UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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FORD MOTOR COMPANY,
Petitioner,

v.

AUTOCONNECT HOLDINGS LLC,
Patent Owner.

_____

Case No.: IPR2026-00171

U.S. Patent No. 9,082,239

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DECLARATION OF TODOR COOKLEV

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List of Exhibits

Exhibit No.	Description
1001	U.S. Patent No. 9,082,239 ("the '239 Patent")
1002	U.S. Patent No. 9,082,239 Certified File History ("the '239 Patent File History")
1003	Expert Declaration of Todor Cooklev
1004	Todor Cooklev Curriculum Vitae
1005-1010	*Intentionally left blank.*
1011	U.S. Patent No. 7,388,466 B2 to Ghabra ("Ghabra")
1012	*Intentionally left blank.*
1013	U.S. Patent Application Pub. No. 2011/0093153 A1 to Moinzadeh ("Moinzadeh")
1014	*Intentionally left blank.*
1015	U.S. Patent No. 7,783,699 B2 to Rasin ("Rasin")
1016-1049	*Intentionally left blank.*
1050	Bosch Automotive Handbook, 6th Ed., (Robert Bosch GmbH – October 2004) ("Bosch")
1051	IEEE Dictionary, (IEEE 100 The Authoritative Dictionary of IEEE Standards Terms 2000 7th Edition) ("IEEE Dictionary")
1052	"Specification of The Bluetooth System" (June 30, 2010). Version 4.0 (Volumes 0-6) Available at https://www.bluetooth.com/specifications/specs/core-specification-4-0/ (Accessed June 27, 2025) ("Bluetooth Specification")
1053	*Intentionally left blank.*
1054	McCartt et al., "Driver Cellphone and Texting Bans in the United States: Evidence of Effectiveness," Engaged Driving Symposium Annals of Advances in Automotive Medicine, March 31, 2014 Available at https://pmc.ncbi.nlm.nih.gov/articles/PMC4001674/ (Accessed July 1, 2025) ("McCartt")
1055	NHTSA Traffic Safety Facts Research Note "Distracted Driving 2010" published September 2012. Available at https://www.nrd.nhtsa.dot.gov/CATS/index.aspx (Accessed June 24, 2025) ("NHTSA")

Exhibit No.	Description
1056	Peterson, Andrew, "Do not disturb, Ford Fights Distracted Driving with Limited In-Motion Sync Access," July 12, 2010. Available at https://www.motortrend.com/news/163-news100712-ford-sync-do-not-disturb (Accessed June 24, 2025) ("Motor Trend")
1057	Allen, Leslie "Ford launches parental control technologies," October 7, 2008. Available at https://www.autonews.com/article/20081007/ZZZ_SPECIAL/310079921/ford-launches-parental-control-technologies/ (Accessed June 24, 2025) ("Auto News")
1058	Ghangurde, Mujund "Ford SNYC and Microsoft Windows Embedded Automotive Make Digital Lifestyle a Reality on the Road," *SAE International*, Volume 3, Issue 2, October 19, 2010 SAE2010-01-02319 (Accessed April 25, 2025) ("Ghangurde")
1059	Austin, Michael "Ford introduces Next-Gen Connectivity Suite Called MyFord; Should be Awesome," January 6, 2010. Available at https://www.caranddriver.com/news/a15128939/ford-introduces-next-gen-connectivity-suite-called-myford-should-be-awesome-car-news/ (Accessed June 25, 2025) ("Car and Driver")
1060	*Intentionally left blank.*
1061	Ford SYNC Supplemental Guide, November 2007 ("Sync Guide 2007")
1062	Ford SYNC Supplemental Guide, January 2010 ("Sync Guide 2010")
1063	*Intentionally left blank.*
1064	MyFord Touch Ford User Guide Ford Motor Company, February 2012 ("MyFord Touch Guide")

I, Todor Cooklev, hereby declare as follows:

1. I am making this declaration at the request of Ford Motor Company in the matter of inter partes review of U.S. Patent No. 9,082,239 ("the '239 Patent") to Christopher Ricci. (Ex. 1001.) I have been asked to provide opinions on the claims of the '239 Patent in light of the prior art.

2. I am being compensated at my normal hourly consulting rate of $700 for time spent reviewing materials and performing my analysis of the technical issues relevant to this matter. I am also being reimbursed for expenses that I incur during the course of this work. My compensation is not contingent on the outcome of this proceeding or the content of my opinions.

3. This declaration is based on the information currently available to me. If additional information becomes available, I may continue my investigation and study, which may include a review of documents and information that may be produced, as well as testimony from depositions that have not yet been taken. I reserve the right to amend or supplement my opinions based on additional documents or evidence I am presented, including without limitation any arguments or expert declarations advanced by Patent Owner in this case.

4. I am not a legal expert and offer no opinions on the law. However, I have been informed by counsel of the various legal standards that apply, and I have applied those standards in arriving at my conclusions.

5. In the course of conducting my analysis and forming my opinions, I have considered:

a. The documents listed above in the Exhibit List and any additional documents cited in the body of this declaration; and

b. The relevant legal standards, including the standard for obviousness provided in *KSR International Co. v. Teleflex, Inc*., 550 U.S. 398 (2007), and

c. My technical background and experience in the relevant art as described below.

6. I provide my testimony from the perspective of a person of ordinary skill in the art at the time of the invention. I am familiar with the knowledge and skill level of these people based on my years of experience in the industry and frequent interactions with such people.

I. Qualifications and Professional Experience

7. I have provided my full background in the curriculum vitae that is attached as Ex. 1004.

8. I am currently a Professor of Electrical and Computer Engineering at Purdue University in Fort Wayne, Indiana, where I have had several administrative positions.

9. In addition to communications systems and radios, my current research interests include hardware and software architectures of electronic devices. I have received a number of research grants in these areas. My research has been funded by DARPA, the Air Force Research Laboratory, the Office of Naval Research, and other organizations.

10. I am a named inventor on more than thirty U.S. patents. In 2019, I was inducted into the Purdue Inventors Hall of Fame. I have also authored and coauthored more than one hundred peer-reviewed articles. I also authored "Wireless Communication Standards: A Study of IEEE 802.11, 802.15, and 802.16," published by IEEE Press. Recently I authored the textbook "Modern Communications Systems: A First Course" published by the University of Michigan. According to the publisher, the textbook has been used at close to 200 universities in the United States and at a similar number of universities abroad.

11. I graduated from the Technical University of Sofia, Bulgaria in 1988 with a Diploma of Engineering in the field of Electrical Engineering. I graduated from Tokyo Institute of Technology in Tokyo, Japan in 1995 with a Doctor of Philosophy (Ph.D.) degree in Electrical Engineering.

12. Prior to my career in academia, I worked in the high-technology industry. I worked in research and development but also contributed to product

firmware and software development. I have worked on the design of an Application Specific Integrated Circuit (ASIC).

13. I have contributed to the development of several major standards for communication systems and numerous amendments, including Bluetooth, Wi-Fi, cellular, and other standards. I have participated in many meetings of standards committees; I have chaired some committee meetings and served in other leadership roles. Since about 1999 I have been reviewing and contributing to many standards relevant to wireless protocols, and to the hardware and software for their implementation. At present, I continue to be involved in this activity.

14. Around 1998 - 1999 I participated in the Bluetooth Special Interest Group (SIG). I was among the authors of the Bluetooth 1.0 specification, contributing to the Host Controller Interface (HCI) and the Message Sequence Charts that illustrate the interaction between the host and the Bluetooth radio. At the time it was recognized that laptop computers and personal digital assistants (PDAs, predecessors of modern smartphones) would be the main but not the only examples of Bluetooth hosts. Even then it was expected that Bluetooth would become part of many embedded systems. This proved correct; in subsequent years Bluetooth enabled many novel applications, exceeding the expectations for success that we had as authors of the 1.0 specification. In 1999 I participated in the group that established

the license agreement between the Bluetooth SIG and the IEEE 802. Subsequently I joined IEEE 802.

15. Within IEEE 802, I mostly participated in the 802.15 Working Group (on wireless personal area networks) and in the 802.11 Working Group (on wireless local area networks). For example, I contributed to the early work within 802.15.1 and 802.15.2. In November 1999 I was part of the group that established 802.15.3. I was also a voting member of 802.11 during 2000-2002 and 2005-2008. Between 2005 and 2008 the 802.11 Working Group worked on, inter alia, 802.11p, an amendment supporting Intelligent Transportation Systems (ITS). Further, I chaired a Study Group within IEEE 802.11 and for part of this work I received an award from IEEE Standards Association in 2012.

16. Around 2006-2008 I was the Principal Investigator of one National Science Foundation grant awarded to the IEEE. This grant supported many students and their faculty mentors from a number of institutions who worked on the development of innovative hardware and software that incorporated the IEEE standards. The grant was considered successful by the NSF and the IEEE. Around the same time, I served as Chairman of the IEEE Standards in Education Committee.

17. My additional involvement with IEEE includes being elected to serve on the Board of Governors of the IEEE Standards Association (SA) in 2020. The Board of Governors provides overall leadership of the IEEE Standards Association.

The Board also interacts with other standards organizations and government entities in the U.S. and the world.

18. I am the Series Editor for Wireless and Radio Communications for the IEEE Communications Standards Magazine (which is the premier journal in the field of communication standards) and have held that position since 2017. As member of the Editorial Board, I coordinate the review of scholarly manuscripts. I have handled several manuscripts that relate to, inter alia, vehicle-to-everything (V2X) communication and positioning methods.

19. I have previously prepared expert reports and have testified in a number of cases concerning systems for wireless communication, communication protocols, and hardware and software of electronic devices.

20. I am familiar with the subject matter of this case, and consider myself an expert in, among other things, intelligent transportation systems, vehicle information and communications systems, and navigation systems.

21. *Intentionally left blank.*

II. Relevant Legal Standards

A. General

22. I am not offering any legal opinions in this declaration nor am I qualified to do so. I have applied the following legal standards in my analysis.

23. I understand that the petitioner always has the burden of persuasion regarding a challenge of patentability of an invention under an *inter partes* review. It is my understanding that a claimed invention is unpatentable under 35 USC § 102 if a prior art reference teaches every element of the claim. Further, it is my understanding that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the alleged invention was made to a person having ordinary skill in the art to which the subject matter pertains. I also understand that an obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and the claimed subject matter.

24. It is my understanding that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of the claimed subject matter. Some of these rationales include the following: combining prior art elements according to known methods to yield predictable results; simple substitution of one known element for another to obtain predictable results; a predictable use of prior art elements according to their established functions; applying a known technique to a known device to yield predictable results; choosing from a finite number of identified, predictable solutions with a reasonable expectation of success; and some teaching, suggestion, or motivation in

the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

B. Priority Dates for Claimed Subject Matter

25. I understand that in order to be considered "prior art," patents or printed publications must predate the pertinent priority dates for the subject matter claimed in the '239 Patent.

26. I have been informed that a patent is only entitled to a priority date based on an earlier filed application if the earlier filed application meets the requirements of 35 U.S.C. §112. Specifically, I have been informed that 35 U.S.C. § 112(a) requires that the specification of a patent or patent application must "contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the [invention] . . . ." I understand that the requirements of this provision are commonly called the written description requirement and the enablement requirement.

27. I have been informed that compliance with both the written description requirement and enablement requirement must be determined as of the effective filing date of the application for which priority is sought.

28. I have been informed that to satisfy the written description requirement a patent's specification should reasonably convey to a person of skill in the art that the inventor had possession of the claimed invention as of the effective filing date of the application.

C. Claim Construction Standard

29. In order to properly evaluate these claims, I understand that the terms of the claims must first be construed.

30. I understand that in this proceeding, the claims are construed consistent with the specification and using the same construction as that used in litigation. I have been informed that the claims, after being construed in this manner, are then to be compared to the information in the prior art, which for this proceeding is limited to patents and printed publications. I also understand that, at the same time, absent some reason to the contrary, claim terms are typically given their ordinary and accustomed meaning as would be understood by one of ordinary skill in the art.

D. Obviousness

31. I understand that a patent claim is unpatentable if the claimed invention would have been obvious to a person of ordinary skill in the art at the time of the invention. I understand that for a single reference or a combination of references to render obvious a claimed invention, a person of ordinary skill in the art must have

been able to arrive at the claimed invention by altering or combining the applied references.

32. I also understand that obviousness may be established under certain circumstances by combining or modifying the teachings of the prior art. However, I have been informed that a claim is not proved obvious merely by demonstrating that each of the elements was independently known in the prior art. I have been informed that it is important to identify whether a reason existed at the time of the invention that would have motivated a person of ordinary skill in the art in the relevant field to combine the known elements in the way the claimed invention does. Specific teachings, suggestions, or motivations to combine any first prior art reference with a second prior art reference can be explicit or implicit. I understand that prior art references themselves may be one source of a specific teaching or suggestion to combine features of the prior art, but that such suggestions or motivations to combine art may come from the knowledge that a person of ordinary skill in the art would have had.

33. I further understand that whether there is a reasonable expectation of success in combining references in a particular way is also relevant to the analysis.

34. I understand that it is improper to use hindsight to combine references or elements of references to reconstruct the invention using the claims as a guide.

My analysis of the prior art is made from the perspective of a person of ordinary skill in the art at the time of the invention.

35. I have been informed that a patent claim can be found unpatentable as obvious where the differences between the subject matter taught to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the relevant field. Specifically, I understand that the obviousness question involves a consideration of:

a. the scope and content of the prior art;

b. the differences between the prior art and the claims at issue;

c. the knowledge of a person of ordinary skill in the pertinent art; and

d. whatever objective factors indicating obviousness or non-obviousness may be present in any particular case – referred to as "secondary considerations."

36. I have been informed that such secondary considerations include: (a) commercial success of a product due to the merits of the claimed invention; (b) a long-felt, but unmet need for the invention; (c) failure of others to find the solution provided by the claimed invention; (d) deliberate copying of the invention by others; (e) unexpected results achieved by the invention; (f) praise of the invention by others skilled in the art; (g) the taking of licenses under the patent by others and (h) the patentee proceeded contrary to the accepted wisdom of the prior art. I understand

that secondary considerations are relevant where there is a connection, or nexus, between the evidence and the claimed invention.

37. I understand that in order for a claimed invention to be considered obvious, there must be some rationale in the prior art, or the knowledge of a person of ordinary skill in the relevant art at the time of the invention, for combining cited references as proposed.

38. I understand that obviousness may also be shown by demonstrating that it would have been obvious to modify what is taught in a single piece of prior art to create the patented invention. I understand that obviousness may be shown by establishing that it would have been obvious at the time of the purported invention to combine the teachings of more than one item of prior art. In determining whether a piece of prior art would have been combined with other prior art or with other information within the knowledge of one of ordinary skill in the art, I have been informed the following are examples of approaches and rationales that may be considered:

a. Combining prior art elements according to known methods to yield predictable results;

b. Simple substitution of one known element for another to obtain predictable results;

c. Use of a known technique to improve similar devices (methods, or products) in the same way;

d. Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

e. Applying a technique or approach that would have been "obvious to try" (i.e., choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success);

f. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; or

g. Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. I also understand that this suggestion or motivation may come from such sources as explicit statements in the prior art, or from the knowledge or common sense of one of ordinary skill in the art.

39. I understand that an invention that might be considered an obvious variation or modification of the prior art may be considered non-obvious if one or more prior art references discourages or leads away from the line of inquiry disclosed

in the reference(s). I understand a reference does not "teach away" from an invention simply because the reference suggests that another embodiment of the invention is better or preferred. My understanding of the doctrine of teaching away requires a clear indication that the combination should not be attempted (e.g., because it would not work or an explicit statement saying the combination should not be made).

40. Intentionally left blank.

III. Qualifications of One of Ordinary Skill in the Art

41. I have been asked to provide my opinion as to the level of skill of a person having ordinary skill in the art ("PHOSITA" or "ordinary artisan") of the '239 Patent at the time of the claimed invention, which I have been instructed to assume is April 15, 2013. I understand that the PHOSITA is a hypothetical person who is presumed to have known and understood the relevant art at the time of the invention. By "relevant," I mean relevant to the challenged claims of the '239 Patent.

42. In determining the characteristics of a hypothetical PHOSITA of the '239 Patent at the time of the claimed invention, I understand that the factual indicators include the type of problems encountered in the art, the solutions to those problems, the rapidity with which innovations are made in the field, the sophistication of the technology, and the education level of active workers in the field.

43. In my opinion, the relevant field of the ’239 Patent includes intelligent vehicles for assisting vehicle occupants. In particular, the ’239 Patent is directed at vehicle systems for “[m]aintaining a persona of a vehicle occupant and, based on the persona of the vehicle occupant and vehicle-related information, performing an action assisting the vehicle occupant.” (’239 Patent, Ex. 1001, Abstract).

44. The ’239 Patent explains that such systems “[p]rovide for an enhanced user experience making the automobile more useful and more efficient. As described herein, the automobile systems may be electrical, mechanical, electro-mechanical, software-based, and/or combinations thereof.” (’239 Patent, Ex. 1001, 23:34-39.) As such, the ’239 Patent relates to vehicle systems, including infotainment systems and their communication with other devices and systems.

45. In my opinion, a PHOSITA of claimed subject matter the ’239 Patent at the time of its filing would have been a person having a Bachelor’s degree in Electrical Engineering, Mechanical Engineering, or an equivalent degree with at least two years of experience in vehicle control systems, vehicle sensor systems, electronic user interface systems, or related technologies. Additional industry experience could make up for less education and vice versa. Based on my experience, education, and training, I met the definition of a PHOSITA as of the April 15, 2013 priority date. My qualifications at that time far exceeded those of a PHOSITA, and I had worked with, as well as supervised, many PHOSITA’s. My

opinions concerning the ’239 Patent claims and the prior art are from the perspective of a PHOSITA, as set forth above.

46. As further discussed below, my opinions as stated in this declaration are valid even if the Board adopts a slightly different level of ordinary skill in the art.

IV. U.S. Patent No. 9,082,239 to Ricci

A. Overview of the ’239 Patent

47. U.S. Patent No. 9,082,239 (“the ’239 Patent”) titled “Intelligent Vehicle for Assisting Vehicle Occupants” was filed on April 15, 2014 and issued on July 14, 2015. (’239 Patent, Ex. 1001, Cover.)

48. The ’239 Patent is directed to “[m]ethods, systems, and a computer readable medium [that] are provided for maintaining a persona of a vehicle occupant and, based on the persona of the vehicle occupant and vehicle related information, performing an action assisting the vehicle occupant.” (’239 Patent, Ex. 1001, Abstract.) Claim 1 and the specification of the ’239 Patent describes the “persona” as including “one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content.” (’239 Patent, Ex. 1001, 12:32-35, 125:5-9.)

49. Claim 1 and the specification of the ’239 Patent further describes vehicle related information as including “one or more of vehicle context, state,

external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination." ('239 Patent, Ex. 1001, 12:36-39, 125:12-15.)

50. Claim 1 and the specification of the '239 Patent describes the "action" of assisting the vehicle occupant as being one of more of:

> [M]aking an appointment, making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupants electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time.

('239 Patent, Ex. 1001, 12:40-47, 125:23-36.)

51. The '239 Patent recognizes that: "There is a need for a vehicle ecosystem, which can integrate both physical and mental comforts, while seamlessly communicating with current electronic devices to result in a totally intuitive and immersive user experience." ('239 Patent, Ex. 1001, 2:65-3:1.)

52. With reference to Figure 1, the '239 Patent discloses a vehicle environment 100 with internal and external areas associated with a vehicle 104, including a first "interior zone 108"; a second zone 112 that "is exemplary of the range of those [vehicle] sensors and what can be detected by those sensors associated with the vehicle 104"; and a third "area 116 that includes all areas beyond the sensor

range 112." ('239 Patent, Ex. 1001, 23:40-65). According to the '239 Patent, the interior zone can be defined by geofencing.

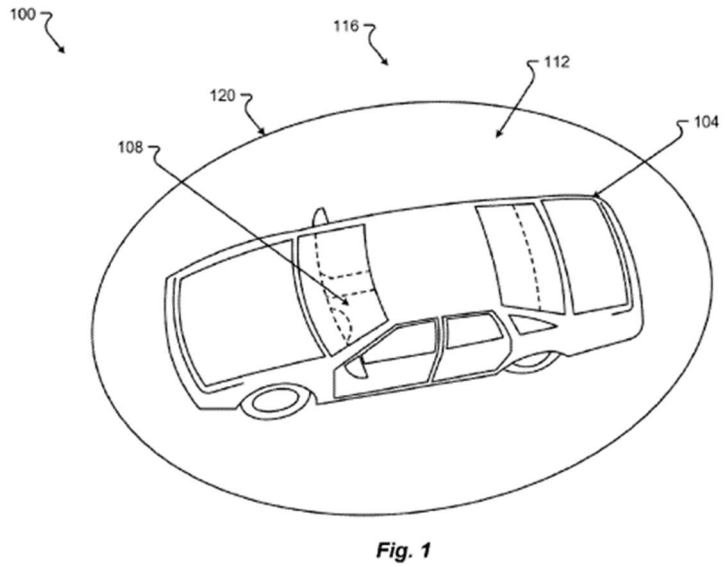


Fig. 1

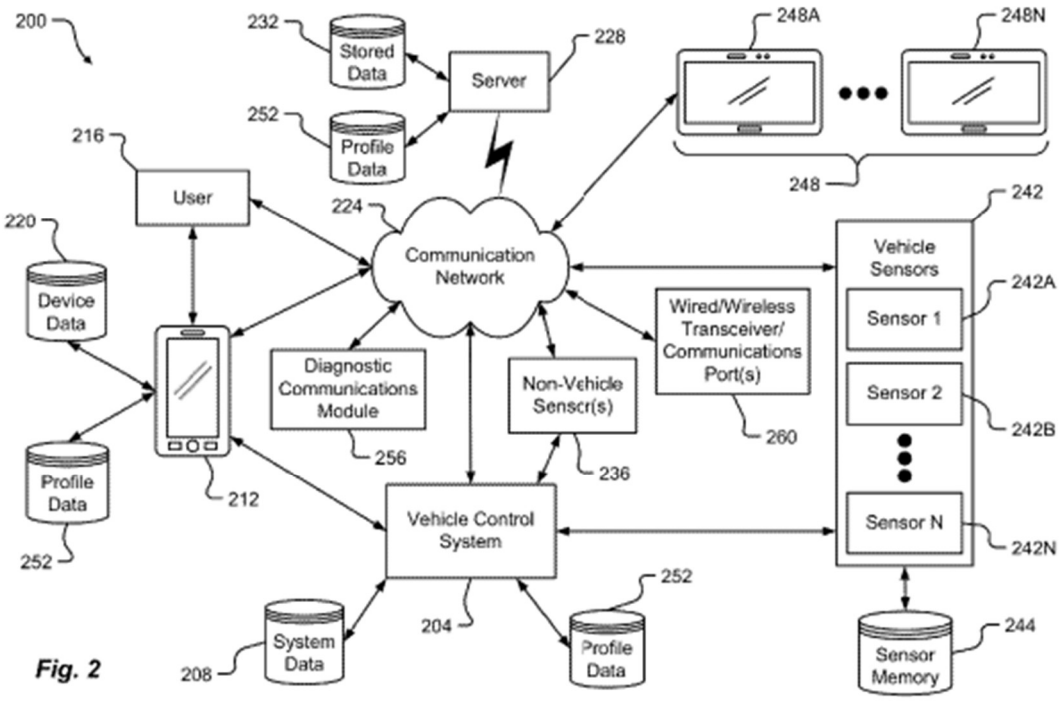
'239 Patent, Ex. 1001, Fig. 1

53. With reference to Fig. 2, the vehicle system of the '239 Patent may comprise hardware and/or software that can receive or provide information from or to the user. The vehicle system includes a vehicle control system:

> The vehicle system 200 may comprise hardware and/or software that conduct various operations for or with the vehicle 104. The operations can include, but are not limited to, providing information to the user 216, receiving input from the user 216, and controlling the functions or operation of the vehicle 104, etc. The vehicle system 200 can include a vehicle control system 204.

('239 Patent, Ex. 1001, 23:67-24:6.)

54. The ’239 Patent specifies that the vehicle control system has a storage system and communicates with a device or user interface. Further, the ’239 Patent discloses a “vehicle control system 204 [that] may communicate with a device or user interface 212, 248” that “may be operable to receive user input either through touch input, on one or more user interface buttons, via voice command, via one or more image sensors, or through a graphical user interface[.]” (’239 Patent, Ex. 1001, 24:19-24)



’239 Patent, Ex. 1001, Fig. 2

55. The ’239 Patent gives numerous examples for “profile data”:

The profile data 252 can be any type of data associated with at least one user 216 including, but in no way limited to, bioinformatics,

> medical information, driving history, personal information (e.g., home physical address, business physical address, contact addresses, likes, dislikes, hobbies, size, weight, occupation, business contacts—including physical and/or electronic addresses, personal contacts—including physical and/or electronic addresses, family members, and personal information related thereto, etc.), other user characteristics, advertising information, user settings and feature preferences, travel information, associated vehicle preferences, communication preferences, historical information (e.g., including historical, current, and/or future travel destinations), Internet browsing history, or other types of data.

('239 Patent, Ex. 1001, 24:44-58.)

56. "In any event, the data may be stored as device data 220 and/or profile data 252 in a storage system similar to that described in conjunction with FIGS. 12A through 12D." ('239 Patent, Ex. 1001, 24:44-61.) Also, the profile data 252 "may include one or more user profiles" and "may include one or more user accounts." ('239 Patent, Ex. 1001, 24:62-63, 25:14-15).

57. The '239 Patent describes the control system as: "The vehicle control system 204 may communicate through the communication network 224 to a server 228 that may be located in a facility that is not within physical proximity to the vehicle 104." ('239 Patent, Ex. 1001, 26:6-9). "The vehicle control system 204 may also communicate with one or more sensors 236, 242, which are

either associated with the vehicle 104 or communicate with the vehicle 104". ('239 Patent, Ex. 1001, 26:33-36.)

58. The '239 Patent specification gives examples of information provided by the sensors:

> Examples of information provided by the sensors 236 and that may be used by the vehicle control system 204 may include weather tracking data, traffic data, user health tracking data, vehicle maintenance data, or other types of data, which may provide environmental or other data to the vehicle control system 204.

('239 Patent, Ex. 1001, 24:50-55.)

59. The '239 Patent also teaches that the functionality provided by the vehicle can be based on, at least partially, based on areas, zones and distances associated with the vehicle: "In general, a vehicle 104 may provide functionality based at least partially on one or more areas, zones, and distances, associated with the vehicle 104." ('239 Patent, Ex. 1001, 33:10-12.) Also, "[o]ptionally, the location of the device 212, 248 relative to the vehicle 104 may determine vehicle functionality and/or features to be provided and/or restricted to a user 216." ('239 Patent, Ex. 1001, 34:7-9.)

60. The '239 Patent discloses a number of sensors in communication with the vehicle control system: "The vehicle 104 can include a number of sensors in wireless or wired communication with the vehicle control system 204 and/or display

device 212, 248 to collect sensed information regarding the vehicle state, configuration, and/or operation." ('239 Patent, Ex. 1001, 39:12-16.) The '239 Patent specification discloses a profile identification module: "The system 800 may include a profile identification module 848 to determine whether a user profile is associated with the vehicle 104." ('239 Patent, Ex. 1001, 49:44-46.) The '239 Patent specification also discloses a user identification module:

> The user identification module 822 may be configured to identify a user 216 associated with the vehicle 104. The identification may be based on user profile information that is stored in profile data 252. For instance, the user identification module 822 may receive characteristic information about a user 216 via a device, a camera, and/or some other input. The received characteristics may be compared to data stored in the profile data 252. Where the characteristics match, the user 216 is identified.

('239 Patent, Ex. 1001, 52:17-25.)

61. The '239 Patent specifies that the vehicle control system can proactively (without a preceding request of the selected vehicle occupant) provide assistance to the selected vehicle occupant:

> The vehicle control system 204 can act as an artificially intelligent assistant that, based on an awareness of a selected vehicle occupant's persona . . . proactively (without a preceding request of the selected vehicle occupant) provides feedback, suggestions, reminders,

recommendations, and/or other types of assistance to the selected vehicle occupant.

('239 Patent, Ex. 1001, 81:48-58.)

62. The '239 Patent specification discloses that the persona can include the information in the profile data or data associated with the person: "In other words, a vehicle occupant's persona can include the information in one or more of the profile data 252 of the person, device data 220 associated with the person, stored data 232, system data 208, and information related to the person as collected by vehicle interior and exterior sensors." ('239 Patent, Ex. 1001, 81:63-82:1.)

B. File History

63. U.S. Patent Application No. 14/253,506 was filed on April 15, 2014, with twenty-three claims, including independent claims 1, 8, and 15. ('239 Patent File History, Ex. 1002, 182-185, 240.)

64. A non-final rejection was issued by the Examiner November 14, 2014, rejecting the claims 1-2, 5, 8-9, 12, 15-16, and 19 as anticipated by U.S. Patent Application No. 2008/0033635 to may control . The Examiner further rejected claims 1, 3-4, 7-8, 10-11, 14-15, 17-18, 21-23 as anticipated by U.S. Patent No. 6675081 to Shuman. The Examiner found allowable subject matter in claims 6, 13, and 20. ('239 Patent File History, Ex. 1002, 261-267.) Original claims 6, 13, and 20 are directed to similar limitations and are reproduced below:

> 6. The method of claim 4, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.
>
> 13. The vehicle of claim 11, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.
>
> 20. The computer readable medium of claim 18, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

65. The Applicant presented new independent claims 24 and 26 that included the allowable subject matter and amended independent claims 1, 8, and 15 to further define the persona or profile of the user and the assistance and action that is automatically provided to the user:

> [W]herein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and internet browsing history and/or browsed content;

> [D]etermining, by the microprocessor executable vehicle control system, a type of assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant;
>
> [T]he action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call, or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.

('239 Patent File History, Ex. 1002, 587-604.)

66. Applicant further amended claims 1, 3, 5, 6, 7, 8, 10, 12, 13, 14, 15, 17, 19, 20, 21, 22, adding that the vehicle occupant was "selected." ('239 Patent File History, Ex. 1002, 587-604.)

67. Applicant added new claims 24-35. ('239 Patent File History, Ex. 1002, 595-598.)

68. The Examiner issued a notice of allowance on March 6, 2015, citing no reasons for allowance and deeming claims 1-35 allowable. ('239 Patent File History, Ex. 1002, 614-618.)

69. Applicant submitted an Information disclosure statement (IDS) on March 12, 2015, listing 146 references. (’239 Patent File History, Ex. 1002, 644-649.)

70. Examiner issued a corrected notice of allowance on May 1, 2015, citing no reasons for allowance and deeming claims 1-35 allowable. (’239 Patent File History, Ex. 1002, 834-836.)

71. The application issued as the ’239 Patent on July 14, 2015. (’239 Patent File History, Ex. 1002, 1;’239 Patent, Ex. 1001, Cover.) I understand a certificate of correction was filed to fix two errors in claims 7 and 14[1] respectively:

Claim 7, column 126, line 14, delete “—and” and insert --and--.

Claim 14, column 127, line 28, delete “—and” and insert --and--.

(’239 Patent File History, Ex. 1002, 847-853.)

72. I was informed none of the references used in forming the bases of Grounds 1-7 were either considered during examination or cited in an IDS related to the ’239 Patent. (*See* ’239 Patent, Ex. 1001, 1-5.)

[1] The revisions made to claims 7 and 14 pursuant to the certificate of correction are shown in brackets the first time each claim is presented. In all subsequent quotations, the claims are presented in their corrected form without brackets.

C. Priority Claim

73. The ’239 Patent claims priority to a series of provisional patent applications: Application No. 61/811,981 filed on April 15, 2013, Application No. 61/865,954 filed on August 14, 2013, Application No. 61/870,698 filed on August 27, 2013, Application No. 61/891,217 filed on October 15, 2013, Application No. 61/904,205 filed on November 14, 2013, Application No. 61/924,572 filed on January 7, 2014, and Application No. 61/926,749 filed on January 13, 2014. (’239 Patent, Ex. 1001, Cover.) U.S. Application No. 14/253,506 was filed on April 14, 2014 with no non-provisional parent applications or children.

D. Claim Construction

74. In order to properly evaluate these claims, I understand that the terms of the claims must first be construed. I also understand that, at the same time, absent some reason to the contrary, claim terms are typically given their ordinary and accustomed meaning as would be understood by one of ordinary skill in the art. For the purpose of this declaration, I have been asked to apply the following claim construction for my analysis regarding unpatentability:

1. Claims 1-2, 4-9, 11-16, 18-22, 24-28, 30, 34-35: “*and/or*”

75. I have been informed by counsel that all instances of “and/or” are to be interpreted as “or.”

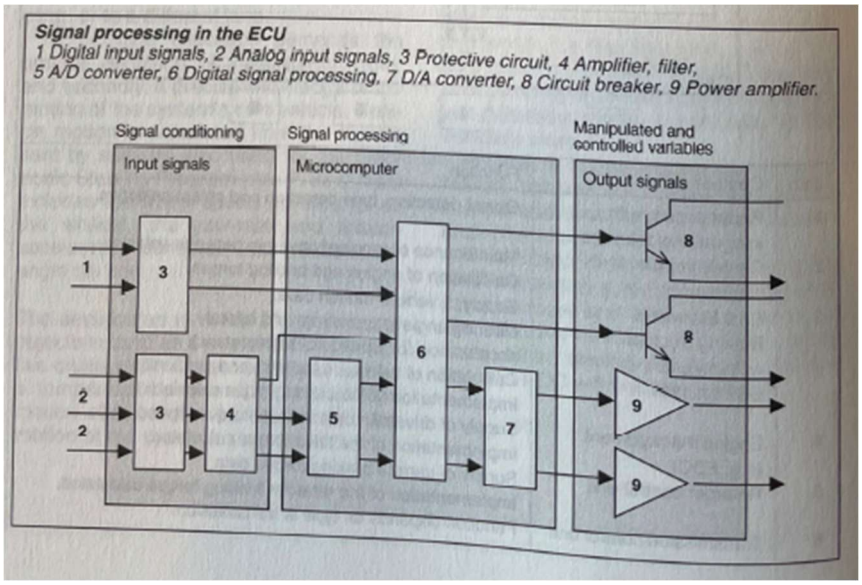
V. General Background Regarding the State of the Art

76. I have been asked to briefly summarize the background of the prior art from the standpoint of a PHOSITA. As mentioned above, the '239 Patent relates to "[m]aintaining a persona of a vehicle occupant and, based on the persona of the vehicle occupant and vehicle-related information, performing an action assisting the vehicle occupant." ('239 Patent, Ex. 1001, Abstract.) The '239 Patent relates to a "vehicle ecosystem, which can integrate both physical and mental comforts, while seamlessly communicating with current electronic devices[.]" ('239 Patent, Ex. 1001, 2:65-2:67.)

77. At the time of the '239 Patent, automotive electronic control units (ECUs) for controlling various vehicle functions were ubiquitous. For example, as of 2004, "[m]odern vehicles [were] equipped with 20 to 60 electronic control units[.]" (Bosch, Ex. 1050, p. 1064[2].) Further, "[w]ith modern semiconductor technology [in 2004], powerful microcomputers can be integrated on relatively few chips together with their accompanying program and data memories, and special peripheral circuits designed specifically for real-time applications." (*See* Bosch, Ex. 1050, p. 1064.)

[2] Bosch, Ex. 1050 is a true and accurate copy of a book that I understand was published by Robert Bosch GmbH in October 2004.

78. An ECU receives signals from vehicle sensors and "then converts to the signals required to adjust the final-control elements/actuators." (*See* Bosch, Ex. 1050 p. 1064.) As illustrated in the figure below, "ECUs developed for use in motor vehicles all have a similar design. Their structure can be subdivided in the conditioning of input signals, the logic processing of these signals in the microcomputer, and the output of logic and power levels as regulation or control signals." (Bosch, Ex. 1050, p. 1065.)



Bosch, Ex. 1050, p. 1064

79. A microcomputer includes: a microprocessor, input and output units (I/O), and memory. (*See* Bosch, Ex. 1050, p. 94.) "The microprocessor represents the integration of a computer's central processing unit on a single chip" and "can be programmed to meet the varied requirements associated with specific operating conditions." (Bosch, Ex. 1050, p. 94.) A "microprocessor" is a specific type of

processor that "contains the logic elements for manipulating data and for making decisions.". (IEEE Dictionary, Ex. 1051, pp. 693, 872[3].) A PHOSITA would have understood that the terms controller, microcomputer, processor, microprocessor, and ECU are often used interchangeably.

80. The ECU also includes software code that is stored in the memory and executed by the microprocessor to perform a series of operations. Semiconductor memories are divided into two main categories: volatile (short-term) memory (e.g., (RAM)) and non-volatile (long-term) memory (e.g., (ROM). (Bosch, Ex. 1050, pp. 94-95; IEEE Dictionary, Ex. 1051, p. 152.) A PHOSITA would have understood that a transitory medium is temporary, such as a signal, whereas a non-transitory medium is a physical object where data can be stored, like a hard drive, Random Access Memory (RAM), Read-Only Memory (ROM), CD-ROM storage, or memory card.

81. Input and output units (I/O) are associated with physical and software (which are logical or virtual) ports. A port is "an interface point connecting a communications channel and a device." (IEEE Dictionary, Ex. 1051, p. 844. For example, Universal Serial Bus (USB) ports are standardized physical connectors used to transfer data and connect peripherals (e.g., flash drives, keyboards,

[3] IEEE Dictionary, Ex. 1051 is a true and accurate copy of a dictionary that I understand was published by IEEE in December 2000.

diagnostic tools, mobile devices). It was well known to connect an infotainment system to a peripheral device, e.g., a mobile phone, using a USB connection. (*See e.g.*, Moinzadeh, Ex. 1013, [0069]; Rasin, Ex. 1015, 3:4-13.)

A. Vehicle Communication Systems

82. Vehicle systems may communicate with portable devices located within the vehicle, and external to the vehicle, through wired and wireless communication. A remote keyless entry system is able to may communicate with a portable device (e.g., key fob) that may be located outside of the vehicle and a vehicle infotainment system may communicate with a portable device (e.g., a smart phone or tablet) located inside of the vehicle.

B. Multimedia systems

83. Multimedia systems combine different media, e.g., "radio, cassette player, CD player, phone, navigation and traffic telematics equipment, and even computer, video player, and TV." (Bosch, Ex. 1050, p. 1118.) Infotainment refers to the combination of information and entertainment. Vehicle infotainment systems at the time of the alleged invention were integrated multimedia interfaces that provide drivers and passengers with access to navigation, music, communication, and vehicle controls through touchscreen displays, voice commands, and/or manual buttons. These systems were becoming increasingly connected to smartphones and/or portable media players via technologies like USB and Bluetooth, Apple

CarPlay, and Android Auto, enabling users to access apps, make calls, send texts, and stream media directly through the vehicle's interface. Such infotainment systems include microprocessors that execute software or computer programs to facilitate such communication.

84. By the mid-2000s, as mobile phones became more advanced, vehicle infotainment systems that interacted with mobile devices became widely available. Multiple automotive manufacturers, including Ford and Fiat, had commercialized infotainment systems that interacted with mobile devices by that time. For example, Ford released its Sync Infotainment system in the 2007 and Fiat released its Blue&Me in-vehicle infotainment system in 2006. (Ghangurde, Ex. 1058, pp. 100, 102-103.)

1. Ford SYNC Technology

85. Partnering with Microsoft in 2006, Ford sought to develop a vehicle infotainment system that focused on affordability and accessibility, while "[p]romoting hands-free use of cell phones and media devices[.]" (Ghangurde, Ex. 1058[4], p. 101.) Ford's SYNC Gen1 system was first released in 2007, which enabled drivers to use voice activated commands for phone conversations and music control,

[4] Ghangurde, Ex. 1058. Ghangurde is a true and accurate copy of a paper that I understand was published by *SAE International* on October 19, 2010.

automatically connected devices with the in-vehicle microphone and sound system, Bluetooth media streaming, voice-activated navigation, advanced voice recognition software, contact data transferring, and text-to-voice online messaging control. (Ghangurde, Ex. 1058, pp. 102-103.)

86. The SYNC Gen1 system enabled drivers to connect both a digital media player and a mobile phone to the vehicle—media players via a USB cable, and phones via Bluetooth. The USB connection not only played media through the car's system but also charged the device. To connect a mobile phone, users first completed a one-time pairing process by entering a 6-digit PIN provided by the SYNC system. After that, the phone could automatically connect by selecting the "connect" option on the vehicle interface. (SYNC Supplemental Guide 2007, Ex. 1061[5], pp. 2-5, 43-47.) Additionally, SYNC Gen1 introduced a voice-activated navigation system that included a feature called "Traffic, Directions and Information Services." This feature used GPS to give drivers voice-guided traffic updates, turn-by-turn directions, and local business information, along with real-time updates like sports scores. Drivers

[5] SYNC Guide 2007, Ex. 1061. The SYNC Guide 2007 is a true and accurate copy of a guide that I understand was published by Ford Motor Company in November 2007.

could use voice commands to customize or adjust the navigation system. (SYNC Guide 2010, Ex. 1062[6], pp. 2, 33-35.)

87. In 2010, Ford released an updated version of its original SYNC Gen1 system, SYNC 2, also known as MyFord Touch. The addition of MyFord Touch created several improvements to the SYNC system, including: an inventive touch screen infotainment display, a four-section main display that allowed for control/display of phone, navigational, entertainment and climate information simultaneously, traffic monitoring, emergency contact information, and voice-activated climate control. (MyFord Touch Guide, Ex. 1064[7], pp. 2-9; *see also* Car and Driver, Ex. 1059[8].) These enhancements were implemented to improve the user experience and enhance overall customer satisfaction.

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[6] SYNC Guide 2010, Ex. 1062, is a true and accurate copy of a guide that I understand was published by Ford Motor Company in January 2010.

[7] MyFord Touch Guide, Ex. 1064, is a true and accurate copy of a guide that I understand was published by Ford Motor Company in February 2012.

[8] Car and Driver, Ex. 1059, is a true and accurate copy of an article that I understand was published by Car and Driver in January 2010. Car and Driver is available at https://www.caranddriver.com/news/a15128939/ford-introduces-next-gen-

C. User Convenience

88. Mobile phones may be connected to infotainment systems by wired (e.g., USB) communications or wireless connections. Bluetooth is a wireless technology that enables short-range communication between devices. Bluetooth 1.0 was released in 1999 (*see* Bluetooth Specification, Ex. 1052, Vol. 0, p. 62[9]) and became a ubiquitously available protocol that vehicle infotainment systems to connect and exchange data with other devices (i.e. mobile phones) due to its low power consumption, cost, and ease of use.

1. Customization

89. Infotainment system customization allows drivers to personalize their in-car experience by adjusting various settings, apps, and visual elements. This can include rearranging home screen icons, setting up user profiles, adjusting navigation

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connectivity-suite-called-myford-should-be-awesome-car-news/, accessed on June 25, 2025.

[9] Bluetooth Specification, Ex. 1052, is a true and accurate copy of a specification that I understand was published by Bluetooth Special Interest Group (SIG), Inc. in 2010. Bluetooth Specification, Ex. 1052 is available at https://www.bluetooth.com/specifications/specs/core-specification-4-0/, accessed on June 27, 2025.

preferences, and customizing visual appearance like color schemes. (Auto News, Ex. 1057[10],1-6; Moinzadeh, Ex. 1013, [0084]; Rasin, Ex. 1015.) Many systems also allow for smartphone integration, application downloads, and personalized shortcuts. For example, the Ford Sync system allows users to customize voice-command shortcuts for frequently accessed features such as climate control or selecting radio stations. (SYNC Guide 2010, Ex. 1062, p. 2, 30-32; MyFord Touch Guide, Ex. 1064, pp. 9, 11.)

90. Ford's MyKey system also adds an additional layer of vehicle personalization but focuses on safe driving habits. For example, vehicle owners can program specific restrictions for designated keys, including setting maximum speed limits, disabling the ability to deactivate traction control, limiting audio system volume, early low-fuel warnings, etc. (Auto News, Ex. 1057, pp. 1-6.)

[10] Auto News, Ex. 1057, is a true and accurate copy of an article that I understand was published by Automotive News on October 7, 2008, and is available at https://www.autonews.com/article/20081007/ZZZ_SPECIAL/310079921/ford-launches-parental-control-technologies/ accessed on June 24, 2025.

D. Safety Concerns

91. While advancements in vehicle technology and infotainment have brought many valuable benefits to drivers, they have also introduced new considerations and potential challenges that warranted thoughtful attention.

92. Child seats and seat sensors had been known for decades prior to the priority date of the '239 Patent: "In order to prevent injuries caused by airbags or fatalities to 'out-of-position' occupants or to small children in child seats with automatic child-seat detection, it is essential that front airbags are triggered and inflated in accordance with the particular situations." (Bosch, Ex. 1050, p. 1038). The same reference teaches "seat position and backrest-inclination detection". (Bosch, Ex. 1050, p. 1038).

1. Driver Distraction and Driving Assistance Systems

93. A key concern that came with the advancements in mobile phones and use in vehicles was the increase in distracted driving. In 2001, New York was the first state to enact a law banning handheld cell phone use while driving. (McCartt, Ex. 1054[11], 1.) Many states followed with bans on texting while driving, with

[11] McCartt, Ex. 1054, is a true and accurate copy of a paper that I understand was published by Annals of Advances in Automotive Medicine for the Engaged Driving

Washington being the first to enact such a law in 2008. (McCartt, Ex. 1054, 1.) Between 2006 and 2010, the National Highway Traffic Security Administration ("NHTSA") reported a four percent (14,000 people) increase in vehicle crashes related to distracted driving. (*See* NHTSA, Ex. 1055[12], p. 4 (table 5).) As access to music, navigation, and phone features through vehicle systems became more seamless and user-friendly, it also highlighted the importance of developing solutions to help minimize potential driver distraction.

94. One of the primary approaches to address driver distraction was to limit access to certain features within the vehicle interface. Ford took a proactive approach to reducing driver distraction by introducing a "Do Not Disturb" feature within its SYNC connectivity system, that limits access to certain functions when a vehicle is

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Symposium on March 31, 2014. McCartt, Ex. 1054, is available at https://pmc.ncbi.nlm.nih.gov/articles/PMC4001674/, accessed on July 1, 2025.

[12] NHTSA, Ex. 1055 is a true and accurate copy of a research note that I understand was published by the National Highway Traffic Safety Administration in September, 2012. NHTSA, Ex. 1055 is available at https://www.nrd.nhtsa.dot.gov/CATS/index.aspx, accessed on June 24, 2025.

in motion. (Motor Trend, Ex. 1056[13], pp. 1-2.) When activated, this feature automatically blocks incoming text messages and phone calls from a connected Bluetooth device, while still allowing voice-activated outgoing calls and access to emergency services through the enhanced 911 Assist feature. (Motor Trend, Ex. 1056, p. 3.)

95. Ford also implemented automatic restrictions on certain SYNC features when a vehicle is in motion. These restrictions include disabling access to screens that display non-driving related information, as well as preventing actions that involve typing on a keyboard, manually adding contacts, pairing a Bluetooth phone, or playing video on the navigation display. However, many of these features remain accessible through SYNC's voice-command system, which allows drivers to stay connected while maintaining focus on the road. (Motor Trend, Ex. 1056, p. 4.)

96. At the time of the invention, driving assistance systems had been known for at least a decade. The Bosch Automotive Handbook discusses: "Driving-assistance systems with multiple applications . . . can be divided in:

[13] Motor Trend, Ex. 1056 is a true and accurate copy of an article that I understand was published by Motor Trend in July 2010. Motor Trend, Ex. 1056 is available at https://www.motortrend.com/news/163-news100712-ford-sync-do-not-disturb, accessed on June 24, 2025.

- safety systems aimed at preventing accidents, and

- comfort and convenience systems with the long-term aim of "semi-automated driving.

A further distinction is made between:

-active systems which intervene in vehicle dynamics

- passive, i.e. informative systems, which do not intervene in vehicle control."

(Bosch, Ex. 1050, p. 1053.)

97. Further, the use of numerous sensors in vehicles had been known for decades prior to the priority date of the '239 Patent. Bosch teaches the integration of multiple sensors for improved driving assistance: "To ensure that assistance functions are as fault resistant as possible but remain capable of detecting and classifying several objects simultaneously, the signals of multiple sensors must be combined and analyzed. (Bosch, Ex. 1050, p. 1057.) Bosch specifically suggests that the technology evolution path is the use of more sensors: "Future driving assistance systems will incorporate the functions of gradually more sensors and actuators and will have more complex connections to other vehicle systems". (Bosch, Ex. 1050, p. 1057.) Consequently, A person of skill at the time of the invention had the motivation to use "more sensors and actuators" to improve driving assistance systems.

2. Security

98. Another area of concern that evolved from the advancements in vehicle technology and infotainment was the risk of improper access. This concern led to the development of several security enhancement strategies such as user authentication technology and vehicle disablement upon theft.

99. Biometric systems in vehicles were also known: "'Biometric systems' have the task of determining or confirming the identity of persons on the basis of biometric features.

At present, about ten biometric processes are known, including

- fingerprint identification,

- face identification,

- iris identification, and

- voice identification."

(Bosch, Ex. 1050, p. 1050.)

100. Bosch also teaches personalization of vehicles: "Personalization can be extended beyond seat-adjustment, mirror-adjustment, and steering-column [sic] adjustment functions. Theoretically, all configurable vehicle systems can be connected to the biometric personalization system". (Bosch, Ex. 1050, p. 1051.)

