

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FORD MOTOR COMPANY,
Petitioner,

v.

AUTOCONNECT HOLDINGS LLC,
Patent Owner.

U.S. Patent No. 9,147,297 to Ricci

Case No.: IPR2026-00172

DECLARATION OF SCOTT ANDREWS

TABLE OF CONTENTS

List of Exhibits	3
I. Qualifications and Professional Experience.....	7
II. Relevant Legal Standards	12
A. General	12
B. Priority Dates for Claimed Subject Matter.....	14
C. Claim Construction Standard	15
D. Anticipation	15
E. Obviousness.....	16
III. Qualifications of One of Ordinary Skill in the Art	20
IV. U.S. Patent No. 9,147,297 to Ricci	21
A. Priority Claim	21
B. Overview of the '297 Patent.....	23
C. The '297 Patent File History	39
V. State of the Art	41
A. Vehicle Communication Systems	42
1. Infotainment Systems.....	42
B. User Convenience.....	46
1. Device Discovery	47
2. Customization	52
3. Positioning Methods	53
VI. Key Prior Art References Relied Upon.....	60
A. U.S. 2007/0143482 A1 (“Zancho” Ex. 1022).....	60
B. U.S. 9,224,289 B2 (“Demeniuk” Ex. 1023).....	61
C. U.S. 2011/0106375 A1 (“Sundaram” Ex. 1027).....	61
VII. Grounds for Challenge	61
A. Ground 1 – Zancho Discloses All of the Limitations of Claims 1-2, 4-10, and 12-20	61
B. Ground 2 – The Combination of Zancho and Sundaram Teach All of the Limitations of Claims 3 and 11.....	218
C. Ground 3 – The Combination of Demeniuk and Zancho Teaches All of the Limitations of Claims 1-20	240
VIII. Objective Indicia Does Not Support Patentability	365
IX. Conclusion.....	365

List of Exhibits

Exhibit No.	Description
1001	U.S. Patent No. 9,147,297 (“the ’297 Patent”)
1002	U.S. Patent No. 9,147,297 Certified File History (“the ’297 Patent File History”)
1003	Expert Declaration of Dr. Scott Andrews
1004	Dr. Scott Andrews Curriculum Vitae
1010	U.S. Patent No. 8,768,539 B1 to Clement (“Clement”)
1011	U.S. Patent No. 7,388,466 B2 to Ghabra (“Ghabra”)
1012	U.S. Patent Application Pub. No. 2012/0092129 A1 to Lickfelt (“Lickfelt”)
1013	U.S. Patent Application Pub. No. 2011/0093153 A1 to Moinzadeh (“Moinzadeh”)
1015	U.S. Patent No. 7,783,699 B2 to Rasin (“Rasin”)
1022	U.S. Patent Application Pub. No. 2007/0143482 A1 to Zanchi (“Zanchi”)
1023	U.S. Patent No. 9,224,289 B2 to Demeniuk (“Demeniuk”)
1027	U.S. Patent Application Pub. No. 2011/0106375 A1 to Sundaram (“Sundaram”)
1050	Bosch Handbook, (Automotive Handbook October 2004 6 th Edition) (“Bosch”)
1051	IEEE Dictionary, (IEEE 100 The Authoritative Dictionary of IEEE Standards Terms 2000 7 th 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	Hossain et al., “A Comprehensive Study of Bluetooth Signal Parameters for Localization,” 2007 IEEE 18 th International Symposium on Person, Indoor and Mobile Radio Communications Available at https://www.ieeexplore.ieee.org/document/4394215 (“Hossain”)

Exhibit No.	Description
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,” <i>SAE International</i> , 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”)
1061	Ford SYNC Supplemental Guide, November 2007 (“Sync Guide 2007”)
1062	Ford SYNC Supplemental Guide, January 2010 (“Sync Guide 2010”)
1063	Saltzstein, William E. “Bluetooth: The Future of Wireless Medical Technology?” February 1, 2002. Available at https://www.mddionline.com/new-technologies/bluetooth-the-future-of-wireless-medical-technology- (Accessed June 30, 2025) (“MDDI”)
1064	MyFord Touch Ford User Guide Ford Motor Company, February 2012 (“MyFord Touch Guide”)
1065	SUSE LINUX – Administration Guide. Published by SUSE LINUX AG, 2004. (“Linux”)
1075	Turing, A. M. “On Computable Numbers with an Application to the Entscheidungsproblem” November 12, 1936. (“Turing”)
1076	Ganesan, Deepak “Chapter 4, The Von Neumann Model” April 25, 2012. Available at https://web.archive.org/web/20120425083227/http://none.cs.umaass.edu/~dganesan/courses/fall09/handouts/Chapter4.pdf (Accessed September 15, 2025) (“Ganesan”)
1077	Von Neumann, John “First Draft of a Report on the EDVAC” June 30, 1945. (“Von Neumann”)

Exhibit No.	Description
1078	Intel “The Story of the Intel 4004.” Available at https://web.archive.org/web/20121003001757/https://www.intel.com/content/www/us/en/history/museum-story-of-intel-4004.html (Accessed September 22, 2025) (“Intel 4004”)
1079	Intel MCS-4 Micro Computer Set Data Sheet, November 1971. (“MCS-4”)
1080	Erickson, Kelvin T. “Programmable logic controllers,” <i>IEEE Potentials</i> , Institute of Electrical and Electronics Engineers (IEEE), February/March 1996. (“Erickson”)
1081	U.S. Patent No. 9,224,289 B2 to Demeniuk File History (“Demeniuk Patent File History”)

DECLARATION OF SCOTT ANDREWS

I, Scott Andrews 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. 9,147,297 (“the ’297 Patent”) to Christopher Ricci. (Ex. 1001.)

2. I am being compensated at an hourly consulting rate of \$600 for time spent reviewing materials and performing my analysis of the technical issues relevant to this matter. 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.

4. In preparation of this declaration, I have studied the exhibits as listed in the Exhibit List shown above in my report.

5. In forming the opinions expressed below, I have considered:

- a. The documents listed above as well as additional patents and documents referenced herein;
- b. The relevant legal standards, including the standard for

obviousness provided in *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007), and any additional documents cited in the body of this declaration; and

- c. My knowledge and experience based upon my work and study in this area as described below.

I. Qualifications and Professional Experience

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

7. I have over 30 years of professional experience in the automotive and transportation industry, including in intelligent transportation systems, vehicle electrical and electronics systems, vehicle information systems, and navigation systems.

8. I received a Bachelor of Science degree in Electrical Engineering from the University of California, Irvine, in 1977. I received a Master's of Science degree in Electronic Engineering from Stanford University in 1982.

9. From 1977 to 1983, I held engineering positions at Ford Aerospace and Teledyne Microwave, working on, among other things, transmitter-receiver systems for guided missile systems and other related military electronics.

10. From 1983 to 1993, I worked at TRW, Inc. ("TRW") in the Space & Electronics Group, where I served as a project manager, a department manager, and

as an assistant program manager on a variety of spacecraft communications systems projects. My last position at TRW Space & Electronics was as the manager of the MMIC Products Organization, which was directed toward monolithic microwave integrated circuits. In that role, I developed TRW's commercial GaAs MMIC business. My responsibilities included development of a business strategy and business plan, and overall management of customer and research and development programs for my department. During my time in the MMIC Products Organization I also developed the first single chip 94 GHz radar, intended for use in automotive adaptive cruise control system. While I was at TRW Space & Electronics, I received several awards for outstanding performance on Independent Research and Development projects.

11. In 1993, while still at TRW, I moved to the Automotive Electronics and Group and became the Director of Systems Engineering and Advanced Products. In this role, I was responsible for the overall management of TRW's advanced development programs in the automotive electronics space. These programs included, among other things, wireless remote keyless entry systems, vehicle tracking and location systems (e.g., roadside assistance and emergency response systems), emergency vehicle warning systems (e.g., transmitter-receiver systems that would provide a warning inside the user's vehicle when an active emergency vehicle was in the vicinity), automotive collision avoidance radar, and other types

of vehicle information systems. I served in this role until 1996.

12. From 1996 to 2000, I worked at Toyota Motor Corporation as a Project General Manager in the R&D Management Division. My responsibilities there included the conceptualization and development of multimedia systems and new technology products and services for Toyota's future generations of passenger vehicles. My work at Toyota included the development of adaptive cruise control systems based on radar and lidar sensors. For example, I evaluated a variety of sensors and subsystems in Europe and Japan specifically to support Toyota's development of adaptive cruise control and forward collision avoidance systems. In this capacity I also interacted extensively with the Collision Avoidance Metrics Partnership (CAMP), a joint venture between Ford Motor Company and General Motors.

13. While at Toyota, I was responsible for a variety of research collaborations, including, for example, a collaboration with Dr. Paul Green at the University of Michigan Transportation Research Institute (UMTRI) wherein we studied the distraction created by different map displays for navigation systems, and identified various rules for the display of map information based on the speed of the vehicle. This included readability studies for how street names were displayed, and what level of map detail should be displayed as a function of vehicle speed.

14. In 1999, I founded Cogenia, Inc. to develop an enterprise-class data

management software system. While at Cogenia, I developed and oversaw the company's business concept and strategic plan and led the executive team in the development of an enterprise data system for managing data between multiple user endpoints or devices. This included home and work computing environments, as well as multiple mobile devices. In each case, key data useful to the user was prepositioned so that it could be easily accessed when and where the user needed it the most. Cogenia, Inc. ceased operations in December 2000.

15. I founded Cogenia Partners, LLC as an independent consultant in the intelligent vehicles and mobile systems industry in January 2001. My primary clients have been automotive manufacturers, various navigation and mobile device makers, and the U.S. Department of Transportation.

16. Between January 2001 and June 2003, I was engaged as a consultant to Toyota serving as a key member of the AMI-C technical team. At the conclusion of the AMI-C Release II specifications, I transitioned the AMI-C specifications to the International Organization for Standardization (or ISO) and the Open Services Gateway initiative (or OSGi) as part of the Connected Vehicle Trade Association, for which I currently serve as the Vice President of Technology.

17. My consulting experience includes serving between 2005 and 2010 as the Chief System Architect for the Vehicle Infrastructure Integration ("VII") program. This was a cooperative research project sponsored by the Federal Highway

Administration (“FHWA”) and a group of automakers who had formed the VII Consortium (or VIIC). In this role, I was responsible for developing the system architecture, defining requirements, and leading the development and testing of a system for communicating between the roadway and the car, and between cars.

