Internet with LTE speed:** Audi connect MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. " **(I) SMART DISPLY VIA DIRECT ACCES WI-FI (E.G., SITTING IN CAR AT HOME, STARBUCKS, ETC. AND ACCESSING THAT WI-FI-AP):** "…the Audi tablet can be removed from its mount and used offline or on any external WiFi network."		
receive accessed information via the wireless interface;	**SEE ABOVE - THE ACCESSED INFORMATION IS RECEIVED VIA THE SELECTED MODALITY; E.G., VIA LTE THEN WI-FI TO TABLET, OR VIA EXTERNAL WI-FI DIRECTLY.**	**L, DOE**	
and implement the desired function using at least a portion of the received information;	**SEE E.G., BELOW; EXTERNALLY-OBTAINED VIDEO CAN BE RENDERED ON DEVICE:**  https://www.youtube.com/watch?v=x0PkSptQR7U	**L, DOE**	

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	EXTERNALLY-OBTAINED DIGITAL (WEB) RADIO CAN BE RENDERED ON DEVICE:  https://www.youtube.com/watch?v=9YNbPboYA6Y **NUMEROUS OTHER EXAMPLES EXIST, INCLUDING OBTAINING CONTACT INFO (TELEPHONE NUMBERS, ADDRESSES OF POI'S, MAPS, OR MOST ANYTHING ONE CAN FIND ON THE INTERNET.**		
wherein said at least one program is further configured to: establish an ad hoc communication link with a portable computerized device of a user of the transport apparatus;	**WI-FI LINKS CAN BE AD HOC:** "A wireless ad hoc network is a decentralized type of wireless network.[1][2] The network is ad hoc because it does not rely on a pre existing infrastructure, such as routers in wired networks or access points in managed (infrastructure) wireless networks. Instead, each node participates in routing by forwarding data for other nodes, so the determination of which nodes forward data is made dynamically on the basis of network connectivity. In addition to the classic routing, ad hoc networks can use flooding for forwarding data. … An ad hoc network typically refers to any set of networks where all devices have equal status on a network and are free to associate with any other ad hoc network device in link range. Ad hoc network often refers to a mode of operation of IEEE 802.11 wireless networks." http://en.wikipedia.org/wiki/Wireless_ad_hoc_network	**L, DOE**	

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	SMART DISPLAY TABLET(S) INCLUDES A WI-FI INTERFACE FOR COMMUNICATION WITH, E.G., EXTERNAL NETWORKS OR OTHER WI-FI ENABLED PORTABLE DEVICES (E.G., A USER'S CELLULAR PHONE ACTING AS A "HOTSPOT") **BLUETOOTH LINKS CAN BE AD HOC:** "Ad hoc network is often local area network or other small area network formed by wireless devices. In Latin, ad hoc literally means "for this," further meaning "for this purpose only," and thus usually temporary. The area of ad hoc networking has gathered much research interests in the past years. Bluetooth is one of the technologies that can be used for ad hoc networking. The original idea of Bluetooth concept was that of cable replacement between portable and/or fixed electronic device. According to the specification, when two Bluetooth devices come into each other's communication range, one of them assumes the role of master of the communication and the other becomes the slave. This simple "one hop" network is called a piconet, and may include up to seven active slaves connected to one master." http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=4147524&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3D4147524 **SEE BELOW; THE TABLET HAS A BLUETOOTH INTERFACE, AND THE TABLET CAN PRESUMABLY BE PAIRED TO ANOTHER DEVICE (SUCH AS AS THE AFOREMENTIONED USER'S SMARTPHONE) AND EXCHANGE DATA SUCH AS CONTACT LISTS/ADDRESS BOOKS, DIGITAL MEDIA (E.G., MP3), ETC.** **FOR SIMILAR REASONS, USB LINKS CAN BE AD HOC, WHETHER WIRED (E.G., USB 2.0/3.0 CONNECTOR) OR WIRELESS (E.G., WLAN USB DONGLE).**		

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	 **AUDI EVEN WILL PROVIDE ITS 2016 Q7 CUSTOMERS WITH THE CABLE THAT ENABLES CONNECTION OF THE DEVICES (I.E., MICRO-USB ON SMART DISPLAY TO USB-ENABLED DEVICE SUCH AS LAPTP COMPUTER, PRINTER, ETC.):** "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android**…" http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html		
and download at least a portion of the received information to the portable computerized device via the communication link.	**AS NOTED ABOVE, THE SMART DISPLAY IS AN ANDROID O/S DEVICE (TABLET) WHICH CAN OSTENSIBLY TRANSFER ANY NUMBER OF FILES, DATA TYPES, DATA STREAMS, ETC. OVER ITS MULTIPLE INTERFACES.** **AS BUT A FEW EXAMPLES:**	**L, DOE**	

Claim Language	2016 Audi Q7 Implementation	Literal / DOE[1]	Direct / Indirect [2]
	(I) FILE TRANSFER OF "PICTURE BOOK" OF PHOTOS OBTAINED OFF THE INTERNET TO THE USER'S SMARTPHONE OR LAPTOP (E.G., VIA PTP) VIA MICRO-USB; **(II) MEDIA TRANSFER PROTOCOL (MTP) VIA MICRO-USB;** **(III) TRANSFER CONTACTS (ADDRESS BOOK) VIA BLUETOOTH USING INDIGENOUS ANDROID "EXPORT" FUNCTION (SEE E.G., https://www.youtube.com/watch?v=yE-K0lj4uC8);** **(IV) TRANSFER FILES, DATA, ETC. VIA WI-FI CONNECTION TO SMARTPHONE, WITH TABLET ACTING AS WI-FI AP.**		

EXHIBIT G

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

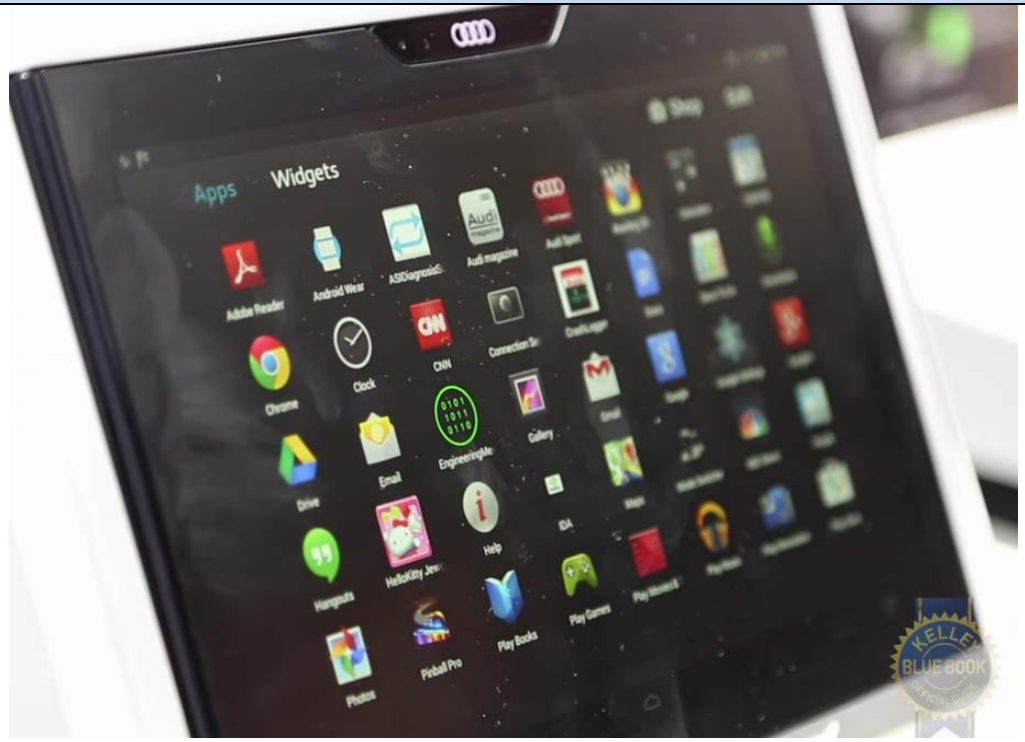
U.S. Patent No. 8,290,778	Filed: 2-24-12 (Track 1) Issued: 10-16-12 Priority Date: 6-10-99 Claims Total: 30 (4 Independent, 26 Dependent)

Provided pursuant to Patent Local Rule 3.1 and June 10, 2015 Order;
Plaintiff reserves the right to supplement.

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	THIS ANALYSIS IS BASED ON THE SMART DISPLAY TABLET (OFFERED WITH E.G., THE 2016 AUDI Q7) 		

[1] West View denotes allegations of literal infringement as "L" and infringement under the doctrine of equivalents as "DOE," as applicable.
[2] West View denotes allegations of direct infringement as "D" and indirect or induced infringement as "I," as applicable.

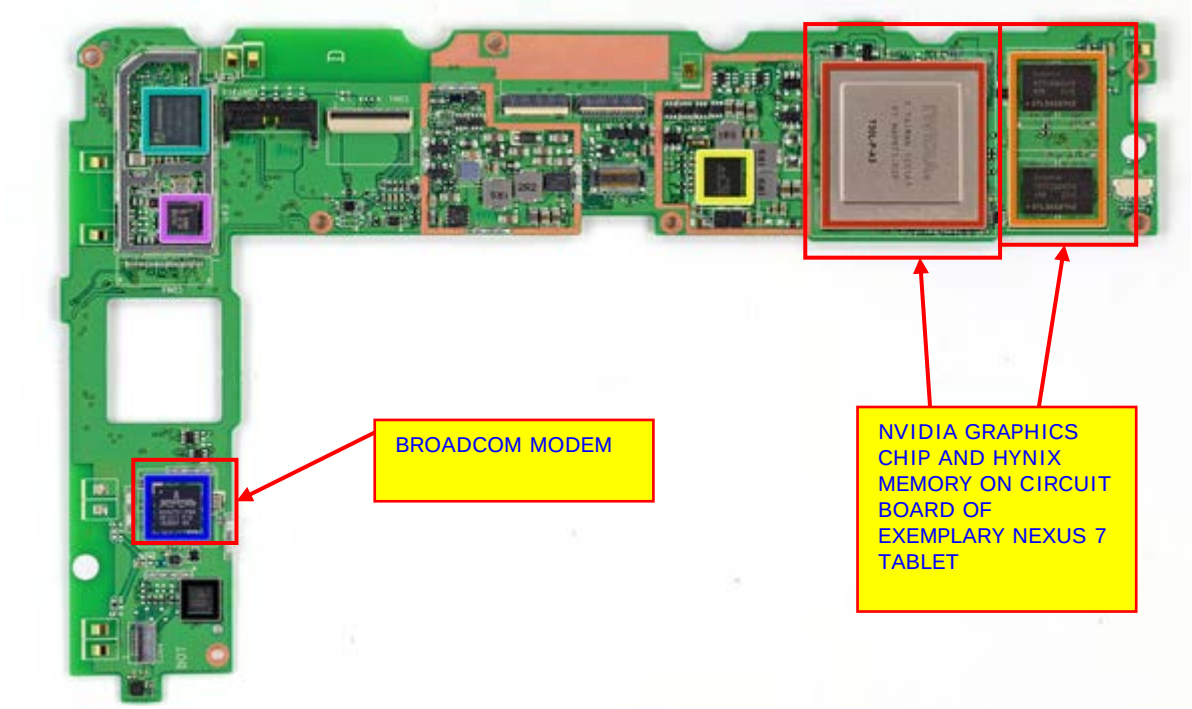
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

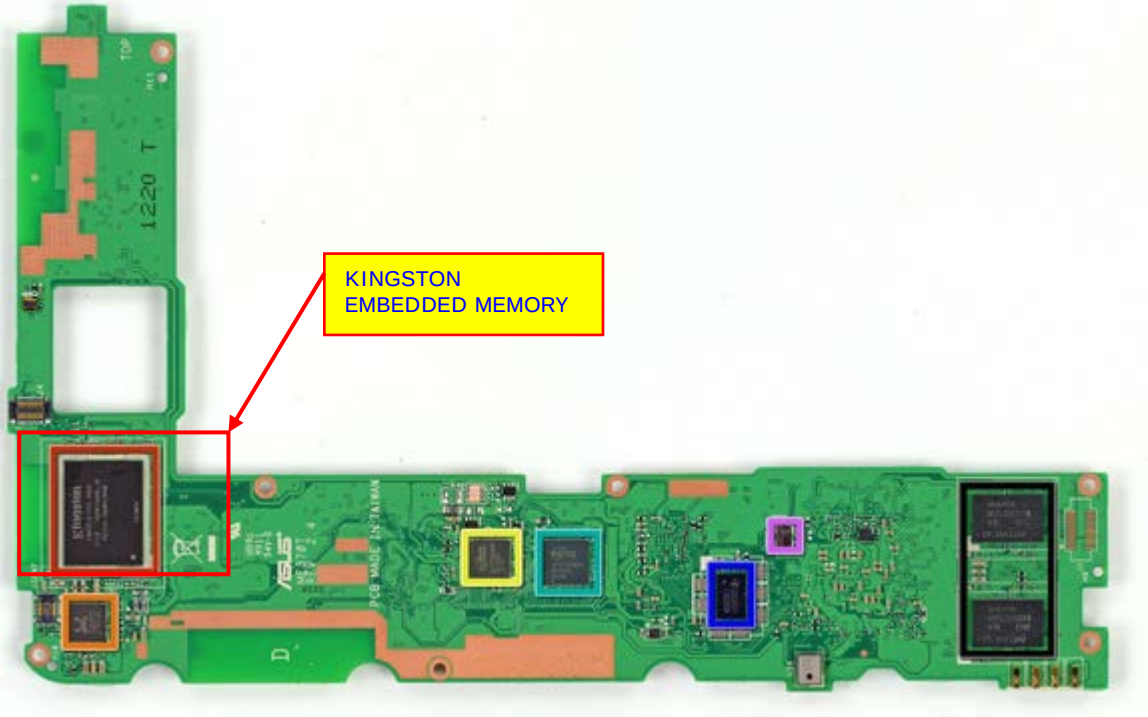
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
1. Computerized apparatus comprising:	 https://www.youtube.com/watch?v=QcfIgdDI-IE "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html	**L, DOE**	**D, I**
a wireless interface;	"A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort		
data processing apparatus;	**WHILE THE INTERNALS OF THE AUDI TABLET ARE PRESENTLY UNDISCLOSED, IT IS HIGHLY SIMILAR IN FUNCTION, O/S, ETC. TO E.G., THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4.**	**L, DOE**	

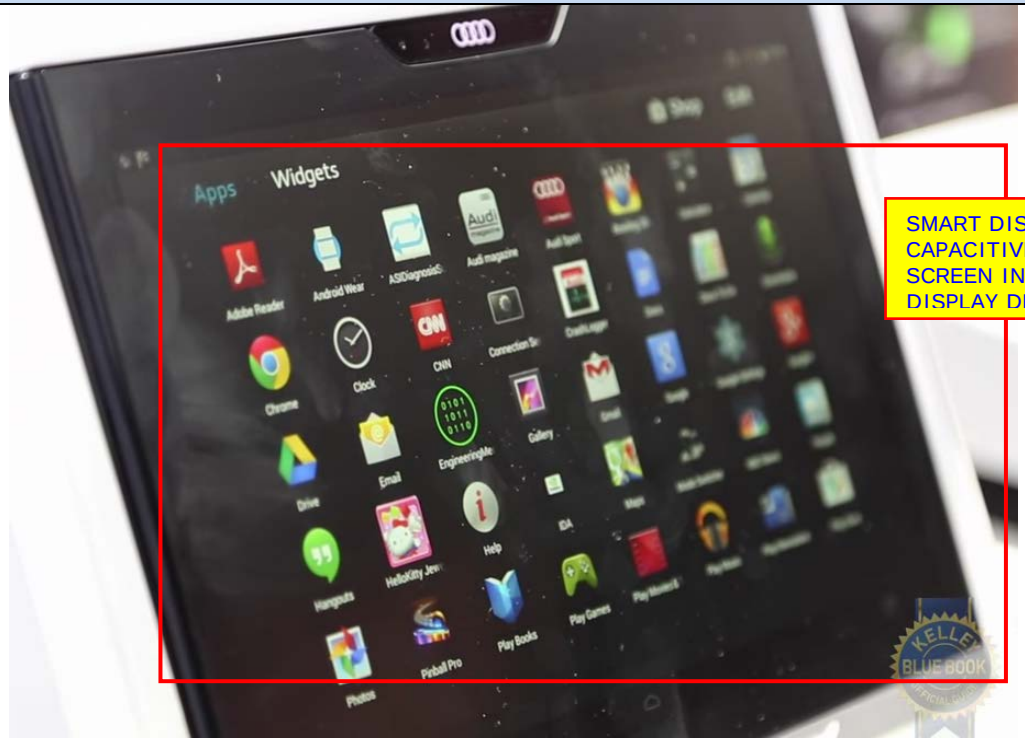
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 NEXUS 7 (TOP) VS. AUDI SMART DISPLAY (BOTTOM)  **THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ETC.** **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**		

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

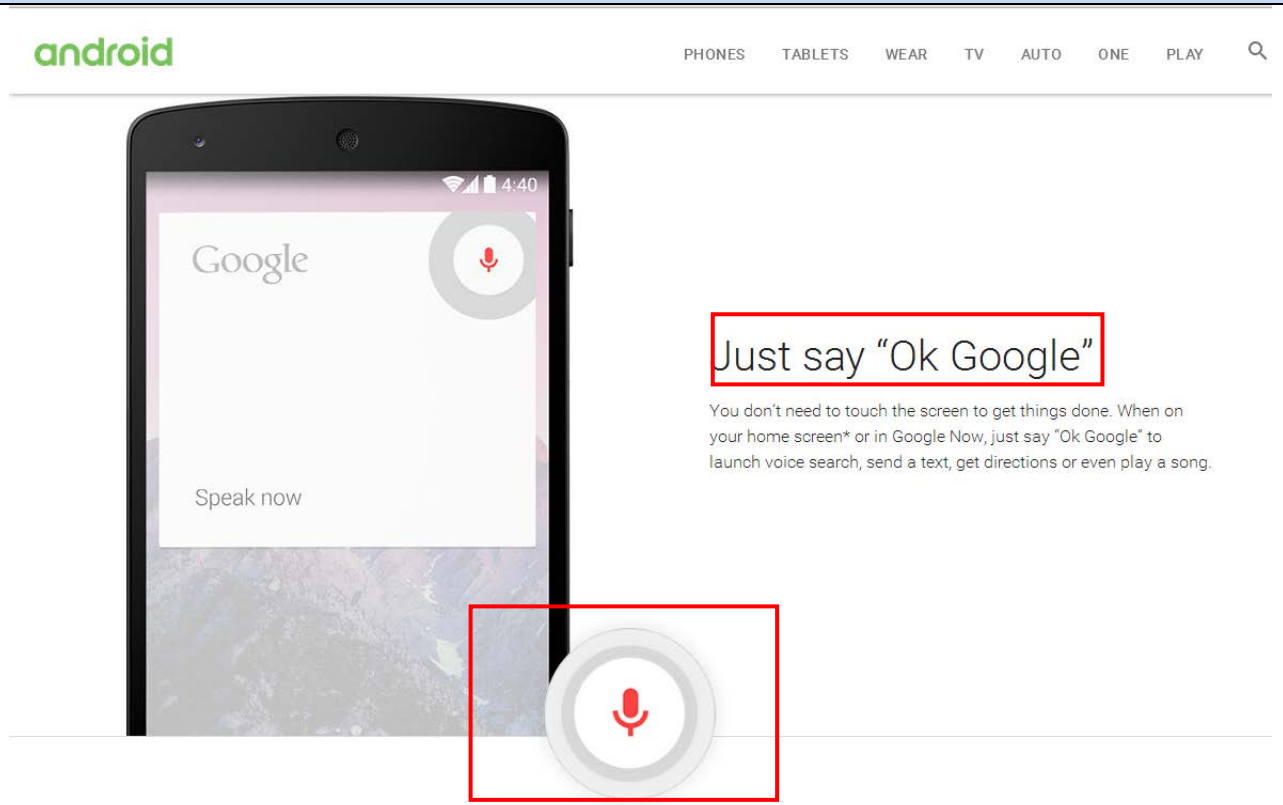
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

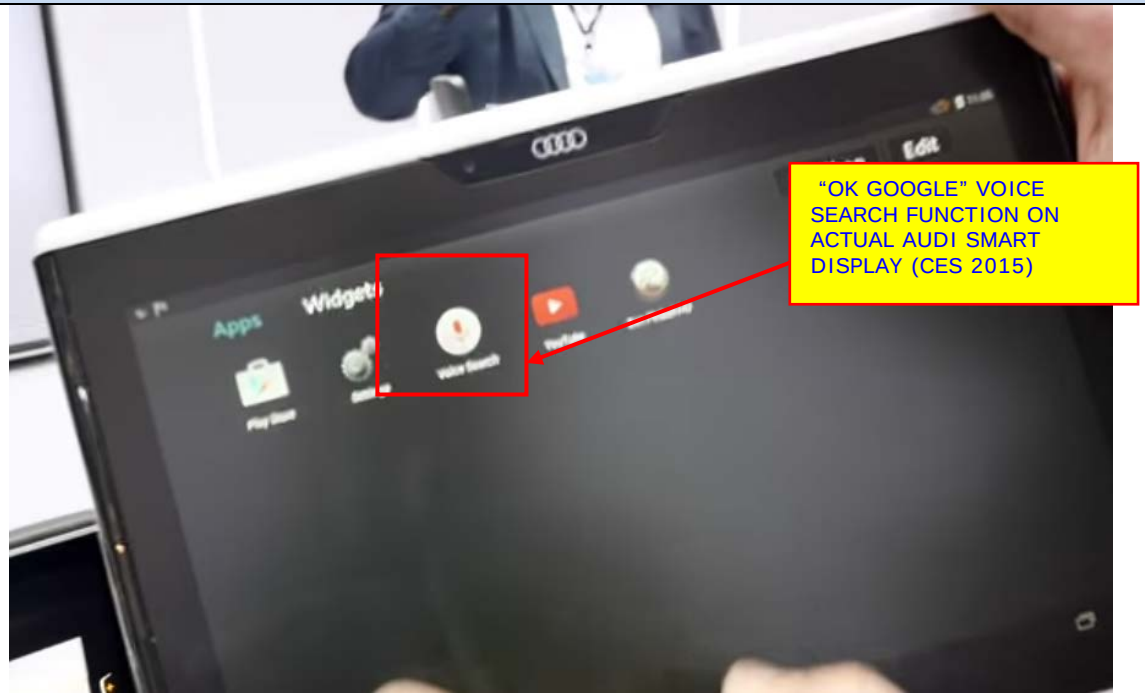
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

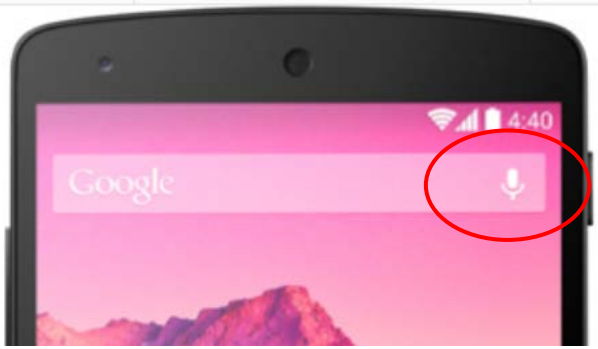
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
a touch-screen input and display device;		**L, DOE**	
a speech recognition apparatus in data communication with the data processing apparatus; and	**IN THIS PARTICULAR EXAMPLE, THE "GOOGLE MAPS" FUNCTIONS OF "GOOGLE NOW" FUNCTIONALITY PRESENT ON THE ANDROID KITKAT 4.4 O/S IS EVALUATED, ALTHOUGH VARIOUS OTHER TYPES OF FUNCTIONS MAY BE USED AS THE BASIS OF DEMONSTRATION AS WELL.** **THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION:** **1) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA HANDS FREE), FOLLOWED BY VOICE SEARCH TERM;**	**L, DOE**	

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

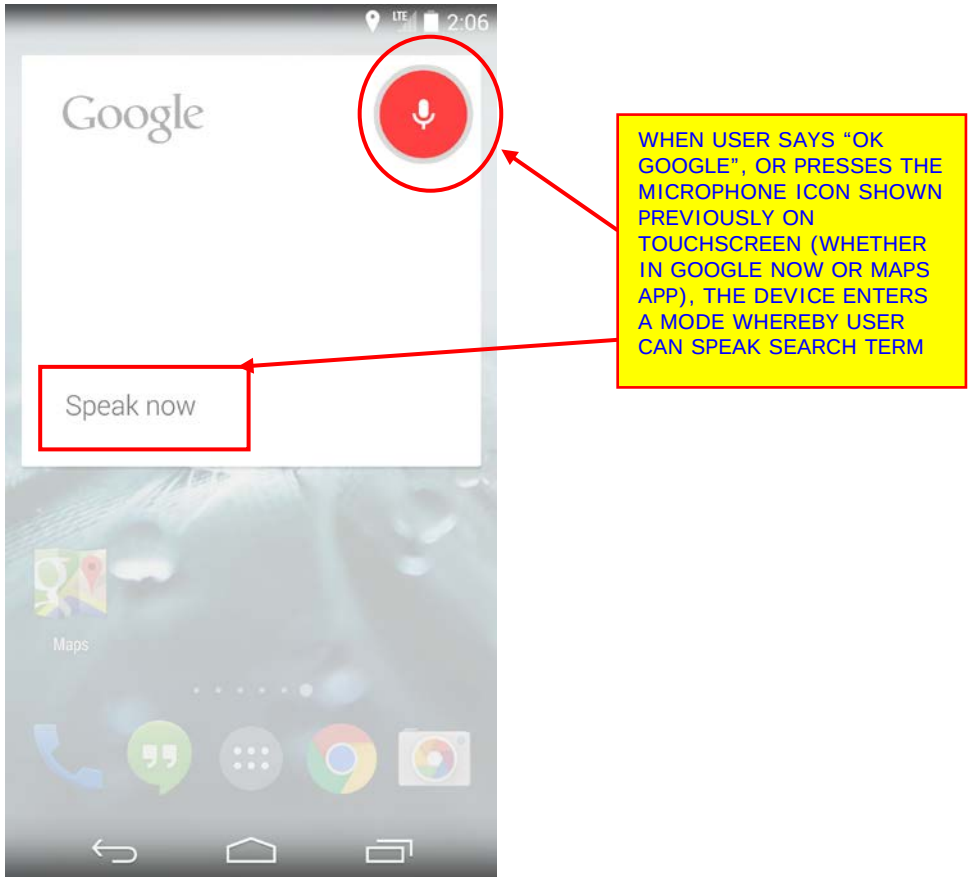
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **2) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;**		

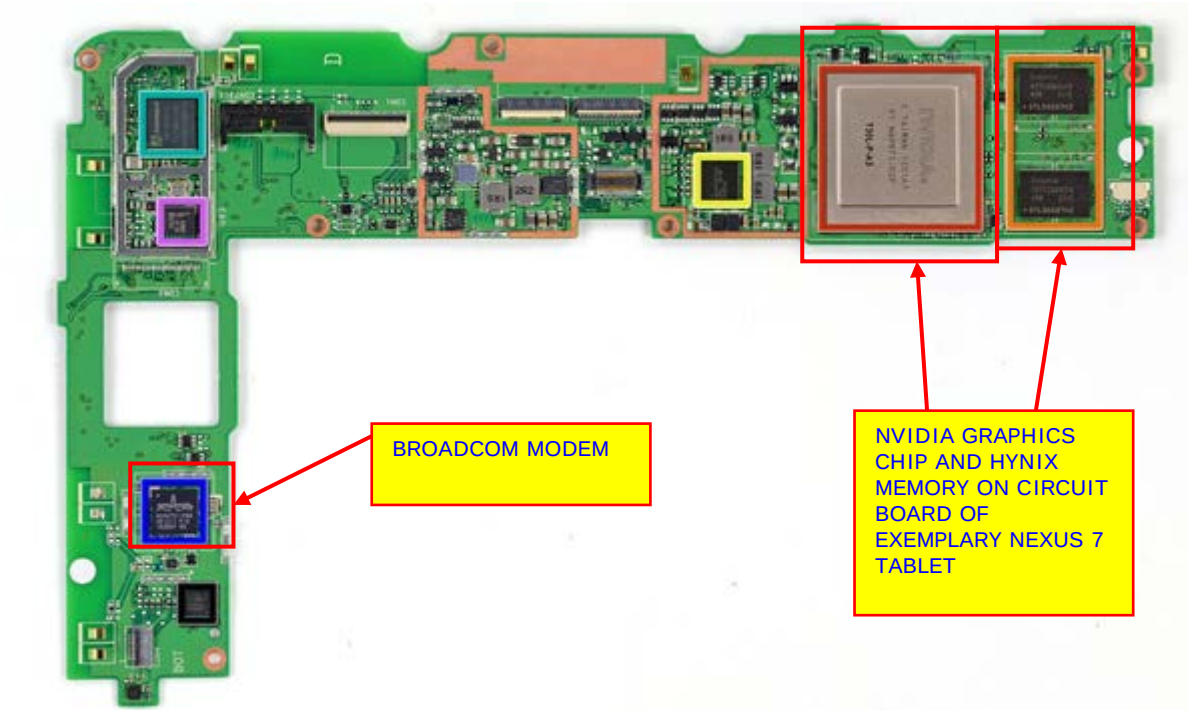
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

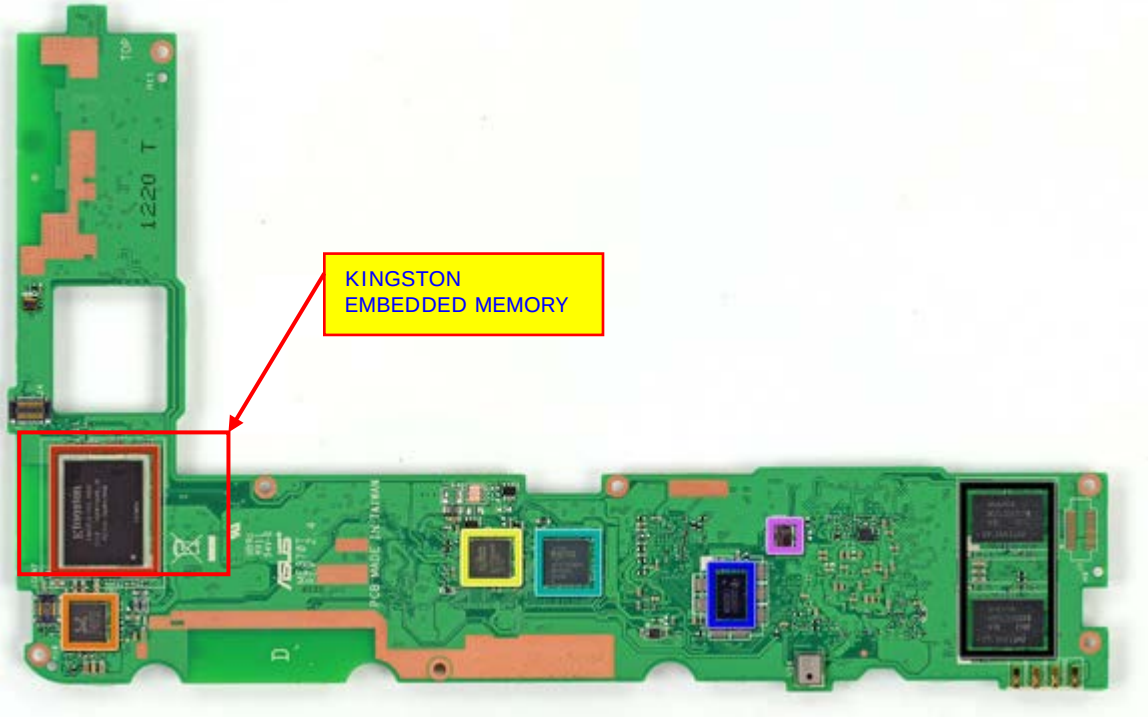
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

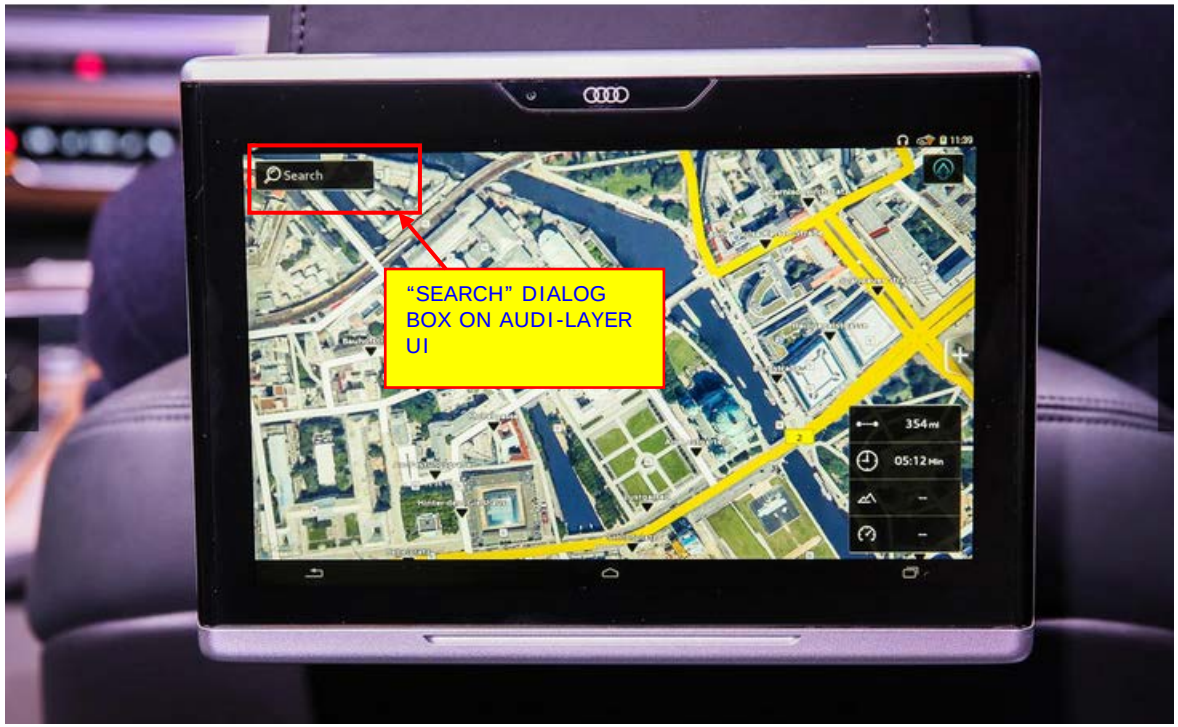
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **THE VOICE COMMAND (OR DEPRESSING ICON) CAUSE THE DEVICE TO ENTER A MODE WHEREIN THE USER CAN SAY THE INPUT (E.G., NAME OF AN ENTITY) ALOUD, THE USER'S VOICE PICKED UP BY THE MICROPHONE OF THE TABLET DEVICE:**		

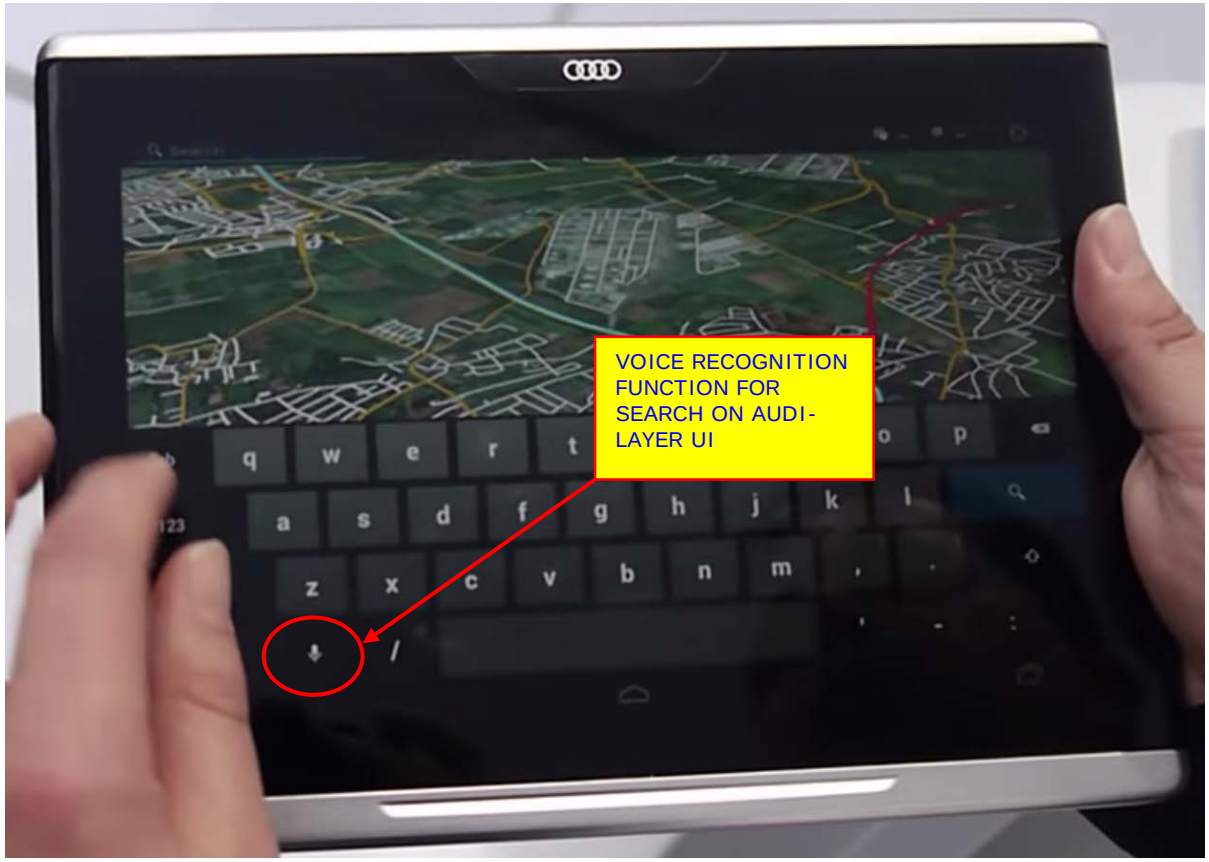
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:** **"General Commands**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	• "Search for [*chicken recipes*]?" • "Say [*where is the supermarket*] in [*Spanish*]?" • "What is [*Schrodinger's cat*]?" • "Who invented [*the internet*]?" • "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" **…** **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know POSSIBLE INPUTS FROM USER FOR E.G., MAPS/DIRECTIONS **SEE ALSO DISCUSSION BELOW REGARDING ABILITY TO CONDUCT VOICE SEARCHES IN AUDI APPLICATION-LAYER UI (PRESUMABLY VIA AT LEAST PARTLY COMMON SPEECH PROCESSING APPARATUS ON THE SMART DISPLAY).**		
a storage apparatus in data communication with	**THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2**	**L, DOE**	

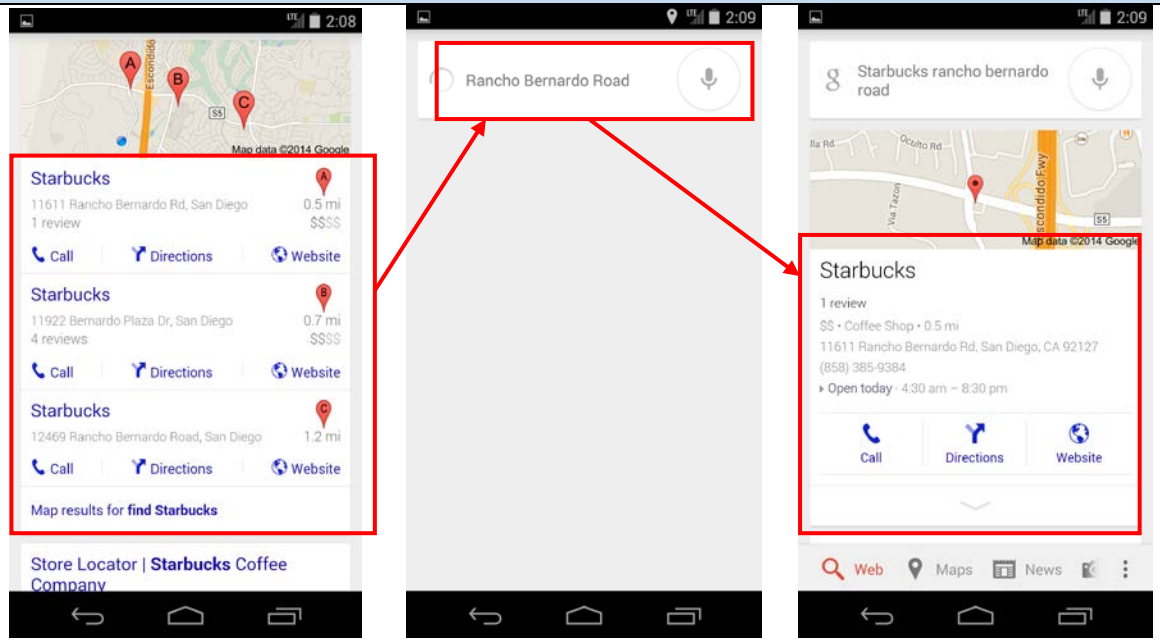
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
the data processing apparatus, said storage apparatus comprising at least one computer program, said at least one program being configured to:	**CACHES, VIDEO MEMORY, ETC, ETC.** **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**  		

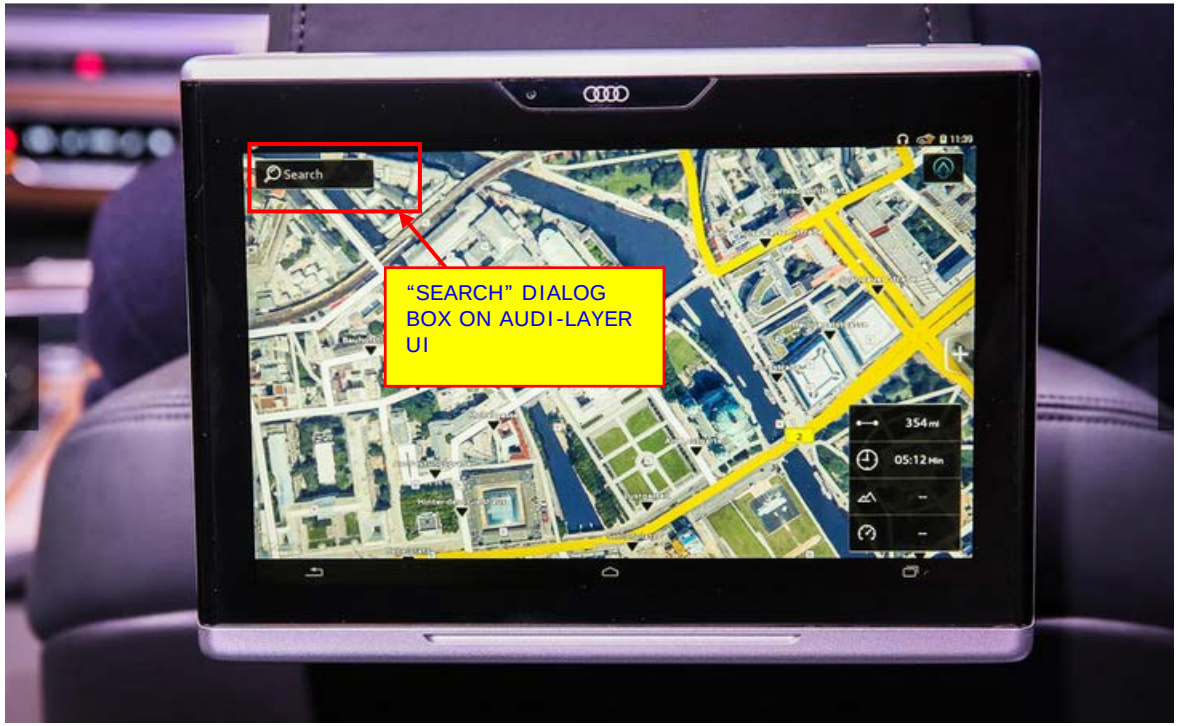
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		
receive a digitized speech input via the speech recognition apparatus, the input relating to an organization or entity which a user wishes to locate;	**AT LEAST TWO DISTINCT WAYS OF PERFORMING VOICE-BASED POI OR OTHER SEARCHES USING SMART DISPLAY:** **1) ANDROID O/S - GOOGLE VOICE QUERIES ON ANDROID TABLETS CAN TAKE ANY NUMBER OF DIFFERENT FORMS, MANY OF WHICH RELATE TO ORGANIZATIONS OR ENTITIES (AND FINDINGTHEM). SOME EXAMPLES INCLUDE:** **Maps & Navigation** • "Map of [*Flagstaff*]"	**Literal / DOE**	

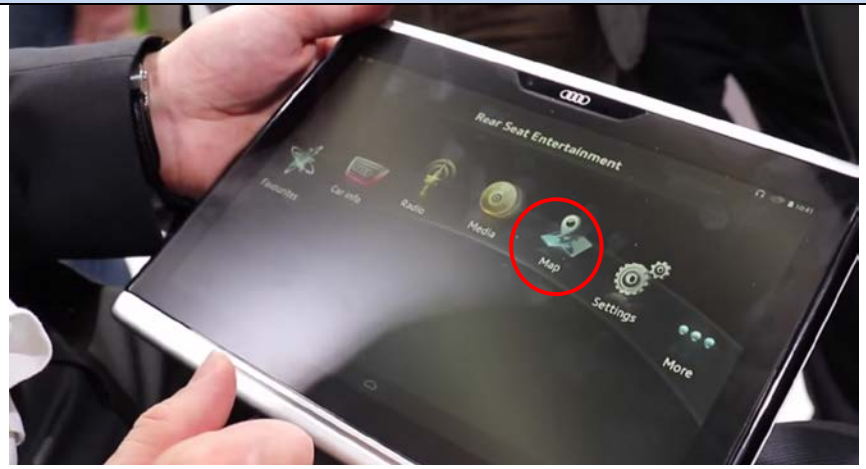
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	• "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know **2) ADDITIONALLY, THE AUDI-LAYER SEARCH FUNCTION INCLUDES THE ABILITY TO PERFORM VOICE-BASED-SEARCHES:** 		

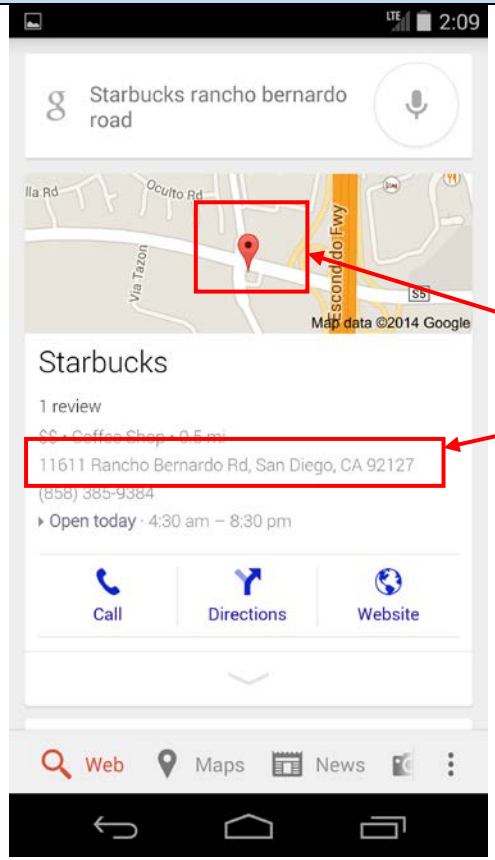
Claim Language	AUDI “SMART DISPLAY” ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	SEE VIDEO BELOW; DEMONSTRATOR TOUCHES “SEARCH” DIALOG BOX, AND THEN DISPLAYS ENTRY SOFT KEYS (WHICH INCLUDE A VOICE RECOGNITION FUNCTION):  https://www.youtube.com/watch?v=2D32beCtCvs		

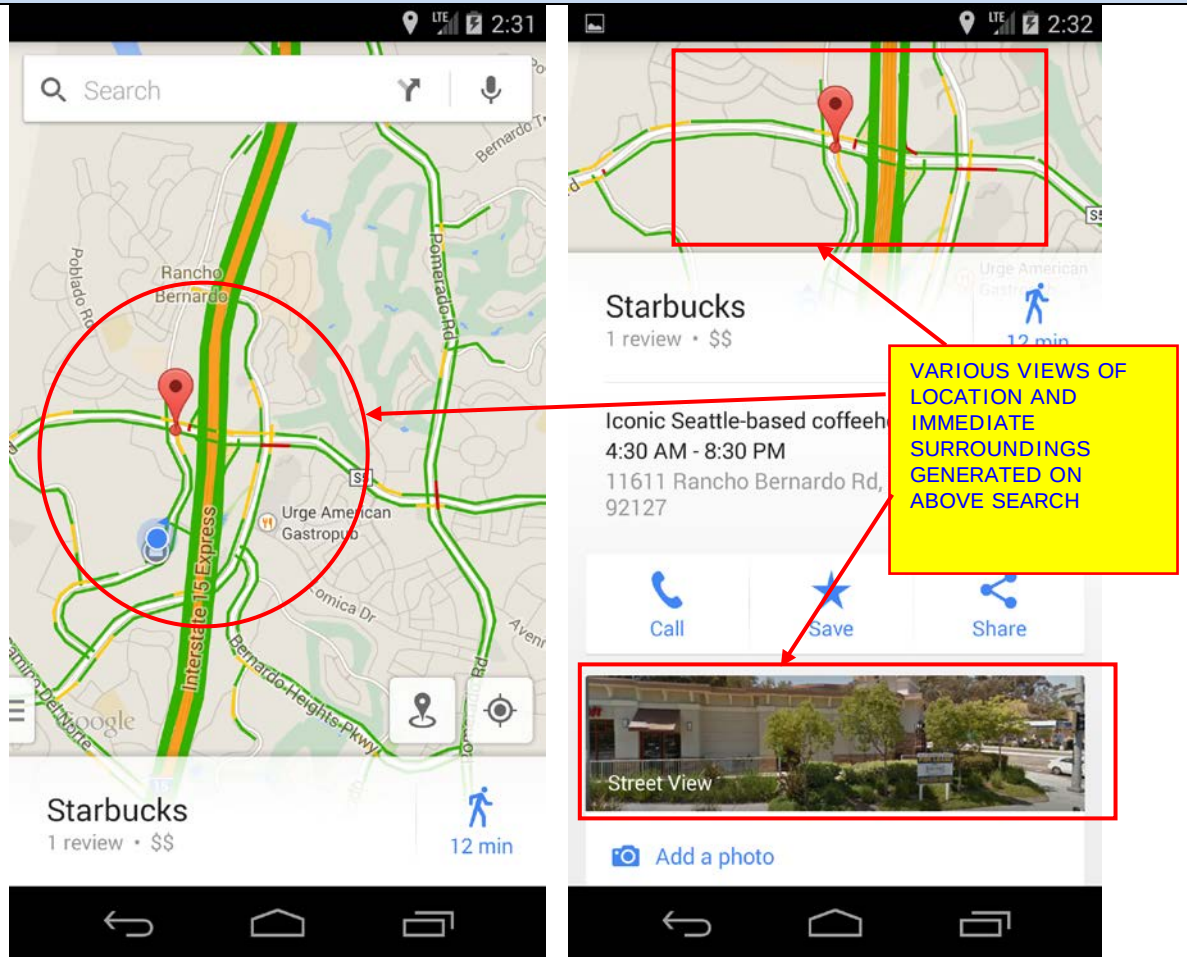
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
based at least in part on the input, cause identification of a location associated with the organization or entity; and	**AT VERY LEAST, THE SMART DISPLAY CAN ACCESS THE INTERNET (INCLUDING GOOGLE MAPS SERVERS) VIA ITS WI-FI INTERFACE, VIA: (I) THE Q7 WI-FI HOTSPOT AND LTE CELLULAR MODEM; AND (II) ANY EXTERNAL WI-FI AP/NETWORK (E.G., USER'S HOUSE):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **THE REMOTE GOOGLE SERVER(S) RECEIVE THE USER'S VOICE SEARCH DATA (DIGITIZED) AND PROCESS IT TO IDENTIFY ONE OR MORE MATCHING ENTITIES (AND LOCATIONS ASSOCIATED THEREWITH). FOLLOWING TEST CONDUCTED ON GOOGLE NEXUS 5 WITH KITKAT 4.4 O/S (GENERALLY COMPARABLE TO AUDI SMART DISPLAY, AND SAME O/S), USING "OK GOOGLE" FUNCTION:** **USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **MOREOVER, THE AUDI APPLICATION LAYER U/I (I.E., AUDI-SPECIFIC USER INTERFACE SHOWN BELOW) CAN BE UTILIZED TO INVOKE VOICE SEARCH FOR AN ENTITY:**		

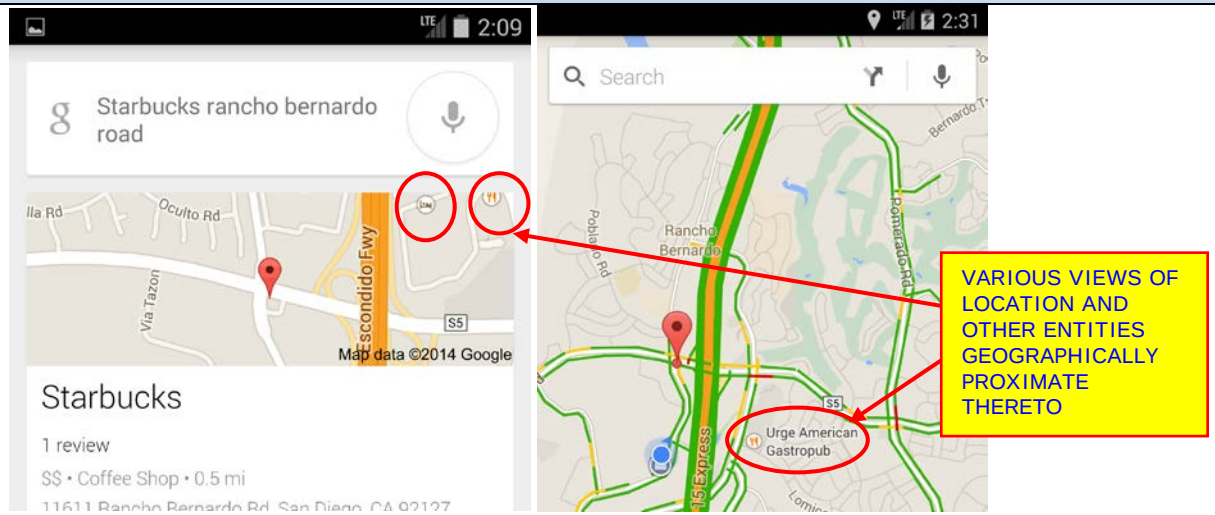
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **SEE VIDEO BELOW; DEMONSTRATOR CAN ACCESS VARIOUS CAR FUNCTIONS FROM SOFTWARE ON TABLET, VIA E.G., WI-FI TO CAR, INCLUDING MAPS/NAVIGATION:** **https://www.youtube.com/watch?v=9YNbPboYA6Y**		

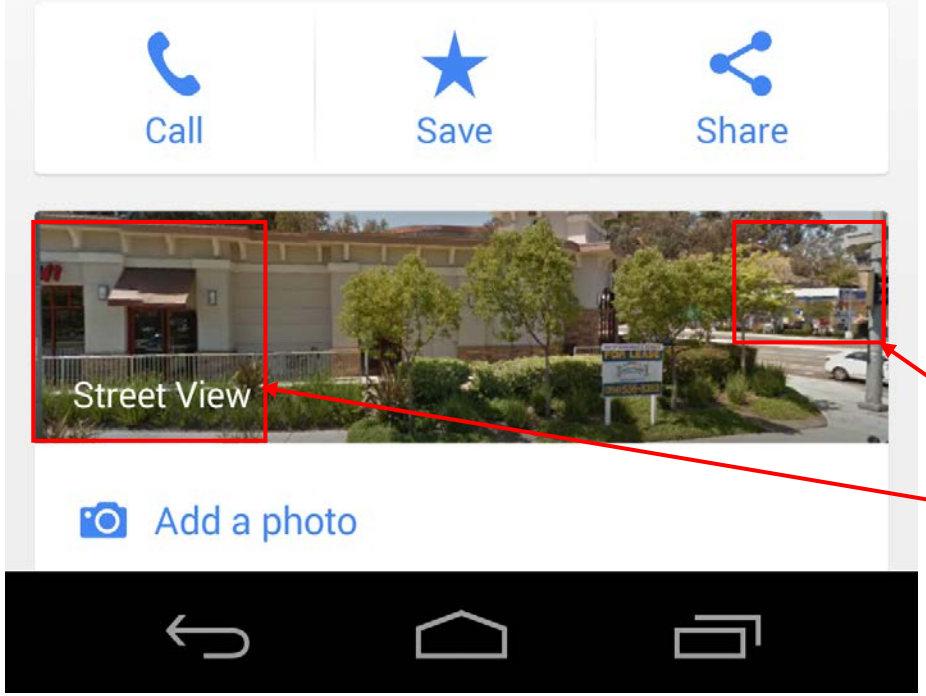
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **THIS FUNCTION ALSO PRESUMABLY INCLUDES ABILITY FOR TABLET USER TO SEARCH (USING E.G., DIALOG BOX SHOWN ABOVE) BOTH INTERNET (E.G., GOOGLE) AND LOCAL (E.G., HDD/SD CARD NAVIGATION DATA STORED ON THE VEHICLE).**		

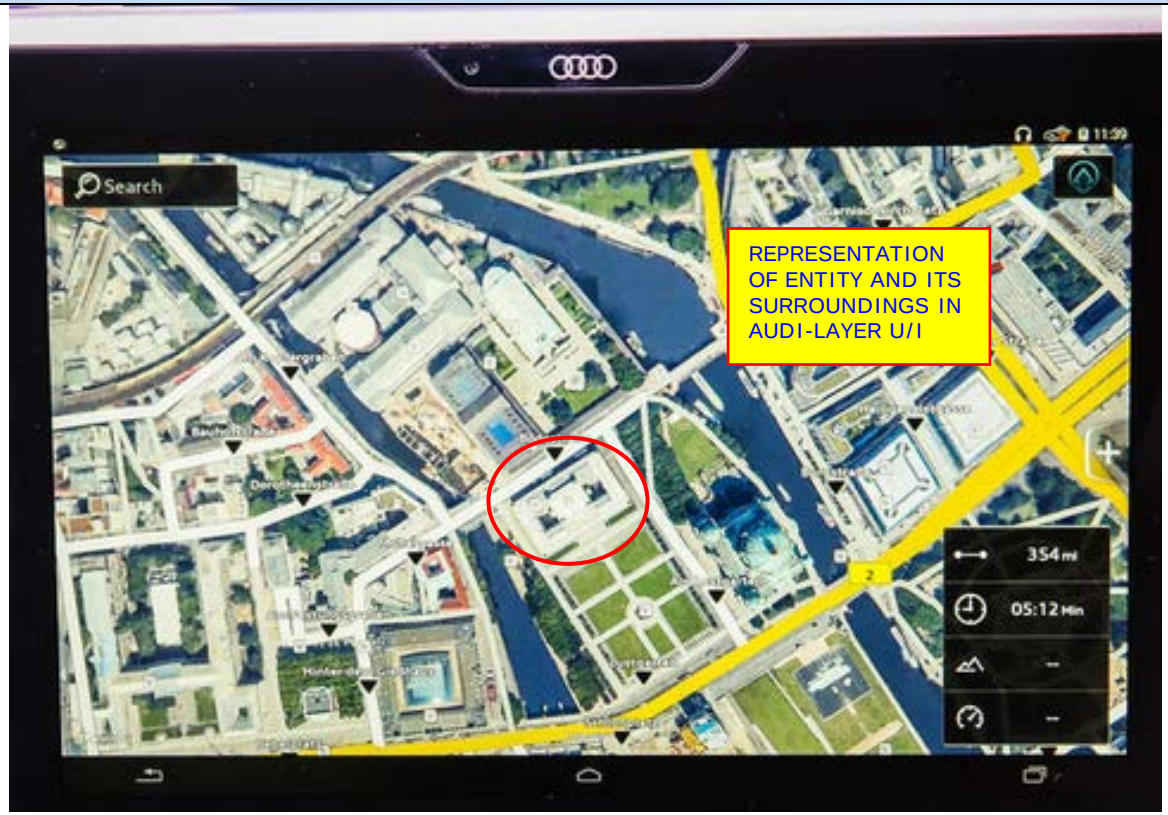
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
provide a graphical or visual representation of the location on the touch screen input and display device in order to aid a user in finding the organization or entity, the graphical or visual representation of the location also comprising a graphical or visual representation of the surroundings of the organization or entity.	 EXEMPLARY NEXUS 5 WITH KITKAT 4.4 SHOWS LOCATION IN VARIOUS FASHIONS, SUCH AS (1) GRAPHICAL ICON ON MAP, (2) TEXTUAL REPRESENTATION, (3) SATELLITE-BASED IMAGE, AND (4) STREET VIEW **IN ANDROID O/S CONTEXT, INDIGENOUS GOOGLE MAPS FUNCTION DISPLAYS LOCATION AND SURROUNDINGS IN VARIOUS FORMATS, AS SHOWN ABOVE AND BELOW:**	**L, DOE**	

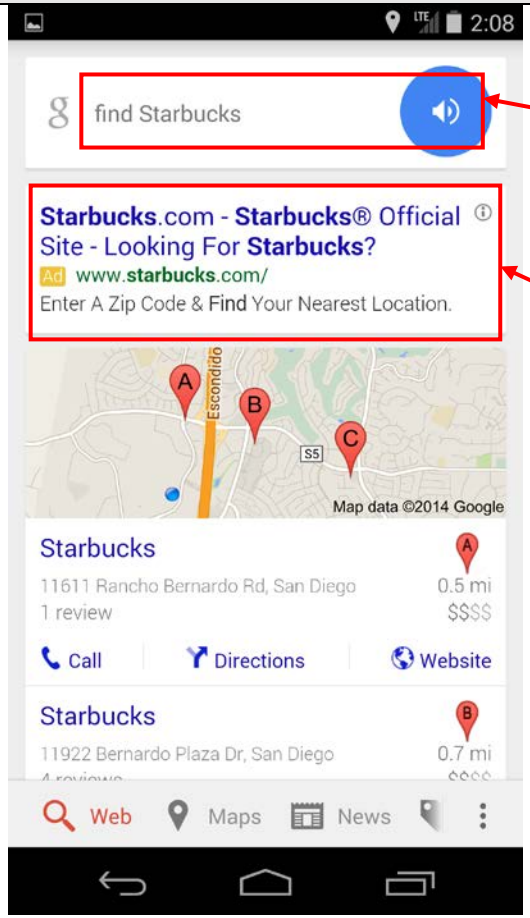
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

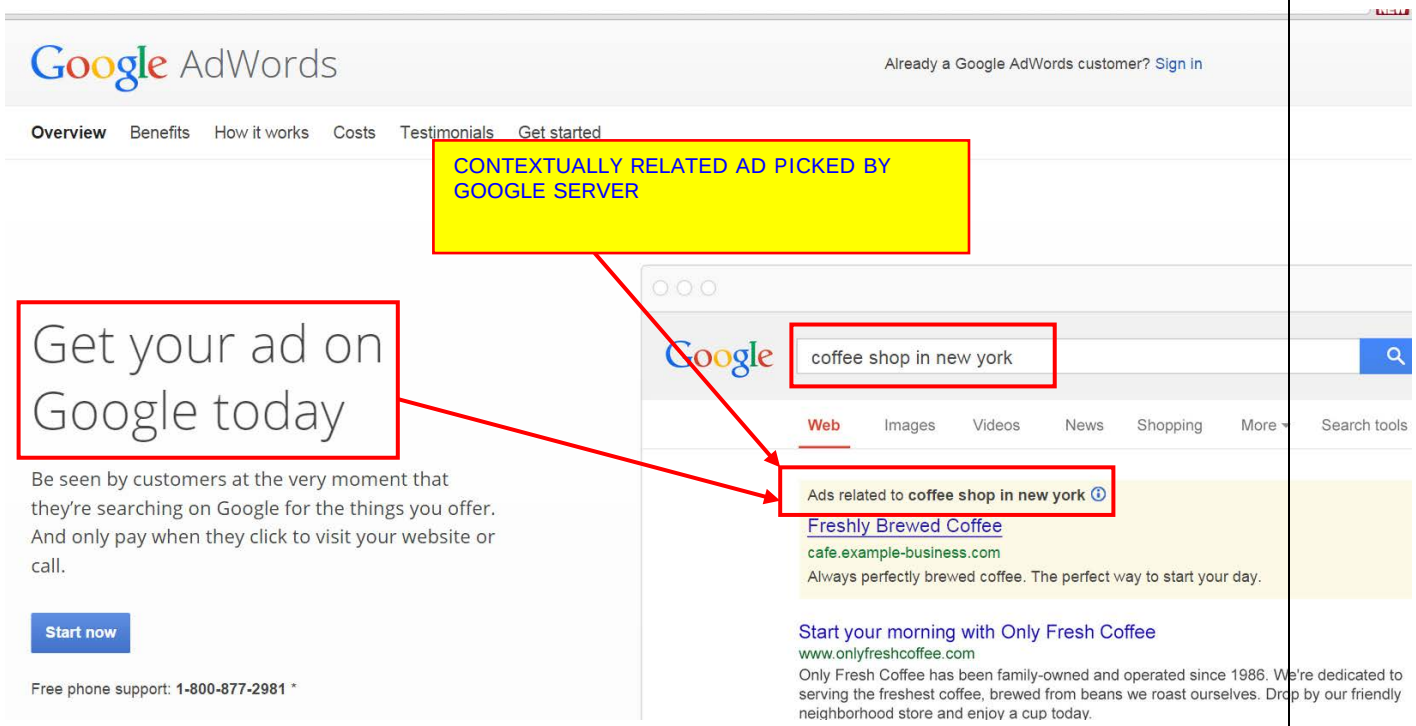
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