101. One of the ways Bluetooth's device discovery process has helped with security concerns is using it to authenticate and authorize a device. Authentication is a "procedure [] based on a challenge-response mechanism . . . ." (Bluetooth

Specification, Ex. 1052, Vol. 3, p. 393.) "The verifier sends . . . a random number (the challenge) to the claimant. The claimant calculates a response, that is a function of this challenge, the claimant's BD_ADDR and a secret key. The response is sent back to the verifier, that checks if the response was correct or not." (Bluetooth Specification, Ex. 1052, Vol. 2, p. 247.) Authorization is "[a] procedure where a user of a Bluetooth device grants a specific (remote) Bluetooth device access to a specific service. Authorization implies that the identity of the remote device can be verified through authentication." (Bluetooth Specification, Ex. 1052, Vol. 3, p. 393.)

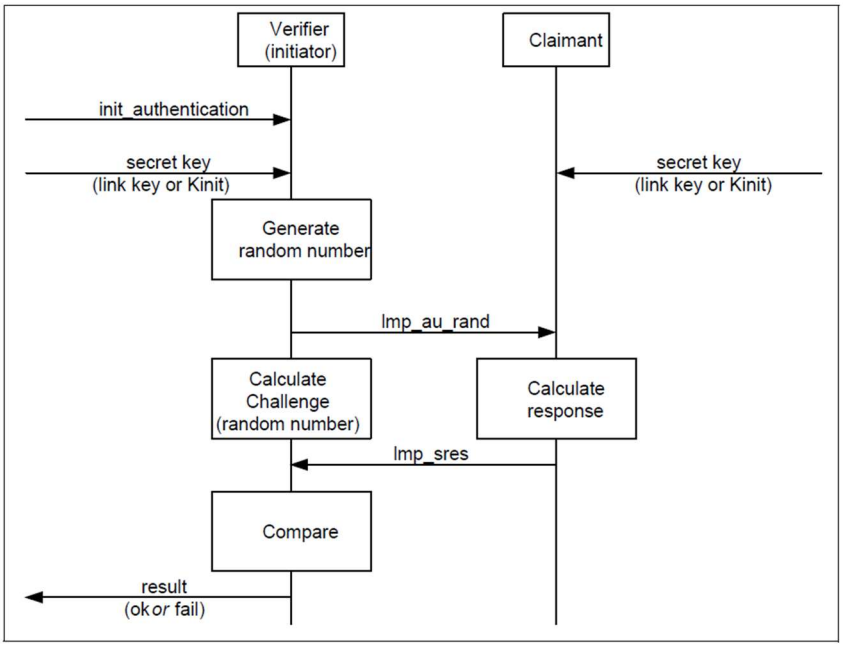


Figure 17.1: LMP-authentication as defined by [2].

Bluetooth Specification, Ex. 1052, Vol. 3, p. 398, Figure 17.1

102. Similarly, passive entry systems may authenticate a fob before allowing it to access the vehicle network by using unique identifier numbers or security codes. (*See* Ghabra, Ex. 1011, 3:57-67, 4:8-40.)

103. *Intentionally left blank.*

VI. Overview of the Key Prior Art References Relied Upon

A. "Sundaram," Ex. 1027

104. Sundaram is a U.S. Patent Application Publication entitled "Method and system for providing an integrated platform for entertainment, information, communication, control and computing applications in vehicles" published on May 5, 2011. (Sundaram, Ex. 1027. Cover.) I understand that Sundaram is prior art to all claims of the '239 Patent under 35 U.S.C. § 102(a)(1).

105. Sundaram provides personalization of the vehicle:

> By accessing these computing and control devices in vehicle 102, in-vehicle computer 104 may control vehicle 102's behavior to personalize the vehicle according to its user's needs and requirements. Further, in-vehicle computer 104, by taking inputs from vehicle 102's gyrometer, may adjust vehicle 102's behavior to enhance comfort of the user and warn the user about the road conditions. User of vehicle 102 may be a driver or a passenger of vehicle 102. In some embodiments, in-vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide services to the user and also make control decisions for vehicle 102. For example in-vehicle computer 104 uses location source as one of the inputs to identify the road and area in which vehicle 102 is and then use this information to fetch the speed limit of that particular road dynamically. The fetched

> speed limit is then conveyed to the user and the user is provided alerts on over speeding occasions.

(Sundaram, Ex. 1027, [0017] [14]

106. Sundaram teaches that the user is identified and the user's profile is automatically activated: "Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102." (Sundaram, Ex. 1027, [0020].) Sundaram further discloses that information may be transmitted to and from peer vehicles (Sundaram, Ex. 1027, [0025]). Additionally, Sundaram teaches that data transmission can be limited to members of a defined group, such as a social network. (Sundaram, Ex. 1027, [0197], [0223].) This includes the exchange of traffic alerts and other situational data between vehicles in proximity. (Sundaram, Ex. 1027, [0025].)

[14] Unless I indicate otherwise, all underlining and emphasis used in my declaration has been added.)

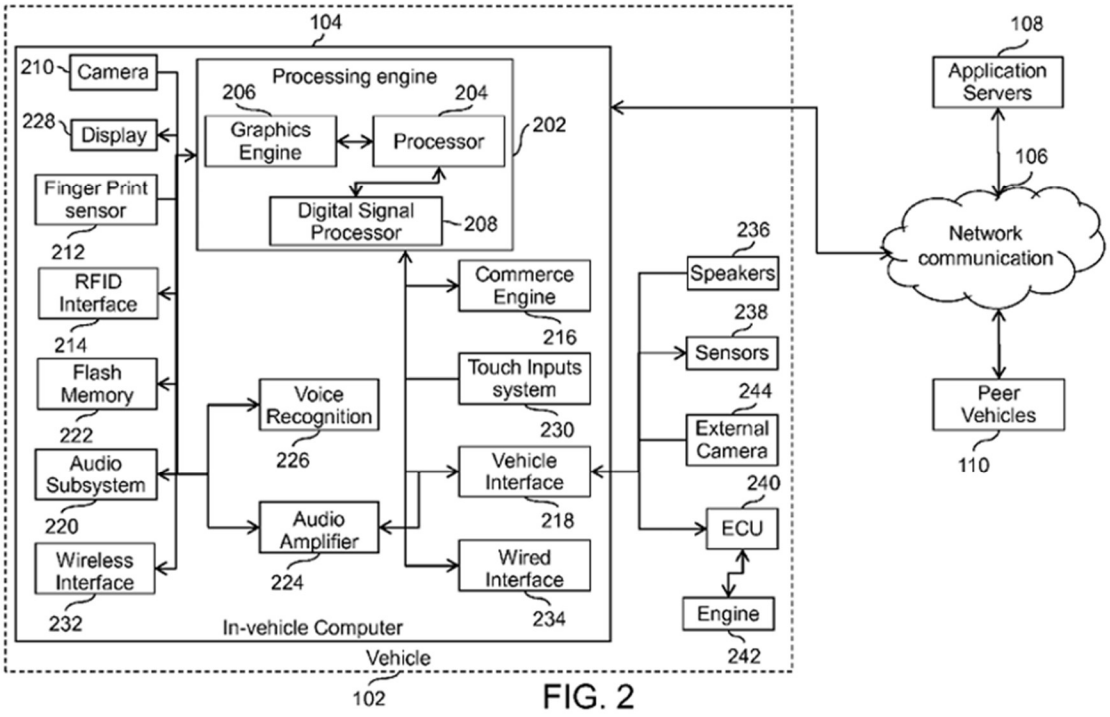


FIG. 2

Sundaram, Ex. 1027, FIG. 2

B. "Penilla," Ex. 1035

107. Penilla is a U.S. Patent filed March 5, 2013, and issued March 15, 2016, entitled "Methods and systems for defining custom vehicle user interface configurations and cloud services for managing applications for the user interface and learned setting functions." (Penilla, Ex. 1035, Cover.) I understand Penilla is prior art to all claims of the '239 Patent under 35 U.S.C. § 102(a)(2).

108. Penilla "relates to systems and methods for customizing vehicle user interfaces and exchange of information with cloud-based processing systems to enable integration with third party applications." (Penilla, Ex. 1035, 1:26-29).

109. Penilla also discloses that devices such as the user's phone, tablet, or smartwatch can synchronize information with the in-vehicle computer: "In one embodiment, data from the local devices can be synchronized locally to the display of the vehicle in selected regions." (Penilla, Ex. 1035, 18:50-55.) Penilla teaches that content from applications running on the user's devices can be displayed on the vehicle display. (*See* Penilla, Ex. 1035, 15:23-39.)

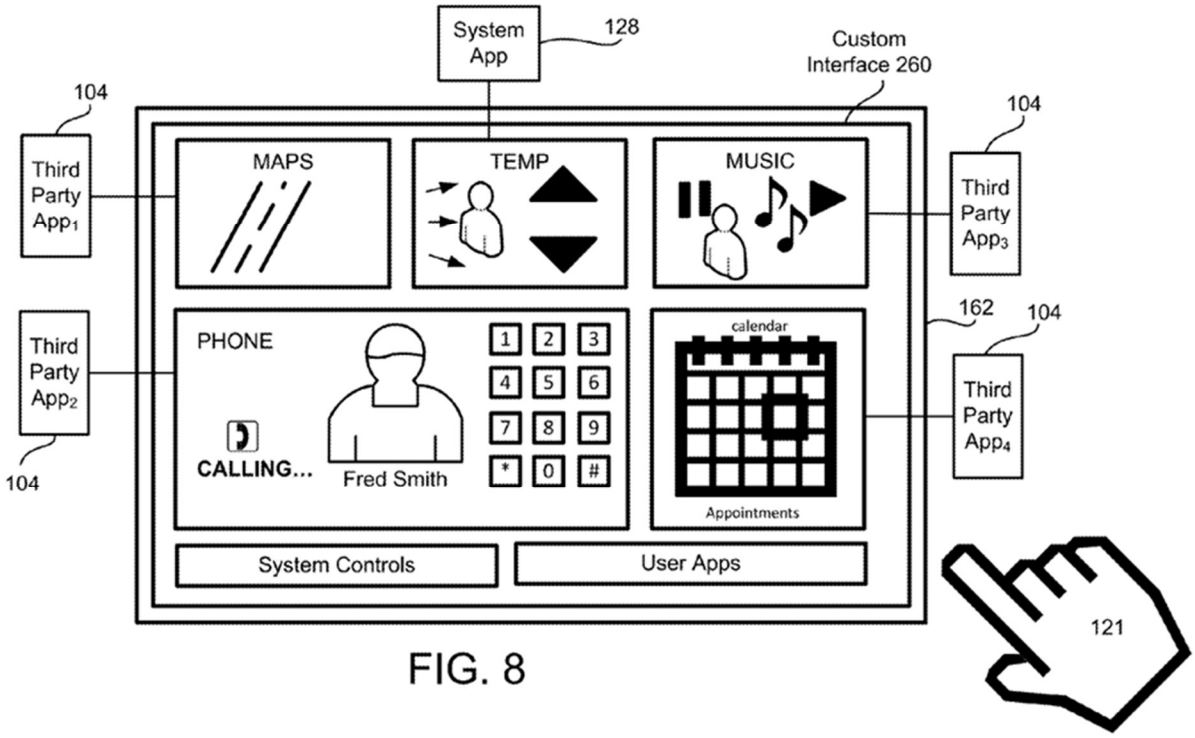
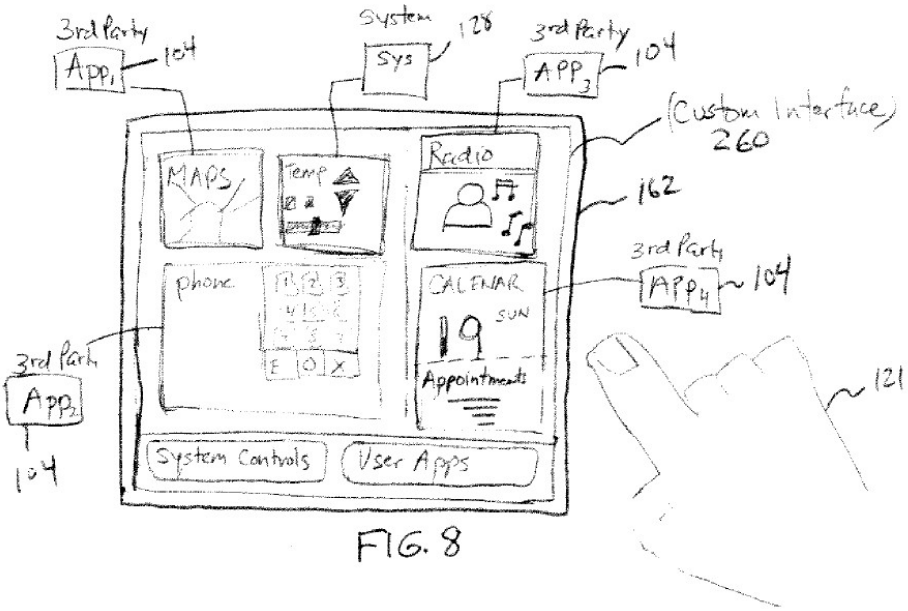


FIG. 8

Penilla, Ex. 1035, FIG. 8



Ex. 1047, FIG.8[15]

110. Penilla also teaches that even when the vehicle is turned off, the vehicle electronics is powered so that the vehicle is able to communicate with the cloud. (*See* Penilla, Ex. 1035, 9:19-26.)

C. "Vasa," Ex. 1045

111. Vasa is a U.S. Patent Application Publication published November 19, 2009 entitled "System and Method of Translating Road Signs". (Vasa, Ex. 1045,

[15] Penilla was filed with informal hand drawn figures and formal drawing were submitted later during prosecution. (Ex. 1047, 90-110, 125-152.) I have included both versions of the drawings in my declaration to illustrate that they disclose nearly identical information.

Cover.) I understand Vasa is prior art to all the claims of the '239 Patent under 35 U.S.C. § 102(a)(1).

112. Vasa discloses a device which has wireless communication capability and a camera. The camera "captures images of traffic signs that are unfamiliar to a user. A controller in the device analyzes the captured image and generates information that allows the user to identify the traffic sign". (Vasa, Ex. 1045, Abstract.)

113. Vasa is directed to a sign translation system that "translates unfamiliar objects, such as road or traffic signs, for a user." (Vasa, Ex. 1045, [0028].) Vasa seeks to improve a user's ability to drive in unfamiliar places:

> In many instances, people that travel to other countries are confused by that country's traffic signs. This can be especially true for travelers who do not understand the local language or laws, and can be particularly troublesome for automobile drivers trying to navigate to a desired destination. It would be helpful to such people to be able to translate an unfamiliar road or traffic sign to a more familiar counterpart very quickly.

(Vasa, Ex. 1045, [0003].)

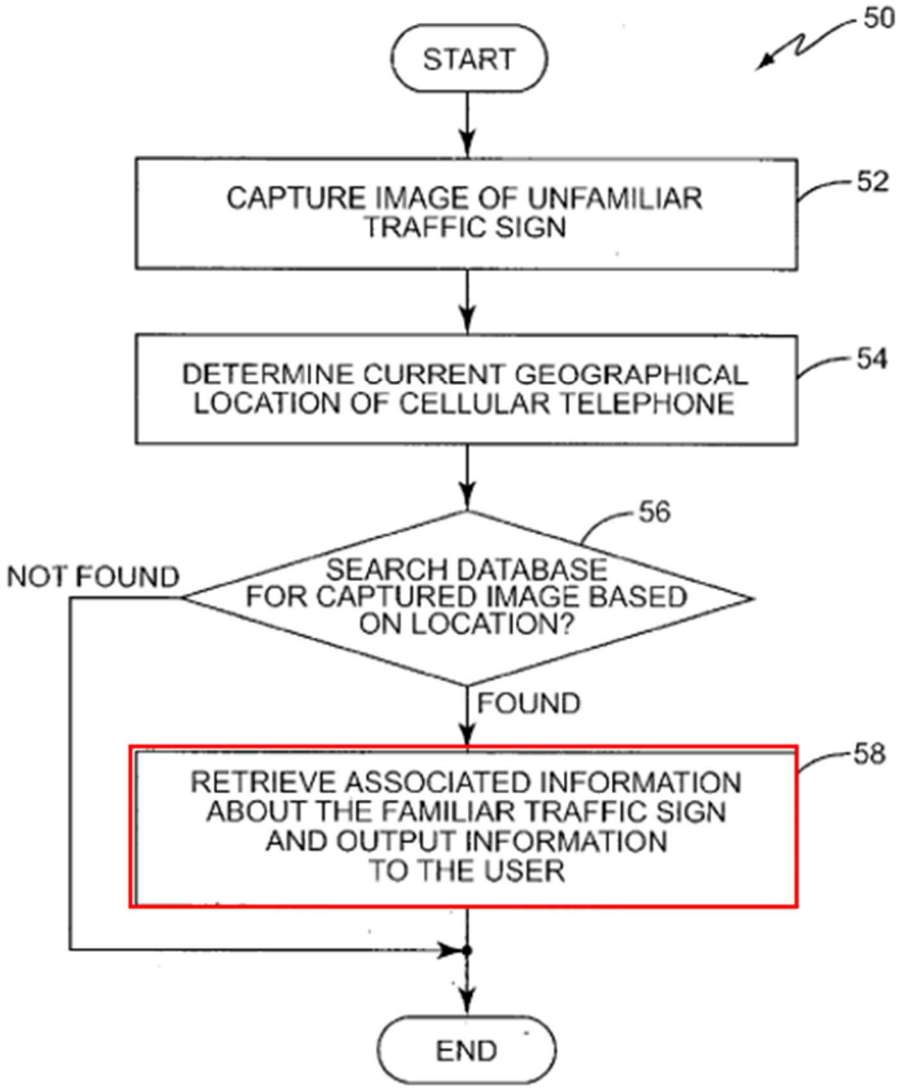


FIG. 5

Vasa, Ex. 1045, FIG. 5 (Annotated)

D. "Rork," Ex. 1036

114. Rork is a U.S. Patent Application Publication published October 7, 2010. (Rork, Ex. 1036, Cover.) I understand Rork is prior art to all the claims of the '239 Patent under 35 U.S.C. § 102(a)(1).

115. Rork is directed to a system of seat sensors and methods for notifying a user of a seat status sensed by the sensors. Rork seeks to improve ease of use of child seats vehicle's by giving users notifications when seats are not properly installed:

> In at least one embodiment a vehicle system for communicating with a child seat is provided. The vehicle system comprises a receiver. The receiver is configured for receiving at least one seat sensor signal from a child seat controller. The vehicle system further comprises a controller that is configured for communicating with the receiver for analyzing the at least one seat sensor signal and comparing the seat sensor signal to pre-existing guidelines to determine a status message. The vehicle system further comprises a user interface that is configured for communicating with the controller for displaying the status message.

(Rork, Ex. 1036, [0005].)

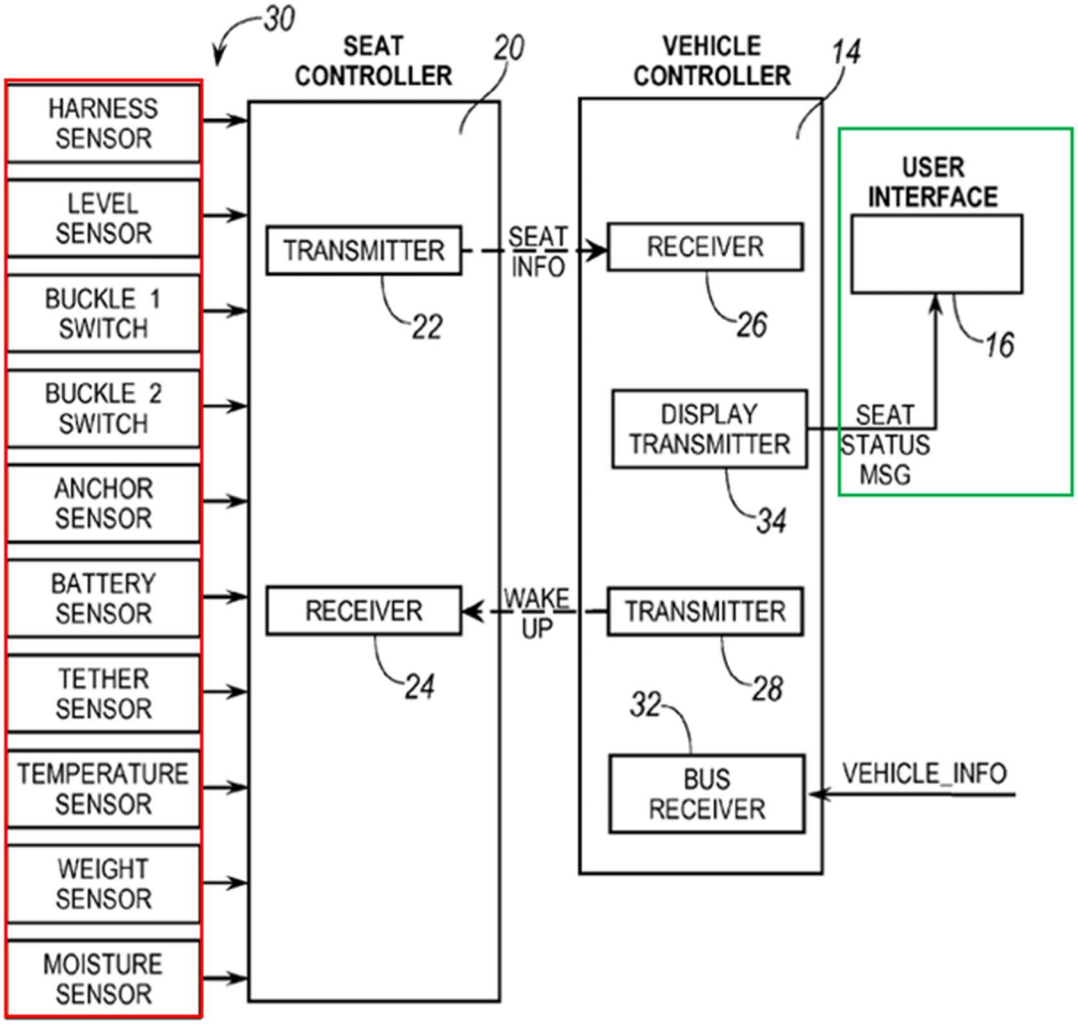


FIG. 2

Rork, Ex. 1036, FIG. 2 (Annotated)

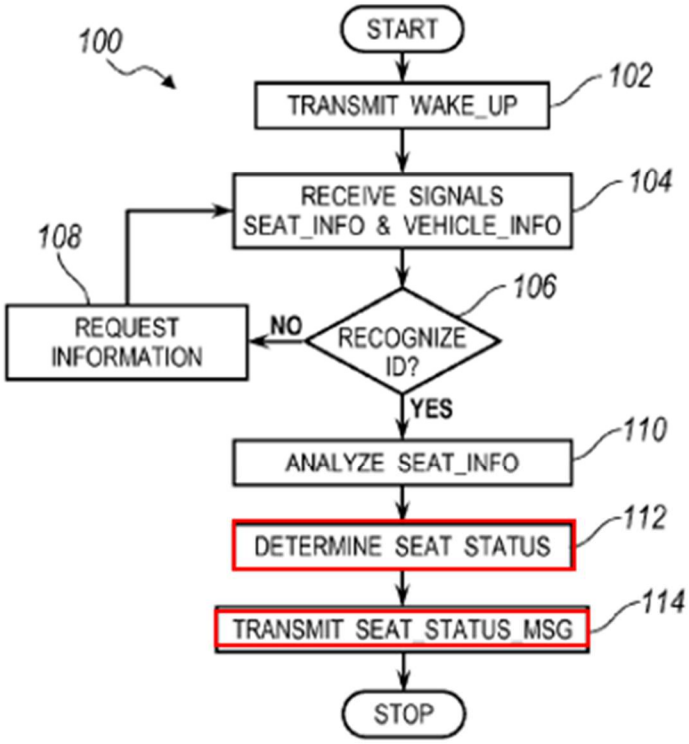


FIG. 6

Rork, Ex. 1036, FIG. 6 (Annotated)

E. "Gruber," Ex. 1037

116. Gruber is a U.S. Patent Application Publication published January 19, 2012. (Gruber, Ex. 1037, Cover.) I understand Gruber is prior art to all the claims of the '239 Patent under 35 U.S.C. § 102(a)(1).

117. Gruber is directed to an intelligent automated assistant operable in a vehicle that provides personalized text, audio/speech, and graphical outputs based on user preferences for improved automated assistance:

> Examples of different types of output data/information which may be generated by intelligent automated assistant 1002 may include, but are not limited to, one or more of the following (or combinations thereof):
>
> Text output sent directly to an output device and/ or to the user interface of a device
>
> Text and graphics sent to a user over email
>
> Text and graphics send [sic] to a user over a messaging service
>
> Speech output, may include one or more of the following (or combinations thereof):
>
> Synthesized speech
>
> Sampled speech
>
> Recorded messages
>
> Graphical layout of information with photos, rich text, videos, sounds, and hyperlinks. For instance, the content rendered in a web browser.

(Gruber, Ex. 1037, [0148]-[0156].)

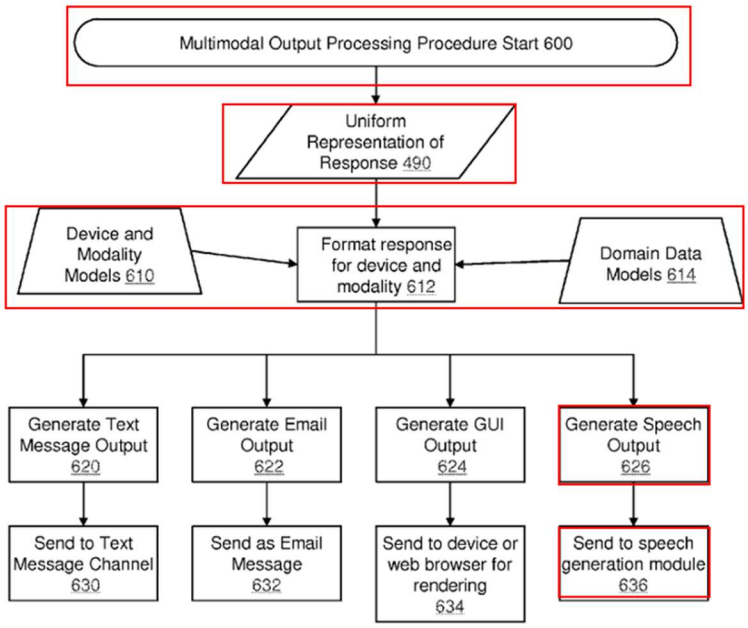


FIG. 42

Gruber, Ex. 1037, FIG. 42 (Annotated)

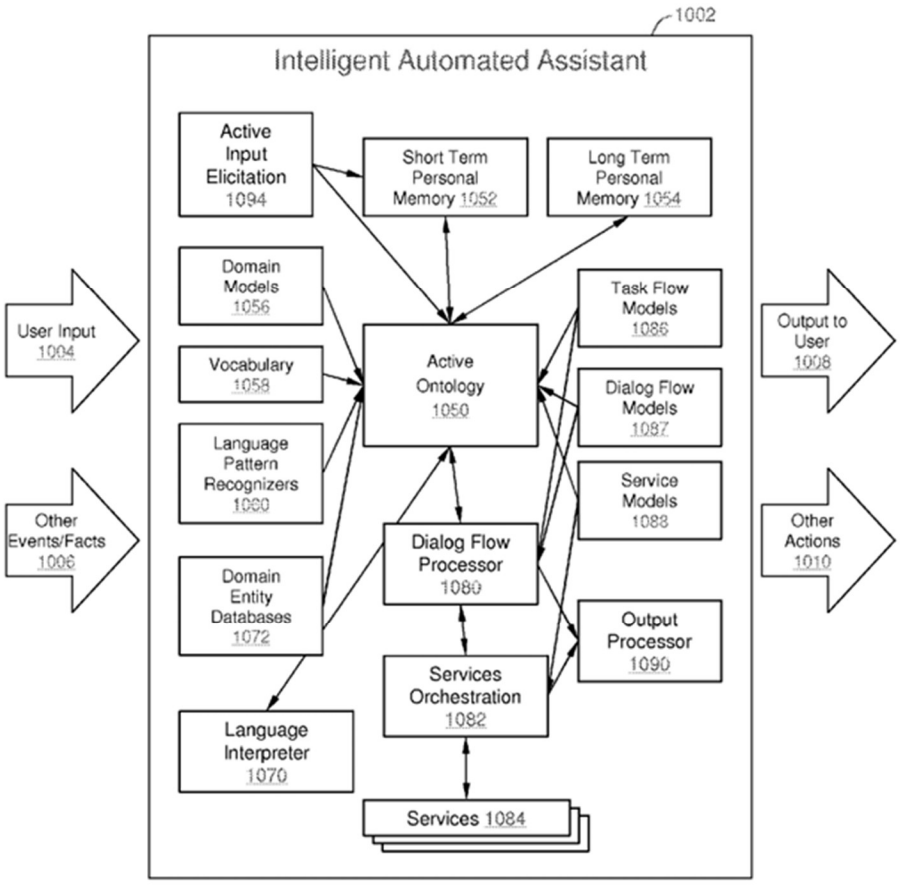


FIG. 1

Gruber, Ex. 1027, FIG. 1

118. Gruber further discloses the automated assistant 1002 providing assistance proactively based on the event:

> In at least one embodiment, assistant 1002 may proactively offer services associated with events that were suggested for user attention. For example, if a flight status alert indicates a flight may be missed, assistant 1002 may suggest to the user a task flow for re-planning the itinerary or booking a hotel.

(Gruber, Ex. 1037, [0345].)

119. Intentionally left blank.

VII. Grounds for Challenge

A. Ground 1: Sundaram renders claims 1–2, 5, 7–10, 12, 14–16, 19, 21-22, 30, 34–35 of the '239 Patent Unpatentable as Obvious

120. I have been asked to review claims 1-35 of the '239 Patent.

1. Independent Claim 1

121. I have given each of the limitations of claim 1 a unique numerical identifier, as shown in the chart below:

U.S. Patent No. 9,082,239
[1pre] A method comprising:
[1a] maintaining, by a microprocessor executable profile identification module, a persona of a selected vehicle occupant,
[1b] wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content;
[1c] determining, by a microprocessor executable vehicle control system, vehicle-related information, wherein vehicle-related information comprises one or more of

vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination; and
[1d] based on the persona of the selected vehicle occupant and the vehicle-related information, determining, by the microprocessor executable vehicle control system, a type of assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant;
[1e] performing, by the microprocessor executable vehicle control system, an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.

1[pre] A method comprising:

122. I have been informed preambles are not usually limiting. However, whether or not the preamble is limiting, Sundaram discloses "[m]ethods and systems for providing an integrated platform for entertainment, information, communication, control and computing applications in a vehicle." (Sundaram, Ex. 1027, [0014].) The system allows for "the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features." (Sundaram, Ex. 1027, [0018].) The system is carried out by an in-vehicle computing and entertainment platform environment 100 as shown below in Fig. 1. (Sundaram, Ex. 1027, [0015] *see also* Fig. 1.) "In-vehicle computing and entertainment platform environment 100 includes vehicle 102, in-vehicle computer 104, network communication 106, application servers 108 and peer vehicles 110." (Sundaram, Ex. 1027, [0015].)

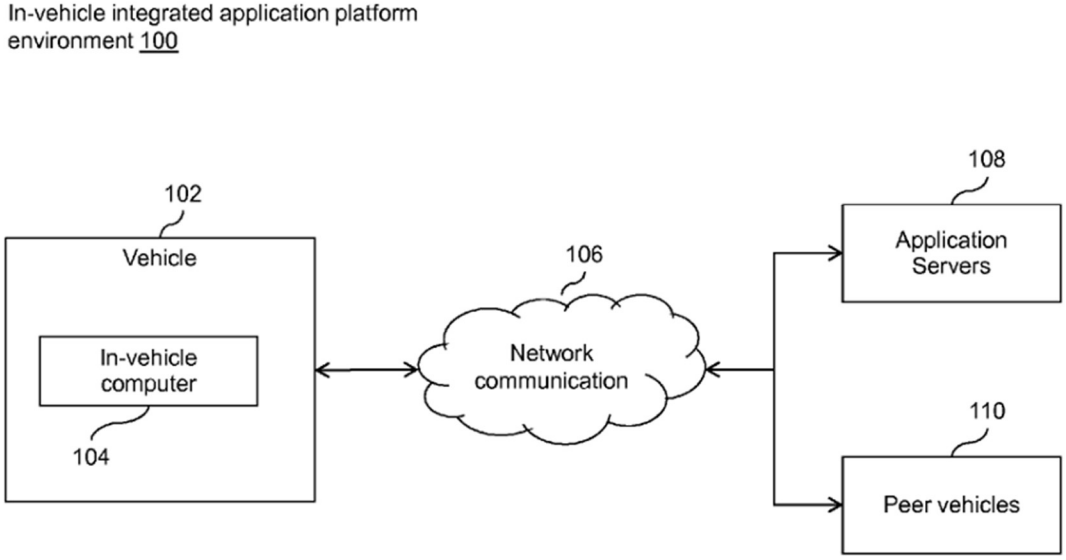


FIG. 1

Sundaram, Ex. 1027, Fig. 1

123. Thus, it is my opinion that Sundaram discloses a "*method.*"

[1a] maintaining, by a microprocessor executable profile identification module, a persona of a selected vehicle occupant,

124. Sundaram discloses a user of a vehicle 102 ("*selected vehicle occupant*") being a passenger or driver of a vehicle 102:

> By accessing these computing and control devices in vehicle 102, in-vehicle computer 104 may control vehicle 102's behavior to personalize the vehicle according to its user's needs and requirements. Further, in-vehicle computer 104, by taking inputs from vehicle 102's gyrometer, may adjust vehicle 102's behavior to enhance comfort of the user and warn the user about the road conditions. User of vehicle 102 may be a

> driver or a passenger of vehicle 102. In some embodiments, in vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide services to the user and also make control decisions for vehicle 102.

(Sundaram, Ex. 1027, [0017].)

125. According to the ’239 Patent a “*persona*” comprises one or more of, inter alia, bioinformatics, personal information, and private information. (*See* ’239 Patent, Ex. 1001, 12:32-35.) Sundaram teaches that “in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102.” (Sundaram, Ex. 1027, [0020].) Each of the user’s voice, face, and fingerprint as taught in Sundaram, are bioinformatics, personal information, private information, in the context of the ’239 Patent. The ’239 further explains “an occupant’s persona includes information such as “likes or interests, dislikes, preferences, and the like.” (’239 Patent, Ex. 1001, 81:48-53.) Since the challenged claim limitation requires “one or more of” these, Sundaram teaches “*a persona*”.

126. Furthermore, a PHOSITA would have understood “visual recognition” as disclosed in Sundaram includes a user’s face, clothing, or appearance since this is the type of information that would have been captured on a camera. (*See* Sundaram, Ex. 1027, [0020].) This is further evidenced by Sundaram teaching using a camera

for driver identification as well as using inputs from a driver, (i.e., sleepy eyed), to determine if assistance is required. (*See* Sundaram, Ex. 1027, [0031].)

127. The ’239 Patent provides various other examples of a “*persona*” such as “his or her physical, psychological, mental and other characteristics, needs, desires, behavior, personality, goals, habits, biometric information, likes or interests, dislikes, preferences, and the like[.]” (’239 Patent, Ex. 1001, 81:50-53.) The ’239 Patent further explains that “a vehicle occupant's persona can include the information in one or more of the profile data 252 of the person, device data 220 associated with the person, stored data 232, system data 208, and information related to the person as collected by vehicle interior and exterior sensors.” (’239 Patent, Ex. 1001, 81:64-82:1.)

128. Sundaram discloses that:

> In-vehicle computer 104 enables the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features. The features corresponding to a usage profile may include without limitation, vehicle 102’s speed, air-conditioning, volume of speakers, and the like.

(Sundaram, Ex. 1027, [0018].)

129. Consistent with the use of the terms in the ’239 Patent, a PHOSITA would have understood that Sundaram’s disclosure of the identity or identifying characteristics of a user, such as fingerprints or images, would be a part of the

persona of the selected vehicle occupant, because it would be required to allow the system to determine who is the user. Further, Sundaram's teaching of a user profile that includes this biometric information to identify the user so that a particular user's preferences are applied or determine if a driver appears to look differently, for example sleepy, demonstrates that Sundaram teaches the claimed "*persona*."

130. The '239 Patent discloses that "[t]he maintaining of the persona can include collecting information from one or more vehicle sensors and/or from a remote information source." ('239 Patent, Ex. 1001, 13:4-6.) Sundaram teaches several sensors in the vehicle, which are able to sense identification of a user to allow the described to collect information about the user. For example, Sundaram teaches "authenticating [a] user's identity from input by camera 210 or finger print sensor 212 or through any other input sources available to in-vehicle computer 104." (Sundaram, Ex. 1027, [0034].)

131. Specifically, Sundaram discloses details regarding use of a finger print sensor to collect information for user authentication:

> Finger print sensor 212 provides user authentication input to processor 204. Finger print sensor 212 may be based on technologies such as capacitive, resistive, RF (radio frequency) etc. Further, finger print sensors 212 may be swipe or scan sensors, which are capable of weeding out dead fingers, and handling grease and other harsh

> operating conditions. AES1711 is an example of finger print sensor 212.

(Sundaram, Ex. 1027 [0032].)

132. Sundaram further discloses use of the camera for collecting information about a driver's driving status and moods:

> For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram, Ex. 1027, [0031].)

133. Additionally, Sundaram expressly discloses the *maintaining* of a user's profile on the in-vehicle computer 104:

> Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102. For example, the user is identified by in-vehicle computer 104 as soon as the user sits in vehicle 102 and keeps his/her hand on the steering, a finger-print sensor mounted on the steering wheel identifies the user and user's predefined usage profile is enabled. The user's profile may also be maintained online thus enabling the user to access his/her usage profile in different vehicles 102. In an

> embodiment, in-vehicle computer 104 builds user's usage profile based on previous usage data stored with in-vehicle computer.

(Sundaram, Ex. 1027, [0020].)

134. Sundaram's in-vehicle computer can take the form of a "programmed microprocessor" or a processing machine that "executes a set of instructions." (*See* Sundaram, Ex. 1027, [0013].) Consequently, Sundaram renders obvious "*maintaining, by a microprocessor executable profile identification module, a persona*." Sundaram discloses that the "in-vehicle computer 104 builds user's usage profile based on previous usage data stored with in-vehicle computer" which teaches storing and "maintaining" the user profile. (*See* Sundaram, Ex. 1027, [0018], [0020].) A PHOSITA would have understood in combination of the user's profile and the usage profile in Sundaram to constitute a persona as defined in the '239 Patent as shown below.

135. Sundaram discloses that the vehicle 102 includes an in-vehicle computer 104 which in turn includes a processing engine 202 which includes processor 204, thus when Sundaram remarks about any of these components doing a processor function a PHOSITA would have understood that a processor executed computer instructions/code to effectuate the corresponding function. (Sundaram, Ex. 1027, [0017], [0027]-[0028].) A PHOSITA would have understood this because Sundaram explicitly discloses the relationship between the components and

discloses nearly all the functions attributed to the vehicle and in-vehicle computer to a processor in the embodiments section. Sundaram discloses a microprocessor as an example of a processing machine that can execute instructions and can be the form of various embodiments. (Sundaram, Ex. 1027, [0013].)

136. The '239 Patent discloses the "*profile identification module"* has various functions including determining whether a user profile is associated with the vehicle, requesting or receiving requests from a user or device to access a profile stored in a profile database, and communicating with the other components of the system to load on or more preferences, settings, and/or conditions based on the user profile. (*See* '239 Patent, Ex. 1001, 49:44-53.)

137. Sundaram teaches "a processor operable to execute the computer code to", inter alia, "receive first information about a first user in the vehicle", and "determine a first identity of the first user based on the received first information" (Sundaram, Ex. 1027, [0085]-[0087].) Therefore, Sundaram renders the claimed "*microprocessor executable profile identification module*" obvious.

138. Sundaram renders obvious the usage/user's profile ("*persona*") being recorded/maintained/stored ("*maintained*") by the in-vehicle computer 104 or online. Sundaram teaches that the user is identified using visual recognition, voice recognition, or fingerprint identification. (*See* Sundaram, Ex. 1027, [0020].) A

PHOSITA would have understood that the user's image, voice characteristics, or fingerprints are stored and used for identifying the user.

139. Therefore, it is my opinion that Sundaram renders the limitation "*maintaining* [maintains/stores], *by a microprocessor* [processor 204/remote storage/online] *executable profile identification module* [instructions/code]*, a persona* [usage/user's profile] *of the selected vehicle occupant* [user of the vehicle]" of the '239 Patent obvious.

[1b] wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content;

140. Sundaram discloses that the user's profile (*"persona"*) includes biometric information (*"bioinformatics"*) of a user, including a fingerprint reading, a picture, a retinal scan, weight, height, eye color, and hair color as well as favorite music (*"browsed content")*:

> A.1 The vehicle of embodiment A in which, in receiving first information about the first user, the processor is operable to receive biometric information about the first user.
>
> A.1.1 The vehicle of embodiment A.1 in which the biometric information includes one of: (a) a fingerprint reading; (b) a picture; (c) a retinal scan; (d) a voice recording; (e) a weight; (f) a height, (g) an eye color, and (h) a hair color.

> In various embodiments, a setting may include an internal temperature of the vehicle.
>
> A.2 The vehicle of embodiment A further including a climate control system, in which the first setting is a temperature, and in which, in issuing instructions, the processor is operable to issue instructions for the climate control system to bring the interior of the vehicle to the temperature.

(Sundaram, Ex. 1027, [0098].)

> For example, in case the user's vehicle 102 is nearby his/her house which has user's desktop, in-vehicle computer 104 on detecting the desktop through Wi-Fi technology will synchronize the music files of the desktop with in-vehicle computer 104's memory, therefore enabling the user to listen to his/her favorite music while driving.

(Sundaram, Ex. 1027, [0039].)

141. The '239 Patent discloses that:

> The profile data 252 can be any type of data associated with at least one user 216 including, but in no way limited to, bioinformatics, medical information, driving history, personal information (e.g., home physical address, business physical address, contact addresses, likes, dislikes, hobbies, size, weight, occupation, business contacts—including physical and/or electronic addresses, personal contacts—including physical and/or electronic addresses, family members, and personal information related thereto, etc.), other user characteristics, advertising information, user settings and feature preferences, travel information, associated vehicle preferences, communication preferences, historical

> information (e.g., including historical, current, and/or future travel destinations), Internet browsing history, or other types of data.

('239 Patent, Ex. 1001, 24:44-58.)

> The vehicle control system 204 can act as an artificially intelligent assistant that, based on an awareness of a selected vehicle occupants persona (e.g., his or her physical, psycho logical, mental and other characteristics, needs, desires, behavior, personality, goals, habits, biometric information, likes or interests, dislikes, preferences, and the like)[.]

('239 Patent, Ex. 1001, 81:47-53.)

142. Thus, Sundaram's disclosure of biometric information like weight and height aligns with the '239 Patent's description of bioinformatics and medical information as including size and weight. Based on this alone, a PHOSITA would have understood that Sundaram teaches the claimed "*persona*", i.e., information regarding personal characteristics of the user such as weight, height and fingerprints. However, Sundaram also teaches acquiring a user's favorite music, i.e. preferences (*"browsed content"*) because the phrase "favorite" implies the music downloads are not a random selection.

143. Sundaram teaches that the user is identified using visual recognition, voice recognition, or fingerprint identification and that the image/voice/fingerprint

is part of the user's profile that can be stored online so that it can be accessed by different vehicles:

> Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102. For example, the user is identified by in-vehicle computer 104 as soon as the user sits in vehicle 102 and keeps his/her hand on the steering, a finger-print sensor mounted on the steering wheel identifies the user and user's predefined usage profile is enabled. The user's profile may also be maintained online thus enabling the user to access his/her usage profile in different vehicles 102. In an embodiment, in-vehicle computer 104 builds user's usage profile based on previous usage data stored with in-vehicle computer.
>
> Further, in-vehicle computer 104 may act as a platform on which various applications for and related to games, network games, GPS navigations, video conferencing, social networking, driver identification by finger print reading or visual confirmation, fuel efficiency calculator, location based services, news feeds and the likes may be developed. In vehicle computer 104 further supports various commercial activities including without limitation buying of media from online music/video stores, creating audio/video content and putting it up for sale, paying tolls at toll booths, paying for fuel at fuel stations, pushing sponsored advertisements to user based on user preferences and various subscription models etc. For example, usage of GPS by the user may be charged based on pay per km, pay per

> destination, pay per duration of use model and the likes and payments for such services may be made through in-vehicle computer 104.

(Sundaram, Ex. 1027, [0020]-[0021].)

144. Thus, it is my opinion that Sundaram renders the limitation "*wherein the persona* [usage/user's profile] *comprises one or more of bioinformatics* [biometric information, e.g., fingerprint reading, height, weight]*, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content* [favorite music]*"* of the '239 Patent obvious.

[1c] determining, by a microprocessor executable vehicle control system, vehicle-related information, wherein vehicle-related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination; and

145. Sundaram discloses that the vehicle 102 includes sensors 238. (Sundaram, Ex. 1027, [0041].) As illustrated in Figure 2, the "[s]ensors 238 are connected to processing engine 202 via vehicle interface 218." (Sundaram, Ex. 1027, [0041].) Sundaram further discloses that the "[i]n-vehicle computer 104 … records all the inputs related to vehicle 102 and user's driving patterns . . . includ[ing] . . . driving characteristics of the user such as speed and the likes." (Sundaram, Ex. 1027, [0022].)

> Sensors 238 reside in vehicle 102 and include without limitation fuel level sensor, door open close sensor, knock sensor, flat tire sensor, etc. Sensors 238 are connected to processing engine 202 via vehicle interface 218. ECU 240 controls and monitors engine 242 and other components of vehicle 102 which interact with engine 242. ECU 240's OBD and CAN interfaces are used by in-vehicle computer to connect to ECU 240. By interacting with ECU 240, in-vehicle computer 104 may also control vehicle 102 in a similar manner as auto pilot mode for flights by making decisions based on information gathered through various communication mediums such as traffic surveillance, peer vehicles 110, condition of roads, speed limits for different roads etc.

(Sundaram, Ex. 1027, [0041].)

> In-vehicle computer 104 may further act as a black box for vehicle 102 as it records all the inputs related to vehicle 102 and user's driving patterns. These inputs include without limitation audio and video feeds of the user while using vehicle 102, driving characteristics of the user such as speed and the likes. In an embodiment these inputs are stored in a remote storage system.

(Sundaram, Ex. 1027, [0022].)

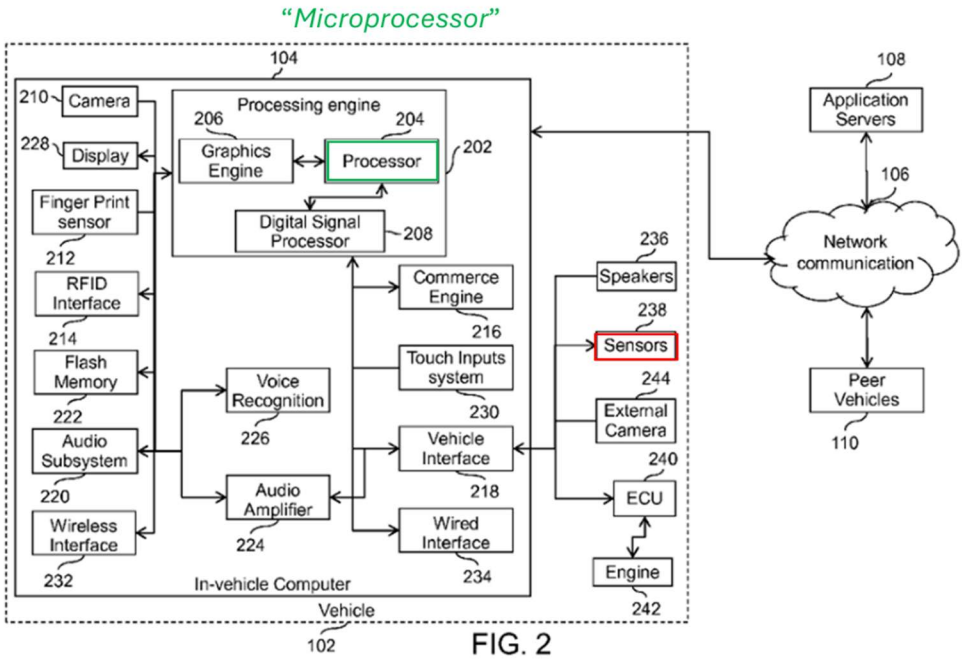


FIG. 2

Sundaram, Ex. 1027, Fig. 2 (Annotated)

146. The '239 Patent explains that a vehicle state includes information on whether the vehicle is moving such as vehicle speed, acceleration and deceleration. The '239 Patent discloses:

> The vehicle 104 can include a number of sensors in wireless or wired communication with the vehicle control system 204 and/or display device 212, 248 to collect sensed information regarding the vehicle state, configuration, and/or operation. Exemplary sensors may include one or more of, but are not limited to, wheel state sensor 660 to sense one or more of vehicle speed, acceleration, deacceleration[.]

('239 Patent, Ex. 1001, 39:12-18.)

147. A PHOSITA would have understood that this passage discloses that *vehicle state* includes vehicle speed and acceleration. Indeed, the description

describes speed sensors, which are used to "collect sensed information regarding the vehicle state." ('239 Patent, Ex. 1001, 39:12-18.)

148. Sundaram discloses that the vehicle through the code (*"vehicle control system"*) executed by a processor (*"microprocessor"*) determines ("*determining*") the operational state of a vehicle including vehicle speed:

H. A system comprising a vehicle and a remote server,

in which the vehicle is operable to:

determine a first operational state of the vehicle;

transmit to the remote server an indication of the first operational state;

receive from the remote server an indication of a suggested second operational state for the vehicle; and

effectuate the second operational state, and

in which the remote server is operable to:

receive from the vehicle an indication of the first operational state;

determine a second operational state that would improve performance of the vehicle; and

transmit an indication of the second operational state to the vehicle.