18. My consulting experience also includes serving as technical consultant to the American Association of State Highway Transportation Officials (or AASHTO) for connected vehicle deployment analysis and strategy; technical consultant to Booz Allen for connected vehicle security credential communications systems analysis, for the FHWA; and technical consultant to ARINC for the development of an advanced connected vehicle test facility for the FHWA Turner Fairbank Highway Research Center. I recently completed a project as co-principal investigator for Integrated Advanced Transportation System (a research program funded by FHWA).

19. Currently, I consult with the U.S. Department of Transportation, major carmakers, and suppliers on vehicle information systems, safety systems, and communication systems. In the various positions mentioned above, I was responsible for the research and development of projects relating to numerous vehicle information systems, user interface systems, sensory systems, control systems, and safety systems, and I also had the opportunity to collaborate with numerous researchers and suppliers to the auto industry. I am a member of the Institute of

Electrical and Electronics Engineers (or IEEE), the IEEE Standards Association, the Society of Automotive Engineers (or SAE), the Institute of Navigation (or ION), and the International Council on Systems Engineering (or INCOSE).

20. I have authored numerous technical papers. My publications include papers on topics related to telematics, software and network architecture, and vehicle infrastructure, including integration of vehicle systems. I have attached to my curriculum vitae a list of all publications I have authored in the last 10 years.

21. Additionally, I am the named inventor of thirty U.S., Japanese and European patents, including patents related to controlling a mobile device based on contextual information from sensors. I have attached a complete list of my issued patents to my curriculum vitae.

22. 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.

23. I have previously prepared expert reports and testified in a number of cases concerning related systems.

II. Relevant Legal Standards

A. General

24. I have been asked to provide opinions on the claims of the '297 Patent in light of the prior art.

25. 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 factual account 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.

26. 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

27. 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 '297 Patent.

28. 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 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.

29. 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.

30. 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

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

32. 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.

33. I understand that an apparatus claim limitation that includes functional language without reciting the structure limitations for performing the claimed function may be construed as a “means for” or “means plus” claim, even if the claim limitation does not expressly use the term “means.” Such a claim limitation is interpreted to cover the structure disclosed in the specification for performing the claimed function and equivalents thereof.

D. Anticipation

34. I understand that the following standards govern the determination of whether a patent claim is “anticipated” by the prior art.

35. I understand that, for a patent to be “anticipated” by the prior art, each and every limitation of the claim must be found, expressly, implicitly or inherently, in a single prior art reference. I further understand that the requirement of strict identity between the claim and the reference is not met if a single element or limitation required by the claim is missing from the applied reference.

36. I understand that claim limitations that are not expressly described in a prior art reference may still be there if they are implicit or inherent to the thing or process being described in the prior art. I have been informed that to establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill in the art. I have been informed that inherency cannot be established just because a certain thing may result from a given set of circumstances.

37. I understand that it is acceptable to consider evidence other than the information in a particular prior art document to determine if a feature is necessarily present in or inherently described by that reference.

E. Obviousness

38. 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.

39. 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.”

40. 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.

41. In addition, I understand that the obviousness inquiry should not be done in hindsight, but must be done using the perspective of a person of ordinary skill in the relevant art as of the effective filing date of the patent claim.

42. 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.

43. 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 could 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, sometimes referred to as *KSR* factors:

- 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.

44. 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 lead 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 explicit statement saying the combination should not be made).

III. Qualifications of One of Ordinary Skill in the Art

45. Based on my review of these materials, I believe that the relevant field for purposes of the '297 Patent includes vehicle communication systems and adjusting an infotainment system based on user profiles and access priorities of multiple users. (See the '297 Patent, Ex. 1001, Abstract.)

46. I have been asked to provide my opinion as to the level of skill of a person having ordinary skill in the art (“POSA” or “ordinary artisan”) of the '297 Patent at the time of the claimed invention, which I have been instructed to assume is April 15, 2013. In determining the characteristics of a hypothetical person of ordinary skill in the art of the '297 Patent at the time of the claimed invention, I was told to consider several factors, including 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. I also placed myself back in the time frame of the claimed

invention and considered the colleagues with whom I had worked at that time.

47. In my opinion, a person having ordinary skill in the art (“POSA”) of the ’297 Patent at the time of its filing would have been a person having, as of April 15, 2013, a Bachelor’s degree in Electrical Engineering, Mechanical Engineering, or an equivalent degree with at least two years of experience in communication systems, vehicle sensor systems, electronic user interface systems, or related technologies. Additional industry experience could make up for less education and vice versa. Such a person of ordinary skill in the art would have been capable of understanding the ’297 Patent and the prior art references discussed herein.

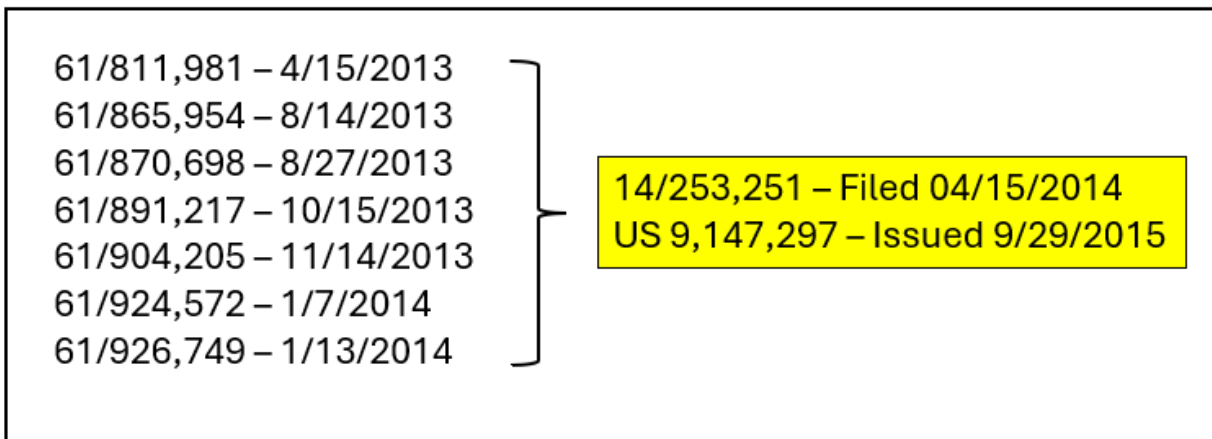
48. Based on my education, training, and professional experience in the field of the claimed invention, I am familiar with the level and abilities of a person of ordinary skill in the art at the time of the claimed invention. Additionally, I met at least these minimum qualifications to be a person having ordinary skill in the art at least as of April 15, 2013.

49. Further, although my qualifications may exceed those of the hypothetical person having ordinary skill in the art defined above, my analysis and opinions regarding the ’297 Patent have been rendered from the perspective of a person having ordinary skill in the art at the time of the invention.

IV. U.S. Patent No. 9,147,297 to Ricci

A. Priority Claim

50. U.S. Patent No. 9,147,297 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. ('297 Patent, Ex. 1001, Cover.)



The '297 Patent Family

51. I have been informed by Counsel that all of the prior art references applied in the below Grounds predate April 15, 2013 (the earliest claimed priority date of the '297 Patent), and that I do not need to analyze priority at this time. Therefore, I take no opinion of whether the claims of the '297 Patent are entitled to any of the claimed priority dates. I reserve the right to opine on the priority date of the claims of the '297 Patent should it become an issue.

B. Overview of the '297 Patent

52. The '297 Patent titled “Infotainment System Based on User Profile” was filed on April 15, 2014 and issued on September 29, 2015. ('297 Patent, Ex. 1001, Cover.)

53. The '297 Patent relates to “[m]ethods and systems for a complete vehicle ecosystem[.]” ('297 Patent, Ex. 1001, Abstract.) The '297 Patent describes a system for prioritizing control of an infotainment system with respect to multiple users.

54. With reference to Figure 1, the '297 Patent discloses a vehicle environment 100 with 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.” ('297 Patent, Ex. 1001, 16:7-30.)

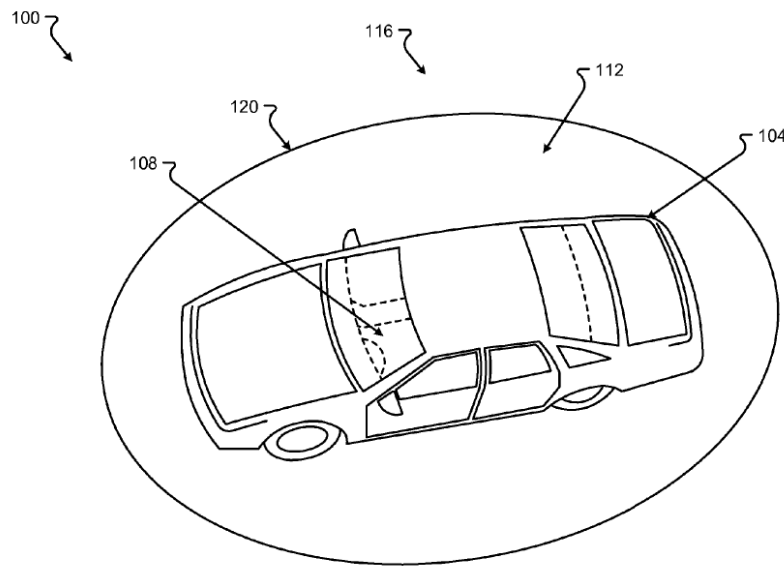
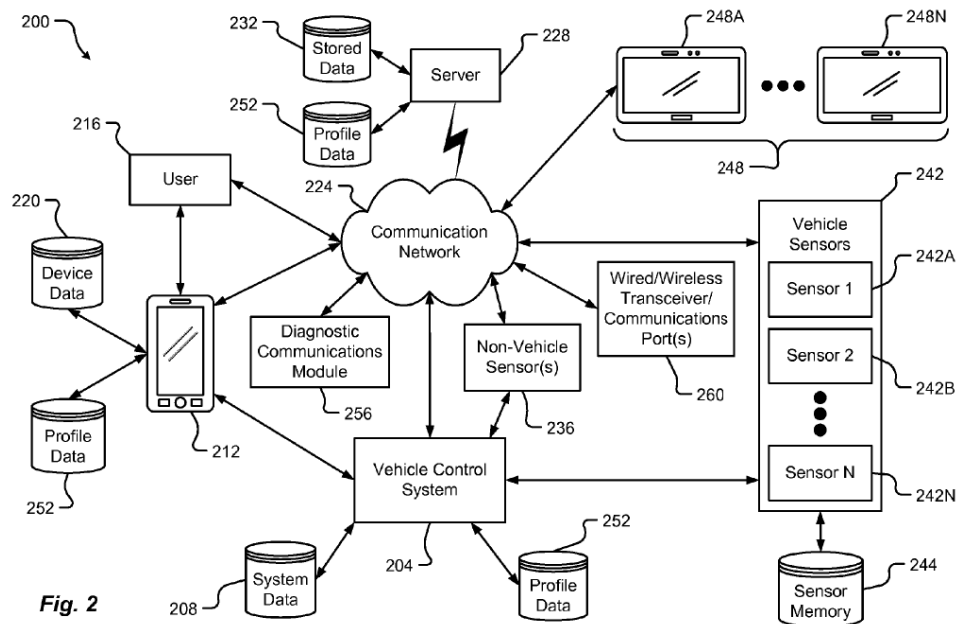


Fig. 1

'297 Patent, Ex. 1001, Fig. 1

55. Referring to Figure 2, the '297 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[.]” ('297 Patent, Ex. 1001, 16:53-58.)