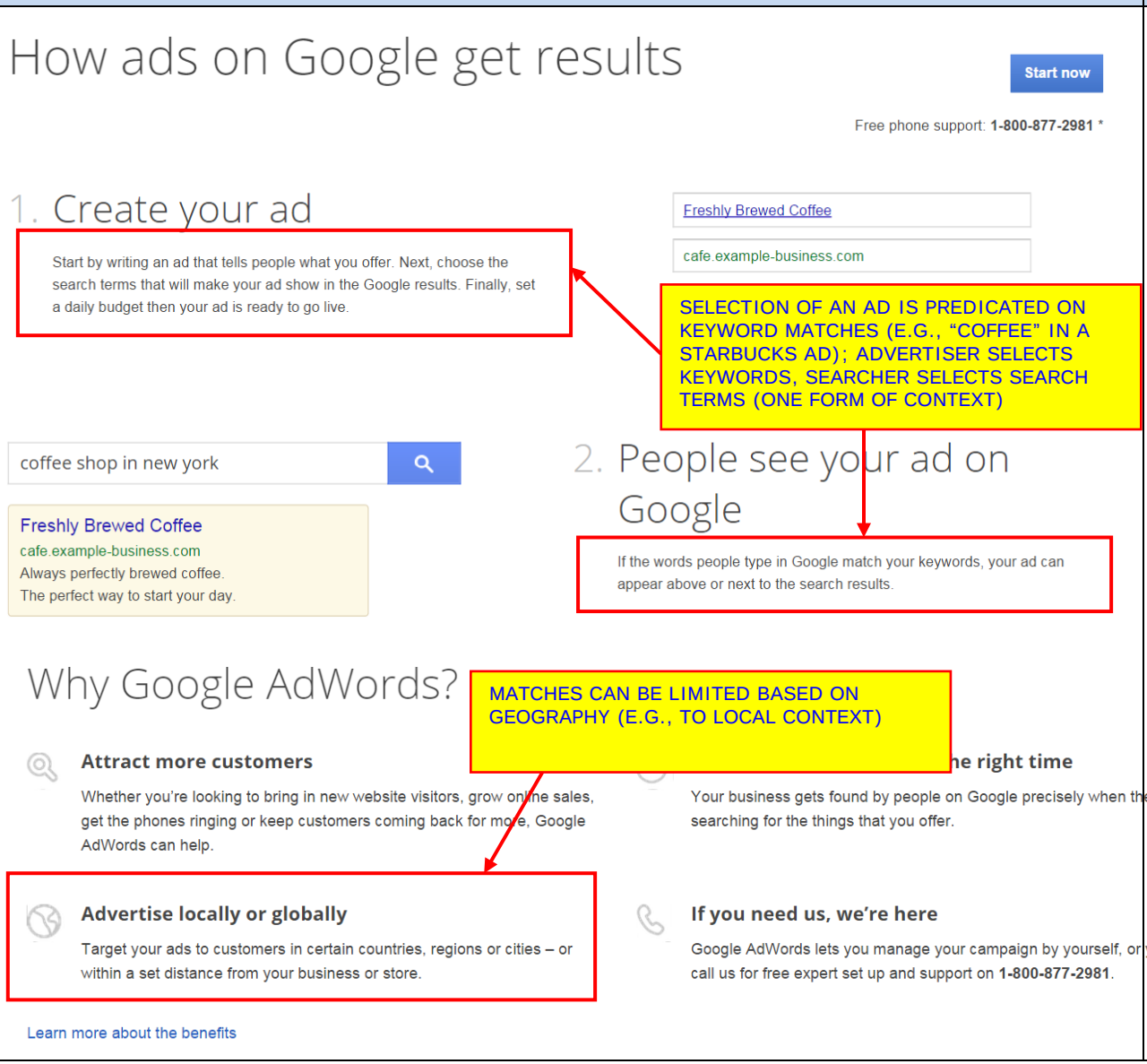
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **SIMILARLY, VARIOUS TYPES OF VIEWS ARE AVAILABLE IN AUDI APPLICATION-LAYER U/I; SEE E.G., SATELLITE IMAGE VIEW BELOW (CLEARLY SHOWING ENTITIES AND THEIR SURROUNDINGS, ANY OF WHICH CAN BE THE TARGET OF A SEARCH):**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html		

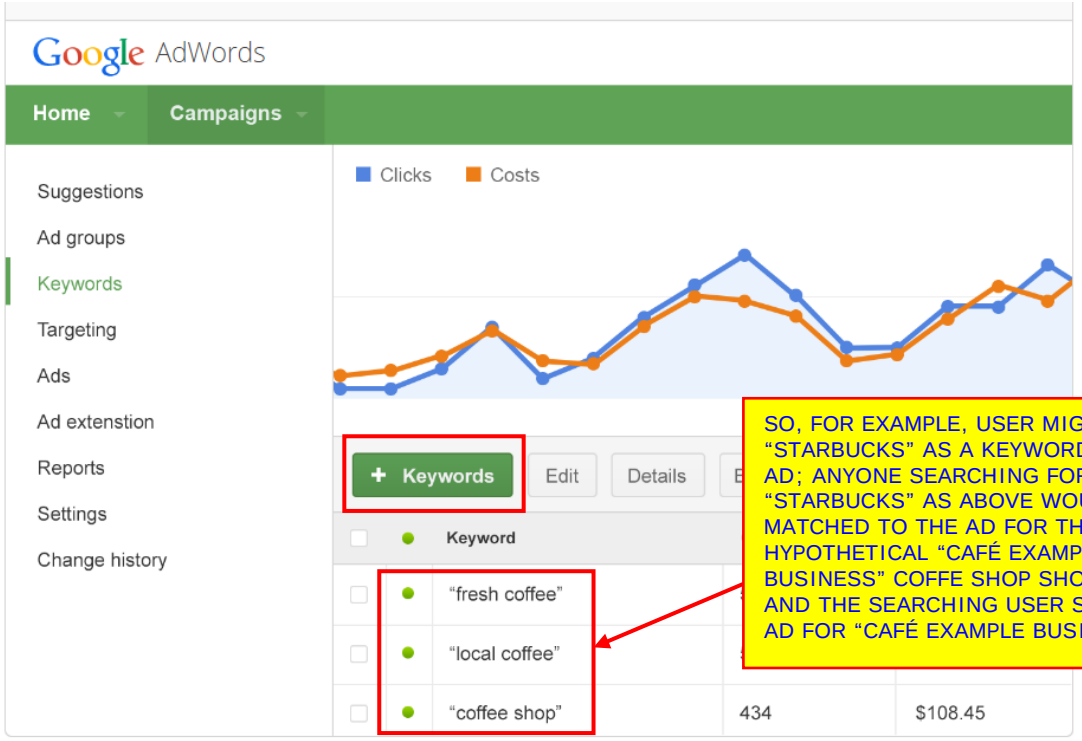
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
3. The apparatus of claim 1, wherein the at least one program is further configured to cause display of advertising that is contextually related to the organization or entity. (***Unselected claim 3 charted because selected claim 5 depends hereon.***)	 **SO, IN THIS EXAMPLE, WE ENTERED THE VOICE SEARCH TERM "FIND STARBUCKS" ON THE NEXUS 5 WITH KITKAT 4.4, AND SEVERAL NEARBY STARBUCKS LOCATIONS WERE RETURNED, AS WELL AS AN ADVERTISEMENT FOR STARBUCKS (WEBSITE) GENERALLY. STARBUCKS WEBSITE IS CONTEXTUALLY RELATED TO "FIND STARBUCKS" (ALBEIT NOT WHAT WE WERE**	**L, DOE**	**D**

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	EXPLICITLY SEARCHING FOR). **ADVERTISING SUCH AS THE EXAMPLE SHOWN ABOVE IS GENERATED VIA E.G., GOOGLE "ADWORDS" SERVICE:** 		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect[2]



Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]



Easy-to-read reports and graphs show how your ads are doing in Google AdWords

http://www.google.com/adwords/start/?sourceid=awo&subid=us-en-ha-aw-bkmp0~48674311565&gclid=CMeViPbsz8ACFZYWjgodkwcAdQ

PER GOOGLE ITSELF, LOCATION IS ALSO ONE TYPE OF "CONTEXT":

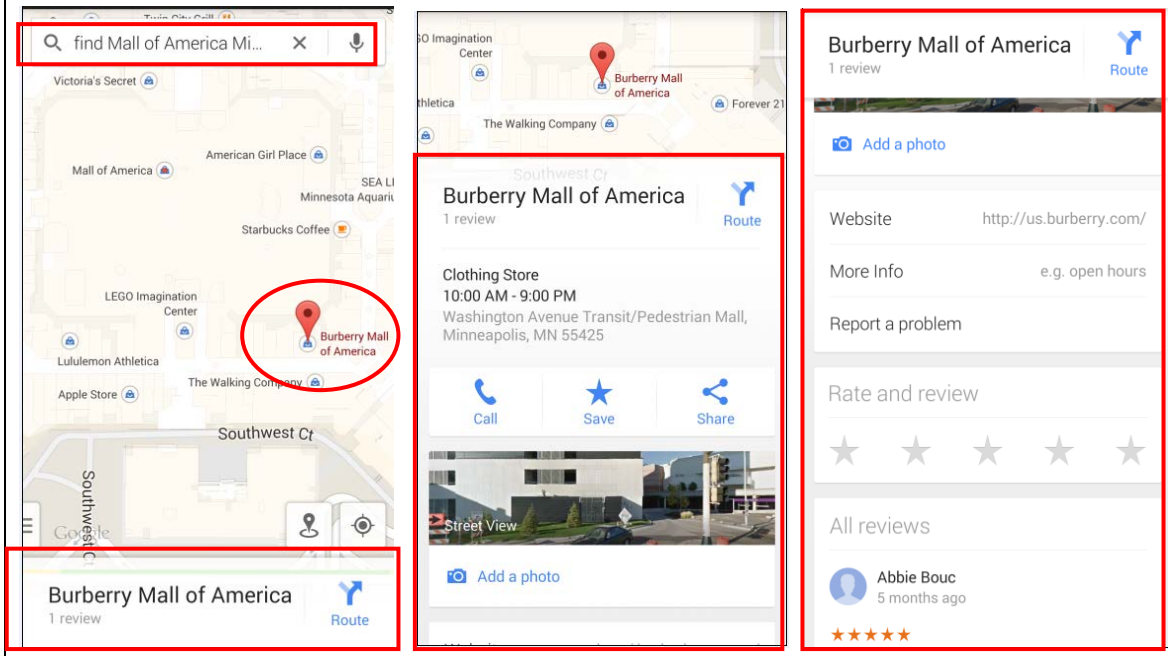
"Location is one piece of context, knowing where you are."

http://www.cnet.com/news/google-maps-becoming-more-context-aware-and-emotional/

CONTEXT = LOCAL SEARCH AREA, WHICH NECESSARILY INCLUDES THE DESIRED INFORMATION (E.G., LOCATION OF NEARBY STARBUCKS IN SAN DIEGO). THE ADVERTISEMENT

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	MAY BE SELECTED BASED ON THIS GEOGRAPHIC CONTEXT AS WELL, OR BY ITSELF. **NOTE THAT GOOGLE ALSO PROVIDES A KEYWORD PLANNING TOOL, WHICH GUIDES USERS IN SELECTING CONTEXTUAL KEYWORDS:**  **Search for new keyword or ad group ideas** Keyword Planner is like a workshop for building new Search Network campaigns or expanding existing ones. You can search for keyword and ad group ideas, get historical statistics, see how a list of keywords might perform, and even create a new keyword list by multiplying several lists of keywords together. A free AdWords tool, Keyword Planner can also help you choose competitive bids and budgets to use with your campaigns. Whether you're new to online advertising or an experienced pro, you can use Keyword Planner to lay the groundwork for a successful campaign. Learn more. https://adwords.google.com/KeywordPlanner **GOOGLE ADS CAN APPEAR ACROSS MANY GOOGLE PLATFORMS:** "If you use keywords to target your ads, you select a set of keywords related to the product or service you'd		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	like to advertise. Then, when people search using the words or phrases you picked, your text ads can appear alongside or above search results. On Google search sites: Your ads can appear on Google Search, Shopping, Maps, Images, and Groups when someone searches on your keywords. Here's an example, for the keyword "cupcakes":" https://support.google.com/adwords/answer/1704373?hl=en **NOTE THAT ALTERNATIVELY, AND ASIDE FROM "ADWORDS" SERVICE ABOVE, GOOGLE MAPS CAN BE CONSIDERED TO PROVIDE ADVERTISING IN RENDERING ITS MAPS SEARCH RESULTS ON THE SCREEN WITH ICONS/TEXT RELATING TO LOCAL COMMERCIAL ENTITIES:**  *"ad·ver·tise·ment* *noun*		

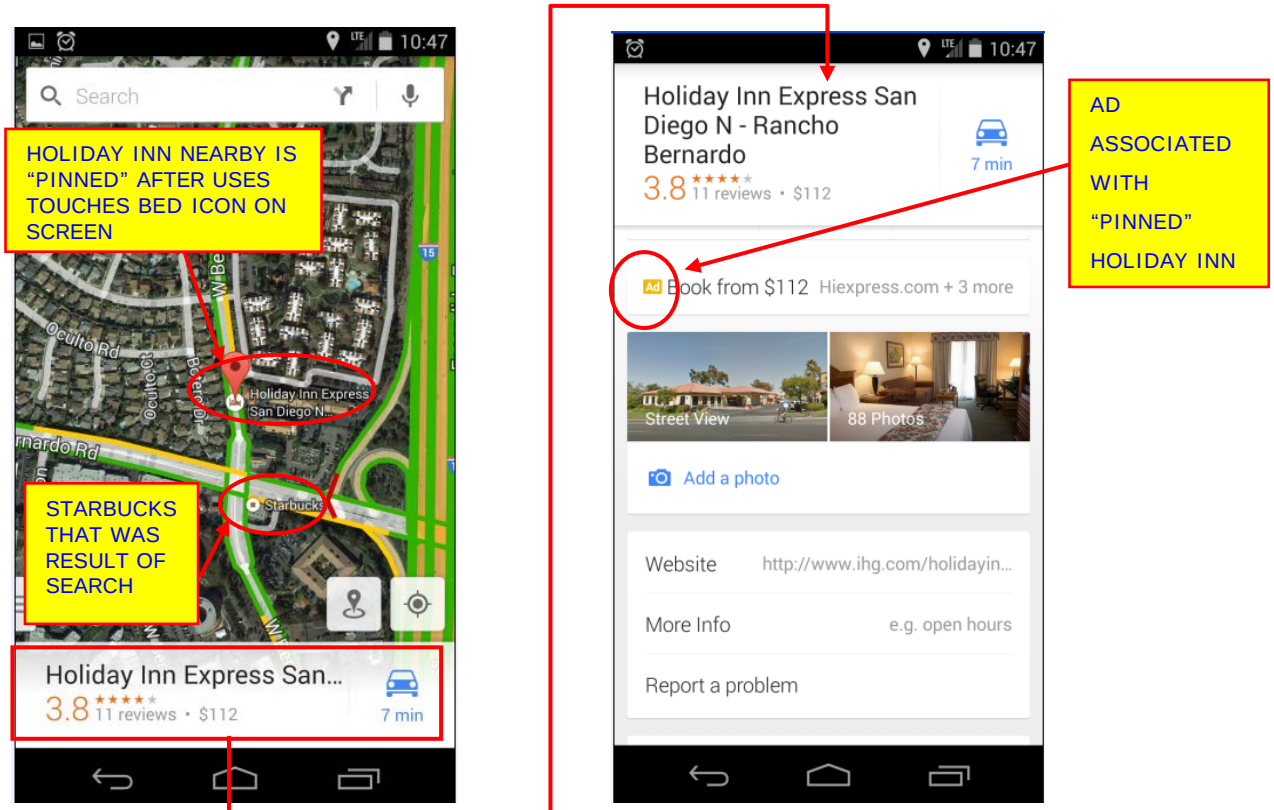
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	a notice or announcement in a public medium promoting a product, service, or event or publicizing a job vacancy. *"advertisements for alcoholic drinks" "* https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ADVERTISEMENT+DEFINITION  **IN THE EXAMPLE ABOVE (BASED ON VOICE SEARCH FOR "MALL OF AMERICA"), THE USER IS SHOWN MULTIPLE COMMERCIAL ENTITIES PROXIMATE TO THE DESIRED ENTITY. WHEN USER TOUCHES SHOPPING BAG ICON FOR, SAY BURBERRY STORE, THE STORE IS "PINNED", AND AN ADVERTISEMENT IS DISPLAYED AT BOTTOM OF SCREEN, SHOWING INFORMATION ABOVE, INCLUDING HOURS OF OPERATION, INDUSTRY TYPE (CLOTHING STORE), ADDRESS, STREET**		

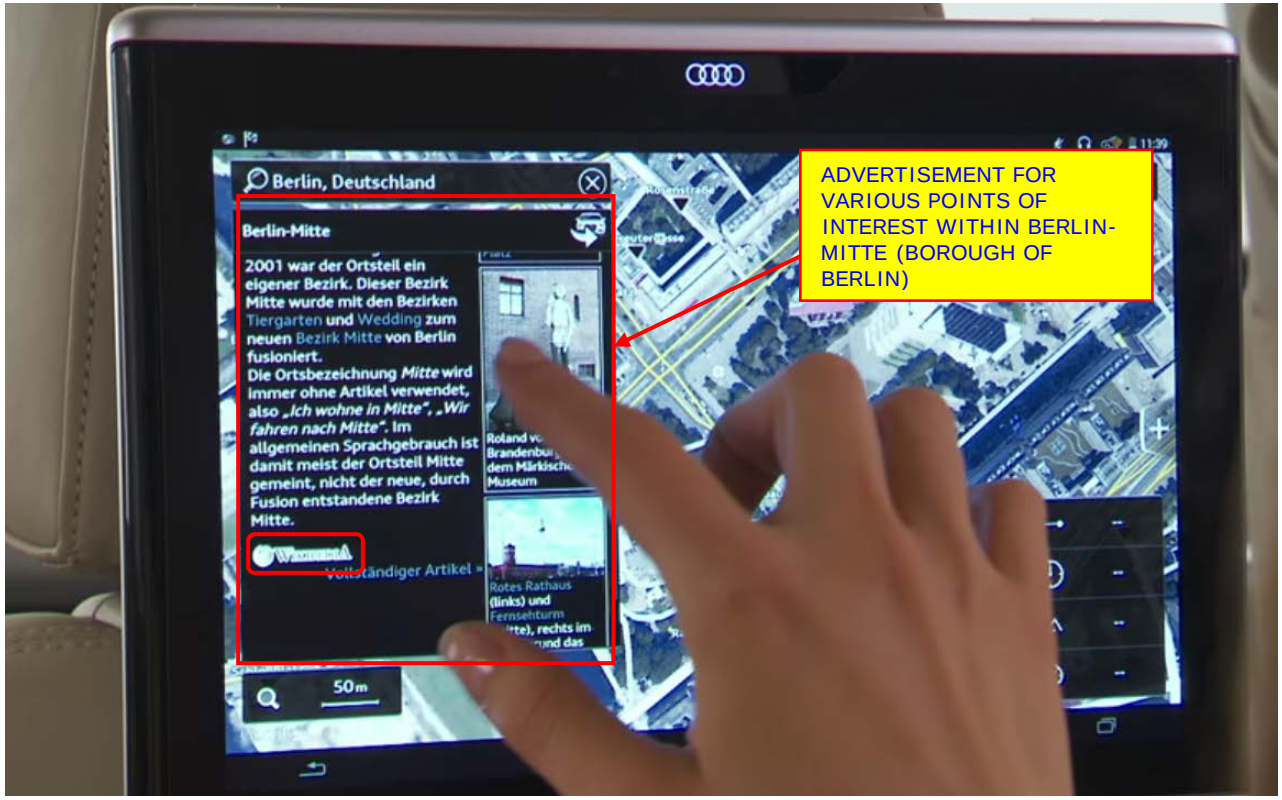
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]

VIEW PHOTO, WEBSITE URL, AND REVIEWS BY VARIOUS INDIVIDUALS.

AS NOTED ABOVE, THIS BURBERRY WAS SELECTED FOR DISPLAY BASED AT LEAST ON (I) THE BURBERRY STORE SUBMITTING ITSELF/DETAILS TO GOOGLE FOR DISPLAY, AND (II) IT'S GEOGRAPHIC PROXIMITY TO THE SEARCHED FOR ENTITY.

SEE ALSO ANOTHER EXAMPLE BELOW…A HOLIDAY INN HOTEL THAT WAS MARKED AS A NEARBY LOCATION ("BED" ICON) TO THE STARBUCKS OF THE SEARCH ABOVE HAS AN ADVERTISEMENT ASSOCIATED WITH IT AS WELL – I.E., WHEN USER TOUCHES THE "BED" ICON, THE MAP BELOW IS SHOWN, AND WHEN USER SWIPES DOWN, THE AD IS REVEALED:



Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	IN AUDI APPLICATION-LAYER U/I ENVIRONMENT; ADVERTISEMENTS THAT ARE CONTEXTUALLY RELATED MAY ALSO BE SHOWN:  https://www.youtube.com/watch?v=2Yg6cPnFpII		

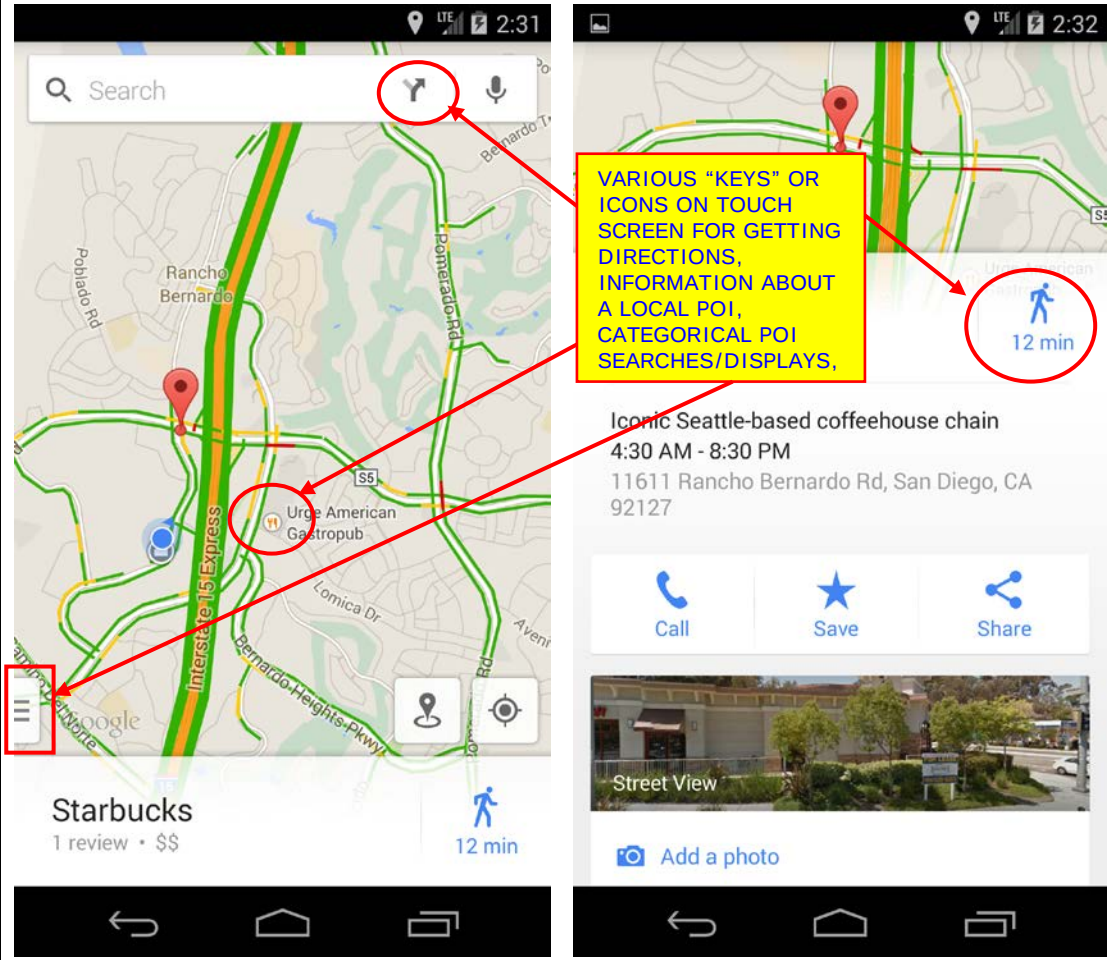
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
5. The apparatus of claim 3, wherein the advertising is displayed substantially contemporaneous with a display of the graphical or visual representation of that location.	**SEE EXAMPLES ABOVE FOR "STARBUCKS" AND "MALL OF AMERICA" AND "HOLIDAY INN"; ALL "ADVERTISING" DISPLAYABLE CONTEMPORANEOUS WITH THE GRAPHICAL/VISUAL REPRESENTATION OF LOCATION (E.G., GOOGLE MAP)**	**L, DOE**	**D**
8. The apparatus of claim 1, wherein the computerized apparatus is configured to be transportable from one location to another within a transport apparatus. (***Unselected claim 8 charted because selected claim 9 depends hereon***.)	 **AUDI SMART DISPLAY IS NOT ONLY TRANSPORTABLE, IT IS IN FACT SPECIFICALLY DESIGNED/CONFIGURED FOR USE IN A TRANSPORT APPARATUS (E.G., CAR), IN THAT IT IS:**	**L, DOE**	**D, I**

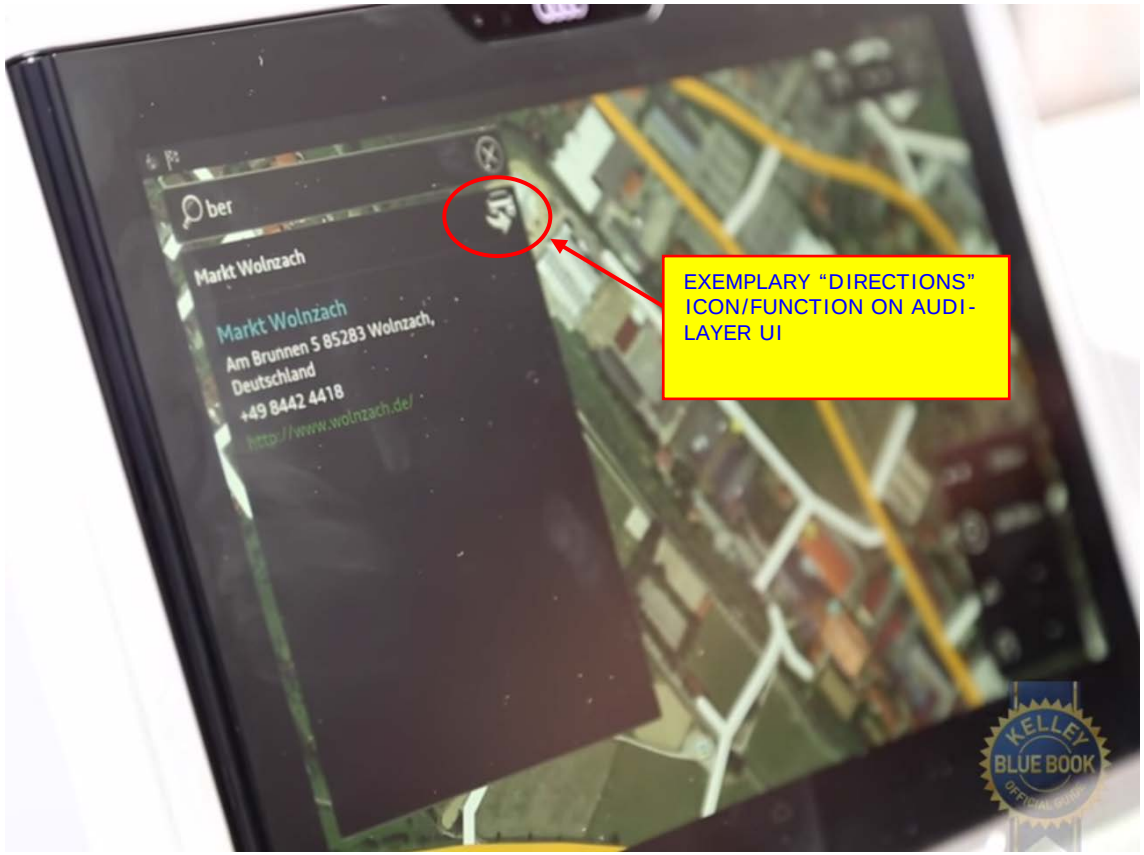
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	3) SPECIALLY CONFIGURED TO MOUNT TO THE SEAT BACKS IN THE EXEMPLARY Q7; AND **4) UTILIZES PROPRIETARY POWER INTERFACE TO THE Q7 FOR CHARGING (WHEN DOCKED); AND** **5) IS CONFIGURED TO OPERATE WITH THE Q7' WI-FI INTERFACE.**		
9. The apparatus of claim 8, wherein the configuration to be transportable from one location to another within a transport apparatus comprises the capability of the computerized apparatus to be mounted on or proximate to a surface of the transport apparatus such that an operator of the transport apparatus can view and access a touch screen of the touch screen input and display device, and utilize the speech recognition apparatus, while operating the transport apparatus.	**SEE IMAGES BELOW; EXEMPLARY 2016 Q7 (AND PRESUMABLY ANY VEHICLE ADAPTED TO UTILIZE THE SMART DISPLAY) INCLUDES ABILITY TO MOUNT TABLET ON BACK OF SEATS (SURFACE); REAR-SEAT USER ("OPERATOR" *) CAN CLEARLY ACCESS TOUCH SCREEN AND ANY INDIGENOUS MICROPHONE(S) ON THE TABLET:**	**L, DOE**	**D, I**

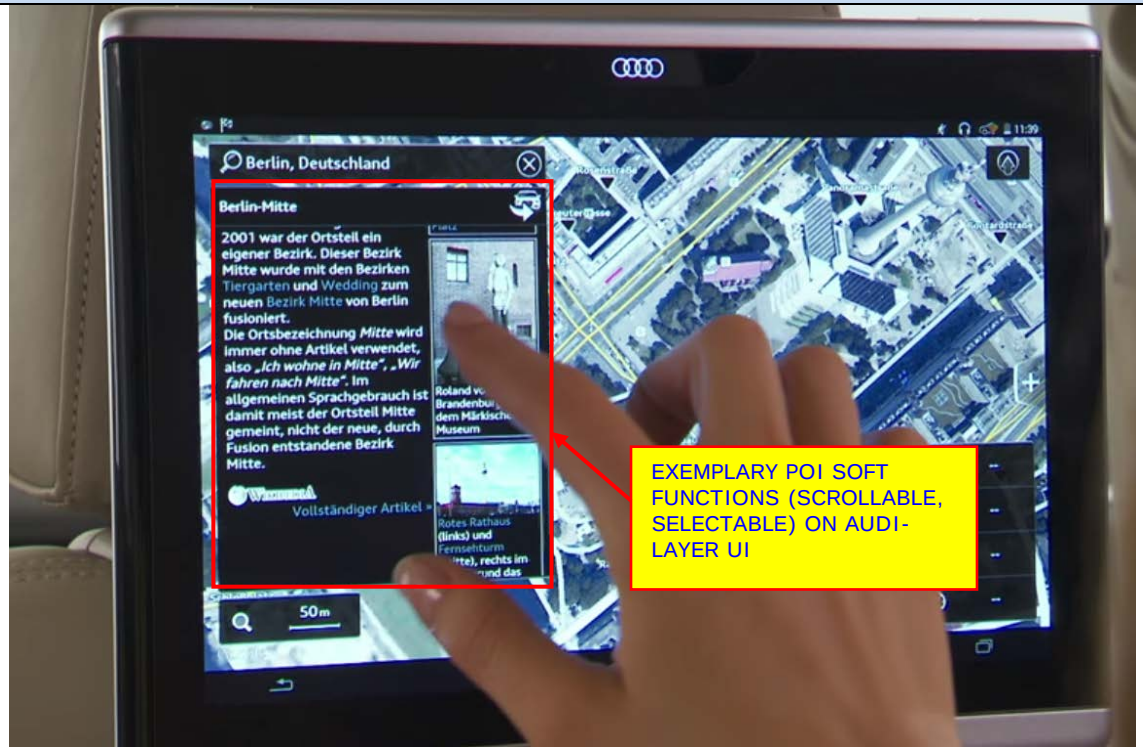
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 *NOTE THAT REAR SEAT USER CAN INVOKE CONTROL OF VARIOUS FRONT SEAT FUNCTIONS SUCH AS DETERMINING DESTINATION FOR NAVIGATION SYSTEM, SELECTING MEDIA TO PLAY IN THE VEHICLE, ETC. USING THE SMART DISPLAY IN REAR SEAT(S)		

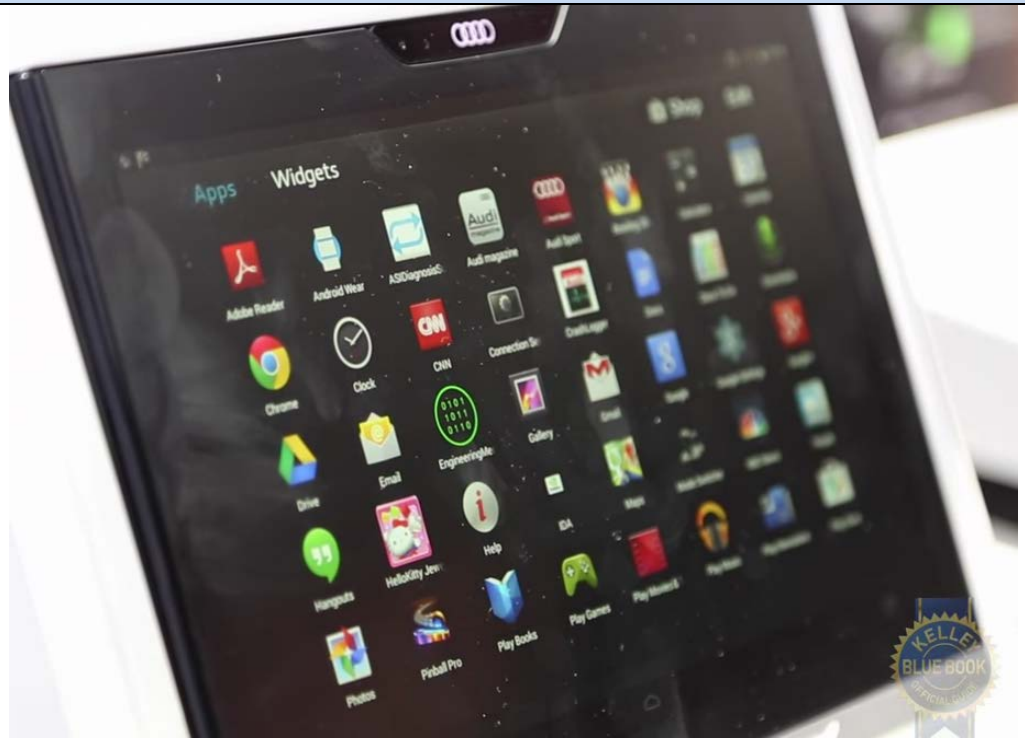
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

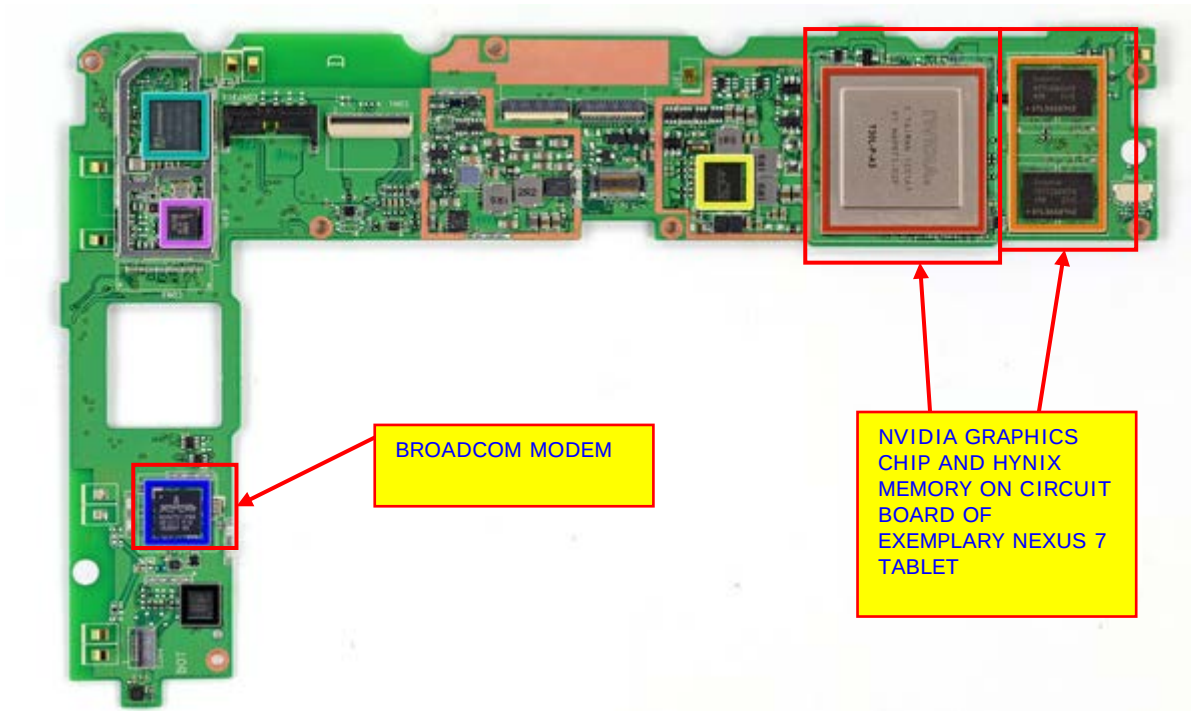
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
22. The apparatus of claim 1, wherein the at least one computer program is further configured to generate on the touch-screen input and display device a plurality of soft function keys or icons, at least one of the soft function keys or icons having a function associated therewith relating to obtaining directions, and at least one of the soft function keys or icons having a function associated therewith relating to points of interest.	**SEE EXEMPLARY GOOGLE NOW/MAPS U/I ON ANDROID KITKAT 4.4 DEVICE BELOW; PLURALITYOF ICONS/KEYS ARE GENERATED ON THE TOUCH DISPLAY, INCLUDING FOR DIRECTIONS, POI'S, ETC.:** 	**L, DOE**	**D, I**

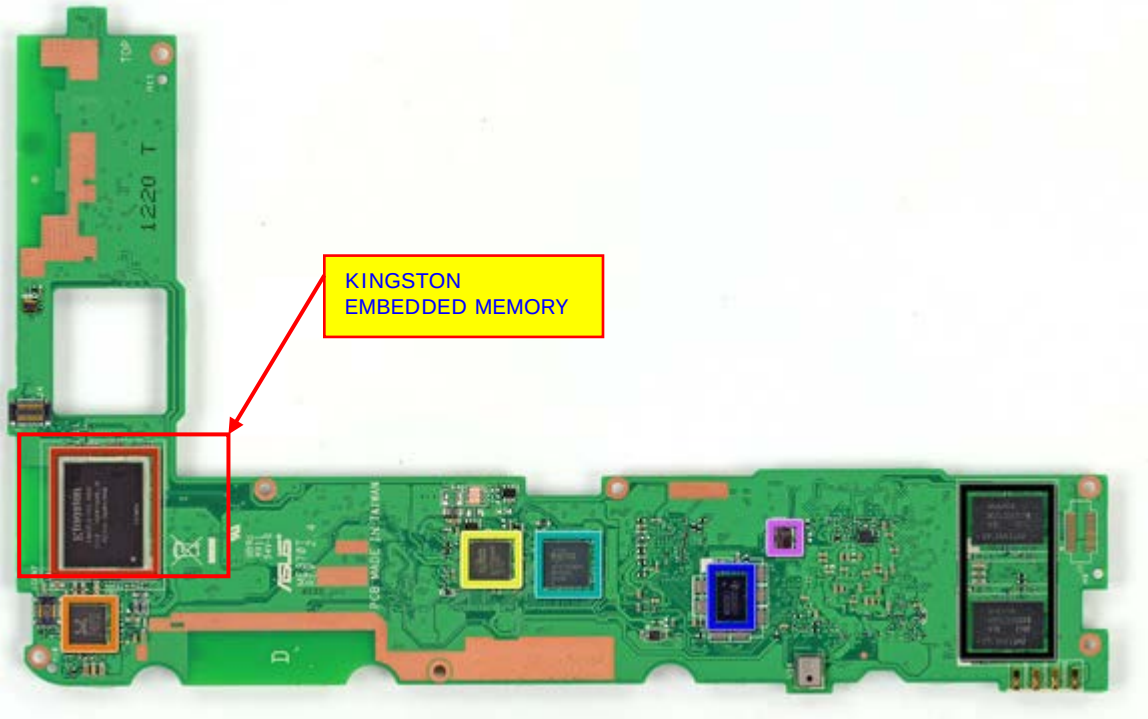
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	SEE ALSO AUDI APPLICATION-LAYER U/I, WHICH INCLUDES A VARIETY OF SOFT FUNCTIONS FOR DIRECTIONS, POI INFORMATION, ETC.:  **https://www.youtube.com/watch?v=QcfIgdDI-lE**		

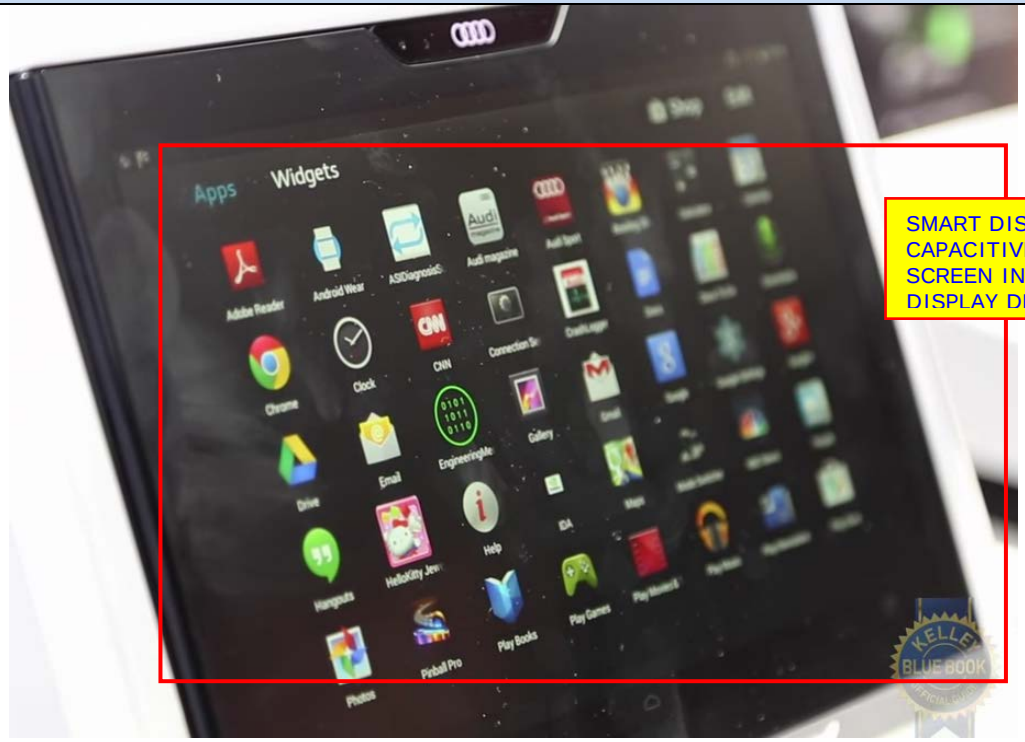
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2Yg6cPnFpII		

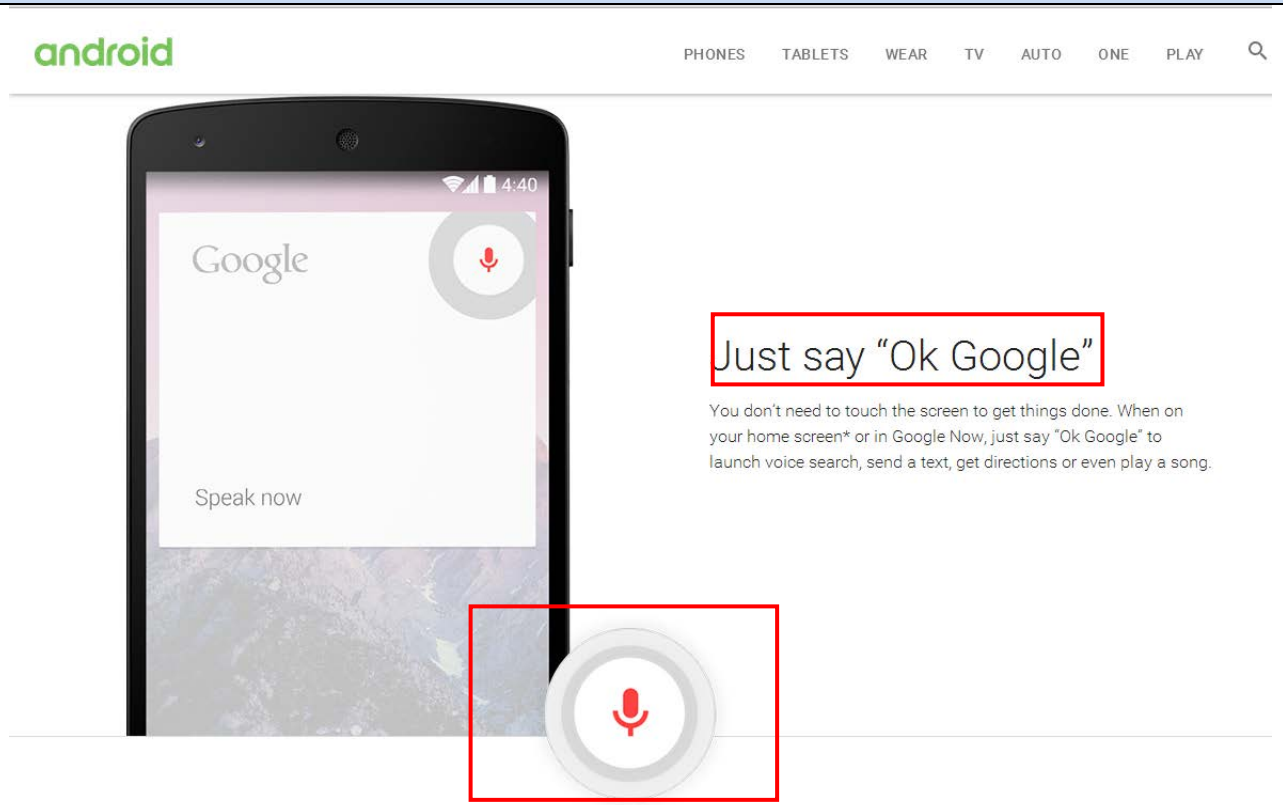
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
27. Computerized apparatus comprising:	 https://www.youtube.com/watch?v=QcfIgdDI-IE "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html	**L, DOE**	**D**
a wireless interface;	"A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example."	**L, DOE**	

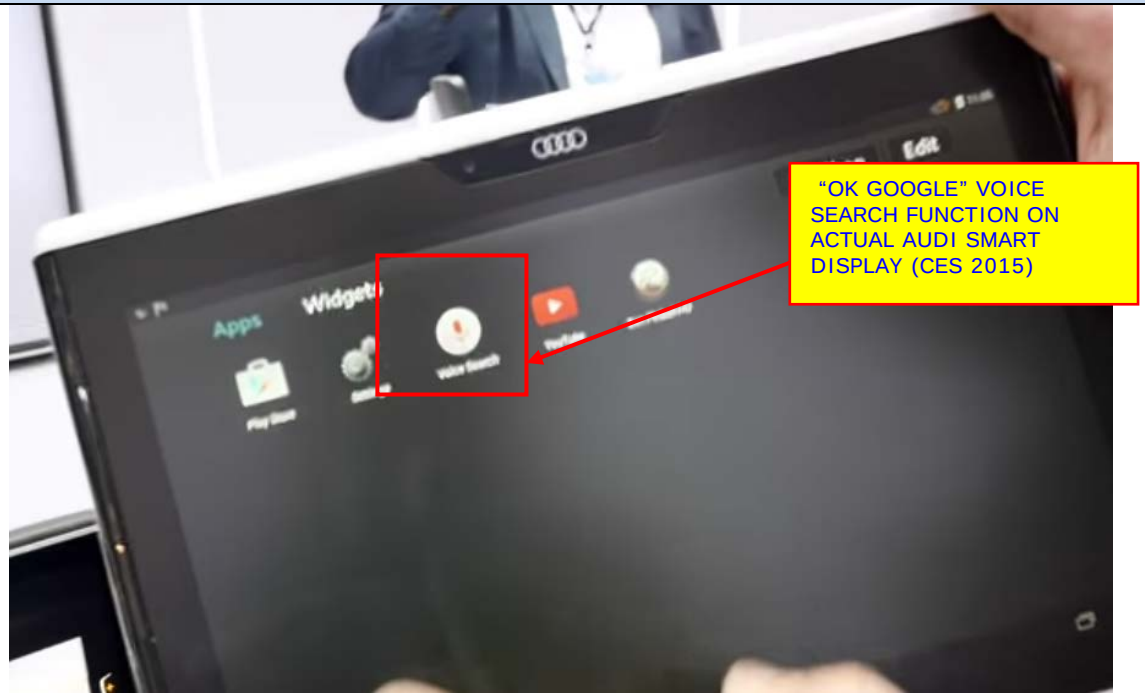
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort		
data processing apparatus;	**WHILE THE INTERNALS OF THE AUDI TABLET ARE PRESENTLY UNDISCLOSED, IT IS HIGHLY SIMILAR IN FUNCTION, O/S, ETC. TO E.G., THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4.**  NEXUS 7 (TOP) VS. AUDI SMART DISPLAY (BOTTOM) 	**L, DOE**	

Claim Language	AUDI “SMART DISPLAY” ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ETC. **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**  		

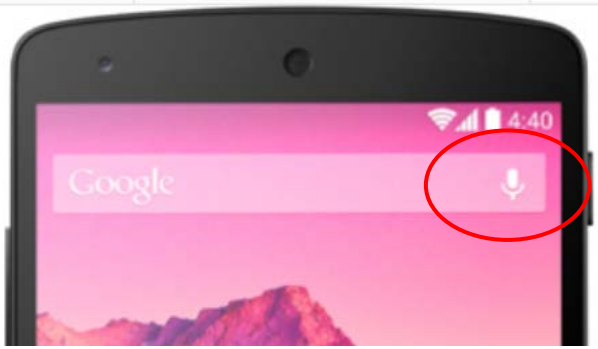
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
a touch-screen input and display device;		**L, DOE**	
a speech recognition apparatus in data communication with the data processing apparatus;	**IN THIS PARTICULAR EXAMPLE, THE "GOOGLE MAPS" FUNCTIONS OF "GOOGLE NOW" FUNCTIONALITY PRESENT ON THE ANDROID KITKAT 4.4 O/S IS EVALUATED, ALTHOUGH VARIOUS OTHER TYPES OF FUNCTIONS MAY BE USED AS THE BASIS OF DEMONSTRATION AS WELL.** **THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION:** **3) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA HANDS FREE), FOLLOWED BY VOICE SEARCH TERM;**	**L, DOE**	

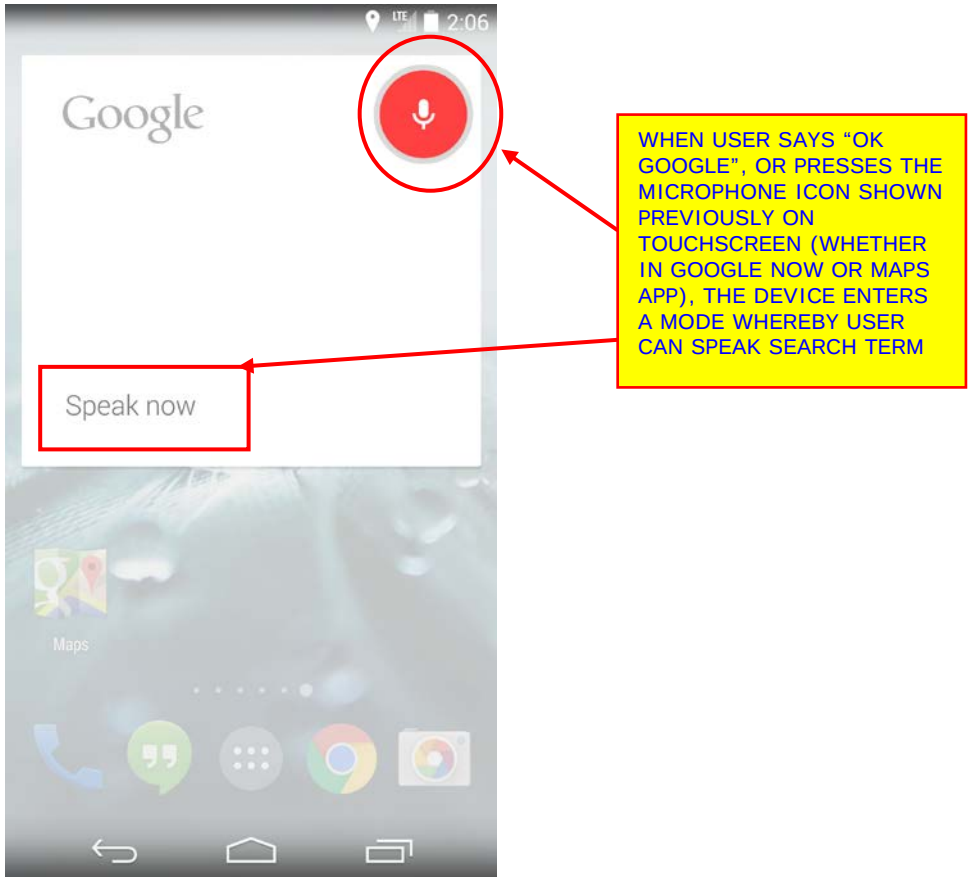
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **4) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;**		

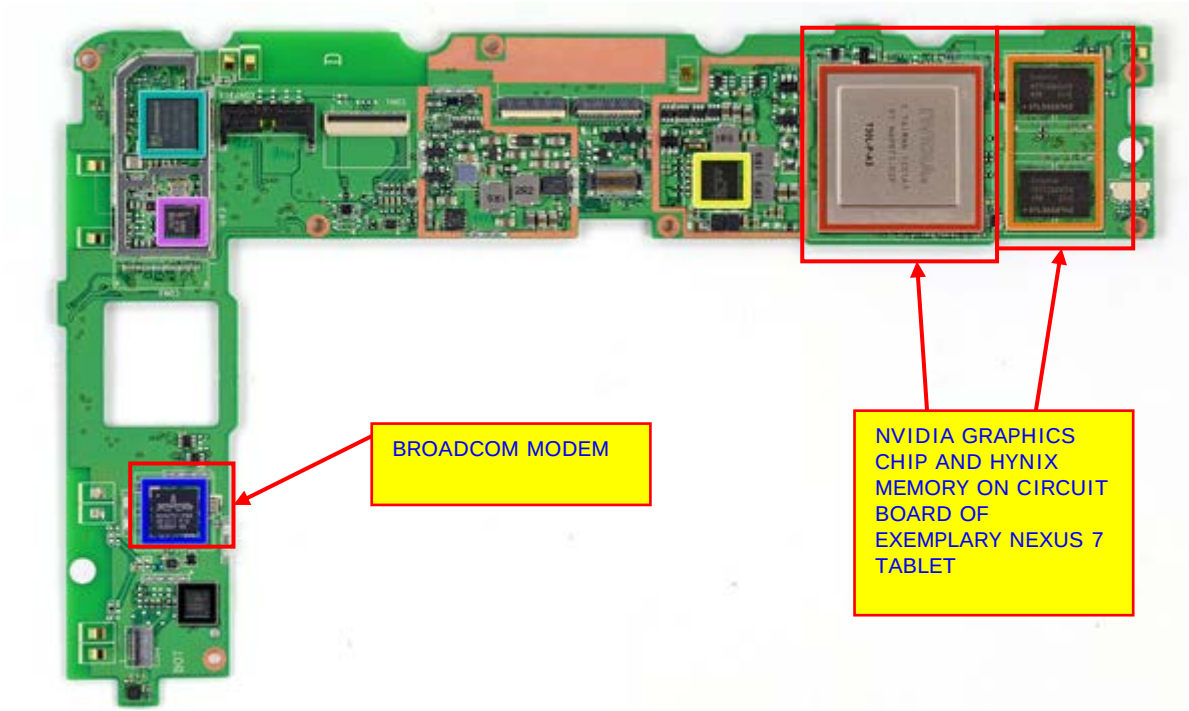
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

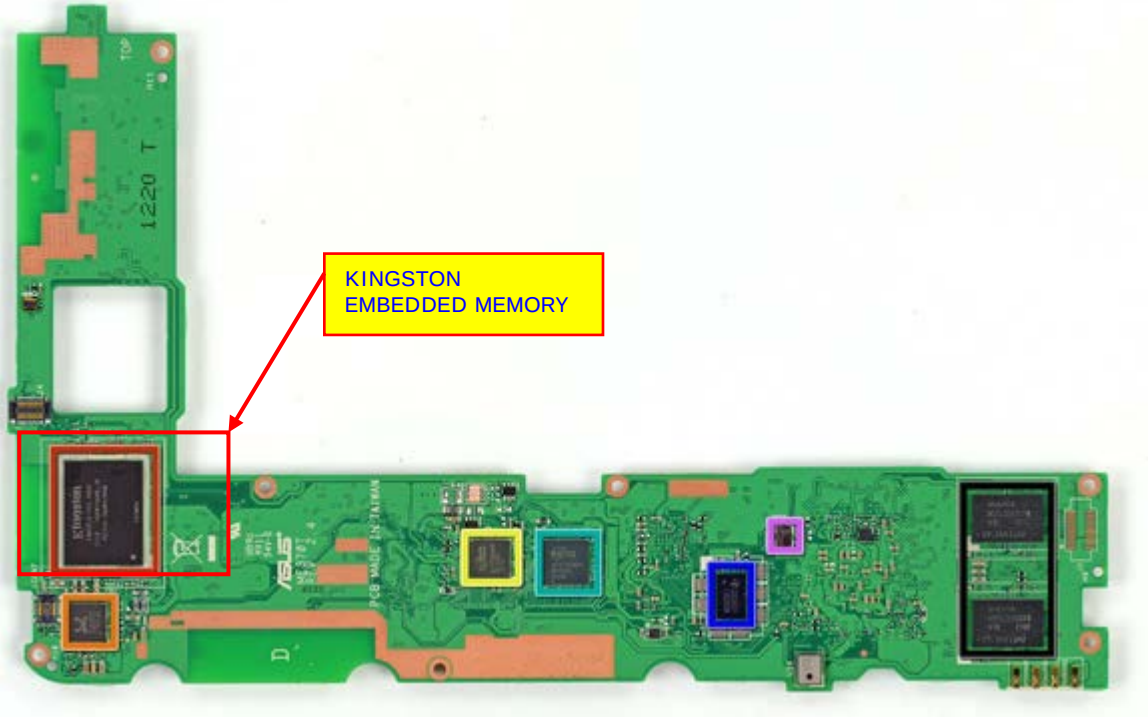
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

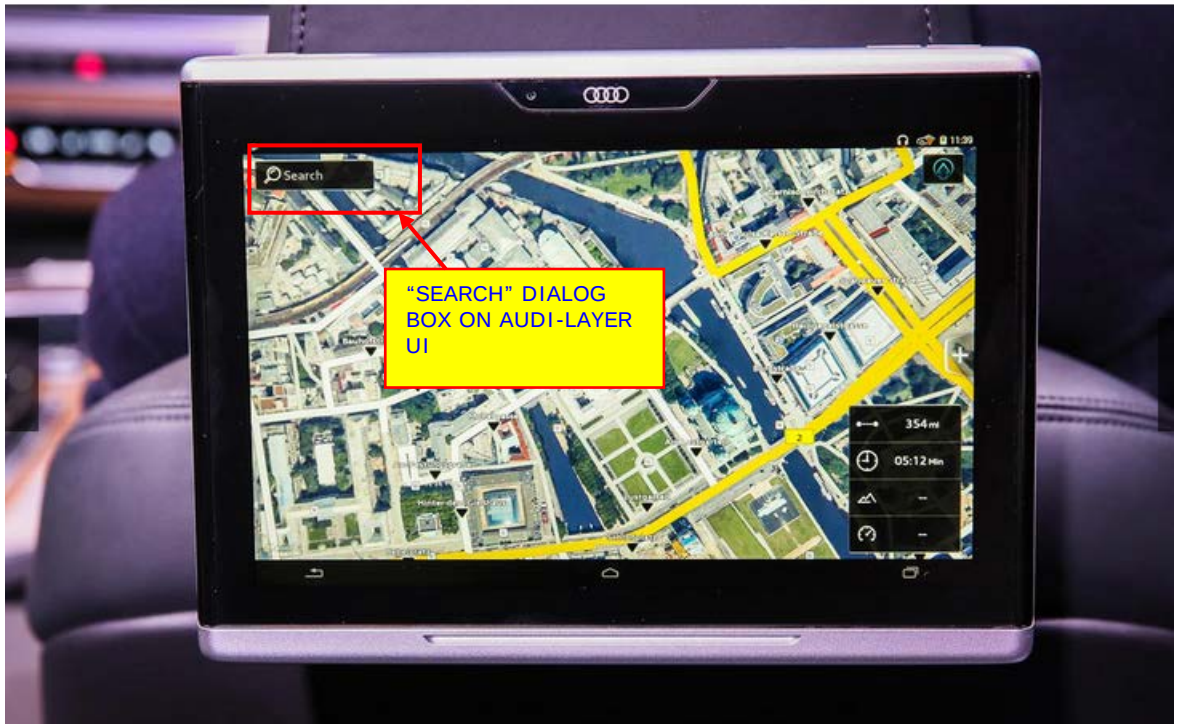
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **THE VOICE COMMAND (OR DEPRESSING ICON) CAUSE THE DEVICE TO ENTER A MODE WHEREIN THE USER CAN SAY THE INPUT (E.G., NAME OF AN ENTITY) ALOUD, THE USER'S VOICE PICKED UP BY THE MICROPHONE OF THE TABLET DEVICE:**		

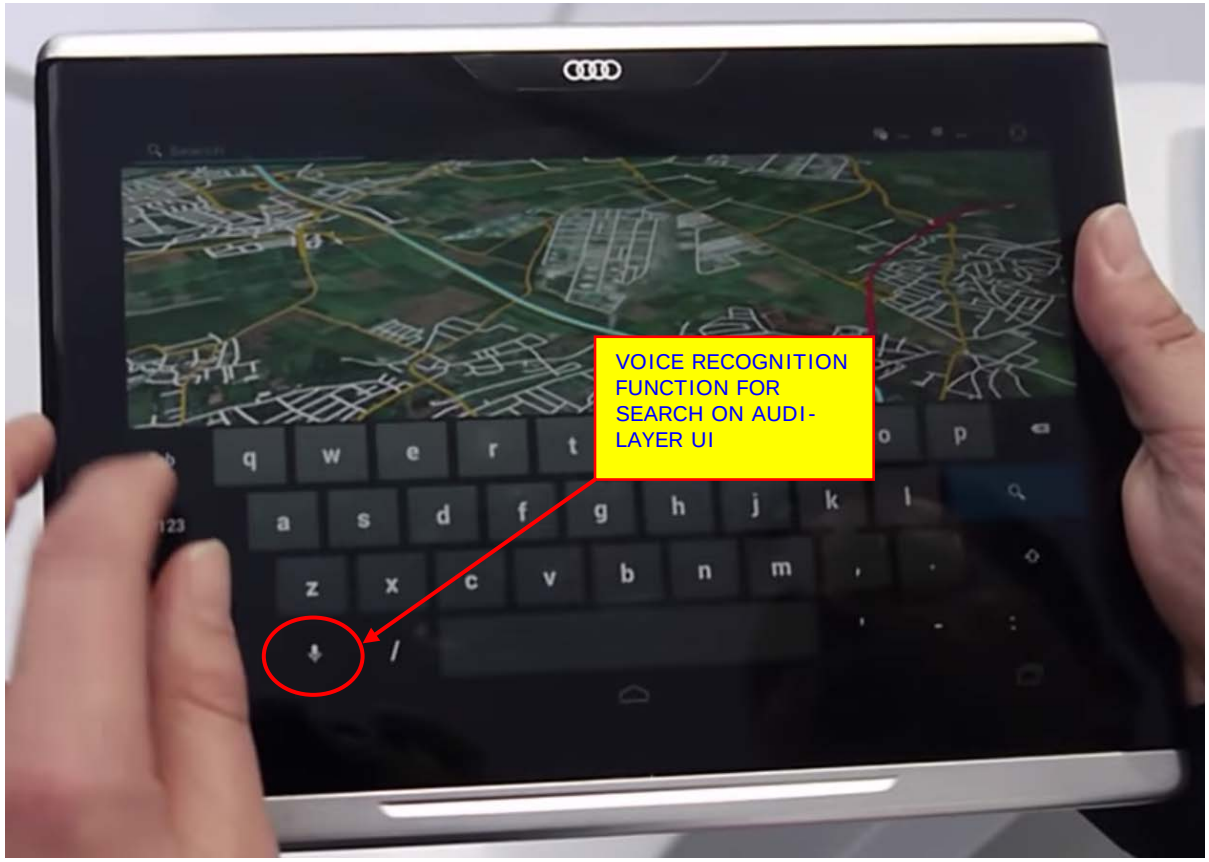
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:** **"General Commands**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	• "Search for [*chicken recipes*]?" • "Say [*where is the supermarket*] in [*Spanish*]?" • "What is [*Schrodinger's cat*]?" • "Who invented [*the internet*]?" • "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" **…** **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know POSSIBLE INPUTS FROM USER FOR E.G., MAPS/DIRECTIONS **SEE ALSO DISCUSSION BELOW REGARDING ABILITY TO CONDUCT VOICE SEARCHES IN AUDI APPLICATION-LAYER UI (PRESUMABLY VIA AT LEAST PARTLY COMMON SPEECH PROCESSING APPARATUS ON THE SMART DISPLAY).**		
and a storage apparatus in data communication	**THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2**	**L, DOE**	