H.1 The system of embodiment H in which the first operational state includes one of: (a) an engine speed; (b) a driving speed; (c) a power distribution

among wheels of the vehicle: (d) a gear; (e) percentage use of a gas-powered engine; and (f) a percentage use of an electric engine.

(Sundaram, Ex. 1027, [0154]-[0163].)

149. Sundaram further teaches a system that can determine the vehicle location and the traffic condition/speed:

> The system of embodiment H, in which the vehicle is further operable to: determine an environmental state; and transmit the environmental state to the remote server, and in which the remove server, in determining the second operation state, is operable to determine the second operational state based on the environmental state. H.3 The system of embodiment H.2 in which the environmental state includes one of: (a) a weather condition; (b) a road condition; (c) a presence of potholes (d) a traffic condition; (e) a location, (f) an altitude; (g) a road incline; and (h) a road curvature.

(Sundaram, Ex. 1027, [0163]-[0167].)

> K. A method comprising:
>
> receiving from a first vehicle an indication of a first location;
>
> receiving from the first vehicle an indication of a driving condition;
>
> receiving from a second vehicle an indication of a second location;
>
> determining that the second vehicle is in the vicinity of the first vehicle; and
>
> transmitting to the second vehicle an indication of the driving condition.

> K.1 The method of embodiment K in which the driving condition is one of: (a) a weather condition; (b) a traffic condition; (c) a road condition; (d) a road incline; (e) a road curvature; (f) an altitude; (g) a traffic speed; and (h) a temperature.
>
> In some embodiments, a central server or service receives communications from some vehicles and transmits the communication to other vehicles. The sending and recipient vehicles may be members of the same group or social network, for example.

(Sundaram, Ex. 1027, [0192]-[0197].)

150. A PHOSITA would have understood that for the Sundaram system to determine traffic condition/speed it could use information about an intended path of travel. Due to the environmental state being used as a basis to modify the operational state a PHOSITA would have understood the traffic conditions and thus intended path of the travel of the vehicle is being sensed. Thus, it is my opinion that Sundaram renders the limitation "*determining, by a microprocessor executable vehicle control system, vehicle-related information, wherein vehicle-related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination*" of the '239 Patent obvious.

[1d] based on the persona of the selected vehicle occupant and the vehicle-related information, determining, by the microprocessor executable vehicle control system, a type of assistance to provide the

selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant;

151. Sundaram teaches alerting the user ("*a type of assistance*") based on their user profile ("*persona*") and the vehicle speed ("*vehicle-related information*") and not based on a preceding request of that user. For example:

> In-vehicle computer 104 enables the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features. The features corresponding to a usage profile may include without limitation, vehicle 102's speed, air-conditioning, volume of speakers, and the like. For example, suppose vehicle 102 is used by two different drivers, namely D1 and D2. Now suppose D1 is very experienced in driving and can effortlessly control vehicle 102 at high speeds, however D2 is learning to drive and thus should not drive at higher speeds. In order to ensure that D2 does not drive beyond a certain specified speed, say 60 km/hr, D1 can define settings of vehicle 102 such that vehicle 102 identifies the driver and allows different speed limits for different drivers. In this case, the speed limit for D2 will be set as 60 km/hr in in-vehicle computer 104 and for D1 there will be no speed limit. Therefore vehicle 102 is personalized based on the user of vehicle 102. Similarly various other settings may be defined by the user to personalize vehicle 102 for user's specific needs and requirements.
>
> In various embodiments, if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed

> limit that has been set for him), the vehicle may respond. The vehicle's response may include one or more of the following: (a) preventing the user from going outside the bounds (e.g., preventing the user from exceeding a specified speed limit); (b) alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert); (c) alert a third party about the user's actions (e.g., alert a parent of the user; e.g., alert authorities); (d) penalizing the user in some way (e.g., denying access for the user to a preferred radio station).

(Sundaram, Ex. 1027, [0018]-[0019].)

152. Sundaram also teaches alerting the user that they are driving while sleepy eyed ("*a type of assistance*") based on their appearance stored in their user profile ("*persona*") and the vehicle being driven, which implies some speed as an alert that a sleepy-eyed person is in a stationary vehicle ("vehicle-related information") would not improve safety or have a behavior changing affect, and not based on a preceding request of that user:

> For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram, Ex. 1027, [0031].)

153. A PHOSITA would have understood that a system's action depending on who the user is and depending on the speed of the vehicle is "*based on the persona of selected vehicle occupant and the vehicle-related information."* Further, a PHOSITA would have understood that Sundaram's disclosure of alerting when certain speed limits are exceeded based on who is identified as the driver (based on the *persona*) or if the driver looks sleepy-eyed compared to their stored facial appearance (based on the persona) constitutes the claimed "*assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant*." A PHOSITA would have understood the sleepy-eyed entertainment alert based on a user's identified gestures and moods compares a current appearance to the appearance of a user/driver stored in their user profile to determine if they look sleepy-eyed and provide a corresponding entertainment alert tailored to that user. A PHOSITA would have understood the sensors that determine vehicle speed can also determine if the vehicle is moving at all as a vehicle registering zero mph will not be moving. This indication of movement then shows that the vehicle is being driven, as vehicles under proper usage conditions are in movement are being driven, which triggers the driver status updates such as a check if the driver is sleepy eyed. Indeed, by enforcing these personal speed limits, the system in Sundaram is providing speed control assistance

to the user to ensure the user does not inadvertently exceed a desired speed limit, and by providing alerts when the driver appears sleepy-eyed the system is providing a safety alert ensuring a user does not drive while asleep, which both could lead to legal ramifications or safety concerns.

154. Thus, it is my opinion that reminding the user of their speed limit, as done by Sundaram's platform and alerting the user when appearing sleepy-eyed is not "*based on or in response to a preceding request of the selected vehicle occupant*[.]" Specifically, Sundaram discloses that the speed limit has been set for the user ("*the selected vehicle occupant*"): "if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed limit that has been set for him), the vehicle may respond[,]" (Sundaram, Ex. 1027, [0019]), which suggests that the user D1 does not request the assistance and the assistance is based on a user exceeding predetermined limits. As discussed above, Sundaram further discloses that "in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver[,]" including no language of active driver interaction. (Sundaram, Ex. 1027, [0031].)

155. Instead, a PHOSITA would have understood that the alerts are based on the algorithm in the system of Sundaram in which the system compares the current speed of the vehicle to the predefined speed limit for a particular user. (*See*

Sundaram, Ex. 1027, [0019].) The system provides an alert when the algorithm determines the speed threshold for a particular user is met. Another example where the system makes an alert is based on the current visual appearance of the driver (if the driver's face shows signs of fatigue) and on the vehicle context (the vehicle is being driven). (*See* Sundaram, Ex. 1027, [0031].)

156. This understanding is also supported by the '239 Patent. Language similar to the claim phrase "*the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant*" appears in the section of the '239 Patent titled "The Vehicle as an Artificially Intelligent Assistant." ('239 Patent, Ex. 1001, 81:47.) In that section the '239 Patent defines "proactively" as "without a preceding request of the selected vehicle occupant." ('239 Patent, Ex. 1001, 81:55-56.)

157. The '239 Patent explains:

> Based on the persona of selected persona and vehicle-related information (such as vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoints, and destination of the vehicle) can proactively provide suggestions, reminders, recommendations and/or other types of assistance to the selected vehicle occupant.

('239 Patent, Ex. 1001, 82:2-7.)

158. Some examples of the ’239 Patent’s automated assistant’s assistances are:

> For example, the vehicle control system, based on an awareness of a selected person’s persona and the vehicle-related information, can note vehicle related alarms, bring to a selected person’s attention instant messages, emails, voice mails from, missed phone calls from, current activities of and/or locations of friends, and points of interest near the vehicle or its path of travel.

(’239 Patent, Ex. 1001, 82:29-35.)

> In a further illustration, the vehicle control system knows a child’s curfew and also the distance from home. Given that information, it could inform the child driver that he or she must leave to make it home in time to avoid a curfew violation. Further, since it knows the occupants, it could potentially include time to deliver them home too.

(’239 Patent, Ex. 1001, 85:62-67.)

159. Thus, the ’239 Patent equates acting proactively, i.e., “*without a preceding request of the selected vehicle occupant*,” with the vehicle system “*based on an awareness of a selected person’s persona and the vehicle-related information*” notes “vehicle related alarms, bring to a selected person's attention instant messages, emails, voice mails from, missed phone calls from, current activities of and/or locations of friends, and points of interest near the vehicle or its path of travel.” (’239 Patent, Ex. 1001, 82:29-35.) A PHOSITA would have understood that the disclosure

of Sundaram, using awareness of a user profile and vehicle speed to determine whether to activate an alarm, is consistent with the teachings and this claim language of the ’239 Patent.

160. Finally, Sundaram’s alerts are based on a setting in the profile (“*persona*”) and the vehicle speed (“*vehicle-related information*”) requiring no input from the user to activate, hence it is automatic and not based on a preceding request from a user. In the second example the alert is based on the facial information stored in a profile (“*persona*”) and if the vehicle is being driven (“*vehicle-related information*”) still requiring no input from the user to activate, hence it is automatic and not based on a preceding request from a user.

161. Thus, it is my opinion that Sundaram renders the limitation “*based on the persona of the selected vehicle occupant and the vehicle-related information, determining, by the microprocessor executable vehicle control system, a type of assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant*” of the ’239 Patent obvious.

[1e] performing, by the microprocessor executable vehicle control system, an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected

vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.

162. A PHOSITA would have understood the "*type of assistance*" required in claim limitation [1d] includes the "*action*" performed in [1e] as discussed below.

163. Sundaram discloses that the processor 204 (*"microprocessor"*), which is included in the in-vehicle computer 104, executes software code ("*vehicle control system*") that is operable to cause alerts (*"action"*) to be generated:

C. A vehicle comprising:

a sensor;

a control system operable to receive electronic signals and actuate systems of the vehicle based on the received electronic signals;

a computer readable medium containing computer code;

a processor operable to execute the computer code to:

determine that a user is not present in the vehicle:

receive via the sensor a signal indicative of the presence of a user device; and

provide instructions to the control system to cause an alert to be generated.

(Sundaram, Ex. 1027, [0065]-[0072].)

164. Sundaram further discloses that the in-vehicle computer 104 controls the vehicle 102's behavior (e.g., providing alerts when over speeding) ("*action*"):

> In various embodiments, if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed limit that has been set for him), the vehicle may respond. The vehicle's response may include one or more of the following: (a) preventing the user from going outside the bounds (e.g., preventing the user from exceeding a specified speed limit); (b) alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert); (c) alert a third party about the user's actions (e.g., alert a parent of the user; e.g., alert authorities); (d) penalizing the user in some way (e.g., denying access for the user to a preferred radio station).

(Sundaram, Ex. 1027, [0019].)

165. Sundaram discloses the vehicle 102 responding to exceeding a maximum speed for the vehicle 102 and alerting (*"action"*) the user of the excess speed of the vehicle 102:

> In various embodiments, if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed limit that has been set for him), the vehicle may respond. The vehicle's response may include one or more of the following: (a) preventing the user from going outside the bounds (e.g., preventing the user from exceeding a specified speed limit); (b) alerting the user that he is

> attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert); (c) alert a third party about the user's actions (e.g., alert a parent of the user; e.g., alert authorities); (d) penalizing the user in some way (e.g., denying access for the user to a preferred radio station).

(Sundaram, Ex. 1027, [0019].)

166. Sundaram also discloses providing alerts when a driver is sleepy-eyed:

> Inputs provided by camera 210 to processor 204 include without limitation, driver identification, driver status while driving vehicle 102 and the likes. For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram, Ex. 1027, [0031].)

167. As can be appreciated by the numerous examples as listed above a PHOSITA would have understood Sundaram discloses a general alert ("*action*"/ "*providing a reminder to the selected vehicle occupant*"). A PHOSITA would have also understood that all of the alerts taught in Sundaram are a reminder to do or not do something or of the state of the driver or vehicle all constitute one alert with

multiple triggers. Thus, the alerts like the sleepy-eyed entertainment alert can take the same forms, an alarm or computer voice alert, as the speed limit alerts.

168. It would have been apparent to a PHOSITA that if Sundaram discloses the alerts ("*action*[*s*]") in embodiment C are generated ("*perform*[*ed*]") by a processor executing code ("*vehicle control system*") then the alerts ("*action*[*s*]") in other embodiments would have been generated ("*perform*[*ed*]") in a similar manner as Sundaram contemplates modifications, variations, and substitutions of its embodiments. (*See* Sundaram, Ex. 1027, [0019].) Thus, when Sundaram discloses the in-vehicle computer alerting the user in paragraphs [0017] and [0019] respectively, a PHOSITA would have understood this alert ("*action*") is generated ("*perform*[*ed*]") by a processor ("*microprocessor*") executing code ("*vehicle control system*") within the in-vehicle computer and the vehicle 102.

169. Further, a PHOSITA would have understood alerting the user as "*providing a reminder to the selected vehicle occupant*" because the user being told they are approaching their limit or have surpassed their limit is a reminder of the limit. The alert serves more as a reminder because it is not simply telling the user their speed but giving additional information about the speed in relation to the personalized settings constitute a reminder.

170. The alert to a sleepy-eyed driver also serves as a reminder to the driver of their current alertness and a reminder to take a break.

171. Thus, it is my opinion that Sundaram renders the limitation "*performing, by the microprocessor executable vehicle control system, an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle*" of the '239 Patent obvious.

172. *Intentionally left blank.*

173. *Intentionally left blank.*

2. Dependent Claim 2

[2] The method of claim 1, wherein the vehicle-related information comprises at least one of a current and/or future vehicle location and path of vehicle travel and wherein the action is providing a notification of an instant message, email, voice mail from, and/or missed phone call from, current activity of and/or location of a friend.

174. Sundaram discloses that the in-vehicle computer 104 receives data from GPS and other sensors to determine vehicle position:

> Wireless interface 232 includes without limitation GPS, GSM, Wi-Fi, WiMax, Bluetooth, radio frequency systems. GPS (global positioning system) uses satellite to triangulate the location of vehicle 102. Here the location triangulation is not limited to GPS, and inputs from other location systems may also be used to approximate the location of vehicle 102. GSM (global system for mobile) enables in vehicle computer 104 to interact with the connected internet world while on the move to provide services to the user such as voice calls, video calls, data calls, fax messages, internet, email, instant messaging, social blogging, controlling external machines, etc.

(Sundaram, Ex. 1027, [0039].)

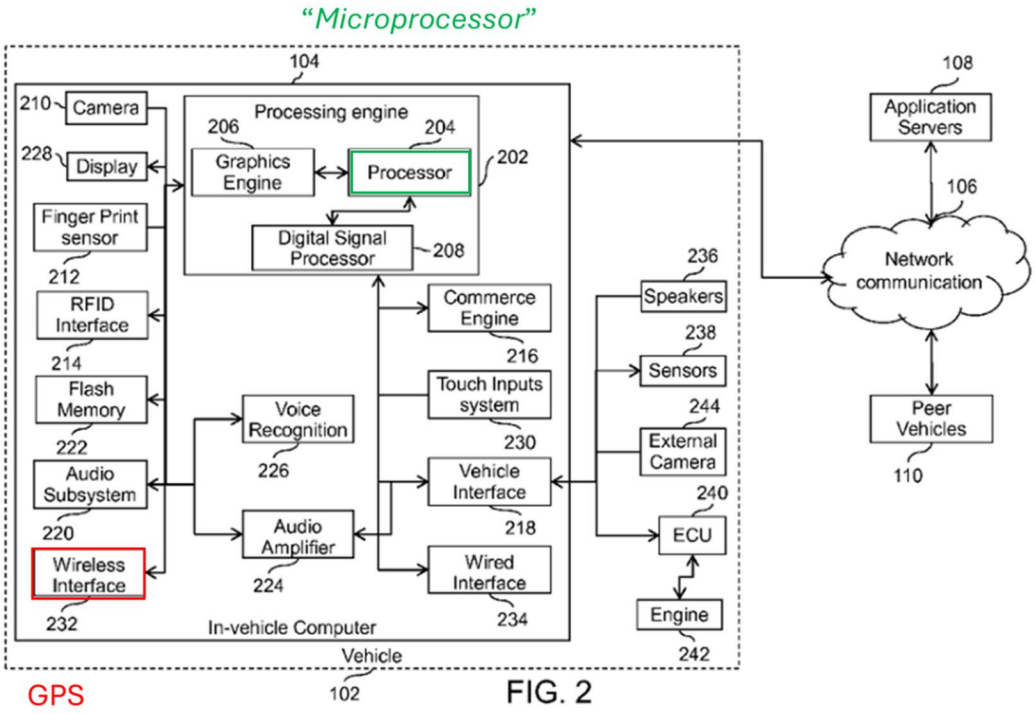


FIG. 2

Sundaram, Ex. 1027, Fig. 2

175. Sundaram discloses determining a location of a vehicle ("*current and/or future vehicle location*") and traffic condition/speed ("*path of vehicle travel*") of a vehicle, both constituting "*vehicle-related information*":

K. A method comprising:

receiving from a first vehicle an indication of a first location;

receiving from the first vehicle an indication of a driving condition;

receiving from a second vehicle an indication of a second location;

determining that the second vehicle is in the vicinity of the first vehicle; and

transmitting to the second vehicle an indication of the driving condition.

> K.1 The method of embodiment K in which the driving condition is one of: (a) a weather condition; (b) a traffic condition; (c) a road condition; (d) a road incline; (e) a road curvature; (f) an altitude; (g) a traffic speed; and (h) a temperature.
>
> In some embodiments, a central server or service receives communications from some vehicles and transmits the communication to other vehicles. The sending and recipient vehicles may be members of the same group or social network, for example.

(Sundaram, Ex. 1027, [0192]-[0197].)

176. Sundaram teaches traffic condition/speed are environmental states. The system of Sundaram further teaches the system modifying its operational state like vehicle speed depending on the environmental state. (*See* Sundaram. Ex. 1027, [0167].) A PHOSITA would have understood that for the Sundaram system to determine traffic condition/speed it could use information about a path of travel. Due to the environmental state being used as a basis to modify the operational state a PHOSITA would have understood the traffic conditions and thus path of the travel of the vehicle is being sensed. Thus, A PHOSITA would have recognized the determining of location and traffic condition/speed disclosed in Sundaram constitutes "*wherein the vehicle-related information comprises at least one of a current and/or future vehicle location and path of vehicle travel*[.]"

177. Sundaram discloses that the "in-vehicle computer 104 enables communication and transfer of information to and from peer vehicles 110 such as car position, speed, traffic alerts etc." (Sundaram, Ex. 1027, [0025].) Sundaram further discloses sharing information "with other vehicles within a social network or social circle." (Sundaram, Ex. 1027, [0190].) Additionally, Sundaram discloses the user of a vehicle receiving an indication of the driving condition ("*current activity*") of another vehicle in a user's social network ("*friend*"). (*See* Sundaram, Ex. 1027, [0181]-[0197].) Sundaram further discloses that information may be transmitted to and from peer vehicles 110 (Sundaram, Ex. 1027, [0025].) This includes the exchange of traffic alerts and other situational data between vehicles in proximity. (Sundaram, Ex. 1027, [0025].) Furthermore, Sundaram explicitly discloses that embodiments may be taken collectively as part of the overall disclosure. (Sundaram, Ex. 1027, [0255].)

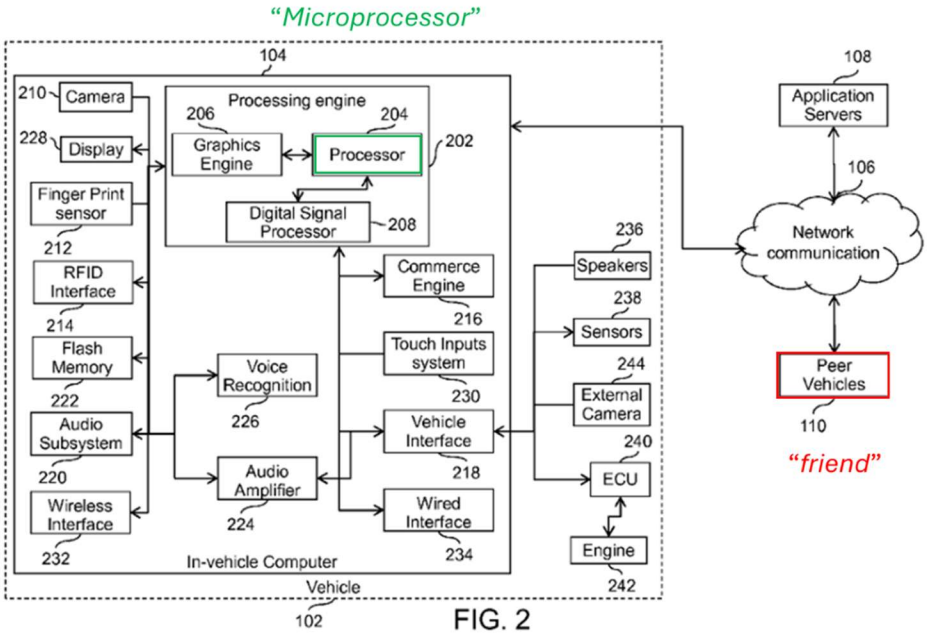


FIG. 2

Sundaram, Ex. 1027, Fig. 2 (Annotated)

178. Accordingly, a PHOSITA would have recognized that Sundaram's combination of peer-to-peer communication and group-based transmission constitutes "*wherein the action is providing a notification* [alert] *of an instant message, email, voice mail from, and/or missed phone call from, current activity* [driving condition] *of and/or location of a friend* [peer vehicle 110 who is a member of a social network]." Further, a PHOSITA would have understood that a user's profile would need to be used as the basis for the social network, because the user's profile is what identifies a user.

179. Thus, it is my opinion that Sundaram renders the limitation "*The method of claim 1, wherein the vehicle-related information comprises at least one of a current and/or future vehicle location and path of vehicle travel and wherein*

the action is providing a notification of an instant message, email, voice mail from, and/or missed phone call from, current activity of and/or location of a friend" of the '239 Patent obvious.

180. Intentionally left blank.

3. Dependent Claim 5

[5] The method of claim 1, further comprising: determining, by the vehicle control system, relevant information other than the persona of the selected vehicle occupant and the vehicle-related information, the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or family member of the selected vehicle occupant, a current activity of the friend and/or family member, a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle.

181. Sundaram further discloses that the "[i]n-vehicle computer 104 has . . . access to various computing and control devices in vehicle 102" and "by taking inputs from vehicle 102's gyrometer, may adjust vehicle 102's behavior to enhance comfort of the user and warn the user about the road conditions." (Sundaram, Ex. 1027, [0017].) Sundaram further discloses determining that "the condition of the road includes a presence of potholes" based on "motion sensor" data; and determining that "the condition of the road includes a presence of obstacles" based on "camera sensor" data. (Sundaram, Ex. 1027, Claims 43-44, [0188].)

> In-vehicle computer 104 has computing, data processing and networking capabilities and has access to various computing and control devices in vehicle 102. Such computing and controlling devices may include but are not limited to speedometer, fuel meter, air-conditioning regulator, engine control units, gyrometer and the like. By accessing these computing and control devices in vehicle 102, in-vehicle computer 104 may control vehicle 102's behavior to personalize the vehicle according to its user's needs and requirements. Further, in-vehicle computer 104, by taking inputs from vehicle 102's gyrometer, may adjust vehicle 102's behavior to enhance comfort of the user and warn the user about the road conditions.

(Sundaram, Ex. 1027, [0017].)

182. Sundaram discloses a processor operable to execute code ("*vehicle control system*") to determine, based on a reading of a sensor, the condition of the road ("*relevant information other than the persona of the selected vehicle occupant and the vehicle-related information . . . comprising one or more of . . . a road condition along a path of travel of the vehicle.*") A PHOSITA would have understood determining a road condition as taught in Sundaram would function by sensing a stretch of road as the condition on a road at an instant point would not aid the driver in avoiding the condition as is the intention of Sundaram's system.

J. A vehicle comprising:

a sensor;

a control system operable to receive electronic signals and actuate systems of the vehicle based on the received electronic signals;

a computer readable medium containing computer code;

a processor operable to execute the computer code to:

receive a reading from the sensor:

determine, based on the reading, a condition of a road; and

transmit to a second vehicle an indication of the condition of the road.

(Sundaram, Ex. 1027, [0181]-[0188].)

H.2 The system of embodiment H,

in which the vehicle is further operable to:

determine an environmental state; and

transmit the environmental state to the remote server, and

in which the remove server, in determining the second operation state, is operable to determine the second operational state based on the environmental state.

H.3 The system of embodiment H.2 in which the environ mental state includes one of: (a) a weather condition; (b) a road condition; (c) a presence of potholes (d) a traffic condition; (e) a location, (f) an altitude; (g) a road incline; and (h) a road curvature.

(Sundaram, Ex. 1027, [0163]-[0167].)

183. Thus, it is my opinion that Sundaram renders the limitation, "[*t*]*he method of claim 1, further comprising: determining, by the vehicle control system,*

relevant information other than the persona of the selected vehicle occupant and the vehicle-related information, the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or family member of the selected vehicle occupant, a current activity of the friend and/or family member, a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle[,]" of the '239 Patent obvious.

184. Intentionally left blank.

4. Dependent Claim 7

185. I have given each of the limitations of claim 7 a unique numerical identifier, as shown in the chart below:

[7a] The method of claim 1, wherein the maintaining of the persona comprises collecting information from one or more vehicle sensors and/or from a remote information source,
[7b] wherein the microprocessor executable vehicle control system, based on information received from a sensor identifies and/or distinguishes the selected vehicle occupant's clothing, held object and/or object in the possession of the selected vehicle occupant, []and

[7c] wherein the action is based on the identified and/or distinguished clothing, held object and/or object in the possession of the selected vehicle occupant.

[7a] The method of claim 1, wherein the maintaining of the persona comprises collecting information from one or more vehicle sensors and/or from a remote information source,

186. Sundaram discloses, with reference to Figure 2 below, a "[f]inger print sensor 212 [that] provides user authentication input to processor 204" and "[i]nputs provided by camera 210 to processor 204 include without limitation, driver identification[.]" (Sundaram, Ex. 1027, [0031]-[0032].)

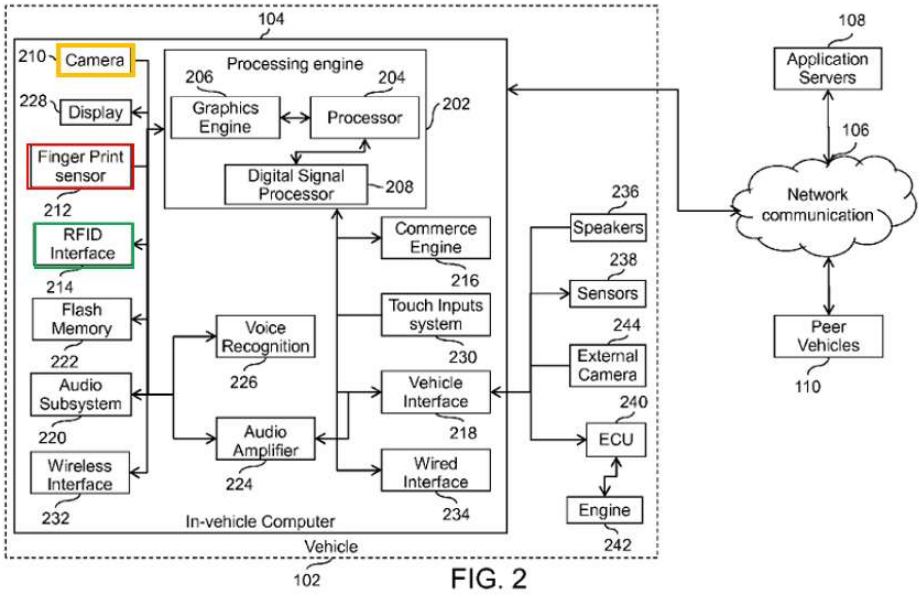


FIG. 2

Sundaram, Ex. 1027, Fig. 2 (Annotated)

187. As shown above Sundaram discloses a fingerprint scan and visual recognition using a camera as methods of collecting information, and then enabling the user's profile ("*persona*") based on the information. Sundaram discloses the fingerprint reading done by a fingerprint sensor 212 ("*one or more vehicle sensors*") and a camera providing the inputs for visual recognition:

> Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102. For example, the user is identified by in-vehicle computer 104 as soon as the user sits in vehicle 102 and keeps his/her hand on the steering, a finger-print sensor mounted on the steering wheel identifies the user and user's predefined usage profile is enabled. The user's profile may also be maintained online thus enabling the user to access his/her usage profile in different vehicles 102. In an embodiment, in-vehicle computer 104 builds user's usage profile based on previous usage data stored with in-vehicle computer.

(Sundaram, Ex. 1027, [0020].)

> Finger print sensor 212 provides user authentication input to processor 204. Finger print sensor 212 may be based on technologies such as capacitive, resistive, RF (radio frequency) etc. Further, fingerprint sensors 212 may be swipe or scan sensors, which are capable of weeding out dead fingers, and handling grease and other harsh

> operating conditions. AES1711 is an example of finger print sensor 212.

(Sundaram, Ex. 1027, [0032].)

> Camera 210 enables the user to have video conferencing and video calls. Inputs provided by camera 210 to processor 204 include without limitation, driver identification, driver status while driving vehicle 102 and the likes.

(Sundaram. Ex. 1027, [0031].)

188. Thus, it is my opinion Sundaram renders the limitation "[*t*]*he method of claim 1, wherein the maintaining of the persona* [usage/user's profile] *comprises collecting information* [fingerprint scan] *from one or more vehicle sensors* [fingerprint sensor 212] *and/or from a remote information source*," of the '239 Patent obvious.

189. Intentionally left blank.

[7b] wherein the microprocessor executable vehicle control system, based on information received from a sensor identifies and/or distinguishes the selected vehicle occupant's clothing, held object and/or object in the possession of the selected vehicle occupant, and

190. Sundaram discloses various other sensors including an RFID sensor. (*See* Sundaram, Ex. 1027, [0027].) Sundaram further discloses using the RFID interface ("*a sensor*") to identify objects such as mobile phones, keys, and wallets ("*held objects*"). (Sundaram, Ex. 1027, [0033].) Sundaram discloses using computer

code ("*vehicle control system*") executed by a processor identify objects like a mobile phone via RFID:

> RFID (radio frequency identification) interface 214 enables in-vehicle computer 104 to detect and identify RFID enabled objects inside vehicle 102 including but not limited to mobile phones, keys, wallet etc. Further, based on inputs from RFID interface 214, in-vehicle computer 104 provides alerts and messages to the user. For example in case the user has left his/her mobile phone in vehicle 102, in-vehicle computer 104 detects and identifies user's mobile phone via RFID interface 214 and alerts the user through audio signals or messaging him through any of the available communication network. Example of RFID interface 214 include without limitation NXP CLRC632.

(Sundaram, Ex. 1027, [0033], *see also* [0068]-[0072].)

191. Thus, it is my opinion Sundaram renders the limitation, "*wherein the microprocessor* [processor] *executable vehicle control system* [computer code]*, based on information received from a sensor* [radio frequency signal from the user device] *identifies and/or distinguishes the selected vehicle occupant's clothing, held object* [mobile phone] *and/or object in the possession of the selected vehicle occupant, and"* of the '239 Patent obvious.

192. Intentionally left blank.

193. Intentionally left blank.

[7c] wherein the action is based on the identified and/or distinguished clothing, held object and/or object in the possession of the selected vehicle occupant.

194. Sundaram discloses an alert ("*action*") caused (*"based on"*) by a user leaving their device ("*held object*") in the car:

> In some embodiments, a vehicle may alert a user if a user has left a device in the vehicle. For example, the vehicle may alert the user if he has left a mobile phone in the vehicle. The vehicle may sense the presence of the mobile phone via RFID, for example. The vehicle may alert the user through Sounding a horn, an alarm, or some other audio output, or through flashing lights or providing some other visual output.
>
> C. A vehicle comprising:
>
> a sensor;
>
> a control system operable to receive electronic signals and actuate systems of the vehicle based on the received electronic signals;
>
> a computer readable medium containing computer code;
>
> a processor operable to execute the computer code to:
>
> determine that a user is not present in the vehicle:
>
> receive via the sensor a signal indicative of the presence of a user device; and
>
> provide instructions to the control system to cause an alert to be generated.

C.1 The vehicle of embodiment C in which the sensor is a radio frequency identification sensor, and in which the processor is operable to receive via the sensor a radio frequency signal from the user device.

(Sundaram, Ex. 1027, [0065]-[0072].)

195. As shown above, the alert is a general alert and has various triggers. In this example the alert is based on a user leaving their mobile device in the car.

196. Thus, it is my opinion Sundaram renders the limitation, "*wherein the action* [alert] *is based on the identified and/or distinguished clothing, held object* [mobile phone] *and/or object in the possession of the selected vehicle occupant* [user][,]" of the '239 Patent obvious.

197. Intentionally left blank.

198. Intentionally left blank.

5. Independent Claim 8

199. I have given each of the limitations of claim 8 a unique numerical identifier, as shown in the chart below:

[8]pre A vehicle, comprising:	**1[pre]** A method, comprising:
[8a] a microprocessor executable profile identification module operable to maintain a persona of a selected vehicle occupant,	**[1a]** maintaining, by a microprocessor executable profile identification module, a persona of a selected vehicle occupant,

[8b] wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content;	**[1b]** wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content;
[8c] a microprocessor executable vehicle control system operable to: determine vehicle-related information, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination;	**[1c]** determining, by a microprocessor executable vehicle control system, vehicle-related information, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination; and
[8d] based on the persona of the selected vehicle occupant and the vehicle-related information, determine a type of assistance to provide the selected	**[1d]** based on the persona of the selected vehicle occupant and the vehicle-related information, determining, by the microprocessor executable vehicle

vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant; and	control system, a type of assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant;
[8e] perform an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming	**[1e]** performing, by the microprocessor executable vehicle control system, an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected

message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.	vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.

200. As illustrated above, claim limitations [8a]-[8e] are nearly identical to corresponding limitations of claim 1. The only difference being the "vehicle" limitation of 8[pre], which is addressed below.

8[pre] A vehicle, comprising:

201. Sundaram discloses various systems including a vehicle. Along with various mentions of the vehicle 102, Sundaram also includes disclosures about the in-vehicle integrated application platform, in-vehicle computer 104, and interactions between peer vehicles:

> FIG. 2 is a schematic illustrating an in-vehicle integrated application platform in accordance with various embodiments. The in-vehicle integrated application platform comprises in-vehicle computer 104 and its connections with vehicle 102.

(Sundaram, Ex. 1027, [0026].)

> Peer vehicles 110 are cars and other transportation vehicles with which are in the vicinity of vehicle 102. Vehicle 102 is capable of interacting with peer vehicles 110 to enable the communication and data transfer.

> In an embodiment, the user of vehicle 102 may communicate with passengers of peer vehicles 110 by video conferencing, voice call, text messages, alerts, greetings, games etc. Further, in another embodiment, in-vehicle computer 104 enables communication and transfer of information to and from peer vehicles 110 such as car position, speed, traffic alerts etc.

(Sundaram, Ex. 1027, [0025].)

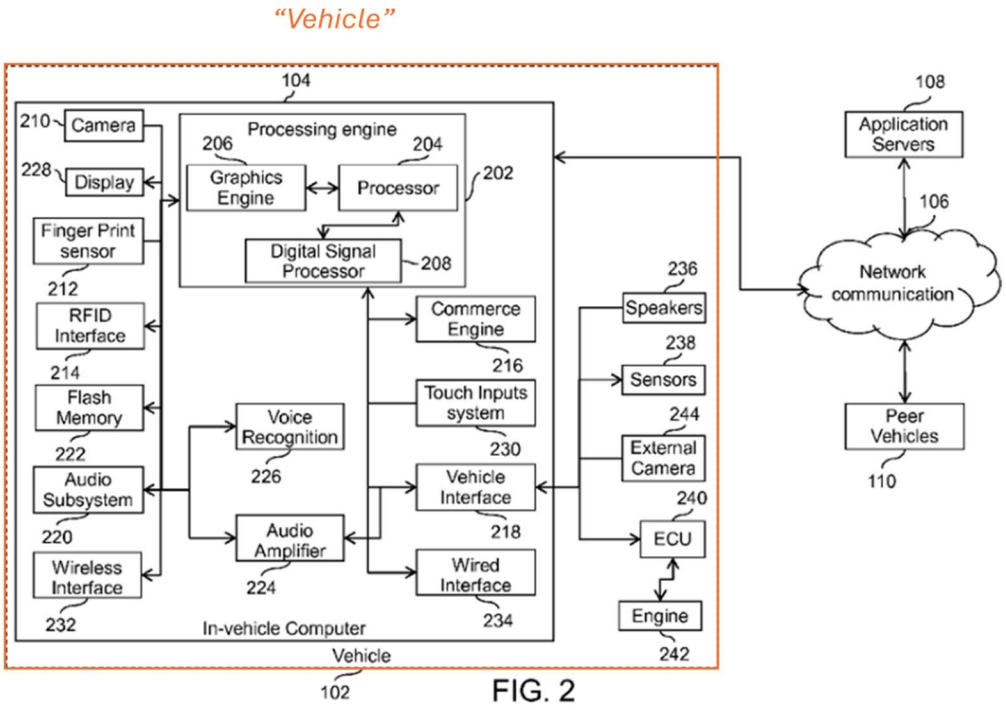


FIG. 2

Sundram, Ex. 1027, Fig. 2 (Annotated)

202. Thus, Sundaram discloses a "*vehicle*".

203. *Intentionally left blank.*

[8a] a microprocessor executable profile identification module operable to maintain a persona of a selected vehicle occupant,

204. Due to the similarities between limitation [8a] and limitation [1a], it is my opinion that Sundaram renders [8a] obvious for the same reasons it is my opinion that Sundaram renders limitation [1a] obvious.

[8b] wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content;

205. Due to the similarities between limitation [8b] and limitation [1b], it is my opinion that Sundaram renders [8b] obvious for the same reasons it is my opinion that Sundaram renders limitation [1b] obvious.

[8c] a microprocessor executable vehicle control system operable to: determine vehicle-related information, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination;

206. Due to the similarities between limitation [8c] and limitation [1c], it is my opinion that Sundaram renders [8c] obvious for the same reasons it is my opinion that Sundaram renders limitation [1c] obvious.

[8d] based on the persona of the selected vehicle occupant and the vehicle-related information, determine a type of assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant; and

207. Due to the similarities between limitation [8d] and limitation [1d], it is my opinion that Sundaram renders [8d] obvious for the same reasons it is my opinion that Sundaram renders limitation [1d] obvious.

> ***[8e] perform an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.***

208. Due to the similarities between limitation [8e] and limitation [1e], it is my opinion that Sundaram renders [8e] obvious for the same reasons it is my opinion that Sundaram renders limitation [1e] obvious.

6. Dependent Claim 9

209. As illustrated above, claim 9 is nearly identical to corresponding limitations of claim 2. The only difference being the dependency differences as claim 2 depends from claim 1 and claim 9 depends from claim 8.

[9] The vehicle of claim 8,	**[2]** The method of claim 1,

wherein the vehicle-related information comprises at least one of a current and/or future vehicle location and path of vehicle travel and wherein the action is providing a notification of an instant message, email, voice mail from, and/or missed phone call from, current activity of and/or location of a friend.	wherein the vehicle-related information comprises at least one of a current and/or future vehicle location and path of vehicle travel and wherein the action is providing a notification of an instant message, email, voice mail from, and/or missed phone call from, current activity of and/or location of a friend.

[9] The vehicle of claim 8, wherein the vehicle-related information comprises at least one of a current and/or future vehicle location and path of vehicle travel and wherein the action is providing a notification of an instant message, email, voice mail from, and/or missed phone call from, current activity of and/or location of a friend.

210. Due to the similarities between limitation [9] and limitation [2], it is my opinion that Sundaram renders [9] obvious for the same reasons it is my opinion that Sundaram renders limitation [2] obvious.

7. Dependent Claim 10

[10] The vehicle of claim 8, wherein the action performed depends on a seating position of the selected vehicle occupant.

211. Sundaram discloses various driver specific assistance provided by the disclosed system, such as an alert when exceeding a speed limit (Sundaram, Ex. 1027, [0019]) and alerts if a driver is sleepy-eyed. (Sundaram, Ex. 1027, [0031].)

212. A PHOSITA would have understood both alerts to be based on seating position. The alert is intended to notify the driver if unsafe driving conditions appear, i.e., whether the vehicle has reached unsafe speed and/or the driver has exhibited tired/inattentive behavior. (Sundaram, Ex. 1027, [0020].) Both are intended to notify the person seated in the driver position of the vehicle to ensure vehicle and passenger safety. Further, the vehicle response in Sundaram is shown to be triggered if the specified user exceeds a limit set for him. (Sundaram, Ex. 1027, [0019].) A PHOSITA would have understood the limit is active if the user is the driver as it would be practical to give a person who is in control of the vehicle these responses because the vehicle responses act as deterrents to continuing at a given speed. In the system of Sundaram a user can also be a passenger, a PHOSITA would have understood it is obvious this kind of setting and conjugate alert would not activate for the reasons stated if the user was just a passenger. Additionally, the drowsiness sensed is directly dependent on the seating position of the occupant as a PHOSITA would have understood that the imaging to determine drowsiness would have been located at the driver's seat to ensure the driver is not tired and putting the vehicle at risk. (Sundaram, Ex. 1027, [0031].)

213. Therefore, a PHOSITA seeing the type of alerts and who the alerts are intended to aid would have understood the alerts ("*action*") is based on if the user is in the driver position ("*seating position*"). Thus, it is my opinion Sundaram renders the limitation "[*t*]*he vehicle of claim 8, wherein the action performed depends on a seating position of the selected vehicle occupant* [,]" of the '239 Patent obvious.

214. Intentionally left blank.

215. Intentionally left blank.

8. Dependent Claim 12

[12] The vehicle of claim 8,	**[5]** The method of claim 1,
wherein the vehicle control system is further operable to determine relevant information other than the persona of the selected vehicle occupant and the vehicle-related information,	further comprising: determining, by the vehicle control system, relevant information other than the persona of the selected vehicle occupant and the vehicle-related information,
the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or	the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or

family member of the selected vehicle occupant, a current activity of the friend and/or family member, a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle.	family member of the selected vehicle occupant, a current activity of the friend and/or family member, a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle.

216. As illustrated above, claim 12 is nearly identical to claim 5. The only difference being the dependency differs as claim 5 depends from claim 1 and claim 9 depends from claim 8.

217. Intentionally left blank.

[12] The vehicle of claim 8, wherein the vehicle control system is further operable to determine relevant information other than the persona of the selected vehicle occupant and the vehicle-related information, the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or family member of the selected vehicle occupant, a current activity of the friend and/or family member, a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle.

218. Due to the similarities between claim [12] and claim [5], it is my opinion that Sundaram renders claim [12] obvious for the same reasons it is my opinion that Sundaram renders claim [5] obvious.

9. Dependent Claim 14

219. I have given each of the limitations of claim 14 a unique numerical identifier, as shown in the chart below:

[14a] The vehicle of claim 8, wherein maintaining the persona comprises collecting information from one or more vehicle sensors and/or from a remote information source,	**[7a]** The method of claim 1, wherein the maintaining of the persona comprises collecting information from one or more vehicle sensors and/or from a remote information source,
[14b] wherein the microprocessor executable vehicle control system, based on information received from a sensor identifies and/or distinguishes the selected vehicle occupant's clothing, held object	**[7b]** wherein the microprocessor executable vehicle control system, based on information received from a sensor identifies and/or distinguishes the selected vehicle occupant's clothing, held object

and/or object in the possession of the selected vehicle occupant, []and	and/or object in the possession of the selected vehicle occupant, —and
[14c] wherein the action is based on the identified and/or distinguished clothing, held object and/or object in the possession of the selected vehicle occupant, and	**[7c]** wherein the action is based on the identified and/or distinguished clothing, held object and/or object in the possession of the selected vehicle occupant.
[14d] wherein a type of information collected depends on a seating position of the selected vehicle occupant.	

220. As illustrated above, claim limitations [14a]-[14c] are nearly identical to corresponding limitations of claim 7. The only difference being claim 7 depends from claim 1 while claim 14 depends from claim 8.

[14a] The vehicle of claim 8, wherein maintaining the persona comprises collecting information from one or more vehicle sensors and/or from a remote information source,

221. Due to the similarities between limitation [14a] and limitation [7a], it is my opinion that Sundaram renders [14a] obvious for the same reasons it is my opinion that Sundaram renders limitation [7a] obvious.

[14b] wherein the microprocessor executable vehicle control system, based on information received from a sensor identifies and/or distinguishes the selected vehicle occupant's clothing, held object and/or object in the possession of the selected vehicle occupant, [and]

222. Due to the similarities between limitation [14b] and limitation [7b], it is my opinion that Sundaram renders [14b] obvious for the same reasons it is my opinion that Sundaram renders limitation [7b] obvious.

[14c] wherein the action is based on the identified and/or distinguished clothing, held object and/or object in the possession of the selected vehicle occupant, and

223. Due to the similarities between limitation [14c] and limitation [7c], it is my opinion that Sundaram renders [14c] obvious for the same reasons it is my opinion that Sundaram renders limitation [7c] obvious.

[14d] wherein a type of information collected depends on a seating position of the selected vehicle occupant.

224. Sundaram discloses collecting information from a fingerprint sensor mounted on the steering wheel to determine the user. (*See* Sundaram, Ex. 1027, [0032].) Sundaram also discloses the user can be a driver or passenger. (*See* Sundaram, Ex. 1027, [0017].)

225. Vehicles had steering wheels corresponding to the driver's seat and if either a driver or passenger can be the user in Sundaram when a user is in a seating

position that is not the driver they will not have their hand on the steering wheel for this type of information to be collected.

226. Thus, it is my opinion Sundaram renders the limitation, "*wherein a type of information collected depends on a seating position of the selected vehicle occupant*" of the '239 Patent obvious.

227. Intentionally left blank.

228. Intentionally left blank.

10. Independent Claim 15

229. I have given each of the limitations of claim 15 a unique numerical identifier, as shown in the chart below:

1[pre] A method, comprising:	**15[pre]** A tangible and non-transient computer readable medium comprising microprocessor executable instructions that, when executed, perform functions comprising:
[1a] maintaining, by a microprocessor executable profile	**[15a]** maintaining a persona of a selected vehicle occupant,

identification module, a persona of a selected vehicle occupant,	
[1b] wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content;	**[15b]** wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content;
[1c] determining, by a microprocessor executable vehicle control system, vehicle-related information, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination; and	**[15c]** determining vehicle-related information, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination; and

[1d] based on the persona of the selected vehicle occupant and the vehicle-related information, determining, by the microprocessor executable vehicle control system, a type of assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant;	**[15d]** based on the persona of the selected vehicle occupant and the vehicle-related information, determining a type of assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant; and
[1e] performing, by the microprocessor executable vehicle control system, an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle	**[15e]** performing an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle

occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.	occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.

230. As illustrated above, claim limitations [15a]-[15e] are nearly identical to corresponding limitations of claim 1. The only difference being the "*tangible and non-transient computer readable medium*" limitation of 15[pre], which is addressed below.

15[pre] A tangible and non-transient computer readable medium comprising microprocessor executable instructions that, when executed, perform functions comprising

231. Sundaram discloses a microprocessor (referred to as a "processor" or "processing machine") that executes software stored in memory.

> Typical examples of a processing machine include a computer, a programmed microprocessor, an integrated circuit, and other devices or arrangements of devices that are capable of implementing the steps of the methods according to various embodiments. The processing machine executes a set of instructions that are stored in one or more storage elements, in order to process input data. The storage elements may also hold data or other information as desired.

(Sundaram Ex. 1027, [0013].)

232. For example, Sundaram discloses that the in-vehicle computer 104 includes a processing engine with a processor 204:

> Processor 204 is coupled with various memory and storage devices for storing software stack including all programs, applications, software etc. which in-vehicle computer 104 may run. The software stack provides ready platform to software developers who may then implement their algorithms to the existing software stack for developing new applications, thereby removing overhead of the software developers as they do not require the understanding of complexities involved in building applications for vehicles.

(Sundaram, Ex. 1027, [0028].)