'297 Patent, Ex. 1001, Fig. 2

56. “The device 212, 248 can be a mobile device . . . that is either permanently located in or temporarily associated with . . . the vehicle 104” and “the vehicle control system 204 can interface with the device 212, 248 and leverage the device's computing capability to provide one or more of the features or functions” described in the '297 patent. ('297 Patent, Ex. 1001, 16:61-17:2.) The '297 Patent refers to the device 212 using a plurality of interchangeable terms, such as “mobile device” and “communication device.” ('297 Patent, Ex. 1001, 16:62-63, 74:25-26.)

57. The '297 Patent describes identifying a user based on device identification, e.g., using a phone as a proxy for the user, facial recognition, and user registration with the vehicle:

The communication may include the collected health data associated with one or more users 216 of the vehicle 104 and/or an identification of the one or more users 216 (step 2920). The identification may be provided based, on device 212 identification, user 216 identification via facial recognition (e.g., as described above), and/or user 216 registration with a vehicle 104.

(’297 Patent, Ex. 1001, 88:25-31)

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.

(’297 Patent, Ex. 1001, 44:37-42)

58. “The vehicle control system 204 may also communicate with or through a communication network 224. The communication network 224 can represent any type of wireless and/or wired communication system that may be included within the vehicle 104 or operable to communicate outside the vehicle 104.” (’297 Patent, Ex. 1001, 18:20-25.) “[T]he communication network 224 can include a Bluetooth® wireless system, an 802.11x (e.g., 802.11G/802.11N/802.11AC, or the like, wireless system), a CAN bus, an Ethernet network within the vehicle 104, or other types of communication networks[.]” (’297 Patent, Ex. 1001, 18:27-32.)

59. The '297 Patent discloses “a profile data store 252 for storing data about user profiles and data associated with the users.” ('297 Patent, Ex. 1001, 22:11-12.)

[T]he device 212, 248 may include or have access to device data 220 and/or profile data 252. The device data 220 can be any type of data that is used in conjunction with the device 212, 248 including, but not limited to, multimedia data, preferences data, device identification information, or other types of data.

('297 Patent, Ex. 1001, 17:6-11.)

60. The '297 Patent discloses that the profile data may be any type of data, including vehicle preferences, associated with a user:

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. 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.¹

(’297 Patent, Ex. 1001, 17:11-28.)

61. The ’297 Patent discloses that the “profile data 252 may include one or more user accounts” and that the “[u]ser accounts may include access and permissions to one or more settings and/or feature preferences associated with the vehicle 104, communications, infotainment, content, etc.” (’297 Patent, Ex. 1001, 17:48-52.)

62. The ’297 Patent discloses collecting infotainment information, which may be in the form of infotainment settings:

The method 3000 begins at step 3004 and proceeds by collecting infotainment information (step 3008). In some embodiments, the infotainment information may include infotainment settings. As provided above, the infotainment settings may include, but are not limited to, **preferred radio stations, content applications, listening content, viewing content, content playback settings (e.g., volume, speed, quality, etc.), genres, content consumption habits (e.g., including listening times, associated content, trends, etc.), recording preferences,** and/or the like. This infotainment information may be stored in a user profile associated with a user 216. In one

¹ Unless I indicate otherwise, all bolding, underlining and emphasis used in my declaration has been added.

embodiment, the user profile may be stored in a profile data memory 252 that can be found on a device 212, in a vehicle 104, attached to a communication network 224, on the cloud (e.g., a server 228, etc.) and/or some other location.

(’297 Patent, Ex. 1001, 89:20-34.)

63. In connection with Figure 30 shown below, the ’297 Patent discloses detecting the infotainment settings/information, e.g., by the infotainment system:

[T]he method 3000 may continue when user profile infotainment settings are detected (step 3012). **Detecting the presence of infotainment information may be provided via the user profile reporting the infotainment information to at least one of the vehicle 104 and/or the infotainment system 870.** In some embodiments, the detection of the infotainment information may be made by the infotainment system 870 detecting a user profile and reading at least one data record of the user profile, the data record containing the infotainment information. The user profile may be detected in response to identifying a user 216. For example, a user 216 may register with an infotainment system 870. As part of the registration, the user 216 may provide access to at least a portion of the user profile associated with the user 216 via the infotainment system 870. The infotainment system 870 may be configured to retrieve the setting information from the user profile on a periodic basis. Additionally or alternatively, the infotainment system 870 may be configured to retrieve the setting information from the user profile based on detecting the presence of a

user 216 (e.g., in one or more areas of a building and/or a vehicle 104).
(’297 Patent, Ex. 1001, 89:35-55.)

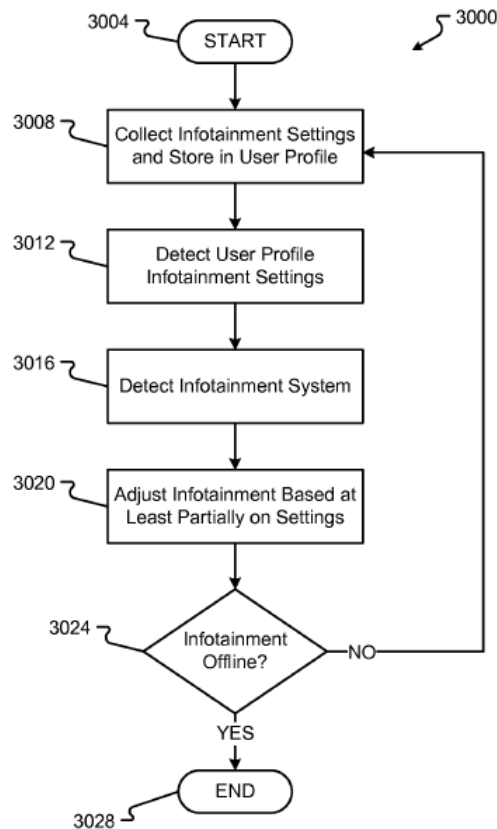


Fig. 30

’297 Patent, Ex. 1001, Fig. 30

64. The ’297 Patent discloses detecting the infotainment system via a profile identification module, which may include detection based on a communication across a bus, communication via a communication network 224, or via service discovery on a network (e.g., wired and/or wireless):

The method 3000 may continue by detecting an available infotainment system 870 (step 3016). In some embodiments the infotainment system 870 may be associated with a vehicle 104, a home, a building, or other

location. For example, **a profile identification module can detect one or more infotainment system 870 that has been registered with a device 212 and/or user 216. The vehicle 104 may detect an available infotainment system 870 based on a communication with across a bus 356 or communication network 224. The detection of an available infotainment system 870 may be provided via device discovery on a network (e.g., wired and/or wireless).** Additionally or alternatively, the detection may include determining a configuration of the infotainment system 870. Configurations may include settings, preferences, content, tuners, power state, associated users 216 and/or devices 212, 248, access priorities, and/or the like.

(’297 Patent, Ex. 1001, 89:56-90:4.)

65. The ’297 Patent discloses that “[t]he term ‘module’ as used herein refers to any known or later developed hardware, software, firmware, artificial intelligence, fuzzy logic, or combination of hardware and software that is capable of performing the functionality associated with that element.” (’297 Patent, Ex. 1001, 11:3-7.)

66. The ’297 Patent discloses adjusting the configuration of the infotainment system based on the collected and/or stored “infotainment information”:

The method 3000 proceeds by using the collected and/or stored infotainment information to adjust settings based on the infotainment information (step 3020). For instance, the

infotainment system 870 can alter at least one setting of one or more components of the infotainment system 870 to match information stored in the user profile associated with a user 216. In other words, the settings of an infotainment system 870 may be adjusted to match the settings of an infotainment system of a building, another vehicle 104, or other device 212 associated with a user 216.

(’297 Patent, Ex. 1001, 90:5-14.)

67. The ’297 Patent describes a system for prioritizing control of an infotainment system with respect to multiple users:

In some cases, the adjustment of one or more settings associated with the infotainment system 870 may be allowed, denied, and/or limited based on one or more access priorities. Users 216 may have an access priority assigned by the infotainment system 870. High access priorities have precedence to access of the infotainment system 870 over lower access priorities. For example, a parent may have a high access priority (e.g., AP1), and a child may have a lower access priority (e.g., AP3) when compared to the parent's access priority. In the event that an access conflict arises (e.g., where the child wishes to play music via the infotainment system 870 while the parent is currently playing content via the infotainment system 870, the access priority serves to deny access to the child (e.g., because the parent's access priority is greater than, or a higher priority, than the child's access priority). In determining the ability to adjust infotainment settings, the access priorities may be compared by the infotainment system 870.

(’297 Patent, Ex. 1001, 90:16-33.)

68. The ’297 Patent states that an infotainment system includes hardware or software products, data, content, information, or systems, which can be built into or added to vehicles to enhance driver or passenger experience:

The terms “infotainment” and “infotainment system” may be used interchangeably and can refer to the hardware/software products, data, content, information, and/or systems, which can be built into or added to vehicles to enhance driver and/or passenger experience.

Infotainment may provide media and/or multimedia content. An example is information-based media content or programming that also includes entertainment content.

(’297 Patent, Ex. 1001, 11:65-12:5.)

The infotainment system 870 may include information media content and/or entertainment content, informational devices, entertainment devices, and the associated programming therefor.