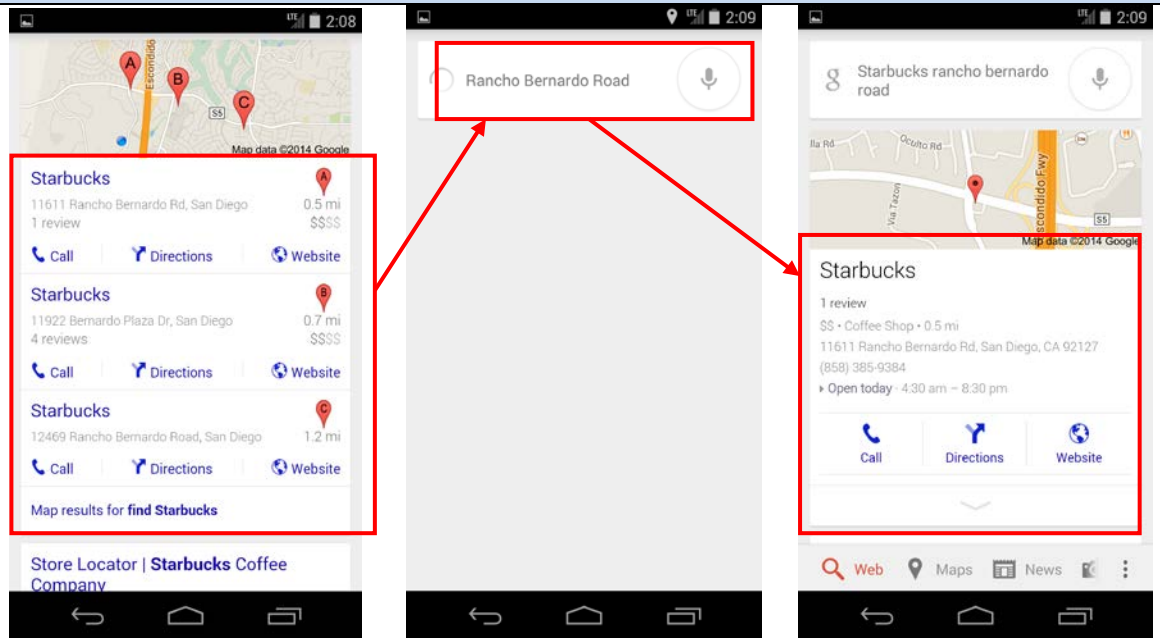
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
with the data processing apparatus, said storage apparatus comprising at least one computer program, said at least one program being configured to:	**CACHES, VIDEO MEMORY, ETC, ETC.** **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**  		

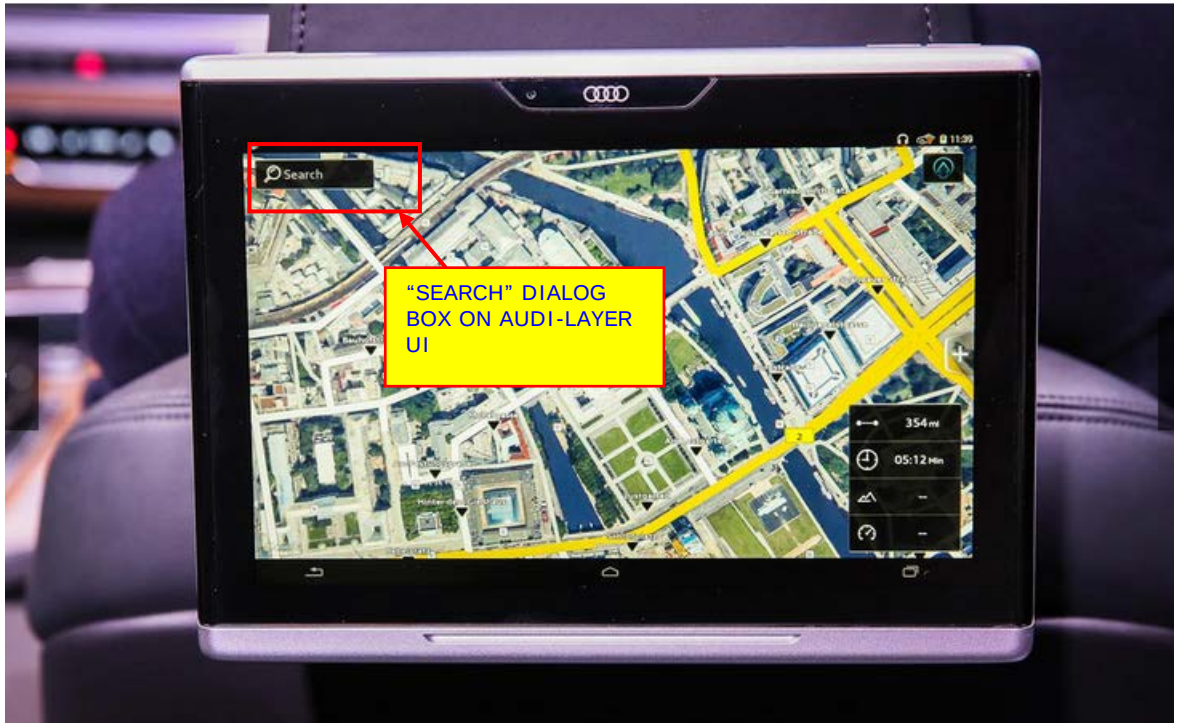
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		
receive a digitized speech input via the speech recognition apparatus, the input relating to an organization or entity which a user wishes to locate;	**AT LEAST TWO DISTINCT WAYS OF PERFORMING VOICE-BASED POI OR OTHER SEARCHES USING SMART DISPLAY:** **1) ANDROID O/S - GOOGLE VOICE QUERIES ON ANDROID TABLETS CAN TAKE ANY NUMBER OF DIFFERENT FORMS, MANY OF WHICH RELATE TO ORGANIZATIONS OR ENTITIES (AND FINDINGTHEM). SOME EXAMPLES INCLUDE:** **Maps & Navigation** • "Map of [*Flagstaff*]"	**L, DOE**	

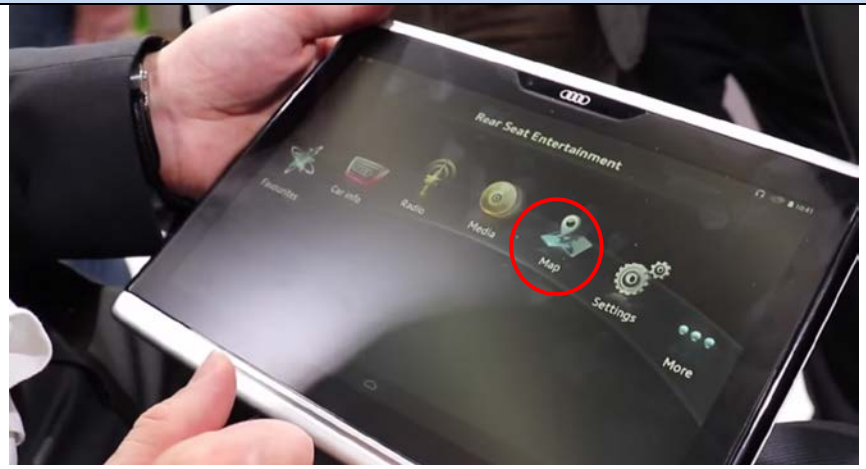
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	• "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know **2) ADDITIONALLY, THE AUDI-LAYER SEARCH FUNCTION INCLUDES THE ABILITY TO PERFORM VOICE-BASED-SEARCHES:** 		

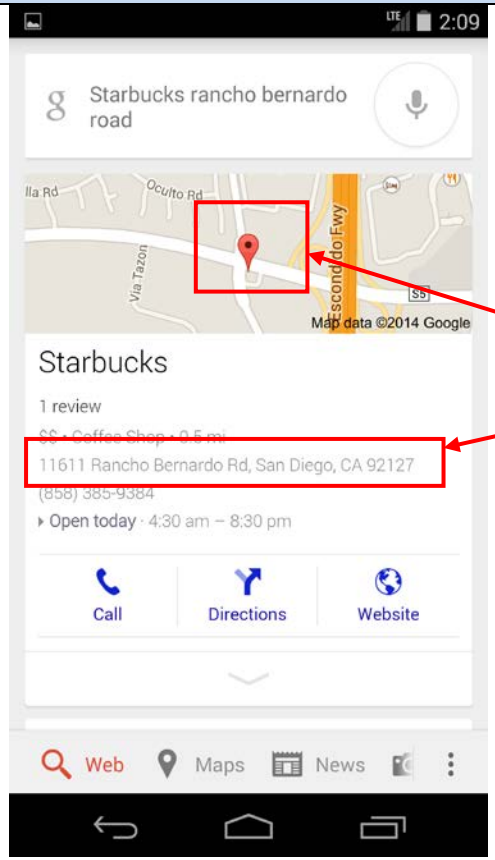
Claim Language	AUDI “SMART DISPLAY” ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	SEE VIDEO BELOW; DEMONSTRATOR TOUCHES “SEARCH” DIALOG BOX, AND THEN DISPLAYS ENTRY SOFT KEYS (WHICH INCLUDE A VOICE RECOGNITION FUNCTION):  **https://www.youtube.com/watch?v=2D32beCtCvs**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
based at least in part on the input, cause identification of a location associated with the organization or entity;	**AT VERY LEAST, THE SMART DISPLAY CAN ACCESS THE INTERNET (INCLUDING GOOGLE MAPS SERVERS) VIA ITS WI-FI INTERFACE, VIA: (I) THE Q7 WI-FI HOTSPOT AND LTE CELLULAR MODEM; AND (II) ANY EXTERNAL WI-FI AP/NETWORK (E.G., USER'S HOUSE):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **THE REMOTE GOOGLE SERVER(S) RECEIVE THE USER'S VOICE SEARCH DATA (DIGITIZED) AND PROCESS IT TO IDENTIFY ONE OR MORE MATCHING ENTITIES (AND LOCATIONS ASSOCIATED THEREWITH). FOLLOWING TEST CONDUCTED ON GOOGLE NEXUS 5 WITH KITKAT 4.4 O/S (GENERALLY COMPARABLE TO AUDI SMART DISPLAY, AND SAME O/S), USING "OK GOOGLE" FUNCTION:** **USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"**	**L, DOE**	

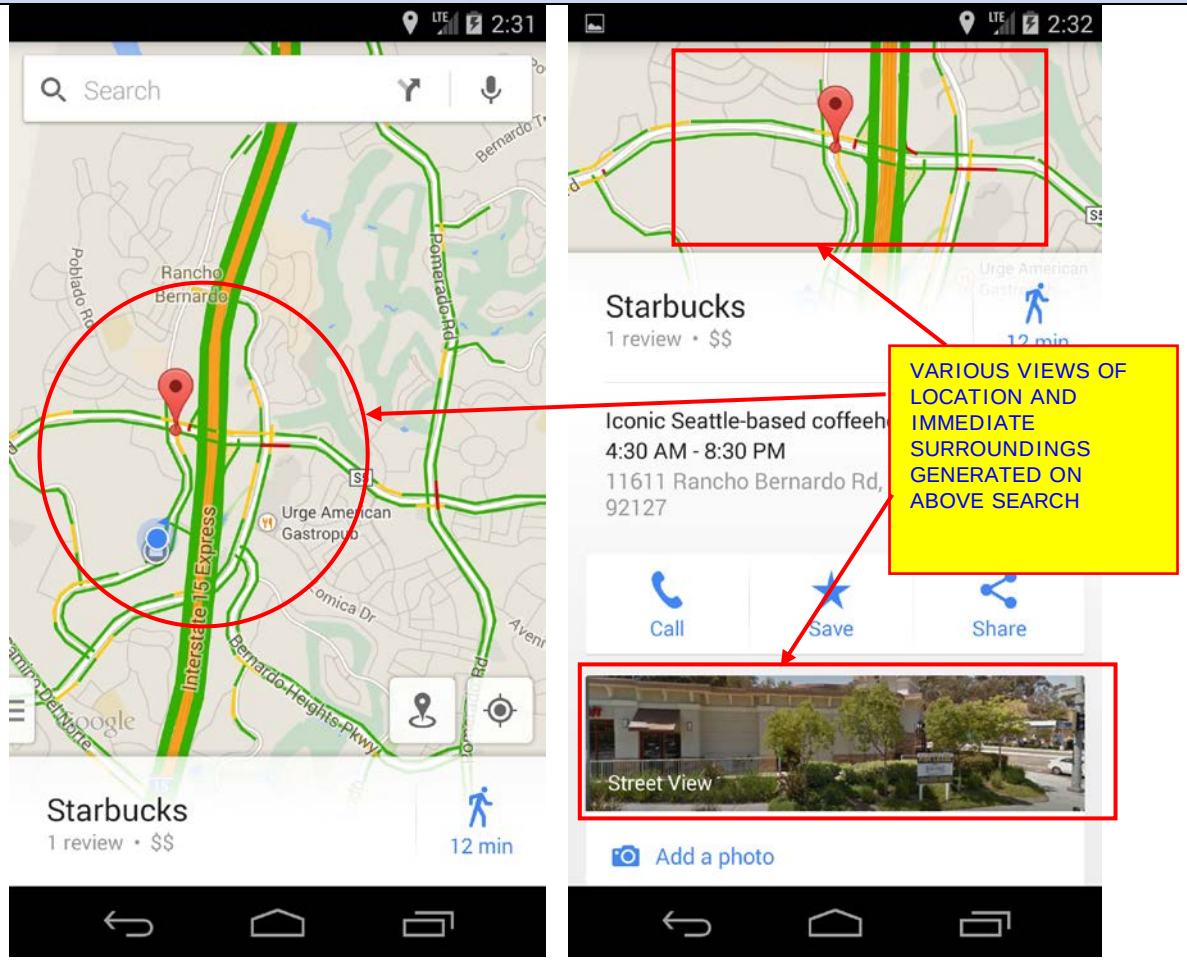
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **MOREOVER, THE AUDI APPLICATION LAYER U/I (I.E., AUDI-SPECIFIC USER INTERFACE SHOWN BELOW) CAN BE UTILIZED TO INVOKE VOICE SEARCH FOR AN ENTITY:**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **SEE VIDEO BELOW; DEMONSTRATOR CAN ACCESS VARIOUS CAR FUNCTIONS FROM SOFTWARE ON TABLET, VIA E.G., WI-FI TO CAR, INCLUDING MAPS/NAVIGATION:** **https://www.youtube.com/watch?v=9YNbPboYA6Y**		

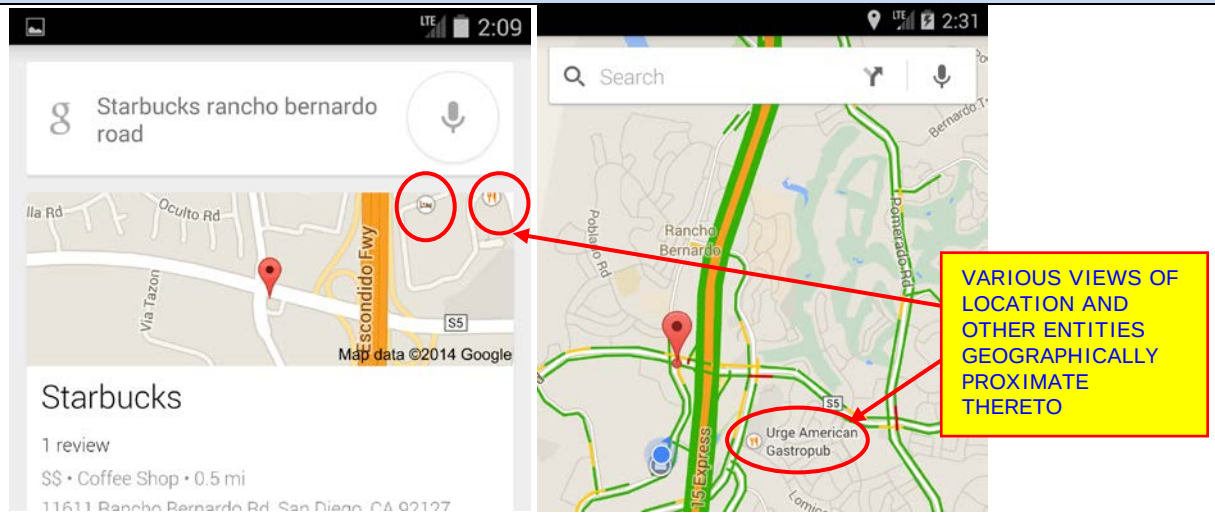
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **THIS FUNCTION ALSO PRESUMABLY INCLUDES ABILITY FOR TABLET USER TO SEARCH (USING E.G., DIALOG BOX SHOWN ABOVE) BOTH INTERNET (E.G., GOOGLE) AND LOCAL (E.G., HDD/SD CARD NAVIGATION DATA STORED ON THE VEHICLE).**		

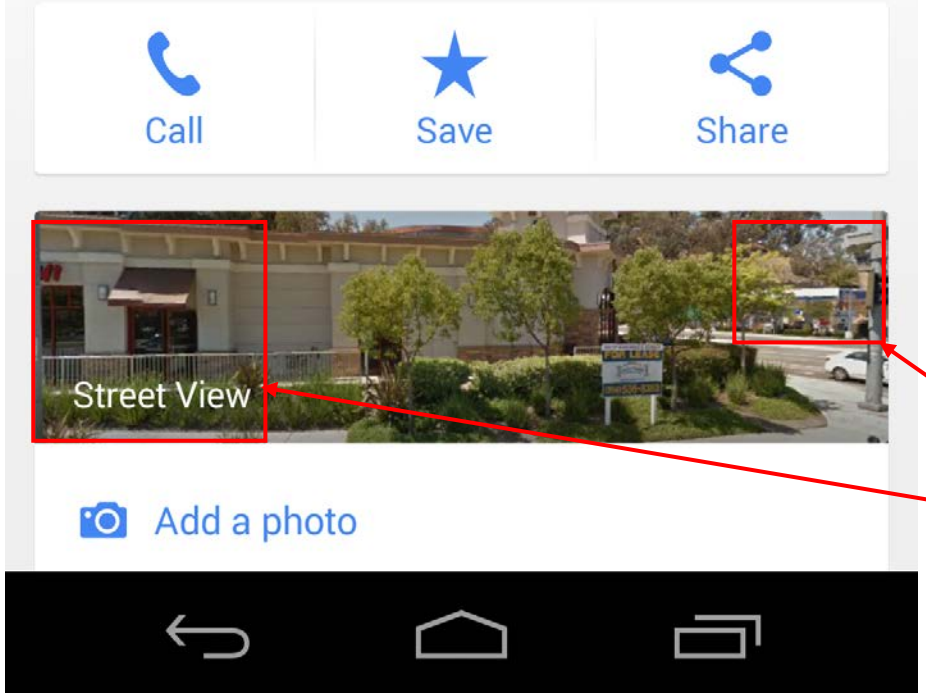
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
and provide a graphical or visual representation of the location on the touch screen input and display device in order to aid a user in finding the organization or entity, the graphical or visual representation of the location comprising a map graphic showing the location of the organization or entity relative to other organizations or entities proximate thereto;	 EXEMPLARY NEXUS 5 WITH KITKAT 4.4 SHOWS LOCATION IN VARIOUS FASHIONS, SUCH AS (1) GRAPHICAL ICON ON MAP, (2) TEXTUAL REPRESENTATION, (3) SATELLITE-BASED IMAGE, AND (4) STREET VIEW **IN ANDROID O/S CONTEXT, INDIGENOUS GOOGLE MAPS FUNCTION DISPLAYS LOCATION AND SURROUNDINGS IN VARIOUS FORMATS, AS SHOWN ABOVE AND BELOW:**	**L, DOE**	

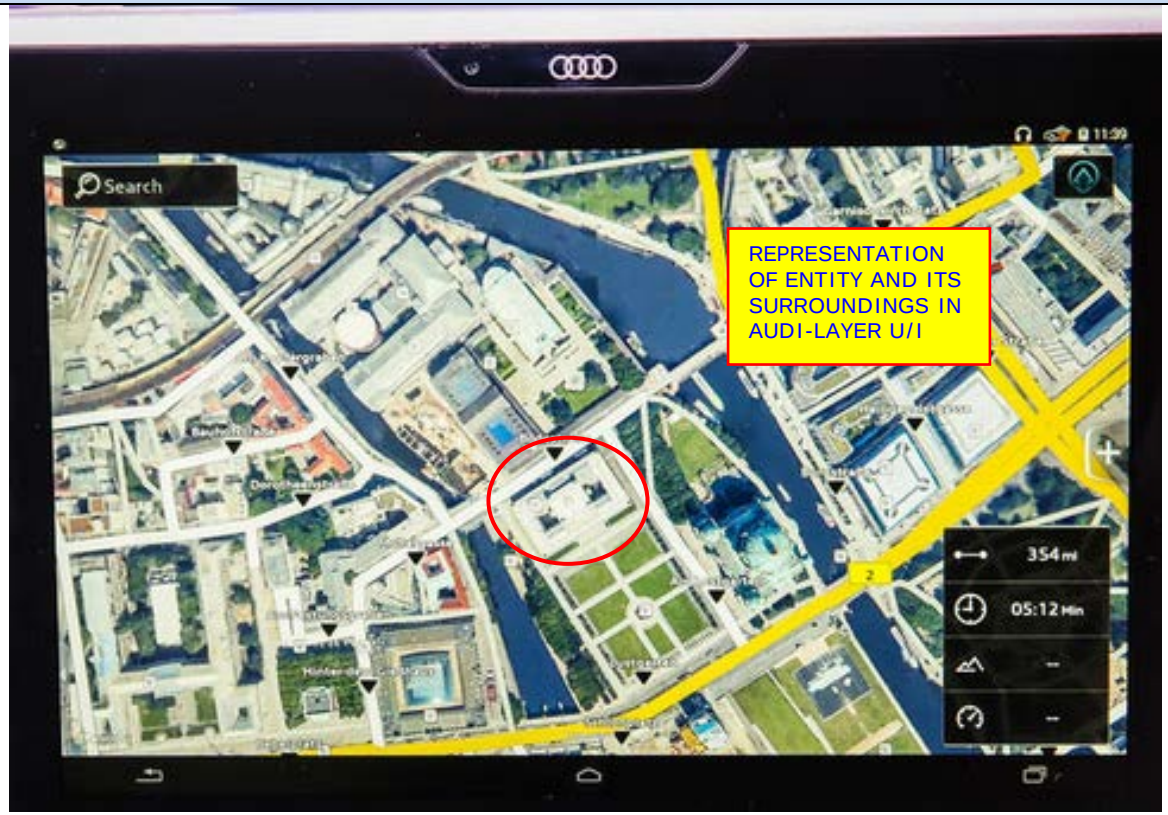
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

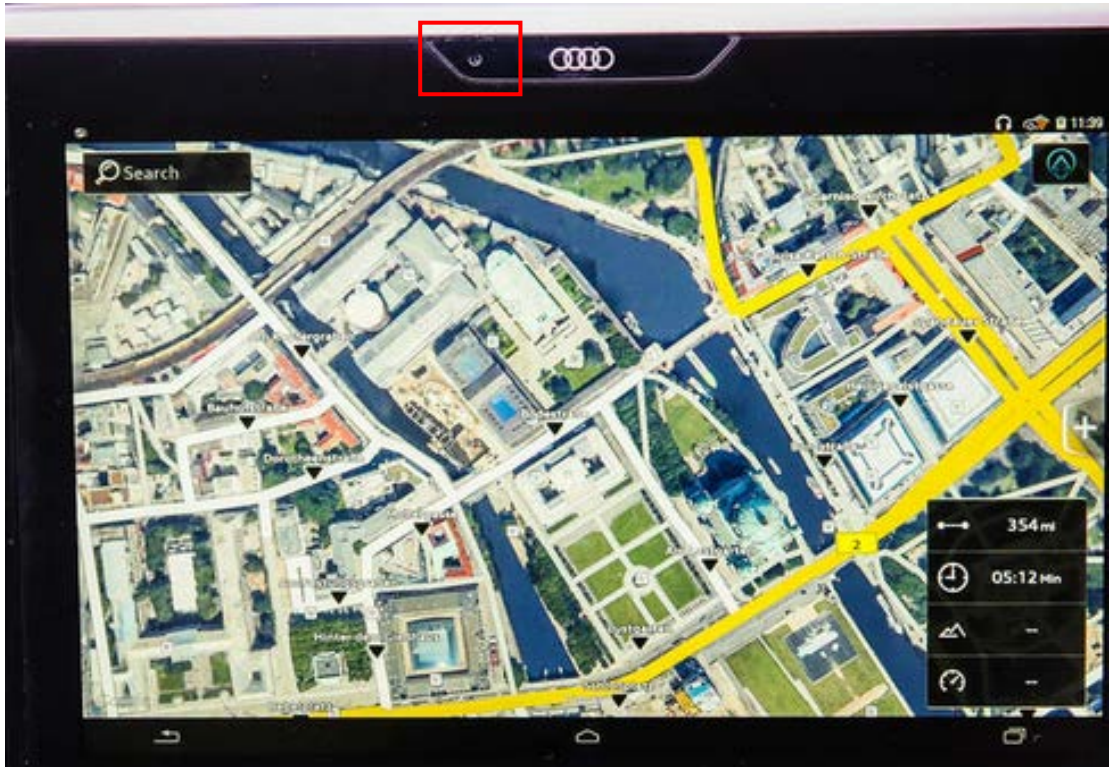
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

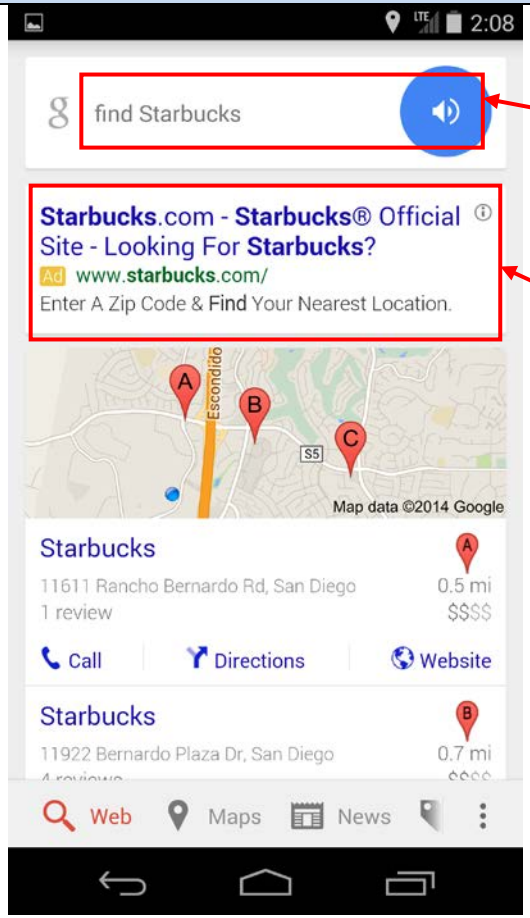
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,290,778
"Computerized Information Presentation Apparatus"

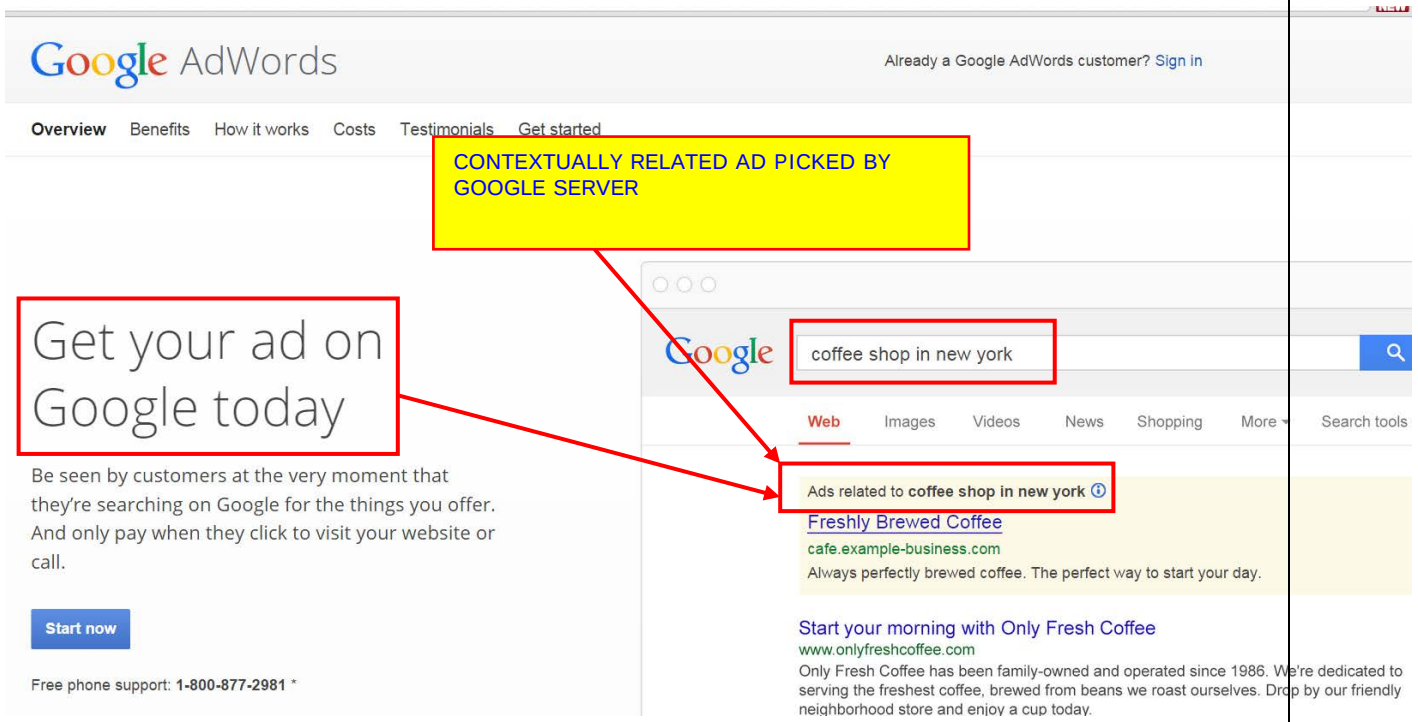
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **SIMILARLY, VARIOUS TYPES OF VIEWS ARE AVAILABLE IN AUDI APPLICATION-LAYER U/I; SEE E.G., SATELLITE IMAGE VIEW BELOW (CLEARLY SHOWING ENTITIES AND THEIR SURROUNDINGS, ANY OF WHICH CAN BE THE TARGET OF A SEARCH):**		

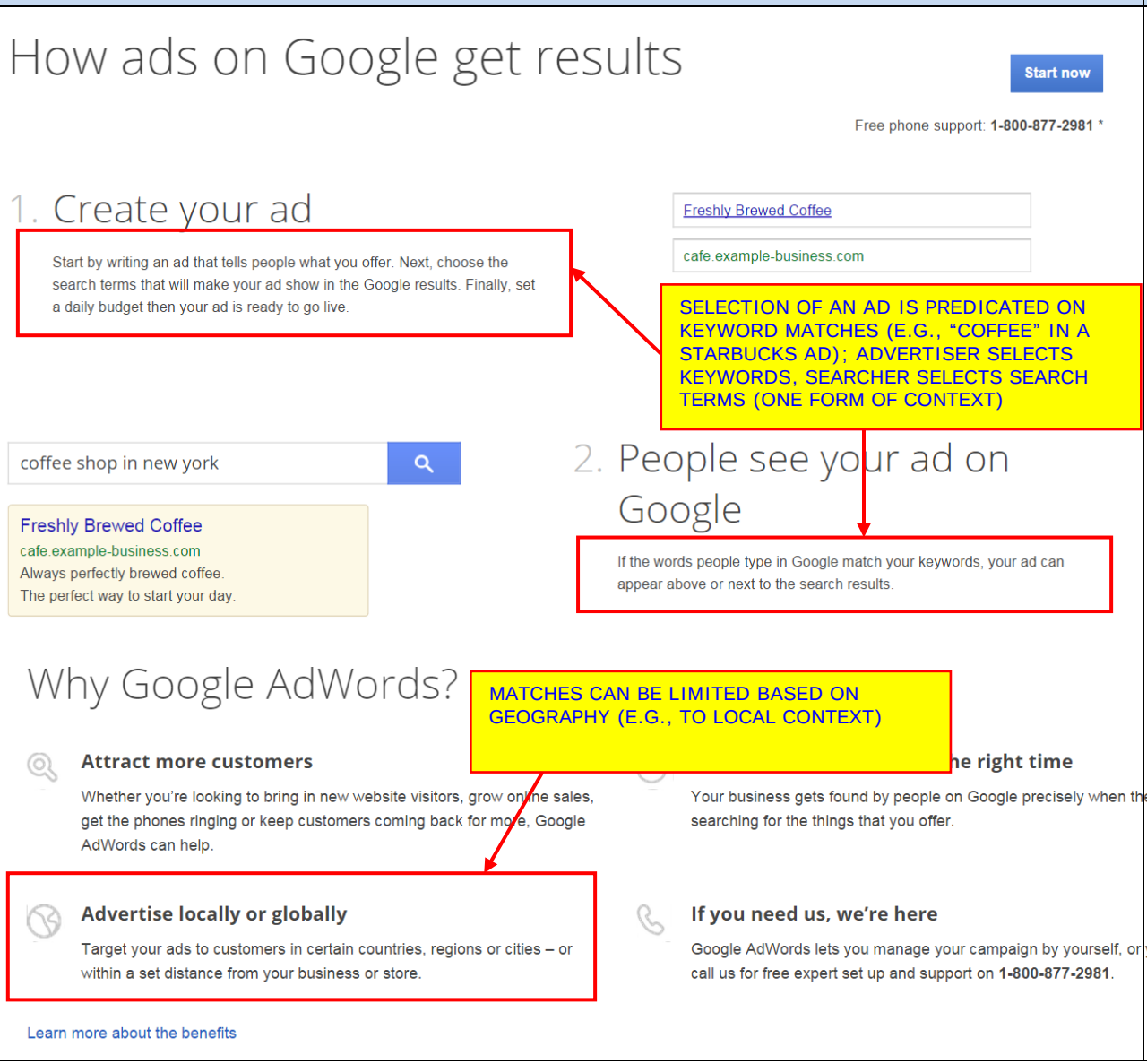
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html		
wherein: the digitized speech is received via a microphone associated with the speech	"The Smart Display features Bluetooth, NFC (near field communication) and an inbuilt microphone and speakers, so that a variety of apps and appliances can be used with it. For example, the sound from it can be linked to the car's audio sound system or Bluetooth headsets for a quieter alternative. Likewise, the integrated camera and microphone can be used for Skype or similar video calling software available in the	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
recognition apparatus, the microphone being mounted within the computerized apparatus proximate the touch-screen input and display device so that the user can speak into the microphone while viewing the touch-screen input and display device;	Android marketplace." http://www.autovolt-magazine.com/audi-smart-display-tablet-shows-future-of-vehicle-connectivity/ **USER CAN CLEARLY SPEAK FOR E.G., VOICE RECOGNITION OR SKYPE, WHILE VIEWING THE DISPLAY (NOTE THAT SKYPE REQUIRES USER TO BE ABLE TO ACCESS BOTH CAMERA AND MICROPHONE FUNCTIONALITIES SIMULTANEOUSLY, AND CAMERA IS MOUNTED ON FRONT FACE JUST ABOVE DISPLAY):** 		

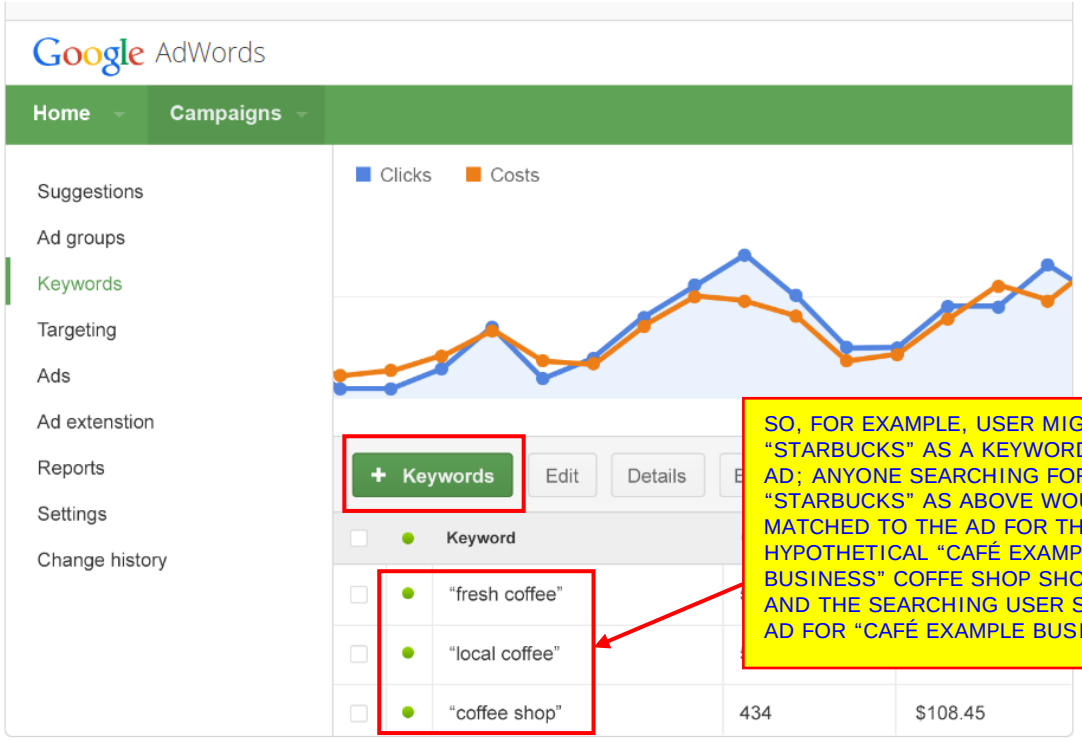
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
the at least one program is further configured to cause display of advertising selected by one or more remote servers accessed via a network in data communication with the computerized apparatus via the wireless interface, the advertising being selected based at least in part on an attribute or aspect of the organization or entity;	 **SO, IN THIS EXAMPLE, WE ENTERED THE VOICE SEARCH TERM "FIND STARBUCKS" ON THE NEXUS 5 WITH KITKAT 4.4, AND SEVERAL NEARBY STARBUCKS LOCATIONS WERE RETURNED, AS WELL AS AN ADVERTISEMENT FOR STARBUCKS (WEBSITE) GENERALLY. STARBUCKS WEBSITE IS CONTEXTUALLY RELATED TO "FIND STARBUCKS" (ALBEIT NOT WHAT WE WERE EXPLICITLY SEARCHING FOR).**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	ADVERTISING SUCH AS THE EXAMPLE SHOWN ABOVE IS GENERATED VIA E.G., GOOGLE "ADWORDS" SERVICE: 		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect[2]



Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]



Easy-to-read reports and graphs show how your ads are doing in Google AdWords

http://www.google.com/adwords/start/?sourceid=awo&subid=us-en-ha-aw-bkmp0~48674311565&gclid=CMeViPbsz8ACFZYWjgodkwcAdQ

PER GOOGLE ITSELF, LOCATION IS ALSO ONE TYPE OF "CONTEXT":

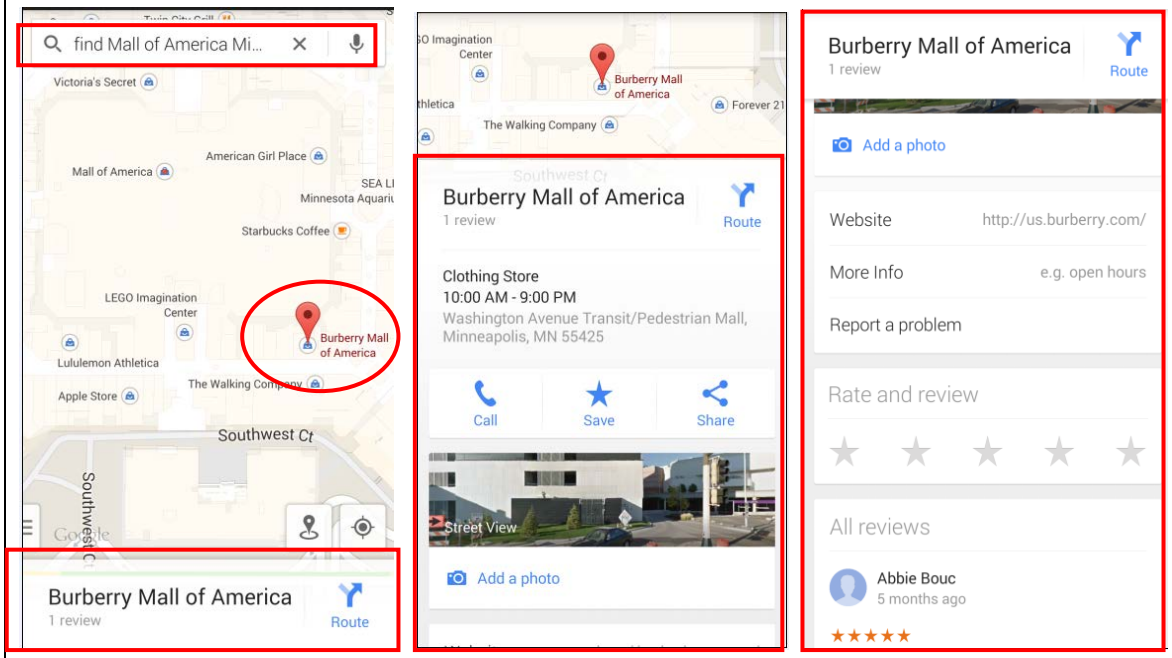
"Location is one piece of context, knowing where you are."

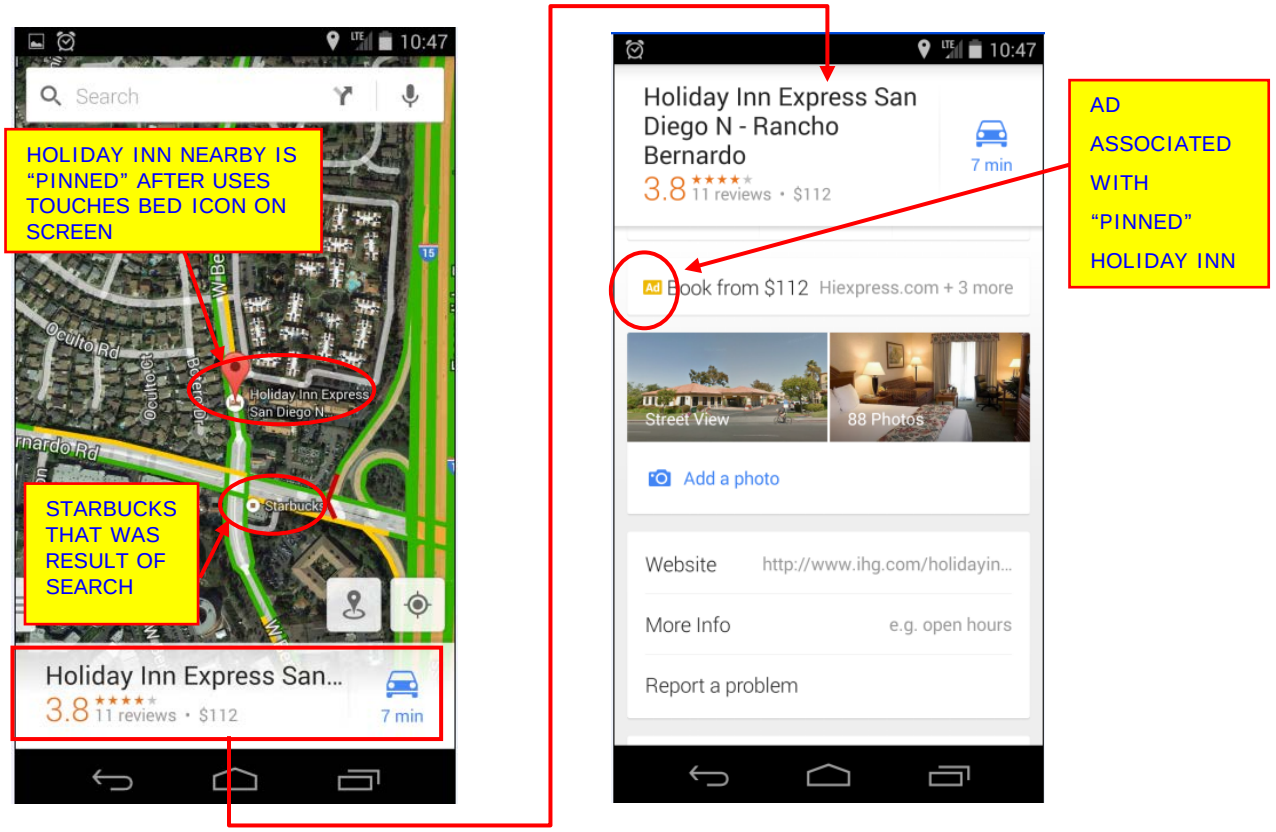
http://www.cnet.com/news/google-maps-becoming-more-context-aware-and-emotional/

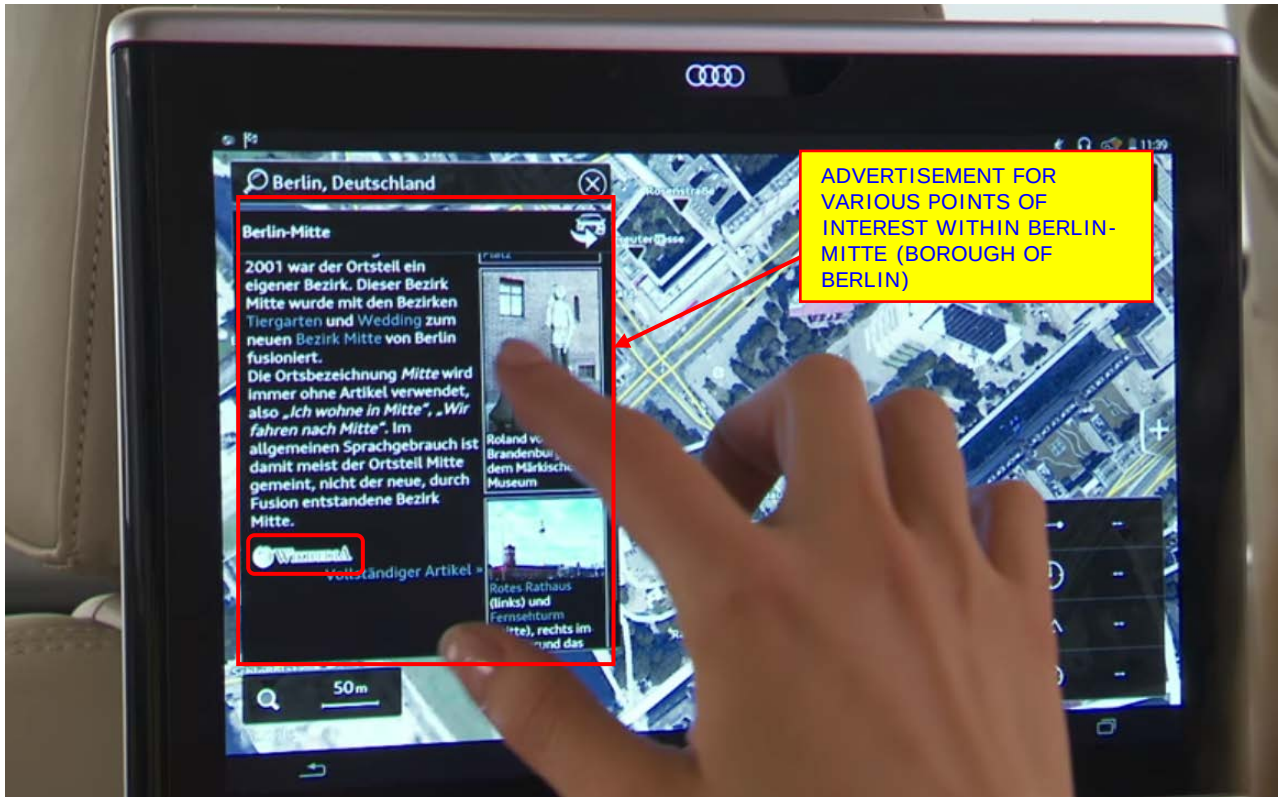
CONTEXT = LOCAL SEARCH AREA, WHICH NECESSARILY INCLUDES THE DESIRED INFORMATION (E.G., LOCATION OF NEARBY STARBUCKS IN SAN DIEGO). THE ADVERTISEMENT

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect[2]
	MAY BE SELECTED BASED ON THIS GEOGRAPHIC CONTEXT AS WELL, OR BY ITSELF. **NOTE THAT GOOGLE ALSO PROVIDES A KEYWORD PLANNING TOOL, WHICH GUIDES USERS IN SELECTING CONTEXTUAL KEYWORDS:**  **Search for new keyword or ad group ideas** Keyword Planner is like a workshop for building new Search Network campaigns or expanding existing ones. You can search for keyword and ad group ideas, get historical statistics, see how a list of keywords might perform, and even create a new keyword list by multiplying several lists of keywords together. A free AdWords tool, Keyword Planner can also help you choose competitive bids and budgets to use with your campaigns. Whether you're new to online advertising or an experienced pro, you can use Keyword Planner to lay the groundwork for a successful campaign. Learn more. https://adwords.google.com/KeywordPlanner **GOOGLE ADS CAN APPEAR ACROSS MANY GOOGLE PLATFORMS:** "If you use keywords to target your ads, you select a set of keywords related to the product or service you'd like to advertise. Then, when people search using the words or phrases you picked, your text ads can		

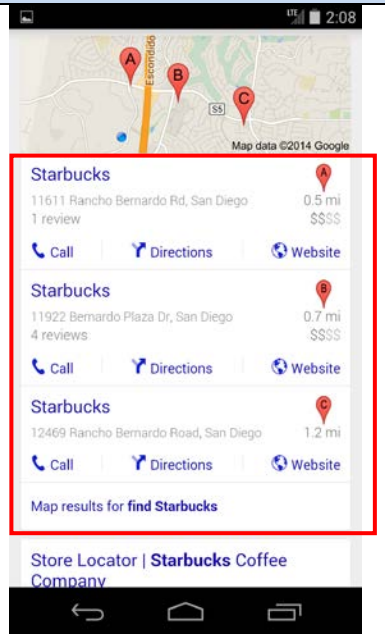
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	appear alongside or above search results. On Google search sites: Your ads can appear on Google Search, Shopping, Maps, Images, and Groups when someone searches on your keywords. Here's an example, for the keyword "cupcakes":" https://support.google.com/adwords/answer/1704373?hl=en **NOTE THAT ALTERNATIVELY, AND ASIDE FROM "ADWORDS" SERVICE ABOVE, GOOGLE MAPS CAN BE CONSIDERED TO PROVIDE ADVERTISING IN RENDERING ITS MAPS SEARCH RESULTS ON THE SCREEN WITH ICONS/TEXT RELATING TO LOCAL COMMERCIAL ENTITIES:**  *"ad·ver·tise·ment* *noun* *a notice or announcement in a public medium promoting a product, service, or event or publicizing a job*		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	vacancy. *"advertisements for alcoholic drinks" "* https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ADVERTISEMENT+DEFINITION  **IN THE EXAMPLE ABOVE (BASED ON VOICE SEARCH FOR "MALL OF AMERICA"), THE USER IS SHOWN MULTIPLE COMMERCIAL ENTITIES PROXIMATE TO THE DESIRED ENTITY. WHEN USER TOUCHES SHOPPING BAG ICON FOR, SAY BURBERRY STORE, THE STORE IS "PINNED", AND AN ADVERTISEMENT IS DISPLAYED AT BOTTOM OF SCREEN, SHOWING INFORMATION ABOVE, INCLUDING HOURS OF OPERATION, INDUSTRY TYPE (CLOTHING STORE), ADDRESS, STREET VIEW PHOTO, WEBSITE URL, AND REVIEWS BY VARIOUS INDIVIDUALS.**		

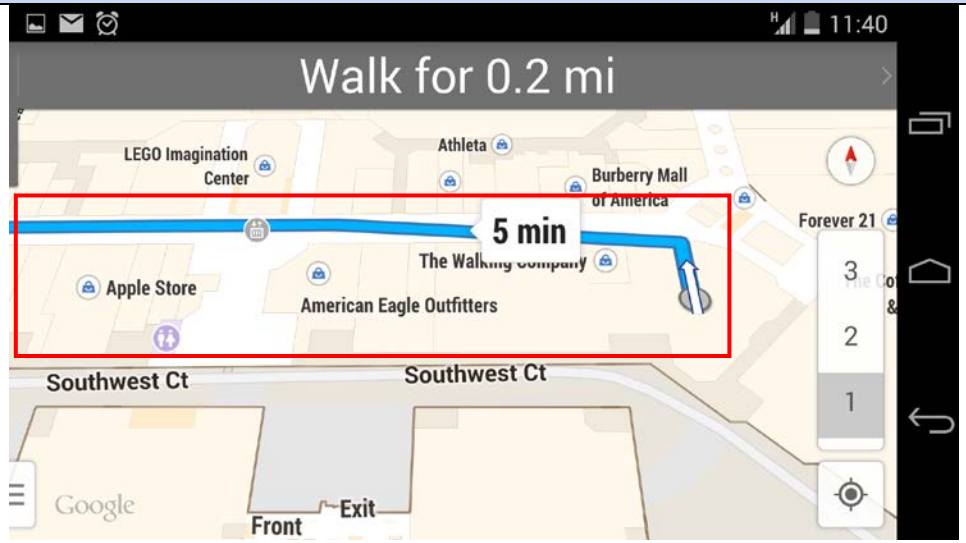
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	AS NOTED ABOVE, THIS BURBERRY WAS SELECTED FOR DISPLAY BASED AT LEAST ON (I) THE BURBERRY STORE SUBMITTING ITSELF/DETAILS TO GOOGLE FOR DISPLAY, AND (II) IT'S GEOGRAPHIC PROXIMITY TO THE SEARCHED FOR ENTITY. **SEE ALSO ANOTHER EXAMPLE BELOW…A HOLIDAY INN HOTEL THAT WAS MARKED AS A NEARBY LOCATION ("BED" ICON) TO THE STARBUCKS OF THE SEARCH ABOVE HAS AN ADVERTISEMENT ASSOCIATED WITH IT AS WELL – I.E., WHEN USER TOUCHES THE "BED" ICON, THE MAP BELOW IS SHOWN, AND WHEN USER SWIPES DOWN, THE AD IS REVEALED:** 		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	HENCE, "ATTRIBUTE OR ASPECT" CAN INCLUDE E.G.: (I) LOCATION; (II) GENERAL INDUSTRY OR GOODS/SERVICES PROVIDED (E.G., VIA SELECTED "ADWORDS" OR OTHER SUBMITTED INFORMATION, AND (III) USER'S PAST SEARCH HISTORY. **IN AUDI APPLICATION-LAYER U/I ENVIRONEMNT; ADVERTISEMENTS THAT ARE CONTEXTUALLY RELATED (E.G., "ATTRIBUTE OR ASPECT" = LOCATION AND/OR NAME SEARCHED) MAY ALSO BE SHOWN:** 		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	https://www.youtube.com/watch?v=2Yg6cPnFpII		
the identification of the location comprises accessing a remote server via a network in data communication with the computerized apparatus via the wireless interface;	**SEE DISCUSSION ABOVE; UNDER EITHER ANDROID O/S OR AUDI-LAYER ENVIRONMENTS, EXEMPLARY GOOGLE MAPS/EARTH SERVER DETERMINES LOCATION FOR USER AND TRANSMITS LOCATION INFORMATION BACK TO VEHICLE OR SMART DISPLAY VIA WI-FI INTERFACE.**	**L, DOE**	
the at least one computer program is further configured to receive and utilize inputs in an iterative or hierarchical fashion to progress through a menu structure comprising multiple possible matching organizations or entities;	**GOOGLE O/S - SEE STARBUCKS EXAMPLE ABOVE (NEXUS 5 WITH KITKAT 4.4), WHEREIN USER ITERATES SPEECH INPUTS WITH PHONE TO CONVERGE ON DESIRED LOCATION:** **USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"** **USER CAN ALSO PROVIDE ITERATIVE INPUTS VIA TOUCH SCREEN (E.G., SELECTING OPTIONS DISPLAYED BELOW):**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **LIKEWISE, IN AUDI U/I, USER CAN SELECT INPUTS DESIRED AT LEAST VIA TOUCH SCREEN (VOICE INTERACTIVITY AT AUDI LAYER TO BE VERIFIED DURING DISCOVERY):**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=2D32beCtCvs		
and wherein the computerized apparatus: is further configured to provide a user a graphical representation of directions from their current location to a business or organization,	**SEE BELOW EXAMPLE OF GRAPHICAL REPRESENTATION OF DIRECTIONS FOR GOOGLE ANDROID/MAPS EXAMPLE (MALL OF AMERICA) ON NEXUS 5/KITKAT 4.4:**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **NOTE THAT GRAPHICAL REPRESENTATION MAY ALSI INCLUDE A LISTING OF STEPS/ACTIONS FOR USER TO TAKE THAT ARE DISPLAYED ON THE SCREEN (E.G., "*GO 1.0 MILES, THEN TURN LEFT…*")** **IN AUDI LAYER U/I, DIRECTIONS ALSO GRAPHICALLY ILLUSTRATED IN AT LEAST A DIFFERENTIATED COLOR LINE:**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 http://o.aolcdn.com/hss/storage/adam/f04a3f39fa72949d7a26183c4d9bbed5/audi-android-tablet-lede-2.jpg		
the graphical representation of directions comprising the map graphic displayed on the touch-screen input and display device having at least one arrow showing the path for the user to follow;	**SEE DISCUSSION ABOVE; BOTH GOOGLE/ANDROID LAYER AND AUDI LAYER HAVE ARROW SHOWING PATH TO FOLLOW, WHICH IS RENDERED ON A MAP GRAPHIC (GOOGLE EARTH/SATELLITE IMAGE, RENDERED MAP IMAGE, ETC.)**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
and comprises an interface compliant with an IEEE 802.11 standard.	**BOTH SMART DISPLAY TABLET AND Q7 HAVE WI-FI (802.11 COMPLIANT) INTERFACES:** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort		
28. Computerized apparatus comprising:	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	**D, I**
a wireless interface;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
data processing apparatus;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
a touch-screen input and display device;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
a speech recognition apparatus in data communication with the data processing apparatus; and	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
a storage apparatus in data communication with the data processing apparatus, said storage apparatus comprising at least one computer	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
program, said at least one program being configured to:			
receive a digitized speech input via the speech recognition apparatus, the input relating to an organization or entity to which a user wishes to obtain directions;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
receive form {sic} a remote network entity a location associated with the organization or entity, the location having been determined based at least in part on the input;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE; BOTH AUDI APPLICATION-LAYER U/I AND UNDERLYING ANDROID KITKAT 4.4 O/S FUNCTIONS HAVE ACCESS TO REMOTE NETWORK SERVERS (E.G., GOOGLE MAPS OR THE LIKE) TO OBTAIN LOCATION DATA FOR ONE OR MORE SEARCHED ENTITIES OR ORGANIZATIONS, BASED ON THE USER'S VOICE INPUT.**	**L, DOE**	
display said directions from the user's current location to the organization or entity on the touch screen input and display device; and	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
provide a graphical or visual representation of the location of the organization or entity on the touch screen input and display device in order to aid a user in finding the organization or entity, the graphical or visual representation of	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
the location also comprising a graphical or visual representation of the surroundings of the organization or entity.			
30. Computerized apparatus comprising:	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	**D, I**
a wireless interface;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
means for data processing;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
a touch-screen input and display means;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
a speech recognition apparatus in data communication with the means for data processing; and	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
a storage apparatus in data communication with the means for data processing, said storage apparatus comprising at least one computer program, said at least one program being configured to:	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
receive a digitized speech input via the speech recognition	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
apparatus, the input relating to an organization or entity to which a user wishes to obtain directions;			
receive form {sic} a remote network entity a location associated with the organization or entity, the location having been determined based at least in part on the input;	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE; BOTH AUDI APPLICATION-LAYER U/I AND UNDERLYING ANDROID KITKAT 4.4 O/S FUNCTIONS HAVE ACCESS TO REMOTE NETWORK SERVERS (E.G., GOOGLE MAPS OR THE LIKE) TO OBTAIN LOCATION DATA FOR ONE OR MORE SEARCHED ENTITIES OR ORGANIZATIONS, BASED ON THE USER'S VOICE INPUT.**	**L, DOE**	
display said directions from the user's current location to the organization or entity on the touch screen input and display means; and	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	
provide a graphical or visual representation of the location on the touch screen input and display means in order to aid a user in finding the organization or entity, the graphical or visual representation of the location also comprising a graphical or visual representation of the surroundings of the organization or entity.	**SEE DISCUSSION OF CLAIMS 1 AND 27 ABOVE.**	**L, DOE**	

EXHIBIT H

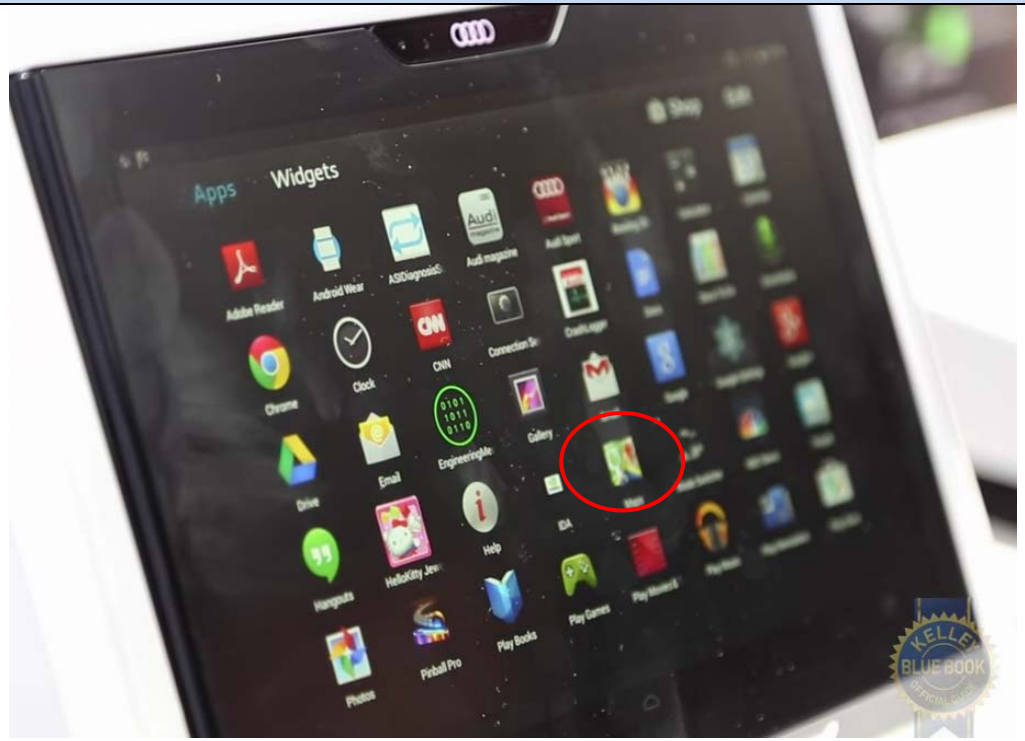
Audi/Volkswagen Products and Services vs. U.S. Patent No. 8,706,504
"Computerized Information And Display Apparatus"

U.S. Patent No. 8,706,504	Filed: 1-9-13 Issued: 4-22-14 Priority date: 6-10-99 Claims total: 48 (4 independent, 44 dependent)

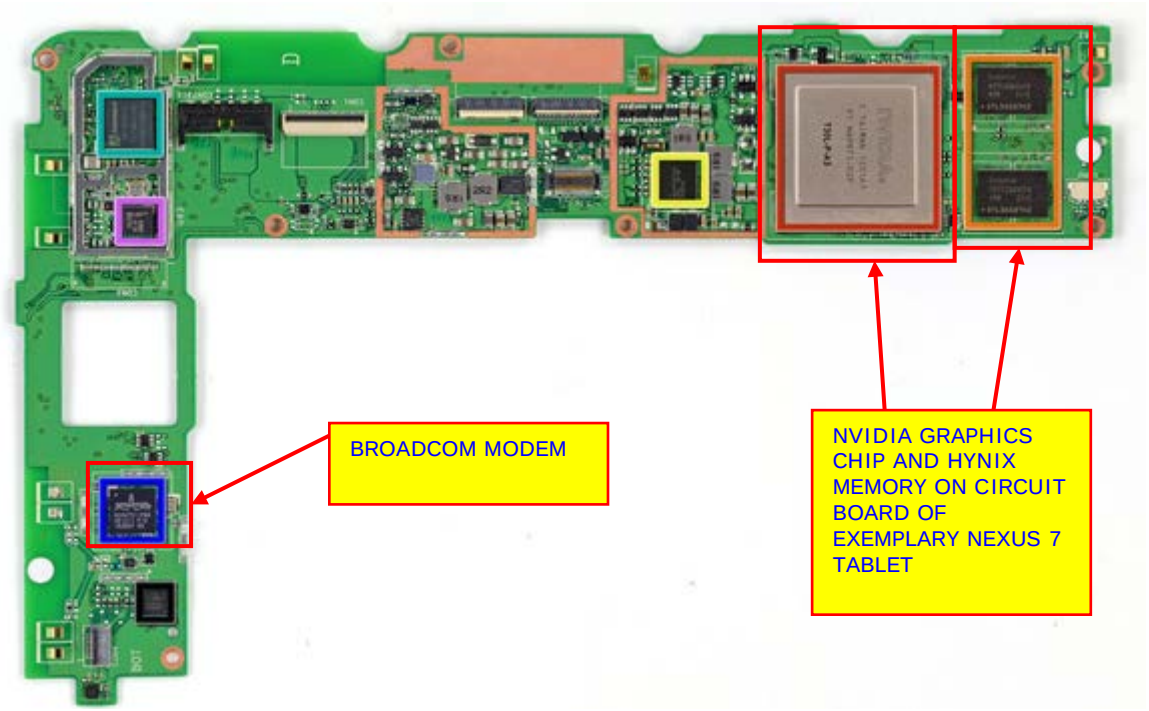
Provided pursuant to Patent Local Rule 3.1 and June 10, 2015 Order;
Plaintiff reserves the right to supplement.