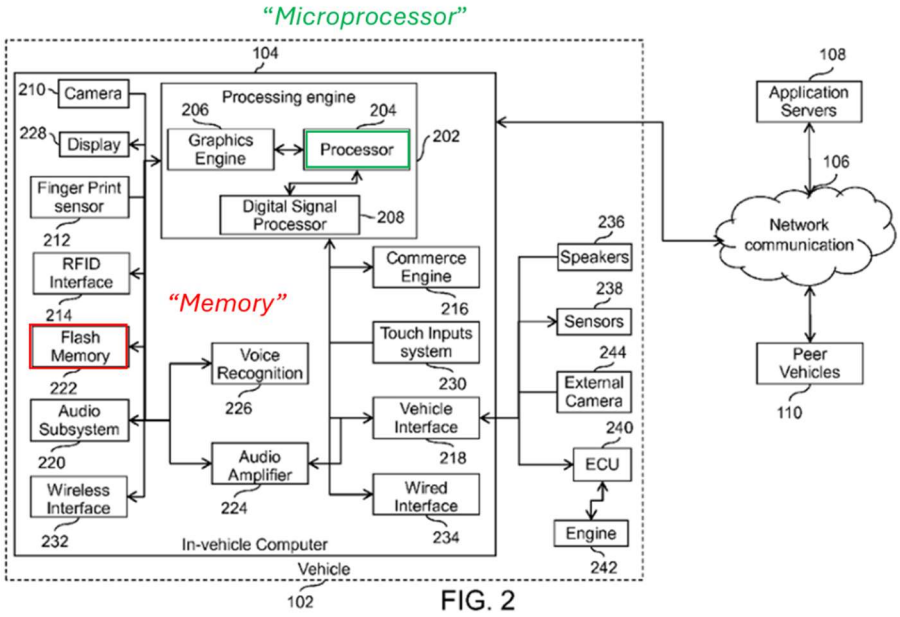


FIG. 2

Sundaram, Ex. 1027, Fig. 2 (Annotated)

233. Sundaram discloses a computer readable medium ("[*a*] *tangible and non-transient computer readable medium*") containing computer code ("*microprocessor executable instructions*") and a processor operable to execute the computer code to do ("*perform*") various actions ("*functions*"):

P. A vehicle comprising:

a sensor;

an antenna;

a control system operable to receive electronic signals and actuate systems of the vehicle based on the received electronic signals;

a computer readable medium containing computer code;

a processor operable to execute the computer code to:

transmit via the antenna an indication of the vehicle's location to a central server;

transmit via the antenna an indication of an operating parameter of the vehicle;

receive via the antenna, a command to modify the operating parameter of the vehicle:

receive information available in the vehicle:

receive data;

determine processed information by combining the information available in the vehicle and the data received;

relay processed information to the user; and

modify the operating parameter of the vehicle based on the received command.

(Sundaram, Ex. 1027, [0236]-[0249].)

234. Thus, Sundaram discloses "*A tangible and non-transient computer readable medium*[.]"

[15a] maintaining a persona of a selected vehicle occupant,

235. Due to the similarities between limitation [15a] and limitation [1a], it is my opinion that Sundaram renders [15a] obvious for the same reasons it is my opinion that Sundaram renders limitation [1a] obvious.

[15b] wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private

information, travel information, and Internet browsing history and/or browsed content;

236. Due to the similarities between limitation [15b] and limitation [1b], it is my opinion that Sundaram renders [15b] obvious for the same reasons it is my opinion that Sundaram renders limitation [1b] obvious.

[15c] determining vehicle-related information, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination; and

237. Due to the similarities between limitation [15c] and limitation [1c], it is my opinion that Sundaram renders [15c] obvious for the same reasons it is my opinion that Sundaram renders limitation [1c] obvious.

[15d] based on the persona of the selected vehicle occupant and the vehicle-related information, determining a type of assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant; and

238. Due to the similarities between limitation [15d] and limitation [1d], it is my opinion that Sundaram renders [15d] obvious for the same reasons it is my opinion that Sundaram renders limitation [1d] obvious.

[15e] performing an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected vehicle occupant, providing a

reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.

239. Due to the similarities between limitation [15e] and limitation [1e], it is my opinion that Sundaram renders [15e] obvious for the same reasons it is my opinion that Sundaram renders limitation [1e] obvious.

240. Intentionally left blank.

11. Dependent Claim 16

241. As illustrated above, claim 16 are nearly identical to corresponding limitations of claim 2. The only difference being the dependency differences as claim 2 depends from claim 1 and claim 16 depends from claim 15.

[16] The computer readable medium of claim 15, wherein the vehicle-related information comprises at least one of a current and/or future vehicle location and path of vehicle travel and wherein the action is providing a notification of an instant message, email, voice mail from, and/or missed phone call from, current activity of and/or location of a friend.

242. Due to the similarities between limitation [16] and limitation [2], it is my opinion that Sundaram renders [16] obvious for the same reasons it is my opinion that Sundaram renders limitation [2] obvious.

12. Dependent Claim 19

243. I have given each of the limitations of claim 19 a unique numerical identifier, as shown in the chart below:

[19] The computer readable medium of claim 15, further comprising the function of determining relevant information other than the persona of the selected vehicle occupant and the vehicle-related information, the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or family member of the selected vehicle occupant, a current activity	**[5]** The method of claim 1, further comprising: determining, by the vehicle control system, relevant information other than the persona of the selected vehicle occupant and the vehicle-related information, the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or family member of the selected vehicle occupant, a current activity of the friend and/or family member,

of the friend and/or family member, a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle.	a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle.

244. As illustrated above, claim [19] is nearly identical to corresponding limitations of claim 5. The only difference being the dependency differences as claim 5 depends from claim 1 and claim [19] depends from claim 15 and uses the preamble from claim 15.

245. Intentionally left blank.

[19] The computer readable medium of claim 15, further comprising the function of determining relevant information other than the persona of the selected vehicle occupant and the vehicle-related information, the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or family member of the selected vehicle occupant, a current activity of the friend and/or family member, a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle.

246. Due to the similarities between claim[19] and claim [5], it is my opinion that Sundaram renders [19] obvious for the same reasons it is my opinion that Sundaram renders claim [5] obvious.

13. Dependent Claim 21

247. I have given each of the limitations of claim 21 a unique numerical identifier, as shown in the chart below:

[21a] The computer readable medium of claim 15, wherein the maintaining of the persona comprises collecting information from one or more vehicle sensors and/or from a remote information source,	**[7a]** The method of claim 1, wherein the maintaining of the persona comprises collecting information from one or more vehicle sensors and/or from a remote information source,
[21b] wherein the microprocessor executable vehicle control system, based on information received from a sensor identifies and/or distinguishes the selected vehicle occupant's clothing, held object	**[7b]** wherein the microprocessor executable vehicle control system, based on information received from a sensor identifies and/or distinguishes the selected vehicle occupant's clothing, held object

and/or object in the possession of the selected vehicle occupant, and	and/or object in the possession of the selected vehicle occupant, and
[21c] wherein the action is based on the identified and/or distinguished clothing, held object and/or object in the possession of the selected vehicle occupant.	**[7c]** wherein the action is based on the identified and/or distinguished clothing, held object and/or object in the possession of the selected vehicle occupant.

248. As illustrated above, claim limitations [21a]-[21c] are nearly identical to corresponding limitations of claim 7. The only difference being claim 7 depends from claim 1 and claim 21 depends from claim 15. Both claims also share the preamble for their respective claim dependencies, however this does not change my analysis.

[21a] The computer readable medium of claim 15, wherein the maintaining of the persona comprises collecting information from one or more vehicle sensors and/or from a remote information source,

249. Due to the similarities between limitation [21a] and limitation [7a], it is my opinion that Sundaram renders [21a] obvious for the same reasons it is my opinion that Sundaram renders limitation [7a] obvious.

[21b] wherein the microprocessor executable vehicle control system, based on information received from a sensor identifies and/or distinguishes the selected vehicle occupant's clothing, held object and/or object in the possession of the selected vehicle occupant, and

250. Due to the similarities between limitation [21b] and limitation [7b], it is my opinion that Sundaram renders [21b] obvious for the same reasons it is my opinion that Sundaram renders limitation [7b] obvious.

[21c] wherein the action is based on the identified and/or distinguished clothing, held object and/or object in the possession of the selected vehicle occupant.

251. Due to the similarities between limitation [21c] and limitation [7c], it is my opinion that Sundaram renders [21c] obvious for the same reasons it is my opinion that Sundaram renders limitation [7c] obvious.

14. Dependent Claim 22

252. I have given each of the limitations of claim 22 a unique numerical identifier, as shown in the chart below:

[22a] The computer readable medium of claim 21, wherein the maintaining of the persona comprises collecting information from one or more vehicle sensors	**[7a]** The method of claim 1, wherein the maintaining of the persona comprises collecting information from one or more vehicle sensors

and/or from a remote information source and	and/or from a remote information source,
[22b] wherein a type of information collected depends on one or more of an identity of the selected vehicle occupant, an age of the selected vehicle occupant, a seating position of the selected vehicle occupant, and an association of the selected vehicle occupant with the vehicle.	**[14d]** wherein a type of information collected depends on a seating position of the selected vehicle occupant.

253. As illustrated above, claim limitation [22a] is nearly identical to corresponding limitation of claim 7. The only difference is claim 7 depends from claim 1 and claim 22 depends from claim 21 and both maintain the corresponding preambles. Also, as illustrated above claim limitation [22b] is similar to claim limitation [14d]. The only difference being claim 22 allows for more ways to meet the claim than the narrower limitation [14d], however both limitations include the type of information being collected based on seating position.

[22a] The computer readable medium of claim 21, wherein the maintaining of the persona comprises collecting information from

one or more vehicle sensors and/or from a remote information source and

254. Due to the similarities between limitation [22a] and limitation [7a], it is my opinion that Sundaram renders [22a] obvious for the same reasons it is my opinion that Sundaram renders limitation [7a] obvious.

[22b] wherein a type of information collected depends on one or more of an identity of the selected vehicle occupant, an age of the selected vehicle occupant, a seating position of the selected vehicle occupant, and an association of the selected vehicle occupant with the vehicle.

255. Due to the similarities between limitation [22b] and limitation [14d], it is my opinion that Sundaram renders [22b] obvious for the same reasons it is my opinion that Sundaram renders limitation [14d] obvious.

15. Dependent Claim 30

[30] The method of claim 1, wherein the vehicle control system uses a vehicle location-based trigger to activate and/or deactivate a feature and/or setting at a waypoint or destination.

256. Sundaram discloses that the in-vehicle computer 104 includes a wireless interface 232 that receives data from "GPS" and other "location systems" "to triangulate the location of vehicle 102:"

> Wireless interface 232 includes without limitation GPS, GSM, Wi-Fi, WiMax, Bluetooth, radio frequency systems. GPS (global positioning

> system) uses satellite to triangulate the location of vehicle 102. Here the location triangulation is not limited to GPS, and inputs from other location systems may also be used to approximate the location vehicle 102. GSM (global system for mobile) enables in vehicle computer 104 to interact with the connected internet world while on the move to provide services to the user such as voice calls, video calls, data calls, fax messages, internet, email, instant messaging, social blogging, controlling external machines, etc.

(Sundaram, Ex. 1027, [0039].)

257. Sundaram discloses the in-vehicle computer 104, shown above using a processor that executes code ("*vehicle control system*"), uses the vehicle's location ("*vehicle location-based trigger*") to identify the road and area in which the vehicle is operating, and dynamically retrieve the corresponding speed limit and activate alerts for the user when the vehicle exceeds the speed limit at the identified location *(*"*activate and/or deactivate a feature and/or setting at a waypoint or destination*"):

> In some embodiments, in vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide services to the user and also make control decisions for vehicle 102. For example, in-vehicle computer 104 uses location source as one of the inputs to identify the road and area in which vehicle 102 is and then use this information to fetch the speed limit of that particular road

> dynamically. The fetched speed limit is then conveyed to the user and the user is provided alerts on over speeding occasions.

(Sundaram, Ex. 1027, [0017].)

258. A PHOSITA would have understood that the use of the location (road and area) to fetch a speed limit would constitute a "*vehicle location-based trigger*" because it activates the system to retrieve a speed limit for alert use. This activation constitutes a trigger, which is based on vehicle location (particular road and area). By setting a speed limit for that particular location, Sundaram also teaches use of the trigger (speed limit fetch) to "*activate and/or deactivate a feature and/or setting at a waypoint or destination*", specifically the activation of the speed limit alert ("*feature and/or setting*") based on the location of the vehicle on a particular road ("*waypoint or destination*"). A PHOSITA would have understood that that a particular road could be a waypoint or destination depending on the circumstances and is certainly obvious in view of the teachings of Sundaram to utilize particular vehicle locations (e.g., destinations) to determine the correct speed settings for the vehicle alert system.

259. Accordingly, it is my opinion that Sundaram renders the limitation "*wherein the vehicle control system uses a vehicle location-based trigger to activate and/or deactivate a feature and/or setting at a waypoint or destination*" of the '239 Patent obvious.

260. Intentionally left blank.

16. Dependent Claim 34

[34] The method of claim 1, wherein the type of information collected by the microprocessor executable profile identification module for the selected vehicle occupant's persona depends on a seating position and/or age of the selected vehicle occupant.	**[14d]** wherein a type of information collected depends on a seating position of the selected vehicle occupant.

261. As illustrated above, claim 34 is nearly identical to the corresponding limitation of claim [14d]. The only difference being claim 34 allows for more ways to meet the claim than the narrower limitation [14d], however both limitations include the type of information being collected based on seating position.

262. Intentionally left blank.

[34] The method of claim 1, wherein the type of information collected by the microprocessor executable profile identification module for the selected vehicle occupant's persona depends on a seating position and/or age of the selected vehicle occupant.

263. In claim limitation [14d], I analyzed the information collected as aiding the system in determining a user based on a sensor, the steering wheel mounted

finger print sensor, is seating position specific. Thus, due to the similarities between limitation [34] and limitation [14d], it is my opinion that Sundaram renders [34] obvious for the same reasons it is my opinion that Sundaram renders limitation [14d] obvious.

17. Dependent Claim 35

264. I have given each of the limitations of claim 35 a unique numerical identifier, as shown in the chart below:

[35] The method of claim 1, further comprising: determining, by the vehicle control system, relevant information other than the persona of the selected vehicle occupant and the vehicle-related information, the relevant information comprising one or more of a location, hours of operation, and/or descriptive information about a point and/or location of interest near the vehicle and/or the vehicle's path of travel, a	**[5]** The method of claim 1, further comprising: determining, by the vehicle control system, relevant information other than the persona of the selected vehicle occupant and the vehicle-related information, the relevant information comprising one or more of a persona of a selected person not currently in the vehicle, a message from a friend or family member of the selected vehicle occupant, a current activity

location, hours of operation, and/or descriptive information about a vehicle service facility near the vehicle and/or the vehicle's path of travel, and a location, hours of operation, and/or descriptive information about a hotel and/or motel near the vehicle and/or the vehicle's path of travel.	of the friend and/or family member, a current location of the friend or family member near the vehicle and/or the vehicle's path of travel, and a road condition along a path of travel of the vehicle.

265. As illustrated above, claim 35 is nearly identical to corresponding limitations of claim 5. The only difference claim 5 includes a different set of "*relevant information*," as shown below there is overlap of disclosure that can satisfy both.

> ***[35] The method of claim 1, further comprising: determining, by the vehicle control system, relevant information other than the persona of the selected vehicle occupant and the vehicle-related information the relevant information comprising one or more of a location, hours of operation, and/or descriptive information about a point and/or location of interest near the vehicle and/or the vehicle's path of travel, a location, hours of operation, and/or descriptive information about a vehicle service facility near the vehicle and/or***

the vehicle's path of travel, and a location, hours of operation, and/or descriptive information about a hotel and/or motel near the vehicle and/or the vehicle's path of travel.

266. Due to the similarities between the limitations claim 35 and the limitations claim 5 it is my opinion that Sundaram renders claim 35 obvious for the same reasons it is my opinion that Sundaram renders claim 5 obvious. As I understand the claims while not identical, have overlapping limitations that would satisfy either limitation.

267. Sundaram discloses that the vehicle 102 includes sensors 238 and that the in-vehicle computer 104 determines that "the condition of the road includes a presence of potholes" based on "motion sensor" data; and determining that "the condition of the road includes a presence of obstacles" based on "camera sensor" data.

> Sensors 238 reside in vehicle 102 and include without limitation fuel level sensor, door open close sensor, knock sensor, flat tire sensor, etc. Sensors 238 are connected to processing engine 202 via vehicle interface 218. ECU 240 controls and monitors engine 242 and other components of vehicle 102 which interact with engine 242. ECU 240's OBD and CAN interfaces are used by in-vehicle computer to connect to ECU 240. By interacting with ECU 240, in-vehicle computer 104 may also control vehicle 102 in a similar manner as auto pilot mode for flights by making decisions based on information gathered through

> various communication mediums such as traffic surveillance, peer vehicles 110, condition of roads, speed limits for different roads etc.

(Sundaram, Ex. 1027, [0041].)

> J.1 The vehicle of embodiment J in which the sensor is a motion sensor and the condition of the road includes a presence of potholes.
>
> J.2 The vehicle of embodiment J in which the sensor is a camera sensor and the condition of the road includes a presence of obstacles on the road.
>
> In some embodiments, information is shared only with other vehicles nearby.

(Sundaram, Ex. 1027, [0188].)

> 43. The vehicle of claim 42 in which the sensor is a motion sensor and the condition of the road includes a presence of potholes.
>
> 44. The vehicle of claim 42 in which the sensor is a camera sensor and the condition of the road includes a presence of obstacles on the road.

(Sundaram, Ex. 1027, Claims 43-44.)

268. Specifically, a PHOSITA would have understood "a road" to be a "*location of interest near the vehicle*" as it is a specified location and the condition of the road as "*descriptive information*[.]"

269. Thus it is my opinion that Sundaram renders the limitation "*The method of claim 1, further comprising: determining, by the vehicle control system, relevant information other than the persona of the selected vehicle occupant and the vehicle-*

related information the relevant information comprising one or more of a location, hours of operation, and/or descriptive information about a point and/or location of interest near the vehicle and/or the vehicle's path of travel, a location, hours of operation, and/or descriptive information about a vehicle service facility near the vehicle and/or the vehicle's path of travel, and a location, hours of operation, and/or descriptive information about a hotel and/or motel near the vehicle and/or the vehicle's path of travel[,]" of the '239 Patent obvious.

270. Intentionally left blank.

B. Ground 2: Claims 13, 20, 23-28, and 31–33 are Unpatentable as Obvious in View of Sundaram and Penilla

1. Rationale to Combine

271. A PHOSITA would have found it obvious to combine Sundaram's in-vehicle platform with Penilla's cloud-based customization for rental and multi-manufacturer use, including calendar sync and background updates while parked or powered off. Sundaram teaches a wireless, API-driven profile system (Sundaram, 1027, [0020]-[0021]); Penilla discloses transferable account-based UIs usable across vehicle types (Penilla, Ex. 1035, 7:25-36, 22:32-38).

272. According to Sundaram: "The network can be an intranet, an extranet, the internet or any client server models that enable communication." (Sundaram, Ex. 1027, [0013].) The explicit teachings of "internet" or "any client server models"

would suggest to a PHOSITA to consider combining Sundaram with Penilla's "cloud services over the Internet for customizing a user interface of a vehicle." (Penilla, Ex. 1035, 1:51-53.) A PHOSITA would have understood that the combination of Penilla's cloud services with Sundaram's integrated platform for "entertainment, information, communication, control and computing applications in vehicles" is obvious.

273. Additionally, it would have been obvious to a PHOSITA to combine the system for uploading and saving profile data described in Sundaram with the known technique of performing such data transactions while the vehicle ignition is off as described in Penilla. Indeed, performing such file transfers with the ignition off would have the additional benefit of limiting use of fuel—saving costs and limiting pollution from exhaust. Further, by transferring files while the vehicle is off, there would have been no need for the vehicle user to later switch the vehicle off after transfer is complete. This would have provided an added convenience to the user.

274. Further, a PHOSITA would have found it obvious to combine the system in Sundaram with the known technique of transferring information (profiles and settings) to different branded vehicles, including rental vehicles described in Penilla. Indeed, a PHOSITA would have recognized the advantage of the ability to transfer to different types of vehicles as it would allow the user to maintain one

profile that would be used regardless of vehicle. This would have been helpful in households with multiple vehicles where members of the household may use multiple vehicles and have a need to be able to switch from vehicle-to-vehicle while maintaining the same profile (including any adjustments made thereto) across all vehicles.

275. A PHOSITA would have understood that this concept would similarly apply to rental cars by allowing a vehicle user to apply his or her unique profile while using a rental or lease vehicle that otherwise would not have his or her settings. This combination would allow for the transfer of profile settings without the need for manual entry for each new vehicle.

276. A PHOSITA would have also found it obvious to combine the known technique of synchronizing calendars and wearable devices described in Penilla and shown below in Penilla FIGS. 7 and 10 with the vehicle system described in Sundaram. Such synchronization would have provided the added benefits of allowing a user to update his or her calendar from a single location and then have those updates populated across platforms including the vehicle described in Sundaram. A PHOSITA would have further recognized the benefit of synchronizing the vehicle with a user's wearable device to allow for seamless communication of updates and information between the two systems to allow for consistency of information and settings across user devices.

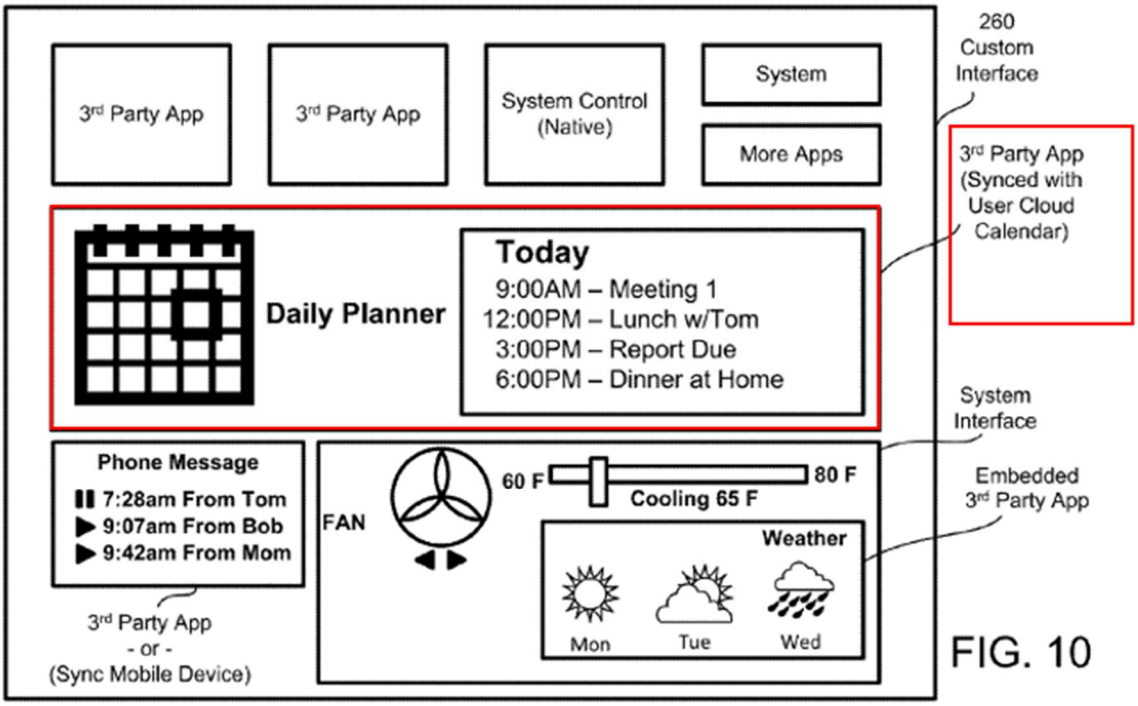


FIG. 10

Penilla, Ex. 1035, FIG 10 (Annotated)

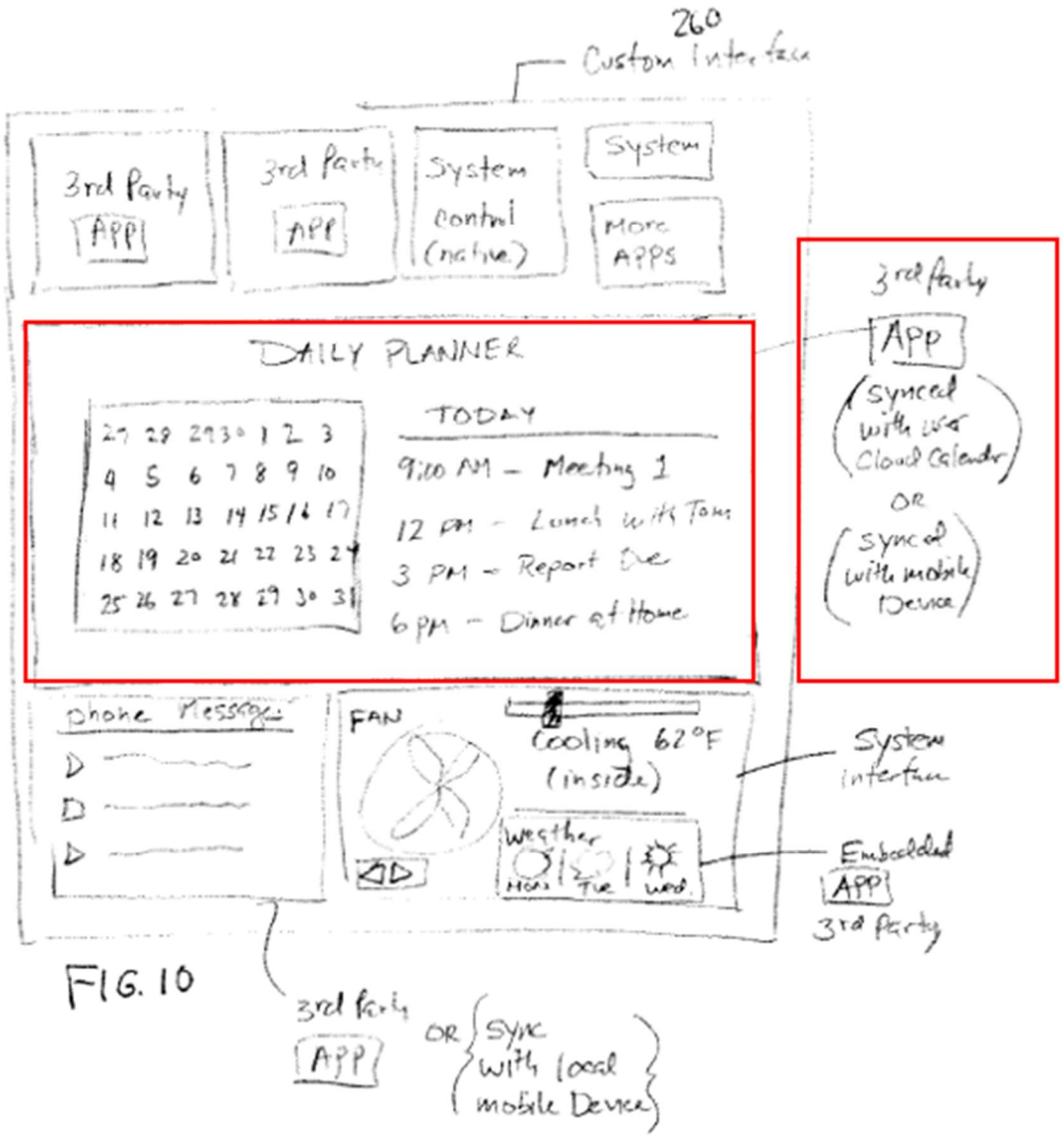
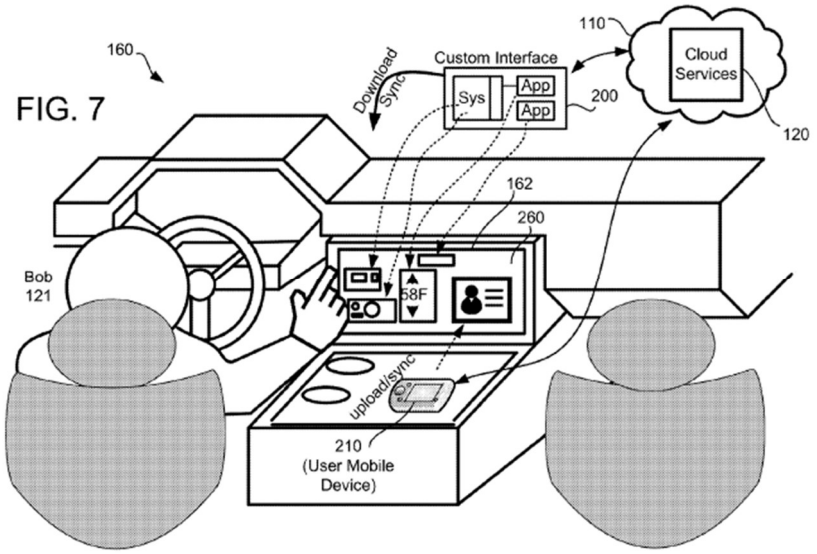
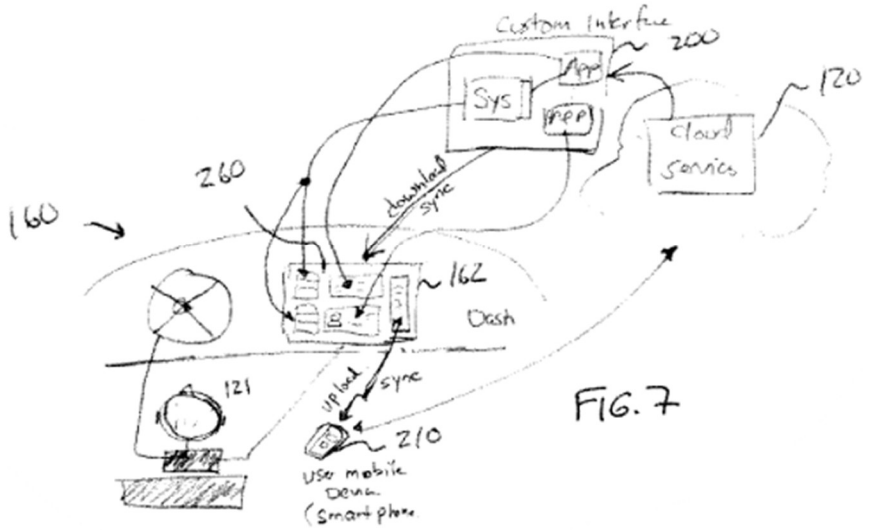


FIG. 10

Penilla File History, Ex. 1047, FIG. 10, 105 (Annotated)



Penilla, Ex. 1035, FIG. 7



Penilla File History, Ex. 1047, FIG. 7, 102

277. Sundaram discloses that the described system can be readily modified for added functionality:

> While example embodiments have been illustrated and described, it will be clear that additional embodiments are contemplated. Numerous modifications, changes, variations, substitutions and equivalents will be apparent to those skilled in the art without departing from the spirit and scope of the described and contemplated embodiments.

(Sundaram, Ex. 1027, [0255].)

278. As demonstrated in the cited language below, Sundaram and Penilla are from the same field of customization of vehicle interfaces and functionality in the vehicle communications to enable vehicle behavior and settings to be modified via standardized platforms:

> In the field of entertainment and computing platforms for vehicles, a method and system are disclosed for providing an integrated platform for entertainment, information, communication, control and computing applications in a vehicle.

(Sundaram, Ex. 1027, [0002].)

> The present invention relates to systems and methods for customizing vehicle user interfaces and exchange of information with cloud-based processing systems to enable integration with third party applications.

(Penilla, Ex. 1035, 1:26-29.)

279. Sundaram and Penilla both disclose systems that identify the user to apply personalized settings:

> For example, the user is identified by in-vehicle computer 104 as soon as the user sits in vehicle 102 and keeps his/her hand on the steering, a

> finger-print sensor mounted on the steering wheel identifies the user and user's predefined usage profile is enabled.

(Sundaram, Ex. 1027, [0020].)

> In other embodiments, the custom configuration can be automatically turned on when the user is detected. The user can be detected using biometrics, login credentials, image detection of the face, fingerprint detection, retina scans, etc. Still further, the custom configuration can be transferred to other vehicles.

(Penilla, Ex. 1035, 20:1-6.)

280. Accordingly, a PHOSITA would have been motivated to combine Sundaram and Penilla to enhance user profile transfer across manufacturers as Sundaram identifies the need for cross-manufacturer compatibility, while Penilla provides cloud-based solutions to achieve this. Their combination enables seamless persona synchronization not only between vehicles of different manufacturers but also with rental companies and home devices (i.e., home computers) even when the vehicle is turned off improving fuel efficiency. Furthermore, integrating Penilla's third-party application support, particularly calendar apps, with Sundaram's in-vehicle display control enhances personalization and user assistance through location-based alerts. This combination expands device compatibility, supporting remote control via smartwatches and mobile devices, and improves user convenience.

a. A PHOSITA would have understood how to combine Sundaram and Penilla

281. A PHOSITA would have understood how to combine Sundaram and Penilla, recognizing that Sundaram's systems could be applied in specific contexts. Given that vehicles at the time supported using their electronics while the ignition was off, it would have been apparent that enabling data transfer with the ignition off was feasible. Penilla teaches how the electronics would get the energy to function as well. Sundaram already envisions profile data being shared across databases, so transferring such data to a rental car company would have been expected. Additionally, a smartwatch is a computing device, making it an implicit example within Sundaram's disclosures.

282. A PHOSITA would recognize that implementing a calendar with alerts is a routine software task. Sundaram teaches data synchronization, app downloads, and interaction between mobile devices and in-vehicle computers. (*See* Sundaram, Ex. 1027, [0039], [0054].) Even without downloading software, Sundaram discloses bidirectional control between mobile and vehicle systems. (*See* Sundaram, Ex. 1027, [0039], [0054].) Penilla further includes display mirroring. (*See* Penilla, Ex. 1035, 3:32-34.) Based on the mirroring disclosure of Penilla a PHOSITA would recognize a calendar app could run on the phone, with synchronized data triggering alerts shown on the vehicle display and played through its speakers. Both approaches

involve straightforward software modifications using disclosed systems, thus a PHOSITA would have reasonably expected the combination to be successful.

b. *KSR* factors

283. Several *KSR* factors also support my opinion that a PHOSITA would have found it obvious to combine the teachings of Sundaram with the teachings of Penilla.

284. Combining the following elements by known methods yields predictable results. First, Sundaram teaches synchronizing data across vehicles, user devices, and home computers, enabling mutual remote control and proposing a unified platform. (*See* Sundaram, Ex. 1027, [0039], [0054].) Penilla adds synchronization while the vehicle is off, calendar downloads with notifications, smartwatch integration, and persona portability across manufacturers. (*See* Penilla, Ex. 1035, 29:27-28, 18:8-22, 18:51, 7:27-30.) Synchronization while the vehicle is off conserves fuel and removes the need for user oversight; calendar downloads enhance personalization and timely alerts; smartwatch integration expands device compatibility for easier access; and profile transfer improves convenience and safety by maintaining settings like speed limits across vehicles.

285. Using a smartwatch as a user device is a simple substitution. Both Sundaram and Penilla disclose devices such as laptops, tablets, mobile computing devices, and phones; a smartwatch, performing similar functions, would predictably

operate like these devices. Likewise, enabling synchronization with the ignition off, downloading and syncing a calendar application, and integrating a smartwatch are all software modifications that constitute straightforward substitutions for a PHOSITA, given Sundaram's disclosure of hardware capable of running Penilla's software. These modifications predictably yield enhanced personalization, expanded device compatibility, and improved convenience without requiring inventive skill.

286. A calendar app and synchronization while the vehicle is off are known techniques that improve similar systems. Penilla teaches user assistance through calendar alerts, such as notifying users when near a store on their shopping list (Penilla, Ex. 1035, 18:16-22), which benefits are applicable to Sundaram's personalized platform. The vehicle system in Penilla supports electronic functions with the engine off (Penilla, Ex. 1035, 9:19-26); applying this to synchronization predictably conserves fuel and enables unattended updates. Allowing data transfers between brands and smartwatch integration expands user options, enhancing personalization, convenience, and efficiency. Incorporating these features into Sundaram's system would improve vehicle platforms in the same way Penilla improves comparable systems.

287. It would have been obvious to try a standard platform, as Sundaram identifies limitations of OEM-specific systems and advocates for a unified application format (Sundaram, Ex. 1027 [0003], [0009]), offering clear design

incentives through broader vehicle choice and simplified profile retention across manufacturers. Likewise, implementing Sundaram's system in a rental context would predictably benefit companies by enabling driver profile access for identity verification and authorized use. Supporting additional user devices, such as smartwatches, is also obvious to try, providing design advantages through greater accessibility and compatibility, consistent with Sundaram's open list of supported devices. These options represent finite, predictable solutions with a reasonable expectation of success as they are primarily software modifications.

288. Market forces would have driven the combination of Sundaram and Penilla. Synchronization while the vehicle off predictably reduces fuel costs and supervision time, creating strong design incentives. Supporting interoperability with other manufacturers and smartwatches expands user options, encouraging adoption by leveraging existing devices. Applying the system in rental contexts offers clear commercial benefits by streamlining identity verification and improving renter convenience. These variations respond to market demand and predictably enhance efficiency, compatibility, and user experience.

289. The prior art provides clear teaching, suggestion, and motivation for this combination. Sundaram advocates for a standard platform across manufacturers, which Penilla supports through features enabling broader interoperability. Sundaram's disclosure of multiple device types motivates inclusion of additional

computing devices, and Penilla specifically teaches smartwatch integration. Penilla also teaches vehicle electronics functioning with the ignition off, suggesting continuous synchronization, and profile exchange in rental contexts, motivating universal profile sharing. These explicit statements and common knowledge would have led a PHOSITA to combine these references to achieve the claimed invention.

290. Intentionally left blank.

291. Intentionally left blank.

2. Dependent Claim 13

[13] The vehicle of claim 8, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

292. Claim 13 depends from claim 8. Claim 8 is rendered obvious by Sundaram as discussed above, thus my analysis of claim 8 is incorporated here.

293. Sundaram discloses the vehicle, through the in-vehicle computer 104, receiving user preferences in the form of music selections/preferences ("*persona*") from a user's desktop computer ("*home computer*"); Sundaram also discloses synchronizing between the vehicle and the home computer to obtain the persona (music preferences) (Sundaram, Ex. 1027, [0039].)

294. Specifically, Sundaram discloses that "in case the user's vehicle 102 is nearby his/her house which has user's desktop, in-vehicle computer 104 on detecting the desktop through Wi-Fi technology will synchronize the music files of the desktop with in-vehicle computer 104's memory, therefore enabling the user to listen to his/her favorite music while driving." (Sundaram, Ex. 1027, [0039].) Thus, Sundaram discloses synchronizing the home computer with the vehicle to obtain the user's music preferences (his or her favorite music files) from a home computer, i.e., the user's desktop.

295. Sundaram further discloses a vehicle, through a processor, receiving preferences from an external device. (Sundaram, Ex. 1027, [0094].) A PHOSITA would have understood the desktop at the user's house to be an example of an external device as the desktop taught in Sundaram is in the user's house which is external to the vehicle. (Sundaram, Ex. 1027, [0039].) A PHOSITA would have also understood receiving preferences as synchronization, illustrated by my above example of sharing music files between the desktop and the in-vehicle computer to be further evidence that Sundaram discloses synchronizing the home computer with the vehicle to obtain information (persona) from an external device, i.e., the user's desktop.

296. It would have been obvious to a PHOSITA that the preferences transferred could include settings like a speed limit or to be notified when appearing

tired because Sundaram explicitly discloses the speed limits are a setting. (Sundaram, Ex. 1027, [0019].)

297. As discussed above, an occupant's persona includes information such as "likes or interests, dislikes, preferences, and the like." ('239 Patent, Ex. 1001, 81:48-53.) Therefore, a PHOSITA would have understood that Sundaram's disclosure of obtaining the user's favorite music files (preferences in music) from the user's desktop computer and user preferences including vehicle settings from an external device (desktop computer) would have represented an example of obtaining the user's persona. Thus, a PHOSITA would have understood that Sundaram discloses obtaining the user's persona from a home computer.

298. A PHOSITA would have understood that Sundaram alone suggests synchronization (i.e., transfer of files) when the vehicle's ignition is off. Indeed, Sundaram discloses Wi-Fi communication between the in-vehicle computer and the user's desktop when the vehicle is nearby the user's home, (Sundaram, Ex. 1027, [0039]) from which a PHOSITA would have understood that the car is parked. Using the home Wi-Fi requires the car to be stationary. This further suggests to a PHOSITA that the ignition is off because users do not typically leave cars running when parked near their home.

299. Additionally, Penilla teaches turning a vehicle ignition off during the communication of data like the music files described in Sundaram. Specifically,

Penilla discloses use of communication protocols like Wi-Fi, Bluetooth, 802.11.ac, and 802.11.ad to communicate information to the vehicle. (*See* Penilla, Ex. 1035, 9:5-18.) Penilla additionally discloses that "[t]he communication can be made by vehicle electronics while the vehicle is on or when the vehicle is off, so long as communication and processing circuitry of vehicle electronics has a power source." (Penilla, Ex. 1035, 9:19-22.)

300. Thus, it is my opinion Sundaram combined with Penilla renders the limitation "*wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off*" of claim 13 of the '239 Patent obvious.

301. Intentionally left blank.

302. Intentionally left blank.

3. Dependent Claim 20

303. Claim 20 has similarities to claim 13 as shown in the chart below:

[20] The computer readable medium of claim 15, wherein the vehicle obtains the persona from one or more	**[13]** The vehicle of claim 8, wherein the vehicle obtains the persona from one or more of a different vehicle

of a different vehicle driven by the selected vehicle occupant and a home computer and	driven by the selected vehicle occupant and a home computer and
wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.	wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

304. As illustrated above, claim 20 is nearly identical to corresponding to claim 13. The only difference being claim 13 depends from claim 8 and claim 20 depends from claim 15, inheriting the preambles, however this does not affect the analysis.

> ***[20] The computer readable medium of claim 15, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.***

305. Claim 20 depends from claim 15, discussed in Ground 1, and thus the analysis for claim 15 is incorporated here.

306. Due to the similarities between claim [20] and claim [15], it is my opinion that Sundaram in combination with Penilla renders [20] obvious for the same reasons it is my opinion that Sundaram in combination with Penilla renders [15] obvious.

4. Dependent Claim 23

307. I have given each of the limitations of claim 23 a unique numerical identifier, as shown in the chart below:

[23a] The computer readable medium of claim 21, wherein the persona is defined in a format that can be processed by vehicles of different manufacturers,
[23b] wherein the persona is provided, by the selected vehicle occupant, to a rental car company, and wherein the vehicle is rented by the selected vehicle occupant from the rental car company.

[23a] The computer readable medium of claim 21, wherein the persona is defined in a format that can be processed by vehicles of different manufacturers,

308. Claim 21 depends from claim 15, discussed in Ground 1, and thus the analysis for claim 15 is incorporated here.

309. Sundaram discloses a need for a unified, standardized application platform in vehicles to enable development and integration of diverse entertainment

and computational applications, overcoming manufacturer-specific limitations and incompatibility across car systems. (Sundaram, Ex. 1027, [0003], [0008]-[0009].) "Therefore, there is a need for a standardized integrated application platform in vehicles for which various applications may be developed, thus opening up a vast market for such application developers." (Sundaram, Ex. 1027, [0009].)

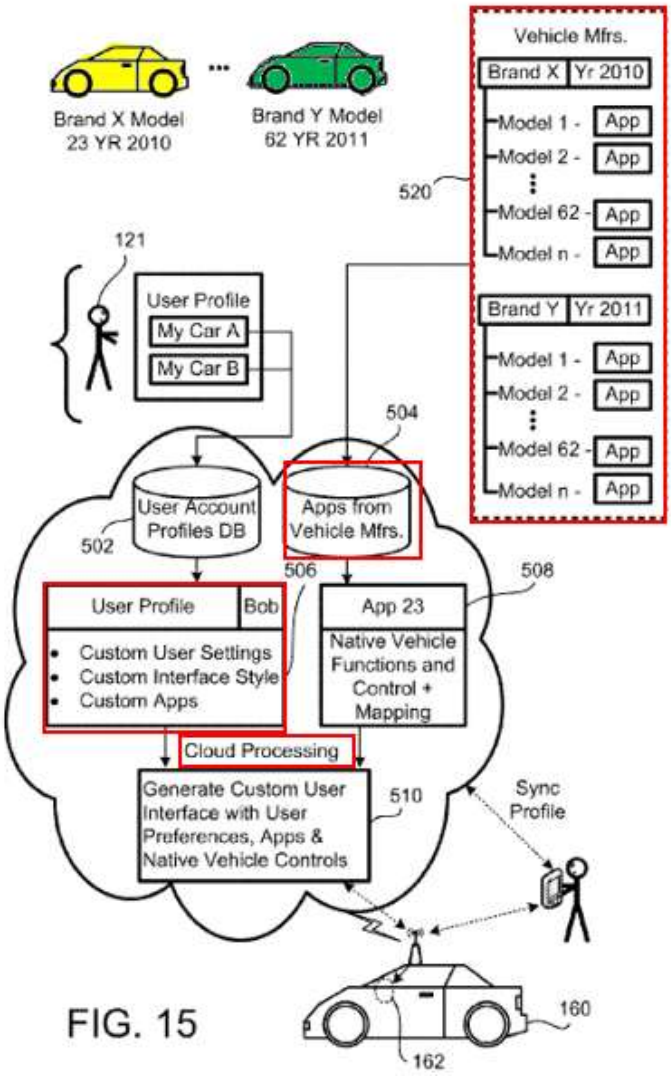
310. Sundaram discloses the user's profile ("*persona*") being maintained online and enabling access in different vehicles (Sundaram, Ex. 1027, [0020].) "The user's profile may also be maintained online thus enabling the user to access his/her usage profile in different vehicles 102" while being accessible by mobile phone. (Sundaram, Ex. 1027, [0039].) A PHOSITA would have understood that different vehicles could include vehicles from different manufacturers as a purpose of standardizing the application platform is to allow for the user to move from vehicle-to-vehicle, which could be different vehicles even within a household.

311. Penilla discloses that "[t]he user profile . . . can be managed by the cloud processing 120. The cloud processing may include a user profile database 502 (and other databases not shown) that allows the user to synchronize settings for various profiles, such as for 'my car A', and 'my car B', or the like. In one embodiment, the custom configuration can be transferred from vehicle to vehicle and for a period of time." (Penilla, Ex. 1035, 22:17-24.)

312. Penilla further discloses transferring custom configurations tied to user accounts across vehicles of different manufacturers:

> In some embodiments, the manufacturer of the vehicle and the second vehicle is either the same or different.
>
> In some embodiments, the method includes processing a request to use the custom configuration on the second vehicle, the processing of the request includes, receiving login credentials for the user account to enable use of the custom configuration at the second vehicle automatically updating the system component for the second vehicle type[.]

(Penilla, Ex. 1035, 2:35-50.)



Penilla, Ex. 1035, FIG. 15 (Annotated)

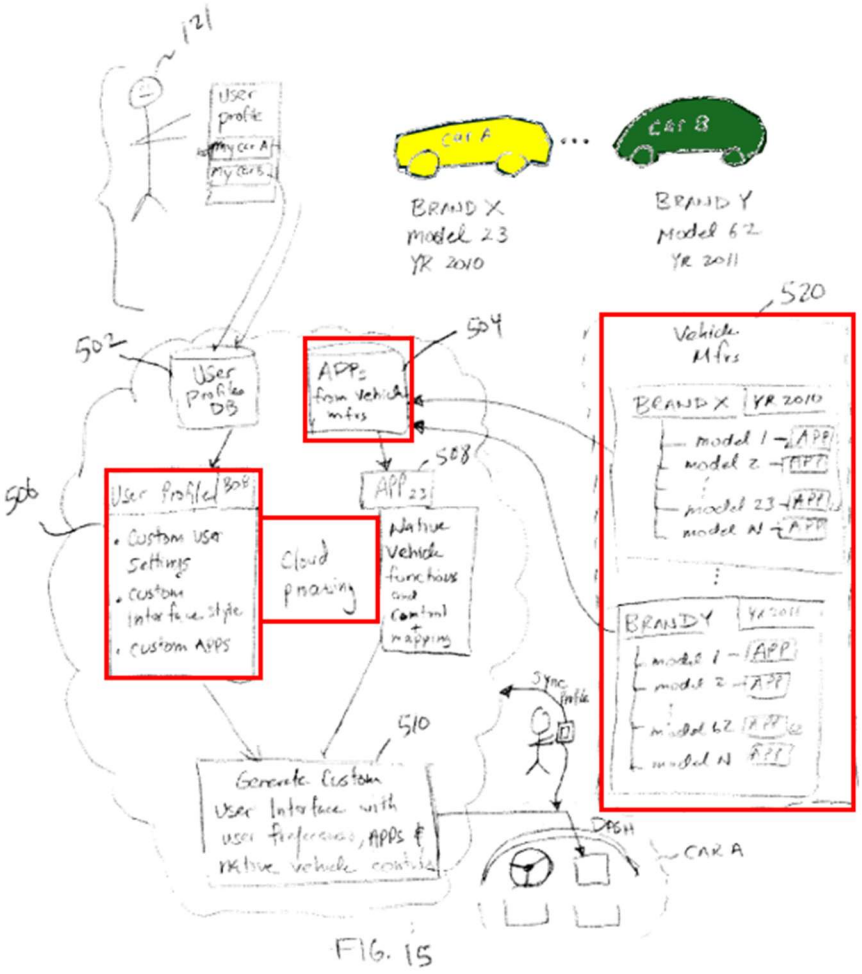


FIG. 15

Penilla File History, Ex. 1047, FIG. 15, 111 (Annotated)

313. As shown above in FIG. 15, Penilla discloses the cloud processing including custom apps, custom user settings, and apps from different vehicle manufacturers. With the disclosure of different manufacturers all contributing to the cloud processing it would have been obvious the format the user settings/account was being transmitted by was processed by vehicles with different manufacturers. With the disclosure on transferring custom interfaces between vehicle manufactures and the system illustrated in FIG. 15, a PHOSITA would have understood that the

combination of Penilla and Sundaram is obvious for the above reasons and the disclosure in Penilla explains how the goals laid out in Sundaram can be realized.

314. Thus, it is my opinion Sundaram in combination with Penilla renders the limitation "*[t]he computer readable medium of claim 21, wherein the persona* [profile] *is defined in a format that can be processed by vehicles of different manufacturers*[.]" of the '239 Patent as obvious.

315. Intentionally left blank.

316. Intentionally left blank.

[23b] wherein the persona is provided, by the selected vehicle occupant, to a rental car company, and wherein the vehicle is rented by the selected vehicle occupant from the rental car company.