Optionally, the infotainment system 870 may be configured to handle the control of one or more components of the system 800 including, but in no way limited to, radio, streaming audio/video devices, audio devices 880, 882, 886, video devices 878, 882, travel devices (e.g., GPS, navigational systems, etc.), wireless communication devices, network devices, and the like. Further, the infotainment system 870 can provide the functionality associated with other infotainment features as provided herein.

(’297 Patent, Ex. 1001, 42:64-43:8.)

69. The '297 Patent states that user profiles include information or data corresponding to a user, including infotainment information:

User profiles may be generated based on **data gathered from one or more of vehicle preferences (e.g., seat settings, HVAC settings, dash configurations, and the like), recorded settings, geographic location information (e.g., provided by a satellite positioning system (e.g., GPS), Wi-Fi hotspot, cell tower data, etc.), mobile device information (such as mobile device electronic addresses, Internet browsing history and content, application store selections, user settings and enabled and disabled features, and the like), private information (such as user information from a social network, user presence information, user business account, and the like), secure data, biometric information, audio information from on board microphones, video information from on board cameras, Internet browsing history and browsed content using an on board computer and/or the local area network enabled by the vehicle 104, geographic location information (e.g., a vendor storefront, roadway name, city name, etc.), and the like.**

('297 Patent, Ex. 1001, 17:30-47.)

Information corresponding to a user and/or a user profile may be stored in the profile information portion 1238. **For example, the profile information 1238 may include data relating to at least one of current data, historical data, a user preference, user habit, user routine, observation, location data (e.g., programmed and/or requested destinations, locations of parking, routes traveled,**

average driving time, etc.), social media connections, contacts, brand recognition (e.g., determined via one or more sensors associated with the vehicle 104, a device 212, 248, etc.), audible recording data, text data, email data, political affiliation, preferred retail locations/sites (e.g., physical locations, web-based locations, etc.), recent purchases, behavior associated with the aforementioned data, and the like. The data in the profile information portion 1238 may be stored in one or more of the data structures 1200 provided herein.

(’297 Patent, Ex. 1001, 57:26-42.)

Next, the method 3000 may continue when user profile infotainment settings are detected (step 3012). Detecting the presence of infotainment information may be provided via the user profile reporting the infotainment information to at least one of the vehicle 104 and/or the infotainment system 870. **In some embodiments, the detection of the infotainment information may be made by the infotainment system 870 detecting a user profile and reading at least one data record of the user profile, the data record containing the infotainment information.**

(’297 Patent, Ex. 1001, 89:35-44.)

70. The ’297 Patent states that infotainment information includes infotainment settings of a vehicle, preferred radio stations, content applications, listening content, viewing content, content playback settings (e.g., volume, speed, quality, etc.), genres, content consumption habits (e.g., including listening times,

associated content, trends, etc.), recording preferences, a device name, a connection priority for the device, or whether the device can be used to make and/or receive phone calls:

In some cases, the **infotainment information may correspond to the infotainment settings** of a vehicle 104 and/or one or more areas of a building, that are associated with a user 216. **Infotainment settings may include, but are not limited to, preferred radio stations, content applications, listening content, viewing content, content playback settings (e.g., volume, speed, quality, etc.), genres, content consumption habits (e.g., including listening times, associated content, trends, etc.), recording preferences, and/or the like.**

('297 Patent, Ex. 1001, 80:44-52.)

[T]he infotainment information may include infotainment settings. As provided above, **the infotainment settings may include, but are not limited to, preferred radio stations, content applications, listening content, viewing content, content playback settings (e.g., volume, speed, quality, etc.), genres, content consumption habits (e.g., including listening times, associated content, trends, etc.), recording preferences, and/or the like.**

('297 Patent, Ex. 1001, 89:21-29.)

71. Independent claims 1, 9, and 15 are directed respectively to a method, a non-transitory computer readable medium, and an infotainment control system for adjusting an infotainment system based on user profiles having infotainment information stored therein, and for determining access priorities of multiple users

and permitting or preventing and adjustment to an infotainment system based the access priorities being greater or lesser than other access priorities. Independent claim 1 is representative of claims 9 and 15 and reproduced below:

1[pre]. A method, comprising:

[1a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;

[1b] detecting at least one infotainment system associated with the user;
and

[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:

[1d] determining an access priority of the user; and

[1e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:

[1f] determining a second access priority of a second user associated with the infotainment system; and

[1g] comparing the access priority of the user to the second access priority of the second user,

[1h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and

[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

(’297 Patent, Ex. 1001, claim 1.)

72. In my opinion, the technology of the challenged independent claims of the ’297 Patent was old and well-known in the art by April 15, 2013. (See ¶¶ 83-113.)

73. The dependent claims of the ’297 Patent add common features, e.g., the infotainment system being a vehicle infotainment system (claims 2, 10, 16), identifying a user in vehicle (claims 2, 10, 16), using sensors to identify characteristics of a user (claims 3, 11), detecting an infotainment system based on proximity (claims 4, 12, 16), determining if a preference matches a current configuration/setting of an infotainment system (claims 5, 13), adjusting the infotainment system when the preference does not match the configuration/setting (claims 6, 14), receiving, collecting, and storing additional information (claims 7, 17, 19), adjusting a configuration correspond to tuning to a station, setting an infotainment input, selecting a content genre, and recording content for playback to the user (claim 8), and the infotainment information including preferred radio stations, content applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preference (claims 18, 20).

C. The '297 Patent File History

74. U.S. Patent Application No. 14/253,251 was filed on April 15, 2014, with twenty claims, including independent claims 1, 11, and 19. ('297 Patent File History, Ex. 1002 at 140-144.)

75. The patentee filed an information disclosure statement (IDS) on November 24, 2014, listing over 200 references. ('297 Patent File History, Ex. 1002 at 208-215.) Slightly longer than one month later, on December 29, 2014, the Examiner issued the first Office Action, a non-final rejection, in which Claims 1-7, 9-17 and 19-20 were rejected under 35 U.S.C. 102(a)(1) as being anticipated by U.S. Patent Application Pub. No. 2013/0030645 to Divine. ('297 Patent File History, Ex. 1002 at 524-529.)

76. Claims 8 and 18 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. ('297 Patent File History, Ex. 1002 at 528.) Claims 8 and 18 were directed to prioritizing control of an infotainment system with respect to multiple users:

determining a second access priority of a second user associated with the infotainment system; and

comparing the access priority of the user to the second access priority of the second user, wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and wherein the adjustment is prevented when the access

priority of the user is less than the second access priority of the second user.

(’297 Patent File History, Ex. 1002 at 141, 143.)

77. On March 30, 2015, the Patentee filed a response to the non-final office action. In the response, the Patentee amended the claims to rewrite the allowable subject matter into independent form. Specifically, the Patentee incorporated the limitations of claims 1 and 7 into claim 8, incorporated the limitations of claims 11 and 17 into claim 18, and amended claim 19 to include limitations similar to the limitations in claims 1, 7, 11, and 17. (’297 Patent File History, Ex. 1002 at 553-561.)

78. The Patentee also presented new claims 21-24 in the response to the non-final office action, which included limitations directed to collecting and storing additional infotainment information, and specifying that the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences. (’297 Patent File History, Ex. 1002 at 559.)

79. Less than two weeks later, on April 10, 2015, the Examiner issued a notice of allowance, which listed claims 1-20 as being allowed, without providing any reasons for allowance. (’297 Patent File History, Ex. 1002 at 565-569.) On May

8, 2015, a corrected notice of allowability was issued, in which all claims 2-6, 8-10, 12-16, and 18-24 were allowed. ('297 Patent File History, Ex. 1002 at 583-585.)

80. On July 8, 2015, the Patentee filed an additional IDS, submitting approximately ten additional references. ('297 Patent File History, Ex. 1002 at 591-606.) Two days later, on July 10, 2015, the Patentee paid the issue fee and submitted an amendment after allowance under 37 C.F.R. § 1.312 to include the Patent Cooperation Treaty (PCT) application numbers for related applications listed in the specification of the '297 Patent. ('297 Patent File History, Ex. 1002 at 608-617.) The amendment was subsequently entered on September 2, 2015. ('297 Patent File History, Ex. 1002 at 628-635.) The application issued as the '297 Patent on September 29, 2015. ('297 Patent, Ex. 1001, Cover; '297 Patent File History, Ex. 1002 at 636-637.) I understand that the '297 Patent lapsed for failure to pay the maintenance fees; however, the Patent Office granted the patent owner's petition to revive the '297 Patent on March 22, 2023. (Ex. 1002 at 669-707.)

81. Zanco (Ex. 1022), Demeniuk (Ex. 1023), and Sundaram (Ex. 1027) were not considered during examination and are not cited on the '297 Patent ('297 Patent, Ex. 1001, 2-4.)

V. State of the Art

82. As mentioned above, the '297 Patent relates to “[m]ethods and systems for a complete vehicle ecosystem . . . [that] provide an individual or group of

individuals with an intuitive and comfortable vehicular environment.” (’297 Patent, Ex. 1001, Abstract.) The ’297 Patent explains that such a “vehicle ecosystem . . . seamlessly communicat[es] with current electronic devices to result in a totally intuitive and immersive user experience.” (’297 Patent, Ex. 1001, 2:66-3:2.) As such the ’297 Patent relates to vehicle infotainment systems and their communication with other devices and systems.

A. Vehicle Communication Systems

83. Vehicle systems 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 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.

1. Infotainment Systems

84. Infotainment refers to the combination of information and entertainment. Early vehicle infotainment systems included audio systems that provided access to music, news, and entertainment and communicated over wired audio connections or radio waves. Vehicle infotainment systems at the time of the alleged invention were integrated multimedia interfaces that provided drivers and passengers with access to navigation, music, communication, and vehicle controls

through touchscreen displays, voice commands, and/or manual buttons.

85. Infotainment refers to the combination of information and entertainment. Early vehicle infotainment systems included audio systems that provided access to music, news, and entertainment and communicated over wired audio connections or radio waves. Vehicle infotainment systems at the time of the alleged invention were integrated multimedia interfaces that provided drivers and passengers with access to navigation, music, communication, and vehicle controls through touchscreen displays, voice commands, and/or manual buttons. Beginning around 2005, these systems were increasingly connected to smartphones and/or portable media players via technologies like USB and Bluetooth. More recently, interface systems such as Apple CarPlay and Android Auto enable 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.