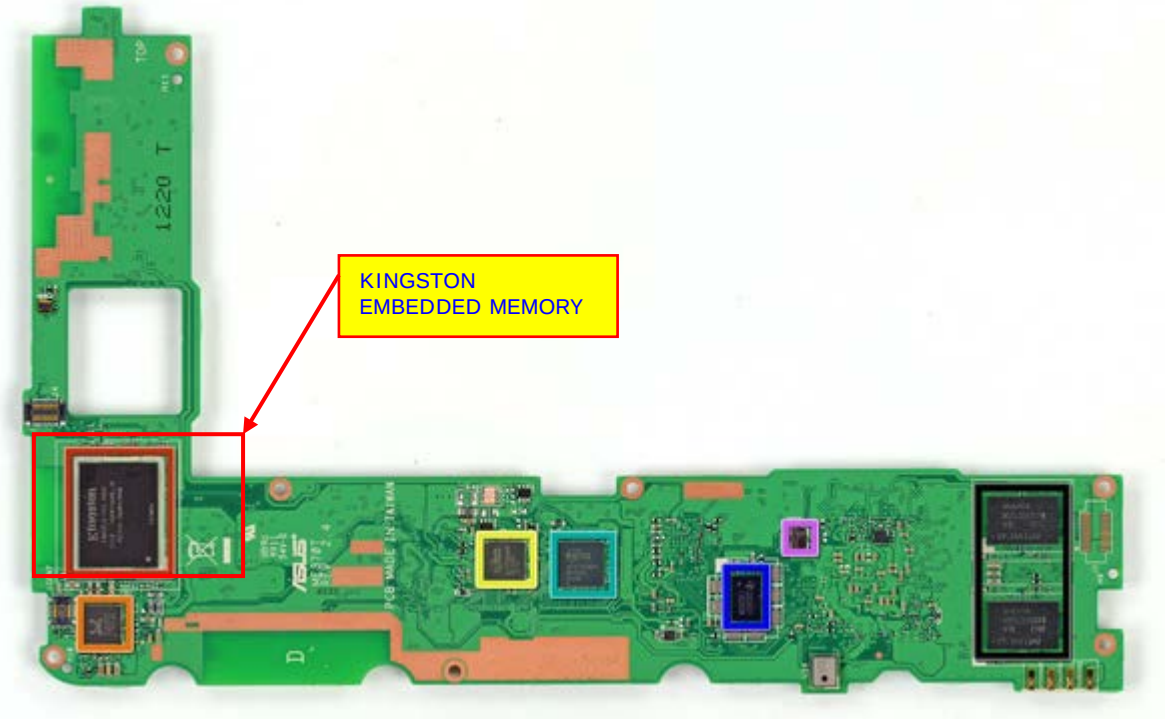
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	AUDI SMART DISPLAY ANDROID-BASED TABLET		
	THIS ANALYSIS IS BASED ON THE SMART DISPLAY TABLET (OFFERED WITH E.G., THE 2016 AUDI Q7) 		

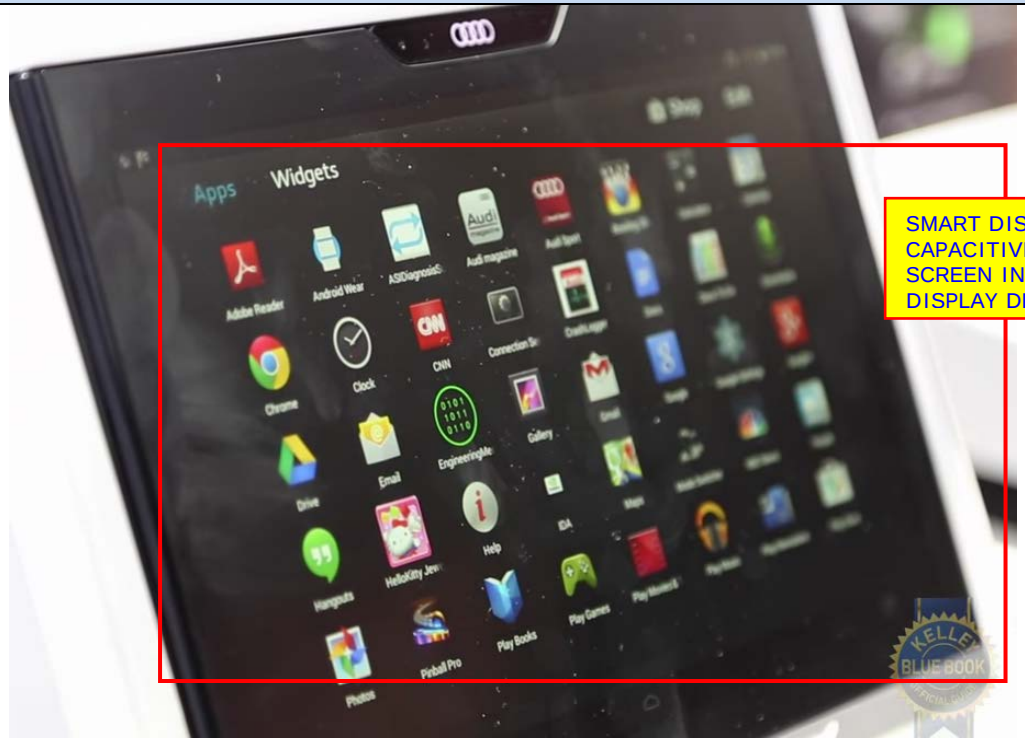
[1] West View denotes allegations of literal infringement as "L" and infringement under the doctrine of equivalents as "DOE," as applicable.
[2] West View denotes allegations of direct infringement as "D" and indirect or induced infringement as "I," as applicable.

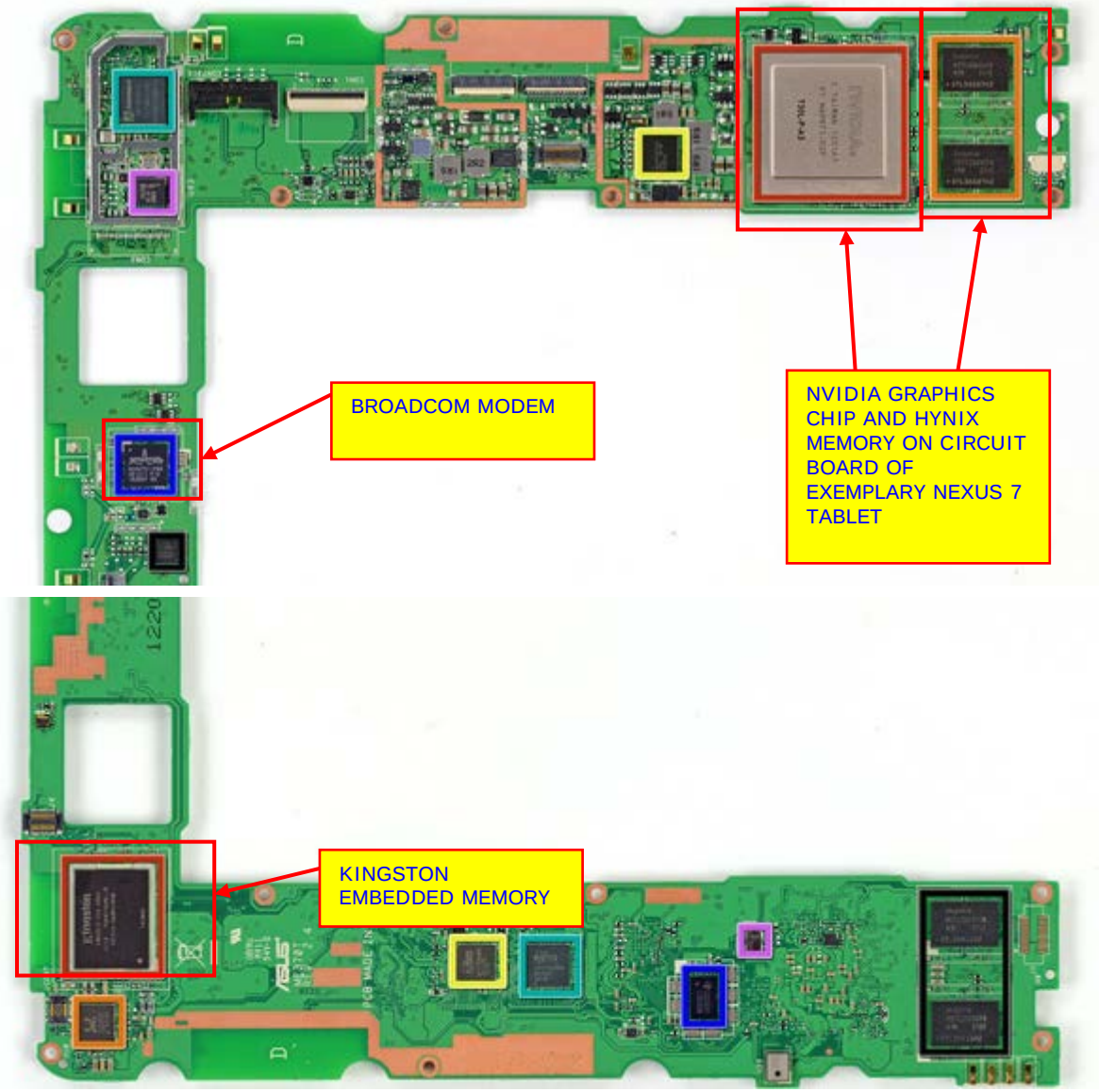
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
1. Computerized information and display apparatus, comprising:	 https://www.youtube.com/watch?v=QcfIgdDl-lE "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html	**L, DOE**	**D, I**
a network interface;	"A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort	**L, DOE**	

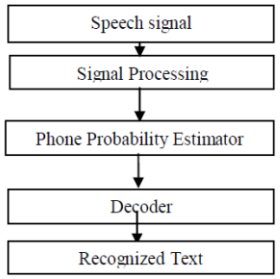
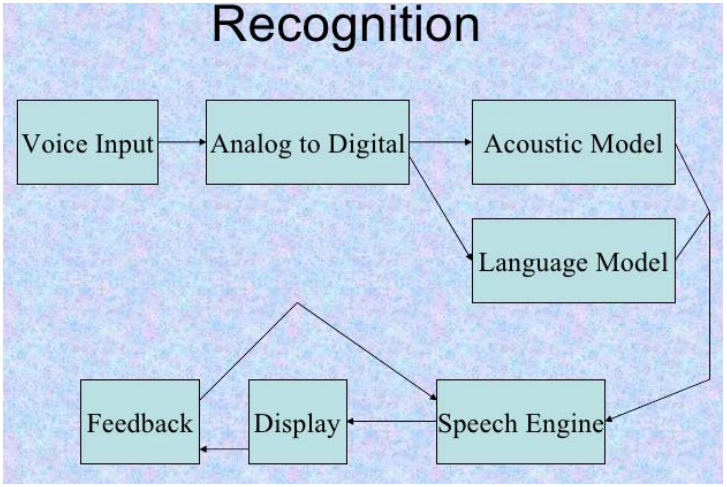
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
processing apparatus in data communication with the network interface;	**WHILE THE INTERNALS OF THE AUDI TABLET ARE PRESENTLY UNDISCLOSED, IT IS HIGHLY SIMILAR IN FUNCTION, O/S, ETC. TO E.G., THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4.**  NEXUS 7 (TOP) VS. AUDI SMART DISPLAY (BOTTOM)  **THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ETC.**	**L, DOE**	

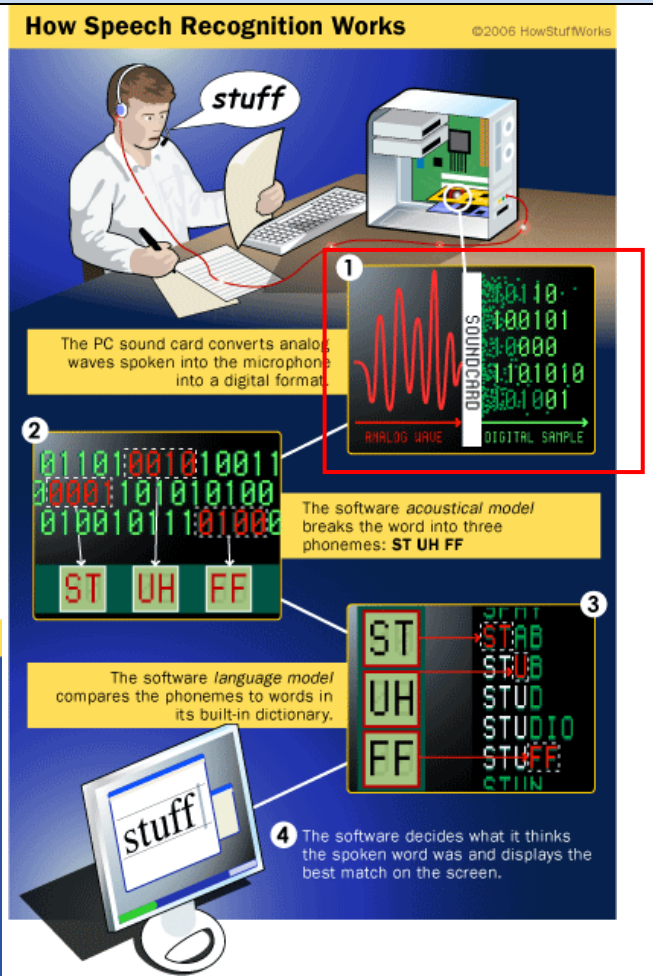
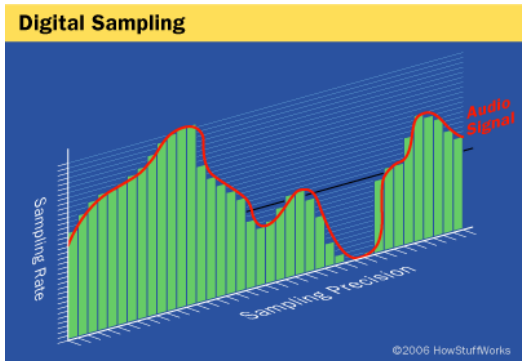
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.  		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
a display device; and		L, DOE	
a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed:	**THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ETC.** **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**	L, DOE	

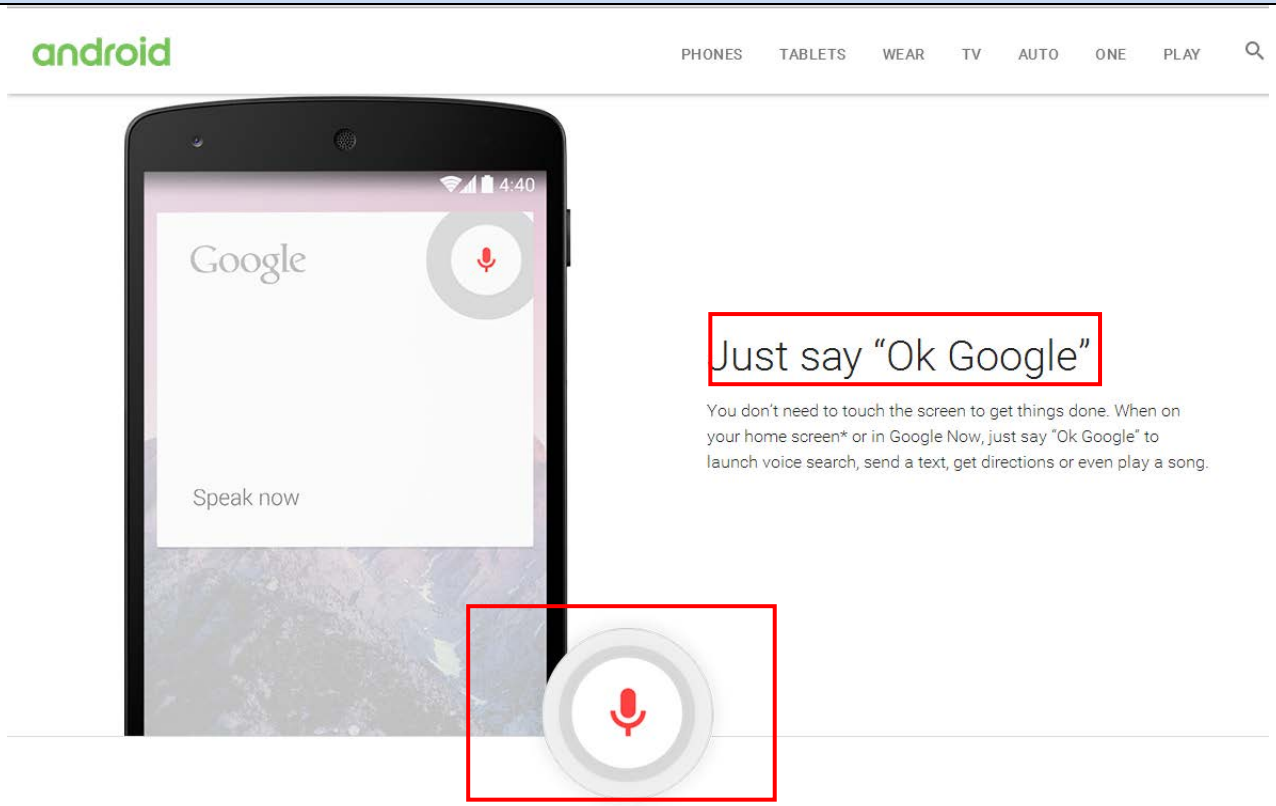
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		

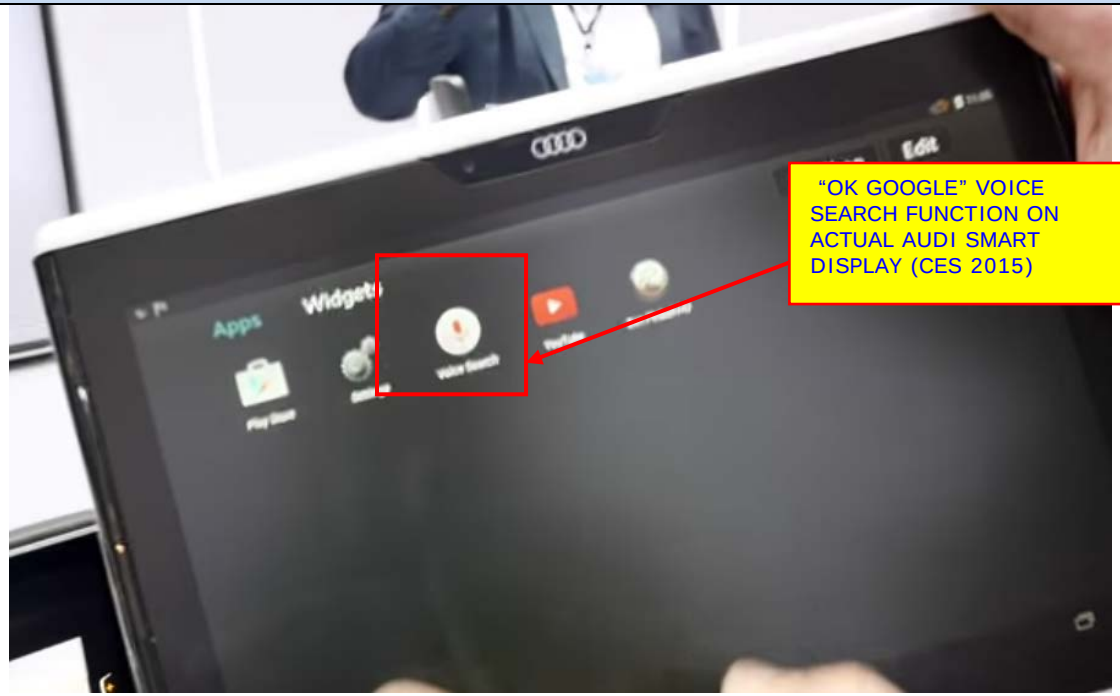
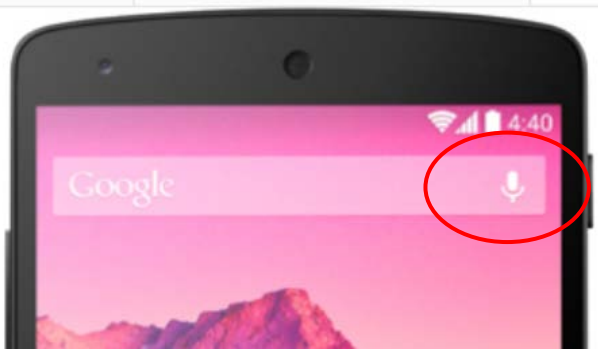
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
obtain digitized speech generated based on speech received from a user, the digitized speech relating to a query for desired information which the user wishes to find; and	**ALL SPEECH RECOGNITION SYSTEMS INHERENTLY DIGITIZE THE SPEAKER'S ANALOG VOICE:** **2. SPEECH RECOGNITION** Speech recognition is the task of converting any speech signal into its orthographic representation. **2.1 Phases of Speech Recognition** **2.1.1 Speech signal.** The word spoken is received as sounds and digitized using microphone. The digitized signal is delivered to signal processing unit at a sampling rate not above 8 KHz because sampling rate higher than 8 KHz have less recognition accuracy.  **Figure 1: Phases of Speech Recognition** **2.1.2 Signal processing.** This phase performs feature extraction. Converting linear amplitude signal into spectral like representation [6]. It reduces the data rate of the raw audio input, thereby decreasing the computational load of the fore coming phases.  http://www.ijcta.com/documents/volumes/vol3issue4/ijcta2012030418.pdf; http://www.slideshare.net/charujoshi/speech-recognition	**L, DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	  **"**An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality." http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	GOOGLE NEXUS 5 INCLUDES A SPEECH DIGITIZATION APPARATUS (I.E., GOOGLE VOICE ALGORITHMS RUNNING ON THE PLATFORM) TO DIGITIZE THE USERS ANALOG VOICE INTO A FORM USEFUL FOR RECOGNITION PURPOSES (E.G., AN FFT–DERIVED SPECTROGRAM): "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " http://www.wired.com/2013/02/android-neural-network/; http://arxiv.org/ftp/arxiv/papers/1003/1003.4083.pdf **WHILE FOR DIFFERENT O/S, FOLLOWING IS ILLUSTRATIVE:** "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like: … After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string. GET /complete/search?client=iphoneapp&hjson=t&types=t &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1 User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1 Accept: */* Accept-Language: en-us Accept-Encoding: gzip, deflate Pragma: no-cache Connection: keep-alive Connection: keep-alive Host: clients1.google.com		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	The response is an array of search terms in JSON format, for use in search autocompletion. ["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.** **AS ONE PARTICULAR EXAMPLE OF THE SMART DISPLAY ANDROID FUNCTIONS, THE "GOOGLE MAPS" FUNCTIONS OF "GOOGLE NOW" FUNCTIONALITY PRESENT ON THE ANDROID KITKAT 4.4 O/S IS EVALUATED, ALTHOUGH VARIOUS OTHER TYPES OF FUNCTIONS MAY BE USED AS THE BASIS OF DEMONSTRATION AS WELL.** **THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION:** **1) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA HANDS FREE), FOLLOWED BY VOICE SEARCH TERM;**		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **2) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;** 		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 **GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:** **"General Commands** • "Search for [*chicken recipes*]?" • "Say [*where is the supermarket*] in [*Spanish*]?" • "What is [*Schrodinger's cat*]?" • "Who invented [*the internet*]?"		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	• "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" ... **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know POSSIBLE INPUTS FROM USER FOR E.G., MAPS/DIRECTIONS **SEE ALSO DISCUSSION BELOW REGARDING ABILITY TO CONDUCT VOICE SEARCHES IN AUDI APPLICATION-LAYER UI (PRESUMABLY VIA AT LEAST PARTLY COMMON SPEECH PROCESSING APPARATUS ON THE SMART DISPLAY).**		
cause, based at least in part on the digitized speech, access of a remote network entity to cause retrieval of the desired information;	**AT LEAST TWO DISTINCT WAYS OF PERFORMING VOICE-BASED POI OR OTHER SEARCHES USING SMART DISPLAY:** **1) ANDROID O/S - GOOGLE VOICE QUERIES ON ANDROID TABLETS CAN TAKE ANY NUMBER OF DIFFERENT FORMS, MANY OF WHICH RELATE TO ORGANIZATIONS OR ENTITIES (AND FINDINGTHEM). SOME EXAMPLES INCLUDE:** **Maps & Navigation**	**L, DOE**	

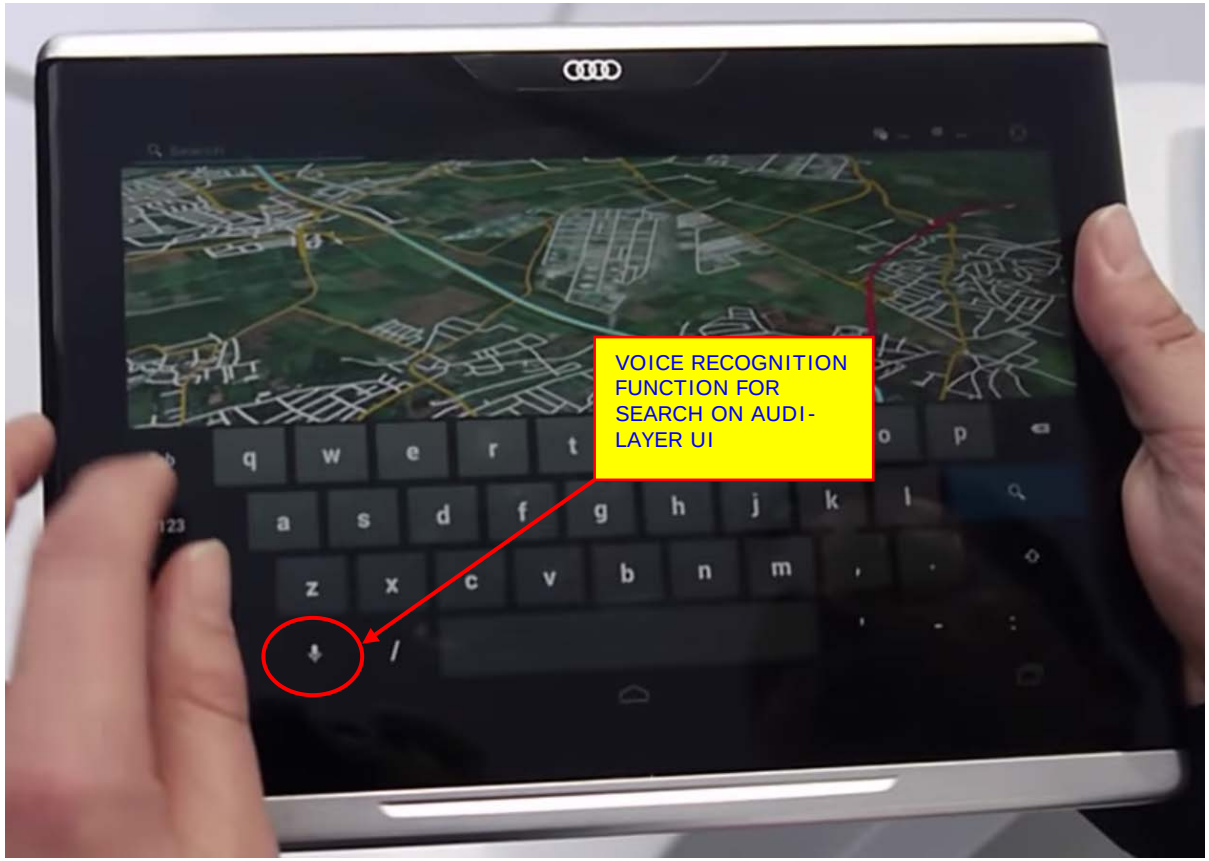
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

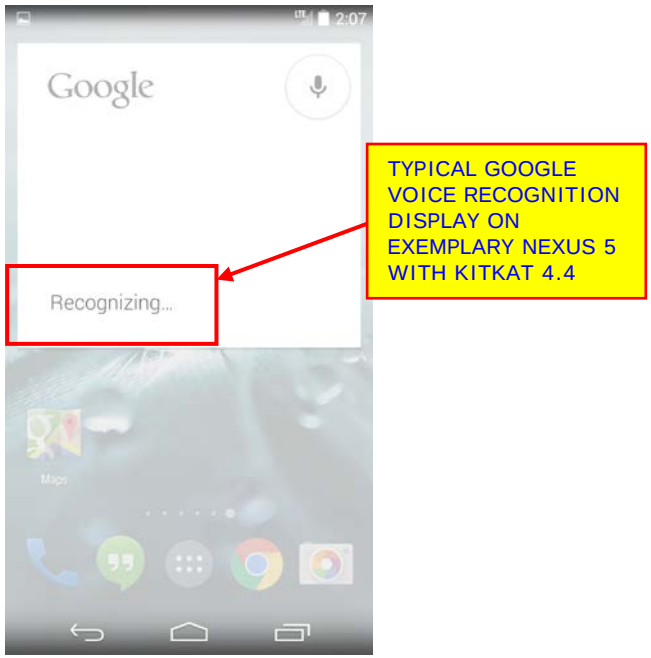
- "Map of [*Flagstaff*]"
- "Show me the nearby [*restaurant*] on map"
- "Navigate to [*Munich*] on car"
- "How far is [*Berlin*] from [*Munich*]?"
- "Directions to [*address / business name / other destination*]"

http://www.androidpit.com/google-now-commands-how-many-do-you-know

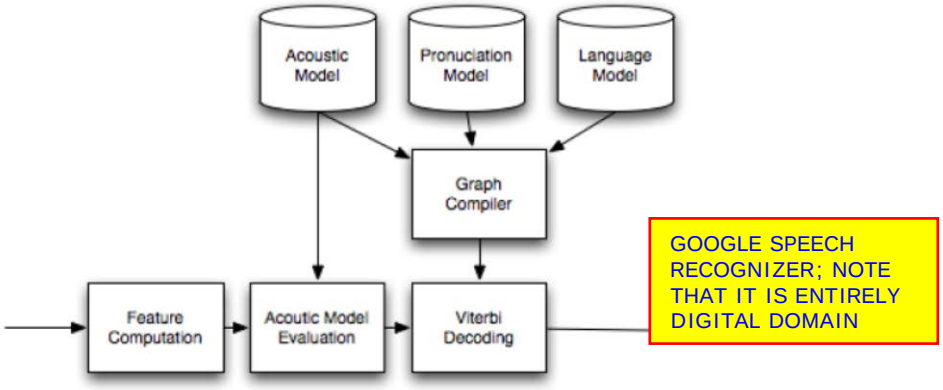
2) ADDITIONALLY, THE AUDI-LAYER SEARCH FUNCTION INCLUDES THE ABILITY TO PERFORM VOICE-BASED-SEARCHES:

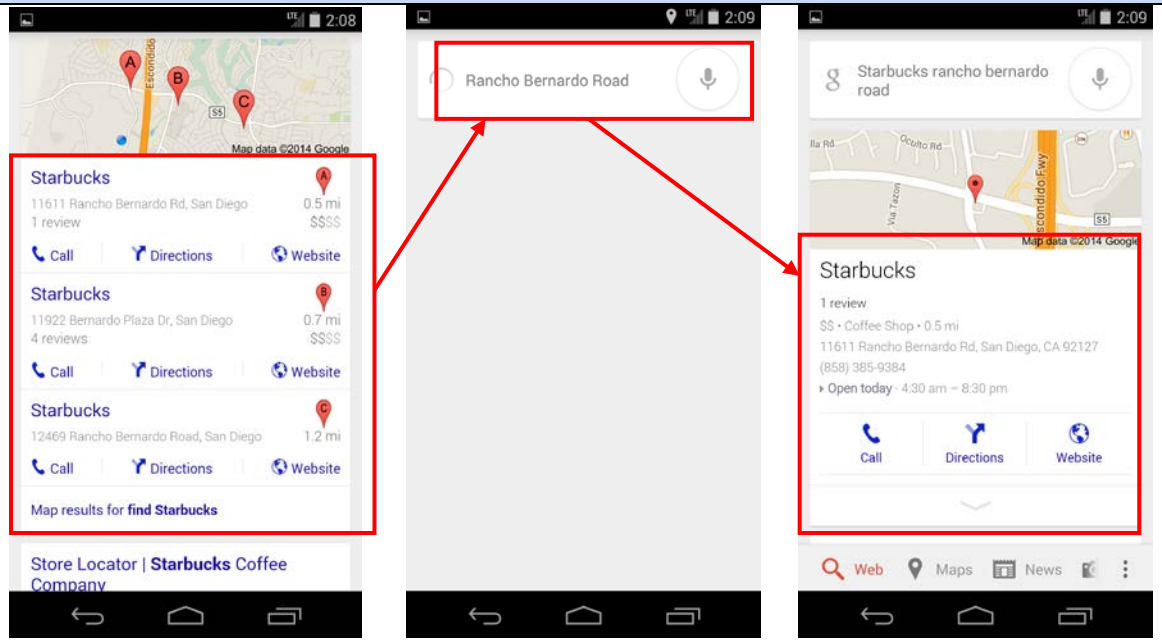
SEE VIDEO BELOW; DEMONSTRATOR TOUCHES "SEARCH" DIALOG BOX, AND THEN DISPLAYS ENTRY SOFT

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	KEYS (WHICH INCLUDE A VOICE RECOGNITION FUNCTION):  https://www.youtube.com/watch?v=2D32beCtCvs		
	AT VERY LEAST, THE SMART DISPLAY CAN ACCESS THE INTERNET (INCLUDING GOOGLE MAPS SERVERS)		

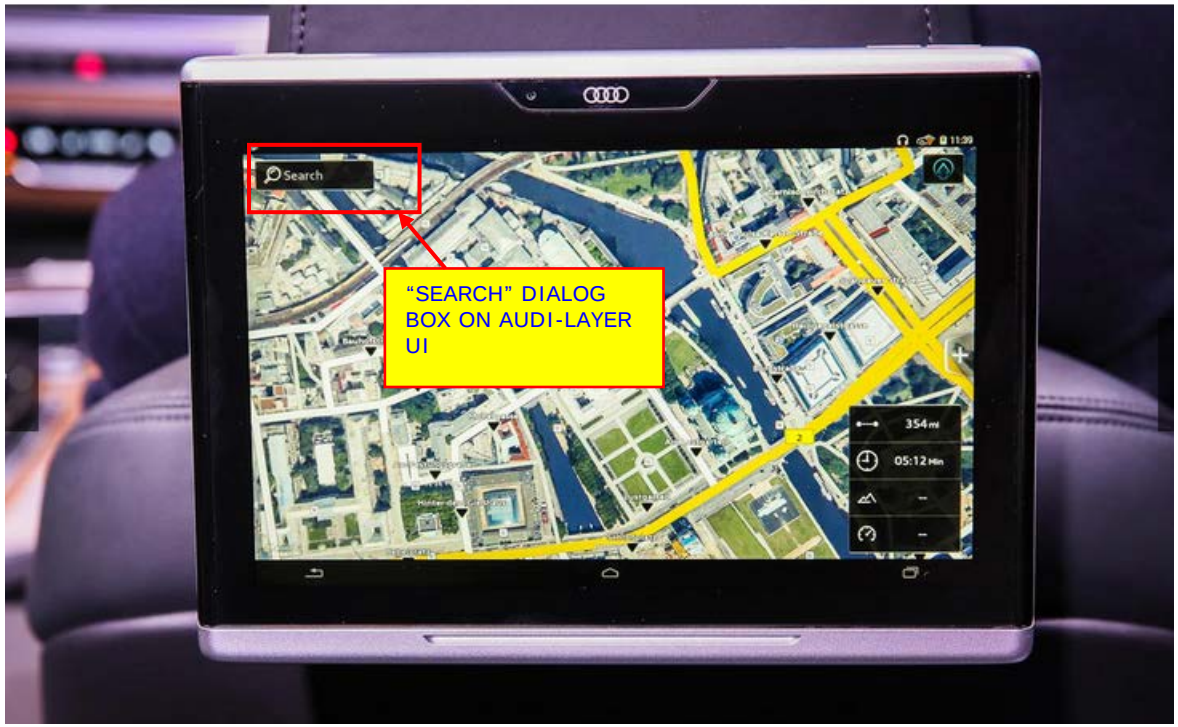
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	VIA ITS WI-FI INTERFACE, VIA: (I) THE Q7 WI-FI HOTSPOT AND LTE CELLULAR MODEM; AND (II) ANY EXTERNAL WI-FI AP/NETWORK (E.G., USER'S HOUSE): "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **SEE DISCUSSION ABOVE; THE DIGITIZED VOICE IS SENT TO THE GOOGLE (REMOTE) SERVER(S) FOR RECOGNITION AND SEARCH.** 		

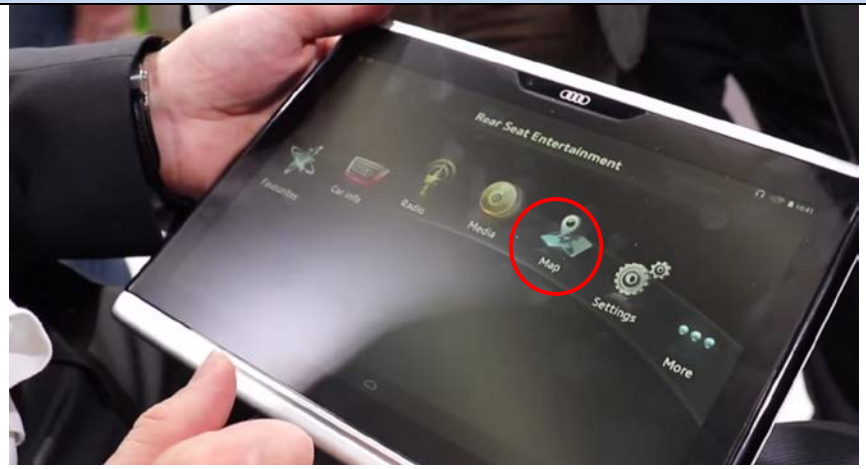
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	"Server types *Google's* server infrastructure is divided into several types, each assigned to a different purpose: • Web servers coordinate the execution of queries sent by users, then format the result into an HTML page. The execution consists of sending queries to index servers, merging the results, computing their rank, retrieving a summary for each hit (using the document server), asking for suggestions from the spelling servers, and finally getting a list of advertisements from the ad server. • Data-gathering servers are permanently dedicated to spidering the Web. Google's web crawler is known as GoogleBot. They update the index and document databases and apply Google's algorithms to assign ranks to pages. • Each index server contains a set of index shards. They return a list of document IDs ("docid"), such that documents corresponding to a certain docid contain the query word. These servers need less disk space, but suffer the greatest CPU workload. • Document servers store documents. Each document is stored on dozens of document servers. When performing a search, a document server returns a summary for the document based on query words. They can also fetch the complete document when asked. These servers need more disk space. • Ad servers manage advertisements offered by services like AdWords and AdSense.." http://en.wikipedia.org/wiki/Google_platform "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. It's then processed, using the neural network models built by Vanhoucke and his team. Google happens to be very good at breaking up big computing jobs like this and processing them very quickly, and to figure out how to do this, Google turned to Jeff Dean and his team of engineers, a group that's better known for reinventing the way the modern data center works." http://www.wired.com/2013/02/android-neural-network/		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 Figure 5: Basic block diagram of a speech recognizer. "Figure 5 depicts the basic system architecture of the recognizer behind Google search by Voice." http://static.googleusercontent.com/external_content/untrusted_dlcp/research.google.reverse-proxy.org/en/us/pubs/archive/36340.pdf **THE REMOTE GOOGLE SERVER(S) RECEIVE THE USER'S VOICE SEARCH DATA (DIGITIZED) AND PROCESS IT TO IDENTIFY ONE OR MORE MATCHING ENTITIES (AND LOCATIONS ASSOCIATED THEREWITH). FOLLOWING TEST CONDUCTED ON GOOGLE NEXUS 5 WITH KITKAT 4.4 O/S (GENERALLY COMPARABLE TO AUDI SMART DISPLAY, AND SAME O/S), USING "OK GOOGLE" FUNCTION:** **USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"**		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
			

MOREOVER, THE AUDI APPLICATION LAYER U/I (I.E., AUDI-SPECIFIC USER INTERFACE SHOWN BELOW) CAN BE UTILIZED TO INVOKE VOICE SEARCH FOR AN ENTITY:

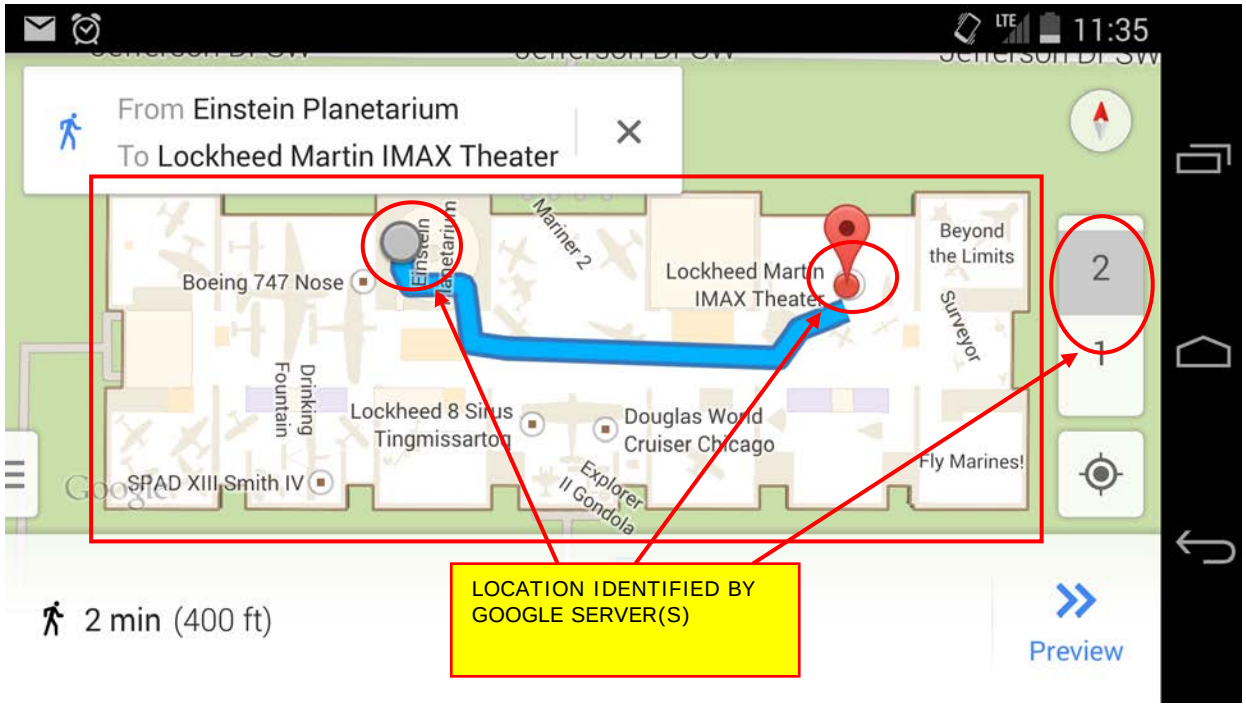
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **SEE VIDEO BELOW; DEMONSTRATOR CAN ACCESS VARIOUS CAR FUNCTIONS FROM SOFTWARE ON TABLET, VIA E.G., WI-FI TO CAR, INCLUDING MAPS/NAVIGATION:** **https://www.youtube.com/watch?v=9YNbPboYA6Y**		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 **THIS FUNCTION ALSO PRESUMABLY INCLUDES ABILITY FOR TABLET USER TO SEARCH (USING E.G., DIALOG BOX SHOWN ABOVE) INTERNET (E.G., GOOGLE):**		

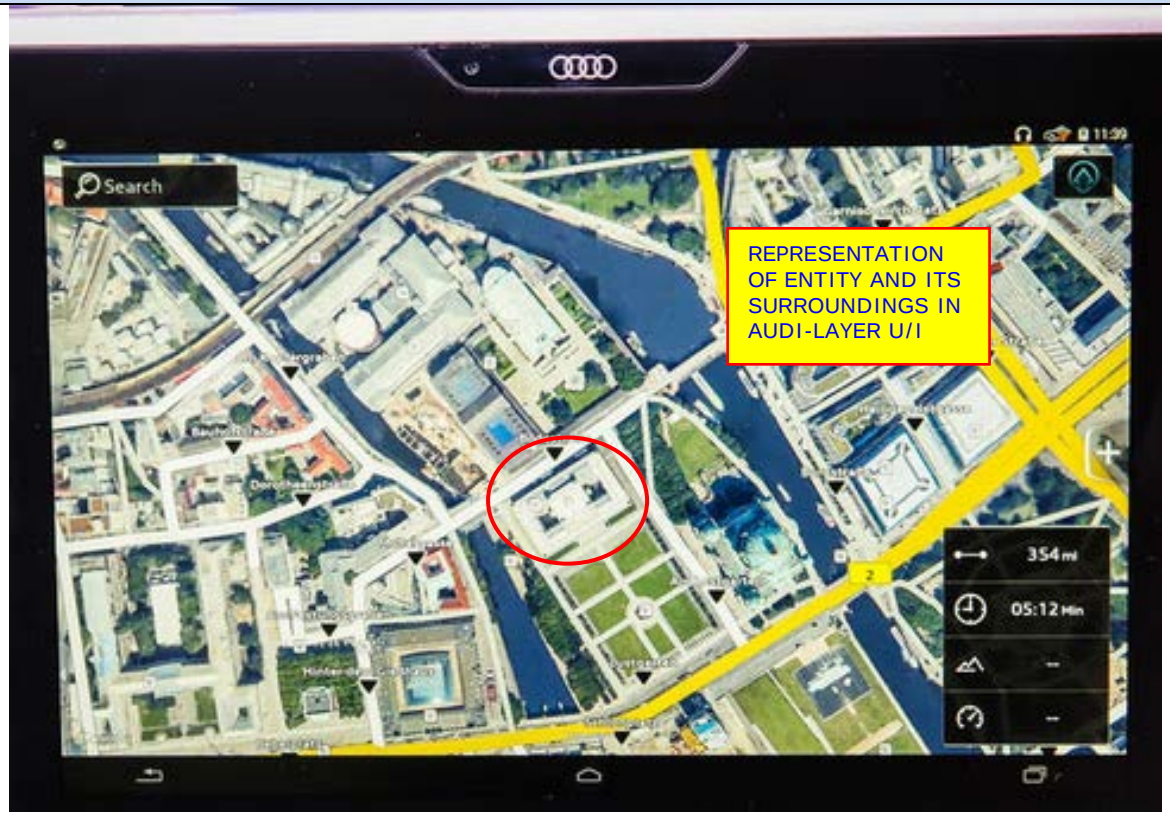
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=GrBY2GmdTwA **IN SELECTED EXAMPLE (GOOGLE MAPS), THE GOOGLE MAPS SERVER RETURNS, *INTER ALIA*, LAT/LON DATA ASSOCIATED WITH THE LOCATION OF THE ENTITY. SEE ALSO GRAPHIC MAP BELOW, WHEREIN LOCATION IS DETERMINED TO BE INSIDE A BUILDING (I.E., NATIONAL AIR AND SPACE MUSEUM).** "Latitude and longitude coordinates You can search for a place using its latitude and longitude coordinates, as well as get the coordinates of a place you've		

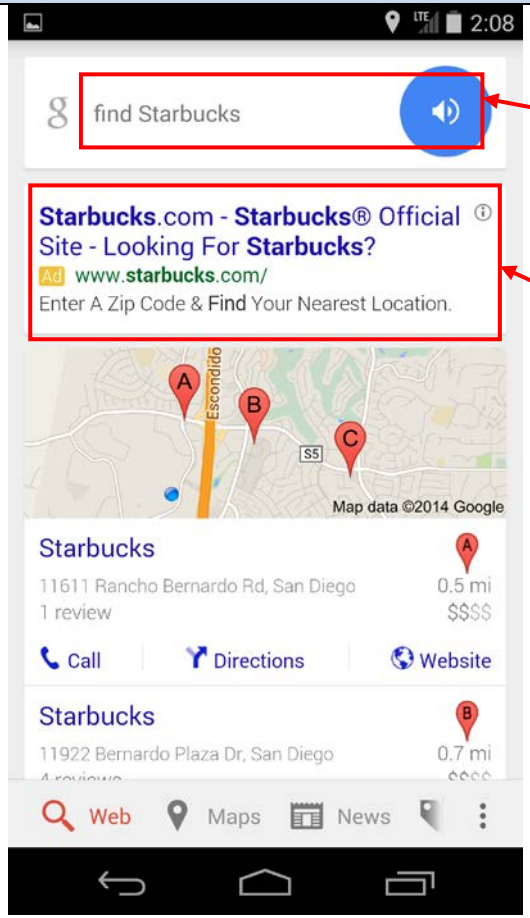
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

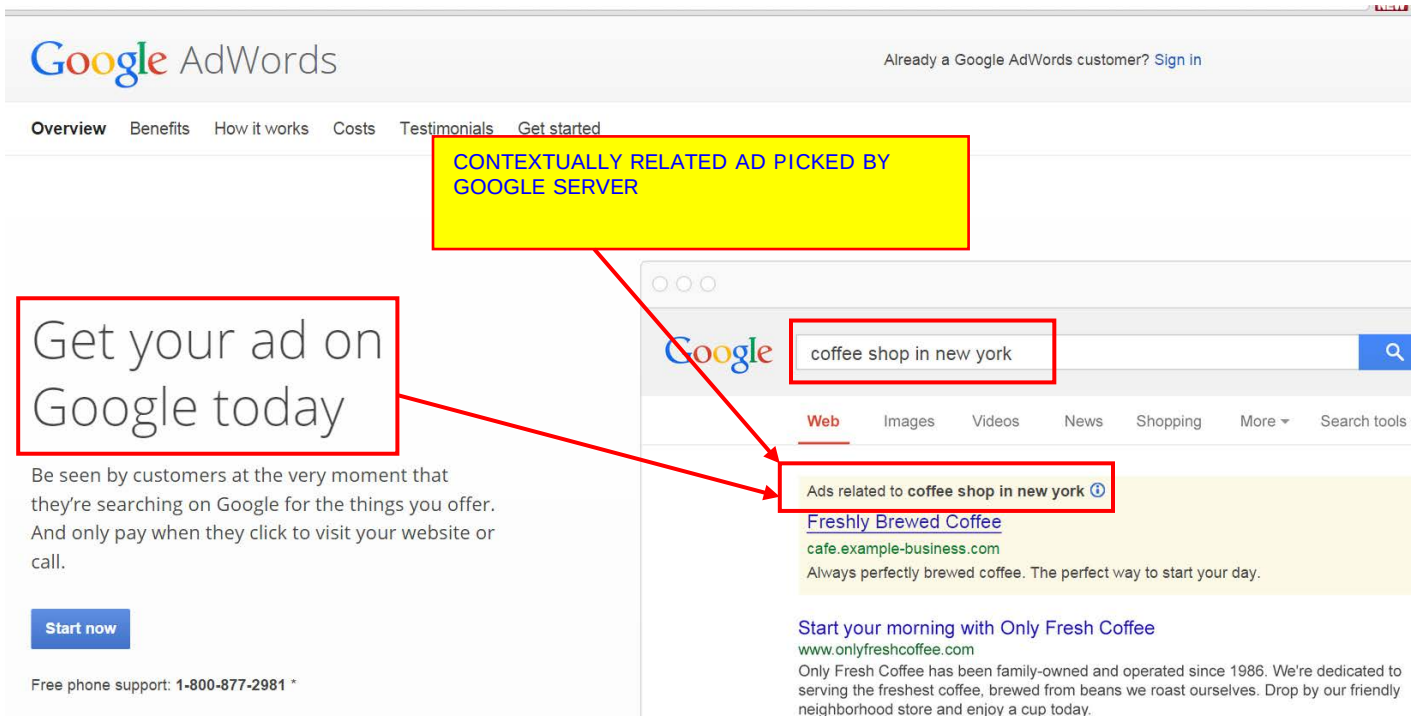
already found on Google Maps." https://support.google.com/maps/answer/18539



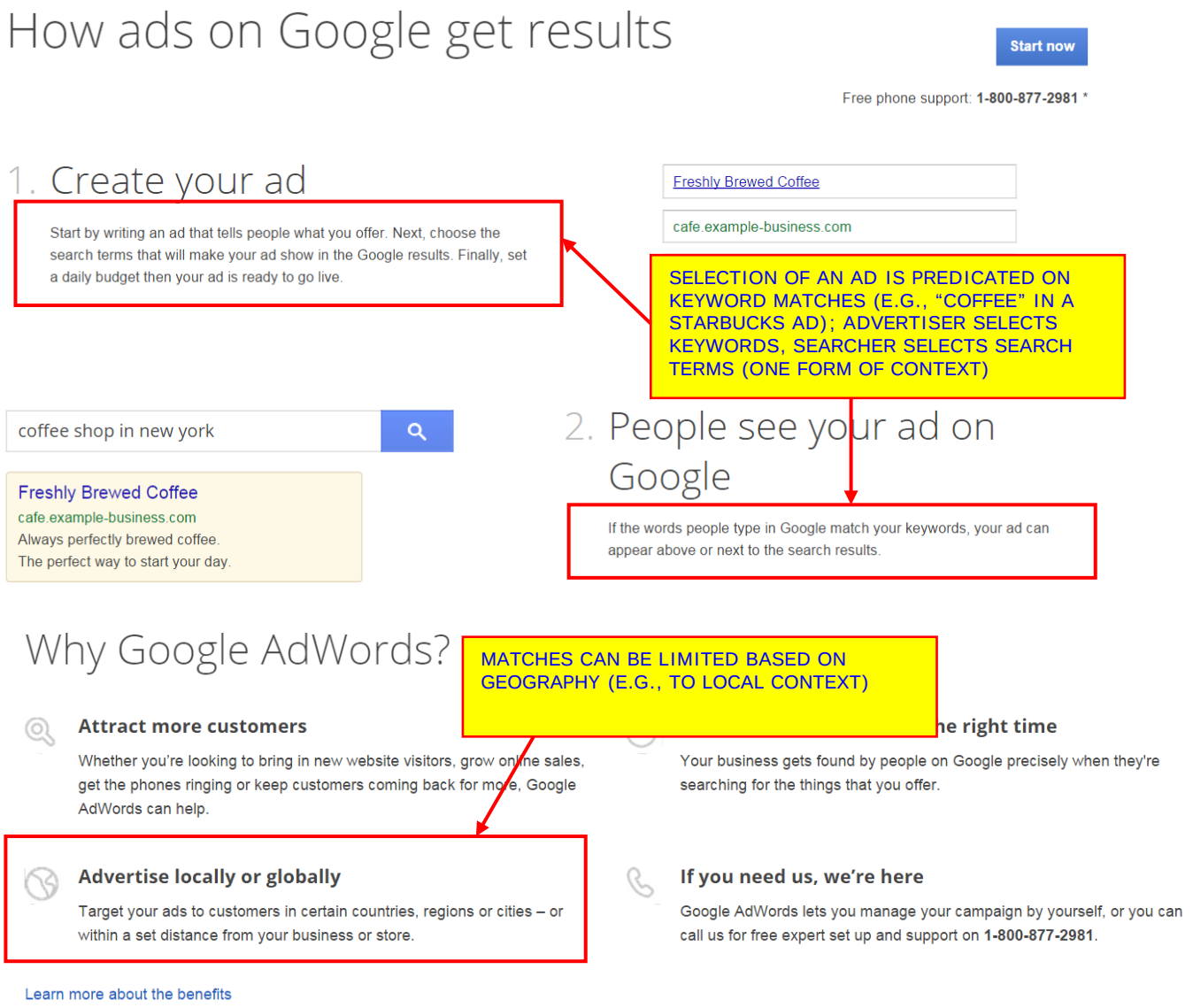
SIMILARLY, IN THE AUDI-SPECIFI U/I, THE FUNCTION (E.G., FIND AND SHOW A DESTINATION) IS PERFORMED:

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
wherein the computerized information and display apparatus is further configured to display advertising content on the display device, the content received via the network interface and selected based at least in part on the digitized speech.	 **SO, IN THIS EXAMPLE, THE VOICE SEARCH TERM "FIND STARBUCKS" WAS ENTERED ON THE EXAMPLE NEXUS 5 WITH KITKAT 4.4 (PRESUMED TO OPERATE IDENTICALLY TO KITKAT 4.4. ON AUDI SMART DISPLAY ANDROID LAYER) , AND SEVERAL NEARBY STARBUCKS LOCATIONS WERE RETURNED, AS WELL AS AN ADVERTISEMENT FOR STARBUCKS (WEBSITE) GENERALLY. STARBUCKS WEBSITE IS CONTEXTUALLY RELATED TO "FIND STARBUCKS" (ALBEIT NOT WHAT WE WERE EXPLICITLY SEARCHING FOR), AND HENCE BASED ON USER'S VOICE INPUT.**	**L, DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	ADVERTISING SUCH AS THE EXAMPLE SHOWN ABOVE IS GENERATED VIA E.G., GOOGLE "ADWORDS" SERVICE: 		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]



Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

Easy-to-read reports and graphs show how your ads are doing in Google AdWords

http://www.google.com/adwords/start/?sourceid=awo&subid=us-en-ha-aw-bkmp0~48674311565&gclid=CMeViPbsz8ACFZYWjgodkwcAdQ

PER GOOGLE ITSELF, LOCATION IS ALSO ONE TYPE OF "CONTEXT":

"Location is one piece of context, knowing where you are."

http://www.cnet.com/news/google-maps-becoming-more-context-aware-and-emotional/

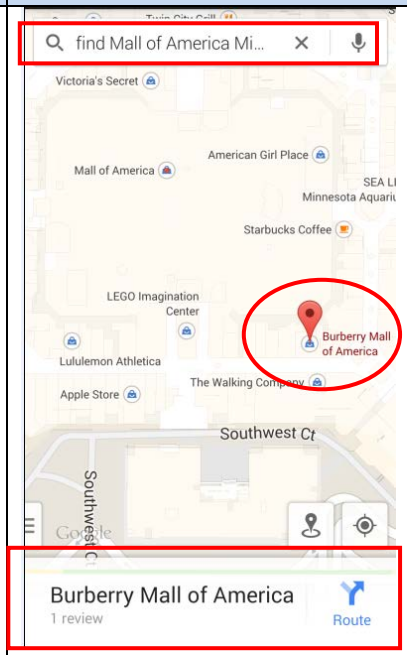
CONTEXT = LOCAL SEARCH AREA, WHICH NECESSARILY INCLUDES THE DESIRED INFORMATION (E.G., LOCATION OF NEARBY STARBUCKS IN SAN DIEGO). THE ADVERTISEMENT MAY BE SELECTED BASED ON THIS GEOGRAPHIC CONTEXT AS WELL, OR BY ITSELF.

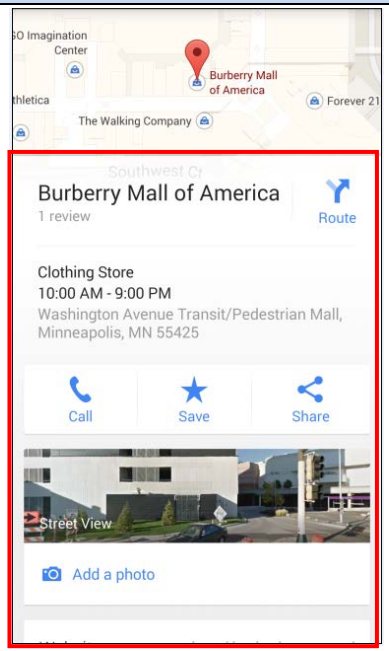
NOTE THAT GOOGLE ALSO PROVIDES A KEYWORD PLANNING TOOL, WHICH GUIDES USERS IN SELECTING

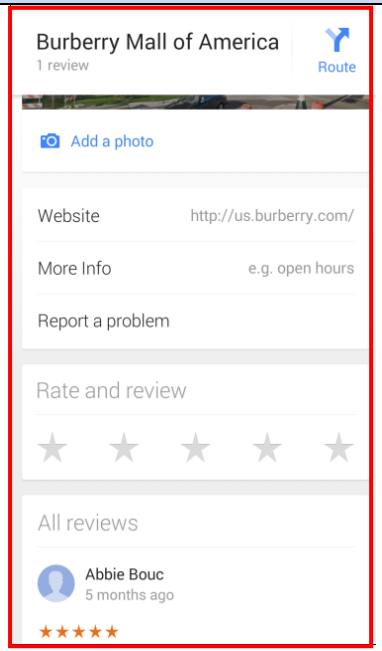
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	CONTEXTUAL KEYWORDS:  **Search for new keyword or ad group ideas** Keyword Planner is like a workshop for building new Search Network campaigns or expanding existing ones. You can search for keyword and ad group ideas, get historical statistics, see how a list of keywords might perform, and even create a new keyword list by multiplying several lists of keywords together. A free AdWords tool, Keyword Planner can also help you choose competitive bids and budgets to use with your campaigns. Whether you're new to online advertising or an experienced pro, you can use Keyword Planner to lay the groundwork for a successful campaign. Learn more. https://adwords.google.com/KeywordPlanner **GOOGLE ADS CAN APPEAR ACROSS MANY GOOGLE PLATFORMS:** "If you use keywords to target your ads, you select a set of keywords related to the product or service you'd like to advertise. Then, when people search using the words or phrases you picked, your text ads can appear alongside or above search results. On Google search sites: Your ads can appear on Google Search, Shopping, Maps, Images, and Groups when someone		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	searches on your keywords. Here's an example, for the keyword "cupcakes":" https://support.google.com/adwords/answer/1704373?hl=en **NOTE THAT ALTERNATIVELY, AND ASIDE FROM "ADWORDS" SERVICE ABOVE, GOOGLE MAPS CAN BE CONSIDERED TO PROVIDE ADVERTISING IN RENDERING ITS MAPS SEARCH RESULTS ON THE SCREEN WITH ICONS/TEXT RELATING TO LOCAL COMMERCIAL ENTITIES:**  ADVERTISEMENTS FOR LOCAL BUSINESSES IN AREA OF SEARCHED-FOR ENTITY (HERE, INSIDE MALL OF AMERICA IN MINNESOTA). NOTE SHOPPING BAG ICON (I.E., TO SELL PRODUCT). **THESE ORGANIZATIONS MUST AFFIRMATIVELY ENTER THEIR INFORMATION WITH GOOGLE ONLINE TO BE SHOWN ON MAP, PRESUMABLY TO INCREASE SALES TRAFFIC.** *"ad·ver·tise·ment* *noun* *a notice or announcement in a public medium promoting a product, service, or event or publicizing a job vacancy.* *"advertisements for alcoholic drinks" "* https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ADVERTISEMENT+DEFINITION		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]



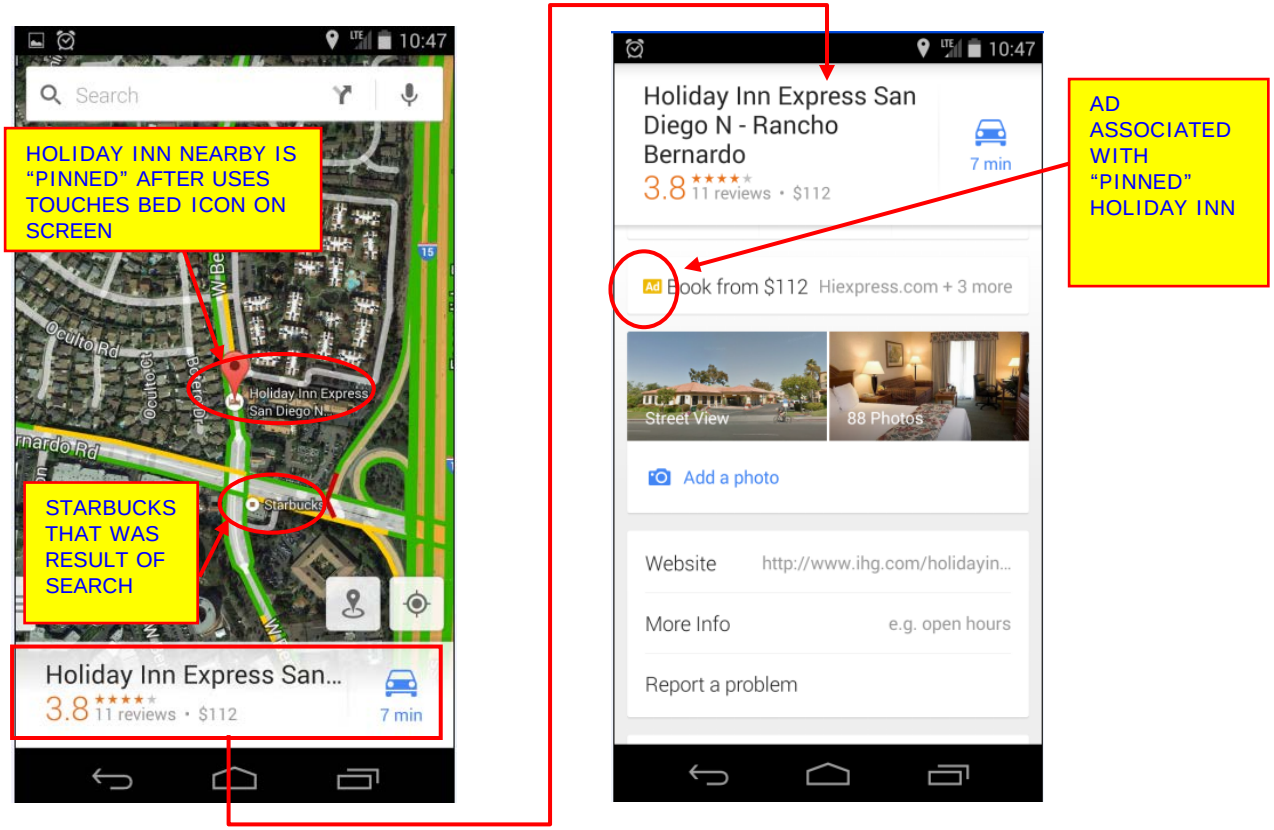


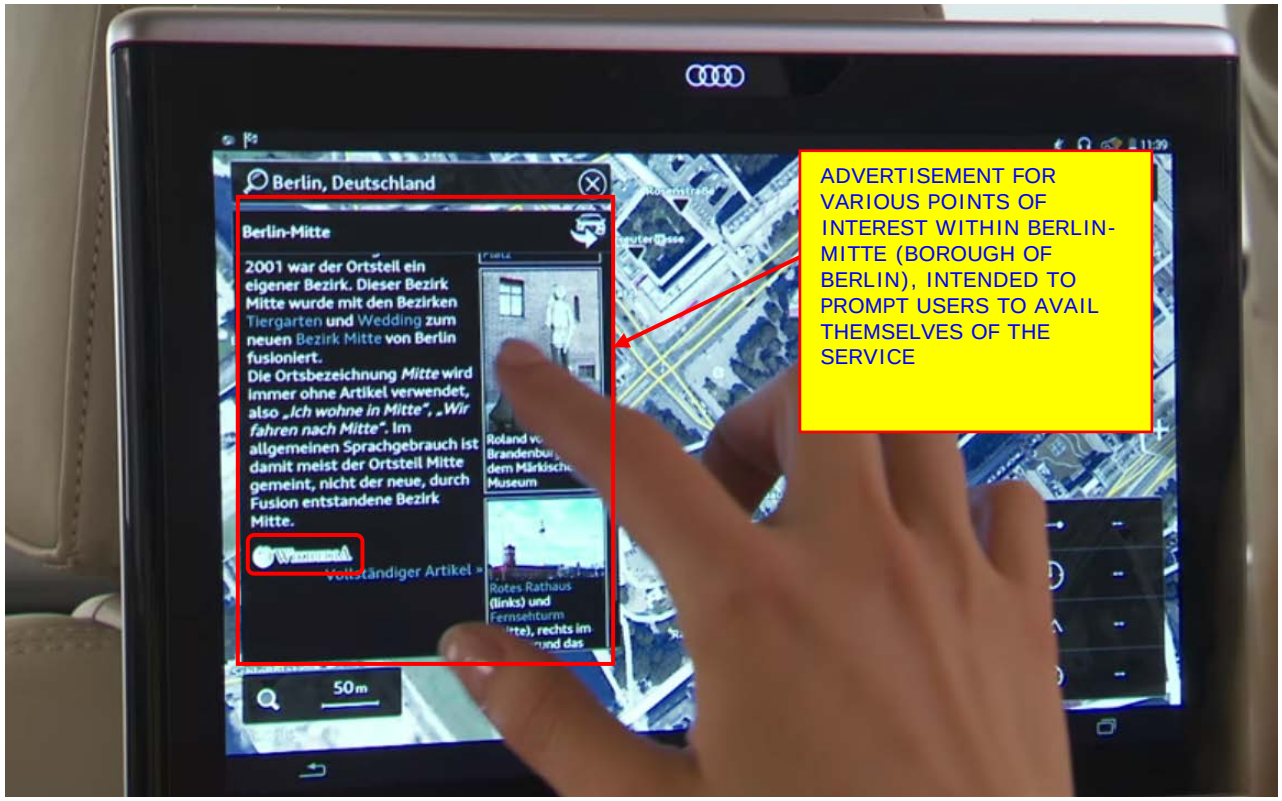


IN THE EXAMPLE ABOVE (BASED ON VOICE SEARCH FOR "MALL OF AMERICA"), THE USER IS SHOWN MULTIPLE COMMERCIAL ENTITIES PROXIMATE TO THE DESIRED ENTITY. WHEN USER TOUCHES SHOPPING BAG ICON FOR, SAY BURBERRY STORE, THE STORE IS "PINNED", AND AN ADVERTISEMENT IS DISPLAYED AT BOTTOM OF SCREEN, SHOWING INFORMATION ABOVE, INCLUDING HOURS OF OPERATION, INDUSTRY TYPE (CLOTHING STORE), ADDRESS, STREET VIEW PHOTO, WEBSITE URL, AND REVIEWS BY VARIOUS INDIVIDUALS.