317. Penilla discloses synchronizing profiles for use in different cars in the rental context:

> FIG. 15 illustrates another example, where a user 121 uses a portable device to access the user profile. The user profile, as mentioned above, can be managed by the cloud processing 120. The cloud processing may include a user profile database 502 (and other databases not shown) that allows the user to synchronize settings for various profiles, such as for "my car A', and "my car B', or the like. In one embodiment, the custom configuration can be transferred from vehicle to vehicle and for a period of time. The period of time can be a driving session. The driving session can be for a trip, a day, a week, a rental period, a lease period, etc. If the new vehicle receiving the profile has different system components,

> a remapping of system components to applications can be made. In some embodiments, alternate applications can be plugged in for the new vehicle which provide functionality similar to the application in the earlier vehicle.

(Penilla, Ex. 1035, 22:16-31.)

318. A PHOSITA would have understood that synchronizing custom configurations of a user profile (*persona*) with a vehicle for a rental period describes the claimed "*wherein the persona is provided, by the selected vehicle occupant, to a rental car company, and wherein the vehicle is rented by the selected vehicle occupant from the rental car company*." Indeed, a PHOSITA would have understood that Penilla's disclosure of applying an occupant's custom configurations from vehicle to vehicle for a "*rental period*" would have included use in rental cars, as cars with rental periods include cars rented by a rental car company.

319. Thus, it is my opinion Sundaram in combination with Penilla renders the limitation, "*wherein the persona is provided, by the selected vehicle occupant, to a rental car company, and wherein the vehicle is rented by the selected vehicle occupant from the rental car company*[,]" of the '239 Patent as obvious.

320. Intentionally left blank.

5. Independent Claim 24

321. I have given each of the limitations of claim 24 a unique numerical identifier, as shown in the chart below:

24[pre] A method, comprising:	**1[pre] A method comprising:**
[24a] maintaining, by a microprocessor executable profile identification module, a persona of a vehicle occupant; and	**[1a]** maintaining, by a microprocessor executable profile identification module, a persona of a selected vehicle occupant,
[24b] based on the persona of the vehicle occupant and vehicle-related information, performing, by a microprocessor executable vehicle control system, an action assisting the vehicle occupant,	
[24c] wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is	**[13]** The vehicle of claim 8, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is

parked in proximity thereto and an ignition of the vehicle is turned off.	parked in proximity thereto and an ignition of the vehicle is turned off.

322. As illustrated above, claim limitation [24a] is nearly identical to the corresponding limitations of claim [1a]. Some difference being claim 1 is narrower requiring a determination of assistance needed as well as a limit on user input in effectuating the action. As illustrated above, claim limitation [24c] is substantively identical to corresponding limitation of claim [13a]. The only difference is claim 24 is an independent claim while claim 13 is dependent on claim 8. This difference also includes a difference of preamble which does not change the analysis of this limitation. Due to these similarities the analysis of the above listed claims is incorporated in this claim in addition to what is explained below.

24[pre] A method, comprising:

323. I have been informed preambles are not usually limiting. However, whether or not the preamble is limiting, Sundaram discloses "[m]ethods and systems for providing an integrated platform for entertainment, information, communication, control and computing applications in a vehicle." (Sundaram, Ex. 1027, [0014].) The system allows for "the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features." (Sundaram, Ex. 1027, [0018].) The system is carried out by an in-

vehicle computing and entertainment platform environment 100 as shown below. (Sundaram, Ex. 1027, [0015], Fig. 1.) "In-vehicle computing and entertainment platform environment 100 includes vehicle 102, in-vehicle computer 104, network communication 106, application servers 108 and peer vehicles 110." (Sundaram, Ex. 1027, [0015].)

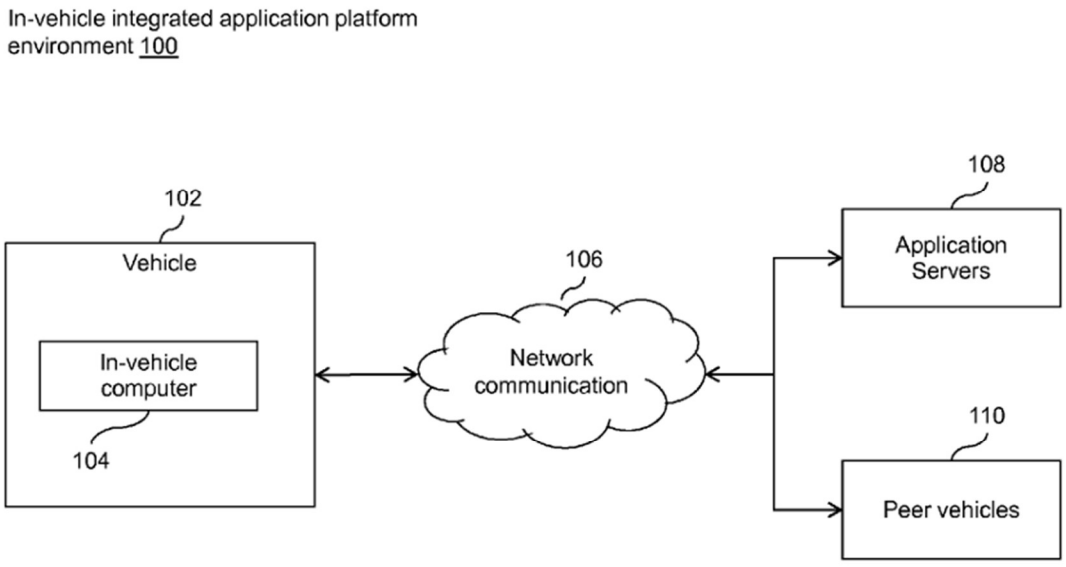


FIG. 1

Sundaram, Ex. 1027, Fig. 1

324. Thus, it is my opinion that Sundaram discloses "[*a*] *method*."

[24a] maintaining, by a microprocessor executable profile identification module, a persona of a vehicle occupant; and

325. Sundaram discloses a user of a vehicle 102 ("*vehicle occupant*") being a passenger or driver of a vehicle 102:

> By accessing these computing and control devices in vehicle 102, in-vehicle computer 104 may control vehicle 102's behavior to personalize the vehicle according to its user's needs and requirements. Further, in-vehicle computer 104, by taking inputs from vehicle 102's gyrometer, may adjust vehicle 102's behavior to enhance comfort of the user and warn the user about the road conditions. User of vehicle 102 may be a driver or a passenger of vehicle 102. In some embodiments, in vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide ser vices to the user and also make control decisions for vehicle 102.

(Sundaram, Ex. 1027, [0017].)

326. According to the '239 Patent a "persona" comprises one or more of, inter alia, bioinformatics, personal information, and private information. Sundaram teaches that: "Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102." (Sundaram, Ex. 1027, [0020].) Each of the user's voice, face, and fingerprint as taught in Sundaram, are bioinformatics, personal information, private information, in the context of the '239 Patent. Since the challenged claim limitation requires "one or more of" these, Sundaram teaches "*a persona*". Furthermore, a PHOSITA would have understood "visual recognition" as disclosed in Sundaram includes a user's face, clothing, or appearance since this is the type of information that would have

been captured on a camera. (*See* Sundaram, Ex. 1027, [0020].) This is further evidenced by Sundaram teaching using a camera for driver identification as well as using inputs from a driver, (i.e., sleepy eyed), to determine if assistance is required. (*See* Sundaram, Ex. 1027, [0031].)

327. The '239 Patent provides various other examples of a "persona" such as "his or her physical, psychological, mental and other characteristics, needs, desires, behavior, personality, goals, habits, biometric information, likes or interests, dislikes, preferences, and the like." ('239 Patent, Ex. 1001, 81:50-53.) The '239 Patent further discloses that "a vehicle occupant's persona can include the information in one or more of the profile data 252 of the person, device data 220 associated with the person, stored data 232, system data 208, and information related to the person as collected by vehicle interior and exterior sensors." ('239 Patent, Ex. 1001, 81:64-82:1.)

328. Sundaram discloses that:

> In-vehicle computer 104 enables the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features. The features corresponding to a usage profile may include without limitation, vehicle 102's speed, air-conditioning, volume of speakers, and the like.

(Sundaram, Ex. 1027, [0018].)

329. Consistent with the use of the terms in the '239 Patent, a PHOSITA would have understood that Sundaram's disclosure of the identity or identifying characteristics of a user, such as fingerprints or images, would have been a part of the persona of the vehicle occupant, because it would have been required to allow the system to determine who is the user. Further, Sundaram's teaching of a user profile that includes this biometric information to identify the user so that a particular user's preferences are applied, demonstrates that Sundaram teaches the claimed persona.

330. The '239 Patent discloses that "[t]he maintaining of the persona can include collecting information from one or more vehicle sensors and/or from a remote information source." ('239 Patent, Ex. 1001, 13:4-6.) Sundaram teaches several sensors in the vehicle, which are able to sense identification of a user to allow the described to collect information about the user. For example, Sundaram teaches "authenticating user's identity from input by camera 210 or finger print sensor 212 or through any other input sources available to [the] in-vehicle computer 104." (Sundaram, Ex. 1027, [0034].)

331. Specifically, Sundaram discloses details regarding use of a finger print sensor to collect information for user authentication:

> Finger print sensor 212 provides user authentication input to processor 204. Finger print sensor 212 may be based on technologies such as

> capacitive, resistive, RF (radio frequency) etc. Further, finger print sensors 212 may be swipe or scan sensors, which are capable of weeding out dead fingers, and handling grease and other harsh operating conditions. AES1711 is an example of finger print sensor 212.

(Sundaram, Ex. 1027, [0032].)

332. Sundaram further discloses use of the camera for collecting information about a driver's driving status and moods:

> For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram, Ex. 1027, [0031].)

333. Additionally, Sundaram expressly discloses the *maintaining* of a user's profile on the in-vehicle computer 104 or online:

> Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102. For example, the user is identified by in-vehicle computer 104 as soon as the user sits in vehicle 102 and keeps his/her hand on the steering, a finger-print sensor mounted on the

> steering wheel identifies the user and user's predefined usage profile is enabled. The user's profile may also be maintained online thus enabling the user to access his/her usage profile in different vehicles 102. In an embodiment, in-vehicle computer 104 builds user's usage profile based on previous usage data stored with in-vehicle computer.

(Sundaram, Ex. 1027, [0020].)

334. Sundaram's in-vehicle computer can take the form of a "programmed microprocessor" or a processing machine that "executes a set of instructions." (*See* Sundaram, Ex. 1027, [0013].) Consequently, Sundaram renders obvious "*maintaining, by a microprocessor executable profile identification module, a persona*." The terms "user's profile" and "usage profile" refer to identifying information and vehicle settings of an individual respectively (*See* Sundaram, Ex. 1027, [0018], [0020].) A PHOSITA would have understood in combination of the user's profile and the usage profile in Sundaram to constitute "*a persona*" as defined in the '239 Patent as explained below.

335. Sundaram discloses that the vehicle 102 includes an in-vehicle computer 104 which in turn includes a processing engine 202 which includes processor 204, thus when Sundaram remarks about any of these components doing a processor function a PHOSITA would have understood that a processor executed computer instructions/code to effectuate the corresponding function. A PHOSITA would have understood this because Sundaram explicitly discloses the relationship

between the components and discloses nearly all the functions attributed to the vehicle and in-vehicle computer to a processor in the embodiments section. (*See* Sundaram, Ex. 1027, [0017], [0027]-[0028].) Sundaram discloses that a microprocessor is an example of a processing machine that can execute instructions and can be the form of various embodiments. (*See* Sundaram, Ex. 1027, [0013].)

336. The '239 Patent discloses the "*profile identification module*" has various functions including determining whether a user profile is associated with the vehicle, requesting or receiving requests from a user or device to access a profile stored in a profile database, communicating with the other components of the system to load on or more preferences, settings, and/or conditions based on the user profile. (*See* '239 Patent, Ex. 1001, 49:44-53.)

337. Sundaram teaches "a processor operable to execute the computer code to", inter alia, "receive first information about a first user in the vehicle", and "determine a first identity of the first user based on the received first information" (Sundaram, Ex. 1027, [0085]-[0087]). Therefore, Sundaram renders the claimed "*microprocessor executable profile identification module*" obvious.

338. Sundaram renders obvious the usage/user's profile ("*persona*") being recorded/maintained/stored ("*maintained*") by the in-vehicle computer 104 or online. Sundaram teaches that the user is identified using visual recognition, voice recognition, or fingerprint identification. (*See* Sundaram, Ex. 1027, [0020].) A

PHOSITA would have understood that the user's image, voice characteristics, or fingerprints are stored and used for identifying the user.

339. Therefore, it is my opinion that Sundaram renders the limitation "*maintaining* [maintains/stores], *by a microprocessor* [processor 204/remote storage/online] *executable profile identification module* [instructions/code], *a persona* [usage/user's profile] *of a vehicle occupant* [user of the vehicle]" of the '239 Patent obvious.

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[24b] based on the persona of the vehicle occupant and vehicle-related information, performing, by a microprocessor executable vehicle control system, an action assisting the vehicle occupant,

343. Sundaram teaches generating ("*performing*") an alert to the user that they are driving above the speed limit ("*an action*") based on their user profile ("*persona*") and the vehicle speed ("*vehicle-related information*"):

> In-vehicle computer 104 enables the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features. The features corresponding to a usage profile may include without limitation, vehicle 102's speed, air-conditioning, volume of speakers, and the like. For example, suppose vehicle 102 is used by two different drivers,

> namely D1 and D2. Now suppose D1 is very experienced in driving and can effortlessly control vehicle 102 at high speeds, however D2 is learning to drive and thus should not drive at higher speeds. In order to ensure that D2 does not drive beyond a certain specified speed, say 60 km/hr, D1 can define settings of vehicle 102 such that vehicle 102 identifies the driver and allows different speed limits for different drivers. In this case, the speed limit for D2 will be set as 60 km/hr in in-vehicle computer 104 and for D1 there will be no speed limit. Therefore vehicle 102 is personalized based on the user of vehicle 102. Similarly various other settings may be defined by the user to personalize vehicle 102 for user's specific needs and requirements.
>
> In various embodiments, if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed limit that has been set for him), the vehicle may respond. The vehicle's response may include one or more of the following: (a) preventing the user from going outside the bounds (e.g., preventing the user from exceeding a specified speed limit); (b) alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert); (c) alert a third party about the user's actions (e.g., alert a parent of the user; e.g., alert authorities); (d) penalizing the user in some way (e.g., denying access for the user to a preferred radio station).

(Sundaram, Ex. 1027, [0018]-[0019].)

344. Sundaram also teaches alerting the user that they are driving while sleepy eyed ("*action*") based on their appearance stored in their user profile

("*persona*") and the vehicle being driven, which implies some speed as an alert that a sleepy-eyed person is in a stationary vehicle would not improve safety or have a behavior changing affect, ("*vehicle-related information*"):

> For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram, Ex. 1027, [0031].)

345. A PHOSITA would have understood that a system's action depending on who the user is and depending on the speed of the vehicle is "*based on the persona of selected vehicle occupant and the vehicle-related information."* Further, a PHOSITA would have understood that Sundaram's disclosure of alerting when certain speed limits are exceeded based on who is identified as the driver (based on the *persona*) or if the driver looks sleepy-eyed compared to their stored facial appearance (based on the persona) constitutes the claimed "*assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant*." A PHOSITA would have understood the sleepy-eyed entertainment alert based on a user's identified gestures

and moods compares a current appearance to the appearance of a user/driver stored in their user profile to determine if they look sleepy-eyed and provide a corresponding entertainment alert tailored to that user. A PHOSITA would have understood the sensors that determine vehicle speed can also determine if the vehicle is moving at all as a vehicle registering zero mph will not be moving. This indication of movement then shows that the vehicle is being driven, as vehicles under proper usage conditions are in movement are being driven, which triggers the driver status updates such as a check if the driver is sleepy eyed. Indeed, by enforcing these personal speed limits, the system in Sundaram is providing speed control assistance to the user to ensure the user does not inadvertently exceed a desired speed limit, and by providing alerts when the driver appears sleepy-eyed the system is providing a safety alert ensuring a user does not drive while asleep, which both could lead to legal ramifications or safety concerns.

346. Sundaram discloses that the processor 204 (*"microprocessor"*), which is included in the in-vehicle computer 104, executes code ("*vehicle control system*") that is operable to cause alerts (*"action"*) to be generated:

> C. A vehicle comprising:
>
> a sensor;
>
> a control system operable to receive electronic signals and actuate systems of the vehicle based on the received electronic signals;

a computer readable medium containing computer code;

a processor operable to execute the computer code to:

determine that a user is not present in the vehicle:

receive via the sensor a signal indicative of the presence of a user device; and

provide instructions to the control system to cause an alert to be generated.

(Sundaram, Ex. 1027, [0065]-[0072].)

347. Sundaram further discloses that the in-vehicle computer 104 controls the vehicle 102's behavior (e.g., providing alerts when over speeding) ("*action*"):

> In-vehicle computer 104 has computing, data processing and networking capabilities and has access to various computing and control devices in vehicle 102. Such computing and controlling devices may include but are not limited to speedometer, fuel meter, air-conditioning regulator, engine control units, gyrometer and the like. By accessing these computing and control devices in vehicle 102, in-vehicle computer 104 may control vehicle 102's behavior to personalize the vehicle according to its user's needs and requirements. Further, in-vehicle computer 104, by taking inputs from vehicle 102's gyrometer, may adjust vehicle 102's behavior to enhance comfort of the user and warn the user about the road conditions. User of vehicle 102 may be a driver or a passenger of vehicle 102. In some embodiments, in vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide services to the user and also

> make control decisions for vehicle 102. For example in-vehicle computer 104 uses location source as one of the inputs to identify the road and area in which vehicle 102 is and then use this information to fetch the speed limit of that particular road dynamically. The fetched speed limit is then conveyed to the user and the user is provided alerts on over speeding occasions.

(Sundaram, Ex. 1027, [0017].)

348. Sundaram discloses the vehicle 102 responding to exceeding a maximum speed for the vehicle 102 and alerting ("*action*") the user of the excess speed of the vehicle 102:

> In various embodiments, if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed limit that has been set for him), the vehicle may respond. The vehicle's response may include one or more of the following: (a) preventing the user from going outside the bounds (e.g., preventing the user from exceeding a specified speed limit); (b) alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert); (c) alert a third party about the user's actions (e.g., alert a parent of the user; e.g., alert authorities); (d) penalizing the user in some way (e.g., denying access for the user to a preferred radio station).

(Sundaram, Ex. 1027, [0019].)

349. It would have been apparent to a PHOSITA that if Sundaram discloses the alerts ("*actions*") in embodiment C are generated ("*performed*") by a processor

executing code (*"vehicle control system"*) then the alerts ("*actions*") in other embodiments would be generated ("*performed*") in a similar manner as Sundaram contemplates modifications, variations, and substitutions of its embodiments. (*See* Sundaram, Ex. 1027, [0019].) Thus, when Sundaram discloses the in-vehicle computer alerting the user in paragraphs [0017] and [0019] respectively, a PHOSITA would have understood this alerting ("*action*") is generated *(*"*performed*") by a processor ("*microprocessor*") executing code ("*vehicle control system*") within the in-vehicle computer and the vehicle 102.

350. Thus, it is my opinion Sundaram in combination with Penilla renders the limitation, "*based on the persona* [user's profile/usage profile] *of the vehicle occupant* [user] *and vehicle-related information* [vehicle speed], *performing* [generating], *by a microprocessor executable vehicle control system* [code/computer instructions], *an action* [alert] *assisting the vehicle occupant*," of the '239 Patent obvious.

351. Intentionally left blank.

352. Intentionally left blank.

[24c] wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

353. Claim 13 includes analysis on this limitation as well as "wherein the vehicle obtains the persona from one or more of . . . a home computer." I have taken the analysis as one for both claims as the synchronization discussed in claim 13 is obtaining of a persona from a home computer. Thus, due to the similarities between limitation [24c] and claim [13], it is my opinion that Sundaram renders [24c] obvious for the same reasons it is my opinion that Sundaram renders claim [13] obvious.

354. A PHOSITA would have understood that Sundaram alone suggests synchronization (i.e., transfer of files) when the vehicle's ignition is off. Indeed, Sundaram discloses Wi-Fi communication between the in-vehicle computer and the user's desktop when the vehicle is nearby the user's home (*See* Sundaram, Ex. 1027, [0039]), from which a PHOSITA would have understood that the car is parked. Using the home Wi-Fi requires the car to be stationary. This further suggests to a PHOSITA that the ignition is off because users do not typically leave cars running when parked near their home.

355. Additionally, Penilla teaches turning a vehicle ignition off during the communication of data like the music files described in Sundaram. Specifically, Penilla discloses use of communication protocols like Wi-Fi, Bluetooth, 802.11.ac, and 802.11.ad to communicate information to the vehicle. (*See* Penilla, Ex. 1035, 9:5-18.) Penilla additionally discloses that "[t]he communication can be made by vehicle electronics while the vehicle is on or when the vehicle is off, so long as

communication and processing circuitry of vehicle electronics has a power source." (Penilla, Ex. 1035, 9:19-22.)

356. Thus, it is my opinion Sundaram combined with Penilla renders the limitation "*wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off*" of claim 13 of the '239 Patent obvious.

357. Intentionally left blank.

6. Dependent Claim 25

358. I have given each of the limitations of claim 25 a unique numerical identifier, as shown in the chart below:

[25a] The method of claim 24,	**[1b]** wherein the persona
wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet	comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information,

browsing history and/or browsed content,	and Internet browsing history and/or browsed content;
[25b] wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination, and	**[1c]** determining, by a microprocessor executable vehicle control system, vehicle-related information, wherein vehicle-related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination; and
[25c] wherein the action is one or more of making an appointment, making a reservation, purchasing an item on	**[1e]** performing, by the microprocessor executable vehicle control system, an action assisting the selected vehicle occupant, the action being one or more of providing a suggestion or recommendation to the selected

line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time.	vehicle occupant, providing a reminder to the selected vehicle occupant, scheduling an activity involving the selected vehicle occupant, purchasing an item on line for the selected vehicle occupant, adding an entry into the selected vehicle occupant's electronic calendar, providing a notification to the selected vehicle occupant regarding an incoming message, call or action of a person, and/or sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time of the vehicle.

[25a] The method of claim 24, wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content,

359. Sundaram discloses that the usage profile (*"persona"*) includes biometric information (*"bioinformatics"*) of a user, including a fingerprint reading, a picture, a retinal scan, weight, height, eye color, and hair color:

> A.1 The vehicle of embodiment A in which, in receiving first information about the first user, the processor is operable to receive biometric information about the first user.
>
> A.1.1 The vehicle of embodiment A.1 in which the biometric information includes one of: (a) a fingerprint reading; (b) a picture; (c) a retinal scan; (d) a voice recording; (e) a weight; (f) a height, (g) an eye color, and (h) a hair color.
>
> In various embodiments, a setting may include an internal temperature of the vehicle.
>
> A.2 The vehicle of embodiment A further including a climate control system, in which the first setting is a temperature, and in which, in issuing instructions, the processor is operable to issue instructions for the climate control system to bring the interior of the vehicle to the temperature.

(Sundaram, Ex. 1027, [0098].)

360. The '239 Patent discloses that:

> The profile data 252 can be any type of data associated with at least one user 216 including, but in no way limited to, bioinformatics, medical information, driving history, personal information (e.g., home physical address, business physical address, contact addresses, likes, dislikes, hobbies, size, weight, occupation, business contacts—including

> physical and/or electronic addresses, personal contacts—including physical and/or electronic addresses, family members, and personal information related thereto, etc.), other user characteristics, advertising information, user settings and feature preferences, travel information, associated vehicle preferences, communication preferences, historical information (e.g., including historical, current, and/or future travel destinations), Internet browsing history, or other types of data.

('239 Patent, Ex. 1001, 24:44-58.)

361. Thus, Sundaram's disclosure of biometric information like weight and height aligns with the '239 Patent's description of bioinformatics and medical information as including size and weight. Based on this alone a PHOSITA would have understood that Sundaram teaches the claimed *persona*, i.e., information regarding personal characteristics of the user such as weight and size.

362. A PHOSITA would have understood the various forms of identifying a user as part of their user/usage profile as having the identifier is essential to match settings to a user. Furthermore, a PHOSITA would have understood the settings without user identifying information or user identifying without corresponding setting would not effectuate the systems disclosed in Sundaram.

363. Sundaram also discloses a system with a fingerprint sensor and driver identification through fingerprint reading:

> Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice

> recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102. For example, the user is identified by in-vehicle computer 104 as soon as the user sits in vehicle 102 and keeps his/her hand on the steering, a finger-print sensor mounted on the steering wheel identifies the user and user's predefined usage profile is enabled. The user's profile may also be maintained online thus enabling the user to access his/her usage profile in different vehicles 102. In an embodiment, in-vehicle computer 104 builds user's usage profile based on previous usage data stored with in-vehicle computer.
>
> Further, in-vehicle computer 104 may act as a platform on which various applications for and related to games, network games, GPS navigations, video conferencing, social networking, driver identification by finger print reading or visual confirmation, fuel efficiency calculator, location based services, news feeds and the likes may be developed.

(Sundaram, Ex. 1027, [0020]-[0021].)

364. Thus, it is my opinion that Sundaram in combination with Penilla renders the limitation "*wherein the persona* [usage/user's profile] *comprises one or more of bioinformatics* [biometric information, e.g., fingerprint reading]*, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content"* of the '239 Patent obvious.

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366. Intentionally left blank.

[25b] wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination, and

367. Sundaram discloses that the vehicle 102 includes sensors 238. (Sundaram, Ex. 1027, [0041].) As illustrated in Figure 2, the "[s]ensors 238 are connected to processing engine 202 via vehicle interface 218." (Sundaram, Ex. 1027, [0041].) Sundaram further discloses that the "[i]n-vehicle computer 104 … records all the inputs related to vehicle 102 and user's driving patterns . . . includ[ing] . . . driving characteristics of the user such as speed and the likes." (Sundaram, Ex. 1027, [0022].)

> Sensors 238 reside in vehicle 102 and include without limitation fuel level sensor, door open close sensor, knock sensor, flat tire sensor, etc. Sensors 238 are connected to processing engine 202 via vehicle interface 218. ECU 240 controls and monitors engine 242 and other components of vehicle 102 which interact with engine 242. ECU 240's OBD and CAN interfaces are used by in-vehicle computer to connect to ECU 240. By interacting with ECU 240, in-vehicle computer 104 may also control vehicle 102 in a similar manner as auto pilot mode for flights by making decisions based on information gathered through various communication mediums such as traffic surveillance, peer vehicles 110, condition of roads, speed limits for different roads etc.

(Sundaram, Ex. 1027, [0041].)

> In-vehicle computer 104 may further act as a black box for vehicle 102 as it records all the inputs related to vehicle 102 and user's driving patterns. These inputs include without limitation audio and video feeds of the user while using vehicle 102, driving characteristics of the user such as speed and the likes. In an embodiment these inputs are stored in a remote storage system.

(Sundaram, Ex. 1027, [0022].)

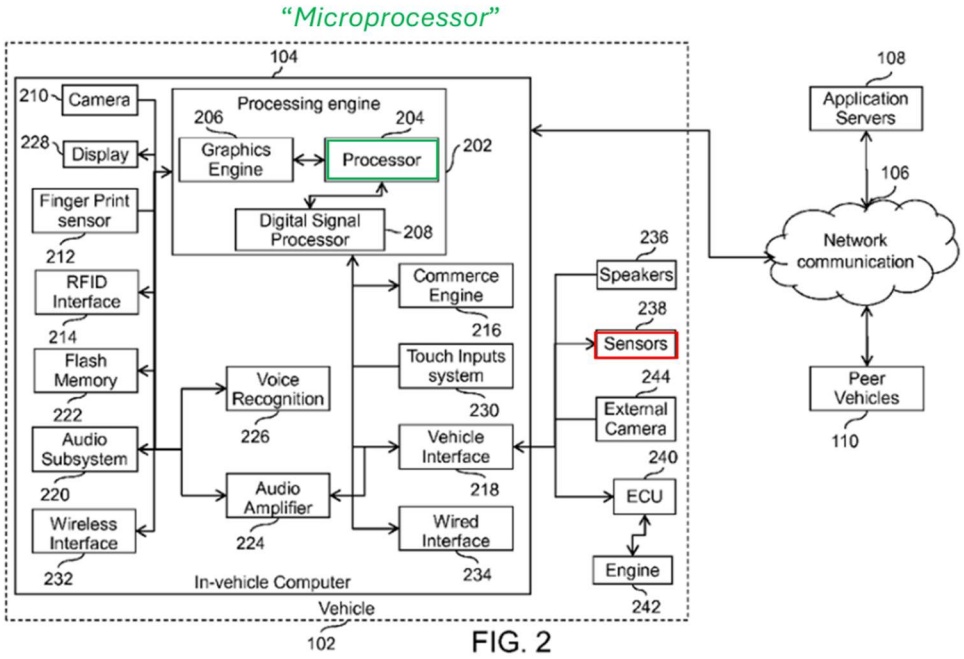


FIG. 2

Sundaram, Ex. 1027, Fig. 2

368. The '239 Patent explains that a vehicle state includes movement of the vehicle such as vehicle speed, acceleration and deacceleration. The '239 Patent explains that "[t]he vehicle 104 can include a number of sensors in wireless or wired communication with the vehicle control system 204 and/or display device 212, 248 to collect sensed information regarding the vehicle state, configuration, and/or

operation." ('239 Patent, Ex. 1001, 39:12-16.) Further Sundaram discloses "[e]xemplary sensors may include one or more of, but are not limited to, wheel state sensor 660 to sense one or more of vehicle speed, acceleration, deceleration[.]" ('239 Patent, Ex. 1001, 39:16-18.) A PHOSITA would have understood that this passage discloses that *vehicle state* includes vehicle speed and acceleration. Indeed, the description describes speed sensors, which are used to "collect sensed information regarding the vehicle state." ('239 Patent, Ex. 1001, 39:12-18.)

369. Sundaram discloses that in-vehicle computer 104 through the code ("*vehicle control system*") executed by a processor ("*microprocessor*") determines ("*determining*") the operational state of a vehicle including vehicle speed:

> H. A system comprising a vehicle and a remote server,
>
> in which the vehicle is operable to: determine a first operational state of the vehicle;
>
> transmit to the remote server an indication of the first operational state;
>
> receive from the remote server an indication of a suggested second operational state for the vehicle; and
>
> effectuate the second operational state, and
>
> in which the remote server is operable to:
>
> receive from the vehicle an indication of the first operational state;
>
> determine a second operational state that would improve performance of the vehicle; and

transmit an indication of the second operational state to the vehicle.

H.1 The system of embodiment H in which the first operational state includes one of: (a) an engine speed; (b) a driving speed; (c) a power distribution among wheels of the vehicle: (d) a gear; (e) percentage use of a gas-powered engine; and (f) a percentage use of an electric engine.

(Sundaram, Ex. 1027, [0154]-[0163].)

370. Hence, a PHOSITA would have understood that Sundaram discloses the determination of "*vehicle-related information*" comprising "*vehicle state*" in the form of vehicle driving speed.

371. Sundaram further teaches a system that can determine the environmental state of the vehicle, including vehicle location.

H.2 The system of embodiment H,

in which the vehicle is further operable to:

determine an environmental state; and

transmit the environmental state to the remote server, and

in which the remove server, in determining the second operation state, is operable to determine the second operational state based on the environmental state.

H.3 The system of embodiment H.2 in which the environmental state includes one of: (a) a weather condition; (b) a road condition; (c) a

presence of potholes (d) a traffic condition; (e) a location, (f) an altitude; (g) a road incline; and (h) a road curvature.

(Sundaram, Ex. 1027, [0163]-[0167].)

372. Sundaram further teaches a system that can determine the environmental state of the vehicle, including vehicle location:

In-vehicle computer 104 includes processing engine 202, camera 210, finger print sensor 212, RFID interface 214, commerce engine 216, vehicle interface 218, audio subsystem 220, flash memory 222, audio amplifier 224, voice recognition 226, display 228, touch inputs 230, wireless interface 232 and wired interface 234. Processing engine 202 further includes processor 204, graphics engine 206 and digital signal processor 208. Vehicle 102 includes speakers 236, sensors 238, ECU (engine control unit) 240, engine 242 and external camera 244 which interact with in-vehicle computer 104.

(Sundaram, Ex. 1027, [0027].)

Wireless interface 232 includes without limitation GPS, GSM, Wi-Fi, WiMax, Bluetooth, radio frequency systems. GPS (global positioning system) uses satellite to triangulate the location of vehicle 102. Here the location triangulation is not limited to GPS, and inputs from other location systems may also be used to approximate the location of vehicle 102.

(Sundaram, Ex. 1027, [0039].)

H.2 The system of embodiment H,

in which the vehicle is further operable to:

determine an environmental state; and

transmit the environmental state to the remote server, and

in which the remove server, in determining the second operation state, is operable to determine the second operational state based on the environmental state.

H.3 The system of embodiment H.2 in which the environmental state includes one of: (a) a weather condition; (b) a road condition; (c) a presence of potholes (d) a traffic condition; (e) a location, (f) an altitude; (g) a road incline; and (h) a road curvature.

(Sundaram, Ex. 1027, [0163]-[0167].)

373. Accordingly, it would have been obvious to a PHOSITA that Sundaram further teaches "*vehicle-related information*" in the form of the claimed vehicle "*location*".

374. Thus, it is my opinion that Sundaram in combination with Penilla renders the limitation "*wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination, and*" of the '239 Patent obvious.

375. Intentionally left blank.

[25c] wherein the action is one or more of making an appointment, making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar,

changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time.

376. Sundaram discloses that the in-vehicle computer 104 controls the vehicle 102's behavior (e.g., providing alerts when over speeding) ("action"):

> In various embodiments, if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed limit that has been set for him), the vehicle may respond. The vehicle's response may include one or more of the following: (a) preventing the user from going outside the bounds (e.g., preventing the user from exceeding a specified speed limit); (b) alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert); (c) alert a third party about the user's actions (e.g., alert a parent of the user; e.g., alert authorities); (d) penalizing the user in some way (e.g., denying access for the user to a preferred radio station).

(Sundaram, Ex. 1027, [0019].)

377. Further, a PHOSITA would have understood alerting the user as "*warning the occupant*" or "*notifying the occupant*" because the user being told they are approaching their limit or have surpassed their limit is a reminder of the limit. The alert serves as a warning to slow down and a notification that a user is at or surpassing a predetermined speed. Also, a PHOSITA would have understood that

"*warning an occupant*" or "*notifying the occupant*" would have overlapping understanding as "*providing a reminder to the selected vehicle occupant*" as in claim 1 and the limitations would be each satisfied by the alerts disclosed in Sundaram.

378. Sundaram further discloses the processor 204 alerting the user if they appear sleepy eyed:

> Camera 210 is interfaced to processor 204 and pro vides visual input to processor 204. Camera 210 is a type of CMOS, CCD or other imaging sensors. Camera 210 may be optimally used in low light conditions as ambient light in vehicle 102 is generally low. Camera 210 enables the user to have video conferencing and video calls. Inputs provided by camera 210 to processor 204 include without limitation, driver identification, driver status while driving vehicle 102 and the likes. For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram Ex. 1027, [0031].)

379. For similar reasons as shown above a PHOSITA would have understood that "*warning an occupant*" or "*notifying the occupant*" would have overlapping understanding as "*providing a reminder to the selected vehicle*

occupant" as in claim 1 and all three limitations would be satisfied by the alerts disclosed in Sundaram. The alert to the sleepy-eyed driver would serve to "*warn*" them to take a break or "*notify*" them they are exhibiting indications of tiredness.

380. Thus, it is my opinion that Sundaram in combination with Penilla render the limitation "*wherein the action is one or more of making an appointment, making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant* [alert], *notifying the occupant* [alert], *and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time*[,]" of the '239 Patent as obvious.

381. Intentionally left blank.

382. Intentionally left blank.

7. Independent Claim 26

383. I have given each of the limitations of claim 26 a unique numerical identifier, as shown in the chart below:

26[pre] A vehicle, comprising:	**24[pre]** A method, comprising:
[26a] a microprocessor executable profile identification module	**[24a]** maintaining, by a microprocessor executable profile

operable to maintain a persona of a vehicle occupant; and	identification module, a persona of a vehicle occupant; and
[26b] a microprocessor executable vehicle control system operable, based on the persona of the vehicle occupant and vehicle-related information, to perform an action assisting the vehicle occupant,	**[24b]** based on the persona of the vehicle occupant and vehicle-related information, performing, by a microprocessor executable vehicle control system, an action assisting the vehicle occupant,
[26c] wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.	**[13]** wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

384. As illustrated above, claim limitations [26a]-[26b] are nearly identical to corresponding limitations of claim 24. The only difference being the "vehicle" limitation of 26[pre], which is addressed below. Also illustrated above, claim limitation [26c] is nearly identical to corresponding limitations of claim 13. The difference in the limitations is claim 13 depends on claim 8 and claim 26 is independent, but both claims are directed to vehicles.

26[pre] A vehicle, comprising:

385. Sundaram discloses various systems including a vehicle 102, Sundaram also includes disclosures about the in-vehicle integrated application platform, in-vehicle computer 104, and interactions between peer vehicles:

> FIG. 2 is a schematic illustrating an in-vehicle integrated application platform in accordance with various embodiments. The in-vehicle integrated application platform comprises in-vehicle computer 104 and its connections with vehicle 102.

(Sundaram, Ex. 1027, [0026].)

> Peer vehicles 110 are cars and other transportation vehicles with which are in the vicinity of vehicle 102. Vehicle 102 is capable of interacting with peer vehicles 110 to enable the communication and data transfer. In an embodiment, the user of vehicle 102 may communicate with passengers of peer vehicles 110 by video conferencing, voice call, text messages, alerts, greetings, games etc. Further, in another embodiment, in-vehicle computer 104 enables communication and transfer of

> information to and from peer vehicles 110 such as car position, speed, traffic alerts etc.

(Sundaram, Ex. 1027, [0025].)

386. Thus, Sundaram discloses a "*vehicle*".

387. Intentionally left blank.

[26a] a microprocessor executable profile identification module operable to maintain a persona of a vehicle occupant; and

388. Due to the similarities between limitation [26a] and limitation [24a], it is my opinion that Sundaram renders [26a] obvious for the same reasons it is my opinion that Sundaram renders limitation [24a] obvious.

[26b] a microprocessor executable vehicle control system operable, based on the persona of the vehicle occupant and vehicle-related information, to perform an action assisting the vehicle occupant,

389. Due to the similarities between limitation [26b] and limitation [24b], it is my opinion that Sundaram renders [26b] obvious for the same reasons it is my opinion that Sundaram renders limitation [24b] obvious.

[26c] wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

390. Due to the similarities between limitation [26c] and limitation [13], it is my opinion that Sundaram renders [26c] obvious for the same reasons it is my opinion that Sundaram renders limitation [13] obvious.

8. Dependent Claim 27

391. I have given each of the limitations of claim 27 a unique numerical identifier, as shown in the chart below:

[27a] The method of claim 26, wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content,	**[25a]** The method of claim 24, wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content,
[27b] wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current,	[25b] wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current,

and/or intended path of travel, waypoint, and destination, and	and/or intended path of travel, waypoint, and destination, and
[27c] wherein the action is one or more of making an appointment, making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time.	**[25c]** wherein the action is one or more of making an appointment, making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time.

392. As illustrated above, claim limitations [27a]-[27c] are nearly identical to corresponding limitations of claim 25. The only difference being claim 25 depends from claim 24 and claim 27 depends from claim 26. Both claims also share

the preamble for their respective claim dependencies, however this does not change my analysis.

[27a] The method of claim 26, wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content,

393. Due to the similarities between limitation [27a] and limitation [25a], it is my opinion that Sundaram renders [27a] obvious for the same reasons it is my opinion that Sundaram renders limitation [25a] obvious.

[27b] wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination, and

394. Due to the similarities between limitation [27b] and limitation [25b], it is my opinion that Sundaram renders [27b] obvious for the same reasons it is my opinion that Sundaram renders limitation [25b] obvious.

[27c] wherein the action is one or more of making an appointment, making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time.

395. Due to the similarities between limitation [27c] and limitation [25c], it is my opinion that Sundaram renders [27c] obvious for the same reasons it is my opinion that Sundaram renders limitation [25c] obvious.

9. Independent Claim 28

396. I have given each of the limitations of claim 28 a unique numerical identifier, as shown in the chart below:

28[pre] A tangible and non-transient computer readable medium comprising microprocessor executable instructions that, when executed, perform functions comprising:	
[28a] maintaining a persona of a vehicle occupant;	**[24a]** maintaining, by a microprocessor executable profile identification module, a persona of a vehicle occupant; and
[28b] based on the persona of the vehicle occupant and vehicle-related information, perform an	**[24b]** based on the persona of the vehicle occupant and vehicle-related information, performing, by a

action assisting the vehicle occupant,	microprocessor executable vehicle control system, an action assisting the vehicle occupant,
[28c] wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination, and	**[25a]-[25b]** The method of claim 24, wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination, and
[28d] wherein the action is one or more of making an appointment,	**[25c]** wherein the action is one or more of making an appointment,

making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time and	making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time.
[28e] wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or	**[13]** The vehicle of claim 8, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes

home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.	with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

397. As illustrated above, claim limitations [28a]-[28b] are nearly identical to corresponding limitations of claim 24. The only difference being the preambles which are addressed below. Continuing claim limitations [28c]-[28d] are nearly identical to claim 25. The only differences being claim 25 depends on claim 24 and claim 28 is independent. Finally, claim limitation [28e] is nearly identical to the corresponding limitations of claim 13. The only difference being claim 13 depends on claim 8 and claim 28 is independent.

28[pre] A tangible and non-transient computer readable medium comprising microprocessor executable instructions that, when executed, perform functions comprising:

398. Sundaram discloses a computer readable medium ("[*a*] *tangible and non-transient computer readable medium*") containing computer code ("*microprocessor executable instructions*") and a processor operable to execute the computer code to do ("*perform*") various actions ("*functions*"):

P. A vehicle comprising:

a sensor:

an antenna;

a control system operable to receive electronic signals and actuate systems of the vehicle based on the received electronic signals;

a computer readable medium containing computer code;

a processor operable to execute the computer code to:

transmit via the antenna an indication of the vehicle's location to a central server;

transmit via the antenna an indication of an operating parameter of the vehicle;

receive via the antenna, a command to modify the operating parameter of the vehicle:

receive information available in the vehicle:

receive data;

determine processed information by combining the information available in the vehicle and the data received;

relay processed information to the user; and

modify the operating parameter of the vehicle based on the received command.

(Sundaram, Ex. 1027, [0236]-[0249].)

399. Thus, Sundaram discloses "[*a*] tangible and non-transient computer readable medium[.]"

400. Intentionally left blank.

401. Intentionally left blank.

[28a] maintaining a persona of a vehicle occupant;

402. Sundaram discloses a user of a vehicle 102 ("*vehicle occupant*") being a passenger or driver of a vehicle 102:

> By accessing these computing and control devices in vehicle 102, in-vehicle computer 104 may control vehicle 102's behavior to personalize the vehicle according to its user's needs and requirements. Further, in-vehicle computer 104, by taking inputs from vehicle 102's gyrometer, may adjust vehicle 102's behavior to enhance comfort of the user and warn the user about the road conditions. User of vehicle 102 may be a driver or a passenger of vehicle 102. In some embodiments, in vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide ser vices to the user and also make control decisions for vehicle 102.

(Sundaram, Ex. 1027, [0017].)

403. According to the '239 Patent a "*persona*" comprises one or more of, inter alia, bioinformatics, personal information, and private information. Sundaram teaches that: "Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102." (Sundaram, Ex. 1027, [0020].) Each of the user's voice, face, and fingerprint as taught in Sundaram, are bioinformatics, personal information, private information,

in the context of the ’239 Patent. Since the challenged claim limitation requires “*one or more of*” these, Sundaram teaches “*a persona*.” Furthermore, a PHOSITA would have understood “visual recognition” as disclosed in Sundaram includes a user’s face, clothing, or appearance since this is the type of information that would have been captured on a camera. (*See* Sundaram, Ex. 1027, [0020].) This is further evidenced by Sundaram teaching using a camera for driver identification as well as using inputs from a driver, (i.e., sleepy eyed), to determine if assistance is required. (*See* Sundaram, Ex. 1027, [0031].)

404. The ’239 Patent provides various other examples of a “*persona*” such as “his or her physical, psychological, mental and other characteristics, needs, desires, behavior, personality, goals, habits, biometric information, likes or interests, dislikes, preferences, and the like.” (’239 Patent, Ex. 1001, 81:50-53.) The ’239 Patent further discloses that “a vehicle occupant's persona can include the information in one or more of the profile data 252 of the person, device data 220 associated with the person, stored data 232, system data 208, and information related to the person as collected by vehicle interior and exterior sensors.” (’239 Patent, Ex. 1001, 81:64-82:1.)

405. Sundaram discloses that:

> In-vehicle computer 104 enables the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102

> and another other user with a different set of features. The features corresponding to a usage profile may include without limitation, vehicle 102's speed, air-conditioning, volume of speakers, and the like.

(Sundaram, Ex. 1027, [0018].)

406. Consistent with the use of the terms in the '239 Patent, a PHOSITA would have understood that Sundaram's disclosure of the identity or identifying characteristics of a user, such as fingerprints or images, would have been a part of the persona of the vehicle occupant, because it would have been required to allow the system to determine who is the user. Further, Sundaram's teaching of a user profile that includes this biometric information to identify the user so that a particular user's preferences are applied, demonstrates that Sundaram teaches the claimed "*persona*."

407. The '239 Patent discloses that "[t]he maintaining of the persona can include collecting information from one or more vehicle sensors and/or from a remote information source." ('239 Patent, Ex. 1001, 13:4-6.) Sundaram teaches several sensors in the vehicle, which are able to sense identification of a user to allow the described to collect information about the user. For example, Sundaram teaches "authenticating user's identity from input by camera 210 or finger print sensor 212 or through any other input sources available to in-vehicle computer 104[.]" (Sundaram, Ex. 1027, [0034].)

408. Specifically, Sundaram discloses details regarding use of a finger print sensor to collect information for user authentication:

> Finger print sensor 212 provides user authentication input to processor 204. Finger print sensor 212 may be based on technologies such as capacitive, resistive, RF (radio frequency) etc. Further, finger print sensors 212 may be swipe or scan sensors, which are capable of weeding out dead fingers, and handling grease and other harsh operating conditions. AES1711 is an example of finger print sensor 212.

(Sundaram, Ex. 1027, [0032].)

409. Sundaram further discloses use of the camera for collecting information about a driver's driving status and moods:

> For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram, Ex. 1027, [0031].)

Sundaram further discloses the vehicle receiving preferences, in the form of music, from a desktop ("*remote source*") in their house.

> For example, in case the user's vehicle 102 is nearby his/her house which has user's desktop, in-vehicle computer 104 on detecting the

> desktop through Wi-Fi technology will synchronize the music files of the desktop with in-vehicle computer 104's memory, therefore enabling the user to listen to his/her favorite music while driving.

(Sundaram, Ex. 1027, [0039].)

410. Additionally, Sundaram expressly discloses the "*maintaining*" of a user's profile on the in-vehicle computer 104 or online:

> Further, in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102. For example, the user is identified by in-vehicle computer 104 as soon as the user sits in vehicle 102 and keeps his/her hand on the steering, a finger-print sensor mounted on the steering wheel identifies the user and user's predefined usage profile is enabled. The user's profile may also be maintained online thus enabling the user to access his/her usage profile in different vehicles 102. In an embodiment, in-vehicle computer 104 builds user's usage profile based on previous usage data stored with in-vehicle computer.

(Sundaram, Ex. 1027, [0020].)

411. Sundaram's in-vehicle computer can take the form of a "programmed microprocessor" or a processing machine that "executes a set of instructions." (*See* Sundaram, Ex. 1027, [0013].) Consequently, Sundaram renders obvious "maintaining, by a microprocessor executable profile identification module, a persona." The terms "user's profile" and "usage profile" refer to identifying

information and vehicle settings of an individual respectively. (*See* Sundaram, Ex. 1027, [0018], [0020].) A PHOSITA would have understood in combination of the user's profile and the usage profile in Sundaram to constitute a persona as defined in the '239 Patent as shown below.

412. Sundaram discloses that the vehicle 102 includes an in-vehicle computer 104 which in turn includes a processing engine 202 which includes processor 204, thus when Sundaram remarks about any of these components doing a processor function a PHOSITA would have understood that a processor executed computer instructions/code to effectuate the corresponding function. A PHOSITA would have understood this because Sundaram explicitly discloses the relationship between the components and discloses nearly all the functions attributed to the vehicle and in-vehicle computer to a processor in the embodiments section. (*See* Sundaram, Ex. 1027, [0017], [0027]-[0028].) Sundaram discloses that a microprocessor is an example of a processing machine that can execute instructions and can be the form of various embodiments disclosed in Sundaram. (*See* Sundaram, Ex. 1027, [0013].)

413. Intentionally left blank.

414. Intentionally left blank.

[28b] based on the persona of the vehicle occupant and vehicle-related information, perform an action assisting the vehicle occupant,

415. Sundaram teaches generating ("*performing*") an alert to the user that they are driving above the speed limit ("*an action*") based on their user profile ("*persona*") and the vehicle speed ("*vehicle-related information*"):

> In-vehicle computer 104 enables the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features. The features corresponding to a usage profile may include without limitation, vehicle 102's speed, air-conditioning, Volume of speakers, and the like. For example, suppose vehicle 102 is used by two different drivers, namely D1 and D2. Now suppose D1 is very experienced in driving and can effortlessly control vehicle 102 at high speeds, however D2 is learning to drive and thus should not drive at higher speeds. In order to ensure that D2 does not drive beyond a certain specified speed, say 60 km/hr, D1 can define settings of vehicle 102 such that vehicle 102 identifies the driver and allows different speed limits for different drivers. In this case, the speed limit for D2 will be set as 60 km/hr in in-vehicle computer 104 and for D1 there will be no speed limit. Therefore vehicle 102 is personalized based on the user of vehicle 102. Similarly various other settings may be defined by the user to personalize vehicle 102 for user's specific needs and requirements.
>
> In various embodiments, if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed

> limit that has been set for him), the vehicle may respond. The vehicle's response may include one or more of the following: (a) preventing the user from going outside the bounds (e.g., preventing the user from exceeding a specified speed limit); (b) alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert); (c) alert a third party about the user's actions (e.g., alert a parent of the user; e.g., alert authorities); (d) penalizing the user in some way (e.g., denying access for the user to a preferred radio station).