86. 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 2007 and Fiat released its Blue&Me

in-vehicle infotainment system in 2006. (Ghangurde, Ex. 1058, pp. 100, 103².)

a. Ford SYNC Technology

87. 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, p. 101.) Ford’s SYNC system was first released in 2007 (referred to as “SYNC Gen1 system” or “SYNC Gen1”), which enabled drivers to use voice activated commands for phone conversations and music control, automatically connected devices with an 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.)

88. 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.

² Ghangurde, Ex. 1058, is a true and accurate copy of a paper that I understand was published by *SAE International* on October 19, 2010.

After that, the phone could automatically connect by selecting the “connect” option on the vehicle interface. (SYNC Guide 2007, Ex. 1061³, 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 could use voice commands to customize or adjust the navigation system. (SYNC Guide 2010, Ex. 1062, pp. 2, 33-35⁴.)

89. 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 innovative touch screen infotainment display with a four-section main display that allowed for control/display of phone, navigation, entertainment and climate information

³ SYNC Guide 2007, Ex. 1061, is a true and accurate copy of a guide that I understand was published by Ford Motor Company in November 2007. Page references are to the numbers inserted next to the exhibit number.

⁴ 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. Page references are to the numbers inserted next to the exhibit number.

simultaneously, traffic monitoring, emergency contact information, and voice-activated climate control. (MyFord Touch Guide, Ex. 1064, pp. 2–9⁵; *see also* Car and Driver, Ex. 1059⁶.) These enhancements were implemented to improve the user experience and enhance overall customer satisfaction.

B. User Convenience

90. 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 was released in 1999 (*see* Bluetooth Specification, Ex. 1052⁷, Vol. 0, p. 62) and became

⁵ 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.

⁶ 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-connectivity-suite-called-myford-should-be-awesome-car-news/>, accessed on June 25, 2025.

⁷ Bluetooth Specification, Ex. 1052, is a true and accurate copy of the Bluetooth 4.0 specification, that was published by the Bluetooth Special Interest Group, Inc. in 2010. Bluetooth Specification, Ex. 1052, is available at

a ubiquitously available protocol that vehicle infotainment systems have been using to connect and exchange data with other devices (i.e. mobile phones) due to its low power consumption, cost, and ease of use.

1. Device Discovery

91. Bluetooth is a short-range wireless protocol operating in the unlicensed 2.4 GHz band, located within the ultra-High-Frequency (UHF) band between 300 MHz and 3 GHz. A Bluetooth device can be in one of three main states (Standby, Connection, Park); and within those states there are various substates. “The Standby State is the default state in the device. In this state, the device may be in a low-power mode.” (Bluetooth Specification, Ex. 1052, Vol. 2, p. 151.) For the specific purpose of device discovery, the two critical substates are the Inquiry Substate and the Inquiry Scan Substate. (Bluetooth Specification, Ex. 1052, Vol. 2, pp. 160-163.)

<https://www.bluetooth.com/specifications/specs/core-specification-4-0/>, accessed on June 27, 2025.

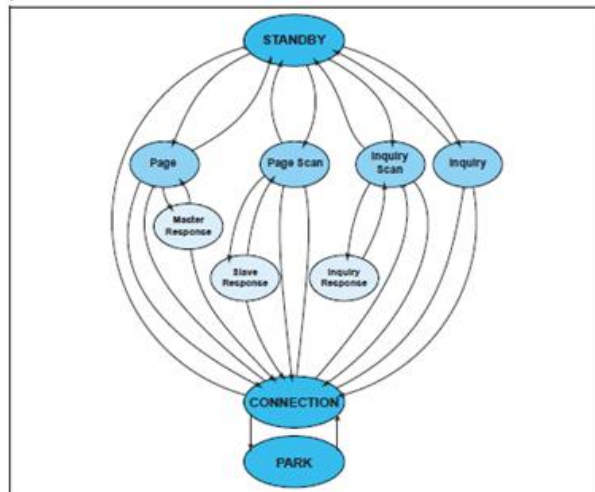


Figure 8.1: State diagram of link controller.

Bluetooth Specification, Ex. 1052, Vol. 2, p. 150, Figure 8.1

92. Bluetooth is far more than a radio. At the time of the invention, it was known that certain protocols that are part of Bluetooth can run in the background. Generally, an application that “runs in the background” has the following characteristics:

- operates continuously even when the vehicle is parked;
- not started and terminated by user commands but may be configured for background operation;

93. At the time of the invention, background operation was well known. Further, it was known that certain protocols that are part of the Bluetooth specification can run in the background. Bluetooth depends on “[a]t least two background daemons . . . hcid (*host controller interface*), which serves as an interface for the Bluetooth device and controls it, and sdpd (*service discovery*

protocol)." (Linux, Ex. 1065⁸, p. 207.) Common protocols like SDP enabled this functionality by allowing "for automatic recognition and configuration between two devices of different types and from different manufacturers." (MDDI, Ex. 1063⁹, p. 7.) I note that a POSA would have known that Bluetooth includes both device discovery and service discovery protocols. Device discovery involves scanning for nearby Bluetooth devices, while service discovery involves identifying specific capabilities or functionalities offered by these devices.

94. Such background apps in vehicles play a crucial role in providing seamless connectivity between the vehicle and a user device, without requiring manual setup each time a user enters the vehicle. For example, Bluetooth devices can remember previously connected devices and automatically re-establish the connection when the devices are in range, eliminating the need for repeated pairing. In essence, a vehicle's "device discovery" must run in the background to facilitate

⁸ Linux, Ex. 1065, is a true and accurate copy of an administration guide that I understand was published by Suse Linux AG in 2004.

⁹ MDDI, Ex. 1063, is a true and accurate copy of an article that I understand was published by Medical Device and Diagnostic Industry on February 1, 2002, and is available at <https://www.mddionline.com/new-technologies/bluetooth-the-future-of-wireless-medical-technology->, accessed on June 30, 2025.

seamless integration and functionality. Such background apps in vehicles play a crucial role in providing seamless connectivity between the vehicle and a user device, without requiring manual setup each time a user enters the vehicle. For example, Bluetooth devices can remember previously connected devices and automatically re-establish the connection when the devices are in range, eliminating the need for repeated pairing. In essence, a vehicle's "device discovery" must run in the background to facilitate seamless integration and functionality between the car's infotainment system and various other devices, enhancing the overall driving and connectivity experience.

95. An infotainment system may include a program that runs in the background. For example, Clement discloses an infotainment system with receivers 610 that take signal strength measurements continuously to detect the location of a portable device within a vehicle, enabling the location system 330 to run in the background, without being turned on by a user. (Clement, Ex. 1010, 7:23-32.)

96. Passive entry systems may also include programs that run in the background to detect a user approaching a vehicle. Such systems include transmitters and receivers that communicate with each other to detect and authenticate an approaching user. (*See e.g.*, Lickfelt, Ex. 1012, ¶ 5; Ghabra, Ex. 1011, 2:21-41.)

97. However, even with Bluetooth's automatic connectivity, the ability for a device to enter the standby state allows for a reduction in power consumption. A

device/controller may leave the standby state and enter into a substate in response to a trigger event:

To move from one state or substate to another, either commands from the link manager are used, or internal signals in the link controller are used (such as the trigger signal from the correlator and the timeout signals).

(Bluetooth Specification, Ex. 1052, Vol. 2, p. 150.)

98. To discover other devices, the device enters the Inquiry Substate:

In [the inquiry] substate, it shall repeatedly transmit the inquiry message (ID packet . . .) at different hop frequencies. The inquiry hop sequence is derived from the LAP [Lower Address Part] of the GIAC [General Inquiry Access Code]. . . . A device that allows itself to be discovered, shall regularly enter the inquiry scan substate to respond to inquiry messages.

(Bluetooth Specification, Ex. 1052, Vol. 2, p. 160.)

99. During the Inquiry Substate, “the discovering device collects the Bluetooth device addresses and clocks of all devices that respond to the inquiry message It can then, if desired, make a connection to any one of the discovered devices” (Bluetooth Specification, Ex. 1052, Vol. 2, p. 160.)

100. Bluetooth devices assume the roles of master and slave depending on their behavior in the inquiry procedure. The master transmits inquiry messages, and the slave responds with an inquiry response packet:

101. Although master and slave roles are not defined prior to a connection, the term master is used for the inquiring device and slave is used for the inquiry scanning device. . . . During the inquiry procedure, the master shall transmit inquiry messages with the general or dedicated inquiry access code. . . . An inquiry response packet is transmitted from the slave to the master after the slave has received an inquiry message (*see* Table 8.5 on page 165).

(Bluetooth Specification, Ex. 1052, Vol. 2, p. 81.)

102. Once the proper inquiry access code is received, the device will enter the Connection State, where a “connection has been established, and packets can be sent back and forth.” (Bluetooth Specification, Ex. 1052, Vol. 2, p. 165.) “The first information packets [in this state] contain control messages that characterize the link and give more details regarding the devices.” (Bluetooth Specification, Ex. 1052, Vol. 2, p. 165.) Once the proper response packets are retrieved, the device enters an active mode where the Bluetooth pairing is finalized, at which point the controller and devices can enter and/or complete differing functions based upon a given device need or request.

2. Customization

103. 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

preferences, and customizing visual appearance like color schemes. (Auto News, Ex. 1057¹⁰, pp. 1-6; Moinzadeh, Ex. 1013, [0084]; Rasin, Ex. 1015.)

104. 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.)

3. Positioning Methods

105. At the time of the invention, wireless positioning techniques, both outdoor and indoor, had become very popular. For example, just Bluetooth provides multiple signal parameters that may be used for determining the location of a mobile device, including: Link Quality, Received Signal Strength (RSSI), Transmit Power Level (TPL), and Inquiry Result with RSSI. (Hossain, Ex. 1053¹¹ at 1-2.) RSSI was

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.

¹¹ Hossain, Ex. 1053, is a true and accurate copy of an article that I understand was published by IEEE 18th International Symposium on Person, Indoor and Mobile

a well-known technique at the time. Because generally signal strength decreases as distance increases, signal strength is an indication of distance. However, just a single signal strength value does not lead to a very accurate position determination. (Hossain, Ex. 1053 at 4-5.) More accurate methods such as based on multiple signal strength values or triangulation were also known.