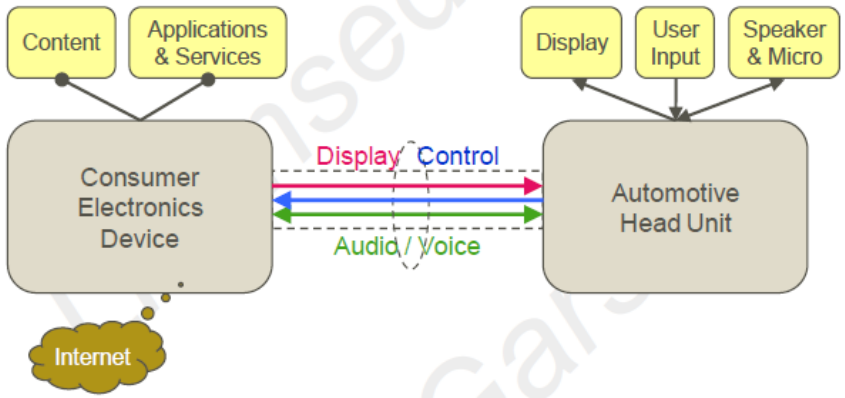
AS NOTED ABOVE, THIS BURBERRY WAS SELECTED FOR DISPLAY BASED AT LEAST ON (I) THE BURBERRY STORE SUBMITTING ITSELF/DETAILS TO GOOGLE FOR DISPLAY, AND (II) IT'S GEOGRAPHIC PROXIMITY TO THE SEARCHED FOR ENTITY.

SEE ALSO ANOTHER EXAMPLE BELOW…A HOLIDAY INN HOTEL THAT WAS MARKED AS A NEARBY LOCATION ("BED" ICON) TO THE STARBUCKS OF THE SEARCH ABOVE HAS AN ADVERTISEMENT ASSOCIATED WITH IT AS WELL – I.E., WHEN USER TOUCHES THE "BED" ICON, THE MAP BELOW IS SHOWN,

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	AND WHEN USER SWIPES DOWN, THE AD IS REVEALED: 		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	IN THE AUDI APPLICATION-LAYER U/I ENVIRONMENT; ADVERTISEMENTS MAY ALSO BE SHOWN (PRESUMABLY RECEIVED OVER THE WI-FI LINK FROM A REMOTE INFORMATION SERVER (TO BE VERIFIED IN DISCOVERY):  **https://www.youtube.com/watch?v=2Yg6cPnFpII** **ALTERNATIVELY, IN THE AUDI LAYER, THE GOOGLE STREET VIEW IMAGES (WHICH CAN BE DOWNLOADED TO THE AUDI VEHICLE FROM THE GOOGLE SERVER) AND PRESUMABLY DISPLAYABLE ON THE SMART DISPLAY ARE CLEARLY ARE INTENDED TO MAKE FINDING THE LOCATION (E.G., CAPITAL GRILLE IN EXAMPLE BELOW) EASIER, AND ALSO ILLUSTRATE THE SIGNAGE FOR THE BUSINESS (WHICH ITSELF IS A FORM OF ADVERTISING UNDER THE DEFINITION PROVIDED BELOW):**		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 **EACH OF THE FOREGOING SELECTED IMAGES/ADVERTISEMENTS IS BASED ON THE USER'S INITIAL SEARCH FOR A LOCATION.**		
	2015/2016 VOLKSWAGEN (VW) GOLF GTI WITH MIB-II AND MIRRORLINK		
	This analysis is directed to the 2015/2016 VW Golf GTI with MIB-II infotainment system with MirrorLink functionality. "Later this year [*2015*], VW will introduce the second generation "modular infotainment platform" (MIB II) in the United States. Along with the new infotainment system, MirrorLink™ will also be made available for the first time, integrating the apps and operating layout of numerous smartphones (including Samsung, HTC, LG and Sony) into cars. When MirrorLink™ is introduced, two other interfaces will also be launched under the App-Connect label: … Android Auto™ (Google®). Simultaneously, VW will also launch … Android Auto™ in the		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	European market." http://media.vw.com/release/908/ **NOTE THAT WHILE FOLLOWING ANALYSIS IS BASED ON THE INCIPIENT MIB-II SYSTEM, AN ACTUAL VEHICLE IS NOT YET ON SALE IN THE U.S. AS OF THE DATE OF THIS SUBMISSION. ACCORDINGLY, THE FOLLOWING IS PREDICATED AT LEAST IN PART ON THE EXTANT 2015 GOLF GTI (I.E., WITH PREDECESSOR TO MIB-II) NOW SOLD IN THE U.S., WITH DIFFERENCES NOTED AS APPLICABLE.** **2 INTRODUCTION TO MIRRORLINK CONCEPT** MirrorLink provides a concept for integrating the mobile device (hereinafter referred to as the "MirrorLink server") and the vehicle head-unit (hereinafter referred to as the "MirrorLink client"). In a MirrorLink context, the control and interaction of applications and services running on the mobile device will be replicated into the vehicle environment. Diverting display and audio output to the vehicle head-unit come together with receiving key and voice control input from it are the main interaction streams, as shown in the following Figure 1.  MIRRORLINK USES MOBILE DEVICE IN CONJUNCTION WITH HEAD UNIT		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
37. Computerized information and display apparatus for use in a land-mobile transport apparatus, the information and display apparatus comprising:	 [THE 2015 VW Golf GTI] **VW GOLF GTI IS A LAND-MOBILE TRANSPORT DEVICE FOR MOVING PEOPLE BETWEEN LOCATIONS, AND ITS MIB-II SYSTEM WITH MIRRORLINK IS A COMPUTERIZED INFORMATION AND DISPLAY (INFOTAINMENT) SYSTEM.**	**L, DOE**	**D, I**

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

MIB-II SYSTEM WITH EXEMPLARY ANDROID SMARTPHONE ASSOCIATED THEREWITH VIA USB CABLE/PORT

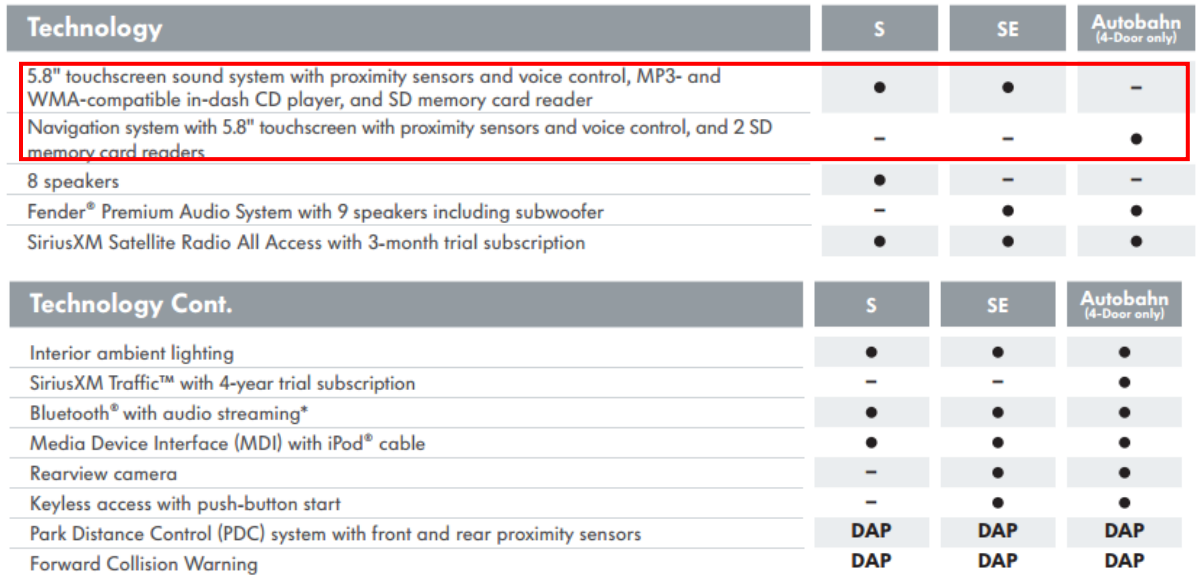
http://cars.reviewed.com/content/volkswagen-mib-ii-infotainment-system-first-impressions-review

SEE FEATURE MATRIX BELOW; CURRENT ANALYSIS IS BASED ON 2015 GOLF GTI WITH MIB-II AND MIRRORLINK.

Golf GTI Specs

•	Standard, no additional cost	DCC	Available with Dynamic Chassis Control Package
O	Optional, additional cost	DAP	Available with Driver Assistance Package
–	Not available	PP	Available with Performance Package
2D	Standard on 2-Door only	LP	Available with Lighting Package
4D	Standard on 4-Door only		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]



Technology	S	SE	Autobahn (4-Door only)
5.8" touchscreen sound system with proximity sensors and voice control, MP3- and WMA-compatible in-dash CD player, and SD memory card reader	●	●	–
Navigation system with 5.8" touchscreen with proximity sensors and voice control, and 2 SD memory card readers	–	–	●
8 speakers	●	–	–
Fender® Premium Audio System with 9 speakers including subwoofer	–	●	●
SiriusXM Satellite Radio All Access with 3-month trial subscription	●	●	●

Technology Cont.	S	SE	Autobahn (4-Door only)
Interior ambient lighting	●	●	●
SiriusXM Traffic™ with 4-year trial subscription	–	–	●
Bluetooth® with audio streaming*	●	●	●
Media Device Interface (MDI) with iPod® cable	●	●	●
Rearview camera	–	●	●
Keyless access with push-button start	–	●	●
Park Distance Control (PDC) system with front and rear proximity sensors	DAP	DAP	DAP
Forward Collision Warning	DAP	DAP	DAP

[THE 2015 VW Golf GTI STANDARD AND OPTIONAL EQUIPMENT]

a wireless network interface;	MirrorLink Specification 1.0.3 Core Architecture CCC-TS-001 Page 8/12 MIRRORLINK TECHNICAL SPECIFICATION REQUIRES PRESENCE OF WIRELESS CONNECTIVITY (SUCH AS CELLULAR BROADBAND OR WI-FI) VIA "MOBILE DEVICE" (E.G., SMARTPHONE) 1 **1 ABOUT** This document specifies an interface for enabling remote user interaction of a mobile device via another device. This specification is written having a vehicle head-unit to interact with the mobile device in mind, but it will similarly apply for other devices, which do provide a colored display, audio input/output and user input mechanisms.	**L, DOE**	

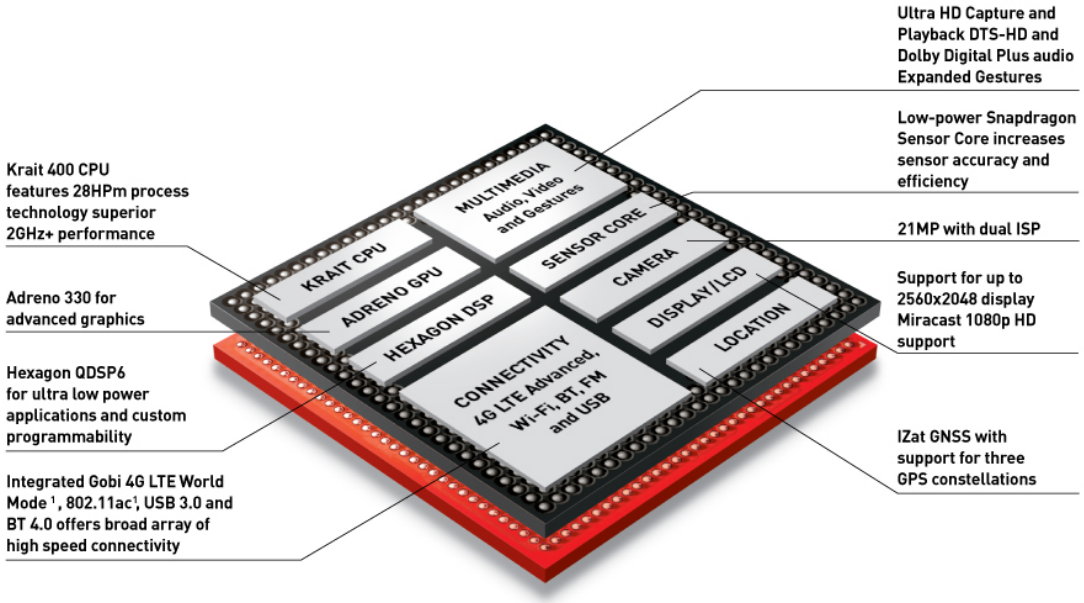
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	Figure 2: MirrorLink Architecture MirrorLink Architecture consists of a set of protocols, providing the following features: 1. Connectivity, as specified in [1], providing a. Wired and wireless IP based connection-oriented and connection-less connectivity, and b. Dedicated Bluetooth connectivity 2. UPnP based Services, providing a. Mechanisms for advertisement of MirrorLink enabled Server devices as specified in [7] b. Mechanisms for MirrorLink client profiles as specified in [6] and ["Car Connectivity Consortium," April 28, 2015] **AS SHOWN ABOVE, THE MOBILE DEVICE IS PAIRED TO THE VW MIB-II SYSTEM VIA A "USB" CABLE (E.G., MICRO-USB/USB OR SIMILAR). WIRELESS INTERFACE OF SMARTPHONE IS USED FOR EXTERNAL CONNECTIVITY.** 		
processing apparatus in data communication with the network interface;	**FOLLOWING RELATES TO EXTRA-U.S. VERSION OF MIB-II, LAUNCHED BEFORE U.S. MODEL:** **"Generation II of MIB systems:** **Ideally networked world with Car-Net, MirrorLink™ and SMS by TTS***	**Literal / DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	The new Passat is launching with Generation II of Volkswagen infotainment systems. The latest generation of this modular information toolkit (MIB) enables a maximum degree of connectivity in terms of coupling external devices. Its diverse interfaces include interfacing to smart phones and their apps via MirrorLink™. In addition, the systems were given much faster processors (optimised booting, quicker route calculation, smoother touchscreen performance, perfected language dialogues) and new higher-resolution displays (in the 6.5-inch systems). … **2. Faster processors.** The new generation of devices is characterised by better system performance. Consider the "Discover Media", the radio-navigation system with 6.5-inch display: Compared to the first generation, performance of the CPU (main processor) was more than doubled from 950 MIPS (million instructions per second) to 2,500 MIPS. … 4. MirrorLink™. For the first time in the Passat, MirrorLink™ is available – from the "Composition Media" it is optional, in the "Discover Pro" it is standard. MirrorLink™ makes it possible to integrate numerous apps or functions of Android smart phones into the infotainment system. Related apps will be offered directly from Volkswagen and from third party suppliers. The Volkswagen apps: "Mobile Office", "audioMOTION", "ThinkBlue. Trainer", "Shared Audio", "Drive&Track" and "My Guide". Third party apps include "Audioteka" (audio books), "Glympse" (social media), "Aupeo!" (Internet radio), "Life360″ (family locator) and "Kaliki" (news)." http://www.vwvortex.com/news/volkswagen-news/detail-new-passat-generation-8-2/ **HENCE, MIB-II SYSTEM HAS CPU, GPU, ETC. IN COMMUNICATION WITH EXEMPLARY ANDROID SMARTPHONE VIA USB.** **EXEMPLARY NEXUS 5 ANDROID SMARTPHONE (USED FOR PURPOSES OF ILLUSTRATION – OTHER ANDROID PHONES ARE EQUALLY APPLICABLE) HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE MIRRORLINK SYSTEM:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz" [http://perudalia.com/videos/maUvJ6moowc/nexus-5-gaming-demonstration.html] **"Snapdragon 800** Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013,		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture.

The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.



On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC." [http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html]

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	THE CPU/GPU OF THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE COORDINATE VIA THE USB CABLE (USING INTERNET PROTOCOL OVER TOP OF THE USB PROTOCOL) TO PROVIDE, AMONG OTHER THINGS, THE EMULATION OF THE PHONE'S DISPLAY AND FUNCTIONS ON THE VEHICLE TOUCHSCREEN DISPLAY.		

The MirrorLink high-level architecture is shown in the following Figure 2.

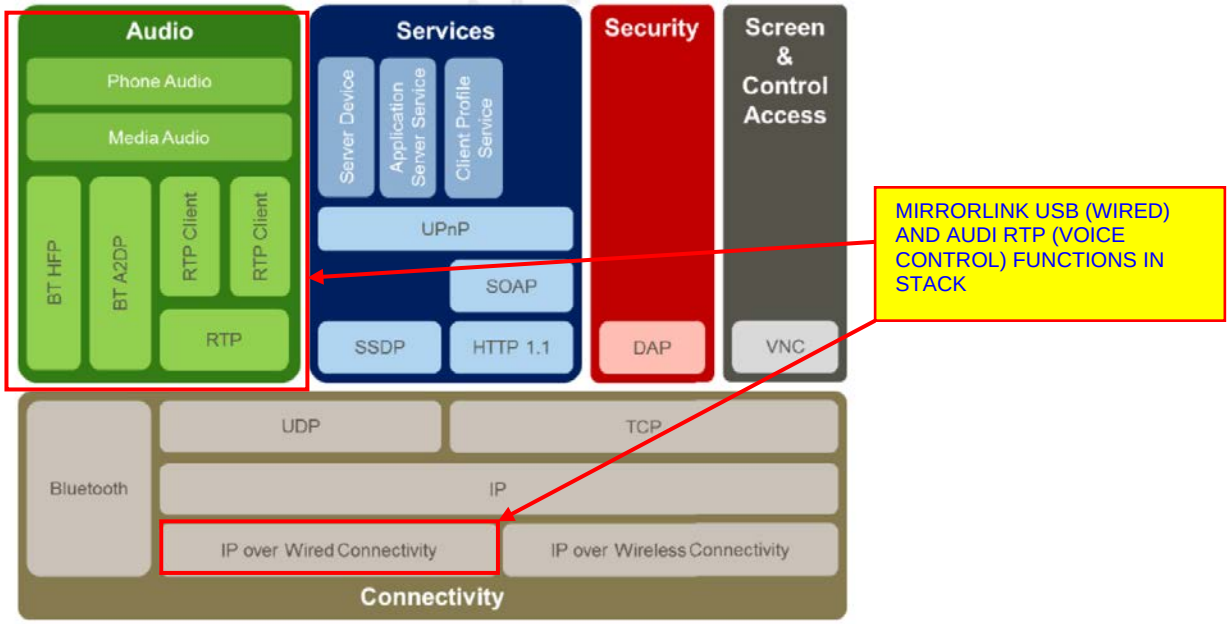


Figure 2: MirrorLink Architecture

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

4 MIRRORLINK FEATURES

The following Table 1 specifies the requirements for the different MirrorLink features for the MirrorLink Server and Client.

Feature			Version	MirrorLink Server	MirrorLink Client
Connectivity	USB	USB Host	1.0	N/A	MUST
		USB Device	1.0	MUST	N/A
	WLAN	Access Point	1.0	MAY	MAY
		Device	1.0	MAY	MAY
	Bluetooth		1.0	MAY	MAY
UPnP based Services MirrorLink implements 2-Box pull model	UPnP Server Services Provided	Server Device	1.0	MUST	N/A
		Application Server Service	1.0	MUST	N/A
		Client Profile Service	1.0	MUST	N/A
	UPnP Control Point Services Supported	Server Device	1.0	N/A	MUST
		Application Server Service	1.0	N/A	MUST
		Client Profile Service	1.0	N/A	SHOULD
Screen & Control	VNC Server		1.0	MUST	N/A
	VNC Client		1.0	N/A	MUST
Audio	RTP	RTP Server	1.0	MUST	SHOULD
		RTP Client	1.0	SHOULD	MUST
	BT	BT HFP	1.0	SHOULD	SHOULD
		BT A2DP	1.0	MAY	MAY
Security	DAP	Server Endpoint	1.0	SHOULD	N/A
		Client Endpoint	1.0	N/A	SHOULD

Table 1: MirrorLink Feature Requirements

The MirrorLink Server MUST implement either the UPnP 1.0 stack or the UPnP 1.1 stack. In either case, it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 Control Points.

The MirrorLink Client MUST implement either an UPnP 1.0 control point or an UPnP 1.1 control point. In either case it MUST be able to operate with both UPnP 1.0 and UPnP 1.1 services residing on the MirrorLink server.

USB, RTP (REAL TIME PROTOCOL- FOR AUDIO INCLUDING VOICE RECOGNITION) AND VNC SCRREN/CONTROL **MANDATORY.** WLAN (WI-FI) AP OR DEVICE CAPABILITY MAY ALSO BE INCLUDED.

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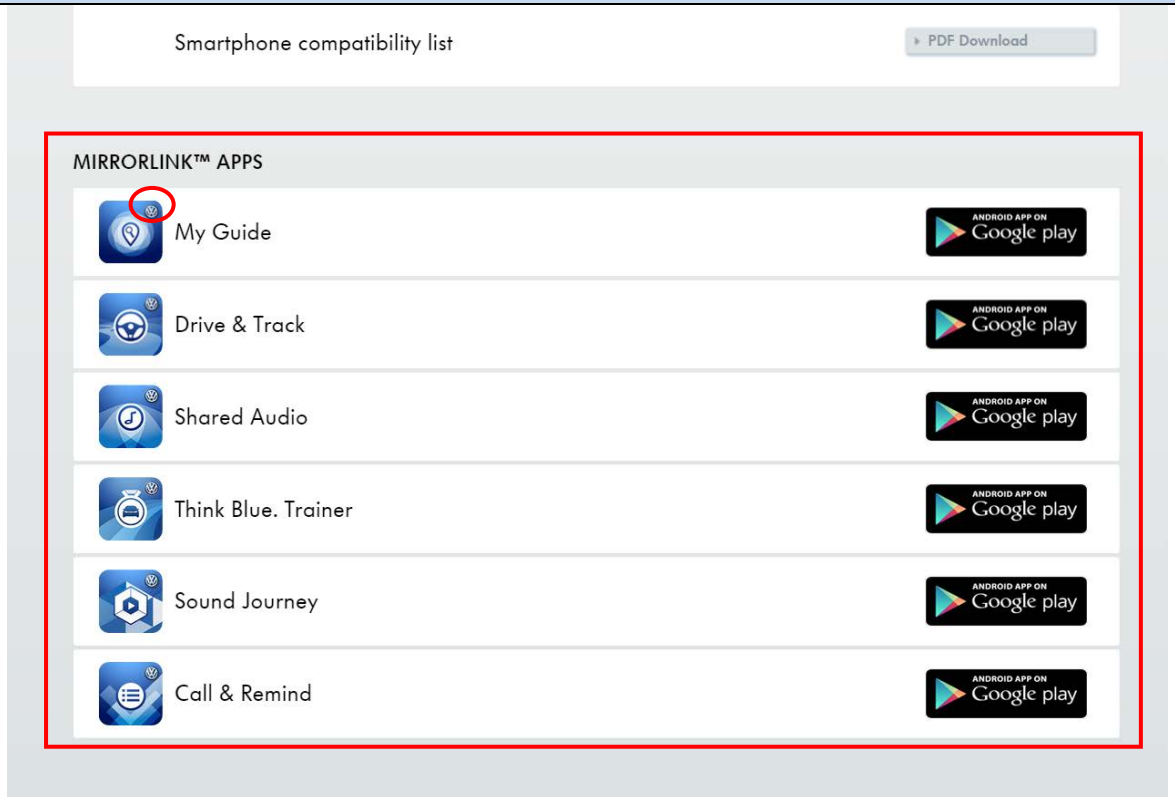
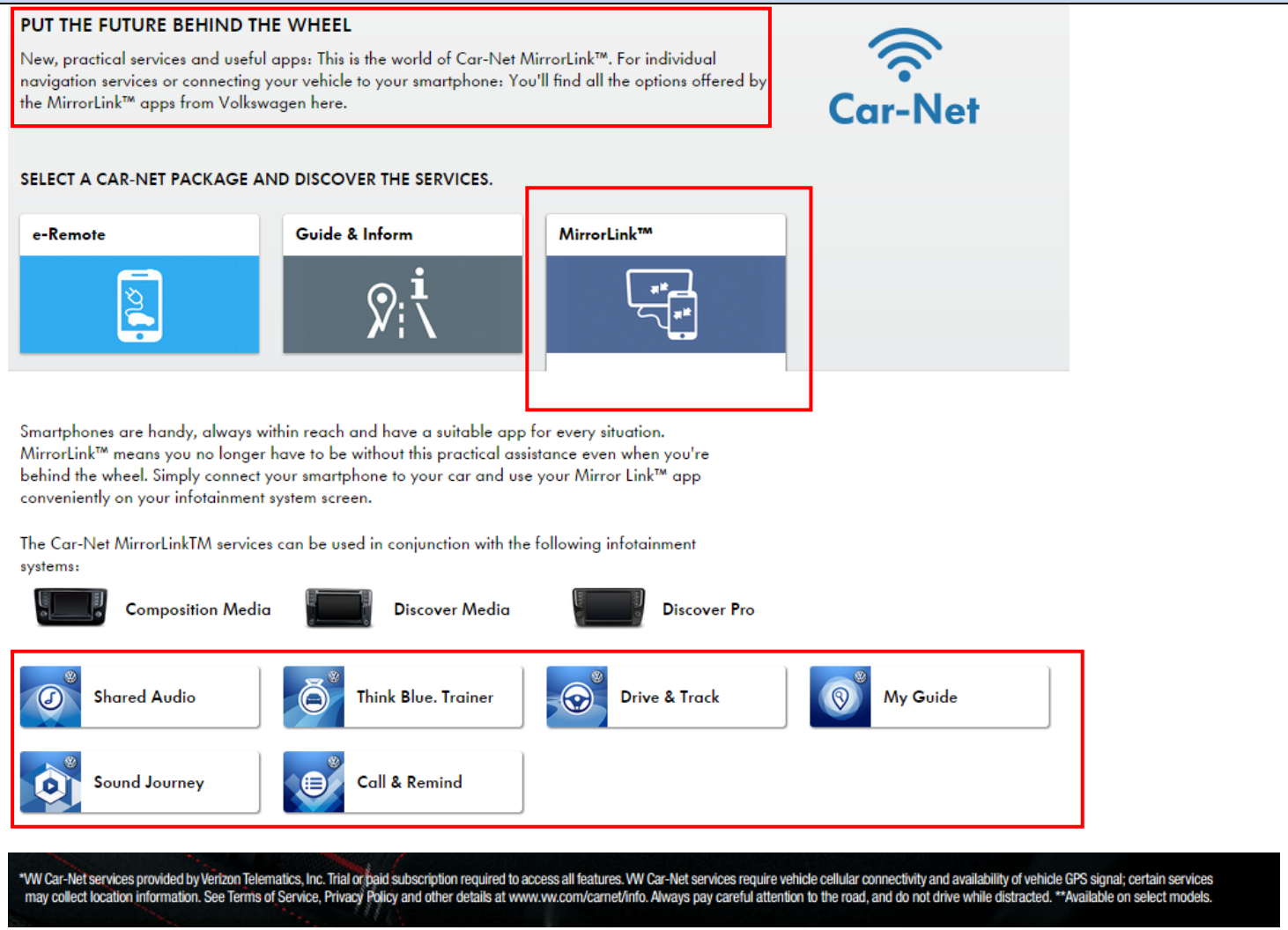
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
a display device configured to be viewable by an occupant of the land-mobile apparatus during use and		**L, DOE**	
a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed:	**SEE ABOVE; THE MIB-II SYSTEM AND EXEMPLARY SMARTPHONE, WHEN CONNECTED, COMPRISE NUMEROUS PROCESSORS, MEMORY (E.G., RAM, ROM, FLASH), SOFTWARE, FIRMWARE, ETC. WITH NUMEROUS COMPUTER PROGRAMS OPERATIVE TO RUN THEREON TO RENDER GRAPHICS, ESTABLISH USB CONNECTIVITY, PROCESS SPEECH INPUTS, ETC.** **VOLSWAGEN ALSO SUPPLIES APPLICATION-LAYER SOFTWARE (AKA "APPS") FOR VARIOUS FUNCTIONS FOR USE ON THE MATED ANDROID PHONE:**	**L, DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 http://volkswagen-carnet.com/int/en/start/app-download.html **HENCE, VW (I) PROVIDES THE MIB-II MIRRORLINK-ENABLED HEAD UNIT IN THE VEHICLE; (II) PROVIDES THE VW-BRANDED APPLICATION SOFTWARE TO LOAD ON THE USER'S SMARTPHONE; AND (III) INSTRUCTS THE USER ON CONNECTION/UTILIZATION OF THE TWO DEVICES AS A SYSTEM.**		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]



Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	7) Service is available soon The mobile online service (Car-Net) can only be used with the optional Discover Media and Discover Pro equipment. A mobile terminal (e.g. smartphone) with the ability to act as a mobile WLAN hotspot is also required. Alternatively, a mobile phone with a remote SIM Access Profile (rSAP) or a SIM card with call and data options can be used with the "Premium mobile phone interface" option. The Car-Net service is available only with an existing mobile phone contract or one which must be separately established between you and your mobile service provider, and only within the coverage of the individual mobile phone network. Additional fees (e.g. roaming charges) may arise when receiving data from the internet, depending on your particular mobile phone tariff and especially when using the service abroad. Due to the accumulation of data when using the Car-Net service, it is strongly recommended that you organise an unlimited data plan with your mobile service provider. A separate contract with Volkswagen AG must be set up online in order to use Car-Net. After the vehicle handover, the customer has 90 days to register the vehicle at [http://volkswagen-carnet.com/int/en/start/online-devices.html#tab/open/mirror-link] **NOTE THAT CAR-NET SERVICE IS STANDARD ON GOLF GTI, BUT REQUIRES PRESENCE OF WIRELESS CONNECTION (E.G., CELLULAR SMARTPHONE WITH WI-FI HOTSPOT CAPABILITY, WHICH IMPLIES THAT CAR DOES NOT HAVE ITS OWN INDIGENOUS CELLULAR MODEM.**		
obtain digitized speech generated based on speech received from the occupant, the digitized speech relating to a desired information which the occupant wishes to obtain;	**GOLF GTI HAS INDIGENOUS MICROPHONE AND SPEAKERS TO SUPPORT, AMONG OTHER THINGS VOICE RECOGNITION FUNCTIONS:** | | Accepting and rejecting calls **Accepting a call** – To accept a call, briefly press the button ⇒ page 25, fig. 8 ⑫. The radio will go silent and the words: **ANS CALL** and then **TALKING** will appear in the display. **Rejecting a call** – Briefly press the button ⇒ page 25, fig. 8 ⑬ to reject an incoming call during the "ring" signal. **CALL ENDED** will appear in the display. Each time there is an incoming call to the connected cell phone with the radio on, an acoustic signal will sound and the display will read **CALL FROM**. If the connected cell phone has caller ID, the number from which the call is incoming will appear in the radio display. The audio connection will be available through the vehicle's front speakers and the microphone in the front of the radio. **Transferring a call from the radio to the cell phone and vice versa** Briefly press the button ⇒ page 25, fig. 8 ⑫ during the call, it will then be transferred from the radio to the cell phone and vice versa. **CALL TRANS** will appear on the display. **Tips** • It is possible to control volume and audio adjustments with the radio buttons. • In order to end the call, briefly press the button ⇒ page 25, fig. 8 ⑬. **CALL ENDED** will appear in the display. ◀ [4] **SEE BELOW; MIB-II UTILIZES E.G., RTP MEDIA PROTOCOL TO TRANSFER USER'S VOICE AUDIO IN DIGITAL FORMAT (I.E., RTP PACKETS) TO SMARTPHONE VOICE RECOGNITION INTERFACE:**	**Literal / DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

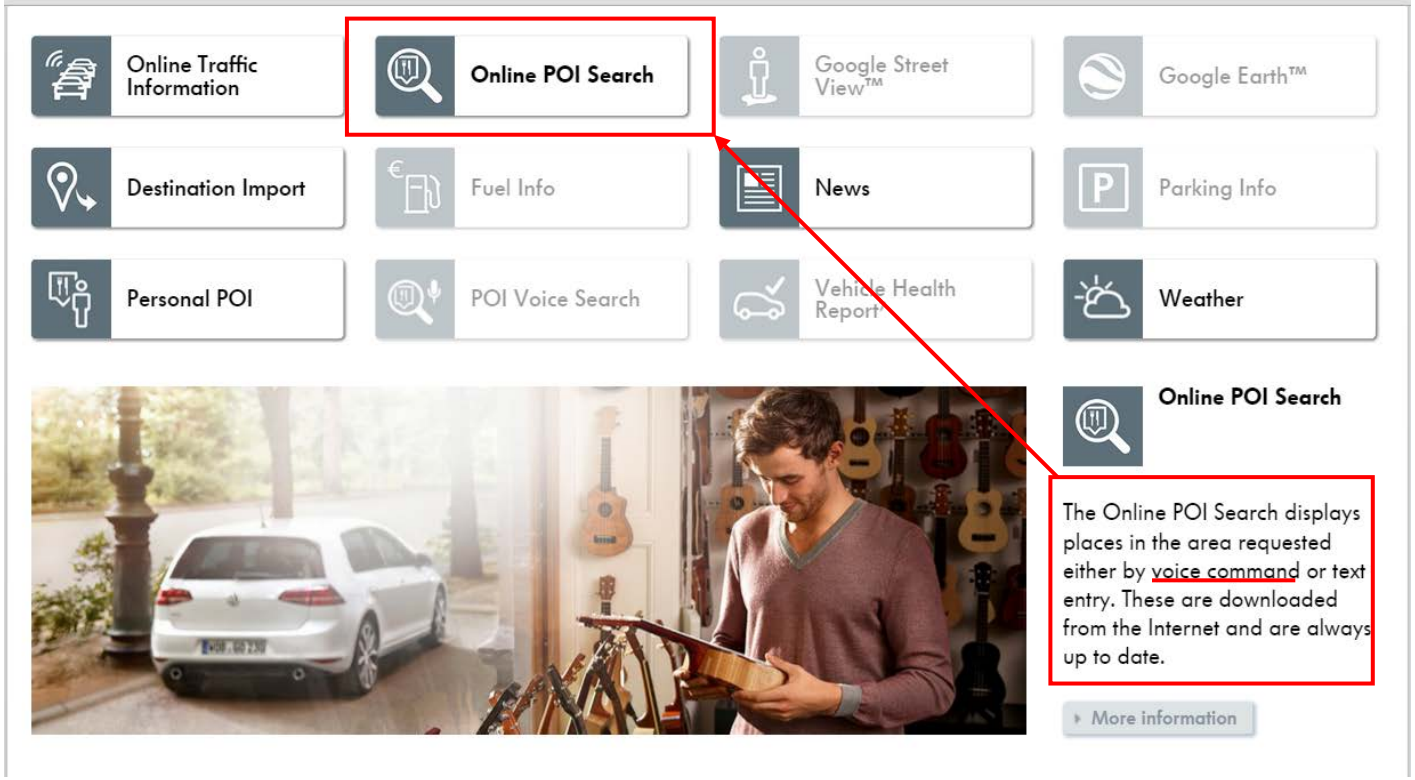
2 The Device Status Request message is given in Table 20.

# bytes	Type	Value	Description
1	U8	128	Message-type
1	U8	12	Extension-type
2	U16	4	Payload length
4	U32	*Bit*	*Status of Device Features (00 = ignore, 01* = reserved *10 = disable, 11 = enable))*
		[1:0]	Key-lock (block key entry on the device)
		[3:2]	Device lock (block key entry on the device and from MirrorLink client)
		[5:4]	Screen saver (power-down the device screen)
		[7:6]	Night mode (run device in night mode)
		[9:8]	Voice input (route the incoming audio stream to a voice recognition engine on the mobile device)[12]
		[11:10]	Microphone input on MirrorLink Client routed from microphone to the MirrorLink server
		[17:16]	Driver Distraction Avoidance (MirrorLink Client is in restricted driving mode (enabled), non-restricted driving mode (disabled) or does not enforce a specific driving mode (ignore))
		[26:24]	Absolute Framebuffer rotation (clock-wise) (000 = ignore, 001, 010, 011 = reserved

[12] The MirrorLink client MUST use this flag only if the voice command is streamed via RTP. In case an existing BT HFP connection is used and Voice Recognition Activation is supported by both Hands-Free unit and Audio Gateway, the MirrorLink client MUST use the BT HFP voice activation mechanism (AT + BVRA command as specified in **Error! Reference source not found.**) instead.

["Car Connectivity Consortium," April 28, 2015]

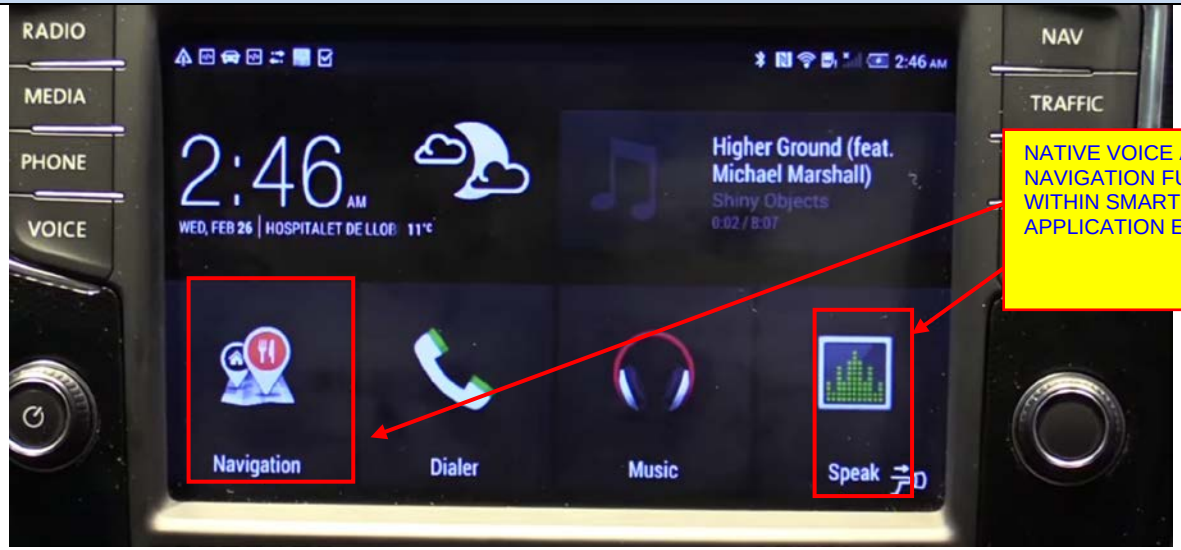
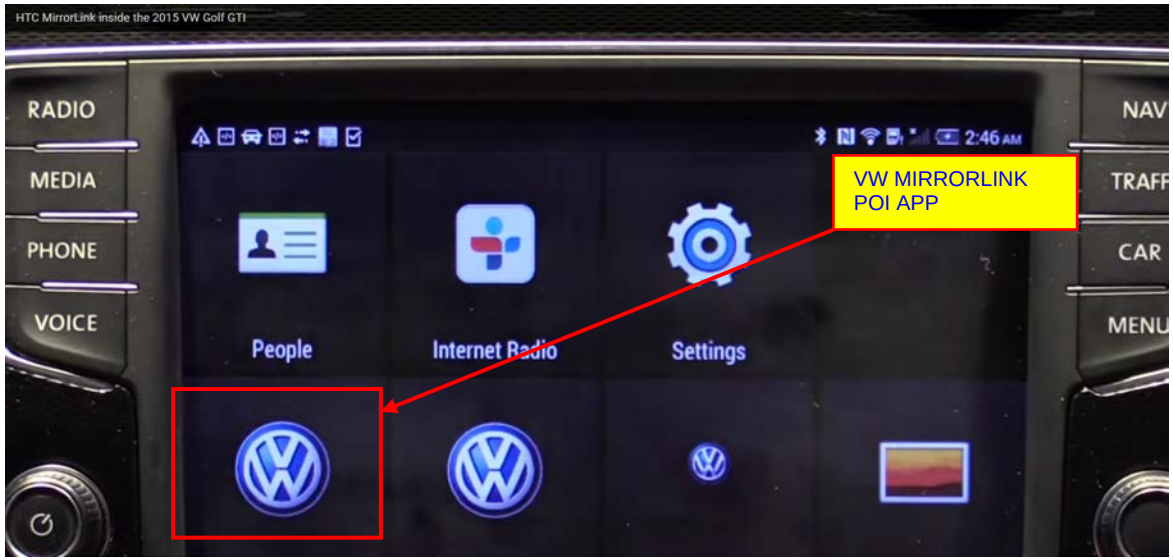
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

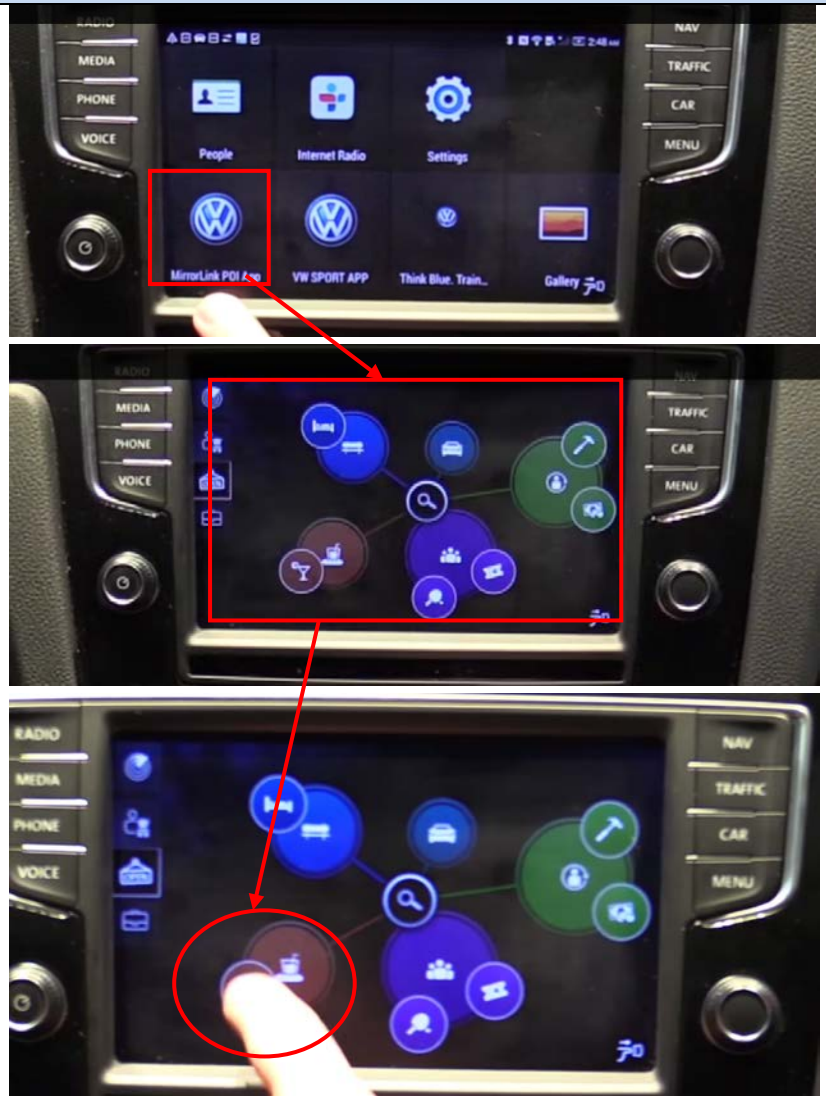


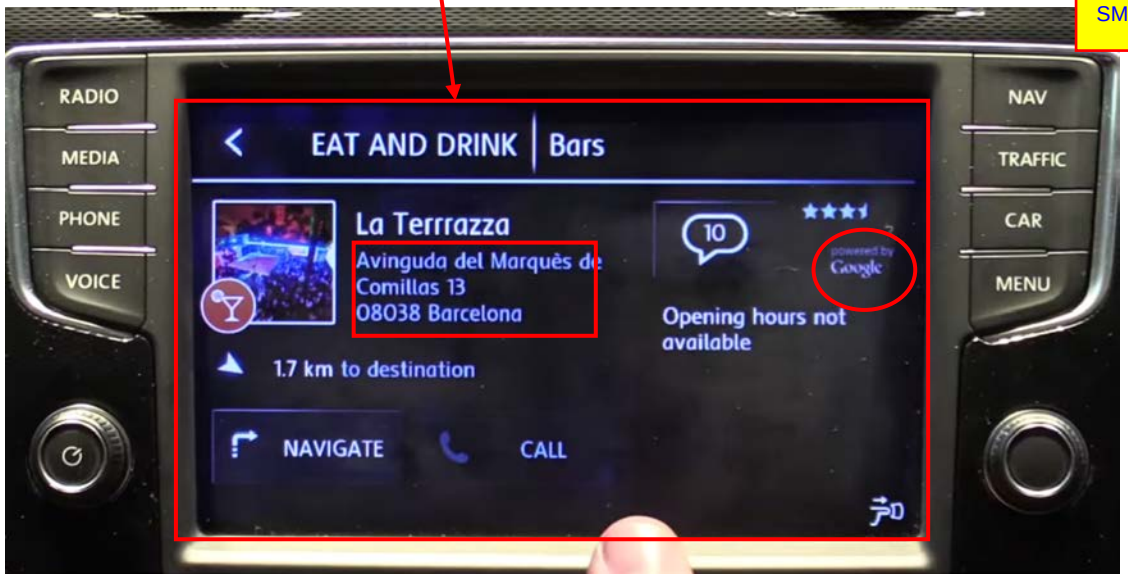
http://volkswagen-carnet.com/int/en/start/online-devices.html#130411dc-254f-4d9e-b8d6-e61f322d0417

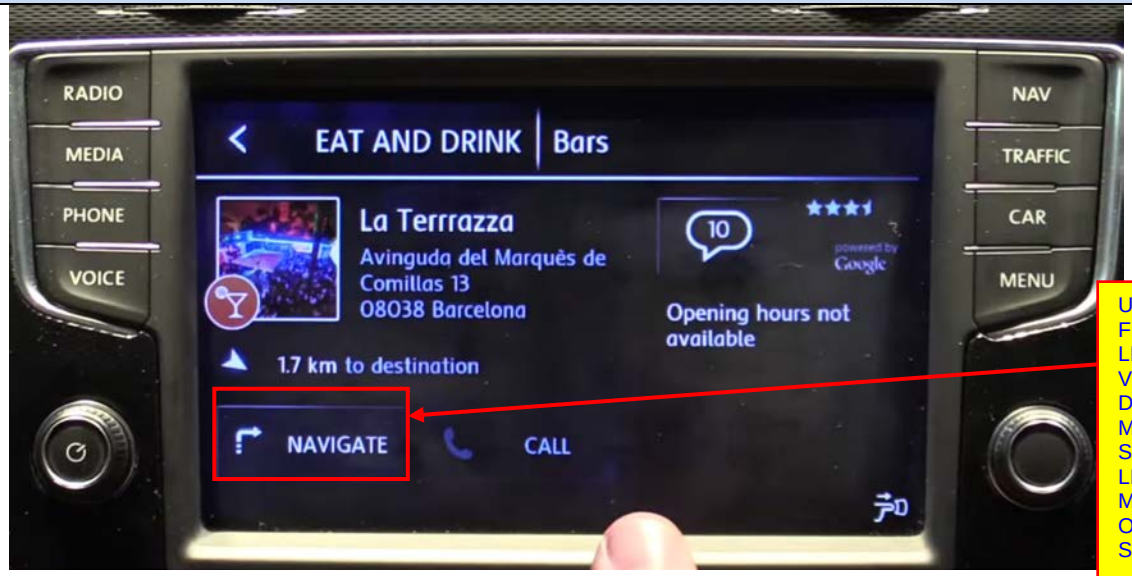
SEE FOLLOWING EXEMPLARY HTC-BASED ILLUSTRATION OF THE MIRRORLINK-ENABLED MIB-II IN 2015 GOLF GTI (OUTSIDE U.S.):

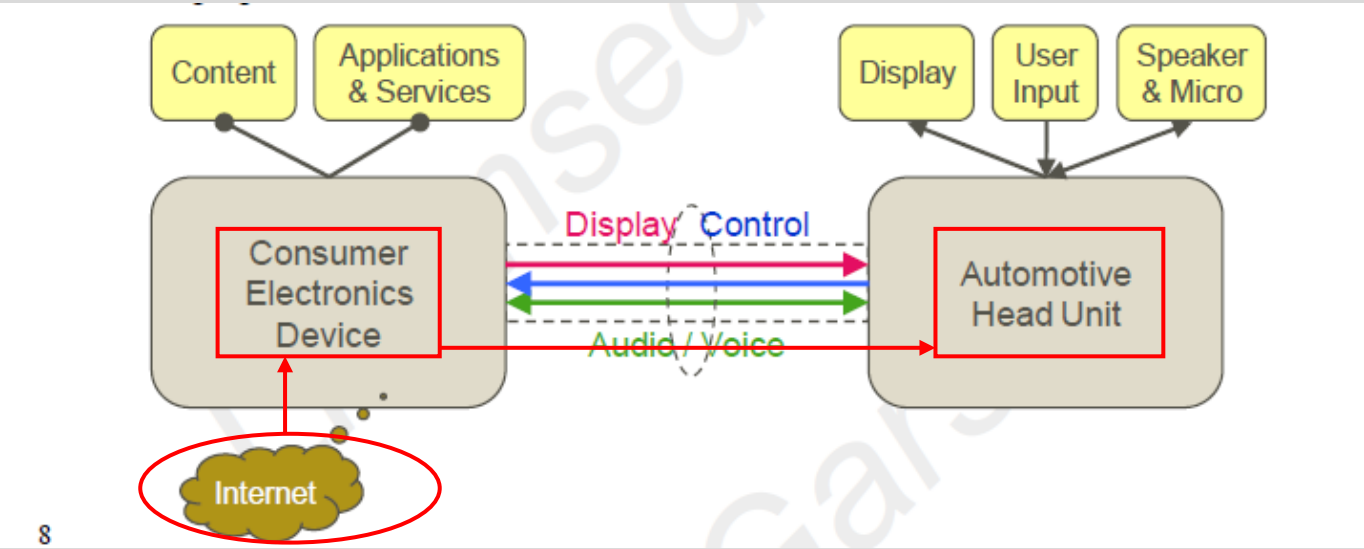
https://www.youtube.com/watch?v=6J5KNaaVRoQ

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 		

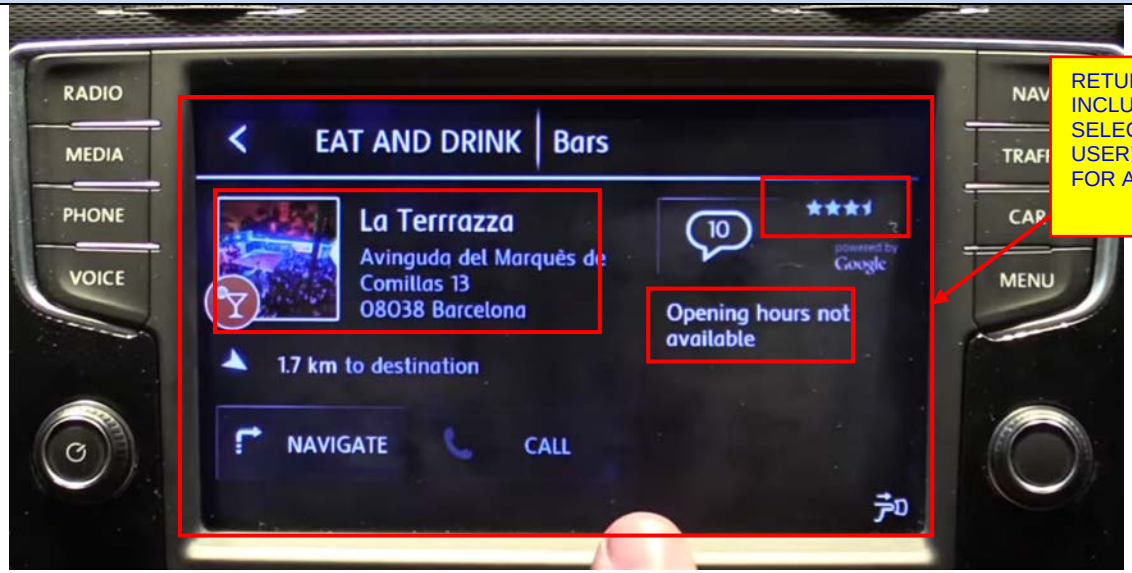
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 USER SELECTS VW MIRRORLINK POI APP, THEN "BARS AND RESTAURANTS" SUB-FUNCTION. NOTE THAT EACH OF THE FOREGOING CAN BE ACCOMPLISHED VIA VOICE COMMAND, AS NOTED ABOVE		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
cause, based at least in part on the digitized speech, access of a remote network entity to cause retrieval of the desired information; and	  USER SELECTS FIRST LISTED BAR/RESTAURANT (LA TERRRAZZA), WHICH AS NOTED, WAS OBTAINED BY GOOGLE SEARCH (I.E., ACCESS TO REMOTE SERVER VIA WIRELESS INTERFACE OF SMARTPHONE)	**L, DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 USER SELECTS "NAVIGATE" FUNCTION AND OBTAINS AT LEAST MAP DISPLAY AND VISUAL DIRECTIONS ON DISPLAY SCREEN (NOTE: MAP IMAGE FROM VW AG SITE VERSUS VIDEO). AT LEAST PART OF THE MAP/DIRECTIONS HAS BEEN OBTAINED FROM REMOTE SERVER.  http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2014/11/Innovation_workshop_2014/Networking.html		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
receive the desired information via the network interface;	**THE VW MIB-II RECEIVES THE INFORMATION FROM THE REMOTE SERVER VIA THE WIRELESS INTERFACE OF THE SMARTPHONE, AND THEN VIA USB CONNECTION BETWEEN PHONE AND VEHICLE:**  ["Car Connectivity Consortium," April 28, 2015]	**L, DOE**	
wherein the computerized information and display apparatus is further configured to display advertising content and at least a portion of the desired information on the display device, the content received via the network interface and selected based at least in part on the digitized speech.		**L, DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]



http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2014/11/Innovation_workshop_2014/Networking.html

"*ad·ver·tise·ment*

noun \ˌad-vər-ˈtīz-mənt; əd-ˈvər-təz-mənt, -tə-smənt\

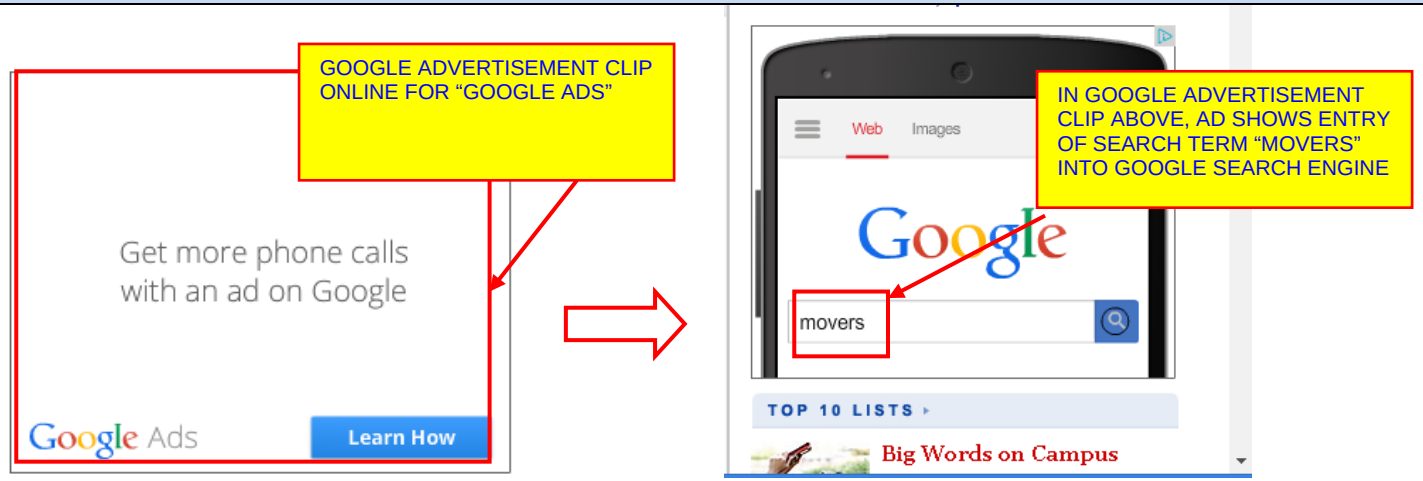
: something (such as a short film or a written notice) that is shown or presented to the public to help sell a product or to make an announcement

: a person or thing that shows how good or effective something is

: the act or process of advertising"

http://www.merriam-webster.com/dictionary/advertisement

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	AS AN EXAMPLE OF ADVERTISING ON NETWORKED DEVICES, CONSIDER GOOGLE (WHICH "POWERS" THE POI SEARCH WITHIN THE VW MIRRORLINK APP SHOWN ABOVE): **PLACE DATA IS ENTERED BY THE OWNER OF A POI INTO THE "GOOGLE PLACES" (NOW "GOOGLE LOCAL") DATABASE IN ORDER TO INCREASE THE EASE OF FINDING THE BUSINESS USING THE SEARCH ENGINE, WHICH OSTENSIBLY TRANSLATES TO MORE BUSINESS:** "Welcome to the Google Places API Power your location-based app with the Google Places API, which can be used to find detailed information about places across a wide range of categories. Backed by the same database used by Google Maps and Google+ Local, the Google Places API features over 95 million businesses and points of interest that are updated frequently through owner-verified listings and user-moderated contributions." [16] "In 2012 'Google Places' changed it's name to 'Google Local'. If you are a local business with a physical location then this part is something you will want to set up. In essence, it is a Google Plus Page and has the ability for people to give you local reviews as well. They are very simple to create and this article is intended to support you in the process. … How to create a Google Local Page It is probably worth untangling something that could cause of confusion… Google says there are "currently…two types of pages on Google for a single business. These pages will either be similar to a Place page with scores and reviews [Google Local], or they will be Google+ pages with social features [A Google+ 'Page']. You can distinguish the pages by the features available." We are talking here about the 'Google Local' type of Page as, well, you have the ability of being 'pinned' on a map – this way people can find you more easily." **GOOGLE'S OWN ADVERTISEMENTS (ONLINE ADVERTISEMENT - CIRCA LATE 2014) SHOW "ADS" WHICH ARE MARKEDLY SIMILAR TO THE BLUE LINK SEARCH RESULT:**		

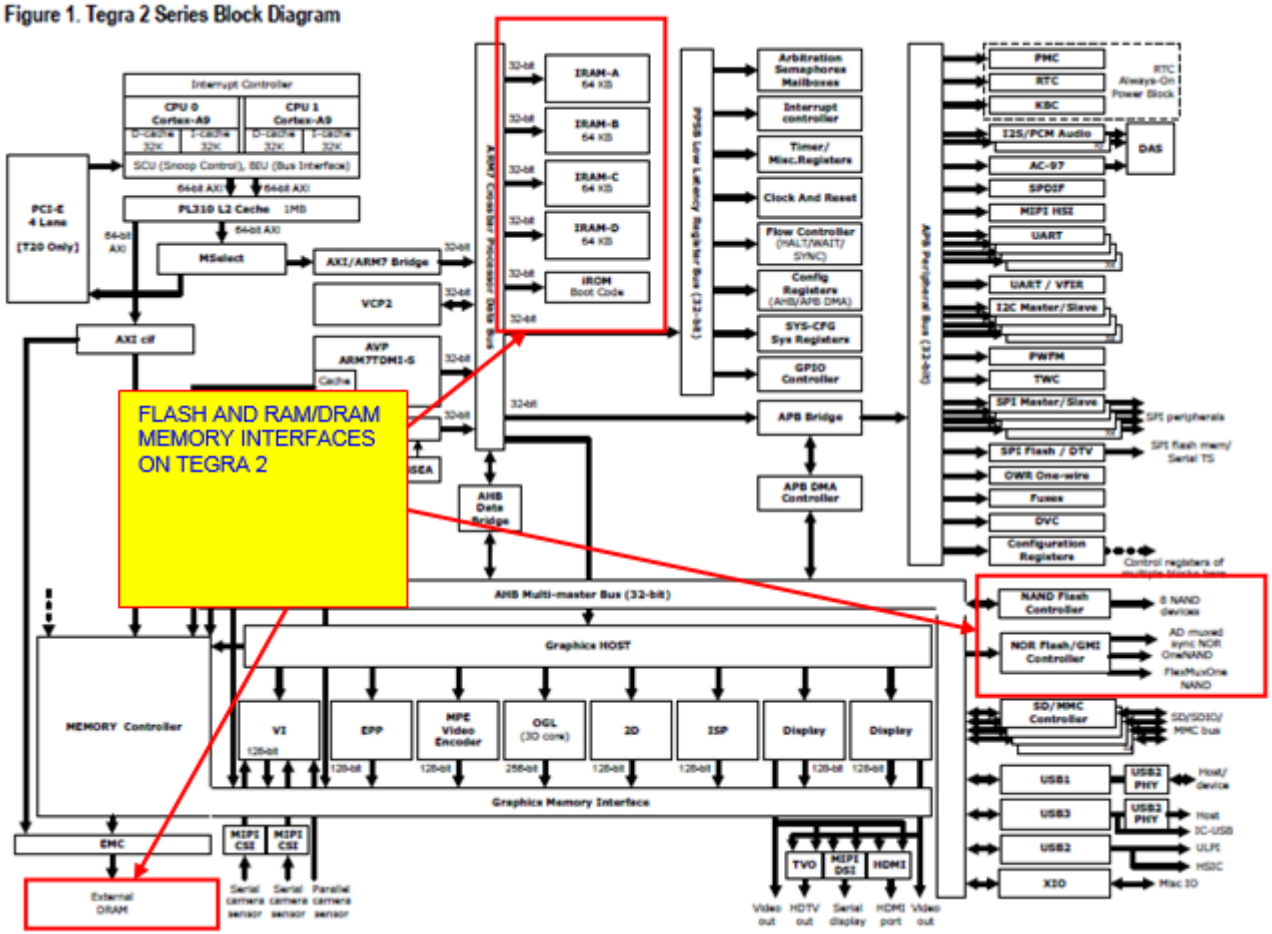
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
			