(Sundaram, Ex. 1027, [0018]-[0019].)

416. Sundaram also teaches alerting the user that they are driving while sleepy eyed ("*action*") based on their appearance stored in their user profile ("*persona*") and the vehicle being driven, which implies some speed as an alert that a sleepy-eyed person is in a stationary vehicle would not improve safety or have a behavior changing affect, ("*vehicle-related information*"):

> For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram, Ex. 1027, [0031].)

417. A PHOSITA would have understood that a system's action depending on who the user is and depending on the speed of the vehicle is "*based on the persona of selected vehicle occupant and the vehicle-related information."* Further, a PHOSITA would have understood that Sundaram's disclosure of alerting when certain speed limits are exceeded based on who is identified as the driver (based on the *persona*) or if the driver looks sleepy-eyed compared to their stored facial appearance (based on the persona) constitutes the claimed "*assistance to provide the selected vehicle occupant, the type of assistance not being based on or in response to a preceding request of the selected vehicle occupant*." A PHOSITA would have understood the sleepy-eyed entertainment alert based on a user's identified gestures and moods compares a current appearance to the appearance of a user/driver stored in their user profile to determine if they look sleepy-eyed and provide a corresponding entertainment alert tailored to that user. A PHOSITA would have understood the sensors that determine vehicle speed can also determine if the vehicle is moving at all as a vehicle registering zero mph will not be moving. This indication of movement then shows that the vehicle is being driven, as vehicles under proper usage conditions are in movement are being driven, which triggers the driver status updates such as a check if the driver is sleepy eyed. Indeed, by enforcing these personal speed limits, the system in Sundaram is providing speed control assistance to the user to ensure the user does not inadvertently exceed a desired speed limit,

and by providing alerts when the driver appears sleepy-eyed the system is providing a safety alert ensuring a user does not drive while asleep, which both could lead to legal ramifications or safety concerns.

418. Thus, is it my opinion Sundaram renders the limitation, "*based on the persona* [user's profile/user's profile] *of the vehicle occupant* [user] *and vehicle-related information* [vehicle speed], *perform* [generating] *an action* [alert] a*ssisting the vehicle occupant* [user]," of the '239 Patent obvious.

419. Intentionally left blank.

420. Intentionally left blank.

[28c] wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination, and

421. The '239 Patent explains that a vehicle state includes movement of the vehicle such as vehicle speed, acceleration and deacceleration. The '239 Patent explains that "[t]he vehicle 104 can include a number of sensors in wireless or wired communication with the vehicle control system 204 and/or display device 212, 248 to collect sensed information regarding the vehicle state, configuration, and/or

operation. Exemplary sensors may include one or more of, but are not limited to, wheel state sensor 660 to sense one or more of vehicle speed, acceleration, deacceleration[.]" ('239 Patent, Ex. 1001, 39:12-18.) A PHOSITA would have understood that this passage discloses that vehicle state includes vehicle speed and acceleration. Indeed, the description describes speed sensors, which are used to "collect sensed information regarding the vehicle state." ('239 Patent, Ex. 1001, 39:12-18.)

422. Sundaram discloses that in-vehicle computer 104 through the code ("*vehicle control system*") executed by a processor ("*microprocessor*") determines ("*determining*") the operational state of a vehicle including vehicle speed:

> H. A system comprising a vehicle and a remote server,
>
> in which the vehicle is operable to:
>
> determine a first operational state of the vehicle;
>
> transmit to the remote server an indication of the first operational state;
>
> receive from the remote server an indication of a suggested second operational state for the vehicle; and
>
> effectuate the second operational state, and in which the remote server is operable to:
>
> receive from the vehicle an indication of the first operational state;
>
> determine a second operational state that would improve performance of the vehicle; and

transmit an indication of the second operational state to the vehicle.

H.1 The system of embodiment H in which the first operational state includes one of: (a) an engine speed; (b) a driving speed; (c) a power distribution among wheels of the vehicle: (d) a gear; (e) percentage use of a gas-powered engine; and (f) a percentage use of an electric engine.

(Sundaram, Ex. 1027, [0154]-[0163].)

423. Hence, a PHOSITA would have understood that Sundaram discloses the determination of "*vehicle-related information*" comprising "*vehicle state*" in the form of vehicle driving speed.

424. Sundaram further teaches a system that can determine the environmental state of the vehicle, including vehicle location.

The system of embodiment H,

in which the vehicle is further operable to:

determine an environmental state; and

transmit the environmental state to the remote server, and

in which the remove server, in determining the second operation state, is operable to determine the second operational state based on the environmental state.

H.3 The system of embodiment H.2 in which the environmental state includes one of: (a) a weather condition; (b) a road condition; (c) a

> presence of potholes (d) a traffic condition; (e) a location, (f) an altitude; (g) a road incline; and (h) a road curvature.

(Sundaram, Ex. 1027, [0163]-[0167].)

425. Sundaram further discloses that in-vehicle computer 104 includes a wireless interface 232 that is used to calculate the location of vehicle 102 ("*vehicle-related information*") and it would have been obvious to a PHOSITA that Sundaram further teaches "*vehicle-related information*" in the form of the claimed "*vehicle location*":

> In-vehicle computer 104 includes processing engine 202, camera 210, finger print sensor 212, RFID interface 214, commerce engine 216, vehicle interface 218, audio subsystem 220, flash memory 222, audio amplifier 224, voice recognition 226, display 228, touch inputs 230, wireless interface 232 and wired interface 234. Processing engine 202 further includes processor 204, graphics engine 206 and digital signal processor 208. Vehicle 102 includes speakers 236, sensors 238, ECU (engine control unit) 240, engine 242 and external camera 244 which interact with in-vehicle computer 104.

(Sundaram, Ex. 1027, [0027].)

> Wireless interface 232 includes without limitation GPS, GSM, Wi-Fi, WiMax, Bluetooth, radio frequency systems. GPS (global positioning system) uses satellite to triangulate the location of vehicle 102. Here the location triangulation is not limited to GPS, and inputs from other

> location systems may also be used to approximate the location of vehicle 102.

(Sundaram, Ex. 1027, [0039].)

426. According to the ’239 Patent a “*persona*” comprises one or more of, inter alia, bioinformatics, personal information, and private information. (*See* ’239 Patent, Ex. 1001, 12:32-35.) Sundaram teaches that “in various embodiments, the user is identified by in-vehicle computer 104 through visual recognition using a camera, voice recognition, finger print identification etc. and user's profile is automatically enabled in vehicle 102.” (Sundaram, Ex. 1027, [0020].) Each of the user’s voice, face, and fingerprint as taught in Sundaram, are “*bioinformatics*”, “*personal information*”, “*private information*”, in the context of the ’239 Patent. The ’239 further explains “an occupant’s persona includes information such as “likes or interests, dislikes, preferences, and the like.” (’239 Patent, Ex. 1001, 81:48-53.) Since the challenged claim limitation requires “one or more of” these, Sundaram teaches “*a persona*”.

427. A PHOSITA would have understood “visual recognition” as disclosed in Sundaram includes a user’s face, clothing, or appearance since this is the type of information that would have been captured on a camera. (*See* Sundaram, Ex. 1027, [0020].) This is further evidenced by Sundaram teaching using a camera for driver identification as well as using inputs from a driver, (i.e., sleepy eyed), to determine

if assistance is required. (*See* Sundaram, Ex. 1027, [0031].) Furthermore, Sundaram discloses "In-vehicle computer 104 enables the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features." (Sundaram, Ex. 1027, [0018].)

428. Consistent with the use of the terms in the '239 Patent, a PHOSITA would have understood that Sundaram's disclosure of the identity or identifying characteristics of a user, such as fingerprints or images, would be a part of the persona of the selected vehicle occupant, because it would be required to allow the system to determine who is the user. Further, Sundaram's teaching of a user profile that includes this biometric information to identify the user so that a particular user's preferences are applied or determine if a driver appears to look differently, for example sleepy, demonstrates that Sundaram teaches the claimed "*persona*."

429. Thus, it is my opinion that Sundaram renders the limitation "*wherein the persona comprises one or more of bioinformatics, medical information, driving history, personal information, private information, travel information, and Internet browsing history and/or browsed content, wherein vehicle related information comprises one or more of vehicle context, state, external surroundings, location, past, current, and/or intended path of travel, waypoint, and destination, and*" of the '239 Patent obvious.

[28d] wherein the action is one or more of making an appointment, making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant, notifying the occupant, and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time and

430. Sundaram discloses the vehicle 102 responding to exceeding a maximum speed of the vehicle 102 and alerting ("*action*") the user of the excess speed of the vehicle 102:

> In various embodiments, if a user attempts to go outside the bounds of certain settings (e.g., if user D1 attempts to exceed a maximum speed limit that has been set for him), the vehicle may respond. The vehicle's response may include one or more of the following: (a) preventing the user from going outside the bounds (e.g., preventing the user from exceeding a specified speed limit); (b) alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert); (c) alert a third party about the user's actions (e.g., alert a parent of the user; e.g., alert authorities); (d) penalizing the user in some way (e.g., denying access for the user to a preferred radio station).

(Sundaram, Ex. 1027, [0019].)

431. Further, a PHOSITA would have understood alerting the user as "*warning the occupant*" or "*notifying the occupant*" because the user being told they are approaching their limit or have surpassed their limit is a reminder of the limit. The alert serves as a warning to slow down and a notification that a user is at or surpassing a predetermined speed. Also, a PHOSITA would have understood that "*warning an occupant*" or "*notifying the occupant*" would have overlapping understanding as "*providing a reminder to the selected vehicle occupant*" as in claim 1 and all three limitations would be satisfied by the alerts disclosed in Sundaram.

432. Sundaram further discloses the processor 204 alerting the user if they appear sleepy eyed:

> Camera 210 is interfaced to processor 204 and pro vides visual input to processor 204. Camera 210 is a type of CMOS, CCD or other imaging sensors. Camera 210 may be optimally used in low light conditions as ambient light in vehicle 102 is generally low. Camera 210 enables the user to have video conferencing and video calls. Inputs provided by camera 210 to processor 204 include without limitation, driver identification, driver status while driving vehicle 102 and the likes. For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's

> moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram Ex. 1027, [0031].)

433. For similar reasons as shown above a PHOSITA would have understood that "*warning an occupant*" or "*notifying the occupant*" would have overlapping understanding as "*providing a reminder to the selected vehicle occupant*" as in claim 1 and all three limitations would be satisfied by the alerts disclosed in Sundaram. The alert to the sleepy-eyed driver would serve to "*warn*" them to take a break or "*notify*" them they are exhibiting indications of tiredness.

434. Thus, it is my opinion that Sundaram in combination with Penilla renders the limitation "*wherein the action is one or more of making an appointment, making a reservation, purchasing an item on line, adding a waypoint or destination to path of travel on a navigation system of the vehicle, adding an entry into the occupant's electronic calendar, changing a destination or path of travel on the navigation system, warning the occupant* [alert], *notifying the occupant* [alert], *and sending a message to a person at a waypoint or destination of the vehicle regarding an arrival time*[,]" of the '239 Patent as obvious.

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[28e] wherein the vehicle obtains the persona from one or more of a different vehicle driven by the occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

437. Due to the similarities between limitation [28c] and limitation [13b], it is my opinion that Sundaram renders [28c] obvious for the same reasons it is my opinion that Sundaram renders limitation [13b] obvious as discussed below.

438. Sundaram discloses the vehicle, through the in-vehicle computer 104, receiving user preferences in the form of music selections/preferences ("*persona*") from a user's desktop computer ("*home computer*"). Sundaram also discloses synchronizing between the vehicle and the home computer to obtain the persona (music preferences). (*See* Sundaram, Ex. 1027, [0039].) Specifically, Sundaram discloses that "in case the user's vehicle 102 is nearby his/her house which has user's desktop, in-vehicle computer 104 on detecting the desktop through Wi-Fi technology will synchronize the music files of the desktop with in-vehicle computer 104's memory, therefore enabling the user to listen to his/her favorite music while driving." (Sundaram, Ex. 1027, [0039].) Thus, Sundaram discloses synchronizing the home computer with the vehicle to obtain information (music files) from a home computer, i.e., the user's desktop.

439. Sundaram further discloses a vehicle, through a processor, receiving preferences from an external device. (*See* Sundaram, Ex. 1027, [0094].) A PHOSITA would have understood the desktop at the user's house to be an example of an external computing device. (*See* Sundaram, Ex. 1027, [0039].) A PHOSITA would have also understood receiving preferences as synchronization, illustrated by my above example of sharing music files between the desktop and the in-vehicle computer to be further evidence that Sundaram discloses synchronizing the home computer with the vehicle to obtain information (persona) from an external device, i.e., the user's desktop.

440. As discussed above, an occupant's persona includes information such as "likes or interests, dislikes, preferences, and the like." ('239 Patent, Ex. 1001, 81:48-53.) Therefore, a PHOSITA would have understood that Sundaram's disclosure of obtaining the user's preferred music files (preferences in music) from the user's desktop computer and user preferences including vehicle settings from an external device (desktop computer) would have represented an example of obtaining the user's persona. Thus, a PHOSITA would have understood that Sundaram discloses obtaining the user's "*persona*" from a "*home computer*."

441. A PHOSITA would have understood that Sundaram alone suggests synchronization (i.e., transfer of files) when the vehicle's ignition is off. Indeed, Sundaram discloses Wi-Fi communication between the in-vehicle computer and the

user's desktop when the vehicle is nearby the user's home, from which a PHOSITA would have understood that the car is parked. Using the home Wi-Fi requires the car to be stationary. This further suggests to a PHOSITA that the ignition is off because users do not typically leave cars running when parked near their home.

442. Additionally, Penilla teaches turning a vehicle ignition off during the communication of data like the music files described in Sundaram. Specifically, Penilla discloses use of communication protocols like Wi-Fi, Bluetooth, 802.11.ac, and 802.11.ad to communicate information to the vehicle. (*See* Penilla, Ex. 1035, 9:5-18.) Penilla additionally discloses that "[t]he communication can be made by vehicle electronics while the vehicle is on or when the vehicle is off, so long as communication and processing circuitry of vehicle electronics has a power source." (Penilla, Ex. 1035, 9:19-22.)

443. Thus, it is my opinion Sundaram combined with Penilla renders the limitation "*wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off*" of claim limitation 28e of the '239 Patent obvious.

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10. Dependent Claim 31

[31] The method of claim 1, wherein the vehicle control system synchronizes with an electronic calendar of the selected vehicle occupant to provide scheduled activity alarms and calendar updates.

446. Claim 31 depends from claim 1, discussed in Ground 1, and thus the analysis for claim 1 is incorporated here.

447. Sundaram discloses a processor executing computer instructions ("*vehicle control system*") synchronizing data from a mobile phone to a vehicle:

> Further, in-vehicle computer 104 communicates with other wired and wireless enabled devices such as mobile phone, laptop etc. and synchronizes data with these devices.

(Sundaram, Ex. 1027, [0039].)

448. Penilla discloses synchronizing the user's online calendar ("*electronic calendar*") and displaying ("*provide*") the calendar appointments and reminders to make purchases ("*schedule activity alarms and calendar updates*"):

> The custom interface 260 may therefore include a hybrid of third-party applications and system applications, all designed to be laid out arranged and provide the look and feel/functionality desired by the user. In this illustration, a third-party app 104 is provided for a calendar. The calendar may be synchronized with a user's online calendar, which automatically populates the users data to the vehicle user interface.

(Penilla, Ex. 1035, 15:53-60.)

449. Penilla further discloses provides scheduled alarms and calendar activities.

> Continuing with the example of FIG. 10, it is shown that several of the components of the custom interface 260 can include applications from 3rd parties, or applications and controls provided by the vehicle manufacturer. In one embodiment, an application provided by third-party, such as an online calendar, can be synchronized with the user's calendar managed by a 3rd party or stored by a 3rd party on a website. For example, if the user uses a cloud service to store his or her calendar, the calendar appointments can also be displayed on the vehicle interface, and are synchronized to the users global calendar settings that are accessible through any computing device. In one embodiment, the daily planner can include data or information for the user, such as reminders to purchase or get certain things. If while the user is driving around those certain things can be purchased or obtained from local merchants, the user can be provided with notifications of availability of those particular things or goods the user desires to purchase.

(Penilla, Ex. 1035, 18:4-22.)

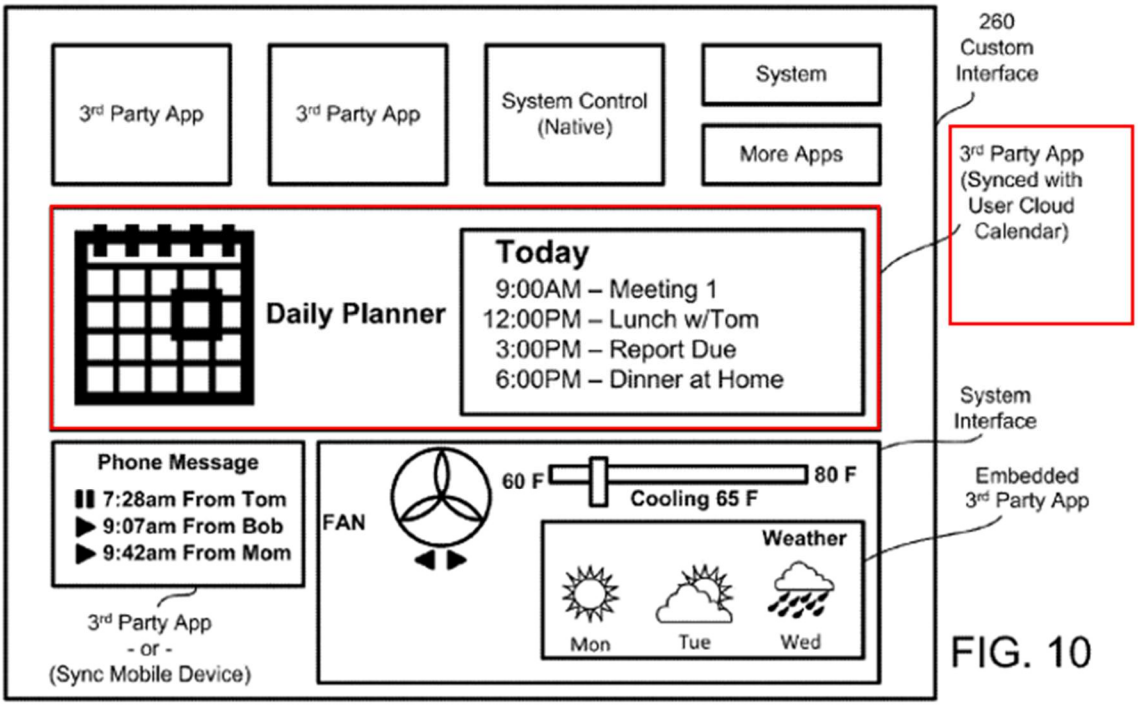
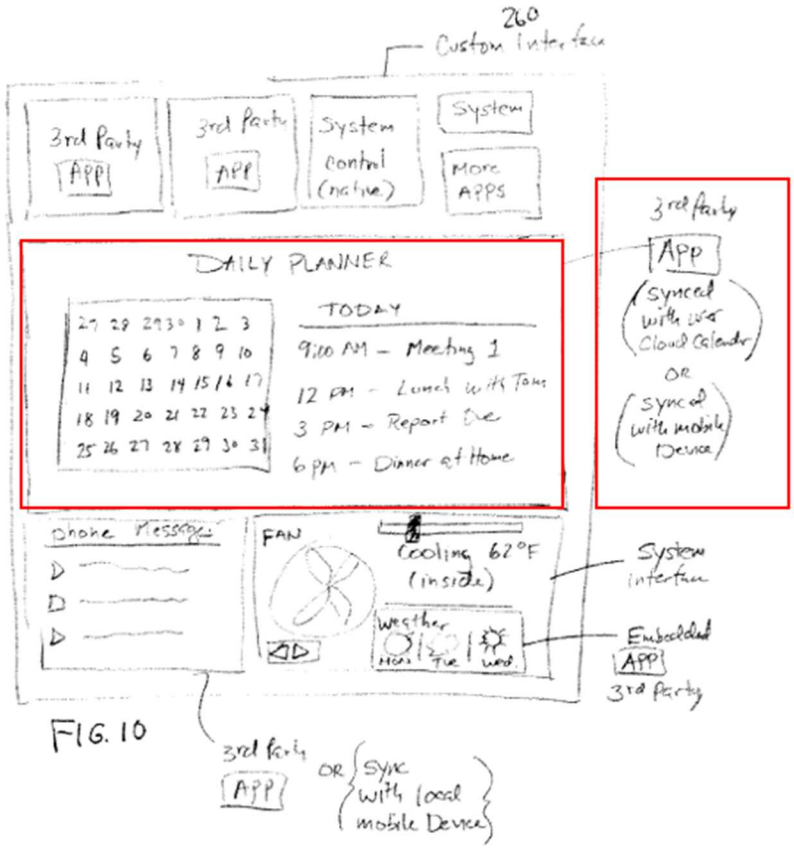


FIG. 10

Penilla, Ex. 1035, FIG 10 (Annotated)



Penilla File History, Ex. 1047, FIG. 10, 105 (Annotated)

450. A PHOSITA would have understood that Sundaram discloses data synchronization between various computer devices, such as a cellular phone and an in-vehicle computer, via a processor. (*See* Sundaram, Ex. 1027, [0054]-[0065].) This synchronization is equivalent to the data synchronization between a vehicle and a portable device as disclosed in Penilla. Sundaram's disclosure includes that potential programs that could be synchronized, and Penilla demonstrates a calendar is one such program. Given Sundaram's disclosure of various alerts, it would have been

obvious to a PHOSITA that alerts for calendar functionality, as disclosed in Penilla, would have been included.

451. Therefore, it is my opinion that Sundaram in combination with Penilla renders the limitation, "[*t*]*he method of claim 1, wherein the vehicle control system synchronizes with an electronic calendar of the selected vehicle occupant to provide scheduled activity alarms and calendar updates*[,]" of the '239 Patent obvious.

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11. Dependent Claim 32

[32] The method of claim 1, wherein the vehicle control system synchronizes data with a wearable of the selected vehicle occupant and at least one of (i) enables the selected vehicle occupant to interact with the wearable via an on board vehicle display and (ii) uses the data received from the wearable as part of the persona of the selected vehicle occupant.

455. Claim 32 depends from claim 1, discussed in Ground 1, and thus the analysis for claim 1 is incorporated here.

456. Sundaram discloses the in-vehicle computer 104 synchronizing information ("*data*") from various wired and wireless enabled devices including a

mobile phones as well as remote controlling ("*interact*") the mobile phones with the in-vehicle computer 104:

> Further, in-vehicle computer 104 communicates with other wired and wireless enabled devices such as mobile phone, laptop etc. and synchronizes data with these devices. In an embodiment, mobile phone of the user may act as a remote control for in-vehicle computer 104. For example, the user can modify his/her driving profile such as speed limits, air-conditioning, volume of speaker etc. by using mobile phone as a remote control for in-vehicle computer. In another embodiment, in-vehicle computer 104 may also act as a remote control for user's mobile.

(Sundaram, Ex. 1027, [0039].)

457. Sundaram also discloses the in-vehicle computer 104 through the display executing computer instructions ("*vehicle control system*") with a processor as the means for user interaction with applications downloaded from devices such a mobile phone:

> E.4.1 The set of computer instructions of embodiment E.4 that, when executed, further cause such processor to download the first application program from one of: (a) the Internet; (b) a portable storage device; (c) a mobile computing device; (d) a cellular phone; (e) a tablet personal computer, (f) a laptop computer, (g) a personal digital assistant; and (h) another vehicle.
>
> E.3 The set of computer instructions of embodiment E that, when executed, further cause such processor to:

instruct a display screen in the vehicle to display an icon representing the first application program;

instruct the display screen in the vehicle to display an icon representing a second application program;

detect a user input;

pass the user input to the first application program.

E.3.1 The set of computer instructions of embodiment E, in which, when causing the processor to detect a user input, cause the processor to:

receive an indication of a user input via at least one of a: (a) touch pad; (b) touch-sensitive display screen; (c) microphone; and (d) camera.

E.3.2 The set of computer instructions of embodiment E, that, when executed, further cause such processor to:

receive an output from the application program; and

instruct the display screen to display the output.

(Sundaram, Ex. 1027, [0054]-[0065].)

458. Furthermore, a Penilla discloses a mobile device, i.e. a smart phone or smart watch, synchronizing with the vehicle 160:

Updates to the settings can then be made at any time by accessing cloud services over the Internet using any device, whether the devices are in the car, of the car, a portable device, a home computer, a work computer, a tablet, a smart phone, a smart watch computer, etc. Also shown in FIG. 7 is an embodiment where a user's smartphone or mobile

> device is synchronized with the user interface of the vehicle 160. In this embodiment, the user's portable device 210 can synchronize and upload content and UI controls from applications stored and running on the portable device 210.

(Penilla, Ex. 1035, 15:11-20.)

> These additional applications can be embedded or overlaid on other applications. In one example, and [sic] embedded application can allow user to embed a weather application, which is synchronized to an Internet service. In other embodiments, other applications such as phone messages, notes and the like, can be synchronized with an Internet application or with a local device.

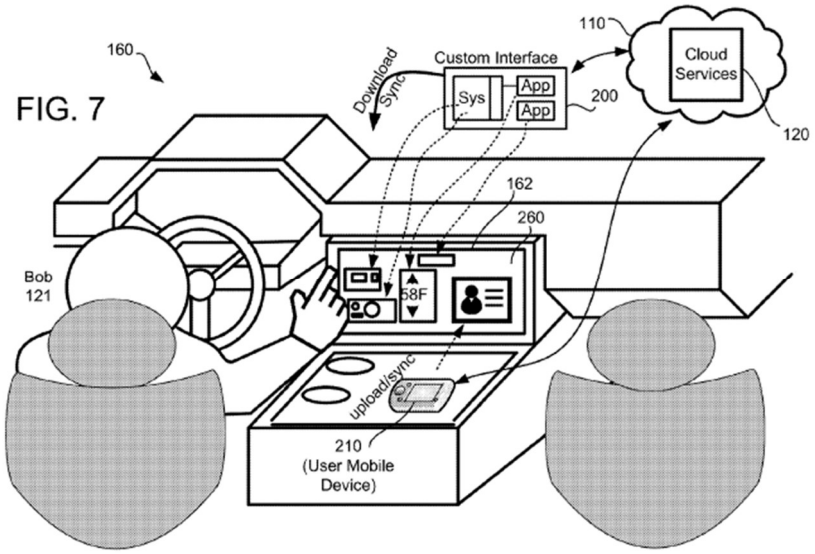
The local device might be the user's mobile phone, the user's computer wristwatch, the user tablet computer, the users laptop computer, or the mobile device of a person inside the vehicle.(Penilla, Ex. 1035, 18:43-53.)

459. Penilla also discloses displaying the functions of the portable device 210 with the display 162:

> Also shown in FIG. 7 is an embodiment where a user's smartphone or mobile device is synchronized with the user interface of the vehicle 160. In this embodiment, the user's portable device 210 can synchronize and upload content and UI controls from applications stored and running on the portable device 210. This provides for safer driving, as the controls shown on the vehicle display can be restricted based on driving or operation status.

> In one embodiment, the user can custom configure to have content from applications running on the portable device 210 to be displayed in the vehicle displayed 162 in a specific location. This location on the display can then be synchronized or mirrored to that part of the display based on the configuration. In still other embodiments, the custom configuration can determine to synchronize an application running on the portal device to occupy the entire display 162. For example, if the user wishes to use his own telephone calling interface and contacts that are stored on the portable device 210, that information can be populated and mirrored to the display device 162, while still using other system components or other applications of the vehicle in the background or in a separate screen that is not currently active. In this example, the portable device 210 as well as the vehicle electronics can communicate with cloud services 120 at the same time, or when specific functions, data or communication is required.

(Penilla, Ex. 1035, 15:15-39.)



Penilla, Ex. 1035, FIG. 7.

460. In view of Penilla, a PHOSITA would have understood that the smart watch described in Penilla would function similar to the other portable devices described in Penilla and Sundaram, as they all generally interconnect and run compatible software. Hence, a PHOSITA would have understood that the smart watch described in Penilla could be used to synchronize with the in-vehicle computer described in Sundaram, much like the other disclosed wireless enabled devices. When synchronized, the smart watch of Penilla would have been able to provide updates like the other devices described in Penilla, including settings information which partially make up the occupant's "*persona*."

461. Thus, it is my opinion Sundaram in combination with Penilla renders the limitation "*wherein the vehicle control system* [computer instructions]

synchronizes data with a wearable [smart watch] *of the selected vehicle occupant* [user] *and at least one of* (i) *enables the selected vehicle occupant to interact* [remote control] *with the wearable via an on board vehicle display* [display 288]" of the '239 Patent obvious.

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12. Dependent Claim 33

465. I have given each of the limitations of claim 33 a unique numerical identifier, as shown in the chart below:

[33a] The method of claim 1, wherein the vehicle control system provides a display to the selected vehicle occupant,
[33b] the display comprising a plurality of selectable applications, an indicator of vehicle-related information, one or more messages for the selected vehicle occupant, a navigation input field for receiving a location-enabled object as a waypoint or destination for a route of travel, contact addresses of persons associated with the selected vehicle occupant, and electronic calendar information for the selected vehicle occupant.

[33a] The method of claim 1, wherein the vehicle control system provides a display to the selected vehicle occupant,

466. Claim 33 depends from claim 1, and thus the analysis for claim 1 is incorporated here.

467. Sundaram discloses a set of computer instructions ("*vehicle control system*") when executed causing a processor to instruct a display screen ("*display*") in the vehicle to display.

> E.4.2 The set of computer instructions of embodiment E that, when executed, further cause such processor to:
>
> receive from a user an indication of the first application program, in which the processor downloads the first application program in response to the indication.
>
> In some embodiments, the operating systems is like a desktop, displaying indications of applications, and allowing the user to click on them or download more.
>
> E.3 The set of computer instructions of embodiment E that, when executed, further cause such processor to:
>
> instruct a display screen in the vehicle to display an icon representing the first application program;
>
> instruct the display screen in the vehicle to display an icon representing a second application program;
>
> detect a user input;

pass the user input to the first application program.

(Sundaram, Ex. 1027, [0054]-[0059].)

468. A PHOSITA would have understood that Sundaram disclosing a display screen in the vehicle would satisfy "*provides a display to the selected vehicle occupant*" as the user ("*selected vehicle occupant*") would have been in the vehicle and able to interact with the screen.

469. Thus, in my opinion Sundaram renders the limitation "[*t*]*he method of claim 1, wherein the vehicle control system provides a display to the selected vehicle occupant*," of the '239 Patent obvious.

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[33b] the display comprising a plurality of selectable applications, an indicator of vehicle-related information, one or more messages for the selected vehicle occupant, a navigation input field for receiving a location-enabled object as a waypoint or destination for a route of travel, contact addresses of persons associated with the selected vehicle occupant, and electronic calendar information for the selected vehicle occupant.

473. Sundaram discloses "[i]n some embodiments, the operating systems is like a desktop, displaying indications of applications, and allowing the user to click

on them or download more[,]" (Sundaram, Ex. 1027, [0055]) which a PHOSITA would also recognize as a "selectable application" as clicking was a common form of selecting at the time of filing of the '239 Patent. Thus, Sundaram discloses "*the display comprising a plurality of selectable applications*[.]"

474. Sundaram also discloses a display screen displaying a driving route ("*vehicle-related information*"): "[I]nstruct a display screen to display the image. O.1.1 The vehicle of embodiment O.1 in which the image depicts a map with a driving route." (Sundaram, Ex. 1027, [0236].)

475. A PHOSITA would have understood a driving route as a "*path of travel*" which is "*vehicle-related information;*" which discloses "*an indicator of vehicle-related information*."

476. Sundaram discloses that display 228 provides the visual output of the in-vehicle computer 104 to the user. (Sundaram, Ex. 1027, [0038].) Sundaram discloses providing services to the user including fax messages and instant messages (Sundaram, Ex. 1027, [0039].) The display functions as the primary visual interface for all graphical and visual data generated by the in-vehicle computer, including outputs from applications, alerts, and communications.

477. Thus, a PHOSITA would have understood any function or component within the in-vehicle computer that requires visual or graphical expression to operate effectively is rendered through this display for example the instant and fax messages.

478. Further Sundaram discloses the display screen that allows for directions to a determined destination to be overlayed on top of map data ("*location-enabled object*") on the display screen: "[T]he processor is further operable to: determine a destination; determine directions to the destination; cause the map data to be projected on the display screen; and cause the directions to be displayed overlayed on top of the map data on the display screen." (Sundaram, Ex. 1027, [0251]-[0255], *see also* [0056]-[0063].)

479. In view of Sundaram's embodiment P.1 a PHOSITA would have understood that to have a destination set and directions to the destination set, a destination would have to be selected to allow for directions to be determined:

> P.1 The vehicle of embodiment P, in which, in executing the computer code, the processor is further operable to:
>
> receive via the antenna, an image from the central server; and
>
> instruct a display screen to display the image.
>
> P.1.1 The vehicle of embodiment P.1 in which the image includes map data, in which the processor is further operable to:
>
> <u>determine a destination;</u>
>
> <u>determine directions to the destination;</u>
>
> <u>cause the map data to be projected on the display screen; and</u>

> cause the directions to be displayed overlayed on top of the map data on the display screen.

(Sundaram, Ex. 1027, [0249]-[0255].)

480. Thus, it is my opinion the display disclosed in Sundaram teaching "*a navigation input field for receiving a location-enabled object as a waypoint or destination for a route of travel*" would have been obvious in light of the disclosure in Sundaram.

481. Sundaram discloses a contact list of vehicles (*"contact addresses of persons associated with the selected vehicle occupant*"), "N.1.1 The vehicle of embodiment N in which the predetermined group of vehicles constitutes a contact list of vehicles. (Sundaram, Ex. 1027, [0223]-.)

482. Further, Penilla discloses populating the display 162 with contacts from a portable device:

> In still other embodiments, the custom configuration can determine to synchronize an application running on the portal device to occupy the entire display 162. For example, if the user wishes to use his own telephone calling interface and contacts that are stored on the portable device 210, that information can be populated and mirrored to the display device 162, while still using other system components or other applications of the vehicle in the background or in a separate Screen that is not currently active.

(Penilla, Ex. 1035,15:28-36.)

483. Based on the above analysis, a PHOSITA would have understood that Sundaram alone and the combination of Sundaram and Penilla both disclose a "*contact addresses of persons associated with the selected vehicle occupant,*" as all forms of disclosed addresses allow for the user to make contact with another person.

484. Sundaram discloses synchronizing data with user devices and downloading application programs from devices that frequently had calendar functionality such as personal digital assistants and cellular phones.

> In an embodiment, Wi-Fi communication is used to enable in-vehicle computer 104 to communicate with other networked computing devices Such as laptops, desktops etc. for synchronizing information between in-vehicle computer 104 and user devices.

(Sundaram, Ex. 1027, [0039].)

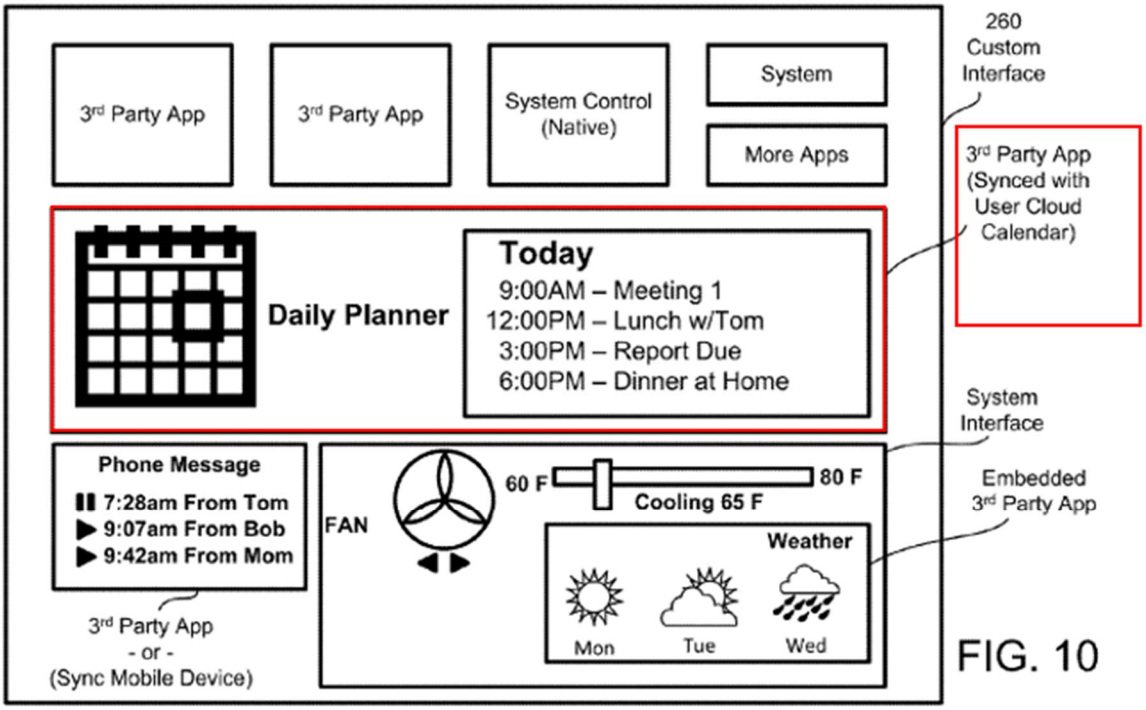
> E.4 The set of computer instructions of embodiment E that, when executed, further cause Such processor to download the first application program. E.4.1 The set of computer instructions of embodiment E.4 that, when executed, further cause Such processor to down load the first application program from one of: (a) the Inter net; (b) a portable storage device; (c) a mobile computing device; (d) a cellular phone; (e) a tablet personal computer, (f) a laptop computer, (g) a personal digital assistant; and (h) another vehicle.

(Sundaram, Ex. 1027, [0054].)

485. Penilla discloses a calendar information being synchronized and displayed on the vehicle display:

> FIG. 8 illustrates an example where a display device 162 of the vehicle will illustrate and render different applications or application components in user-defined locations. In this example, different parts of the display contain different components or applications, which are custom designed or laid out by the user in the custom configuration. In one embodiment, the applications can be third-party applications, which are custom designed to operate with the system component of the vehicle. In this manner, the user can decide to get third party apps 104 to replace certain applications provided by the system.
>
> However, the user that defines the custom configuration can decide to maintain certain system component applications 128. The custom interface 260 may therefore include a hybrid of third-party applications and system applications, all designed to be laid out arranged and provide the look and feel/functionality desired by the user. In this illustration, a third-party app 104 is provided for a calendar.

(Penilla, Ex. 1035, 15:40-57.)



Penilla, Ex. 1035, FIG. 10 (Annotated)

486. Thus, a PHOSITA would have understood Sundaram's disclosed method of downloading and synchronizing information from applications combined with specific application of a calendar as disclosed in Penilla would disclose this limitation. This is further evidenced by the system of Sundaram disclosing the vehicle synchronizing with user devices like laptops and mobile phones (Sundaram, Ex. 1027, [0039]), which a PHOSITA would have known frequently included calendar information.

487. Therefore, it is my opinion Sundaram in combination with Penilla would have rendered the limitation "*the display comprising . . . electronic calendar information for the selected vehicle occupant*[,]" of the '239 Patent obvious.

488. Thus, it is my opinion Sundaram renders the limitation "*the display comprising a plurality of selectable applications, an indicator of vehicle-related information, one or more messages for the selected vehicle occupant, a navigation input field for receiving a location-enabled object as a waypoint or destination for a route of travel, contact addresses of persons associated with the selected vehicle occupant, and electronic calendar information for the selected vehicle occupant*[,]" of the '239 Patent obvious.

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C. Ground 3: Sundaram in combination with Rork render claims 3 and 17 of the '239 Patent obvious

1. Rationale to Combine

496. A PHOSITA would have found it obvious to combine Sundaram's in-vehicle platform with Rork's child seat monitoring system. Sundaram discloses a variety of internal sensors such as "a first sensor proximate to a driver's seat; a second sensor proximate to a passenger's seat[.]" (Sundaram, Ex. 1027, [0121] -[0122].) These sensors provide information to the processor so that actions (including adjustment and alerts) can be made in response to settings in a user profile. (*See* Sundaram, Ex. 1027, [0041].) Sundaram also teaches commands to modify the seating position. (Sundaram, Ex. 1027, [0050].) To a PHOSITA, these teachings are a suggestion to consider adding a child seat to Sundaram's vehicle.

497. Rork discloses a vehicle controller that receives sensor information regarding a child car seat called "SEAT_INFO" and information about the status of other vehicle systems such as the angle of seat inclination. (Rork, Ex. 1036, [0024].) A PHOSITA would have understood that the vehicle system of Sundaram would have been improved by adding the known technique taught by Rork of using sensors regarding the child seat so that the seat can be properly adjusted.

498. Sundaram discloses that the described system can be readily modified for added functionality:

> While example embodiments have been illustrated and described, it will be clear that additional embodiments are contemplated. Numerous modifications, changes, variations, substitutions and equivalents will be apparent to those skilled in the art without departing from the spirit and scope of the described and contemplated embodiments.

(Sundaram, Ex. 1027, [0255].)

499. As demonstrated in the cited language below, Sundaram and Rork are both in the field of vehicle systems with communication between components:

> Methods and systems for providing an integrated platform for entertainment, information, communication, control and computing applications in a vehicle are disclosed.

(Sundaram, Ex. 1027, [0014].)

> In at least one embodiment a vehicle system for communicating with a child seat is provided. The vehicle system comprises a receiver. The receiver is configured for receiving at least one seat sensor signal from a child seat controller. The vehicle system further comprises a controller that is configured for communicating with the receiver for analyzing the at least one seat sensor signal and comparing the seat sensor signal to pre-existing guidelines to determine a status message. The vehicle system further comprises a user interface that is configured for communicating with the controller for displaying the status message.

(Rork, Ex. 1036, [0005].)

500. Sundaram and Rork both provide alerts to the user to increase ease of use of a child car seat within a vehicle:

> For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle.

(Sundaram, Ex. 1027, [0031].)

> The vehicle controller 14 compares the SEATINFO and VEHICLE INFO to a set of predetermined data to determine the status of the vehicle seat system 18 and transmits a corresponding status message to the user interface 16.

(Rork, Ex. 1036, [0025].)

501. Thus, it would have been obvious to combine Sundaram and Rork's systems as the combination would yield predictable benefits. First the system would have improved safety for vehicle occupants by ensuring the seat is properly installed. Secondly, the sensors determining if the seat is installed correctly makes installation of the seat more convenient as the user would not need to blindly adjust.

502. Accordingly, a PHOSITA would have been motivated to combine Sundaram and Rork as Rork's child seat functionality complements very well Sundaram's integrated vehicle platform.

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a. A PHOSITA would have known how to combine Sundaram and Rork

505. A PHOSITA would have understood how to combine Sundaram and Rork and would have had a reasonable expectation of success.

506. Both Sundaram and Rork's vehicles are disclosed to have a processor in the vehicle that interacts with sensors:

> Vehicle 102 includes speakers 236, sensors 238, ECU (engine control unit) 240, engine 242 and external camera 244 which interact with in-vehicle computer 104.

(Sundaram, Ex. 1027, [0027].)

> The vehicle controller 14 receives the SEATINFO data in addition to vehicle data. The receiver 26 is configured to receive the SEATINFO from the seat transmitter 22.

(Rork, Ex. 1036, [0024].)

507. Adding Rork's suite of sensors would have been a straightforward integration, as the sensors are housed within the seat itself yielding a reasonable expectation of success by a PHOSITA. The combination would only require communication between the seat and the in-vehicle computer. Sundaram's in-vehicle computer 104 is shown to receive inputs from sensors (*See* Sundaram, Ex. 1027, [0027]), and Rork's vehicle controller 14 is shown to receive inputs from the seat (*See* Rork, Ex. 1036, [0023]). The vehicle controller 14 is analogous to

Sundaram's in-vehicle computer 104, as it includes a microprocessor performing computing functions (*See* Rork, Ex. 1036, [0020]). Sundaram also discloses displaying outputs of applications (*See* Sundaram, Ex. 1027, [0060]-[0062]). A PHOSITA would have understood how to combine Sundaram and Rork, as their integration would require only a simple connection already disclosed.

b. KSR Factors

508. Several KSR factors also support my opinion that a PHOSITA would have found it obvious to combine the teachings of Sundaram with the teachings of Rork.

509. Combining the prior art elements of Sundaram and Rork could have been done with methods disclosed in both references to yield predictable results. Sundaram integrates multiple sensors for vehicle monitoring and control. Rork discloses sensors associated with a child seat. Combining these elements through known integration methods would have predictably provided users with additional child seat status information, enhancing safety monitoring within Sundaram's system without requiring inventive skill.

510. As I discuss elsewhere in this declaration, the use of sensors in a vehicle had been known to a PHOSITA at least for a decade before the '239 Patent. (*See* ¶98, *supra*). A PHOSITA would have also known that the general technology evolution path is to add more sensors. Rork's seat sensors could have been added to

Sundaram's sensor suite using known methods. Both systems disclose wired and wireless data transfer, and Sundaram's in-vehicle computer 104 already receives sensor input. A PHOSITA would have predictably applied Rork's transmission methods to enable the seat to communicate with Sundaram's system, yielding the expected result of enhanced safety monitoring without modifying how the systems interact. Specifically, the functions of Sundaram's in-vehicle computer with external sensors and Rork's car seat sensors with a vehicle's computer do not have to be modified.

511. It was well known in the art to add sensors to improve functionality. (*See* ¶98, *supra*). Both Sundaram and Rork disclosed methods for connecting a vehicle's computer to sensors. Applying these known techniques to integrate Rork's child seat sensors into Sundaram's system would have predictably allowed the in-vehicle computer to receive signals from the added sensor, improving safety monitoring in the same way similar systems are enhanced.

512. Sundaram's system was ready for improvement in its sensor suite. Sundaram provides an inexhaustive list of sensors, shown by "etc.", and discloses sensors for seat and door positioning (*See* Sundaram, Ex. 1027, [0041]), showing the system encourages additional sensor data. Adding Rork's child seat sensors would have been an obvious choice from a finite set of predictable options, with a

reasonable expectation of success, to improve safety monitoring in the same way Sundaram improved other vehicle functions.

513. The prior art provides clear motivation to combine the features of Sundaram and Rork. There is a constant incentive ease vehicle use, particularly when the user has children, driving innovation in child seat monitoring. Sundaram already integrates multiple sensors for vehicle status, and Rork teaches child seat sensors for proper installation. Common sense and market demand for easier and more consistent child seat installation would have led a PHOSITA to incorporate Rork's sensors into Sundaram's system, yielding predictable improvements in child seat monitoring.

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2. Dependent Claim 3

517. I have given each of the limitations of claim 3 a unique numerical identifier, as shown in the chart below:

[3a] The method of claim 1, wherein the action performed depends on a seating position of the selected vehicle occupant and

[3b] wherein the microprocessor executable vehicle control system senses a condition or activity of another vehicle occupant and notifies the selected vehicle occupant of the condition or activity.

[3a] The method of claim 1, wherein the action performed depends on a seating position of the selected vehicle occupant and

518. Claim 3 depends from claim 1, discussed in Ground 1, and thus the analysis for claim 1 is incorporated here.

519. Sundaram discloses various driver specific assistance provided by the disclosed system, such as an alert when exceeding a speed limit (*See* Sundaram, Ex. 1027, [0019]) and alerts if a driver is sleepy-eyed. (*See* Sundaram, Ex. 1027, [0031].)

520. A PHOSITA would have understood both alerts to be based on seating position. Both alerts are intended to notify the driver if unsafe driving conditions appear, i.e., whether the vehicle has reached unsafe speed and/or the driver has exhibited tired/inattentive behavior. Both are intended to notify person seated in the driver position of the vehicle to ensure driver safety. The speed limit is set based on who is in the driver seat as a fingerprint sensor on the steering wheel is used to identify the driver and activate their profile. (*See* Sundaram, Ex. 1027, [0020].) Further, the vehicle response in Sundaram is shown to be triggered if the specified user exceeds a limit set for him. (*See* Sundaram, Ex. 1027, [0019].)

521. A PHOSITA would have understood the limit is active if the user is the driver as it would be practical to give a person who is in control of the vehicle these responses because the vehicle responses act as deterrents to continuing at a given speed. Additionally, the drowsiness sensor is directly dependent on the seating position of the occupant as a PHOSITA would have understood that the imaging to determine drowsiness would have been located at the driver's seat to ensure the driver is not tired and putting the vehicle at risk. (*See* Sundaram, Ex. 1027, [0031].) Therefore, a PHOSITA seeing the type of alerts and who the alerts are intended to aid would have understood the alerts ("*action*") is based on if the user is in the driver position ("*seating position*")

522. Thus, it is my opinion that Sundaram in combination with Rork renders the limitation "*wherein the action performed depends on a seating position of the selected vehicle occupant*[,]" of the '239 Patent obvious.