106. Vehicle systems utilized wireless position techniques to limit driver distraction and to restrict access to certain functions to the driver. Systems were developed to limit access to certain vehicle systems from a mobile device based on the location of the mobile device within the vehicle. For example, U.S. Patent No. 8,768,539 describes restricting manual control of safety-critical systems to the driver's seat. (Clement, Ex. 1010, 10:14-26.) Computers, Processors, and Controllers

107. Computer systems of various types have been in existence for thousands of years. An abacus is a rudimentary computer that is used to count and perform simple arithmetic operations. There is historical evidence that the abacus and related devices may date back as far as 2400 BC. In 1936, British mathematician Alan Turing wrote a paper titled "On Computable Numbers, with an Application to

Radio Communications in 2007. Hossain is available at <https://www.ieeexplore.ieee.org/document/4394215>.

the Entscheidungsproblem.” (Turing, Ex. 1075¹².) The paper described what is known as the “Turing machine,” which is a mathematically defined processor that performs operations based on instructions that are stored on a scannable “tape” (for example, a paper tape with perforations representing the instructions). (Turing, Ex. 1075, 231-232.)

108. In 1945, Hungarian mathematician John von Neumann conceived of an electronic implementation of a computing machine (mathematically similar to the Turing machine) that used a processor comprised of an arithmetic logic unit (ALU) and a control unit. (Ganesan, Ex. 1076, slides 4-3-4-6 at 2-3¹³; Von Neumann, Ex. 1077¹⁴.) The ALU was a logic device that would, based on binary controls, add and

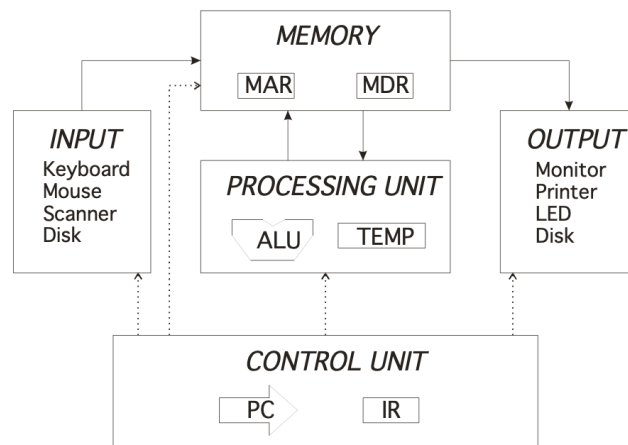
¹² Turing, Ex. 1075, is a true and accurate copy of a paper that I understand was published by the London Mathematical Society in 1937 and is available online at <https://doi.org/10.1112/plms/s2-42.1.230>.

¹³ Ganesan, Ex. 1076, is a true and accurate copy of a presentation that I understand was published by Deepak Ganesan by April 25, 2012 and is accessible at <https://web.archive.org/web/20120425083227/http://none.cs.umass.edu/~dganesan/courses/fall09/handouts/Chapter4.pdf>.

¹⁴ Von Neumann, Ex. 1077, is a true and accurate copy of a 1945 paper by John von Neumann that was corrected for typographical errors and republished by IEEE

subtract binary numbers, and/or perform various logical operations (AND, OR, NOT, etc.). (Ganesan, Ex. 1076, slide 4-6 at 3.) The binary controls were logic signals derived from data stored in a memory. (Ganesan, Ex. 1076, slides 4-3-4-6 at 2-3.) This concept, illustrated below, became known as the “von Neumann Machine.”

Von Neumann Model



4-3

Ganesan, Ex. 1076, slide 4-3 at 2

109. It is the functional core that resides in nearly every modern day computing device. A key concept for the von Neumann was to store the data that was to be operated on (the binary numbers to be added, subtracted or logically processed) in the same memory as the instructions. (Ganesan, Ex. 1076, slides 4-11-

Annals of the History of Computing, Vol. 15, No. 4, in 1993, and updated again for minor errors on January 10, 2011 (current version).

4-12 at 6.) Thus, the memory would hold a sequence of binary instructions that would be used to direct the ALU to perform an operation. The control unit would read an instruction from memory together with the data representing the numbers, and apply these to the ALU which would then perform the specified operation, the result could be output from the computer, or stored back in the memory, where it could be used in subsequent processing steps. (Ganesan, Ex. 1076, slides 4-3-4-10 at 2-5.)

110. This concept was reduced to practice in the 1940's primarily in support of the Allied war effort. Because the electronic technology at the time was fairly primitive, these computers were physically very large (hundreds of square feet). Following the invention of the transistor in 1947, and subsequent development of integrated circuit technology, the size of computing machines dropped dramatically. For example, rapid technological developments occurred during the 1960s, and by 1971, Intel released a set of four integrated circuits, known as the MCS-4 that collectively implemented the processing unit (ALU and control unit), program memory, working memory and I/O of a von Neumann machine. (Intel 4004, Ex.

1078¹⁵; MCS-4, Ex. 1079¹⁶.) The 4001 was a Read Only Memory (non-volatile memory) for storing program instructions; the 4002 was a random access memory (RAM) used to store intermediate results; the 4003 was a serial in, parallel out shift register that was used to input and output data; and the 4004 was central processing unit (CPU) that implemented a processor along with various support and I/O circuitry. (MCS-4, Ex. 1079, 1-3.) The 4004 became known as the first general purpose microprocessor. (Intel 4004, Ex. 1078, 1.) Thus by at least 1971 it was well-known that a central processing unit included a processor that executed instructions stored in a non-volatile memory (non-transitory) medium. A non-volatile memory is also referred to as a long-term memory; such memories retain their data even when the power supply is switched off. (Bosch, Ex. 1050¹⁷, 94.)

¹⁵ Intel 4004, Ex. 1078, is a true and accurate copy of an article that I understand was published by Intel October 3, 2012 and is accessible at <https://web.archive.org/web/20121003001757/https://www.intel.com/content/www/us/en/history/museum-story-of-intel-4004.html>.

¹⁶ MCS-4, Ex. 1079, is a true and accurate copy of a data sheet for Intel's MCS-4 that I understand was published by Intel in November 1971.

¹⁷ Bosch, Ex. 1050, is a true and accurate copy of a book that I understand was published by Robert Bosch GmbH in October 2004.

111. Similarly, it was well-known at the time of the '297 Patent that vehicle systems included electronic control units (controllers) for controlling vehicle functions by processing input signals and generating appropriate output signals. Initially, controllers consisted of hard-wired relay panels that were exceedingly time-consuming and costly to debug or change functionality by modifying the sequence of operations. (Erickson, Ex. 1080¹⁸, 14.) In the 1960s, programmable logic controllers were developed out of the need to replace these cumbersome hard-wired controllers. (Erickson, Ex. 1080, 14.) In 1968, General Motors specified design criteria for the first programmable logic controller that included easy programmability and re-programmability, easy maintenance and repair, and comparable or lower cost to then-used hard-wired logic systems. (Erickson, Ex. 1080, 14.) Indeed, the Intel 4004 mentioned above was one of the first programmable logic microchips, which simultaneously made computing cheaper and more powerful. (Intel 4004, Ex. 1078, 2.) Today, many manufacturers use programmable logic controllers to cut production costs and increase quality. (Erickson, Ex. 1080, 14.)

112. Such automotive controllers included a microprocessor, input and

¹⁸ Erickson, Ex. 1080, is a true and accurate copy of an article that I understand was published by IEEE in February/March 1996.

output units (I/O), and memory. (Bosch, Ex. 1050, 94, 96.) A “microprocessor,” is a specific type of processor that “contains the logic elements for manipulating data and for making decisions[,]” and is implemented on a single silicon chip. (IEEE Dictionary, Ex. 1051¹⁹, 693, 872; *see also* Bosch, Ex. 1050, 94, “The microprocessor represents the integration of a computers central processing unit on a single chip.”)

113. The controllers also included software code that was 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, 94-95.) A POSA 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, Flash, or memory card. (Bosch, Ex. 1050, 95; IEEE Dictionary, Ex. 1051, 152.)

VI. Key Prior Art References Relied Upon

A. U.S. 2007/0143482 A1 (“Zancho” Ex. 1022)

114. Zancho is a U.S. Publication that was filed December 20, 2005, and

¹⁹ IEEE Dictionary, Ex. 1051, is a true and accurate copy of a dictionary that I understand was published by IEEE in December 2000.

published June 21, 2007. (Zancho, Ex. 1022, Cover.) I understand that Zancho is prior art to all claims of the '297 Patent under 35 U.S.C. § 102(a)(1) because it was published before the earliest claimed priority date of the '297 Patent.

B. U.S. 9,224,289 B2 (“Demeniuk” Ex. 1023)

115. Demeniuk is a U.S. Patent filed March 15, 2013, and issued December 29, 2015. (Demeniuk, Ex. 1023, Cover.) I understand that Demeniuk is prior art to all claims of the '297 Patent under 35 U.S.C. § 102(a)(2) because it was filed before the earliest claimed priority date of the '297 Patent. I reviewed the file history of Demeniuk and note that although the claims were amended, the specification and drawings were not amended during prosecution. (See Demeniuk Patent File History, Ex. 1081, 8-17, 29-57.) Therefore, Demeniuk’s disclosure in the specification and drawings that I cite in my declaration are the same as those in the application as filed. (Demeniuk Patent File History, Ex. 1081, 8-17, 29-57.)

C. U.S. 2011/0106375 A1 (“Sundaram” Ex. 1027)

116. Sundaram is a U.S. Publication that was filed December 28, 2010, and published May 5, 2011. (Sundaram, Ex. 1027, Cover.) I understand that Sundaram is prior art to all claims of the '297 Patent under 35 U.S.C. § 102(a)(1) because it was published before the earliest claimed priority date of the '297 Patent.

VII. Grounds for Challenge

A. Ground 1 – Zancho Discloses All of the Limitations of Claims 1-2, 4-10, and 12-20

1. Overview of Zanchi

117. Zanchi is directed to a “[s]ystems and methods for handling multiple preferences in a domain.” (Zanchi, Ex. 1022, [0012].) “[T]he platform 10 has a plurality of domains or environments 12, such as . . . a vehicle domain 30[.]” (Zanchi, Ex. 1022, [0017].) Zanchi seeks to improve the control and operation of vehicle systems, including entertainment systems, explaining that a controller 100 in the vehicle domain 30 “includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80.” (Zanchi, Ex. 1022, [0046].)