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 **ONE MIGHT ARGUE THAT THE DISPLAY ABOVE IS MERELY A "PROMOTION", BUT THIS IS UNAVAILING:** ***"promotion*** noun pro·mo·tion \prə-ˈmō-shən\ : the act of moving someone to a higher or more important position or rank in an organization : the act of moving a sports team to a higher position in a league : something (such as advertising) that is done to make people aware of something and increase its sales or popularity" http://www.merriam-webster.com/dictionary/promotion **SEE ABOVE; ALL RELEVANT INFORMATION DESIRED BY THE USER AND THE ADVERTISING ARE NOT INDIIGENOUS ON THE VEHICLE, BUT RATHER OBTAINED FROM A REMOTE SERVER (E.G., GOOGLE POI) BASED ON PROCESSING OF THE USER'S DIGITIZED SPEECH.**		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
43. Computerized information and display apparatus for use in a land-mobile transport apparatus, the information and display apparatus comprising:	 **http://www.audiusa.com/search?query=2016+Q7#** **THE EXEMPLARY 2016 AUDI Q7 IS A LAND MOBILE TRANSPORT APPARATUS (CAR), AND HAS A COMPUTERIZED INFORMATION AND DISPLAY APPARATUS (NAVIGATION/INFOTAINMENT SYSTEM AS ASSOCIATED COMPONENTS) DISPOSED AT LEAST PARTLY WITHIN THE SHOWN PASSENGER COMPARTMENT.**	**L, DOE**	**D, I**
a wireless network interface;	**THE EXEMPLARY 2016 AUDI Q7 INCLUDES EACH OF: (I) A CELLULAR NETWORK MODEM (LONG TERM EVOLUTION OR "LTE"); (II) WI-FI NETWORK MODEM ("HOTSPOT"); AND (III) A BT INTERFACE.** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example. **Internet with LTE speed:**	**L, DOE**	

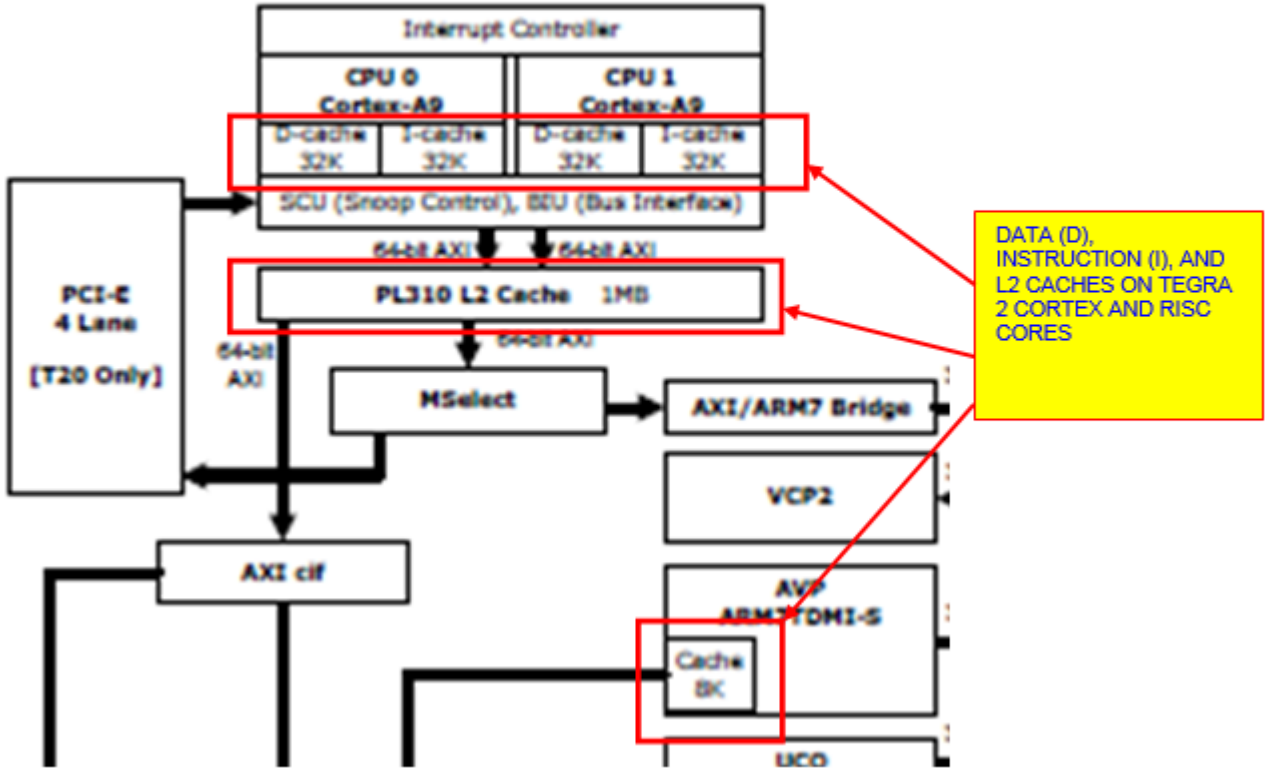
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	Audi connect MMI navigation plus also includes the module Audi connect, which connects the new Audi Q7 to the Internet via the LTE standard. Passengers can surf via the WiFi hotspot with download speeds of up to 100 Mbit/s and send and receive e-mail while using a variety of applications. The driver can use the tailored Audi connect services ranging from online traffic information to navigation with Google Earth and Google Street View to online media streaming. The new app provides access to Aupeo! personal web radio and the large Napster music library. The Q7 also has a new, top-of-the-line element of the Audi connect portfolio: The Audi smartphone interface brings …"Google Android Auto" on board. If an …Android cellular phone is connected to the USB port (…Android from Version 5.0 Lollipop), the … environment opens in the Audi smartphone interface. Both are tailored for use in the car. **The heart of this feature is online music.** In addition, both platforms offer navigation functions, missed call/appointment reminders and messaging functions. Over time, these will be joined by numerous third-party applications such as Pandora, Spotify and WhatsApp." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **ADDITIONALLY, THE EXEMPLARY NEXUS 5 (FOR ILLUSTRATION ONLY; SIMILAR LOGIC APPLIES TO OTHER ANDROID SMARTPHONES OR DEVICES THAT MAY BE CONNECTED TO Q7 SYSTEM) INCLUDES AT LEAST: (I) CELLULAR MODEM (E.G., LTE OR 3G); (II) WI-FI; (III) BLUETOOTH, AND (IV) NFC.** "**WIRELESS** DUAL-BAND WI-FI (2.4G/5G) 802.11 A/B/G/N/AC NFC (ANDROID BEAM) BLUETOOTH 4.0 NETWORKS **2G/3G/4G LTE…** "**PORTS AND CONNECTORS** MICROUSB SLIMPORT™ ENABLED 3.5MM STEREO AUDIO JACK DUAL MICROPHONES CERAMIC POWER AND VOLUME BUTTONS" **[Audi connect brochure, 2014]** **THE NEXUS 5 COMES EQUIPPED FROM THE FACTORY WITH HARDWARE AND SOFTWARE SUPPORTING EACH OF THE FOREGOING TYPES OF INTERFACES.**		
processing apparatus in data communication with	**SEE DISCUSSION BELOW REGARDING DETAILS ON 2015 AUDI A3 (MIB-BASED MMI SYSTEM BELIEVED TO BE FUNCTIONALLY SIMILAR TO WHAT WILL BE INSTALLED IN 2016 Q7 WHEN SOLD IN LATER 2015).**	**L, DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
the network interface;	"The Audi Q7 also sets standards with respect to the operating concept, infotainment, connectivity and driver assistance systems. The second-generation modular infotainment platform is on board, as is the Audi virtual cockpit. **The new MMI all-in-touch control unit with large touchpad** makes operation child's play." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **AS DISCUSSED BELOW, MIB/MMI WITH CONNECT ARCHITECTURE IS MODULAR, AND INCLUDES AN NVIDIA TEGRA (2 OR 3) PROCESSOR AND VARIOUS STORAGE DEVICES SUCH AS HDD, RAM, CACHES, ETC. BOTH SUPPORTING TEGRA CHIP AND OTHER COMPONENTS. THE NAVIGATION AND INFORMATION-PROVIDING ALGORITHMS, AS WELL AS RELEVANT DATA SUCH AS MAP DATA, ETC., ARE RESIDENT ON THESE STORAGE DEVICES ("PROCESSING APPARATUS" AND "STORAGE APPARATUS WITH AT LEAST ONE COMPUTER PROGRAM…" REFERENCED BELOW).**		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	Figure 1. Tegra 2 Series Block Diagram 		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

Figure 1. Tegra 2 Series Block Diagram



"Powered by Nvidia Tegra 2

Individual components, such as the processor, radios, and such, can be individually upgraded by Audi without disturbing the rest of the vehicle's systems. Right now, the 2015 A3 is powered by an Nvidia Tegra 2 system on a chip with 64GB of storage space for maps, data, and more, but in 16 months, a 2016 model could just as easily be powered by a Tegra 4 with minimal retooling."

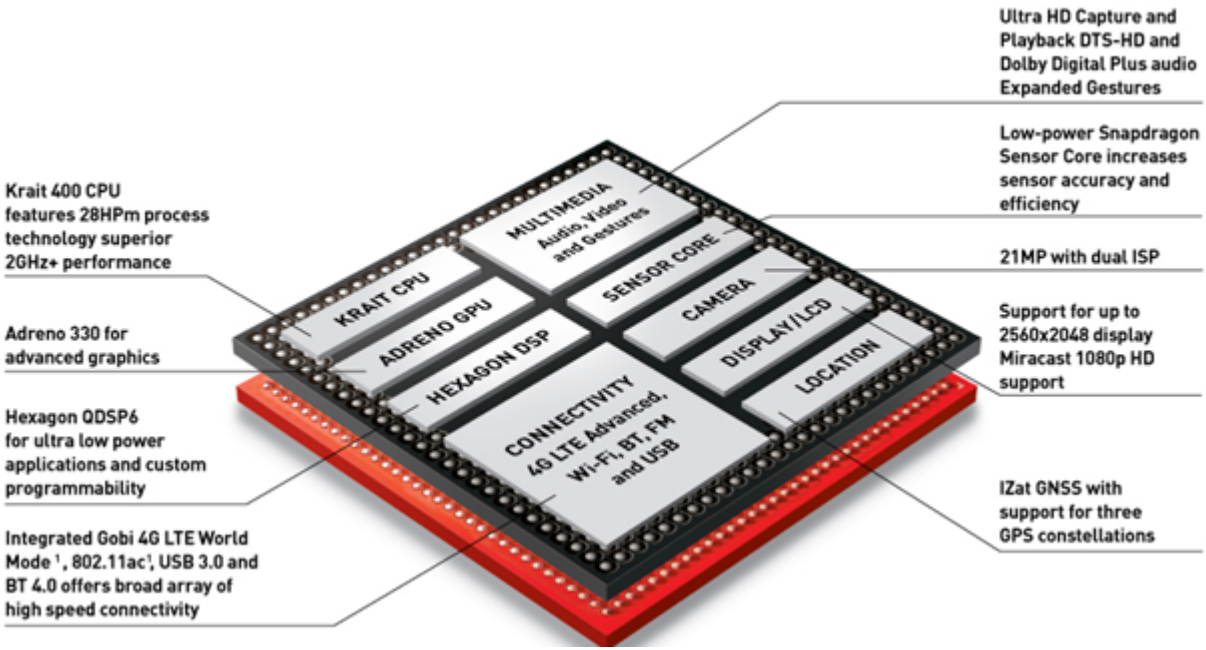
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 "We spoke in depth to Mathias Halliger, head of MMI architecture, who explained how they had shrunk the contents of ten separate units into a single control box, encapsulating the radio, amplifier, GPS, DVD player, internet, hard drive, satellite radio, Wi-Fi hotspot, USB, Bluetooth and even the rearview camera input." [http://www.superstreetonline.com/cars/new-car-reviews/1407-2015-audi-a3-sedan-first-drive/] **EXEMPLARY NEXUS 5 ANDROID PHONE HAS NUMEROUS PROCESSING APPARATUS WHICH, *INTER ALIA*, SUPPORT THE FUNCTIONS OF THE ANDROID AUTO SYSTEM (INCLUDING INTERFACING DIRECTLY OR INDIRECTLY WITH CAR'S MIMO ANTENNAS, TOUCH SCREEN, VOICE SYSTEMS, ETC. VIA QNX STACK:** "PROCESSING CPU: Qualcomm Snapdragon™ 800, 2.26GHz processor GPU: Adreno 330, 450MHz" [Audi connect brochure, 2014]		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

"Snapdragon 800

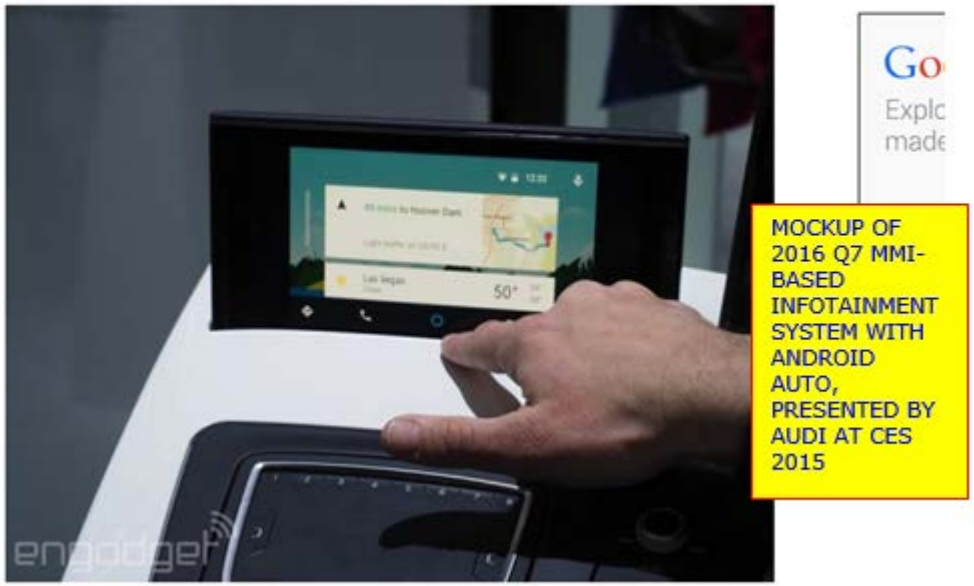
Beyond its cellular connectivity, the Nexus 5 is meaningful for sporting the fastest Android-compatible SoC in 2013, Qualcomm's Snapdragon 800. At almost 2.3 GHz, its Krait 400 cores represent a significant speed-up compared to the APQ8064's 1.5 GHz Krait 200 architecture.

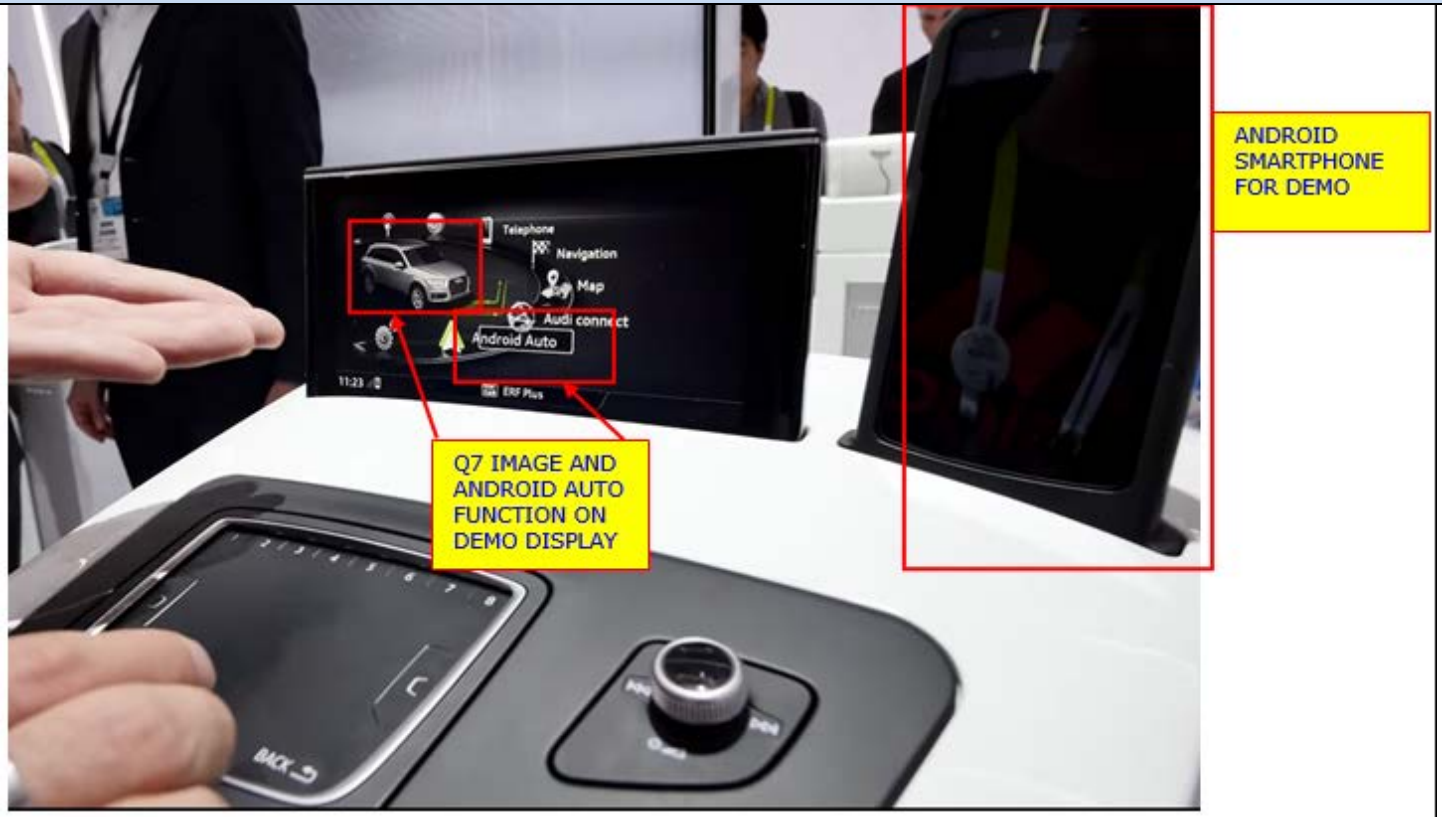
The fact that Google's sub-$400 Nexus 5 has this SoC comes as somewhat of a surprise considering that quite a few premium Snapdragon 600-based phones were released only a few months prior. When the Nexus 5 launched in late October, it became one of the first widely available Snapdragon 800-based devices in the U.S. market. Putting such a premium SoC in this phone means no performance compromises were made. Apparently, Google wants its customers to experience the very best that Android has to offer on the company's own branded line of devices.

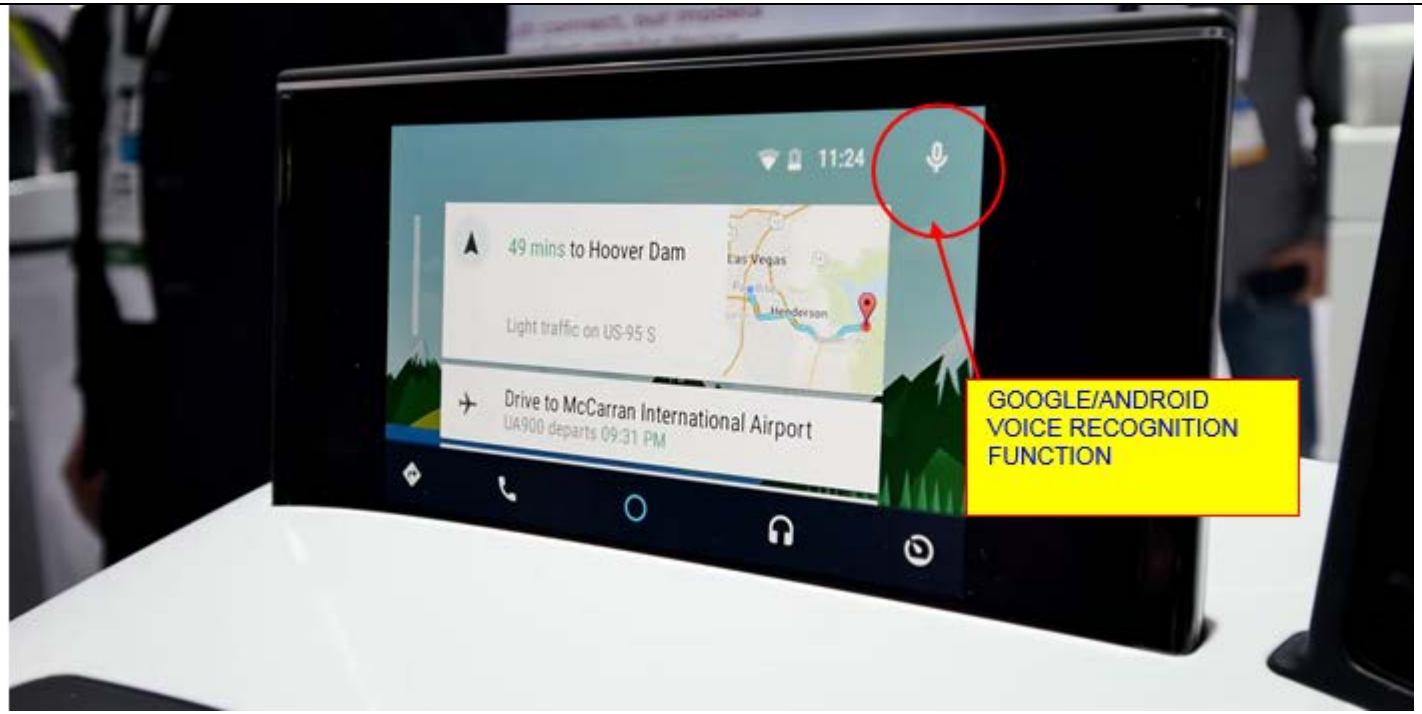


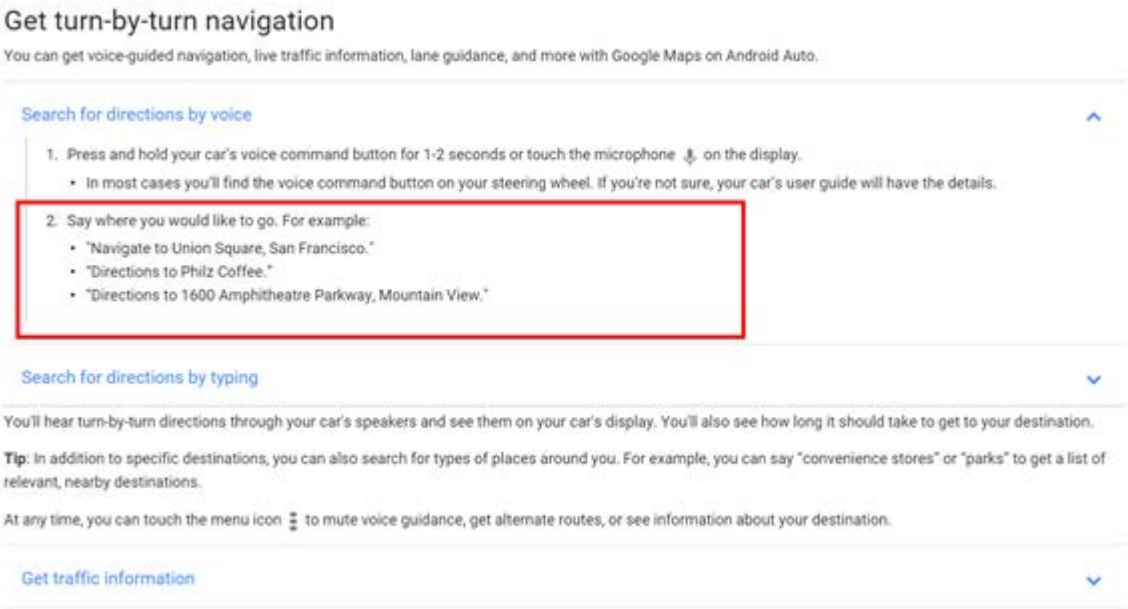
On paper, the Snapdragon 800 SoC offers a lot potential performance. Some of this is related to hardware accelerators, but the Adreno 330 graphics core is largely responsible for its alacrity in games. Nvidia's Tegra K1 has us talking about a

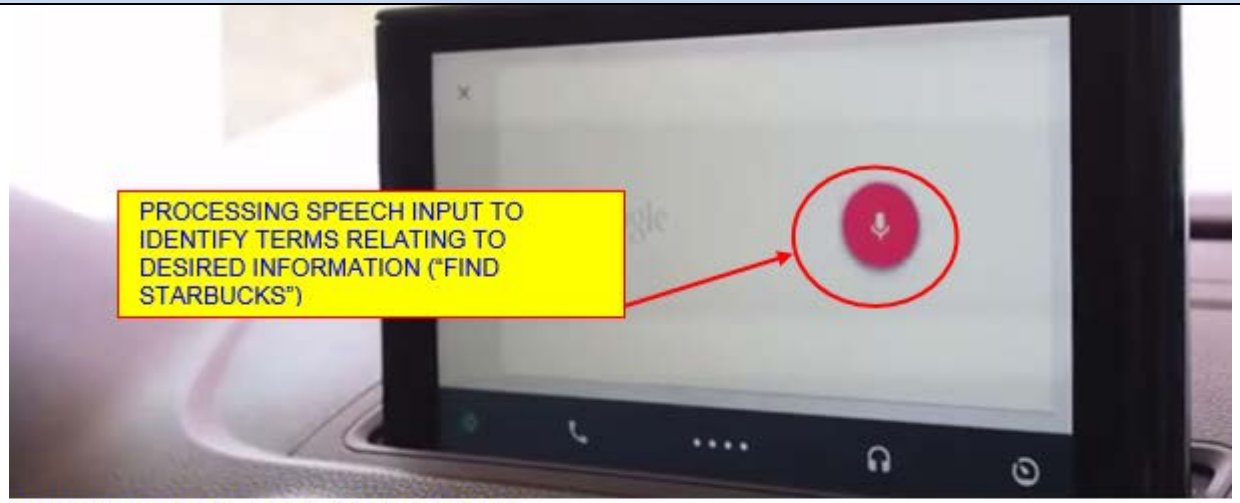
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	future with console-quality games on smartphones, but at least today, titles written for Android run very smoothly at maxed out quality settings on the Adreno engine. Recent releases like *Asphalt 8: Airborne*, *Riptide GP 2*, and *Grand Theft Auto: San Andrea* run exceedingly well at maxed out settings, while slightly older games like *Real Racing 3*, *Shadowgun*, and *Riptide GP* appear smoother than ever. I was frankly quite surprised at the improvement, having previously come from a Xiaomi MI-2 with its Snapdragon S4 Pro/Adreno 320 SoC." [http://www.tomshardware.com/reviews/google-nexus-5-smartphone,3720.html]		
a display device configured to be viewable by an occupant of the land-mobile apparatus during use; and	 http://www.audiusa.com/search?query=2016+Q7#	**L, DOE**	

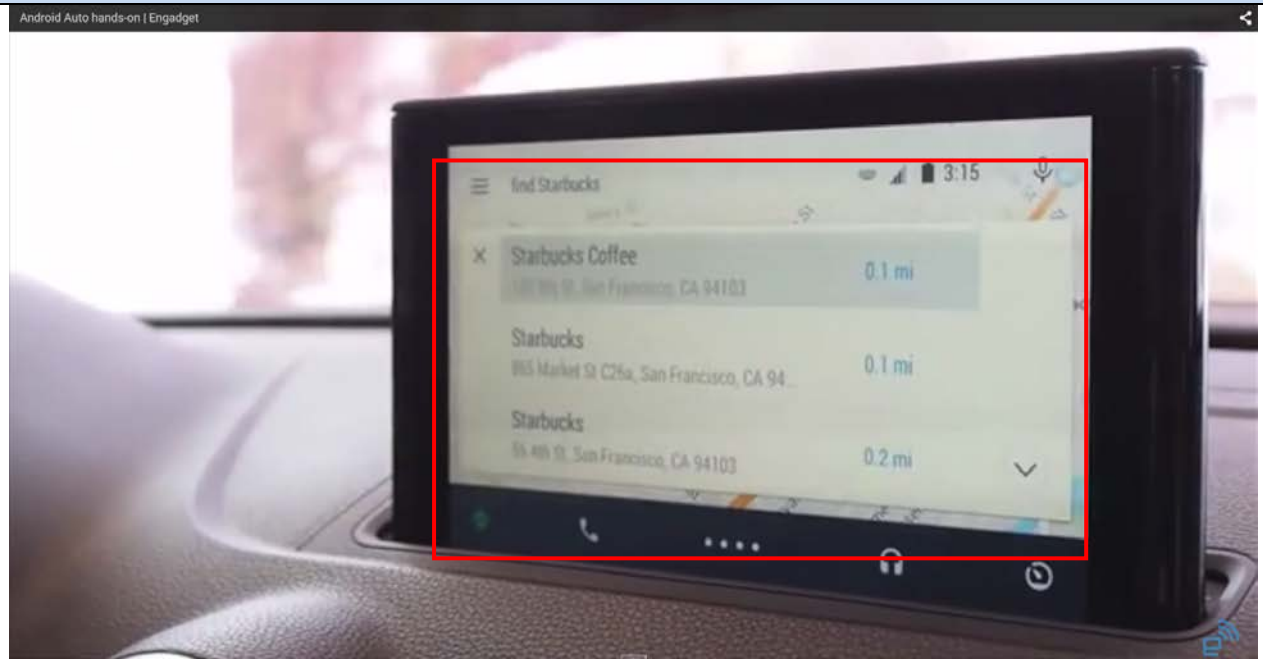
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	Audi's latest Q7 supports Android Auto Related Article SHARE: PREVIOUS  **THE 2016 Q7 HAS (WILL HAVE) A COMPUTERIZED INFORMATION AND DISPLAY APPARATUS (NAVIGATION/INFOTAINMENT SYSTEM AS ASSOCIATED COMPONENTS) DISPOSED AT LEAST PARTLY WITHIN THE SHOWN PASSENGER COMPARTMENT (OSTENSIBLY AS SHOWN IN PASSENGER COMPARTMENT PHOTO ABOVE).**		

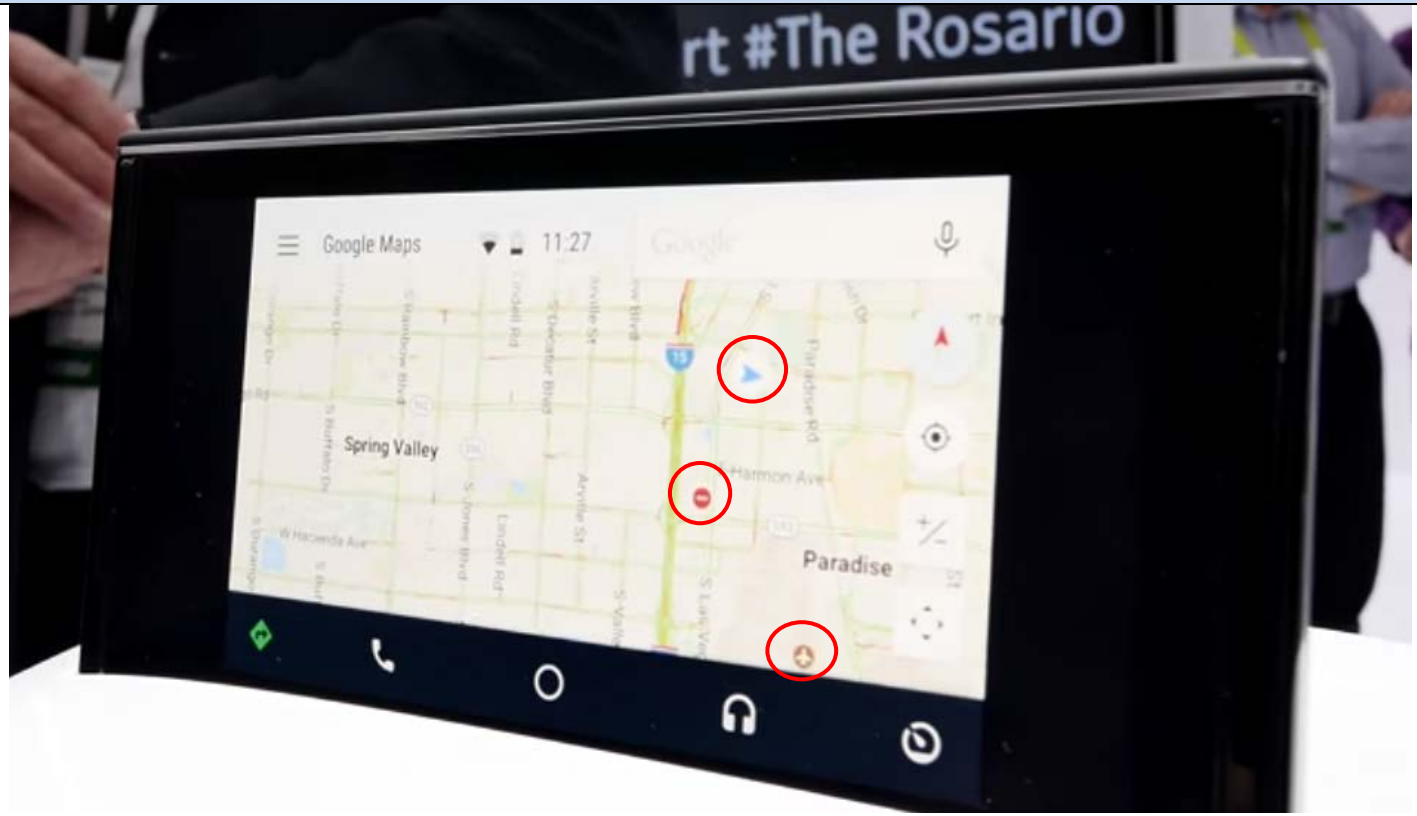
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=FNo-Cuzp3Rw		
a storage apparatus comprising at least one computer program, said at least one program being configured to, when executed:	**SEE DISCUSSION OF PROCESSING APPARATUS ABOVE; 2016 Q7 (ASSUMING MIB/MMI AS NOTED ABOVE) HAS NUMEROUS TYPES OF STORAGE DEVICES WHICH CONTAIN COMPUTER CODE, FIRMWARE, ETC. TO DRIVE THE DISPLAY, INFOTAINMENT FEATURES, SPEECH RECOGNITION, ETC.** **MOREOVER, EXEMPLARY ANDROID PHONE (NEXUS 5) HAS NUMEROUS STORAGE DEVICES, SOFTWARE, FIRMWARE, ETC. AS WELL, AS SHOWN ABOVE.** "Getting started is as easy as plugging in your phone, **Audi provides a microUSB cord for Android** …Once attached, the car takes over, routing calls and messages to Audi's pop-up display."	**L, DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	http://www.tomsguide.com/us/audi-android-auto-apple-carplay,news-20243.html **WHEN CONNECTED BY E.G., A SERIAL BUS (E.G., MICRO-USB PROVIDED BY AUDI WITH VEHICLE DESCRIBED ABOVE), THE TWO DEVICES (SMARTPHONE AND VEHICLE MIB/HEAD UNIT) COOPERATE AND COORDINATE TO PASS DATA BACK AND FORTH, ETC. AS ONE SEAMLESS DEVICE. THE PHONE DISPLAY IS EFFECTIVELY LOCKED, AND THE CAR INTERFACES (I.E., MMI CONTROLLER, VOICE CONTROL SYSTEM, ETC.) ARE THE SOLE USER INTERFACES TO THE SYSTEM.**		
obtain digitized speech generated based on speech received from the occupant, the digitized speech relating to a desired information which the occupant wishes to obtain;	 https://www.youtube.com/watch?v=FNo-Cuzp3Rw	**L, DOE**	

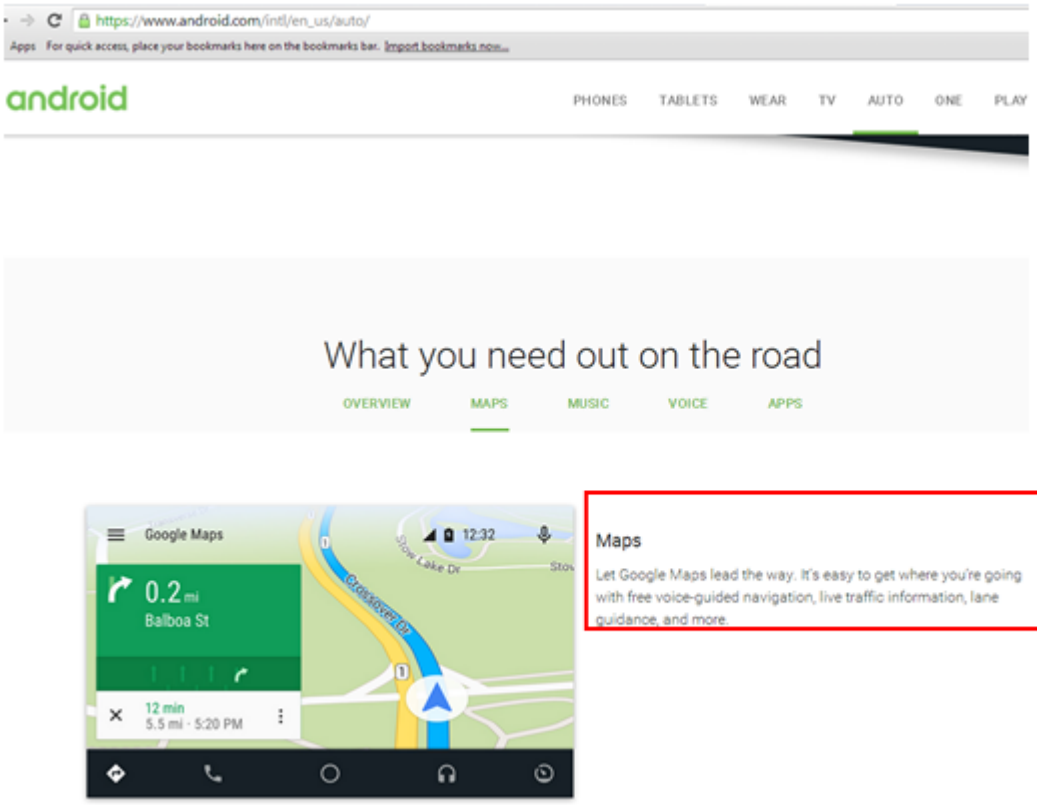
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 **SEE EXPLICIT EXAMPLE IN VIDEO BELOW (AUDI A3, BUT FUNCTIONALITY SAME):** **https://www.youtube.com/watch?v=uXrVtUg61xs**		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
cause, based at least in part on the digitized speech, access of a remote network entity to cause retrieval of the desired information; and	 **DEMONSTRATOR: *"FIND STARBUCKS"***  https://www.youtube.com/watch?v=FNo-Cuzp3Rw	**L, DOE**	

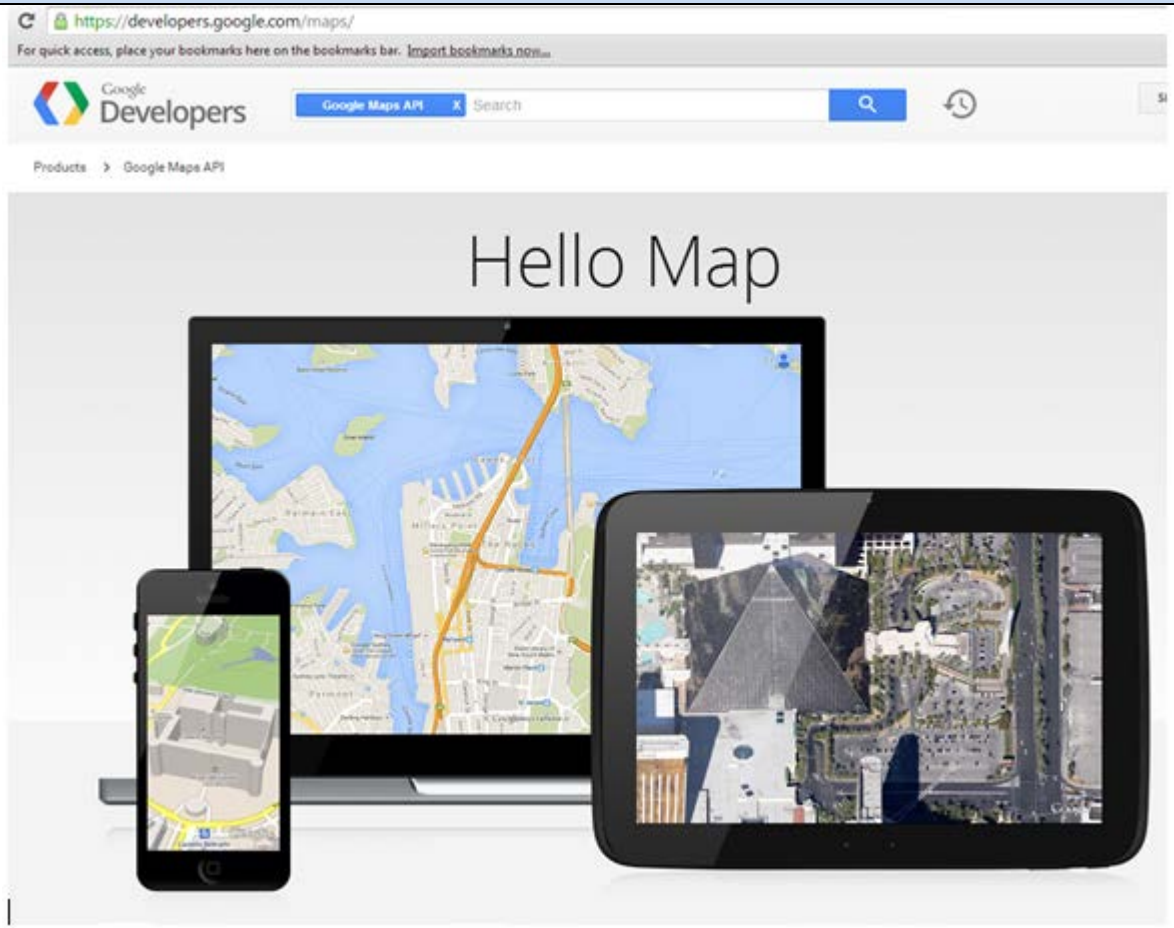
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
receive the desired information via the network interface;	 **AFTER USER SELECTS APPROPRIATE ENTRY ABOVE FROM THE RECEIVED RESULTS, A MAP SUCH AS FOLLOWS IS SHOWN (CES DEMO – Q7 MOCKUP, AND AA WEBSITE), SHOWING DESTINATION (GRAPHICALLY AND VIA ICON), NEARBY POI'S (SEE AIRPORT AT BOTTOM), GRAPHICAL DIRECTIONS (COLORED LINES/ARROWS), TEXTUAL DIRECTIONS, ETC.:**	**L, DOE**	

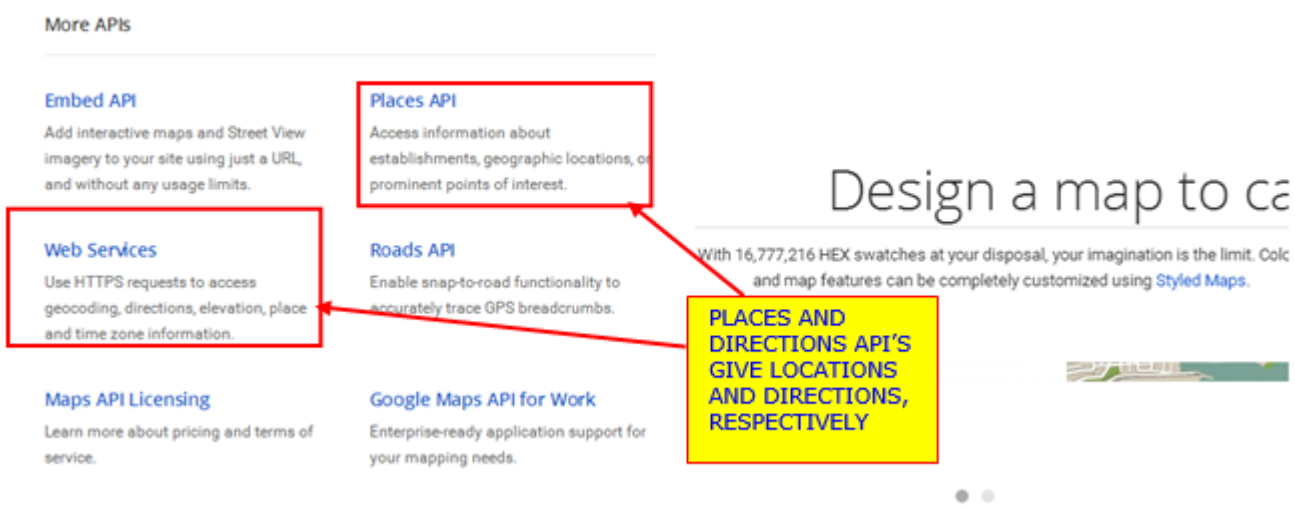
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=FNo-Cuzp3Rw		

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]

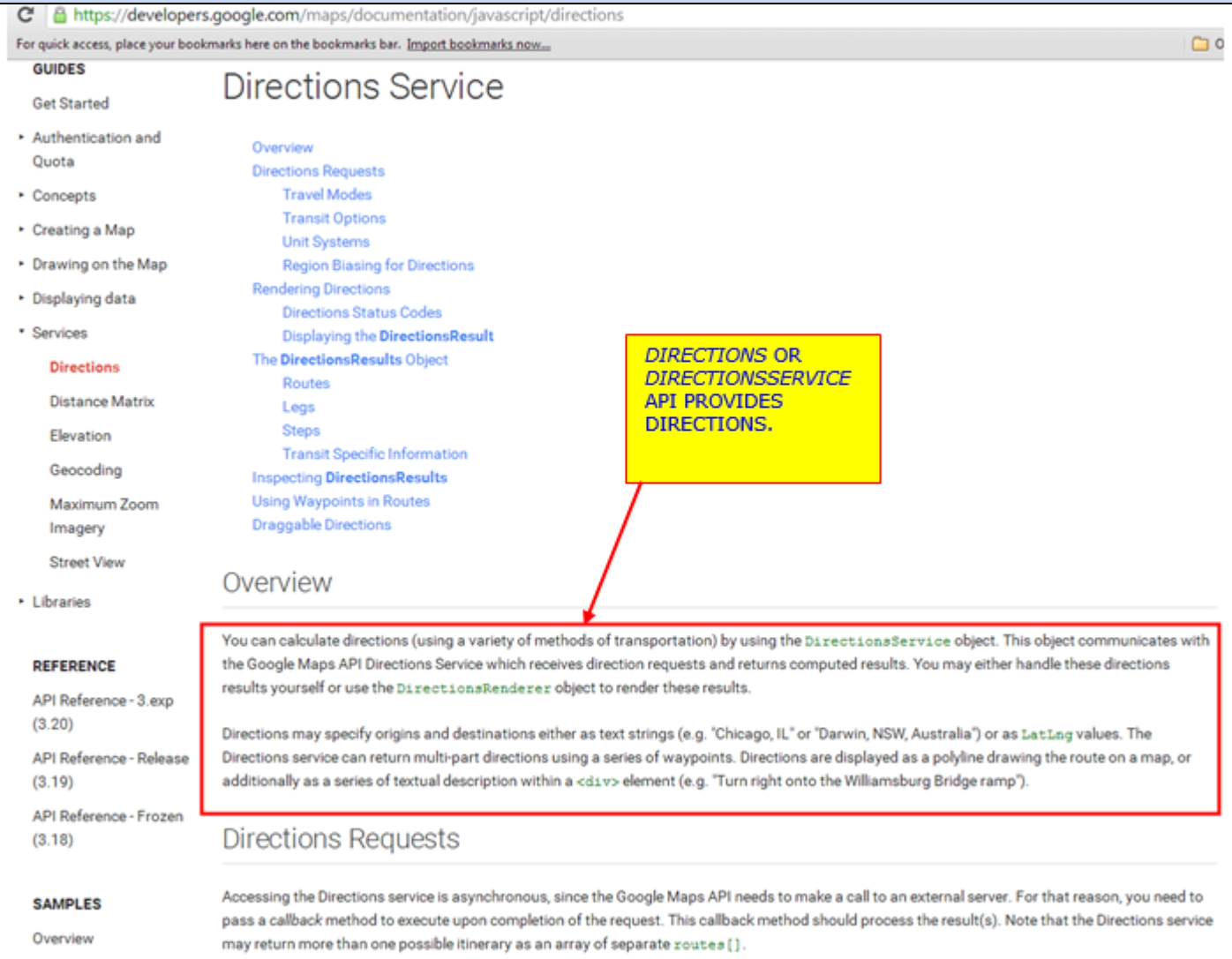


GOOGLE MAPS IN ANDROID AUTO USES BOTH GOOGLE "*PLACES*" OR SIMILAR API (APPLICATION PROGRAMMING INTERFACE) TO CALL FOR LOCATION DATA, AND GOOGLE "*DIRECTIONS*" OR "*DIRECTIONSSERVICE*" API'S TO GENERATE LOCATION OF ENTITY AND ROUTE TO ENTITY:

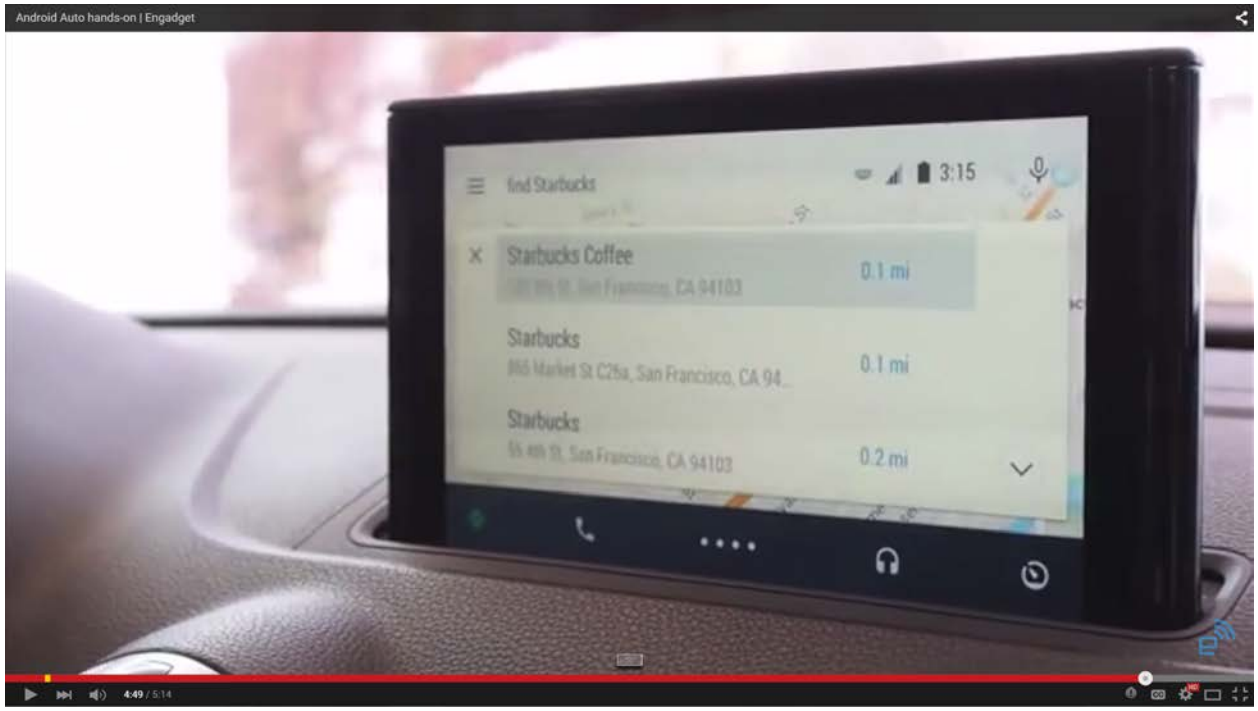
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
			

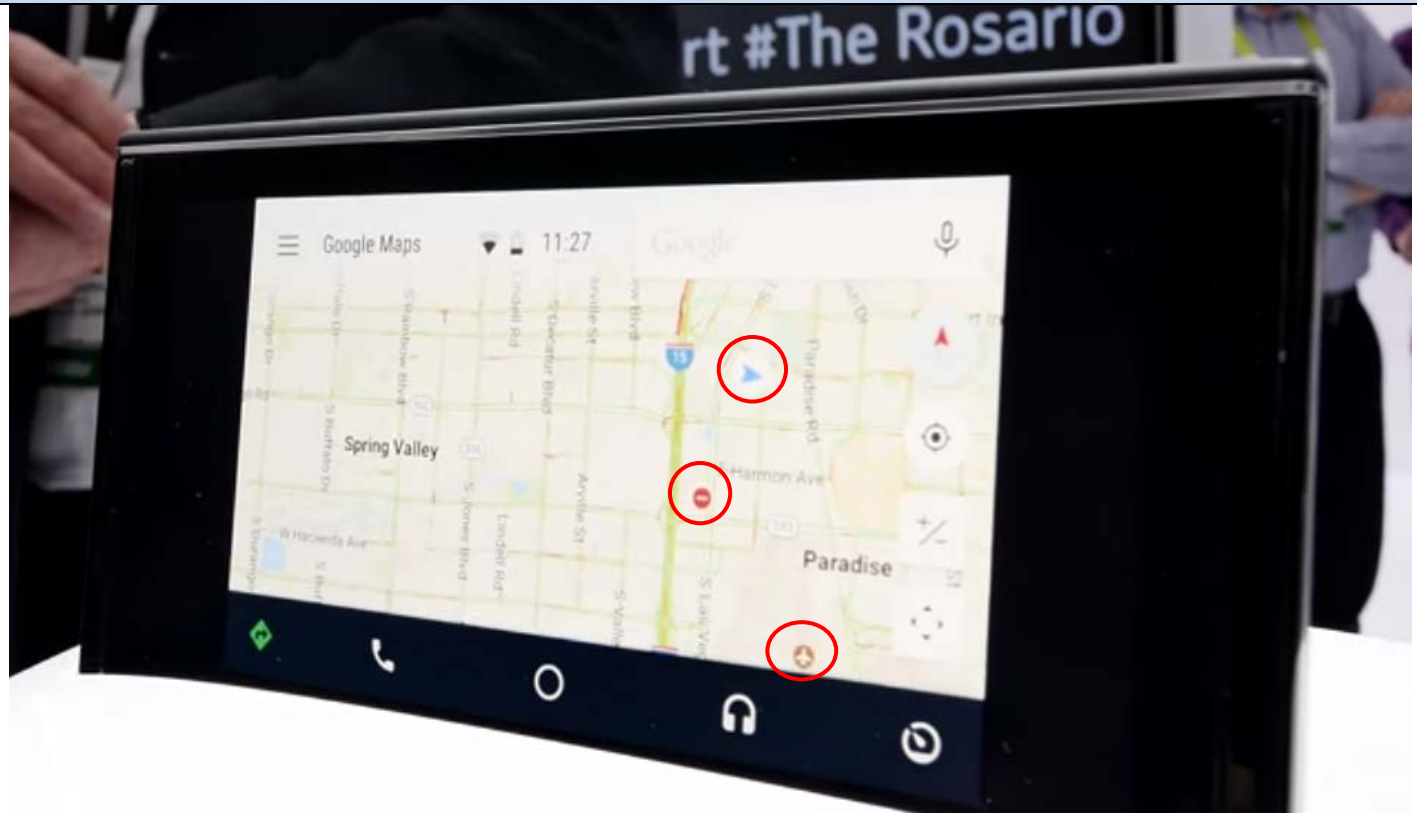
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 https://developers.google.com/maps/		

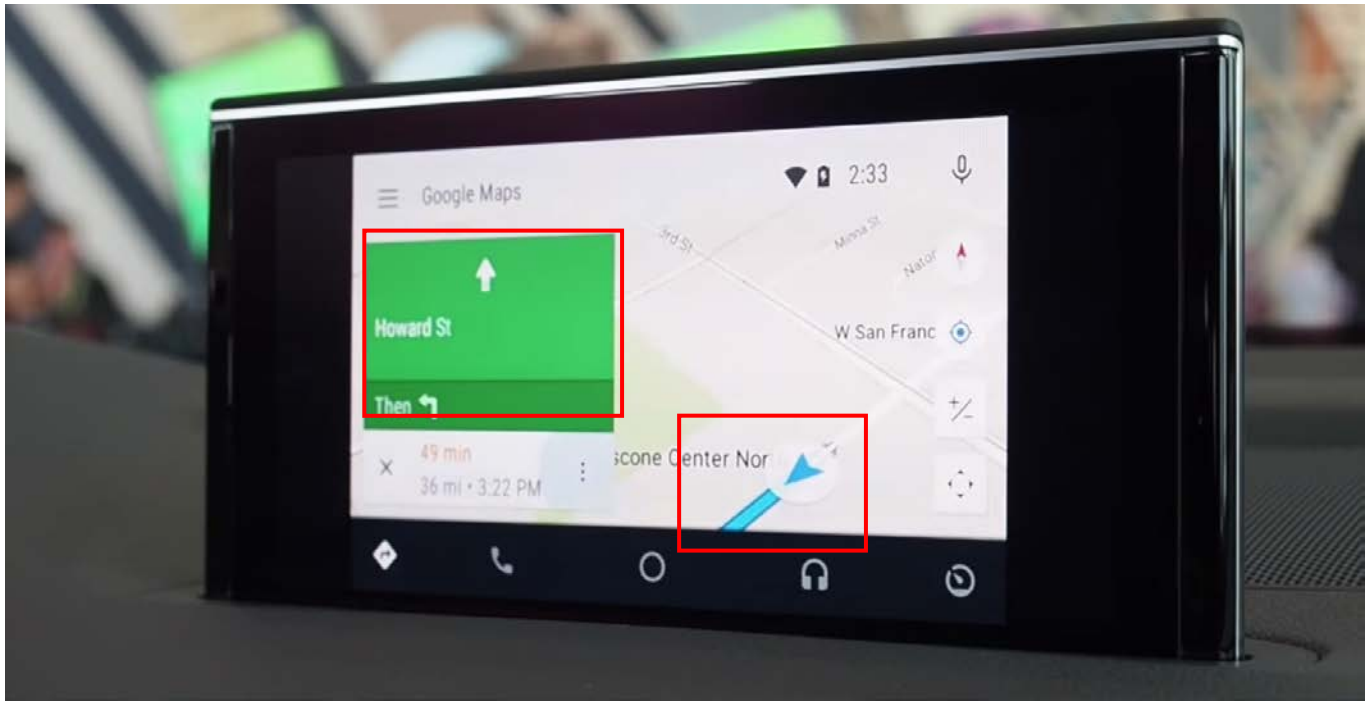
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]



https://developers.google.com/maps/documentation/javascript/directions

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
wherein the computerized information and display apparatus is further configured to display at least a portion of the desired information on the display device, the at least portion received via the network interface and selected based at least in part on the digitized speech.	 **AFTER USER SELECTS APPROPRIATE ENTRY ABOVE, A MAP SUCH AS FOLLOWS IS SHOWN (CES DEMO – Q7 MOCKUP, AND AA WEBSITE), SHOWING DESTINATION (GRAPHICALLY AND VIA ICON), NEARBY POI'S (SEE AIRPORT AT BOTTOM), GRAPHICAL DIRECTIONS (COLORED LINES/ARROWS), TEXTUAL DIRECTIONS, ETC.:**	**L, DOE**	

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
	 https://www.youtube.com/watch?v=FNo-Cuzp3Rw		
44. The apparatus of claim 43, wherein the desired information comprises at least one of a map and/or directions to a particular organization or	**SEE DISCUSSION OF CLAIM 43 ABOVE; GOOGLE MAPPING API(S) USED BY ANDROID AUTO FOR MAP/LOCATION DATA AND DIRECTIONS.**	**L, DOE**	**D, I**

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
entity accessible by the land-mobile apparatus.			
45. The apparatus of claim 44, wherein the desired information comprises at least both of the map and the directions to the particular organization or entity accessible by the land-mobile apparatus, and the directions include at least one arrow showing a path for the land-mobile apparatus to follow to get to the organization or entity.	 https://www.youtube.com/watch?v=yxq7yJEnt-s **SEE DISCUSSION OF CLAIM 43 ABOVE; GOOGLE MAPPING API(S) USED BY ANDROID AUTO FOR MAP/LOCATION DATA AND DIRECTIONS. THE DIRECTIONS API GENERATES THE COLORED LINE/ARROW PATH (BLUE IN ABOVE EXAMPLE) FOR USER (E.G., DRIVER) TO FOLLOW.**	**L, DOE**	**D, I**

Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
46. The apparatus of claim 44, wherein the desired information comprises at least both of the map and directions to the particular organization or entity accessible by the land-mobile apparatus, and the computerized information and display apparatus further comprises a speech synthesis apparatus which is configured to generate audible sounds for the occupant, the sounds comprising human-intelligible words relating to the occupant's digitized speech.	**SEE DISCUSSION OF CLAIM 43 ABOVE; GOOGLE MAPPING API(S) USED BY ANDROID AUTO FOR MAP/LOCATION DATA AND DIRECTIONS.** **THE HYUNDAI ANDROID AUTO IMPLEMENTATION ALSO INCLUDES A VOICE SYNTHESIS CAPABILITY (PLAYS THROUGH CAR SPEAKERS); SEE E.G., https://www.youtube.com/watch?v=-FL9kKqOQxI, AND FOLLOWING:** Get turn-by-turn navigation You can get voice-guided navigation, live traffic information, lane guidance, and more with Google Maps on Android Auto. Search for directions by voice 1. Press and hold your car's voice command button for 1-2 seconds or touch the microphone on the display. • In most cases you'll find the voice command button on your steering wheel. If you're not sure, your car's user guide will have the details. 2. Say where you would like to go. For example: • "Navigate to Union Square, San Francisco." • "Directions to Philz Coffee." • "Directions to 1600 Amphitheatre Parkway, Mountain View." Search for directions by typing You'll hear turn-by-turn directions through your car's speakers and see them on your car's display. You'll also see how long it should take to get to your destination. https://support.google.com/androidauto/?hl=en#6140614 **NOTE THAT THE "GOOGLE NOW" VOICE RECOGNITION INTERFACE IS ALSO VERBALLY INTERACTIVE (I.E., IT CONVERSES WITH THE USER VIA SPEECH SYNTHESIS CAPABILITY) IN ADDITION TO MERELY PROVIDING TURN-BY-TURN DIRECTIONS. FOR EXAMPLE, USER IN ABOVE EXAMPLE SAYS "COFFEE SHOPS" AND SYSTEM RETURNS "TOUCH THE ONE YOU WANT…"; SYNTHESIZED SPEECH CLEARLY RELATES AND IS PREDICATED ON USER'S VERBAL INPUT.**	**L, DOE**	**D, I**

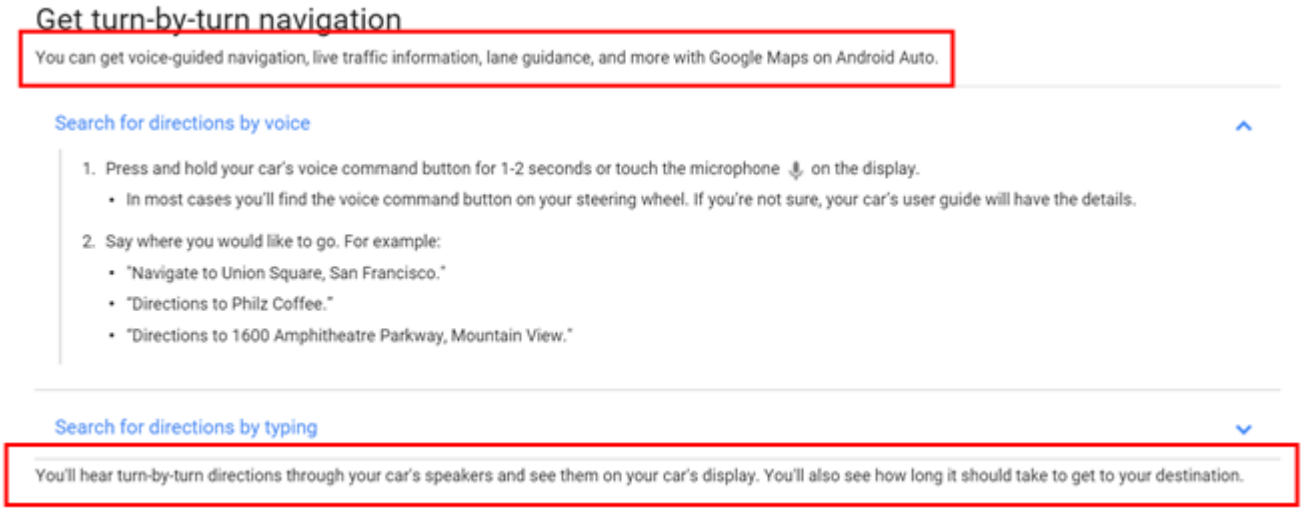
Claim Language	Exemplary Accused Instrumentalities	Literal / DOE[1]	Direct / Indirect[2]
48. The apparatus of claim 43, wherein the computerized information and display apparatus further comprises a speech synthesis apparatus which is configured to generate audible sounds for the occupant, the sounds comprising one or more human-intelligible words which direct the occupant to take one or more actions so as to enable the occupant to locate an organization or entity of interest.	 https://support.google.com/androidauto/?hl=en#6140614	**L, DOE**	**D, I**

EXHIBIT I

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,781,839
"Computerized Information and Display Apparatus"

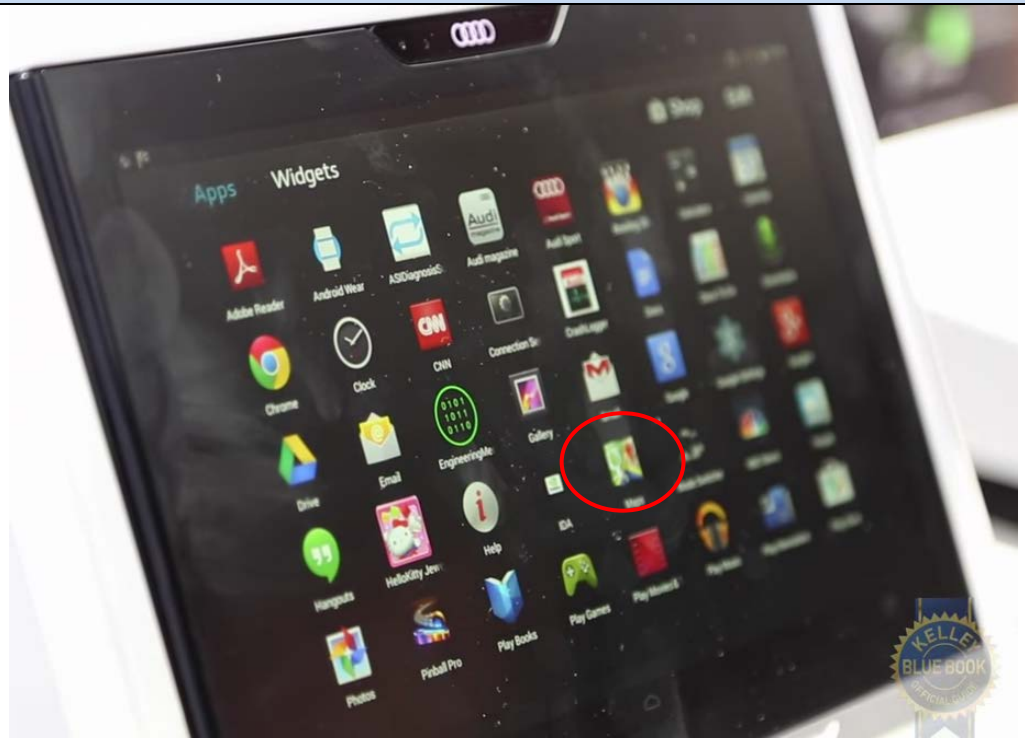
U.S. Patent No. 8,781,839	Filed: 1-21-13 Issued: 7-15-14 Priority Date: 6-10-99 Claims Total: 47 (4 Independent, 43 Dependent)

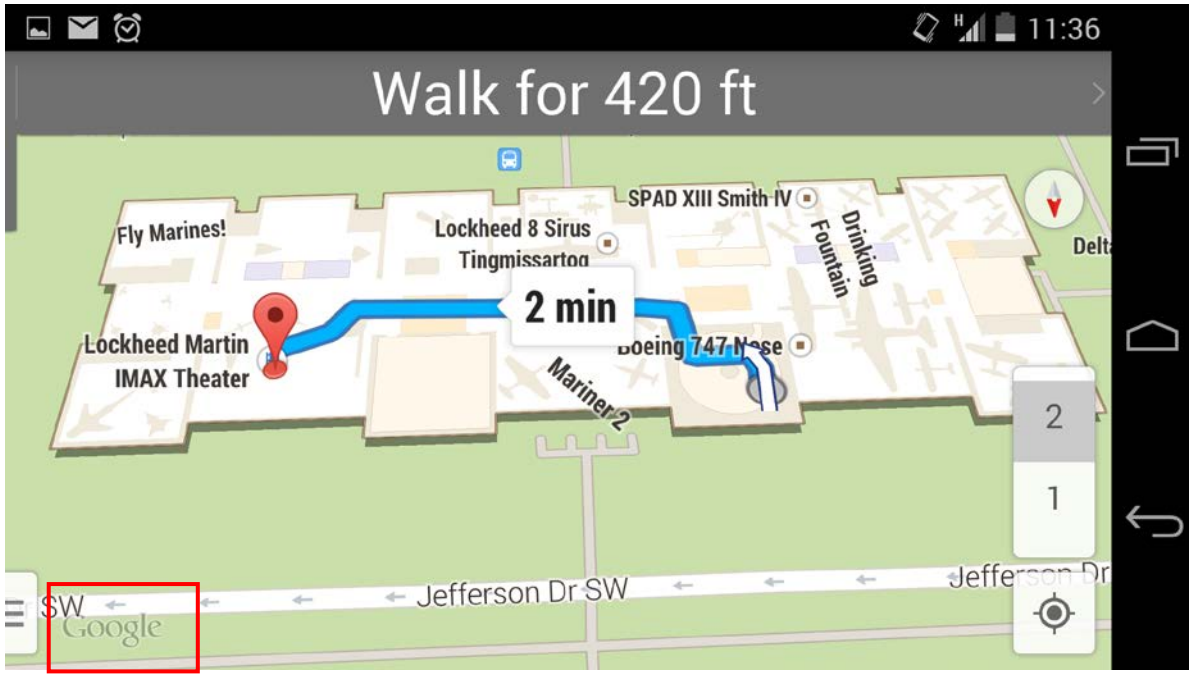
Provided pursuant to Patent Local Rule 3.1 and June 10, 2015 Order;
Plaintiff reserves the right to supplement.