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[3b] wherein the microprocessor executable vehicle control system senses a condition or activity of another vehicle occupant and notifies the selected vehicle occupant of the condition or activity.

525. Sundaram discloses a variety of sensors to determine the status of the vehicle and attached components:

> Sensors 238 reside in vehicle 102 and include without limitation fuel level sensor, door open close sensor, knock sensor, flat tire sensor, etc. Sensors 238 are connected to processing engine 202 via vehicle interface 218.

(Sundaram, Ex. 1027, [0041].)

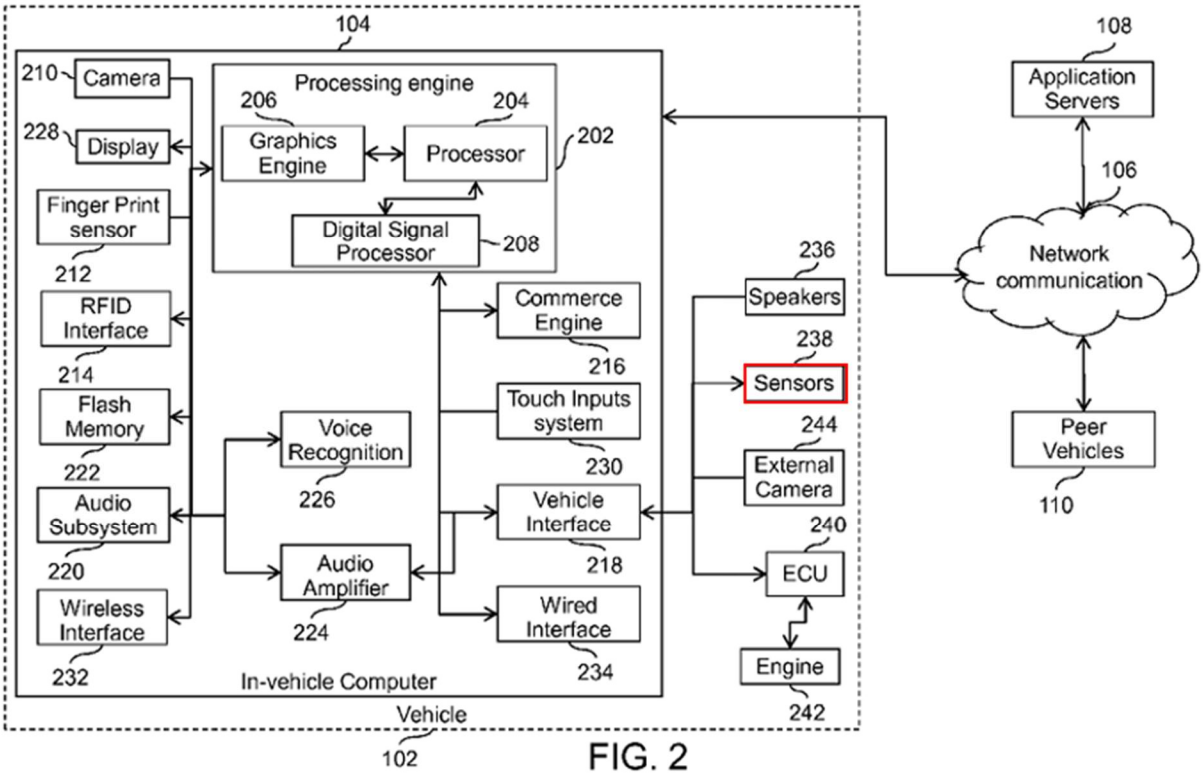


FIG. 2

Sundaram, Ex. 1027, FIG. 2 (Annotated)

526. Rork discloses a variety of sensors to allow for proper operation of the seats; conveying the status of the seat to the user:

> The seat system 18 includes a plurality of measuring devices 30 for monitoring the status of the components of the seat system 18 and transmitting corresponding signals to the seat controller 20. The

> measuring devices include, but are not limited to, a harness sensor 68, an anchor sensor 70, a tether sensor 72, a first buckle switch 74, a second buckle switch 76, a level sensor 78, a weight sensor 80, a temperature sensor 82, a moisture sensor 84, and a battery sensor 86. The particular type of measuring device 30 that is implemented may vary based on the desired criteria of a particular implementation. Although specific locations of the measuring devices 30 are described below, alternate embodiments of the seat system 18 contemplate different locations of the devices 30.

(Rork, Ex. 1036, [0032].)

> In general, a user subjectively adjusts the features of a child seat in a vehicle according to their understanding of the adjustment guidelines for the child seat. Many users are confused by the guidelines and are unsure if they have properly secured the child. A vehicle system is provided whereby sensors take measurements of the adjustable features of the child seat, as the user adjusts the features. A vehicle controller compares the measurements to predetermined guidelines to objectively determine the status of the child seat. The controller then conveys this status to the user, so that the user can properly secure the child.

(Rork, Ex. 1036, [0016].)

> The vehicle system 10 is depicted within a vehicle 12. The system 10 includes a controller 14 and a user interface 16 that communicate with one another. The controller 14 is configured for communicating with a child seat system 18 for gathering information indicative of a status of the child seat system 18. The controller 14 analyzes the information

received from the child seat system 18 and relays a corresponding message to the user interface 16, so that the status of the child seat may be conveyed to an operator of the vehicle 12.

(Rork, Ex. 1036, [0017].)

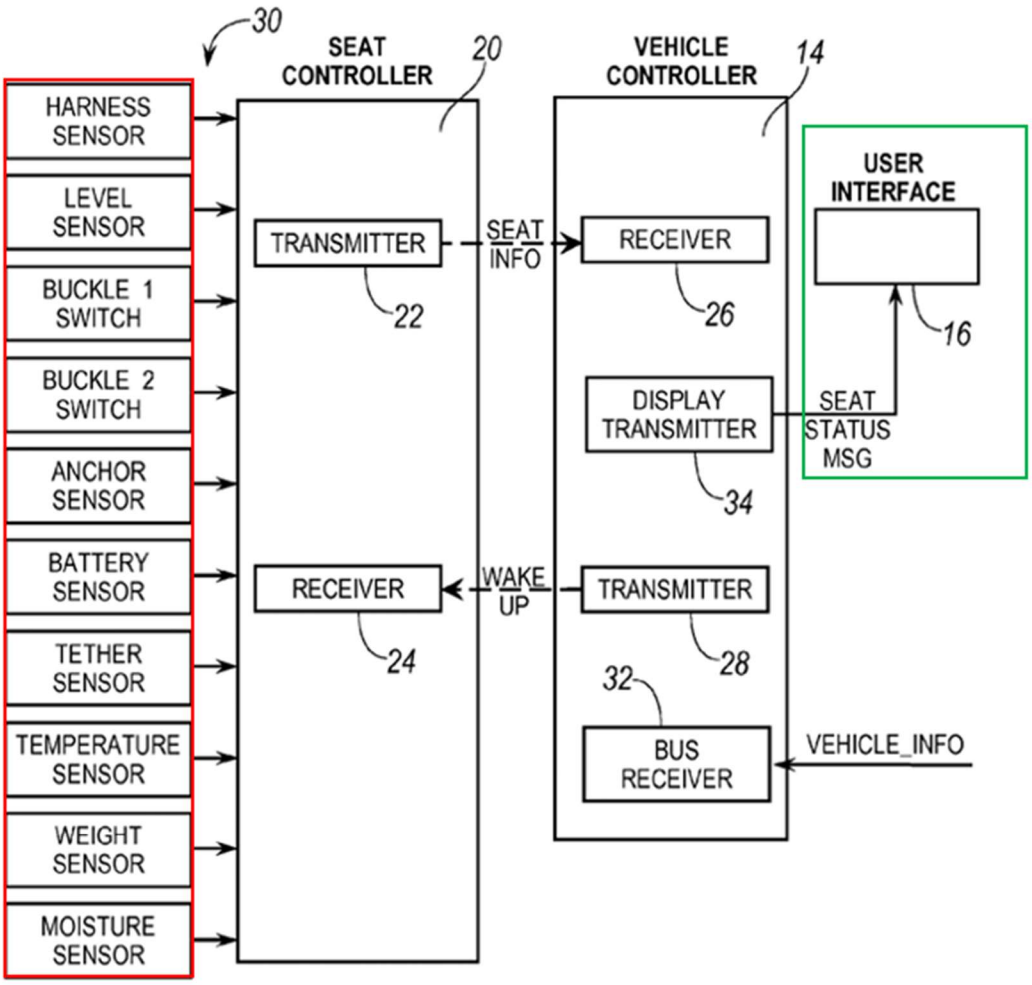


FIG. 2

Rork, Ex. 1036, FIG. 2 (Annotated)

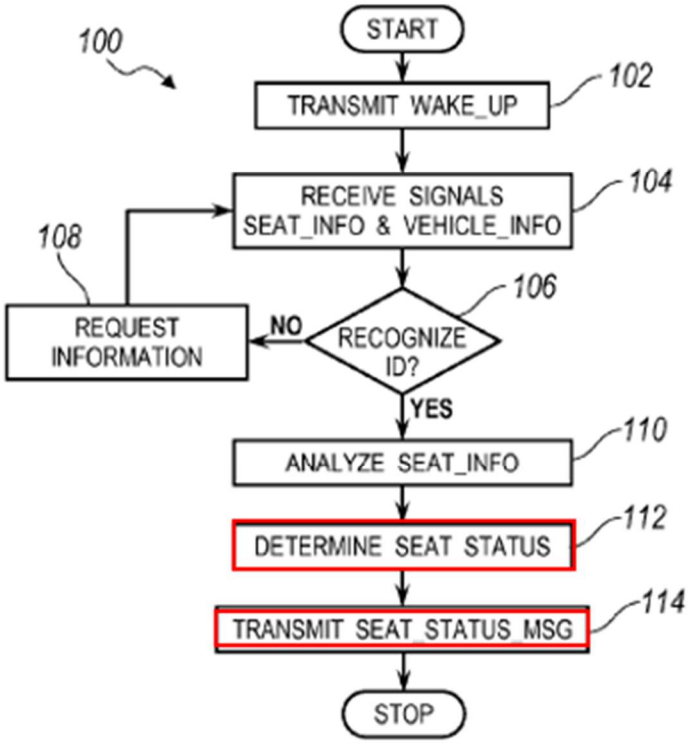


FIG. 6

Rork, Ex. 1036, FIG. 6 (Annotated)

527. Therefore, a PHOSITA would have understood that the sensors in the combination of Sundaram/Rork allow for taking measurements ("*sensing*") and conveying ("*notifying*") to the user ("*selected vehicle occupant*") of the seating status (*"condition"*) of the child ("*another vehicle occupant*[,]") as both Sundaram and Rork are concerned with ensuring safety of passengers.

528. Thus, it is my opinion that Sundaram in combination with Rork disclose the limitation, "*wherein the microprocessor executable vehicle control system senses*

a condition or activity of another vehicle occupant and notifies the selected vehicle occupant of the condition or activity[,]" of the '239 Patent obvious.

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3. Dependent Claim 17

531. I have given each of the limitations of claim 17 a unique numerical identifier, as shown in the chart below:

[17a] The computer readable medium of claim 15, wherein the action performed depends on a seating position of the selected vehicle occupant and	**[3a]** The method of claim 1, wherein the action performed depends on a seating position of the selected vehicle occupant and
[17b] wherein the microprocessor executable vehicle control system senses a condition or activity of another vehicle occupant and notifies the selected vehicle occupant of the condition or activity.	**[3b]** wherein the microprocessor executable vehicle control system senses a condition or activity of another vehicle occupant and notifies the selected vehicle occupant of the condition or activity.

532. As illustrated above, claim limitations [17a]-[17b] are nearly identical to corresponding limitations of claim 3. The only difference being claim 17 depends

from claim 15 and claim 3 depends from claim 1. Both claims also share the preamble for their respective claim dependencies, however this does not change my analysis.

[17a] The computer readable medium of claim 15, wherein the action performed depends on a seating position of the selected vehicle occupant and

533. Claim 17 depends from claim 15, discussed in Ground 1, and thus the analysis for claim 15 is incorporated here.

534. Due to the similarities between limitation [17a] and limitation [3a], it is my opinion that Sundaram renders [17a] obvious for the same reasons it is my opinion that Sundaram renders limitation [3a] obvious.

[17b] wherein the microprocessor executable vehicle control system senses a condition or activity of another vehicle occupant and notifies the selected vehicle occupant of the condition or activity.

535. Due to the similarities between limitation [17b] and limitation [3b], it is my opinion that Sundaram renders [17b] obvious for the same reasons it is my opinion that Sundaram renders limitation [3b] obvious.

D. Ground 4: Sundaram in combination with Gruber render claims 4 and 18 obvious

1. Rationale to Combine

536. A PHOSITA would have found it obvious to combine Sundaram's in-vehicle platform with Gruber's automated assistant. Sundaram discloses a system

providing services and driving assistance to the user. (*See* Sundaram, Ex. 1027, [0017], [0043].) Sundaram also discloses the in-vehicle computer as a platform for applications, for example location-based services, GPS navigation, and driver identification. (Sundaram, Ex. 1027, [0021].) Sundaram also discloses a platform that allows controlling the vehicle's functions such as changing the radio, climate, speed, or navigation. (Sundaram, Ex. 1027, [0044]-[0054].) Gruber discloses an automated assistant as an application. (Gruber, Ex. 1037, [0073].) Gruber further discloses the automated assistant operating in a vehicle. (Gruber, Ex. 1037, [0093].) Thus, a PHOSITA would have understood that Sundaram and Gruber are complementary technologies.

537. Sundaram discloses that the described system can be readily modified for added functionality:

> While example embodiments have been illustrated and described, it will be clear that additional embodiments are contemplated. Numerous modifications, changes, variations, substitutions and equivalents will be apparent to those skilled in the art without departing from the spirit and scope of the described and contemplated embodiments.

(Sundaram, Ex. 1027, [0255].)

538. As demonstrated in the cited language below, Sundaram and Gruber are both in the field of automated assistance in vehicles:

> User of vehicle 102 may be a driver or a passenger of vehicle 102. In some embodiments, in vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide services to the user and also make control decisions for vehicle 102. For example in-vehicle computer 104 uses location source as one of the inputs to identify the road and area in which vehicle 102 is and then use this information to fetch the speed limit of that particular road dynamically. The fetched speed limit is then conveyed to the user and the user is provided alerts on over speeding occasions.

(Sundaram, Ex. 1027, [0017].)

> Examples of different types of output data/information which may be generated by intelligent automated assistant 1002 may include, but are not limited to, one or more of the following (or combinations thereof):
>
> Text output sent directly to an output device and/ or to the user interface of a device
>
> Text and graphics sent to a user over email
>
> Text and graphics send [sic] to a user over a messaging service
>
> Speech output, may include one or more of the following (or combinations thereof):
>
> Synthesized speech
>
> Sampled speech
>
> Recorded messages
>
> Graphical layout of information with photos, rich text, videos, sounds, and hyperlinks. For instance, the content rendered in a web browser.

(Gruber, Ex. 1037, [0148]-[0156].)

> In at least one embodiment, asynchronous events may be treated as inputs in an analogous manner to the other modalities of active elicited input. Thus, such events may be provided as inputs to assistant 1002. Once interpreted, such events can be treated in a manner similar to any other input.
>
> For example, a flight status change may initiate an alert notification to be sent to a user. If a flight is indicated as being late, assistant 1002 may continue the dialog by presenting alternative flights, making other suggestions, and the like, based on the detected event.
>
> Such events can be of any type. For example, assistant 1002 might detect that the user just got home, or is lost (off a specified route), or that a stock price hit a threshold value, or that a television show the user is interested in is starting, or that a musician of interest is touring in the area. In any of these situations, assistant 1002 can proceed with a dialog in substantially the same manner as if the user had him or herself initiated the inquiry.

(Gruber, Ex. 1037, [0337]-[0339].)

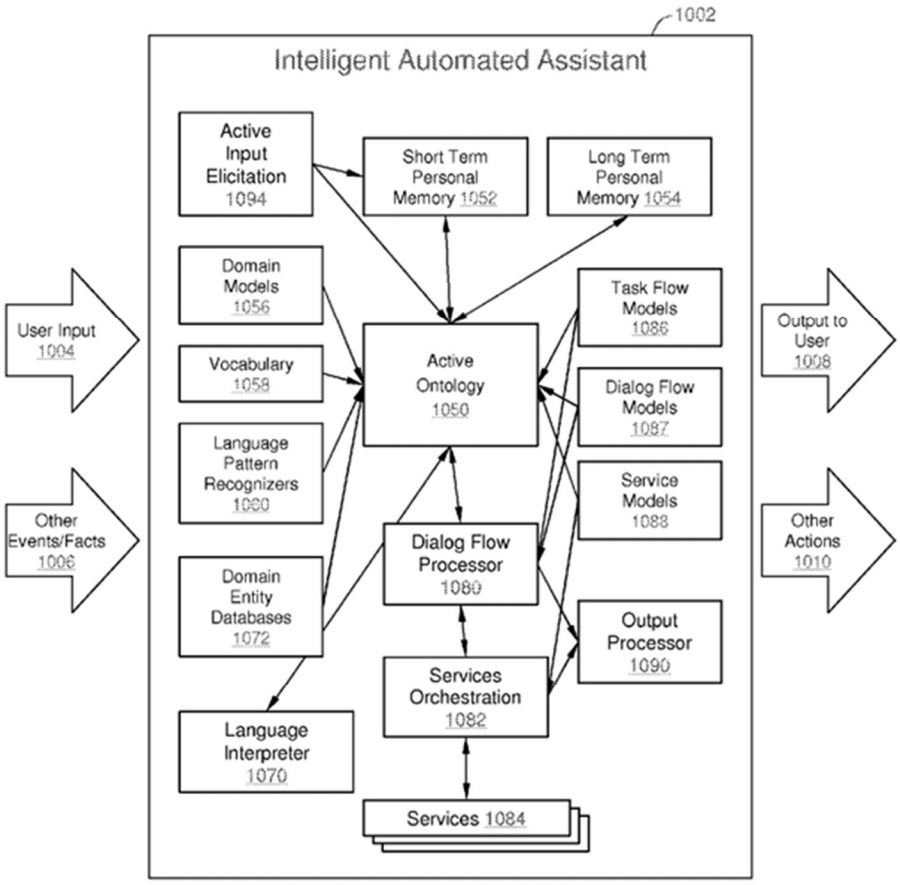


FIG. 1

Gruber, Ex. 1027, FIG. 1

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a. A PHOSITA would have known how to combine Sundaram and Gruber

541. A PHOSITA would have understood how to combine Sundaram and Gruber and have a reasonable expectation of success as Sundaram's system already

discloses audio alerts as well as implementing different settings for different users. Further both systems are contemplated as operating with a vehicle computer. (*See* Sundaram, Ex. 1027, [0027]; *see also* Gruber, Ex. 1037, [0089]-[0093].) Both systems focusing on running software to achieve the user assistance will be discussed below.

542. Only software modifications are required to allow for the functions disclosed in Gruber to operate in the system of Sundaram. These software modifications (such as downloading an application) were well within the capabilities of a PHOSITA. Sundaram already discloses a platform that allows for audio output for alerting users when they exceed their personal speed limit. (Sundaram, Ex. 1027, [0018]-[0019].) Gruber's system can operate as an application on vehicles with dashboard interfaces and sensors. (Gruber, Ex. 1037, [0093].) The vehicle in Sundaram's system includes these features as well as a platform to run various applications. (Sundaram, Ex. 1027, [0014].) No hardware would have been required beyond what Sundaram already contemplates. A PHOSITA would have recognized that integrating Gruber's system into Sundaram's system would involve a software adaptation allowing for the alerts of Sundaram to be performed by a sound or voice specified to a user both of which are well within the capabilities of Sundaram's system as it is already disclosed as having personalization and voice recording.

b. *KSR* Factors

543. Several *KSR* factors also support my opinion that a PHOSITA would have found it obvious to combine the teachings of Sundaram with the teachings of Gruber.

544. Sundaram teaches in-vehicle alerts, including alarms and "computer voice alert," while Gruber teaches speech outputs that are dynamically rendered. Combining these known elements yields the predictable result of a more personalized.

545. Sundaram's alarm/computer voice alert would have been simply substituted with Gruber's synthesized speech output component to provide an alert under the same conditions as contemplated in Sundaram. The substitution is a simple software change with the predictable results of a personalized voice alert.

546. Gruber's improvements use a known technique of software modifications to improve similar computing devices. Grubers disclosure includes various types of devices that the system can operate within. (Gruber, Ex. 1037, [0089]-[0097].) Gruber further discloses how its system can operate as an application on these different devices. (Gruber, Ex. 1037, [0073].)

547. Sundaram discloses using the known technique of downloading applications to modify its system showing it is ready for improvement. Modifying

Sundaram by downloading the application disclosed in Gruber would yield the predictable result of improved personalization.

548. It would have been obvious to try adding user specific audio outputs to the audio alerts disclosed in Sundaram. As discussed above, Sundaram already discloses using personalized audio outputs, voice recording and recognition, and user personalization. A PHOSITA would have found it obvious to try adding in the customized speech outputs of Gruber as a way to customize the voice outputs for specific users as suggested by Sundaram.

549. Market forces would have driven manufacturers to have more customization and safety. Sundaram already seeks to personalize the experience for the user. (Sundaram, Ex. 1027, [0018].) Gruber discloses a way to make the personalization sought after in Sundaram extend to the voice alerts of Sundaram. (*See* Gruber, Ex. 1037, [0589].) It would have been a predictable result that an alert tailored to an individual user would yield customization and increased safety, as the user would pick an alert they can react to better.

550. Sundaram provides a suggestion to have a customizable alert. As discussed above, Sundaram discloses audio alerts, for example computer voice alerts, and a need for increased personalization in vehicles. (*See* Sundaram, Ex. 1027, [0005], [0018].) The system in Gruber renders its specified modalities, specifically sounds and speech output, based on the user preferences. The motivation

provided by Sundaram is satisfied by the customization disclosed in the system of Gruber.

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2. Dependent Claim 4

553. I have given each of the limitations of claim 4 a unique numerical identifier, as shown in the chart below:

[4a] The method of claim 1, wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant, and
[4b] wherein different vehicle occupants have different avatars.

[4a] The method of claim 1, wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant, and

554. Claim 4 depends from claim 1, discussed in Ground 1, and thus the analysis for claim 1 is incorporated here.

555. The ’239 Patent explains that “an ‘avatar’ is the graphical and/or voice representation of an object that can be the user or the user’s alter ego or character or of a person selected by the user.” (’239 Patent, Ex. 1001, Claims 4, 11, 18; *see also*, 82:12-15.) The ’239 Patent further explains that an avatar “can have not only a visual image but also distinct voice, mannerisms, and/or other behavior,” which “is commonly an object selected and/or configured by the user.” (’239 Patent, Ex. 1001, 82:18-21.)

556. The ’239 Patent further explains that “[e]ach occupant of a vehicle can have a differently configured and/or appearing avatar at his or her display interacting with him or her. As set forth below, the avatar may accompany the user from vehicle-to-vehicle as part of the user's persona, which can be shared from vehicle to vehicle.” (’239 Patent, Ex. 1001, 82:24-28.)

557. As described above, Sundaram discloses an “*action*” in the form of “alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert)” of a designated speed limit. (Sundaram, Ex. 1027, [0019].) Sundaram also discloses this alert being given when the user is sleepy eyed or forgets an RFID enabled object. (Sundaram, Ex. 1027, [0031]-[0033].)

558. Gruber discloses an automated assistant 1002, which can provide speech outputs to a user, such as “[s]ynthesized speech,” “[s]ampled speech,” and

"[r]ecorded messages." (Gruber, Ex. 1037, [0152]-[0155].) Gruber further discloses an automated assistant that can dynamically render speech:

Render output data in different speech voices dynamically.

Dynamically render to specified modalities based on user preferences.

(Gruber, Ex. 1037, [0589]-[0590].)

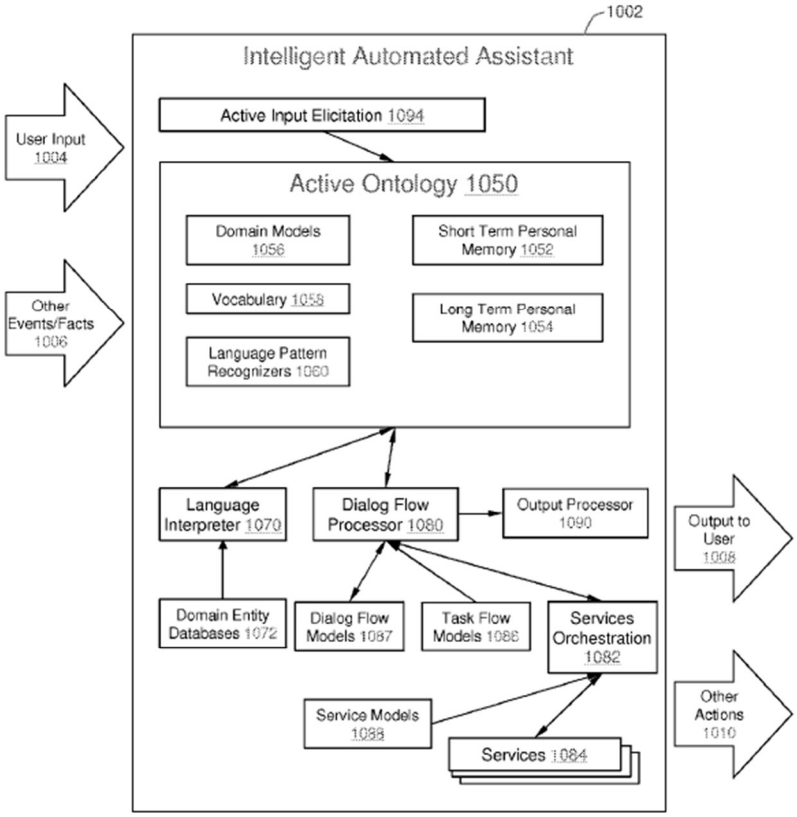


FIG. 9

Gruber, Ex. 1037, Fig. 9

559. Gruber provides an inexhaustive list of different types of outputs in the disclosure below:

Examples of different types of output data/information which may be generated by intelligent automated assistant 1002 may include, but are not limited to, one or more of the following (or combinations thereof):

Text output sent directly to an output device and/ or to the user interface of a device.

Text output sent directly to an output device and/ or to the user interface of a device

Text and graphics sent to a user over email

Text and graphics send [sic] to a user over a messaging service

Speech output, may include one or more of the following (or combinations thereof):

Synthesized speech

Sampled speech

Recorded messages

Graphical layout of information with photos, rich text, videos, sounds, and hyperlinks. For instance, the content rendered in a web browser.

(Gruber, Ex. 1037, [0148]-[0156].)

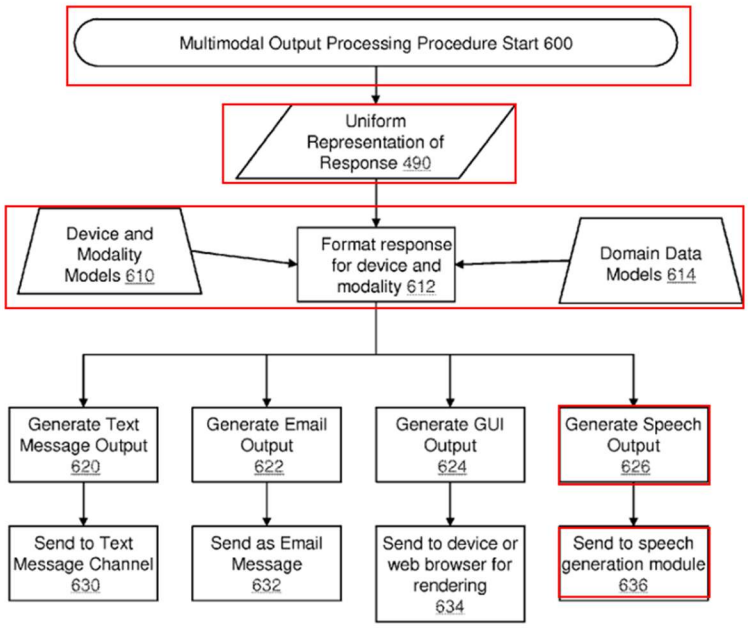


FIG. 42

Gruber, Ex. 1037, FIG. 42 (Annotated)

560. A PHOSITA would have understood that outputs such as sampled speech and recorded messages are examples of voice representations, which would include the voice of a vehicle user or a specific character selected by the vehicle user. Indeed, as discussed above, a PHOSITA would have understood that adding the sampled speech or recorded messages unique to the vehicle occupant would provide additional effectiveness to alerting the occupant over a traditional standard voice. Indeed, in the case of a recorded message or sampled speech, the occupant would personalize the message in a way that would ensure the occupants is fully attentive to ensure any speed alerts are recognized and applied by the occupant.

561. Thus, it is my opinion Sundaram in combination with Gruber render the limitation "[*t*]*he method of claim 1, wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant, and*" of the '239 Patent obvious.

562. Intentionally left blank.

563. Intentionally left blank.

[4b] wherein different vehicle occupants have different avatars.

564. Gruber discloses a system that can "[r]ender output data for modalities that may include, for example, any combination: of graphical user interfaces; text messages; email messages; sounds; animations; and/or speech output." (Gruber, Ex. 1037, [0587].) Gruber further discloses a system that can "[d]ynamically render to specified modalities based on user preferences." (Gruber, Ex. 1037, [0590].)

565. Thus, a PHOSITA would have understood that Gruber teaches a system that can render specific sounds and speech output (modalities) based on various user preferences. A PHOSITA would have further understood that the ability to render these different modalities based on user preferences would have allowed for creating different modalities for different users based on unique user preferences. Indeed, the idea of creating outputs based on specific users lends itself to be able to create

different outputs for different users. And, as discussed above, an "avatar" can include sounds unique to a vehicle occupant. Therefore, a PHOSITA would have understood that Gruber's teaching of creating different outputs (e.g., avatars in the form of speech output and sounds) based on user preferences would also be used to create different avatars for different vehicle occupants.

566. Thus, it is my opinion Sundaram and Gruber in combination render the limitation "*wherein different vehicle occupants have different avatars*[]"of the '239 Patent obvious.

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568. Intentionally left blank.

3. Dependent Claim 18

569. I have given each of the limitations of claim 18 a unique numerical identifier, as shown in the chart below:

[18a] The computer readable medium of claim 15,	**[4a]** The method of claim 1,
wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can	wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can

be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant, and	be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant, and
[18b] wherein different vehicle occupants have different avatars.	**[4b]** wherein different vehicle occupants have different avatars.

570. As illustrated above, claim limitations [18a]-[18b] are nearly identical to corresponding limitations of claim 4. The only difference being claim 18 depends from claim 15 and claim 4 depends from claim 1. Both claims also share the preamble for their respective claim dependencies, however this does not change my analysis.

[18a] The computer readable medium of claim 15, wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant, and

571. Claim 18 depends from claim 15, discussed in Ground 1, and thus the analysis for claim 15 is incorporated here.

572. Due to the similarities between limitation [18a] and limitation [4a], it is my opinion that Sundaram renders [18a] obvious for the same reasons it is my opinion that Sundaram renders limitation [4a] obvious.

[18b] wherein different vehicle occupants have different avatars.

573. Due to the similarities between limitation [18b] and limitation [4b], it is my opinion that Sundaram renders [18b] obvious for the same reasons it is my opinion that Sundaram renders limitation [4b] obvious.

E. Ground 5: Sundaram in combination with Gruber and Penilla renders claim 6 obvious

1. Rationale to Combine

574. The combination of Sundaram and Penilla is discussed in the "Rationale to Combine" section of Ground 2, where I show the technologies disclosed therein are complementary and that there is a strong motivation to combine them. (*See* ¶¶271-289.) The combination discloses a system that increases the personalization of a vehicle and provides user assistance. Gruber is complementary to the combination of Sundaram and Penilla. Gruber further customizes the vehicle and vehicle assistance. Both Sundaram and Penilla disclose downloading applications for further customization of their systems. (*See* Sundaram, Ex. 1027, [0054]; Penilla, Ex. 1035, 11:47-56.) Gruber discloses an automated assistant as an application. (*See* Gruber, Ex. 1037, [0073].) Gruber further discloses the automated assistant operating in a vehicle. (Gruber, Ex. 1037, [0093].) Thus, a PHOSITA

would have understood that Sundaram/Penilla and Gruber are complementary technologies that are combinable.

575. Sundaram discloses that the described system can be readily modified for added functionality:

> While example embodiments have been illustrated and described, it will be clear that additional embodiments are contemplated. Numerous modifications, changes, variations, substitutions and equivalents will be apparent to those skilled in the art without departing from the spirit and scope of the described and contemplated embodiments.

(Sundaram, Ex. 1027, [0255].)

576. As shown above, Sundaram and Penilla are from the same field of customization of vehicle interfaces and functionality in the vehicle communications to enable vehicle behavior and settings to be modified via standardized platforms:

> In the field of entertainment and computing platforms for vehicles, a method and system are disclosed for providing an integrated platform for entertainment, information, communication, control and computing applications in a vehicle.

(Sundaram, Ex. 1027, [0002].)

> The present invention relates to systems and methods for customizing vehicle user interfaces and exchange of information with cloud-based processing systems to enable integration with third party applications.

(Penilla, Ex. 1035, 1:26-29.)

577. As demonstrated in the cited language below, the combination of Sundaram/Penilla and Gruber are in the field of automated assistance in vehicles:

> User of vehicle 102 may be a driver or a passenger of vehicle 102. In some embodiments, in vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide services to the user and also make control decisions for vehicle 102. For example in-vehicle computer 104 uses location source as one of the inputs to identify the road and area in which vehicle 102 is and then use this information to fetch the speed limit of that particular road dynamically. The fetched speed limit is then conveyed to the user and the user is provided alerts on over speeding occasions.

(Sundaram, Ex. 1027, [0017].)

> Examples of different types of output data/information which may be generated by intelligent automated assistant 1002 may include, but are not limited to, one or more of the following (or combinations thereof):
>
> Text output sent directly to an output device and/ or to the user interface of a device
>
> Text and graphics sent to a user over email
>
> Text and graphics send [sic] to a user over a messaging service
>
> Speech output, may include one or more of the following (or combinations thereof):
>
> Synthesized speech
>
> Sampled speech

Recorded messages

Graphical layout of information with photos, rich text, videos, sounds, and hyperlinks. For instance, the content rendered in a web browser.

(Gruber, Ex. 1037, [0148]-[0156].)

In at least one embodiment, asynchronous events may be treated as inputs in an analogous manner to the other modalities of active elicited input. Thus, such events may be provided as inputs to assistant 1002. Once interpreted, such events can be treated in a manner similar to any other input.

For example, a flight status change may initiate an alert notification to be sent to a user. If a flight is indicated as being late, assistant 1002 may continue the dialog by presenting alternative flights, making other suggestions, and the like, based on the detected event.

Such events can be of any type. For example, assistant 1002 might detect that the user just got home, or is lost (off a specified route), or that a stock price hit a threshold value, or that a television show the user is interested in is starting, or that a musician of interest is touring in the area. In any of these situations, assistant 1002 can proceed with a dialog in substantially the same manner as if the user had him or herself initiated the inquiry.

(Gruber, Ex. 1037, [0337]-[0339].)

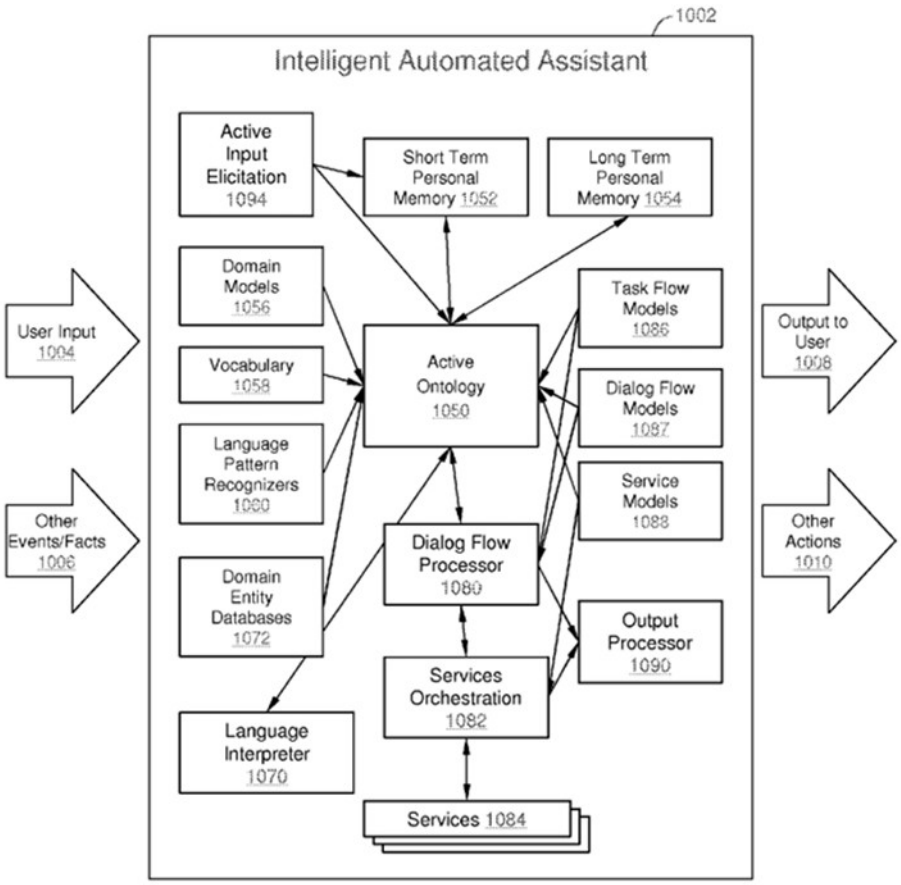


FIG. 1

Gruber Ex. 1037, FIG. 1

578. The combination of Sundaram, Penilla, and Gruber does not take away any function and thus does not change the analysis of the combination as everything Sundaram/Penilla can do regarding the claim limitations at issue Sundaram/Penilla/Gruber can also do in the same manner.

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a. A PHOSITA would have known how to combine the combination of Sundaram/Penilla and Gruber

581. A PHOSITA would have understood how to combine Sundaram/Penilla and Gruber with a reasonable expectation of success. The audio alerts in Sundaram/Penilla can be implemented with a personalized sound or voice. The references individually disclose implementing different settings for different users. Further both systems are contemplated as operating with a vehicle computer. (Sundaram, Ex. 1027, [0027]; Gruber, Ex. 1037, [0089]-[0093].) The combination between Sundaram and Penilla and the addition of Gruber would all be software modifications.

582. Only software modifications are required to allow for the functions disclosed in Gruber to operate in the system of Sundaram/Penilla. These software modifications—an application—were well within the capabilities of a PHOSITA. Sundaram/Penilla already discloses a platform that allows for audio output when alerting and specific settings for specific users. (*See* Sundaram, Ex. 1027, [0018]-[0019].) Gruber's system can operate as an application on vehicles with dashboard interfaces and sensors. (*See* Gruber, Ex. 1037, [0093].) The Sundaram/Penilla vehicle includes these features as well as a platform to run various applications. (Sundaram, Ex. 1027, [0014].) No new hardware would have been required beyond what Sundaram already contemplates. A PHOSITA would have recognized that

integrating Gruber's system into the combination of Sundaram/Penilla's system would involve a software allowing for the alerts of Sundaram/Penilla to be performed by a sound or voice specified to a user both of which are well within the capabilities of Sundaram's system as it is already disclosed as having personalization and voice recording.

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584. Intentionally left blank.

b. *KSR* Factors

585. Several KSR factors also support my opinion that a PHOSITA would have found it obvious to combine the teachings of Sundaram/Penilla with the teachings of Gruber.

586. Above, I discussed the *KSR* factors supporting the obviousness of the combination of Sundaram with Penilla in Ground 2 (¶¶281-282), and with Gruber in Ground 4 (¶¶541-542). Penilla is primarily a software change and usage change. Gruber is a software change as well. These references fit together very well, as Penilla discusses increasing customization as well as providing ways to improve data transfers while Gruber increases customization of the alerts provided. A PHOSITA would have understood these references would not only have not interfered with the inclusion of the other but would have been complementary to each other. It would have been obvious to apply the customization of Gruber to the alerts provided in

Penilla. Further the ignition off synchronization and obtaining user preferences from home computers provide methods to obtain the preferences disclosed in Gruber to tailor the system to a user. The combination of Sundaram/Penilla would benefit from the addition of Gruber.

587. Sundaram/Penilla teaches in-vehicle alerts, including alarms and "computer voice alert," (Sundaram, Ex. 1027, [0019]) while Gruber teaches speech outputs that are dynamically rendered (*See* Gruber, Ex. 1037, [0587]-[0590]). Combining these known elements yields the predictable result of a more personalized vehicle.

588. Sundaram/Penilla's alarm/computer voice alert can be simply substituted with Gruber's synthesized speech output component to provide an alert under the same conditions as contemplated in Sundaram. The substitution is a simple software change with the predictable results of a personalized voice alert.

589. Gruber's improvements use a known technique of software modifications to improve similar computing devices. Grubers disclosure includes various types of devices that the system disclosed therein can operate within. (*See* Gruber, Ex. 1037, [0089]-[0097].) Gruber further discloses how its system can operate as an application on these different devices. (*See* Gruber, Ex. 1037, [0073].)

590. Sundaram/Penilla discloses using the known technique of downloading applications to modify its system, showing it is ready for improvement. (*See*

Sundaram, Ex. 1027, [0055].) Further, as discussed above, Sundaram/Penilla recognizes the goal of personalization, motivating a PHOSITA to combine it with Gruber. Modifying Sundaram/Penilla by downloading the application disclosed in Gruber would yield the predictable result of improved personalization.

591. It would also have been obvious to try adding user-specific audio outputs to the audio alerts disclosed in Sundaram/Penilla. Sundaram/Penilla already discloses personalized audio outputs, voice recording and recognition, and user personalization. (*See* Sundaram, Ex. 1027, [0019]-[0020], [0098].) Based on the teachings of Sundaram/Penilla, a PHOSITA would have found it obvious to try adding in the customized speech outputs of Gruber because there are finite options for customization i.e. no customization, customization that is the same for all users, and user-specific customization.

592. A PHOSITA would have understood that market forces would have driven manufacturers to have more customization and safety. Sundaram/Penilla already seeks to personalize the experience for the user. Gruber discloses a way to make the personalization sought after in Sundaram/Penilla extend to the voice alerts of Sundaram/Penilla. (*See* Gruber, Ex. 1037, [0585]-[0591].) It would have been predictable that an alert tailored to an individual user would yield customization and increased safety, as the user would pick an alert they can react to better.

593. Sundaram/Penilla provides motivation to have a customizable alert. Sundaram/Penilla discloses audio alerts, for example computer voice alerts, and a need for increased personalization in vehicles. (Sundaram, Ex. 1027, [0005], [0018].) The system in Gruber renders its specified modalities, specifically sounds and speech output, based on the user preferences. (Gruber, Ex. 1037, [0585]-[0590].) The motivation provided by Sundaram/Penilla is satisfied by the customization disclosed in the system of Gruber.

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595. Intentionally left blank.

2. Dependent Claim 6

596. I have given each of the limitations of claim 6 a unique numerical identifier, as shown in the chart below:

[6] The method of claim 4, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

[6] The method of claim 4, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and wherein the vehicle

synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off.

597. Claim 6 depends from Claim 4, discussed in Ground 4, and thus the analysis for claim 4 is incorporated here. Further Claim 6 is nearly identical to Claims 13 and 20 discussed in Ground 2, and this the analysis for both Claims 13 and 20 are incorporated here.

598. Sundaram discloses the vehicle through the in-vehicle computer 104 receiving user preferences ("*persona*") from another vehicle ("*a different vehicle driven by the selected vehicle occupant*") as well as an external device. (*See* Sundaram, Ex. 1027, [0094].) Sundaram also discloses synchronizing information ("*obtains*") from a desktop in the user's home ("*home computer*"). (*See* Sundaram, Ex. 1027, [0039].)

599. A PHOSITA would have understood the "external device" disclosed in Sundaram includes a desktop computer as the computer is described as being in the user's house. Further a PHOSITA would have understood preferences to be a component of the "profile" as preferences are described in Sundaram as including a "first setting" and the usage profile is described as including "various other settings may be defined by the user to personalize vehicle 102." (Sundaram, Ex. 1027, [0018], *see also* [0094].)

600. This understanding is evidenced by the language presented in the ’239 patent. The ’239 Patent discloses “a selected vehicle occupant’s persona (e.g., his or her physical, psychological, mental and other characteristics, needs, desires, behavior, personality, goals, habits, biometric information, likes or interests, dislikes, preferences, and the like),” showing that preferences would have been understood as a part of a persona [profile].(’239 Patent, Ex. 1001, 81:48-53.)

601. Thus, it is my opinion Sundaram renders the limitation “[*t*]*he method of claim 4, wherein the vehicle obtains the persona from one or more of a different vehicle driven by the selected vehicle occupant and a home computer and*” of the ’239 Patent obvious.

602. Sundaram also discloses synchronization of information between another vehicle (“*a different vehicle driven by the selected vehicle occupant*”) as well as a desktop in user’s house (“*home computer*”) while the user’s vehicle is near (“*in proximity*”):

> For example, in case the user's vehicle 102 is nearby his/her house which has user’s desktop, in-vehicle computer 104 on detecting the desktop through Wi-Fi technology will synchronize the music files of the desktop with in-vehicle computer 104's memory, therefore enabling the user to listen to his/her favorite music while driving.

(Sundaram, Ex. 1027, [0039].)

603. Penilla discloses how the communication can be made when the car is turned off:

> The communication can be made by vehicle electronics while the vehicle is on or when the vehicle is off, so long as communication and processing circuitry of vehicle electronics has a power source. The power source can include battery power that powers vehicle electronics to communicate with cloud processing 120 when vehicle is turned off. When vehicle is turned on, the battery that drives vehicle electronics can be recharged.

(Penilla, Ex. 1035, 9:19-26.)

604. As discussed above, a PHOSITA would have understood that Sundaram suggests synchronization of files over Wi-Fi while the vehicle is parked. Furthermore, it would have been obvious to a PHOSITA that with the vehicle being parked the ignition is also off. Thus, Sundaram in view of Gruber and Penilla render the limitations "*wherein the vehicle synchronizes with the different vehicle and/or home computer when the vehicle is parked in proximity thereto and an ignition of the vehicle is turned off*[,]" of the '239 Patent obvious.

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606. Intentionally left blank.

F. Ground 6: Sundaram in combination with Rork and Gruber render claim 11 obvious

1. Rationale to Combine

607. The combination of Sundaram and Gruber is discussed in the "Rationale to Combine" section of Ground 4 where I show the technologies disclosed therein are complementary and that there is a strong motivation to combine them. (*See* ¶¶536-550.) The combination discloses a system that increase the personalization of vehicle alerts through software modifications. Rork fits well and is complementary to the combination of Sundaram and Gruber. Rork further increases the ease of operation of the vehicle and its parts. Sundaram discloses a vehicle system where alerts can be provided by a computer voice modified by the speech customization based on user preference as disclosed in Gruber. (*See* Sundaram, Ex. 1027, [0018]; Gruber, Ex. 1037, [0585]-[0590].) Rork discloses a system of monitoring a child seat and alerting the user when the seat is not properly installed through an audio message. (*See* Rork, Ex. 1036, [0024]-[0026].) Thus, a PHOSITA would have understood that Sundaram/Gruber and Rork are complementary technologies that fit very well together.

608. Sundaram in combination with Gruber disclose that the described system can be readily modified for added functionality:

> While example embodiments have been illustrated and described, it will be clear that additional embodiments are contemplated. Numerous modifications, changes, variations, substitutions and equivalents will be

> apparent to those skilled in the art without departing from the spirit and scope of the described and contemplated embodiments.

(Sundaram, Ex. 1027, [0255].)

609. As demonstrated in the cited language below, Sundaram and Gruber are both in the field of automated assistance in vehicles:

> User of vehicle 102 may be a driver or a passenger of vehicle 102. In some embodiments, in vehicle computer 104 receives and uses inputs from various data sources external to vehicle 102 in order to provide services to the user and also make control decisions for vehicle 102. For example in-vehicle computer 104 uses location source as one of the inputs to identify the road and area in which vehicle 102 is and then use this information to fetch the speed limit of that particular road dynamically. The fetched speed limit is then conveyed to the user and the user is provided alerts on over speeding occasions.

(Sundaram, Ex. 1027, [0017].)

> Examples of different types of output data/information which may be generated by intelligent automated assistant 1002 may include, but are not limited to, one or more of the following (or combinations thereof):
>
> Text output sent directly to an output device and/ or to the user interface of a device
>
> Text and graphics sent to a user over email
>
> Text and graphics send [sic] to a user over a messaging service

Speech output, may include one or more of the following (or combinations thereof):

Synthesized speech

Sampled speech

Recorded messages

Graphical layout of information with photos, rich text, videos, sounds, and hyperlinks. For instance, the content rendered in a web browser.

(Gruber, 1037, [0148]-[0156].)