118. Zanchi discloses “[t]he vehicle domain 30 for a vehicle 31 can include an entertainment system 32[.]” (Zanchi, Ex. 1022, [0018].) Zanchi further discloses that the “the vehicle domain 30 can include such a controller 100 for arbitrating preferences between portable devices of the portable domain 50 interacting with the vehicle systems 32, 34, 36, and 38.” (Zanchi, Ex. 1022, [0020].) Zanchi explains that “[t]he controller 100 is communicatively connected to one or more vehicle systems 140, such as . . . an entertainment system 160[.]” (Zanchi, Ex. 1022, [0040].)

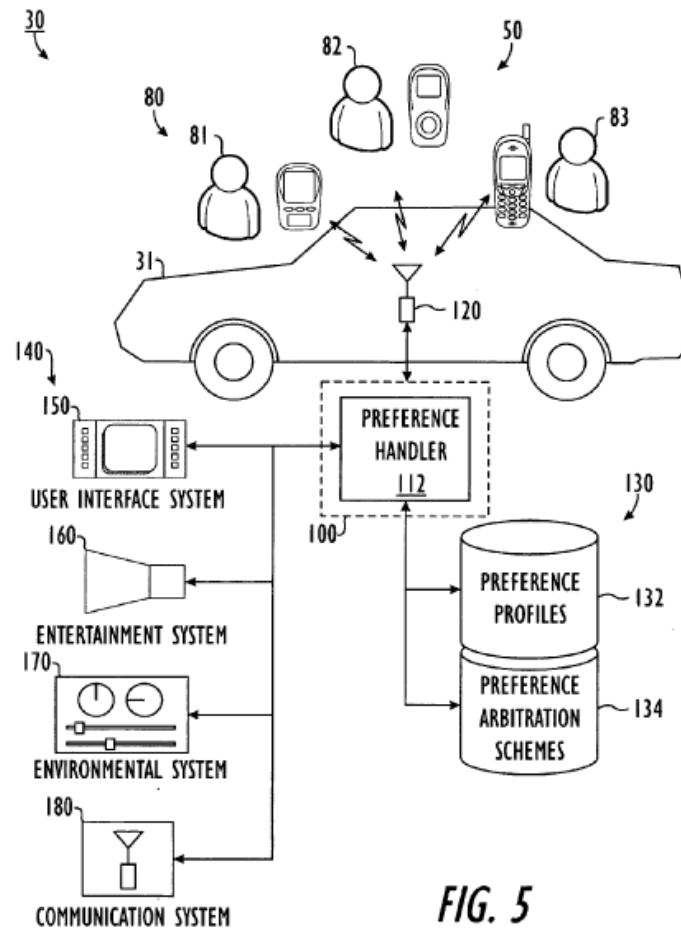


FIG. 5

Zancho, Ex. 1022, Fig. 5

119. Zancho discloses “interfaces 120 of the controller 100 [that] establish a personal area network (PAN) that defines the extent of the domain 30 in the vehicle 31” and that “[w]ithin the personal area network, multiple personal devices 50 can interact simultaneously with the controller 100.” (Zancho, Ex. 1022, [0042].)

120. Zancho discloses that the user preferences that are associated with the devices 50 and accessible by the controller 100:

The devices 50 can interact with the controller 100 using wired or wireless interfaces 122 and 124 known in the art. **One or more of the**

devices 50 can contain a dedicated memory for storing preferences associated with the users of the device 50. Preferably, the preferences stored in the device 50 are comprehensive and encompass the various forms of interaction detailed herein. Alternatively, one or more of the devices 50 may not contain a dedicated memory for storing preferences. Instead, such devices 50 may be associated with a particular user by an identification number, such as a network or IP address. The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100. **When the particular device 50 and associated user are identified, the controller 100 can access those preferences.**

(Zancho, Ex. 1022, [0044].)

121. Zancho discloses that the preferences may include various forms of entertainment or infotainment information:

For the sake of illustration, several preferences in the attribute cells of the matrix 250 are discussed. In general, preferences associated with the **visual category of axis 252 can include font types, font sizes, menu order preferences, menu size preferences, window size preferences, locations of icons, patterns, colors, font sizes, and preference for analog or digital gauges or display graphs.** Preferences for the audible category of axis 252 can include types of prompts such as key feedback prompts, e-mail audible feedback prompts, bad move error prompts or change done prompts, negative indication preferences, speech and language recognition preferences, ringing such as urgent ringing, normal ringing, data

ringing, volume preferences, tone type preferences, or commercial broadcast station selection preferences, base and treble control as well as fade and balance preferences. Preferences associated with the spatial category of axis 252 can include temperature preferences, humidity preferences, percentage of outside (fresh) air preferences, air conditioning balance preferences, car seat position preferences, automobile mirror position preferences, and seat heater temperature preferences.

(Zancho, Ex. 1022, [0034].)

For example, various categories (axis 252) for systems (axis 254) in the vehicle domain (axis 256) can **include preferences related to audio preferences (e.g., equalization levels, volume levels), preferred media (e.g., genre, songs, preset radio stations, etc.), navigation routes, hands-free cellular phone capabilities (e.g., ability of passengers to have calls routed through vehicle's audio system), access network media (e.g., ability of passengers to access subscription based media services in the vehicle), seat and mirror positions, and air-conditioning settings.**

(Zancho, Ex. 1022, [0036].)

For the portable domain (axis 256), **preferences can be related to preferences for handling calls, volume settings, preferred types of media (e.g., music or video), etc.**

(Zancho, Ex. 1022, [0037].)

One of the users 80 makes a request to operate the satellite radio of the entertainment system 160, but **the users 80 have preferences for**

different genres of music. The device handler 112 uses an arbitration scheme 134 to determine from the preferences stored in the profiles 132 what genre to use for a station of the satellite radio so that the selected station satisfies the preferred genres of the users 80 in the vehicle domain 30.

(Zancho, Ex. 1022, [0054].)

122. Zancho discloses storing preference profiles and preference arbitration schemes for handling preferences of multiple users:

The controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130 using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.

(Zancho, Ex. 1022, [0045].)

123. Zancho discloses that “the preference handler 112 determines the ‘context’ of the domain 30.” (Zancho, Ex. 1022, [0047].) “The context is defined by what users 80 are active, what systems 140 are operating, what operations are requested, and what preferences are associated with the users 80 in the domain 30.”

(Zancho, Ex. 1022, [0047].) Zancho explains that “[b]ased on the context, the preference handler 112 uses a preference arbitration scheme 134 to decide how to handle preferences when they conflict.” (Zancho, Ex. 1022, [0047].)

124. With respect to the arbitration schemes, Zancho further discloses

ranking or weighting the preferences of several users:

Once the relevant preferences have been obtained, an analysis of those preferences is made to determine how to handle the preferences from multiple users (Block 208). In this step, a determination is made as to who “owns” or controls the domain or a system in the domain. **For example, a particular user may be designated as owner of the domain. The preferences associated with this user may always be applied, or this user's preferences are given more weight in determining how to handle conflicts between preferences. In addition, a determination is made as to what rank the various users have in the domain.** For example, one user may be directly associated with a domain, such as a family member in a home domain. However, another user may have compliant preferences for this home domain, but they may be a friend or the like and may have a lower rank in the home domain compared to the family member's rank.

(Zancho, Ex. 1022, [0023].)

125. With respect to the arbitration schemes, Zancho further discloses determining if the preferences are applicable to the current circumstances in the domain:

Furthermore, this step 208 involves **determining which of the preferences associated with the users are applicable to the current circumstances in the domain.** For example, the preferences associated with a user can encompass an entire variety of preferred user interactions, such as audio levels, visual effects, preferred media, and others detailed herein. Preferences associated with audio levels and

settings would be applicable in the domain if the domain has an entertainment system. Therefore, in this situation, a determination would be made that audio-related preferences are applicable to current operation of the entertainment system in the domain. (Zancho, Ex. 1022, [0024].)

2. Independent Claim 1

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

U.S. Patent No. 9,147,297	
1[pre]. A method, comprising:	
[1a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;	
[1b] detecting at least one infotainment system associated with the user; and	
[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:	
[1d] determining an access priority of the user, and	
[1e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system,	

wherein determining whether the access priority of the user allows for the adjustment further comprises:

[1f] determining a second access priority of a second user associated with the infotainment system; and

[1g] comparing the access priority of the user to the second access priority of the second user,

[1h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and

[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

1[pre]. A method, comprising:

127. Zanchi describes a system and method for managing and arbitrating multiple user preferences within a shared domain (such as a vehicle, home, office, or public space). (Zanchi, Ex. 1022, Abstract, [0001].) For example, Zanchi discloses a “controller 100 in the vehicle domain 30” that is annotated in green in Figure 5 below. (Zanchi, Ex. 1022, [0046].) “The controller 100 includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80.” (Zanchi, Ex. 1022, [0046].)