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect[2]
	THIS ANALYSIS IS BASED ON THE SMART DISPLAY TABLET (OFFERED WITH E.G., THE 2016 AUDI Q7) 		

[1] West View denotes allegations of literal infringement as "L" and infringement under the doctrine of equivalents as "DOE," as applicable.
[2] West View denotes allegations of direct infringement as "D" and indirect or induced infringement as "I," as applicable.

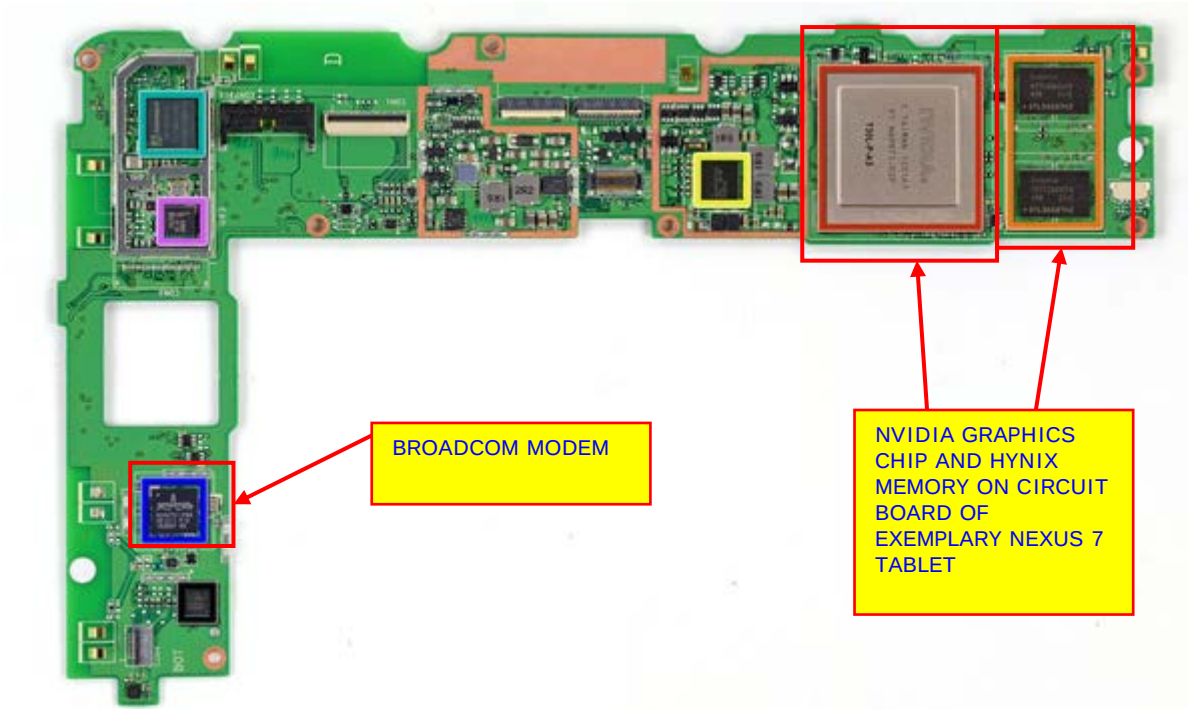
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,781,839
"Computerized Information and Display Apparatus"

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
1. Computerized apparatus useful for locating an organization or entity, …the apparatus comprising:	 https://www.youtube.com/watch?v=QcfIgdDI-IE "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html	**L, DOE**	**D, I**
…the organization or entity being disposed within a building or structure,	**"Go inside with Indoor Maps** Create a more convenient and enjoyable visitor experience at no cost, available on Google Maps across all devices. **GOOGLE INDOOR MAPS IS INTEGRATED WITHIN THE GOOGLE MAPS APPLICATION, AND IS**	**L, DOE**	

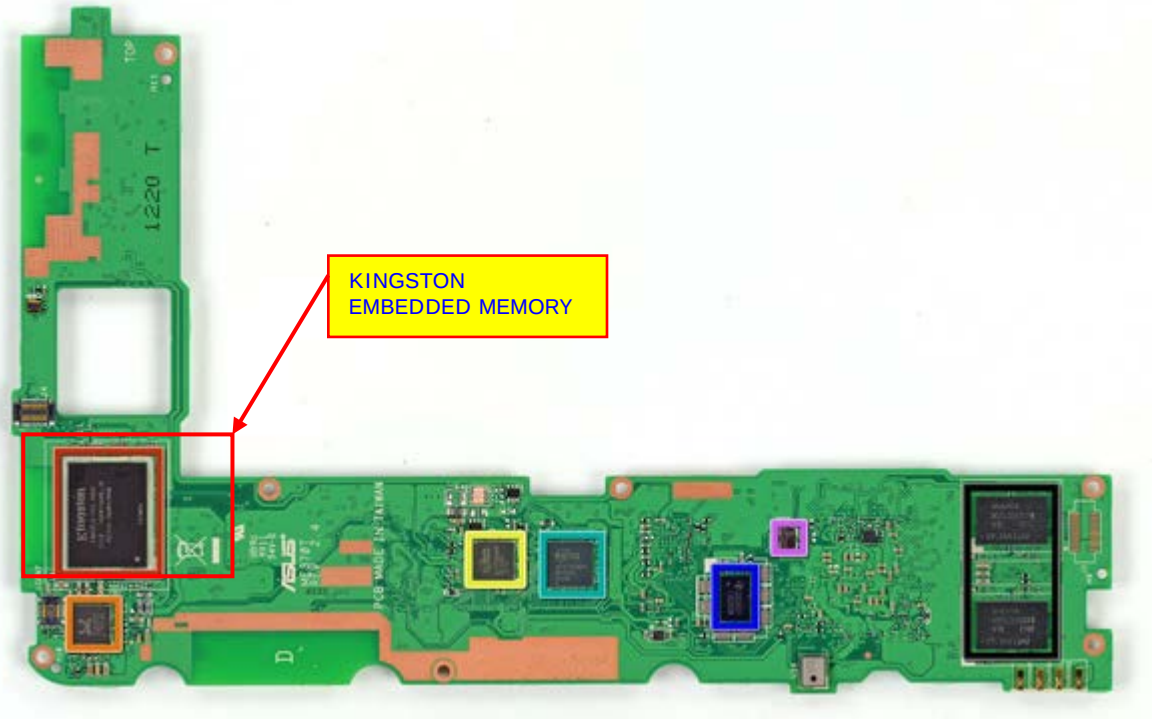
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	AVAILABLE ON ALL PLATFORMS, INCLUDING SMART DISPLAY (SEE IMAGE ABOVE). "How does it work? With indoor Google Maps, visitors can spend less time searching for building directories and more time discovering new points of interest. Simply zoom in and out of a building and go floor to floor with indoor maps. **…** **Zoom in to navigate** Zoom in to see the indoor floor plan of a building. You can also search within the building once you're fully zoomed in." https://www.google.com/maps/about/partners/indoormaps/ 		
a wireless interface;	"A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort		

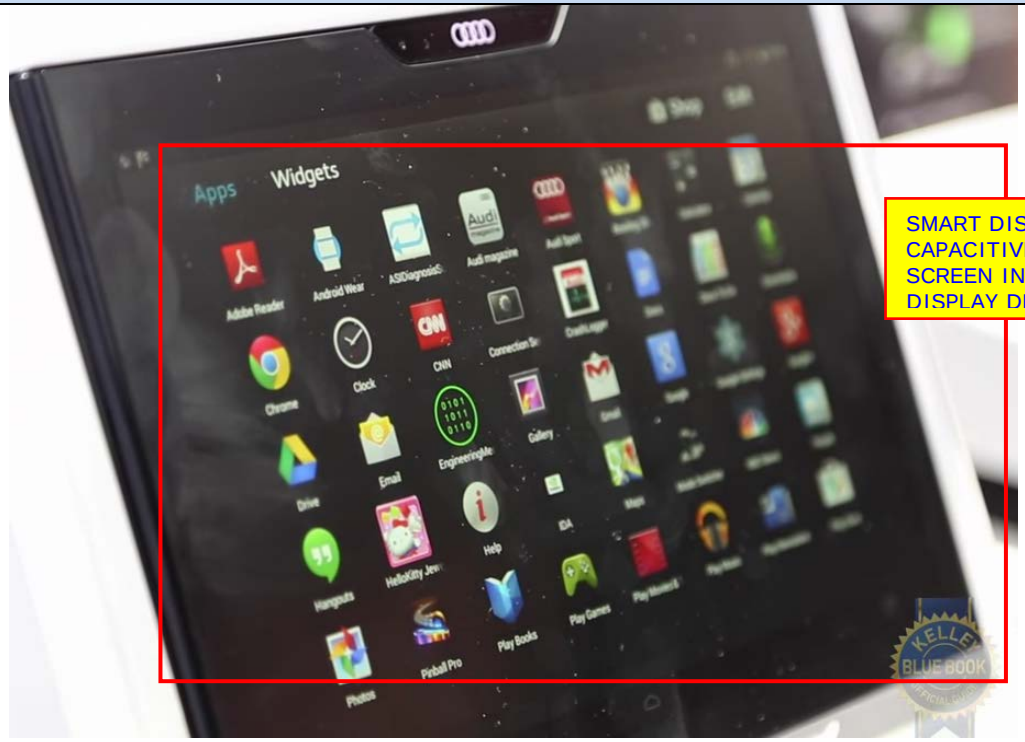
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
data processing apparatus;	**WHILE THE INTERNALS OF THE AUDI TABLET ARE PRESENTLY UNDISCLOSED, IT IS HIGHLY SIMILAR IN FUNCTION, O/S, ETC. TO E.G., THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4.**  NEXUS 7 (TOP) VS. AUDI SMART DISPLAY (BOTTOM) 	**L, DOE**	

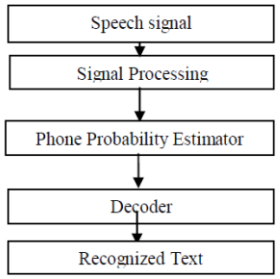
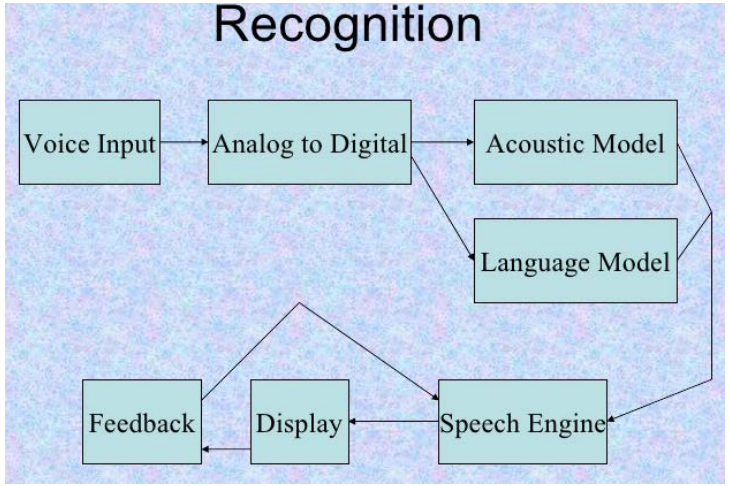
Claim Language	AUDI “SMART DISPLAY” ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ETC. **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**  		

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,781,839
"Computerized Information and Display Apparatus"

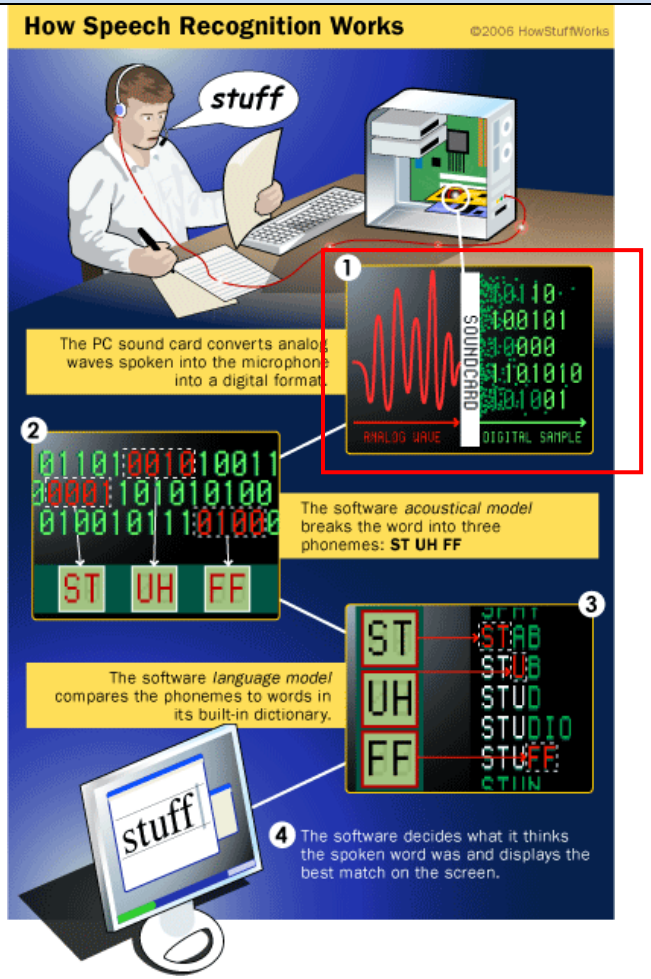
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		

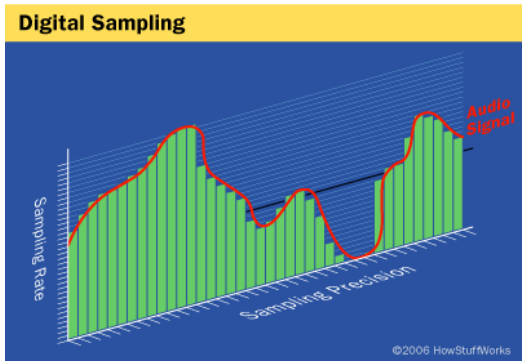
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,781,839
"Computerized Information and Display Apparatus"

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
a touch-screen input and display device;		L, DOE	
a speech digitization apparatus in data communication with the data processing apparatus;	**ALL SPEECH RECOGNITION SYSTEMS INHERENTLY DIGITIZE THE SPEAKER'S ANALOG VOICE:**	L, DOE	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	2. SPEECH RECOGNITION Speech recognition is the task of converting any speech signal into its orthographic representation. **2.1 Phases of Speech Recognition** **2.1.1 Speech signal.** The word spoken is received as sounds and digitized using microphone. The digitized signal is delivered to signal processing unit at a sampling rate not above 8 KHz because sampling rate higher than 8 KHz have less recognition accuracy.  **Figure 1: Phases of Speech Recognition** **2.1.2 Signal processing.** This phase performs feature extraction. Converting linear amplitude signal into spectral like representation [6]. It reduces the data rate of the raw audio input, thereby decreasing the computational load of the fore coming phases.  http://www.ijcta.com/documents/volumes/vol3issue4/ijcta2012030418.pdf; http://www.slideshare.net/charujoshi/speech-recognition		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]





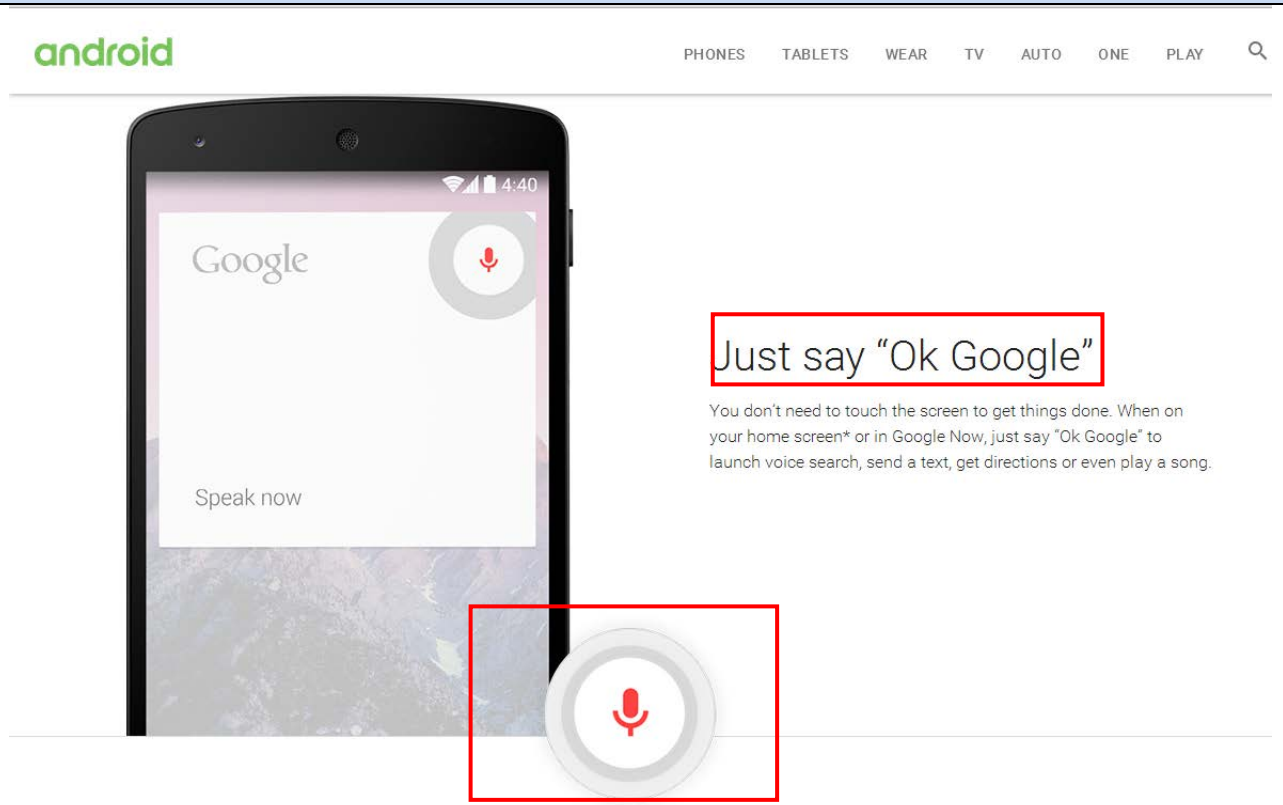
"An ADC translates the analog waves of your voice into digital data by sampling the sound. The higher the sampling and precision rates, the higher the quality."

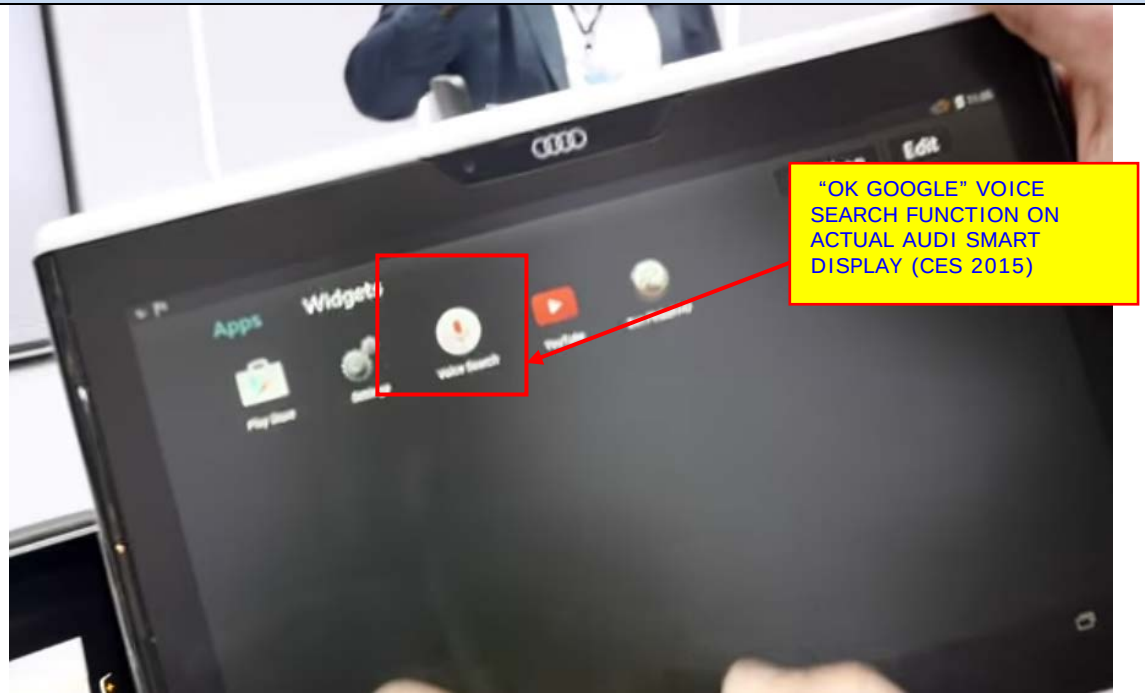
http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/speech-recognition1.htm

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	GOOGLE NEXUS 5 INCLUDES A SPEECH DIGITIZATION APPARATUS (I.E., GOOGLE VOICE ALGORITHMS RUNNING ON THE PLATFORM) TO DIGITIZE THE USERS ANALOG VOICE INTO A FORM USEFUL FOR RECOGNITION PURPOSES (E.G., AN FFT–DERIVED SPECTROGRAM): "When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. " http://www.wired.com/2013/02/android-neural-network/; http://arxiv.org/ftp/arxiv/papers/1003/1003.4083.pdf **WHILE FOR DIFFERENT O/S, FOLLOWING IS ILLUSTRATIVE:** "**Behind the Scenes** Here's what we know so far: When you first start speaking into the microphone, the app opens a connection to Google's server and starts sending over chunks of audio, almost certainly encoded with the open-source Speex codec. The waveform image is generated on the phone and displayed along with a "Working" indicator and the adorable "beep-boop" sounds. In the background, a tiny file is being sent as a POST request to http://www.google.com/m/appreq/gmiphone. Here's what the headers look like: … After the audio's sent to Google, they return an HTML page with the results and a second request is triggered, this time a GET request to clients1.google.com with the converted voice-to-text string. GET /complete/search?client=iphoneapp&hjson=t&types=t &spell=t&nav=2&hl=en&q=chicken%20soup HTTP/1.1 User-Agent: Google/0.3.142.951 CFNetwork/339.3 Darwin/9.4.1 Accept: */* Accept-Language: en-us Accept-Encoding: gzip, deflate Pragma: no-cache		

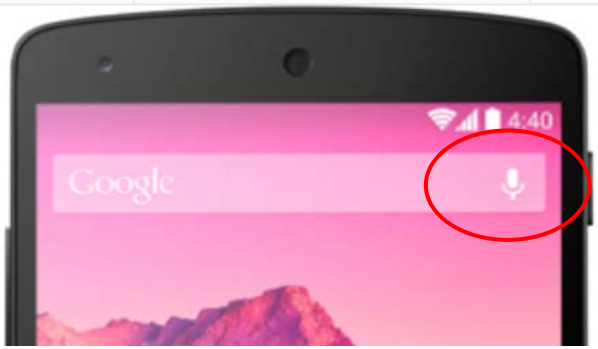
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	Connection: keep-alive Connection: keep-alive Host: clients1.google.com The response is an array of search terms in JSON format, for use in search autocompletion. ["chicken soup",[["http://www.chickensoup.com/","Chicken Soup for the Soul",5,""],["http://www.chickensoupforthepetloverssoul.com/","Chicken Soup for the Pet Lover's Soul",5,""],["chicken soup recipe","489,000 results",0,"2"],["chicken soup for the soul","1,470,000 results",0,"3"],["chicken soup dog food","462,000 results",0,"4"],["chicken soup with rice","467,000 results",0,"5"],["chicken soup diet","453,000 results",0,"6"],["chicken soup from scratch","364,000 results",0,"7"],["chicken soup for the soul quotes","398,000 results",0,"8"],["chicken soup crock pot","604,000 results",0,"9"]]] http://waxy.org/2008/11/deconstructing_google_mobiles_voice_search_on_the_iphone/ **THE USER'S VOICE IS DIGITIZED BY A CODEC INTO A SMALL PACKET, WHICH IS SENT TO THE GOOGLE SERVERS FOR RECOGNITION AND SEARCH.** **THE PROCESSING APPARATUS MUST BE IN COMMUNICATION WITH THE SPEECH DIGITIZATION APPARATUS IN ORDER TO, E.G., PROCESS SPEECH INPUTS FOR TRANSMISSION OVER THE WIRELESS INTERFACE TO GOOGLE SERVERS, ETC.** **AS ONE PARTICULAR EXAMPLE, THE "GOOGLE MAPS" FUNCTIONS OF "GOOGLE NOW" FUNCTIONALITY PRESENT ON THE ANDROID KITKAT 4.4 O/S IS EVALUATED, ALTHOUGH VARIOUS OTHER TYPES OF FUNCTIONS MAY BE USED AS THE BASIS OF DEMONSTRATION AS WELL.** **THERE ARE MULTIPLE WAYS TO ACCESS THE GOOGLE SEARCH AND MAPPING FUNCTION:** **1) VIA THE "HOME" PAGE OF THE DEVICE, USING E.G., "*OK GOOGLE*" VERBAL COMMAND (AKA HANDS FREE), FOLLOWED BY VOICE SEARCH TERM;**		

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,781,839
"Computerized Information and Display Apparatus"

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=ykbzKkffo0Y **2) VIA THE HOME PAGE, BY PRESSING THE MICROPHONE ICON IN THE SEARCH BAR;**		

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,781,839
"Computerized Information and Display Apparatus"

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

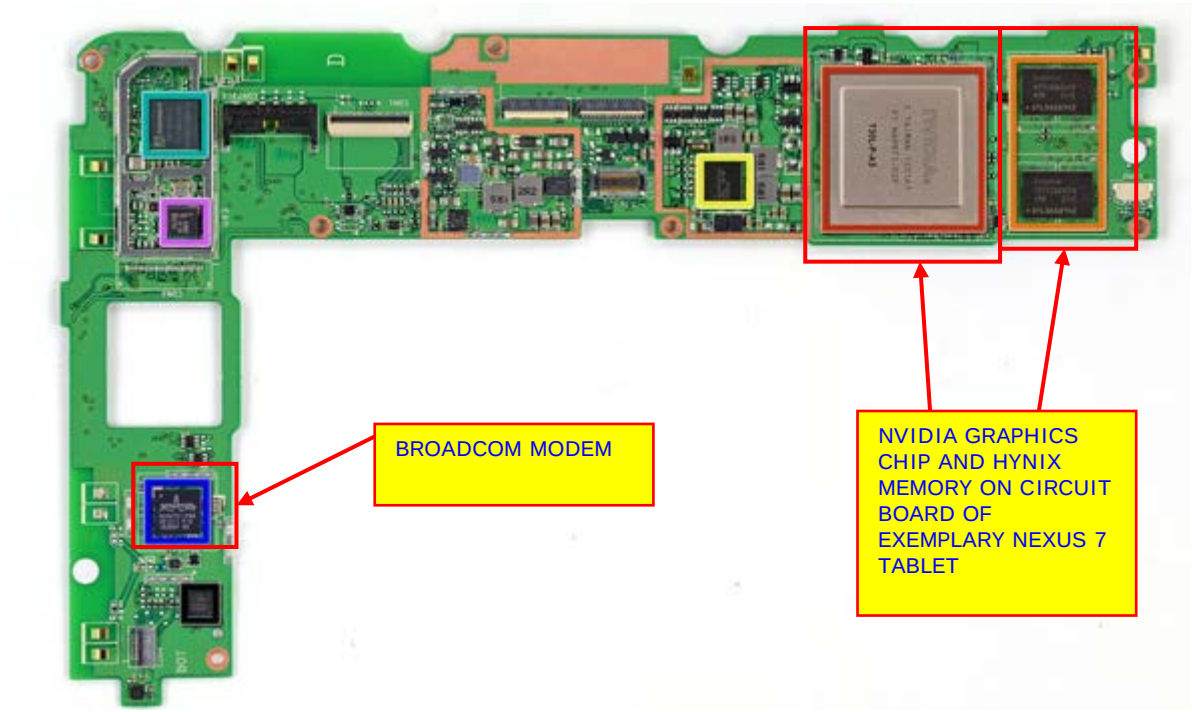
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect[2]

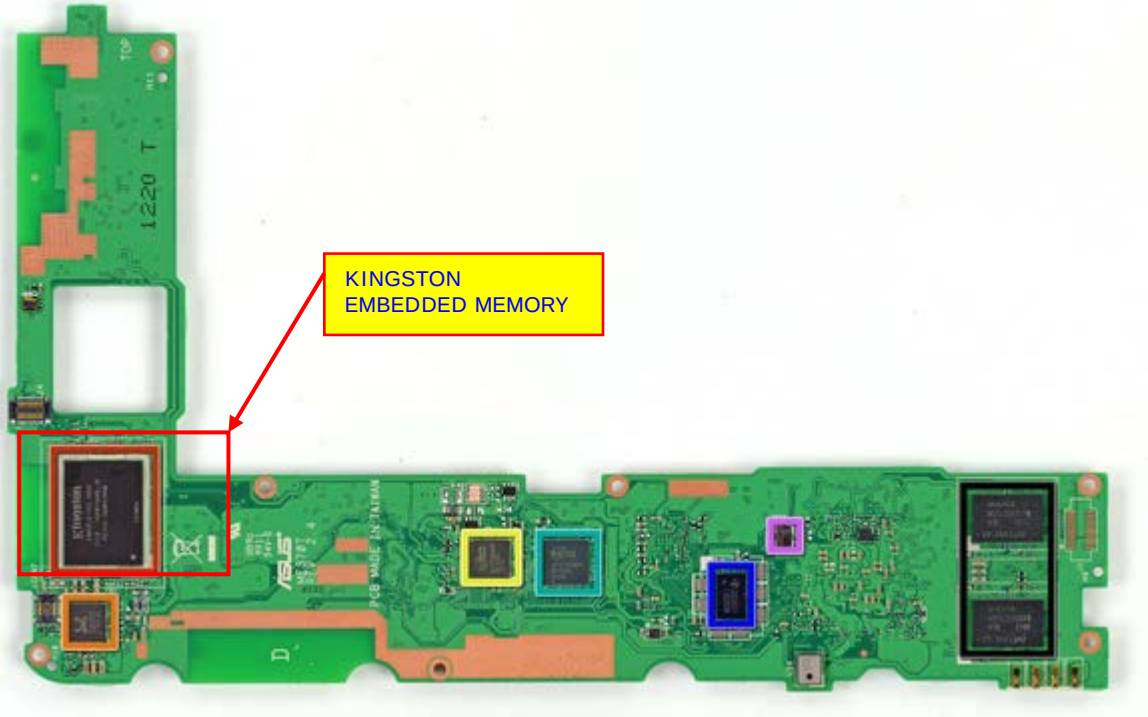
GOOGLE NOW/SEARCH CAN USE MULTIPLE DIFFERENT TYPES OF INPUTS, SOME OF WHICH ARE LISTED BELOW:

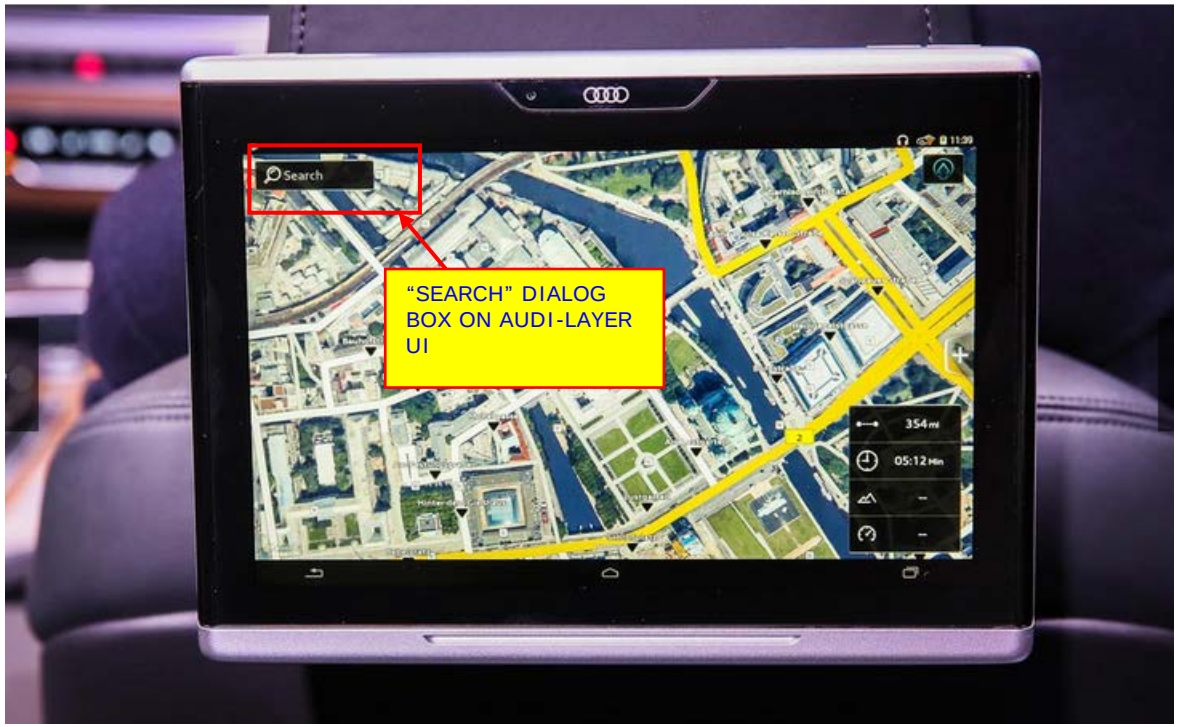
"General Commands

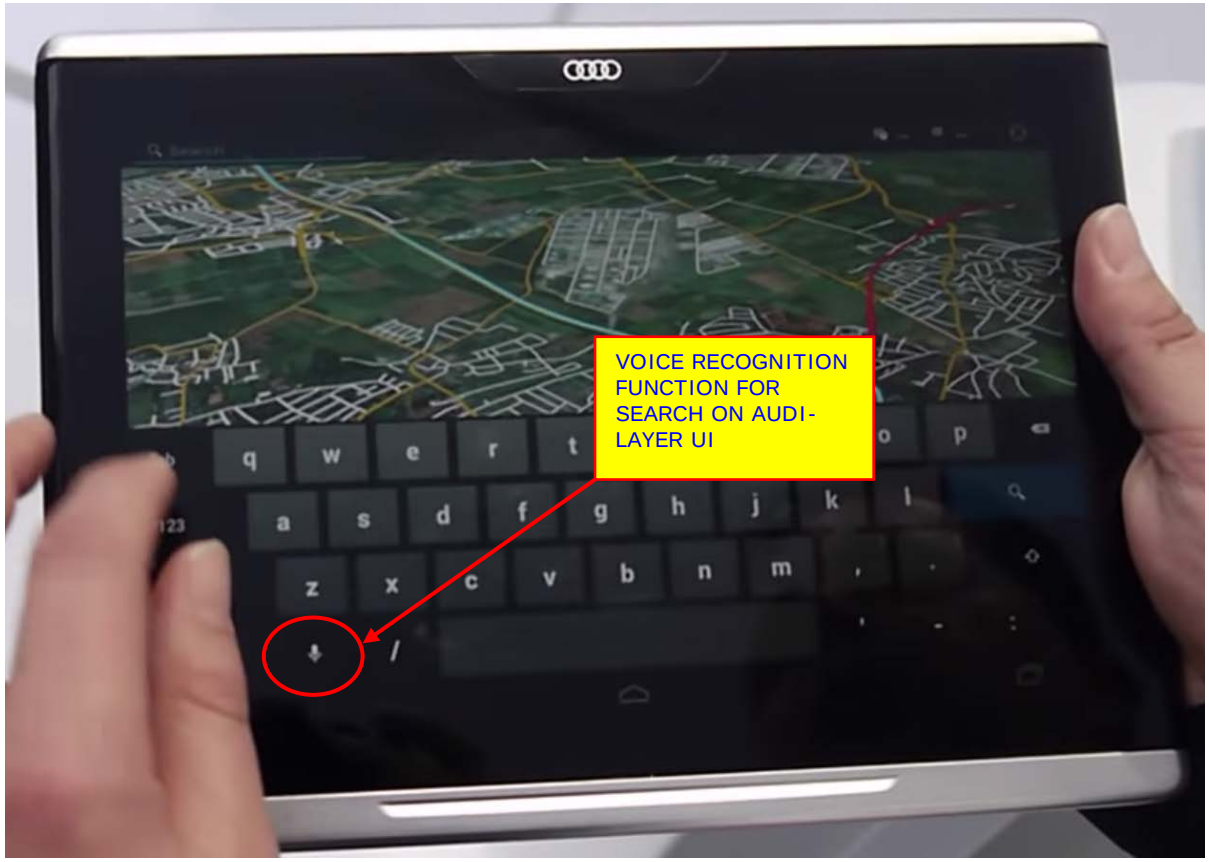
- "Search for [*chicken recipes*]?"
- "Say [*where is the supermarket*] in [*Spanish*]?"
- "What is [*Schrodinger's cat*]?"
- "Who invented [*the internet*]?"

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	• "What is the meaning of [*life*]?" • "Who is married to [*Ben Affleck*]?" • "Stock price of [*Apple*]" • "Author of [*Game of Thrones*]" • "How old is [*Michael Jordan*]?" • "Post to Google+ [*feeling great*]" **…** **Weather** • "Weather" • "Is it going to rain [*tomorrow / Monday*]" • "What's the weather in [*Boston*]?" • "How's the weather in [*Portland*] on [*Wednesday*] going to be?" **Maps & Navigation** • "Map of [*Flagstaff*]" • "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know POSSIBLE INPUTS FROM USER FOR E.G., MAPS/DIRECTIONS **SEE ALSO DISCUSSION BELOW REGARDING ABILITY TO CONDUCT VOICE SEARCHES IN AUDI APPLICATION-LAYER UI (PRESUMABLY VIA AT LEAST PARTLY COMMON SPEECH PROCESSING APPARATUS ON THE SMART DISPLAY).**		
and a storage apparatus in data communication with the data processing apparatus, said storage apparatus comprising at least one computer program, said at least	**THE GOOGLE (ANDROID) NEXUS 7 WITH KITKAT 4.4 INCLUDES NUMEROUS DIFFERENT STORAGE DEVICES, INCLUDING FLASH MEMORY (NAND OR NOR FLASH), DRAM, SRAM, LI/L2 CACHES, VIDEO MEMORY, ETC, ETC.** **FOR INSTANCE, PROGRAM MEMORY ON, E.G., THE NVIDIA VIDEO/GRAPHICS CHIP INCLUDES SEVERAL COMPUTER PROGRAMS TO SUPPORT DISPLAY AND RENDERING FUNCTIONS.**	**L, DOE**	

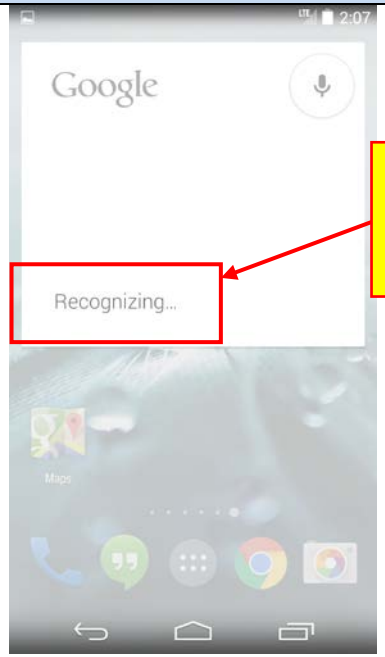
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
one program being configured to:			

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.ifixit.com/Teardown/Nexus+7+Teardown/9623		
receive a digitized speech input via the speech digitization apparatus, the input relating to an organization or entity which a user wishes to locate;	**AT LEAST TWO DISTINCT WAYS OF PERFORMING VOICE-BASED POI OR OTHER SEARCHES USING SMART DISPLAY:** **1) ANDROID O/S - GOOGLE VOICE QUERIES ON ANDROID TABLETS CAN TAKE ANY NUMBER OF DIFFERENT FORMS, MANY OF WHICH RELATE TO ORGANIZATIONS OR ENTITIES (AND FINDINGTHEM). SOME EXAMPLES INCLUDE:** **Maps & Navigation** • "Map of [*Flagstaff*]"	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect[2]
	• "Show me the nearby [*restaurant*] on map" • "Navigate to [*Munich*] on car" • "How far is [*Berlin*] from [*Munich*]?" • "Directions to [*address / business name / other destination*]" http://www.androidpit.com/google-now-commands-how-many-do-you-know **2) ADDITIONALLY, THE AUDI-LAYER SEARCH FUNCTION INCLUDES THE ABILITY TO PERFORM VOICE-BASED-SEARCHES:** 		

Claim Language	AUDI “SMART DISPLAY” ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	SEE VIDEO BELOW; DEMONSTRATOR TOUCHES “SEARCH” DIALOG BOX, AND THEN DISPLAYS ENTRY SOFT KEYS (WHICH INCLUDE A VOICE RECOGNITION FUNCTION):  https://www.youtube.com/watch?v=2D32beCtCvs		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
based at least in part on the input, causing recognition of at least one word therein relating to the organization or entity,	**AT VERY LEAST, THE SMART DISPLAY CAN ACCESS THE INTERNET (INCLUDING GOOGLE MAPS SERVERS) VIA ITS WI-FI INTERFACE, VIA: (I) THE Q7 WI-FI HOTSPOT AND LTE CELLULAR MODEM; AND (II) ANY EXTERNAL WI-FI AP/NETWORK (E.G., USER'S HOUSE):** "A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **SEE DISCUSSION ABOVE; THE DIGITIZED VOICE IS SENT TO THE GOOGLE (REMOTE) SERVER(S) FOR RECOGNITION AND SEARCH.**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **"Server types** *Google's* server infrastructure is divided into several types, each assigned to a different purpose:[14][17][49][50][51] • Web servers coordinate the execution of queries sent by users, then format the result into an HTML page. The execution consists of sending queries to index servers, merging the results, computing their rank, retrieving a summary for each hit (using the document server), asking for suggestions from the spelling servers, and finally getting a list of advertisements from the ad server. • Data-gathering servers are permanently dedicated to spidering the Web. Google's web crawler is known as GoogleBot. They update the index and document databases and apply Google's algorithms to assign ranks to pages. • Each index server contains a set of index shards. They return a list of document IDs ("docid"), such		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]

that documents corresponding to a certain docid contain the query word. These servers need less disk space, but suffer the greatest CPU workload.

- Document servers store documents. Each document is stored on dozens of document servers. When performing a search, a document server returns a summary for the document based on query words. They can also fetch the complete document when asked. These servers need more disk space.
- Ad servers manage advertisements offered by services like AdWords and AdSense.." http://en.wikipedia.org/wiki/Google_platform

"When you talk to Android's voice recognition software, the spectrogram of what you've said is chopped up and sent to eight different computers housed in Google's vast worldwide army of servers. It's then processed, using the neural network models built by Vanhoucke and his team. Google happens to be very good at breaking up big computing jobs like this and processing them very quickly, and to figure out how to do this, Google turned to Jeff Dean and his team of engineers, a group that's better known for reinventing the way the modern data center works." http://www.wired.com/2013/02/android-neural-network/

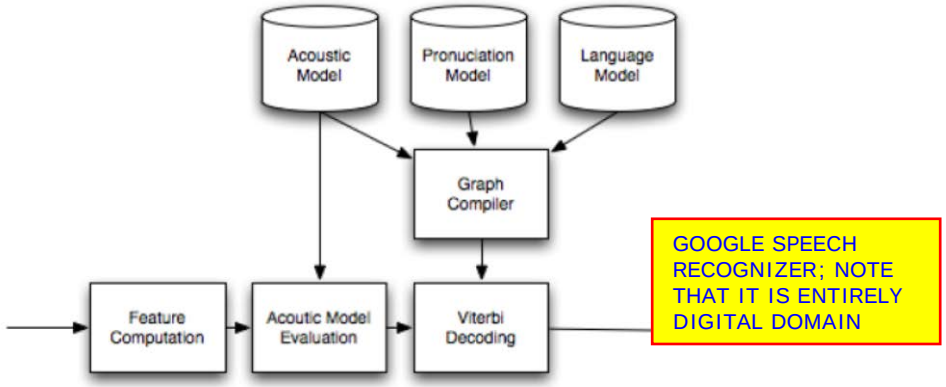
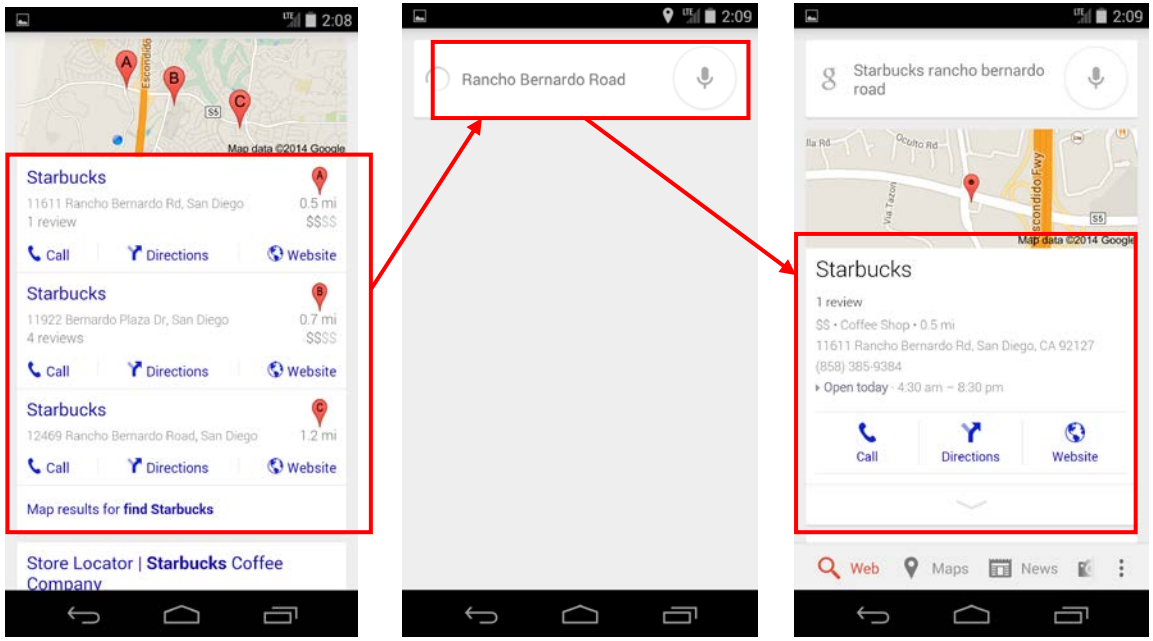
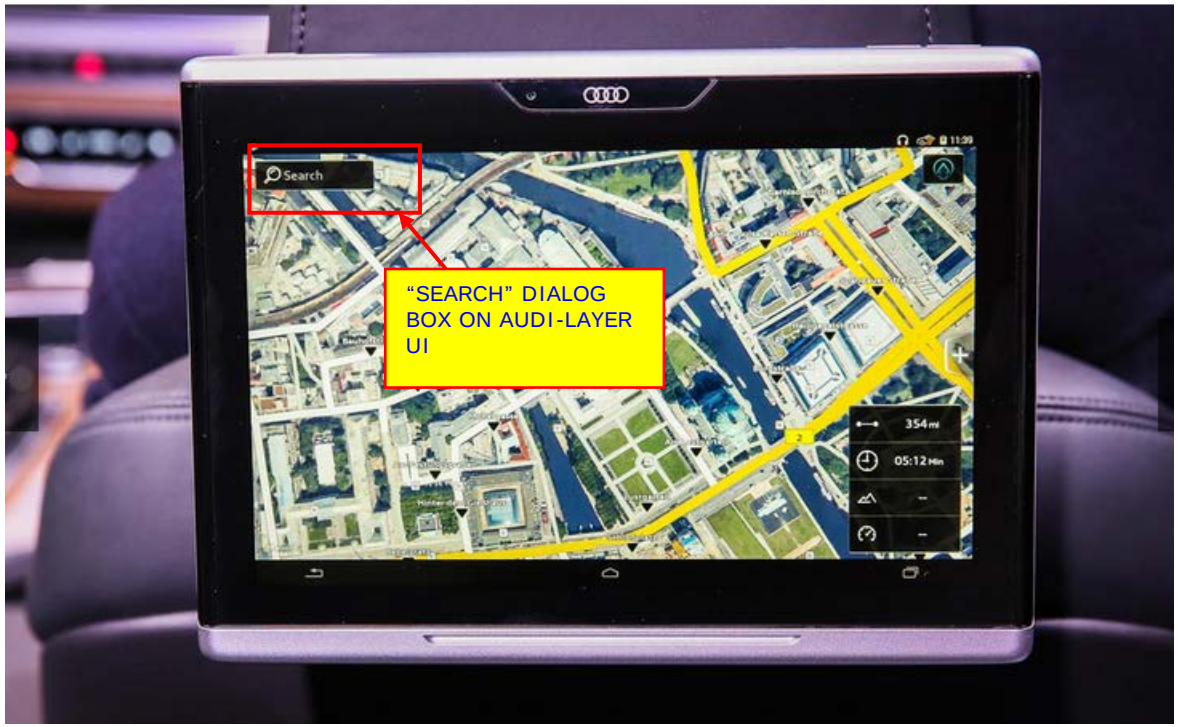


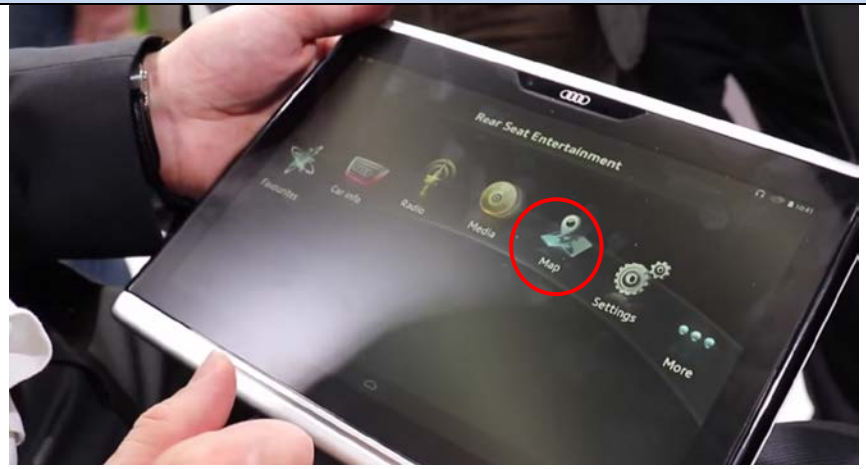
Figure 5: Basic block diagram of a speech recognizer.

"Figure 5 depicts the basic system architecture of the recognizer behind Google search by Voice."