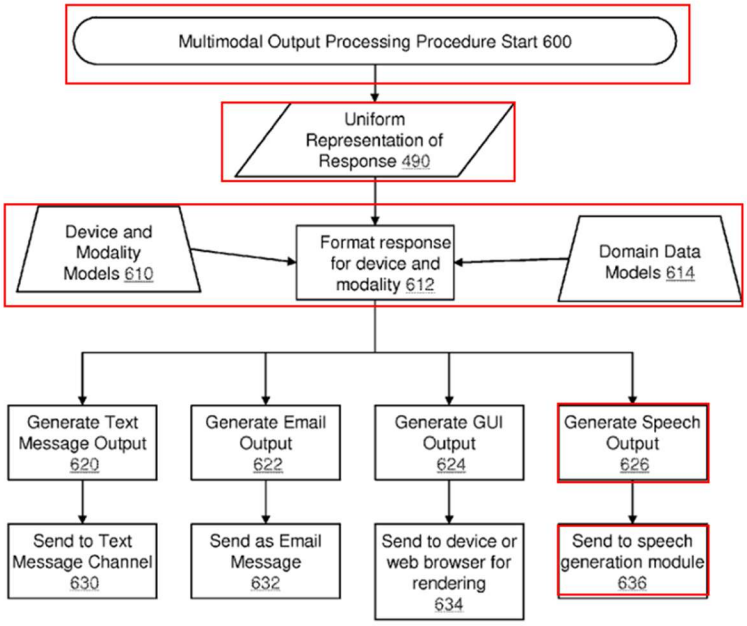


FIG. 42

Gruber, Ex. 1037, FIG. 42 (Annotated)

In at least one embodiment, asynchronous events may be treated as inputs in an analogous manner to the other modalities of active elicited input. Thus, such events may be provided as inputs to assistant 1002.

> Once interpreted, such events can be treated in a manner similar to any other input. For example, a flight status change may initiate an alert notification to be sent to a user. If a flight is indicated as being late, assistant 1002 may continue the dialog by presenting alternative flights, making other suggestions, and the like, based on the detected event. Such events can be of any type. For example, assistant 1002 might detect that the user just got home, or is lost (off a specified route), or that a stock price hit a threshold value, or that a television show the user is interested in is starting, or that a musician of interest is touring in the area. In any of these situations, assistant 1002 can proceed with a dialog in substantially the same manner as if the user had him or herself initiated the inquiry.

(Gruber, 1037, [0337]-[0339].)

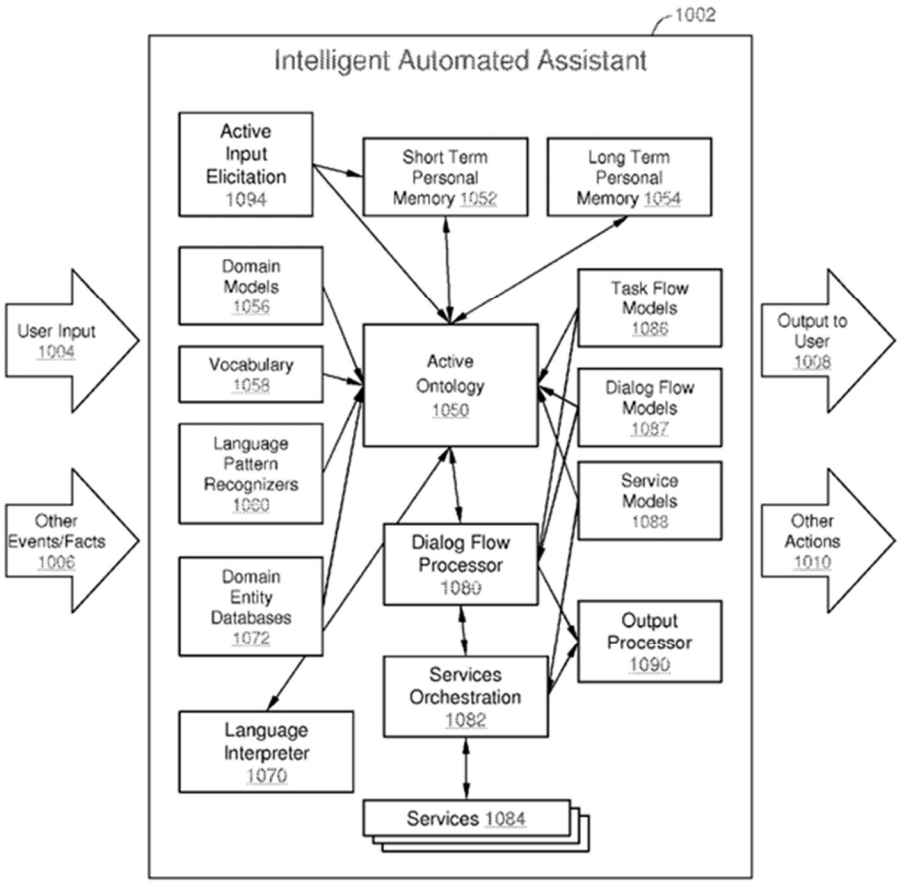


FIG. 1

Gruber, Ex. 1027, FIG. 1

610. As demonstrated in the cited language below, Sundaram/Gruber and Rork are in the field of vehicle systems with sensor components to provide alerts to a user:

> Methods and systems for providing an integrated platform for entertainment, information, communication, control and computing applications in a vehicle are disclosed.

(Sundaram, Ex. 1027, [0014].)

> In at least one embodiment a vehicle system for communicating with a child seat is provided. The vehicle system comprises a receiver. The receiver is configured for receiving at least one seat sensor signal from a child seat controller. The vehicle system further comprises a controller that is configured for communicating with the receiver for analyzing the at least one seat sensor signal and comparing the seat sensor signal to pre-existing guidelines to determine a status message. The vehicle system further comprises a user interface that is configured for communicating with the con troller for displaying the status message.

(Rork, Ex. 1036, [0005].)

611. Sundaram and Rork both provide alerts to the user to increase user's ease of use of the vehicle:

> For example, in case the driver is sleepy-eyed, camera 210 provides the inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle.

(Sundaram, Ex. 1027, [0031].)

612. The vehicle controller 14 compares the SEAT_INFO and VEHICLE INFO to a set of predetermined data to determine the status of the vehicle seat system 18 and transmits a corresponding status message to the user interface 16. (Rork, Ex. 1036, [0025].)

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614. Intentionally left blank.

a. A PHOSITA would have known how to combine Sundaram/Gruber and Rork

615. As discussed above, a PHOSITA would have understood how to combine Sundaram and Gruber. Sundaram's system includes audio alerts as well as well as different settings for different users. Further both systems are contemplated as operating with a vehicle computer. (Sundaram, Ex. 1027, [0027]; Gruber, Ex. 1037, [0089]-[0093].)

616. A PHOSITA would have understood how to combine Sundaram/Gruber and Rork.

617. Both Sundaram/Gruber and Rork disclose a processor in the vehicle that interact with sensors:

> Vehicle 102 includes speakers 236, sensors 238, ECU (engine control unit) 240, engine 242 and external camera 244 which interact with in-vehicle computer 104.

(Sundaram, Ex. 1027, [0027].)

> The vehicle controller 14 receives the SEAT INFO data in addition to vehicle data. The receiver 26 is configured to receive the SEAT INFO from the seat transmitter 22.

(Rork, Ex. 1036, [0024].)

618. Sundaram/Gruber's vehicle already includes a plurality of sensors informing the status of the vehicle, objects in the vehicle, and the external area around the vehicle. (Sundaram, Ex. 1027, [0041], [0043].)

619. Adding Rork's suite of sensors would have been a straightforward integration, as the sensors are housed within the seat itself giving a PHOSITA a reasonable expectation of success. The combination would only require communication between the seat and the in-vehicle computer. Sundaram's in-vehicle computer 104 is shown to receive inputs from sensors (Sundaram, Ex. 1027, [0017]), and Rork's vehicle controller 14 is shown to receive inputs from the seat (Rork, Ex. 1036, [0023]). The vehicle controller 14 is analogous to Sundaram's in-vehicle computer 104, as it includes a microprocessor performing computing functions (Rork, Ex. 1036, [0020]). Sundaram also discloses displaying outputs of applications (Sundaram, Ex. 1027, [0060]-[0062]). A PHOSITA would have understood how to combine Sundaram and Rork, as their integration would require only a simple connection already disclosed.

b. *KSR* Factors

620. Several *KSR* factors also support my opinion that a PHOSITA would have found it obvious to combine the teachings of Sundaram/Gruber with the teachings Rork.

621. Above, I discussed the KSR factors supporting the obviousness of the combination of Sundaram with Gruber in Ground 4, and with Rork in Ground 3. Gruber is primarily a software change and Rork requires the integration of new sensors. These tasks are routine and well within the capabilities of a PHOSITA. These prior art references fit together very well and, as discussed below, the inclusion of Rork amounts to increasing the number of sensors and providing an alert. A PHOSITA would have understood these references are complementary to each other—specifically, Sundaram/Gruber's in-vehicle computer communicates with sensors, and Rork's car seat sensors communicate with a vehicle's computer. Furthermore, the combination of Sundaram/Gruber would benefit from the addition of Rork as shown.

622. Combining the prior art elements of Sundaram/Gruber and Rork can be done with methods disclosed in both references to yield predictable results. Sundaram/Gruber integrates multiple sensors for vehicle monitoring and control. Rork discloses sensors associated with a child seat. Combining these elements through known integration methods would predictably provide users with additional child seat status information, enhancing safety monitoring within Sundaram's system without requiring inventive skill.

623. Rork's seat sensors can be substituted or added to Sundaram/Gruber's sensor suite using known methods. Both systems disclose wired and wireless data

transfer, and Sundaram/Gruber's in-vehicle computer 104 already receives sensor input. A PHOSITA would predictably apply Rork's transmission methods to enable the seat to communicate with Sundaram/Gruber's system, yielding the expected result of enhanced safety monitoring without modifying how the systems interact.

624. It was well known in the art to add sensors to improve functionality, such as adding dash cameras. Both Sundaram/Gruber and Rork disclosed methods for connecting a vehicle's computer to sensors. Applying these known techniques to integrate Rork's child seat sensors into Sundaram/Gruber's system would predictably allow the in-vehicle computer to receive signals from the added sensor, improving seat monitoring in the same way similar systems are enhanced.

625. The Sundaram/Gruber system recognizes the need for further improvement in its sensor suite. Sundaram/Gruber provides an inexhaustive list of sensors, shown by "etc.", and already includes sensors for seat and door positioning, showing the system benefits from additional sensor data. Adding Rork's child seat sensors would have been an obvious choice from a finite set of predictable options, with a reasonable expectation of success, to improve child seat installation efficiency in the same way Sundaram/Gruber improves other vehicle functions. The prior art provides clear motivation to combine the features of Sundaram and Rork. There is always an incentive to improve ease of vehicle use, particularly when the user has children, driving innovation in child seat monitoring. Sundaram/Gruber already

integrates multiple sensors for vehicle status, and Rork teaches child seat sensors for safety. Common sense and market demand for easier and more consistent child seat installation would have led a PHOSITA to incorporate Rork's sensors into the Sundaram/Gruber system, yielding predictable improvements of child seat monitoring. The combination of Sundaram, Gruber, and Rork does not take away any function and thus does not change the analysis of the combination as everything Sundaram/Gruber can do regarding the claim limitations at issue Sundaram/Penilla/Gruber can also do in the same manner.

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627. Intentionally left blank.

628. Intentionally left blank.

2. Dependent Claim 11

629. I have given each of the limitations of claim 11 a unique numerical identifier, as shown in the chart below:

[11a] The vehicle of claim 8, wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant,

[11b] wherein the microprocessor executable vehicle control system senses a condition or activity of another vehicle occupant and notifies the selected vehicle occupant of the condition or activity, and
[11c] wherein different vehicle occupants have different avatars.

[11a] The vehicle of claim 8, wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant,

630. Claim 11 depends from Claim 8, discussed in Ground 1, and thus the analysis for claim 8 is incorporated here. Furthermore, Claim limitation [11a] is nearly identical to Claim limitations [4a] and [18a]; Claim limitation [11b] is nearly identical to Claim limitations [3b] and [17b]; and Claim limitation [11c] is nearly identical to Claim limitations [4b] and [18b], thus the analysis for the listed claim limitations is incorporated into the corresponding claim limitations.

631. The ’239 Patent explains that “an ‘avatar’ is the graphical and/or voice representation of an object that can be the user or the user's alter ego or character or of a person selected by the user.” (’239 Patent, Ex. 1001, 82:13-15.) The ’239 Patent further explains that an avatar “can have not only a visual image but also distinct

voice, mannerisms, and/or other behavior," which "is commonly an object selected and/or configured by the user." ('239 Patent, Ex. 1001, 82:18-21.)

632. The '239 Patent further explains that "[e]ach occupant of a vehicle can have a differently configured and/or appearing avatar at his or her display interacting with him or her. As set forth below, the avatar may accompany the user from vehicle-to-vehicle as part of the user's persona, which can be shared from vehicle to vehicle." ('239 Patent, Ex. 1001, 82:24-28.)

633. As described above, Sundaram discloses an "action" in the form of "alerting the user that he is attempting to go (or is going) outside the bounds (e.g., with an alarm or a computer voice alert)." (Sundaram, Ex. 1027, [0019].)

634. Gruber discloses an automated assistant 1002, which can provide speech outputs to a user, such as "[s]ynthesized speech," "[s]ampled speech," and "[r]ecorded messages." (Gruber, Ex. 1037, [0152]-[0155].) Gruber further discloses an automated assistant that can dynamically render speech:

> Render output data in different speech voices dynamically.
>
> Dynamically render to specified modalities based on user preferences.

(Gruber, Ex. 1037, [0589]-[0590].)

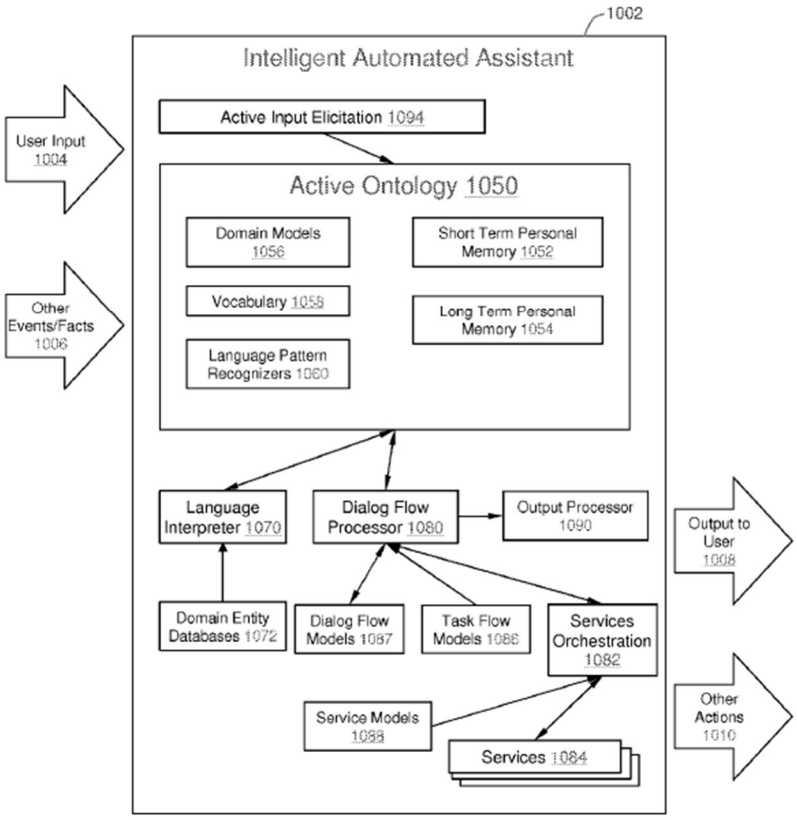


FIG. 9

Gruber, Ex. 1037, Fig. 9

635. Gruber provides an inexhaustive list of different types of outputs in the disclosure below:

> Examples of different types of output data/information which may be generated by intelligent automated assistant 1002 may include, but are not limited to, one or more of the following (or combinations thereof):
>
> Text output sent directly to an output device and/ or to the user interface of a device
>
> Text and graphics sent to a user over email

Text and graphics send [sic] to a user over a messaging service

Speech output, may include one or more of the following (or combinations thereof):

Synthesized speech

Sampled speech

Recorded messages

Graphical layout of information with photos, rich text, videos, sounds, and hyperlinks. For instance, the content rendered in a web browser.

(Gruber, Ex. 1037, [0148]-[0156].)

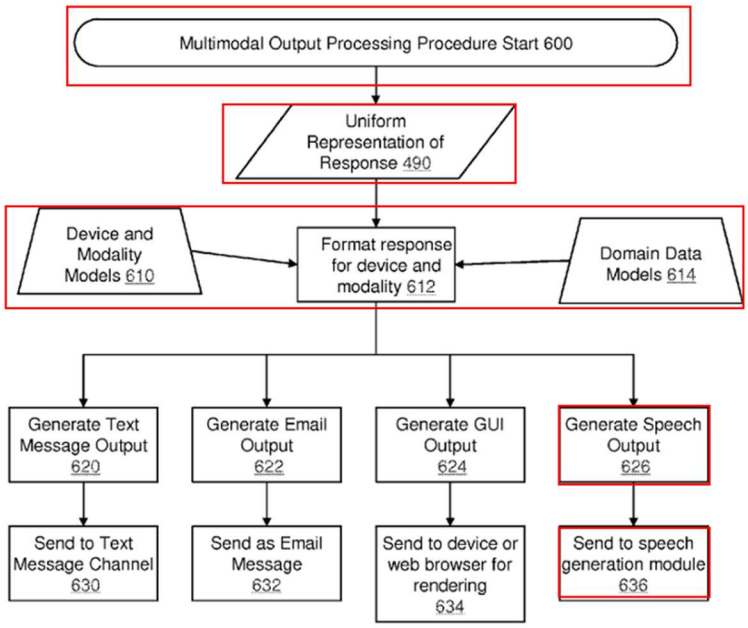


FIG. 42

Gruber, Ex. 1037, FIG. 42 (Annotated)

636. A PHOSITA would have understood that outputs such as sampled speech and recorded messages are examples of voice representations, which would

include the voice of a vehicle user or a specific selected by the vehicle user. Indeed, as discussed above, a PHOSITA would have understood that adding the sampled speech or recorded messages unique to the vehicle occupant would provide additional effectiveness to alerting the occupant over a traditional standard voice. Indeed, in the case of a recorded message or sampled speech, the occupant would personalize the message in a way that would ensure the occupants is fully attentive to ensure any speed alerts are recognized and applied by the occupant.

637. Thus, it is my opinion Sundaram in combination with Gruber render the limitation "[*t*]*he method of claim 1, wherein the action is performed by an avatar, wherein the avatar is a graphical and/or voice representation of an object that can be the selected vehicle occupant or the selected vehicle occupant's alter ego or character or of a person selected by the selected vehicle occupant, and*" of the '239 Patent obvious.

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[11b] wherein the microprocessor executable vehicle control system senses a condition or activity of another vehicle occupant and notifies the selected vehicle occupant of the condition or activity, and

641. Sundaram discloses a variety of sensors to determine the status of the vehicle and attached components:

> Sensors 238 reside in vehicle 102 and include without limitation fuel level sensor, door open close sensor, knock sensor, flat tire sensor, etc. Sensors 238 are connected to processing engine 202 via vehicle interface 218.

(Sundaram, Ex. 1027, [0041].)

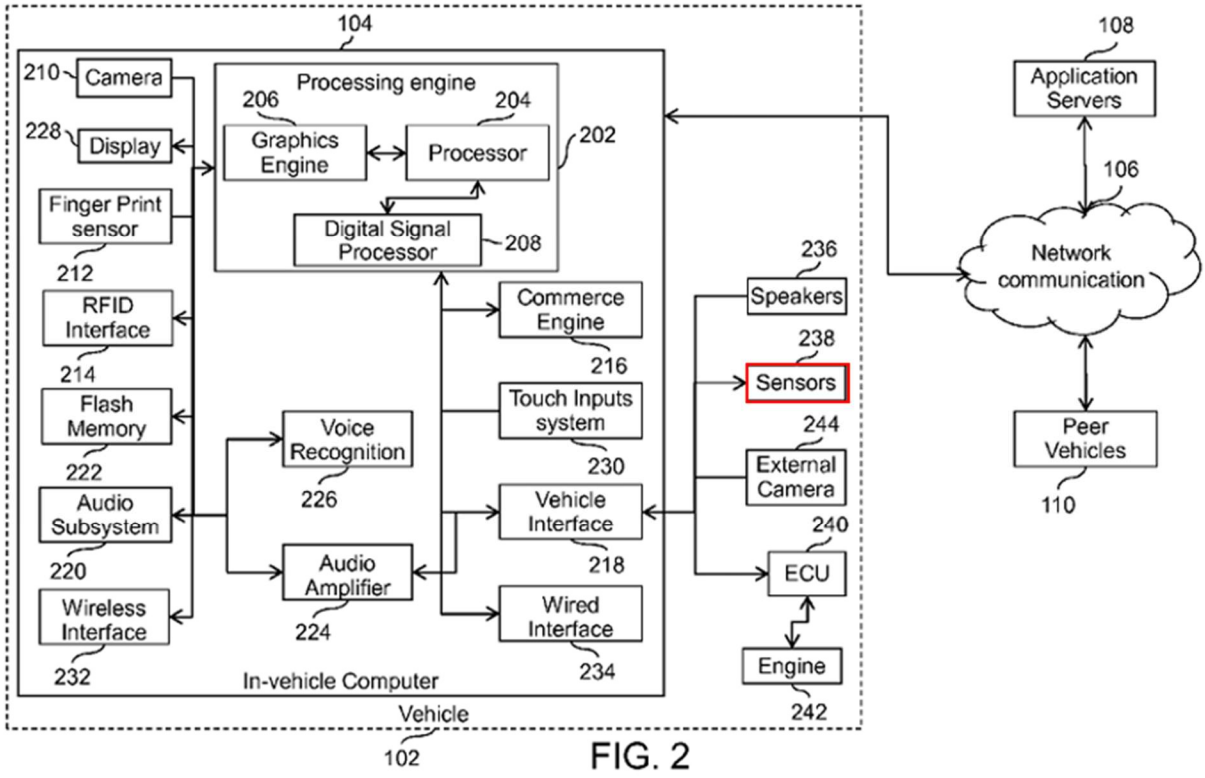


FIG. 2

Sundaram, Ex. 1027, FIG. 2 (Annotated)

642. Rork discloses a variety of sensors to allow for proper operation of the seats; conveying the status of the seat to the user:

> The seat system 18 includes a plurality of measuring devices 30 for monitoring the status of the components of the seat system 18 and transmitting corresponding signals to the seat controller 20. The measuring devices include, but are not limited to, a harness sensor 68, an anchor sensor 70, a tether sensor 72, a first buckle switch 74, a second buckle switch 76, a level sensor 78, a weight sensor 80, a temperature sensor 82, a moisture sensor 84, and a battery sensor 86. The particular type of measuring device 30 that is implemented may vary based on the desired criteria of a particular implementation. Although specific locations of the measuring devices 30 are described below, alternate embodiments of the seat system 18 contemplate different locations of the devices 30.

(Rork, Ex. 1036, [0032].)

> In general, a user subjectively adjusts the features of a child seat in a vehicle according to their understanding of the adjustment guidelines for the child seat. Many users are confused by the guidelines and are unsure if they have properly secured the child. A vehicle system is provided whereby sensors take measurements of the adjustable features of the child seat, as the user adjusts the features. A vehicle controller compares the measurements to predetermined guidelines to objectively determine the status of the child seat. The controller then conveys this status to the user, so that the user can properly secure the child.

(Rork, Ex. 1036, [0016].)

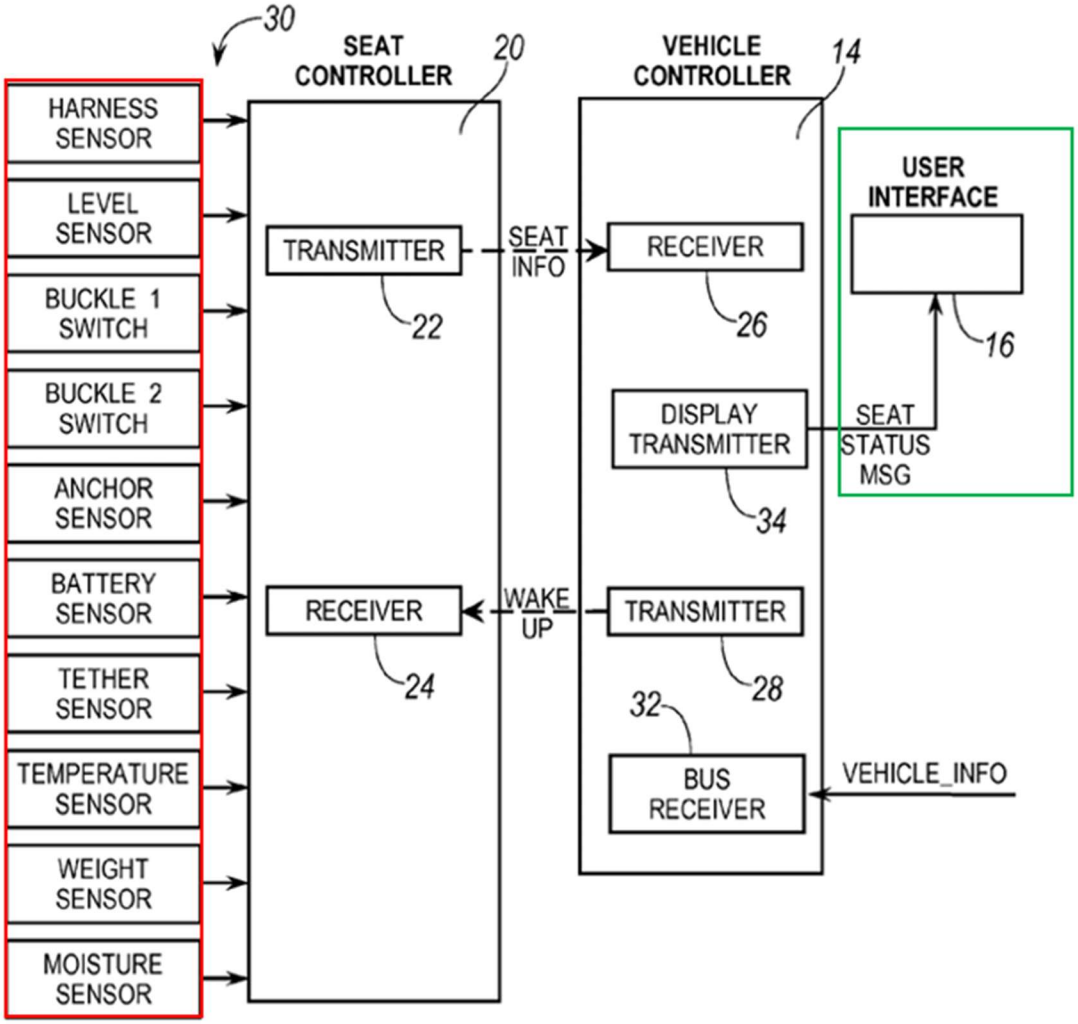


FIG. 2

Rork, Ex. 1036, FIG. 2 (Annotated)

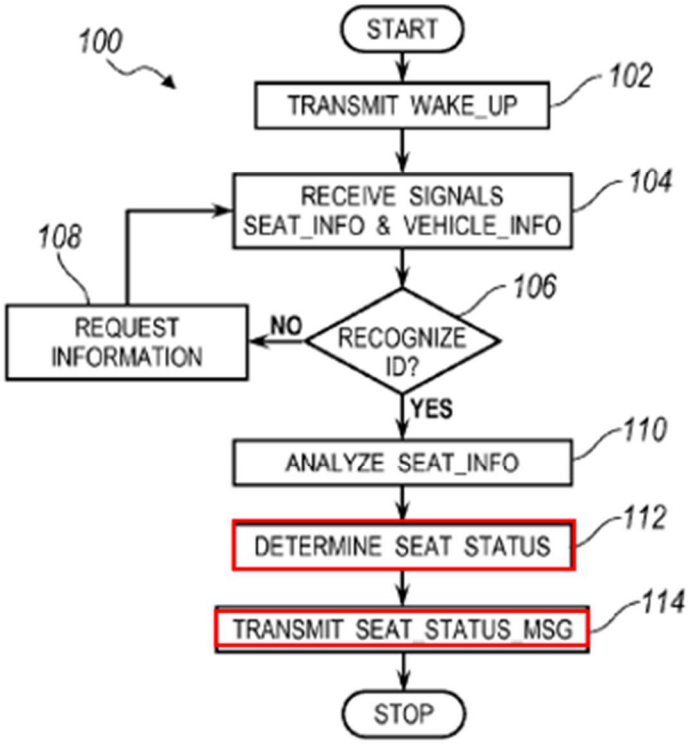


FIG. 6

Rork, Ex. 1036, FIG. 6 (Annotated)

643. Therefore, a PHOSITA would have understood that the sensors in the combination Sundaram/Rork allow for taking measurements ("*senses*") and conveying ("*notifies*") to the user ("*selected vehicle occupant*") of the seating status ("*condition*") of the child ("*another vehicle occupant*[,]") as both Sundaram and Rork are concerned with ensuring safety of passengers. Thus, it is my opinion that Sundaram in combination with Rork disclose the limitation, "*wherein the microprocessor executable vehicle control system senses a condition or activity of*

another vehicle occupant and notifies the selected vehicle occupant of the condition or activity[,]*"* of the '239 Patent obvious.

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[11c] wherein different vehicle occupants have different avatars.

646. Gruber discloses a system that can "[r]ender output data for modalities that may include, for example, any combination of graphical user interfaces; text messages; email messages; sounds; animations; and/or speech output." (Gruber, Ex. 1037, [0587].) Gruber further discloses a system that can "[d]ynamically render to specified modalities based on user preferences." (Gruber, Ex. 1037, [0590].)

647. Thus, a PHOSITA would have understood that Gruber teaches a system that can render specific sounds and speech output (modalities) based on various user preferences. A PHOSITA would have further understood that the ability to render these different modalities based on user preferences would have allowed for creating different modalities for different users based on unique user preferences. Indeed, the idea of creating outputs based on specific users lends itself to be able to create different outputs for different users. And, as discussed above, an "avatar" can include sounds unique to a vehicle occupant. Therefore, a PHOSITA would have understood that Gruber's teaching of creating different outputs (e.g., avatars in the

form of speech output and sounds) based on user preferences would also be used to create different such avatars for different vehicle occupants.

648. Gruber teaches that "output processor component(s) 1090 may be operable to . . .[r]ender output data in different speech voices dynamically. Dynamically render to specified modalities based on user preferences." (Gruber, Ex. 1037, [0585]-[0590].) At least for these reasons a PHOSITA would have understood that the combination of Sundaram and Gruber renders obvious the claim limitation "*different vehicle occupants have different avatars*."

649. Thus, it is my opinion that Sundaram and Gruber in combination render the limitation "*wherein different vehicle occupants have different avatars*[]"of the '239 Patent obvious.

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G. Ground 7: Sundaram combined with Vasa render Claim 29 Obvious

1. Rationale to Combine

652. A PHOSITA would have found it obvious to combine Sundaram's in vehicle platform with Vasa's sign detection and translation. Sundaram teaches: "External camera 244 is placed in the periphery of vehicle 102 or in locations external to vehicle 102, and is used for providing driving assistance, threat detection

on the road and other related services to the user." (Sundaram, Ex. 1027, [0043].) At least based on this explicit disclosure of an external camera for driving assistance, a PHOSITA would have found it obvious to combine Sundaram with Vasa. Vasa discloses using a camera for driving assistance, equipped with a wireless communication device. The type of assistance that Vasa provides is translating unfamiliar signs. (*See* Vasa, Ex. 1045, [0004].) Consequently, Sundaram and Vasa fit together like puzzle pieces.

653. Sundaram describes that its external camera interacts (i.e. communicates) with the in-vehicle computer. (Sundaram, Ex. 1027, [0027].) Therefore, Sundaram includes all of the required hardware to practice Vasa. Additionally, a PHOSITA would have understood that the vehicle system of Sundaram would have been improved by adding the software disclosed in Vasa.

654. Sundaram discloses that the described system can be readily modified for added functionality:

> While example embodiments have been illustrated and described, it will be clear that additional embodiments are contemplated. Numerous modifications, changes, variations, substitutions and equivalents will be apparent to those skilled in the art without departing from the spirit and scope of the described and contemplated embodiments.

(Sundaram, Ex. 1027, [0255].)

655. As demonstrated in the cited language below, Sundaram and Vasa are both in the field of vehicles with systems that enable interaction between in-vehicle computer, other computing devices, and other devices that provide information, to enhance user experience:

> Methods and systems for providing an integrated platform for entertainment, information, communication, control and computing applications in a vehicle are disclosed.

(Sundaram, Ex. 1027, [0014].)

> The present invention provides a camera-equipped wireless communication device that translates unfamiliar traffic signs for a user. Such signs include traffic signs posted in foreign countries, for example.

(Vasa, Ex. 1045, [0004].)

656. Vasa discloses a computing device composed of common hardware elements:

> Turning now to the figures, the wireless communication device may be, for example, a camera-equipped cellular telephone 10 such as the one seen in FIGS. 1 and 2. Cellular telephone 10 typically includes a controller 12, a User Interface (UI) 14, memory 16, a camera18, a long-range transceiver 20, and a short-range transceiver 22. In some embodiments, cellular telephone 10 may also include a Global

> Positioning Satellite (GPS) receiver 24 to permit cellular telephone 10 to identify its current geographical location.

(Vasa, Ex. 1045, [0030].)

657. The in-vehicle computer 104 of Sundaram includes similar hardware:

> In-vehicle computer 104 includes processing engine 202, camera 210, finger print sensor 212, RFID interface 214, commerce engine 216, vehicle interface 218, audio subsystem 220, flash memory 222, audio amplifier 224, voice recognition 226, display 228, touch inputs 230, wireless inter face 232 and wired interface 234. Processing engine 202 further includes processor 204, graphics engine 206 and digital signal processor 208. Vehicle 102 includes speakers 236, sensors 238, ECU (engine control unit) 240, engine 242 and external camera 244 which interact with in-vehicle computer 104.

(Sundaram, Ex. 1027, [0027].)

658. Thus, at the time of the invention, a PHOSITA would have found it obvious to combine Sundaram and Vasa's systems as the combination would yield the predictable benefit allowing users to seamlessly travel in a vehicle whether there is a language barrier or an unfamiliar graphic on the road. Also, the combination would eliminate the need for a separate device to perform the translation functions to be mounted in the vehicle, further providing convenience to the user.

659. Accordingly, a PHOSITA would have been motivated to combine Sundaram and Vasa as they both provide methods of using a camera to assist a user of a vehicle.

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a. A PHOSITA would have known how to combine Sundaram and Vasa

663. A PHOSITA would have understood how to combine Sundaram and Vasa with a reasonable expectation of success, recognizing that both systems rely on similar hardware architectures involving sensors, processors, and display interfaces. Sundaram's in-vehicle computer 104 is designed to receive inputs from various sensors embedded throughout the vehicle, including external cameras to assist users. (*See* Sundaram, Ex. 1027, [0027].) Vasa's system similarly uses a camera-equipped wireless device with a processor that analyzes images of traffic signs and outputs identification information. (*See* Vasa, Ex. 1045, [0005].) Both systems rely on sensor input, data processing, and user output, making their integration a matter of running Vasa's image recognition application into Sundaram's existing application platform.

664. The modifications required to combine the two systems would have been primarily software-based and well within the capabilities of a PHOSITA. Sundaram already discloses a software platform capable of supporting applications, including GPS, traffic alerts, and visual recognition. (*See* Sundaram, Ex. 1027, [0021].) Vasa's image recognition and translation logic would be implemented as an application running on Sundaram's in-vehicle computer 104, utilizing its existing camera, display, and processor hardware. A PHOSITA would have recognized that integrating Vasa's functionality into Sundaram's system would involve software adaptation of image processing and database searching, both of which are well within the capabilities of Sundaram's disclosed computing platform as shown with the facial recognition.

b. *KSR* Factors

665. Several *KSR* factors also support my opinion that a PHOSITA would have found it obvious to combine the teachings of Sundaram with the teachings of Vasa.

666. The elements of Sundaram and Vasa could have been combined according to known methods to yield the predictable result of assisting the driver navigate. Sundaram already discloses receiving and processing sensor data, including recognition of visual inputs (*See* Sundaram, Ex. 1027, [0020], [0043]), while Vasa provides a method for interpreting traffic signs using image recognition

(*See* Vasa, Ex. 1045, [0044]-[0045]). Based on the functionality already present in Sundram it is clear the hardware to carry out the function of Vasa is present, thus a PHOSITA would have recognized combining the software disclosed in Vasa with the in-vehicle platform disclosed in Sundaram would have yielded the predictable result of aiding a user understand signs they did not recognize the image of or could not read the text of.

667. Adding the functionality of Vasa to the system of Sundaram would have been a simple addition yielding a functioning image recognition and processing platform. Sundaram already discloses using image processing and visual recognition. (Sundaram, Ex. 1027, [0019], [0043].) Adding the functionality of Vasa would only require the addition of software that would allow for sign recognition yielding the predictable result of improved driver assistance when navigating.

668. Vasa discloses its system being used with a "camera-equipped wireless communication device." (Vasa, Ex. 1045, [0028].) Vasa further explains what hardware requirements are needed to provide the disclosed functionality. (*See* Vasa, Ex. 1045, [0030].) Adding the functionality of Vasa, through software modifications, to any system that has the hardware would improve the user's ability to understand and interact with their surroundings. Adding Vasa' functionality to Sundaram's in-vehicle platform provides similar benefits to the vehicle experience as contemplated in Vasa.

669. It would have been obvious to try to combine Sundaram and Vasa. Vasa disclosed the system being used to translate signs when a user is operating a vehicle. (Vasa, Ex. 1045, [0041]-[0043].) The context in which the disclosure of Vasa functions would lead to the predictable option of incorporating the functionality directly into the vehicle. Vasa in listing what a device that can carry out its disclosed functions lists the hardware of the vehicle disclosed in Sundaram further illustrating it would have been obvious to try to add the systems together.

670. Road signs are often in a single language. Market forces due to increased international travel would have motivated the addition of the functionality disclosed in Vasa. For example, if a tourist from a foreign country comes to the U.S., they would prefer a rental car with this feature because it would make navigation easier, enhance their safety and user experience. Rental companies that offer such vehicles would have been at a competitive advantage. Sundaram provides a suggestion that functionality like that of Vasa should be added. Sundaram discussed an external camera for assisting a driver. This would lead a PHOSITA to seek assistance provided by an external camera. Vasa's system is a clear usage of a camera assisting and based on the disclosure of Vasa it is a camera pointing outside of the car which could be done by a camera attached to the outside of the vehicle.

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2. Claim 29

[29] The method of claim 1, wherein the vehicle control system translates signage located outside the vehicle and provides a translated signage message to the selected vehicle occupant.

673. Claim 29 depends from Claim 1, discussed in Ground 1, and thus the analysis for claim 1 is incorporated here.

674. Sundaram discloses an external camera used for driver assistance and also discloses a processor ("*vehicle control system*") analyzing what is captured one of the disclosed cameras and acting based on what is captured and finally Sundaram discloses the cameras in the system as sensors:

> External camera 244 is placed in the periphery of vehicle 102 or in locations external to vehicle 102, and is used for providing driving assistance, threat detection on the road and other related services to the user.

(Sundaram, Ex. 1027, [0043].)

> Camera 210 is interfaced to processor 204 and pro vides visual input to processor 204. Camera 210 is a type of CMOS, CCD or other imaging sensors. Camera 210 may be optimally used in low light conditions as ambient light in vehicle 102 is generally low. Camera 210 enables the user to have video conferencing and video calls. Inputs provided by camera 210 to processor 204 include without limitation, driver identification, driver status while driving vehicle 102 and the likes. For example, in case the driver is sleepy-eyed, camera 210 provides the

> inputs about driver's driving status to processor 204 and processor 204 may provide an alert to the driver to ensure safety of both the driver and the vehicle. Camera 210 enables live video capturing of the user, enabling in-vehicle computer 104 to recognize gestures and user's moods and provide entertainment such as music, movies, advertisements, games etc. based on the identified gestures and moods.

(Sundaram, Ex. 1027, [0031], *see also* [0129].)

675. Vasa discloses how a cellular phone can translate road signs.

> FIG.5 illustrates an exemplary method 50 by which controller 12 analyzes the captured image of an unfamiliar traffic sign for translation to a driver. For illustrative purposes only, the following description is given in the context of a driver that is familiar with traffic sign 30, but unfamiliar with traffic sign 40.

(Vasa, Ex. 1045, [0042].)

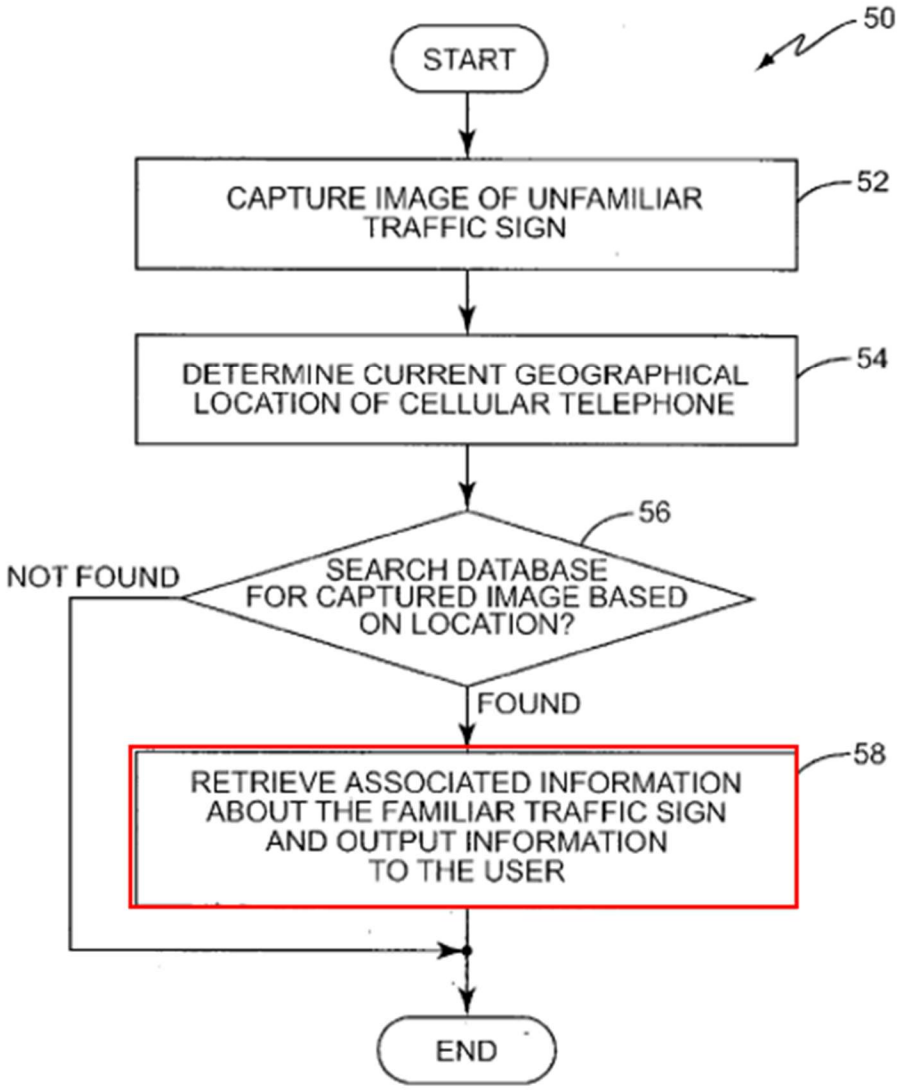


FIG. 5

Vasa, Ex. 1045, FIG. 5 (Annotated)

676. Vasa further discloses that the capturing is performed by a camera and can occur automatically:

> Method 50 assumes that the cellular telephone 10 is mounted in the person's vehicle at a Suitable angle such that the camera 18 can capture images of various traffic signs, such as sign 40. Method 50 begins when

the controller 12 generates a signal to activate camera18 to capture an image of traffic sign 40 (box 52). For example, the controller 12 may generate this signal automatically responsive to recognizing that a traffic sign is proximate the vehicle.

(Vasa, Ex. 1045, [0043].)

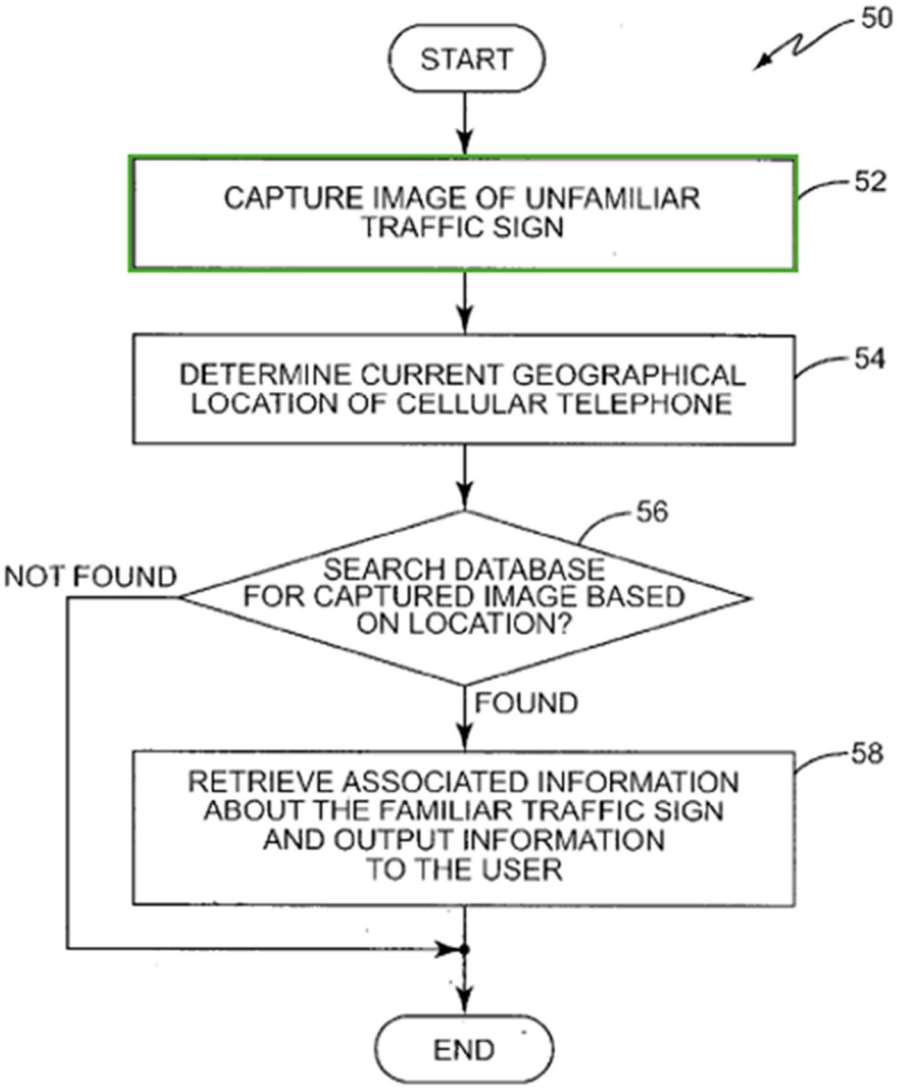


FIG. 5

Vasa, Ex. 1045, FIG 5 (Annotated)

677. Vasa also discloses the translation information being delivered to the user through audio means:

> The information that is associated with the captured image of the unfamiliar road sign may be any type desired. In one embodiment, for example, the information that is associated with the traffic sign 40 comprises an image of traffic sign 30. In this case, the controller 12 could output the image of traffic sign 30 to the display 28 upon locating traffic sign 40 in the database 26. Alternatively, the information associated with traffic sign 40 may be an audio file that, when invoked by controller 12, renders an audible "NO STOPPING OR STANDING" sound byte to the user.

(Vasa, Ex. 1045, [0046].)

678. A PHOSITA would have understood that the system disclosed in Sundaram already discloses synchronizing and exchanging information between the in-vehicle computer 104 and external devices. (*See* Sundaram, Ex. 1027, [0094].) Vasa's disclosure while focused on mobile phones begins by stating the invention provides a camera equipped wireless communication device generally. (*See* Vasa, Ex. 1045, [0028].) The vehicle of Sundaram discloses all of the required hardware to perform the functions of Vasa. A simple software change would allow Sundaram to perform the functions disclosed in Vasa. Sundaram further highlights how some of its embodiments can download phone applications.

679. Thus, it is my opinion Sundaram in Combination with Vasa render the limitation "*wherein the vehicle control system translates signage located outside the vehicle and provides a translated signage message to the selected vehicle occupant*[]" of the '239 Patent obvious.

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VIII. Objective Indicia Does Not Support Patentability

682. Considering the information that I have reviewed, my general knowledge of the field of intelligent vehicles for assisting vehicle occupants, and publications within that and related fields, I am not aware of any objective evidence that might support the patentability of the claims of the '239 Patent. Further, from my review of the file history (Ex. 1002) of the '239 Patent, I did not see that the applicant raised any secondary indicia of nonobviousness during prosecution. I am not otherwise aware of any publicly available evidence of secondary indicia of nonobviousness. Should any alleged secondary indicia of nonobviousness be presented, I reserve the right to provide an opinion thereon.

Conclusion

683. In my opinion, all the elements of the challenged claim limitations are disclosed by the references discussed above and that the claims are unpatentable in view of these prior art references.

684. I reserve the right to supplement my opinions to address any information obtained, or positions taken, based on any new information that comes to light throughout this proceeding.

I declare under penalty of perjury that the foregoing is true and accurate to the best of my ability.

* * *

In signing this declaration, I recognize that the declaration will be filed as evidence in a case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination and that cross-examination will take place within the United States. If cross-examination is required, I will appear for cross-examination during the time allotted.

I hereby declare that all statements made herein of my own knowledge are true and all statements made herein on information and belief were and are believed by me to be true, and that all statements herein were and are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code.

Executed on: December 5, 2025



Todor Cooklev