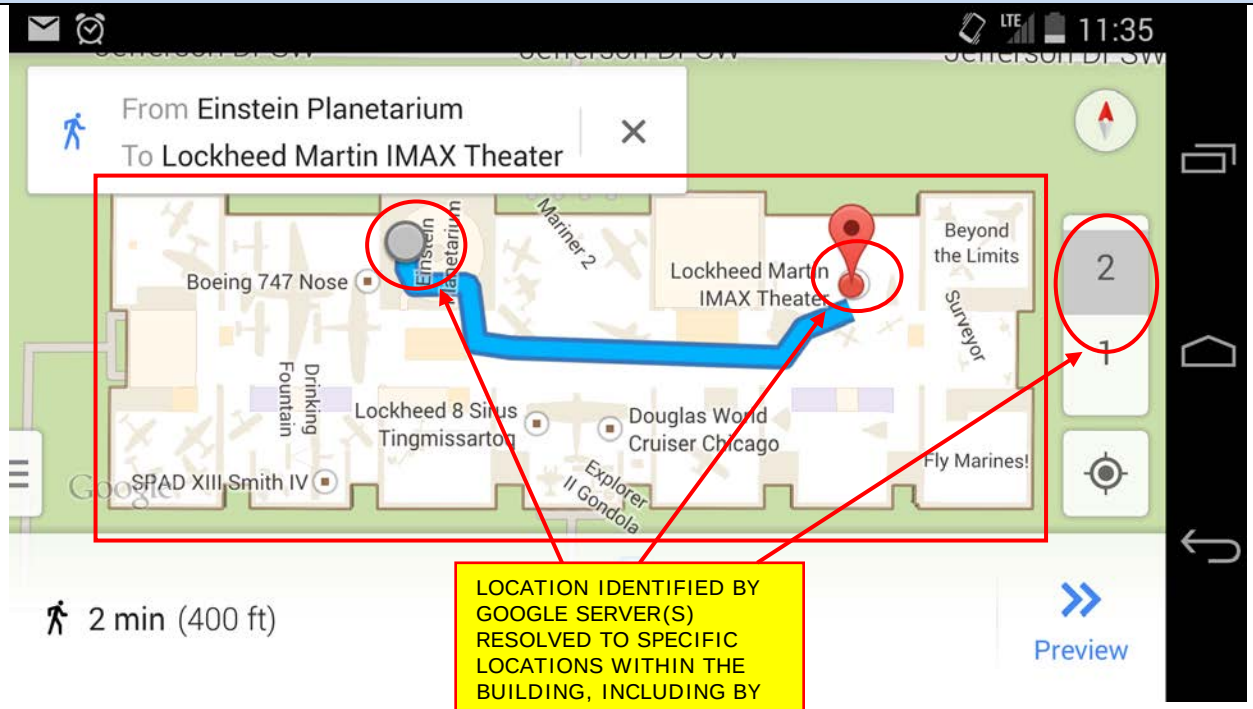
http://static.googleusercontent.com/external_content/untrusted_dlcp/research.google.reverse-proxy.org/en/us/pubs/archive/36340.pdf

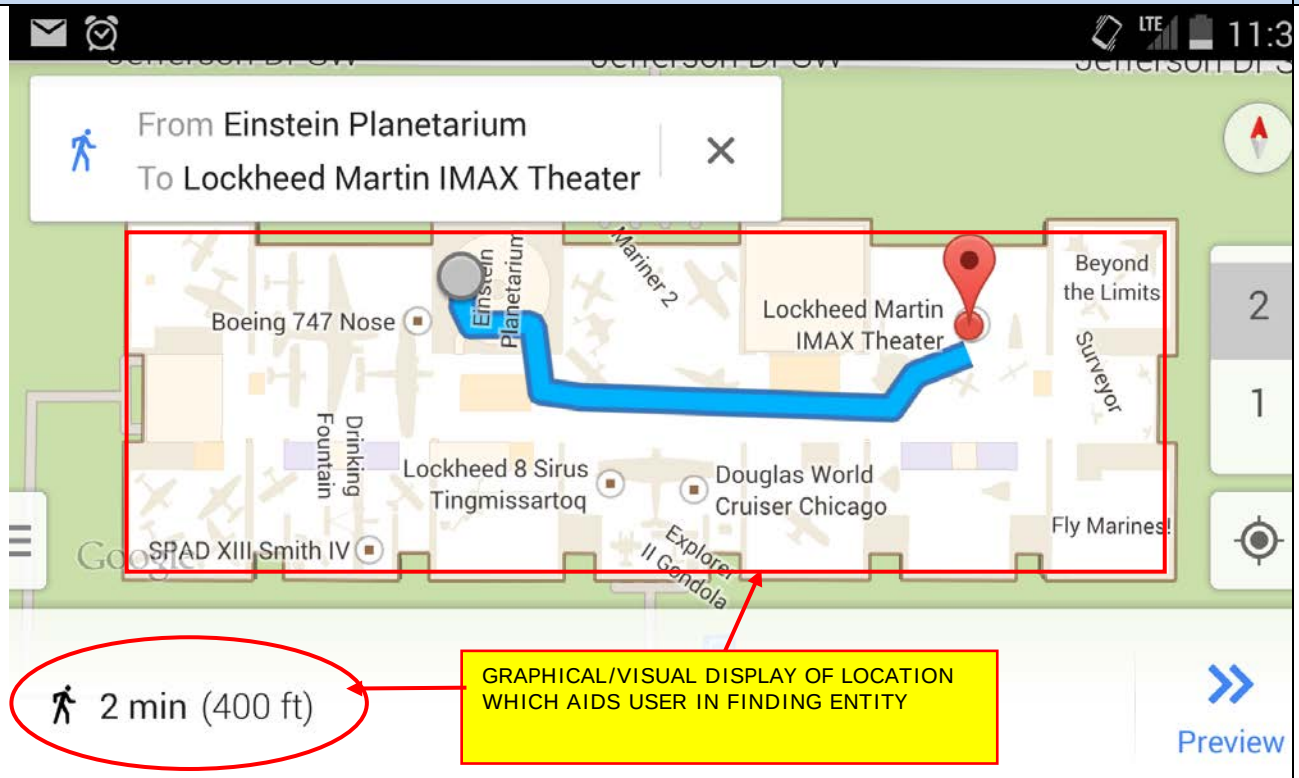
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	THE REMOTE GOOGLE SERVER(S) RECEIVE THE USER'S VOICE SEARCH DATA (DIGITIZED) AND PROCESS IT TO IDENTIFY ONE OR MORE MATCHING ENTITIES (AND LOCATIONS ASSOCIATED THEREWITH). FOLLOWING TEST CONDUCTED ON GOOGLE NEXUS 5 WITH KITKAT 4.4 O/S (GENERALLY COMPARABLE TO AUDI SMART DISPLAY, AND SAME O/S), USING "OK GOOGLE" FUNCTION: **USER SAYS: "*FIND STARBUCKS*"** **PHONE (AUDIBLY): "*HERE ARE THE LISTINGS FOR STARBUCKS WITHIN 2 MILES.*"** **USER SAYS: "*RANCHO BERNARDO ROAD*"** **PHONE (AUDIBLY) : "*HERE IS STARBUCKS NEAR RANCHO BERNARDO ROAD*"** 		

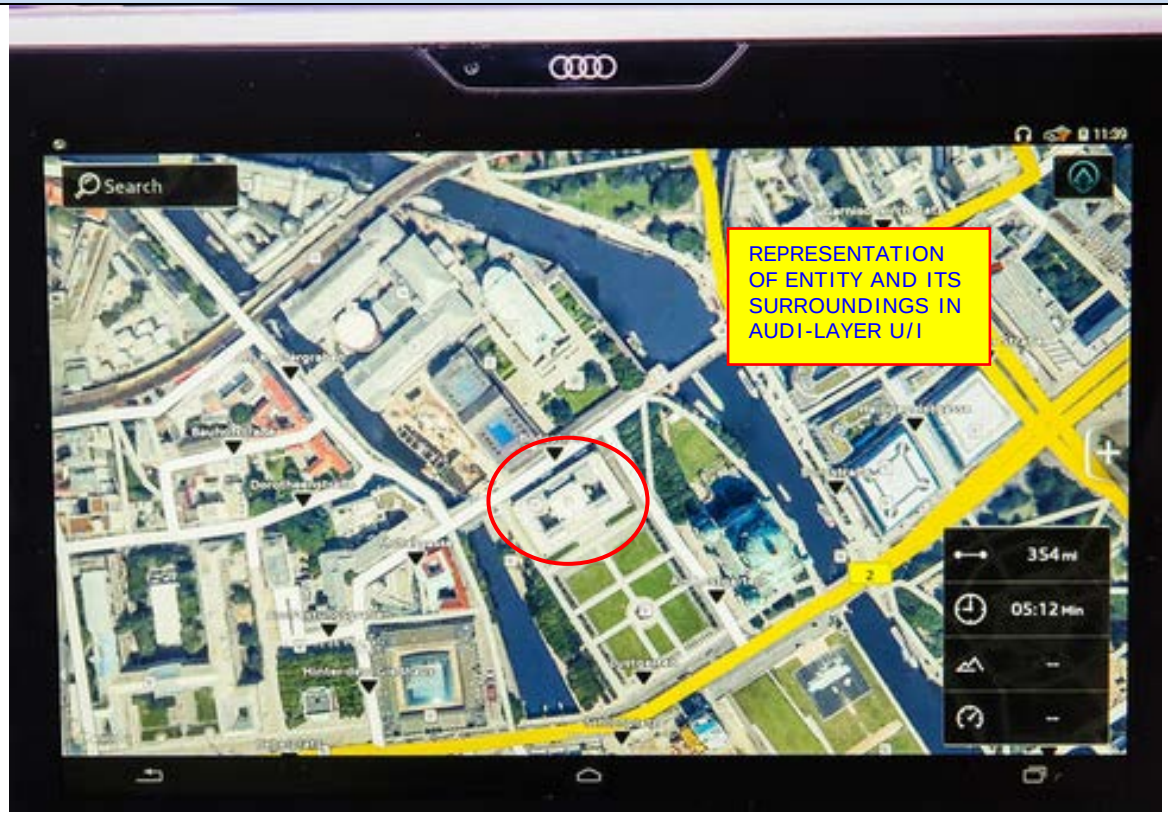
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	MOREOVER, THE AUDI APPLICATION LAYER U/I (I.E., AUDI-SPECIFIC USER INTERFACE SHOWN BELOW) CAN BE UTILIZED TO INVOKE VOICE SEARCH FOR AN ENTITY:  "It works as a fully-fledged Android tablet **powered by a 4.4 KitKat**, and has a familiar user interface as Audi UI." http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **SEE VIDEO BELOW; DEMONSTRATOR CAN ACCESS VARIOUS CAR FUNCTIONS FROM SOFTWARE ON TABLET, VIA E.G., WI-FI TO CAR, INCLUDING MAPS/NAVIGATION:** **https://www.youtube.com/watch?v=9YNbPboYA6Y**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 **THIS FUNCTION ALSO PRESUMABLY INCLUDES ABILITY FOR TABLET USER TO SEARCH (USING E.G., DIALOG BOX SHOWN ABOVE) BOTH INTERNET (E.G., GOOGLE) AND LOCAL (E.G., HDD/SD CARD NAVIGATION DATA STORED ON THE VEHICLE).**		
and identification of a location associated with the organization or entity based at least in part on the at least one recognized word, the location being inside of the building or structure;	**GOOGLE MAPS RETURNS, *INTER ALIA*, LAT/LON DATA ASSOCIATED WITH THE LOCATION OF THE ENTITY. SEE ALSO GRAPHIC MAP BELOW, WHEREIN LOCATION IS DETERMINED TO BE INSIDE A BUILDING (I.E., NATIONAL AIR AND SPACE MUSEUM). NOTE THAT THE LOCATION IS RESOLVED TO SPECIFIC A POINT WITHIN THE BUILDING, AND NOT JUST BEING "GENERALLY" IN THE BUILDING AS ONE COULD EXPECT MOST ANY ORGANIZATION MIGHT BE. THE GOOGLE MAPS FUNCTION CAN ALSO RESOLVE AS TO FLOOR NUMBER IN MULTI-FLOOR BUILDINGS.** "Latitude and longitude coordinates You can search for a place using its latitude and longitude coordinates, as well as get the coordinates of a place you've already found on Google Maps." https://support.google.com/maps/answer/18539	**L, DOE**	

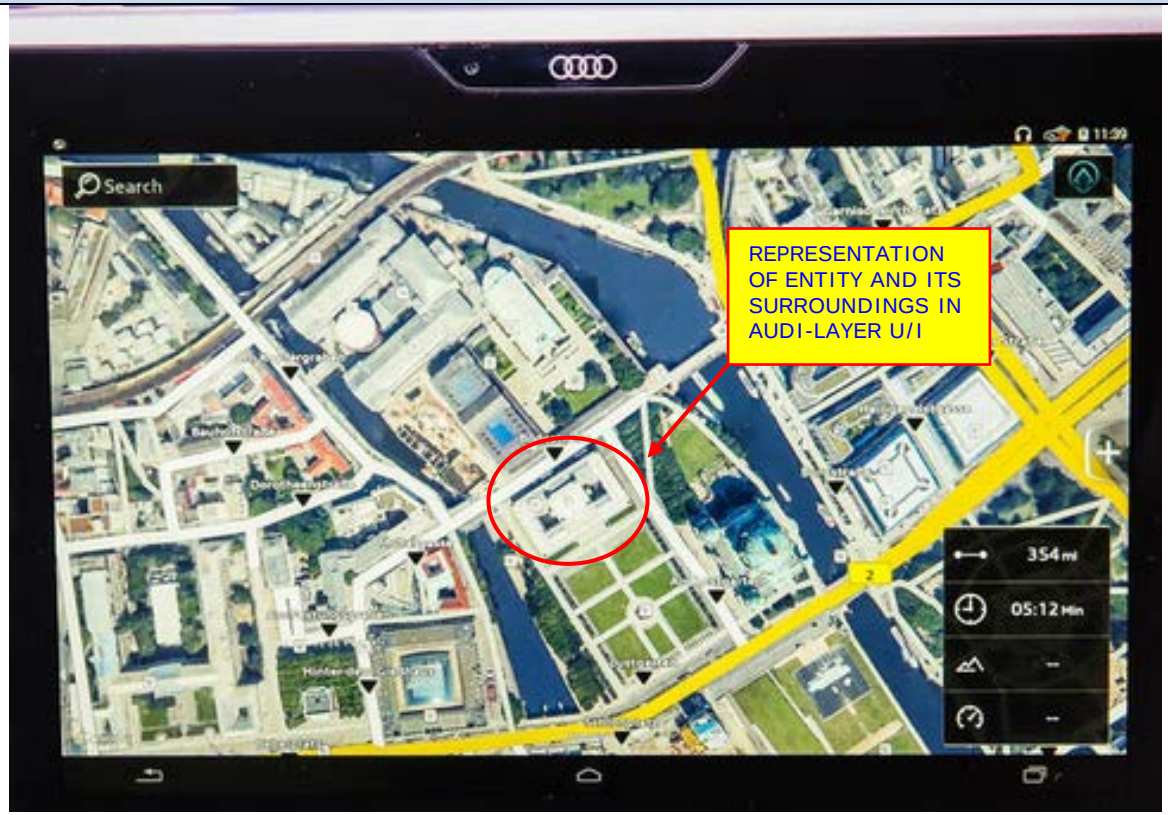
Audi "Smart Display" Tablet vs. U.S. Patent No. 8,781,839
"Computerized Information and Display Apparatus"

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

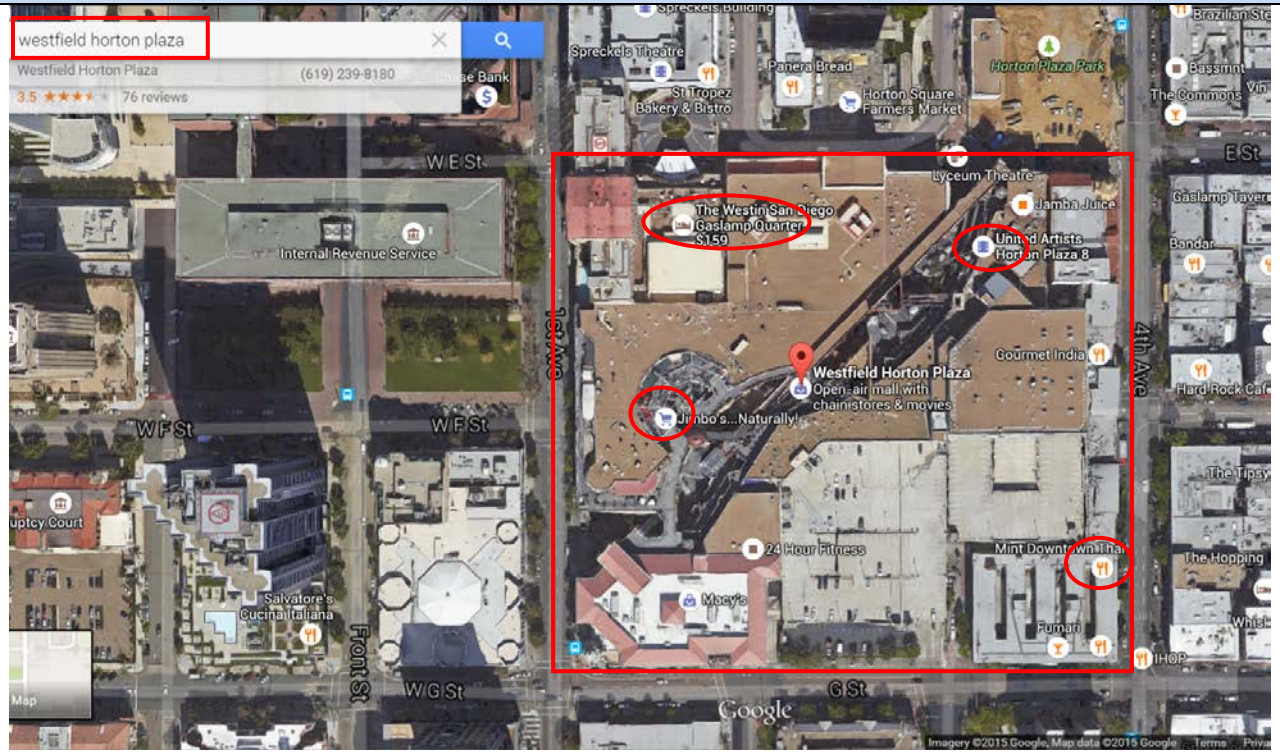
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
and provide a graphical or visual representation of the location on the touch screen input and display device in order to aid a user in finding the organization or entity,		L, DOE	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
the graphical or visual representation of the location also comprising a graphical or visual representation of at least the immediate surroundings of the organization or entity, the immediate surroundings being inside the building or structure.		L, DOE	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 http://www.cartrade.com/blog/2015/car-automobile-technology/audi-and-the-android-tablet-for-cars-1226.html **SEE GOOGLE EARTH-BASED EXAMPLE BELOW (I.E., HORTON PLAZA IN SAN DIEGO, CA – A LARGE PARTLY OPEN-AIR STRUCTURE (MALL) IN DOWNTOWN SAN DIEGO):**		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]



NOTE THAT IN ABOVE EXAMPLE, THE VARIOUS DIFFERENT ENTITIES AND THEIR SURROUNDINGS WITH IN HORTON PLAZA'S BUILDING CAN BE RESOLVED BOTH ICONICALLY AND (IN SOME CASES) VISUALLY WITHIN THE BUILDING, SO A SEARCH FOR ANY OF THESE ENTITIES WOULD RESULT IN A SIMILAR VIEW AS ABOVE.

HENCE, SINCE IMAGERY SUCH AS THAT ABOVE IS OSTENSIBLY AVAILABLE TO AUDI SMART DISPLAY (SEE AUDI IMAGE ABOVE – GENERALLY SIMILAR), THE AUDI LAYER OF THE SMART DISPLAY ALSO MEETS THE STATED CLAIM LIMITATIONS; I.E., APART FROM GOOGLE INDOOR

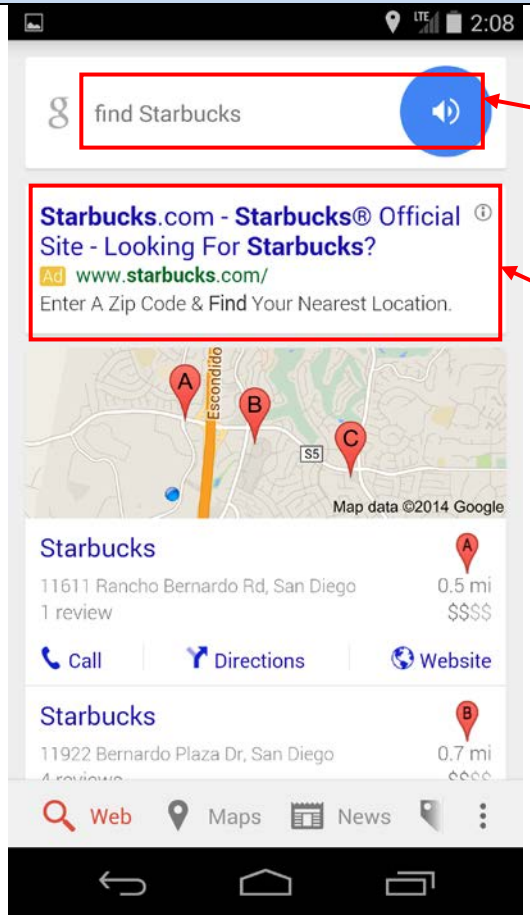
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	MAPS FUNCTION ABOVE.		
10. The apparatus of claim 1, wherein the computerized apparatus is mounted on or proximate to a surface of a land-mobile transport apparatus such that an operator of the transport apparatus can view and access a touch screen of the touch screen input and display device, and make input to the speech digitization apparatus, while operating the transport apparatus.	 **SEE ABOVE; AUDI SMART DISPLAY IS MOUNTED ON REAR SEAT(S) SURFACE OF 2016 Q7 SO THAT USER CAN ACCESS TOUCH SCREEN, HEAR AUDIO, UTILIZE SPEECH RECOGNITION, ETC. SIMULTANEOUSLY WHILE OPERATING* OTHER ASPECTS OF THE VEHICLE.** *NOTE THAT REAR SEAT USER CAN INVOKE CONTROL OF VARIOUS FRONT SEAT FUNCTIONS SUCH AS DETERMINING DESTINATION FOR NAVIGATION SYSTEM, SELECTING MEDIA TO PLAY IN THE VEHICLE, ETC. USING THE SMART DISPLAY IN REAR SEAT(S), AND HENCE IS IN ALL REGARDS AN "OPERATOR" OF THE VEHICLE.	**L, DOE**	**D, I**
11. The apparatus of claim 1, wherein the identification of the location comprises	**SEE DISCUSSION OF CLAIM 1 ABOVE; IN THE ANDROID LAYER, THE LOCATION RETURNED TO THE SMART DISPLAY UPON QUERY IS OBTAINED FROM REMOTE GOOGLE SERVERS VIA THE WI-FI INTERFACE (AND POTENTIALLY ALSO THE LTE INTERFACE OF THE Q7 IF THE USER IS**	**L, DOE**	**D, I**

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
accessing a remote server via a network in data communication with the computerized apparatus via the wireless interface	**PROXIMATE/IN THE VEHICLE).** **IN THE AUDI-SPECIFIC LAYER, THE USER CAN AGAIN ACCESS GOOGLE EARTH IMAGERY AND LOCATION DATA ON A SEARCH.**		

Audi "Smart Display" Tablet vs. U.S. Patent No. 8,781,839
"Computerized Information and Display Apparatus"

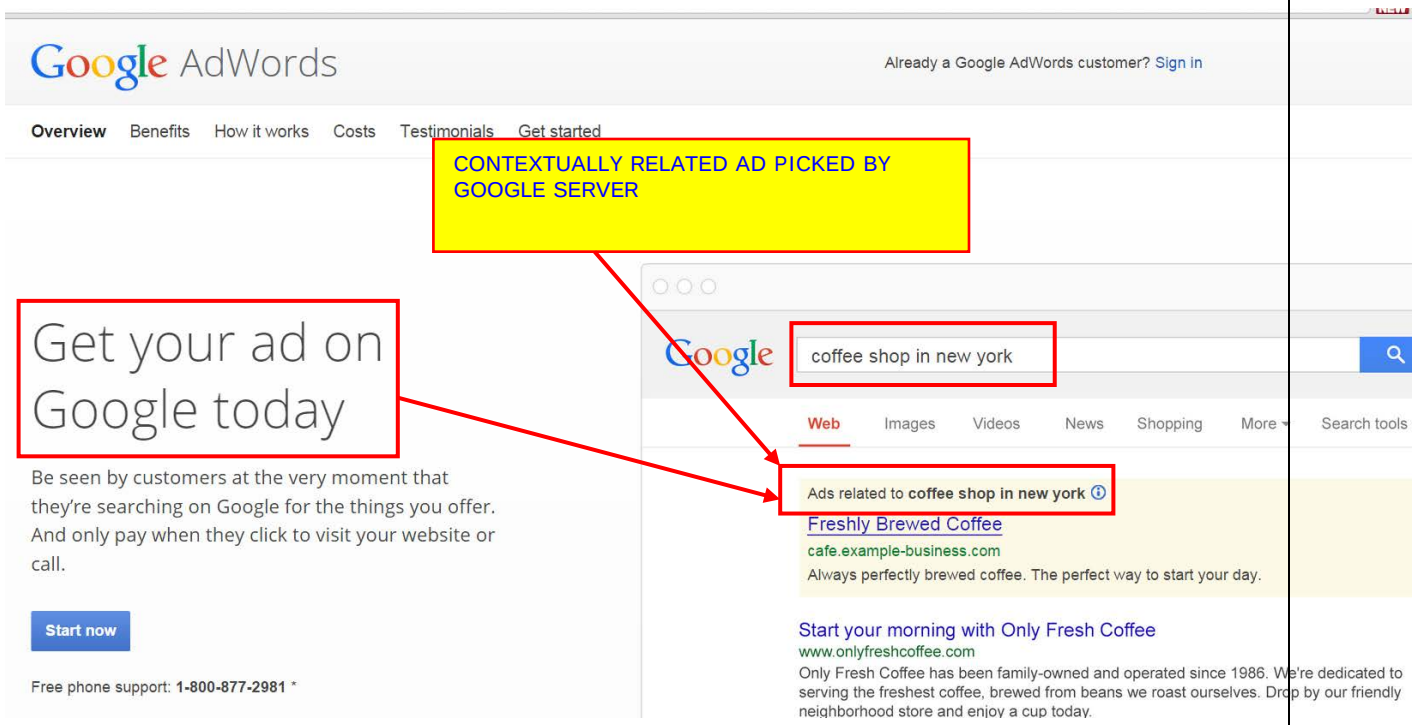
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 https://www.youtube.com/watch?v=GrBY2GmdTwA		

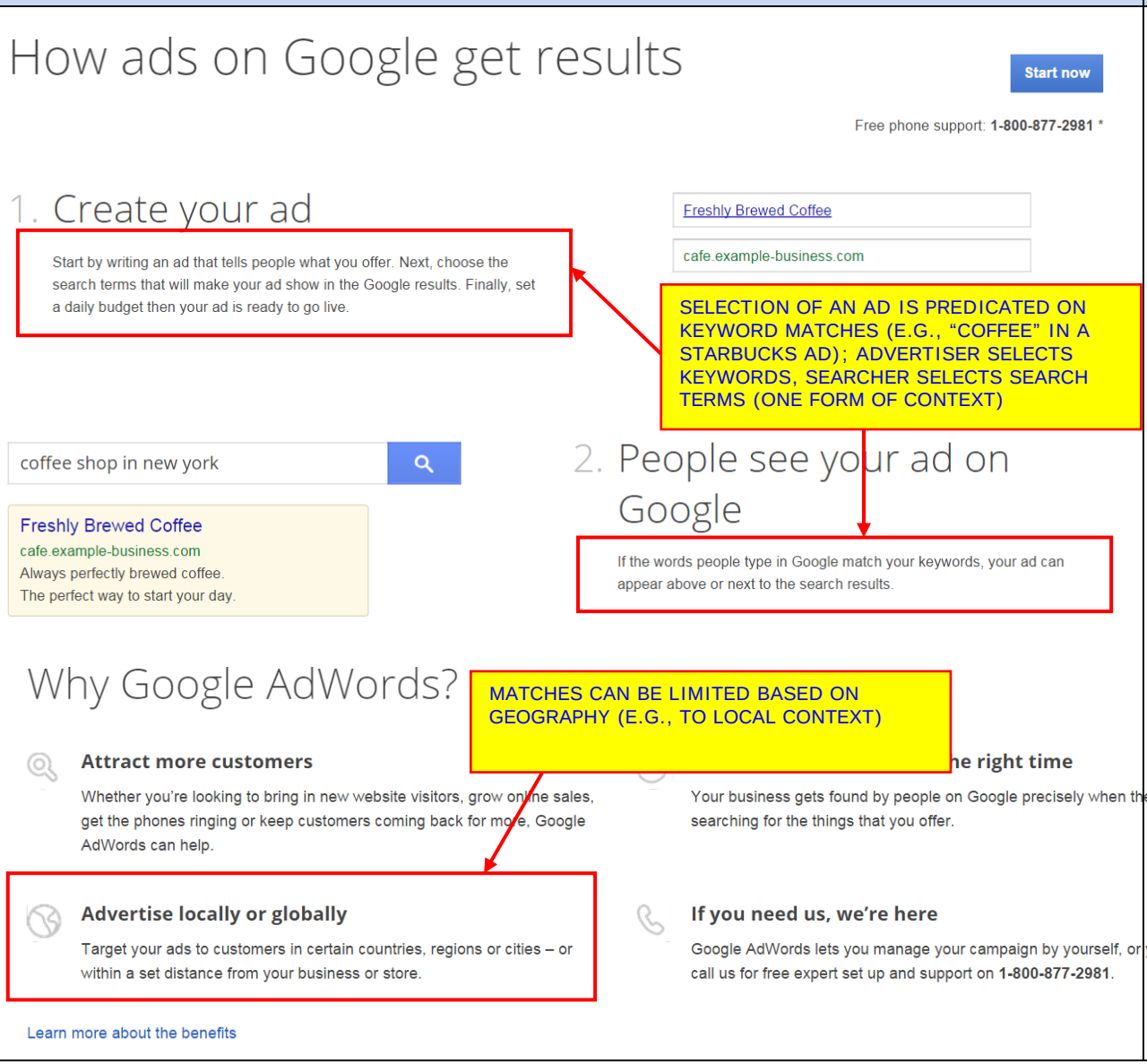
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
16. The apparatus of claim 1, wherein the computerized apparatus is further configured to display advertising content selected by one or more remote servers accessed via a network in data communication with the computerized apparatus via the wireless interface.	 **SO, IN THIS EXAMPLE, THE VOICE SEARCH TERM "FIND STARBUCKS" WAS ENTERED ON THE EXAMPLE NEXUS 5 WITH KITKAT 4.4 (PRESUMED TO OPERATE IDENTICALLY TO KITKAT 4.4. ON AUDI SMART DISPLAY ANDROID LAYER) , AND SEVERAL NEARBY STARBUCKS LOCATIONS WERE RETURNED, AS WELL AS AN ADVERTISEMENT FOR STARBUCKS (WEBSITE) GENERALLY. STARBUCKS WEBSITE IS CONTEXTUALLY RELATED TO "FIND STARBUCKS" (ALBEIT NOT WHAT WE WERE EXPLICITLY SEARCHING FOR).**	**L, DOE**	**D, I**

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]

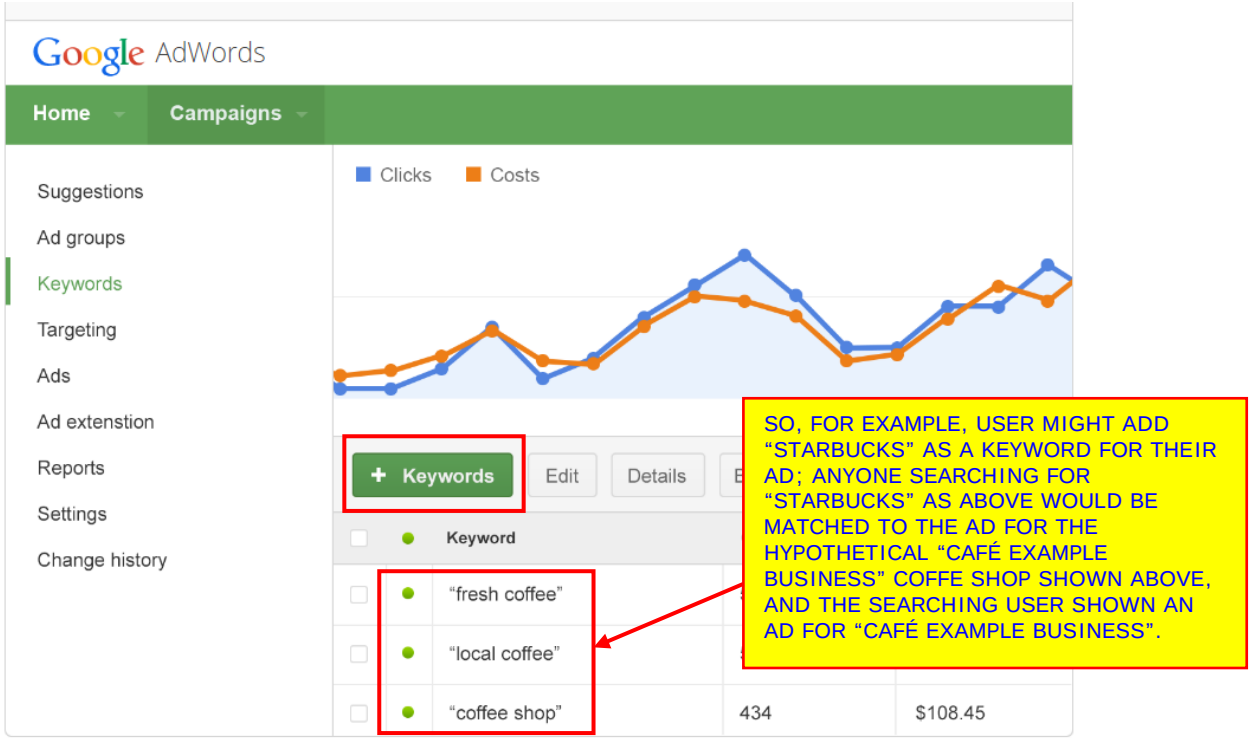
ADVERTISING SUCH AS THE EXAMPLE SHOWN ABOVE IS GENERATED VIA E.G., GOOGLE "ADWORDS" SERVICE:



Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect[2]



Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]



Easy-to-read reports and graphs show how your ads are doing in Google AdWords

http://www.google.com/adwords/start/?sourceid=awo&subid=us-en-ha-aw-bkmp0~48674311565&gclid=CMeViPbsz8ACFZYWjgodkwcAdQ

PER GOOGLE ITSELF, LOCATION IS ALSO ONE TYPE OF "CONTEXT":

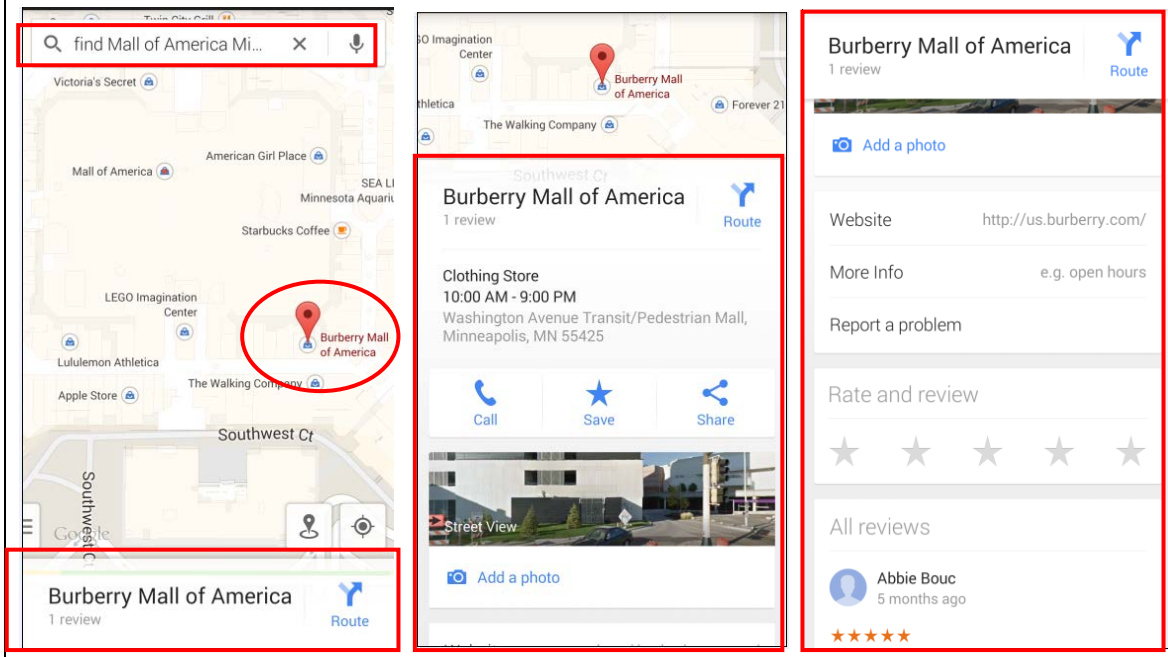
"Location is one piece of context, knowing where you are."

http://www.cnet.com/news/google-maps-becoming-more-context-aware-and-emotional/

CONTEXT = LOCAL SEARCH AREA, WHICH NECESSARILY INCLUDES THE DESIRED INFORMATION (E.G., LOCATION OF NEARBY STARBUCKS IN SAN DIEGO). THE ADVERTISEMENT

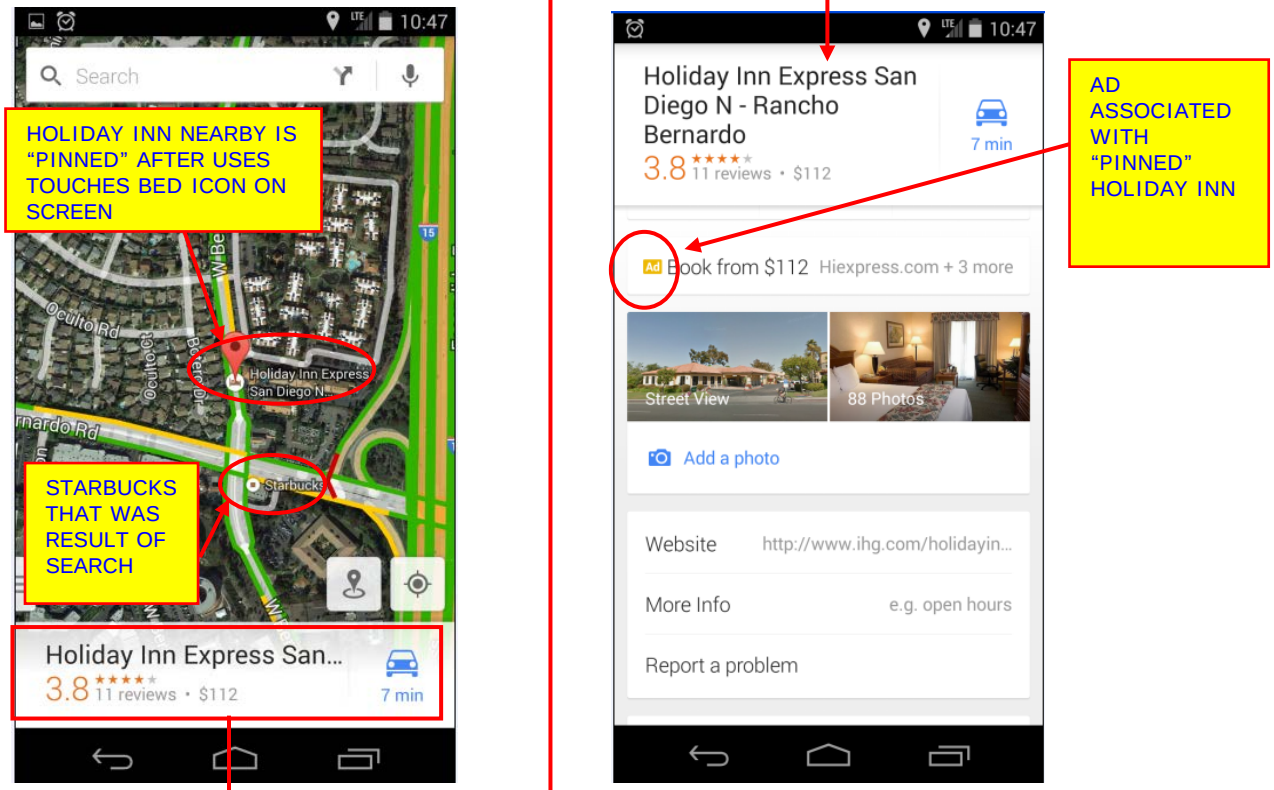
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	MAY BE SELECTED BASED ON THIS GEOGRAPHIC CONTEXT AS WELL, OR BY ITSELF. **NOTE THAT GOOGLE ALSO PROVIDES A KEYWORD PLANNING TOOL, WHICH GUIDES USERS IN SELECTING CONTEXTUAL KEYWORDS:**  **Search for new keyword or ad group ideas** Keyword Planner is like a workshop for building new Search Network campaigns or expanding existing ones. You can search for keyword and ad group ideas, get historical statistics, see how a list of keywords might perform, and even create a new keyword list by multiplying several lists of keywords together. A free AdWords tool, Keyword Planner can also help you choose competitive bids and budgets to use with your campaigns. Whether you're new to online advertising or an experienced pro, you can use Keyword Planner to lay the groundwork for a successful campaign. Learn more. https://adwords.google.com/KeywordPlanner **GOOGLE ADS CAN APPEAR ACROSS MANY GOOGLE PLATFORMS:** "If you use keywords to target your ads, you select a set of keywords related to the product or service you'd		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	like to advertise. Then, when people search using the words or phrases you picked, your text ads can appear alongside or above search results. On Google search sites: Your ads can appear on Google Search, Shopping, Maps, Images, and Groups when someone searches on your keywords. Here's an example, for the keyword "cupcakes":" https://support.google.com/adwords/answer/1704373?hl=en **NOTE THAT ALTERNATIVELY, AND ASIDE FROM "ADWORDS" SERVICE ABOVE, GOOGLE MAPS CAN BE CONSIDERED TO PROVIDE ADVERTISING IN RENDERING ITS MAPS SEARCH RESULTS ON THE SCREEN WITH ICONS/TEXT RELATING TO LOCAL COMMERCIAL ENTITIES:**  ADVERTISEMENTS FOR LOCAL BUSINESSES IN AREA OF SEARCHED-FOR ENTITY (HERE, INSIDE MALL OF AMERICA IN MINNESOTA). NOTE SHOPPING BAG ICON (I.E., TO SELL PRODUCT). **THESE ORGANIZATIONS MUST AFFIRMATIVELY ENTER THEIR INFORMATION WITH GOOGLE ONLINE TO BE SHOWN ON MAP, PRESUMABLY TO INCREASE SALES TRAFFIC.** *"ad·ver·tise·ment* *noun*		

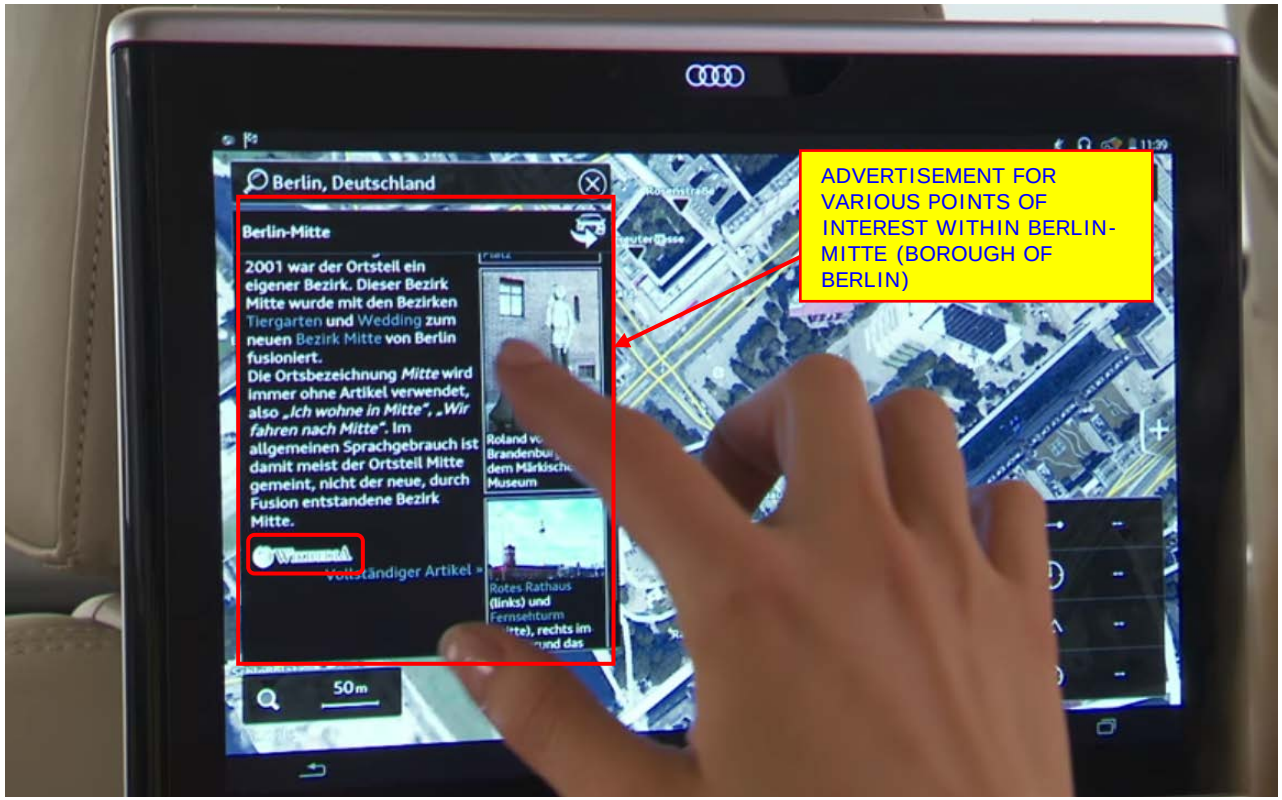
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	a notice or announcement in a public medium promoting a product, service, or event or publicizing a job vacancy. *"advertisements for alcoholic drinks" "* https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ADVERTISEMENT+DEFINITION  **IN THE EXAMPLE ABOVE (BASED ON VOICE SEARCH FOR "MALL OF AMERICA"), THE USER IS SHOWN MULTIPLE COMMERCIAL ENTITIES PROXIMATE TO THE DESIRED ENTITY. WHEN USER TOUCHES SHOPPING BAG ICON FOR, SAY BURBERRY STORE, THE STORE IS "PINNED", AND AN ADVERTISEMENT IS DISPLAYED AT BOTTOM OF SCREEN, SHOWING INFORMATION ABOVE, INCLUDING HOURS OF OPERATION, INDUSTRY TYPE (CLOTHING STORE), ADDRESS, STREET**		

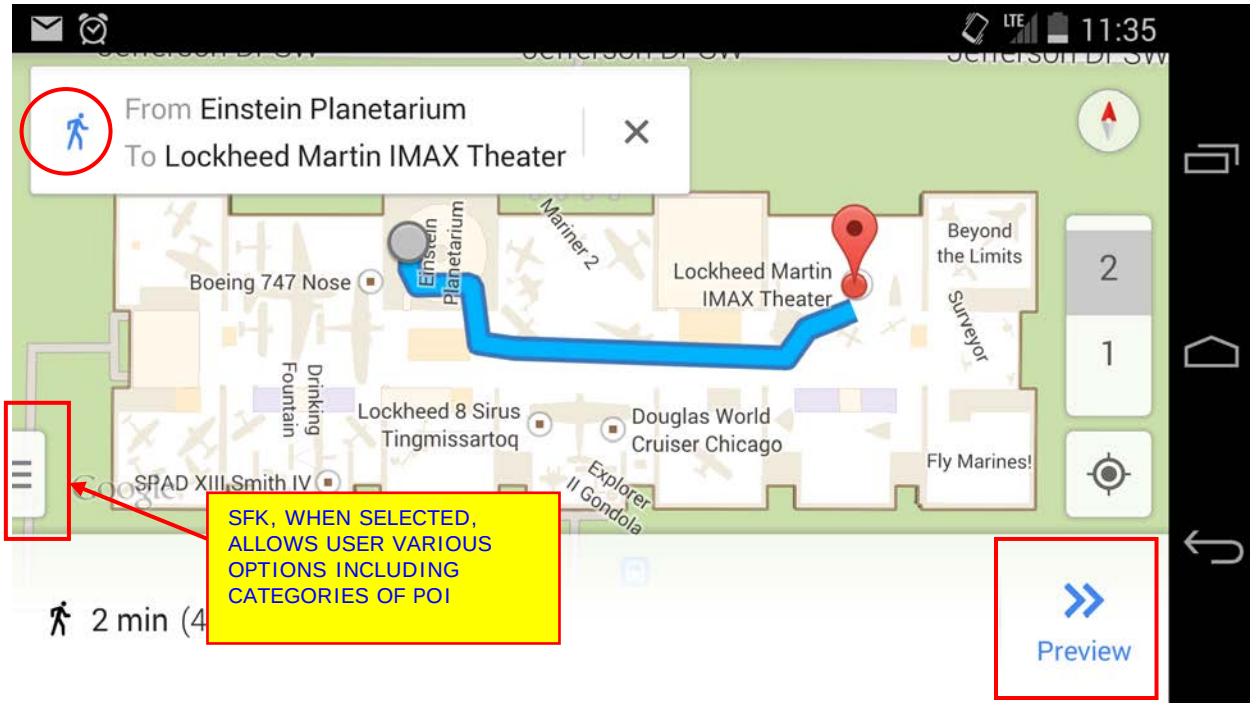
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	VIEW PHOTO, WEBSITE URL, AND REVIEWS BY VARIOUS INDIVIDUALS. **AS NOTED ABOVE, THIS BURBERRY WAS SELECTED FOR DISPLAY BASED AT LEAST ON (I) THE BURBERRY STORE SUBMITTING ITSELF/DETAILS TO GOOGLE FOR DISPLAY, AND (II) IT'S GEOGRAPHIC PROXIMITY TO THE SEARCHED FOR ENTITY.** **SEE ALSO ANOTHER EXAMPLE BELOW…A HOLIDAY INN HOTEL THAT WAS MARKED AS A NEARBY LOCATION ("BED" ICON) TO THE STARBUCKS OF THE SEARCH ABOVE HAS AN ADVERTISEMENT ASSOCIATED WITH IT AS WELL – I.E., WHEN USER TOUCHES THE "BED" ICON, THE MAP BELOW IS SHOWN, AND WHEN USER SWIPES DOWN, THE AD IS REVEALED:**		

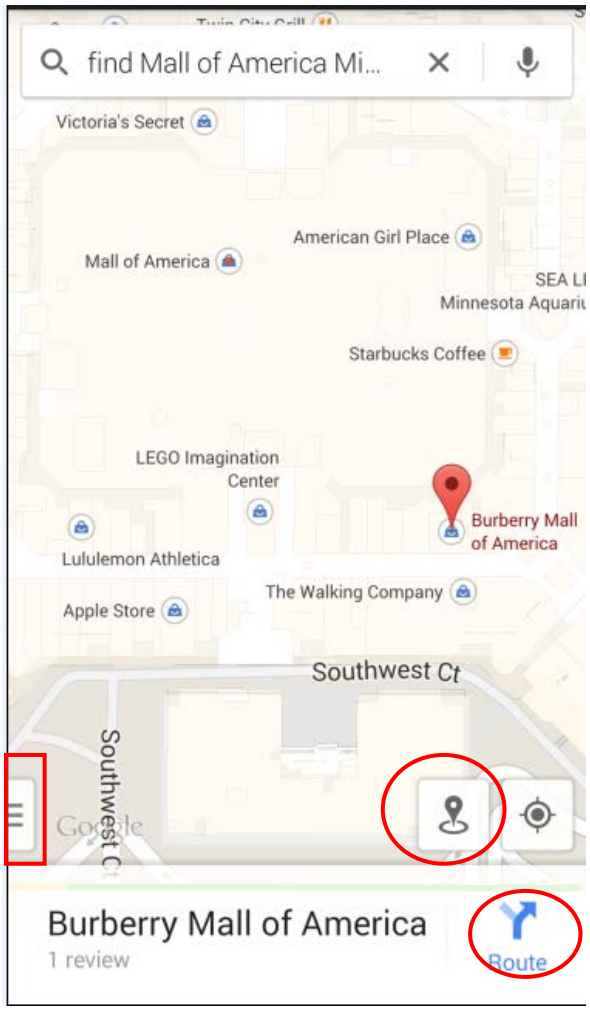
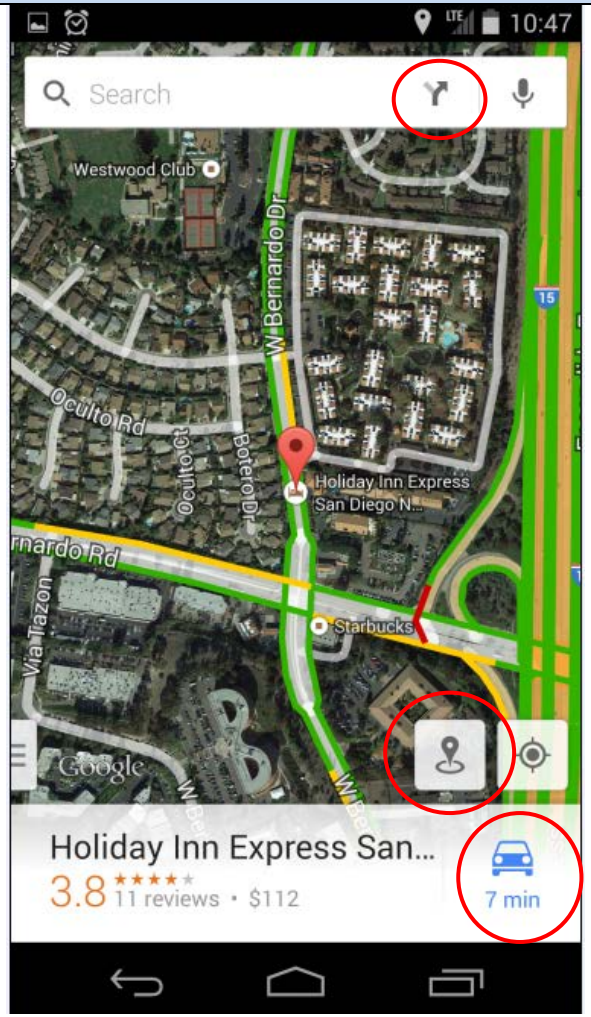
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]

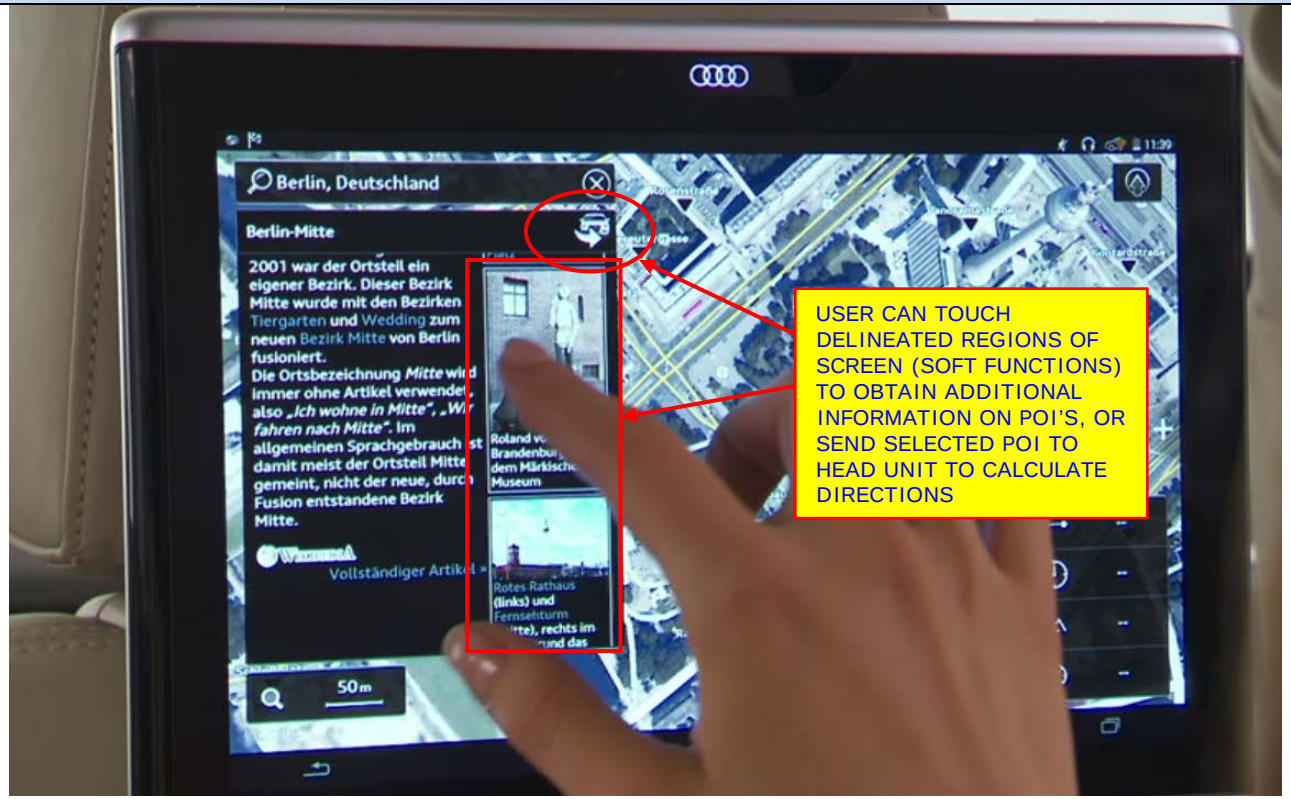


IN AUDI APPLICATION-LAYER U/I ENVIRONMENT; ADVERTISEMENTS THAT ARE CONTEXTUALLY RELATED MAY ALSO BE SHOWN (PRESUMABLY RECEIVED OVER THE WI-FI LINK FROM A

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	REMOTE INFORMATION SERVER (TO BE VERIFIED IN DISCOVERY):  https://www.youtube.com/watch?v=2Yg6cPnFpII		
22. The apparatus of claim 1, wherein the at least one computer program is further	**SEE VARIOUS ANDROID LAYER AND AUDI LAYER TOUCH SCREEN DISPLAYS BELOW, SHOWING SOFT FUNCTION KEYS (SFK) OR ICONS FOR DIRECTIONS (WALKING, DRIVING, SENDING TO HEAD UNIT TO CALCULATE ROUTE, ETC.), AND FOR POI'S:**	**L, DOE**	**D, I**

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
configured to generate on the touch-screen input and display device a plurality of soft function keys or icons, at least one of the soft function keys or icons having a function associated therewith relating to obtaining directions, and at least one of the soft function keys or icons having a function associated therewith relating to points of interest. (***This claim is included because selected claim 23 depends on claim 22***.)			

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	 		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
			
23. The apparatus of claim 22, wherein the at least one of the soft function keys or icons having a function associated therewith relating to directions comprises a function for obtaining directions from	**SEE EXAMPLES IN CLAIM 22 ABOVE; EACH CALCULATES DIRECTIONS BASED ON A CURRENT (KNOWN) POSITION OF THE USER.**	**L, DOE**	**D, I**

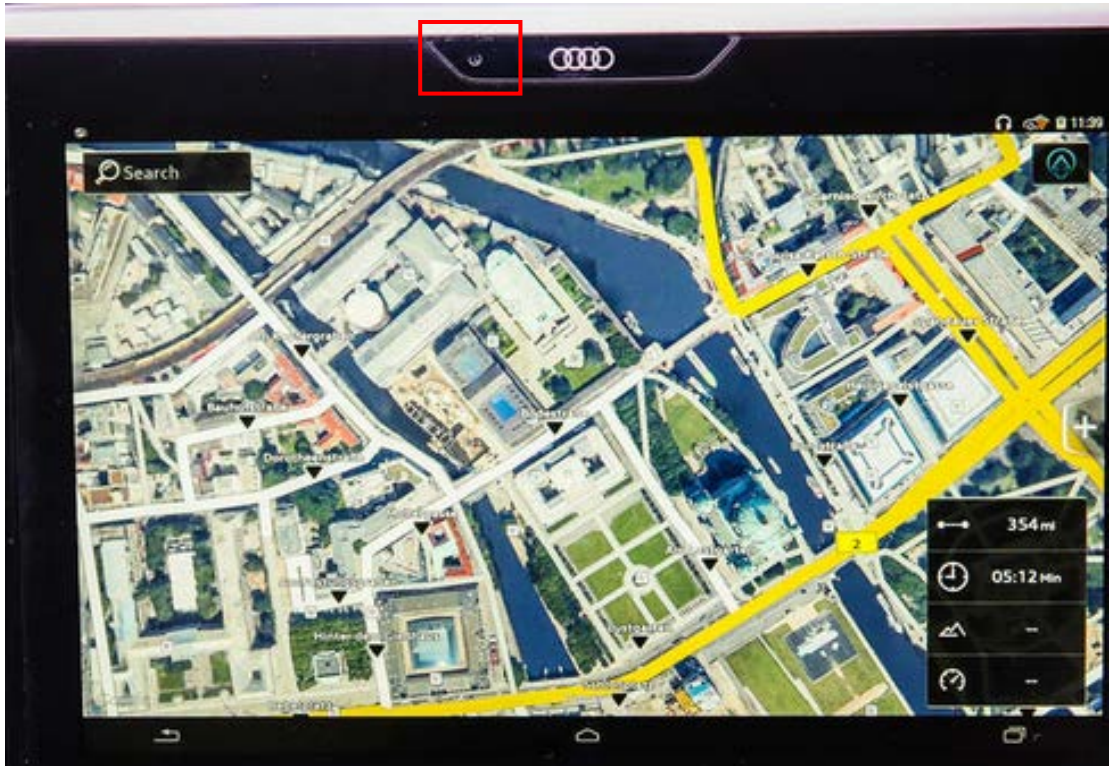
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
a current location of the user.			
29. The apparatus of claim 1, further comprising video data apparatus in data communication with the processing apparatus and configured to enable video data to be generated and displayed on the display device.	**ANDROID-LAYER:**  **SEE ABOVE; SMART DISPLAY HAS INDIGENOUS FRONT-FACING CAMERA. HENCE, VARIOUS TYPES OF "VIDEO DATA" CAN BE GENERATED AND DISPLAYED ON THE DISPLAY DEVICE, SUCH AS A CAMERA OR VIDEO "APP" THAT TAKES THE VIDEO GENERATED BY FRONT-FACING**	**L, DOE**	**D, I**

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	CAMERA, AND DISPLAYS ON SCREEN (E.G., SEE GOOGLE "HANGCHAT", SKYPE, ETC.)  **https://www.youtube.com/watch?v=9YNbPboYA6Y** **AUDI-LAYER: HOST 2016 Q7 HAS EXTERNAL VIDEO CAMERA(S) FOR E.G. SAFETY, BACKING UP, ETC.; BELIEVED TO BE ABLE TO BE VIEWED ON THE AUDI SMART TABLET VIW WI-FI INTERFACE BETWEEN SMART DISPLAY AND Q7 (TO BE VERIFIED IN DISCOVERY).** "That feature speaks to the particular peace of mind you get while driving the Q7. Its myriad of cameras and sensors are continually scanning the road for danger, meaning the driver can sit back in		

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	the ventilated leather seats, relax, and enjoy the ride." http://www.digitaltrends.com/car-reviews/2016-audi-q7-first-drive/ "…good all-round visibility (further enhanced by an available set of six surround-view cameras), and adjustable rear seats." http://www.automobilemag.com/reviews/driven/1504-2016-audi-q7-review/  **https://www.youtube.com/watch?v=ykbzKkffo0Y**		

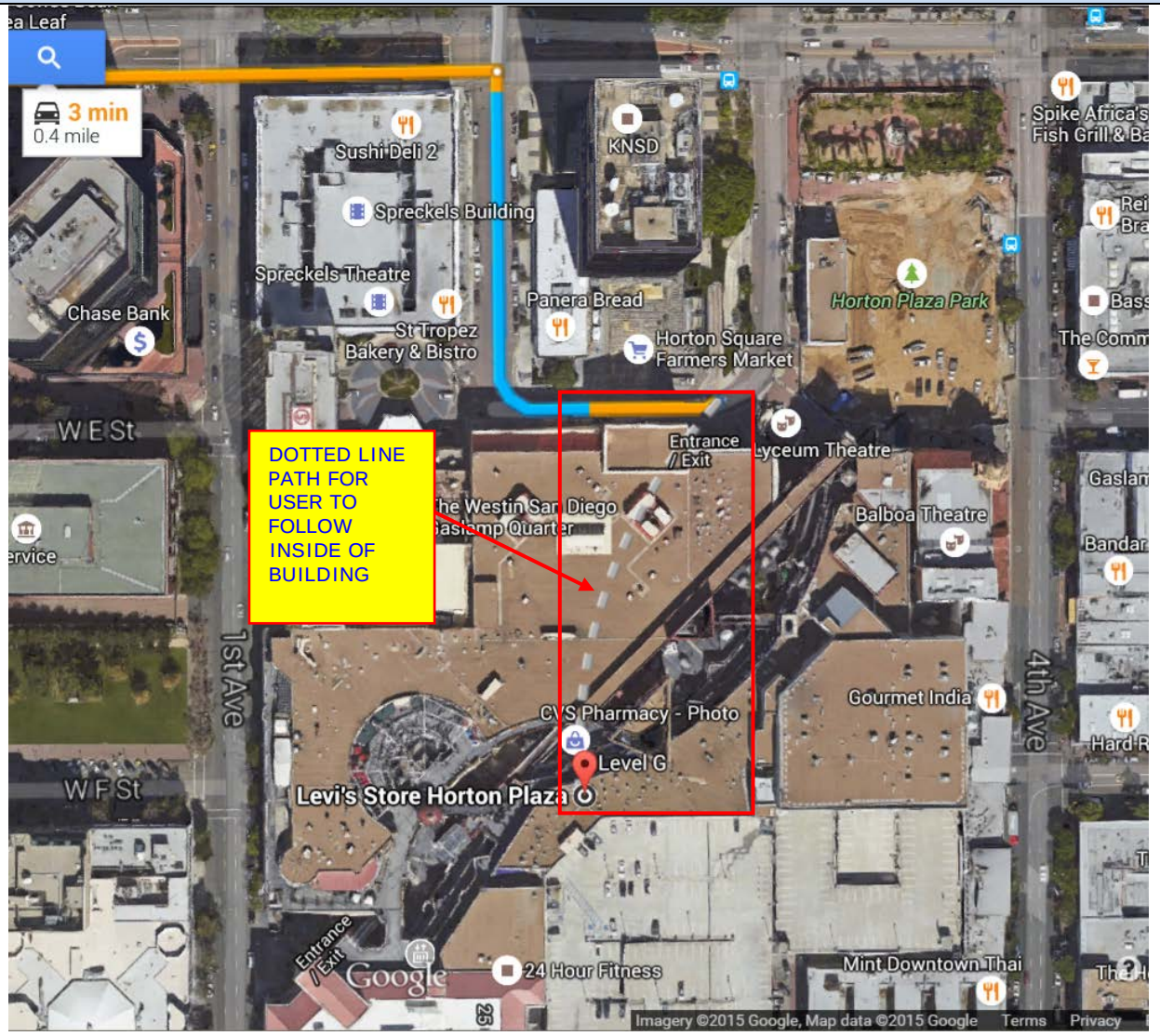
Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
35. Computerized apparatus comprising:	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	**D, I**
a wireless interface;	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	
data processing apparatus;	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	
a touch-screen input and display device;	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	
a speech recognition apparatus in data communication with the data processing apparatus;	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	
and a storage apparatus in data communication with the data processing apparatus, said storage apparatus comprising at least one computer program, said at least one program being configured to:	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	
receive a digitized speech input via the speech recognition apparatus, the input relating to an	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
organization or entity disposed within a building or structure which a user wishes to locate;			
based at least in part on the input, cause identification of a location inside of the building or structure associated with the organization or entity;	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	
and provide a graphical or visual representation of the location on the touch screen input and display device in order to aid a user in finding the organization or entity,	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	
the graphical or visual representation of the location comprising a map graphic showing the location of the organization or entity relative to other organizations or entities proximate thereto inside of the building or structure;	**SEE DISCUSSION OF CLAIM 1 ABOVE REGARDING BOTH ANDROID-LAYER AND AUDI-SPECIFIC LAYER OF SMART DISPLAY**	**L, DOE**	
wherein the digitized speech is generated based at least in part on user speech received via a microphone in communication with the	"The Smart Display features Bluetooth, NFC (near field communication) and an inbuilt microphone and speakers, so that a variety of apps and appliances can be used with it. For example, the sound from it can be linked to the car's audio sound system or Bluetooth headsets for a quieter alternative. Likewise, the integrated camera and microphone can be used for Skype or similar video calling software available in the Android marketplace." http://www.autovolt-magazine.com/audi-smart-display-tablet-shows-future-of-vehicle-connectivity/	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
speech recognition apparatus,			
the microphone being mounted within the computerized apparatus proximate the touch-screen input and display device so that the user can speak into the microphone while viewing the touch-screen input and display device;	**USER CAN CLEARLY SPEAK FOR E.G., VOICE RECOGNITION OR SKYPE, WHILE VIEWING THE DISPLAY (NOTE THAT SKYPE REQUIRES USER TO BE ABLE TO ACCESS BOTH CAMERA AND MICROPHONE FUNCTIONALITIES SIMULTANEOUSLY, AND CAMERA IS MOUNTED ON FRONT FACE JUST ABOVE DISPLAY):** 	**L, DOE**	
and wherein the computerized apparatus: is further configured to	**SEE DISCUSSION OF CLAIM 1 ABOVE**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
provide a user a graphical representation of directions from their current location to the organization or entity,			
the graphical representation of directions comprising the map graphic displayed on the touch-screen input and display device having at least one arrow showing the path for the user to follow inside of the building or structure;	**SEE DISCUSSION OF CLAIM 1 ABOVE; NOTE THAT FOR "AUDI" LAYER, GOOGLE EARTH IMAGERY (VERSUS GOOGLE INDOOR MAPS OF ANDROID) CAN RESOLVE ENTITIES INSIDE OF A BUILDING, AND CAN SHOW AT LEAST APPROXIMATE PATH FROM AN ENTRY TO THE DESIRED ENTITY (SEE EXAMPLE BELOW FOR LEVI'S STORE IN HORTON PLAZA, SAN DIEGO):**	**L, DOE**	

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]



HENCE, IT IS PRESUMED THAT AUDI SMART DISPLAY (WHICH USES GOOGLE EARTH IMAGERY)

Claim Language	AUDI "SMART DISPLAY" ANDROID-BASED TABLET	Literal / DOE[1]	Direct / Indirect [2]
	CAN RESOLVE TO A SIMILAR LEVEL OF DETAIL (SEE AUDI SCREEN SHOT ABOVE INDICATING SAME), AND CAN ALSO RENDER SOME SORT OF PATHWAY SIMILAR TO THAT SHOWN ABOVE IN HORTON PLAZA EXAMPLE (TO BE VERIFIED IN DISCOVERY)		
and comprises an interface compliant with an IEEE 802.11 standard.	"A rear seat passenger can, for instance, send a navigation destination to the MMI navigation via the Audi tablet. The passenger can also surf the Internet via the WiFi connection. The use of the Android operating system in the Audi tablet and the availability of the Google Play store give the customer access to a huge number of applications, games, movies, music, eBooks and much more. At the end of the trip, the Audi tablet can be removed from its mount and used offline or on any external WiFi network. The Audi tablet features a full HD camera, 32 GB of internal storage and an additional Bluetooth and NFC interface for connecting headphones, for example." http://www.audiusa.com/newsroom/news/press-releases/2014/12/the-new-audi-q7-sportiness-efficiency-premium-comfort **SMART DISPLAY CONTAINS WI-FI (802.11) INTERFACE.**	**L, DOE**	

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Attorneys for Plaintiff
WEST VIEW RESEARCH, LLC

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF CALIFORNIA

WEST VIEW RESEARCH, LLC, a California corporation, Plaintiff, v. AUDI AG, a German corporation; VOLKSWAGEN AG, a German corporation; and VOLKSWAGEN GROUP OF AMERICA, INC. d/b/a AUDI OF AMERICA, INC., a New Jersey corporation, Defendants. And Related Counterclaim.	CASE NO. 14-CV-2668 CAB WVG **PROOF OF SERVICE** Judge: Hon. Cathy Ann Bencivengo Ctrm: 4C

PROOF OF SERVICE

I am a citizen of the United States and a resident of or employed in the County of San Diego, State of California. I am over the age of 18 and not a party to the within action. My business address is 16644 West Bernardo Dr., Suite 201, San Diego, California 92127. On June 26, 2015, I served the following document(s) described as:

1) **WEST VIEW RESEARCH, LLC'S REVISED DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS, PURSUANT TO PATENT L.R. 3.1 AND JUNE 10, 2015 COURT ORDER**

2) **WEST VIEW RESEARCH, LLC'S DOCUMENT PRODUCTION ACCOMPANYING ITS REVISED DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS, PURSUANT TO PATENT L.R. 3.2, AND THE JUNE 10, 2015 ORDER**

on the parties or attorneys for parties in this action who are identified on the attached service list, using the following means of service. (If more than one means of service is checked, the means of service used for each party is indicated on the attached service list.)

☐ **BY REGULAR MAIL.** I caused such envelopes to be deposited in the United States mail, at San Diego, California with postage thereon fully prepaid, individually addressed to the parties as indicated on the attached service list. I am readily familiar with the firm's practice of collection and processing correspondence in mailing. It is deposited with the United States postal service each day and that practice was followed in the ordinary course of business for the service herein attested to. (C.C.P. § 1013(a)(3))

☐ **BY CM/ECF.** I caused a true copy of the foregoing document(s) to be transmitted to each of the parties on the attached service list by transmitting via e-filing the document(s) listed above to the Case Management/Electronic Filing System.

☐ **BY PERSONAL SERVICE.** I caused such envelope(s) to be delivered by hand to the addressees.

☒ **BY ELECTRONIC MAIL.** I caused a true copy of the foregoing document to be sent via electronic mail in .pdf format, to the individual(s) listed on the attached service list.

I declare that I am employed in the office of a member of the bar of this court at whose direction the service was made. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on June 26, 2015, at San Diego, California.

Chrissie McGaw

CHRISSIE MCGAW

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