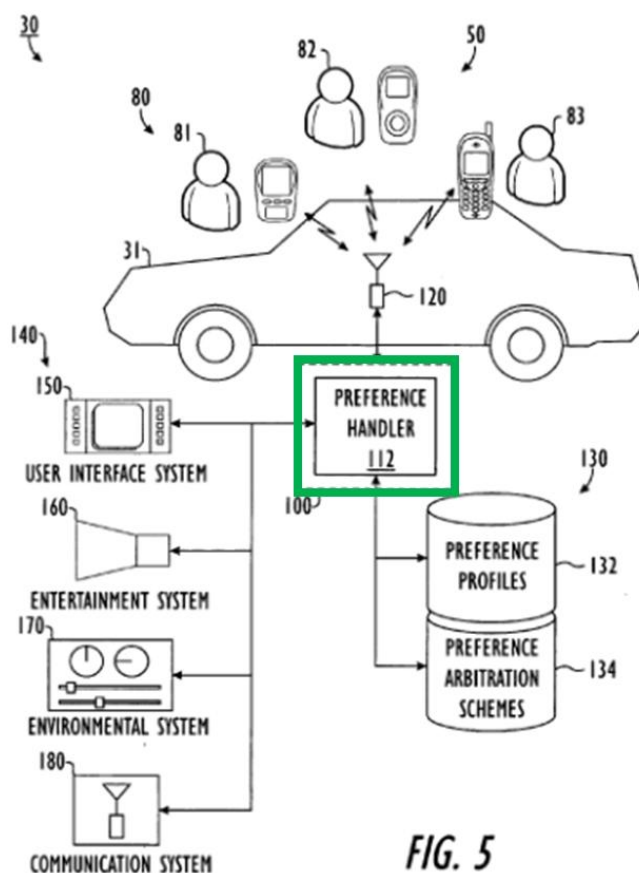


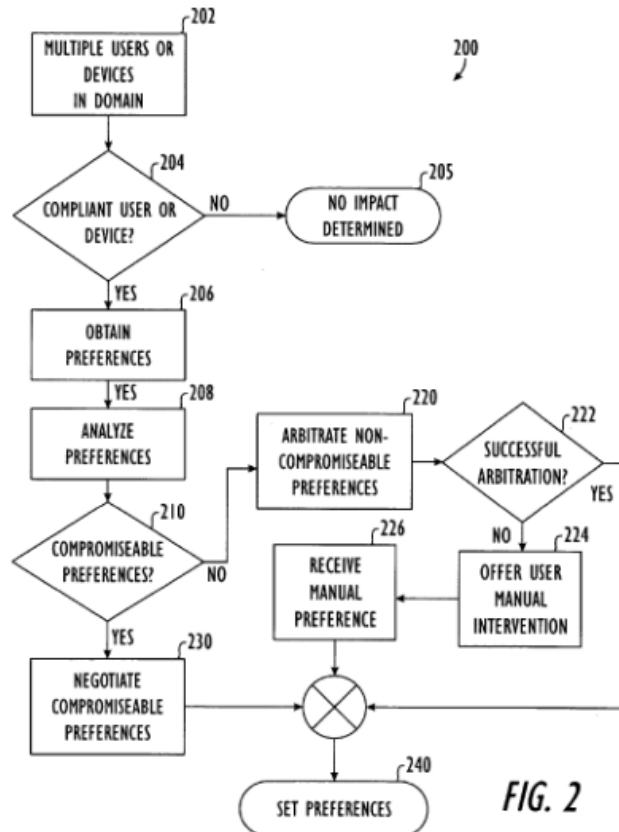
FIG. 5

Zancho, Ex. 1022, Fig. 5 (Annotated)

128. Zancho discloses “[s]ystems and methods for handling multiple preferences in a domain[.]” (Zancho, Ex. 1022, [0012].)

129. Zancho further, discloses, with reference to Figure 2, “a process 200 . . . for handling preferences in a domain” where “the controller . . . identif[ies] users by monitoring for active devices associated with users,” determines “whether the user has preferences that are compliant with the preference handling process,” and then obtains the preferences associated with compliant users or devices. (Zancho, Ex. 1022, [0021]-[0022].) The “[p]references that are non-compromiseable are

arbitrated or negotiated according to one or more of the arbitration schemes disclosed herein (Block 220).” (Zancho, Ex. 1022, [0027].) Then “[i]f the arbitration was successful, the process 200 continues and sets those arbitrated preferences at step 240.” (Zancho, Ex. 1022, [0028].)



Zancho, Ex. 1022, Fig. 2

130. Zancho also describes the process of Figure 2 as a method. For example, claim 1 requires:

1. A preference-handling method, comprising:
storing preferences accessible to a controller;
determining preferences associated with at least two users . . .

arbitrating determined preferences based on an arbitration scheme of the controller; and

controlling operation of the domain system based on the arbitration of the preferences.

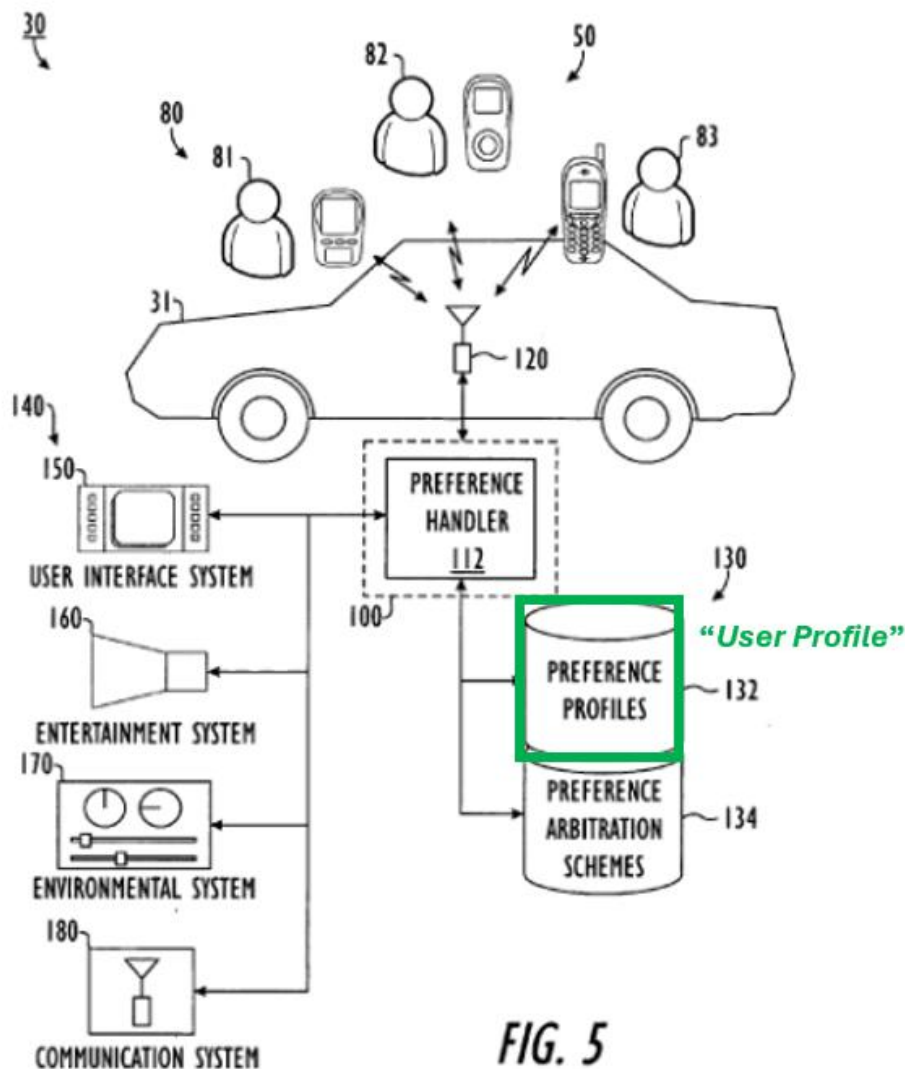
(Zancho, Ex. 1022, claim 1.)

131. Thus, Zancho discloses a “*method*.”²⁰

[1a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;

132. Zancho discloses that “[t]he controller 100 has preference profiles 132 for storing user preferences[.]” (Zancho, Ex. 1022, [0045].) Therefore, Zancho’s preference profiles 132 are “*user profile[s]*.”

²⁰ All claim language from the ’297 Patent is italicized for identification purposes.



Zancho, Ex. 1022, Fig. 5 (Annotated)

133. Zancho discloses that the preferences for specific users include various attributes (e.g., visual, environmental, and audio):

Preferences for a particular user can generally include visual attributes (e.g., fonts, contrast, brightness, background pattern, color, icon type, icon location, choice of digital or analog gauges), **environmental attributes** (e.g., temperature, humidity levels, car seat

position, vehicle mirror orientation), **audio attributes (e.g., sound levels, equalization levels), and a host of other preferences.**

(Zancho, Ex. 1022, [0002].)

134. Zancho also discloses that preferences associated with a user can encompass a “variety of preferred user interactions, such as audio levels, visual effects, preferred media” etc.:

Furthermore, this step 208 involves determining which of the preferences associated with the users are applicable to the current circumstances in the domain. **For example, the preferences associated with a user can encompass an entire variety of preferred user interactions, such as audio levels, visual effects, preferred media, and others detailed herein. Preferences associated with audio levels and settings would be applicable in the domain if the domain has an entertainment system.** Therefore, in this situation, a determination would be made that audio-related preferences are applicable to current operation of the entertainment system in the domain.

(Zancho, Ex. 1022, [0024].)

135. Zancho discloses that preferences associated with a user can be visual, audible, and spatial preferences:

In general, preferences associated with the **visual category** of axis 252 can include font types, font sizes, menu order preferences, menu size preferences, window size preferences, locations of icons, patterns, colors, font sizes, and preference for analog or digital gauges or display

graphs. **Preferences for the audible category of axis 252 can include types of prompts such as key feedback prompts, e-mail audible feedback prompts, bad move error prompts or change done prompts, negative indication preferences, speech and language recognition preferences, ringing such as urgent ringing, normal ringing, data ringing, volume preferences, tone type preferences, or commercial broadcast station selection preferences, base and treble control as well as fade and balance preferences.** Preferences associated with the **spatial category** of axis 252 can include temperature preferences, humidity preferences, percentage of outside (fresh) air preferences, air conditioning balance preferences, car seat position preferences, automobile mirror position preferences, and seat heater temperature preferences.

(Zancho, Ex. 1022, [0034].)

136. Zancho further discloses that the preferences associated with a user in the vehicle domain 30 include media, navigation, cellular phone capabilities, and access to network media preferences:

For example, various categories (axis 252) for systems (axis 254) in the vehicle domain (axis 256) can include preferences related to **audio preferences** (e.g., equalization levels, volume levels), **preferred media** (e.g., genre, songs, preset radio stations, etc.), **navigation routes, hands-free cellular phone capabilities** (e.g., ability of passengers to have calls routed through vehicle's audio system), **access network media** (e.g., ability of passengers to access subscription based

media services in the vehicle), seat and mirror positions, and air-conditioning settings.

(Zancho, Ex. 1022, [0036].)

137. As explained in the state of the art, “infotainment” refers to the combination of information and entertainment. Vehicle infotainment systems at the time of the alleged invention were integrated multimedia interfaces that provided access to some set of navigation, music, communication, and vehicle controls through touchscreen displays, voice commands, and/or manual buttons, and may have interacted with mobile devices, such as smartphones and portable media players. (See ¶¶ 84-86.)

138. A POSA would have understood that Zancho’s disclosure that the preference profiles 132 (“*user profile*”), include various attributes—such as visual settings and audio configurations—teaches that the preference profiles 132 include “*infotainment information*.” (Zancho, Ex. 1022, [0002].) For example, Zancho identifies these attributes to include “volume levels” “window size preference,” “speech and language recognition preferences,” “hands-free cellular phone capabilities,” “navigation routes,” etc., which a POSA would have understood collectively relate to a vehicle’s entertainment, communication, and information systems, demonstrate that the “*user profile [has] infotainment information stored therein*.” (Zancho, Ex. 1022, [0024], [0034], [0036].)

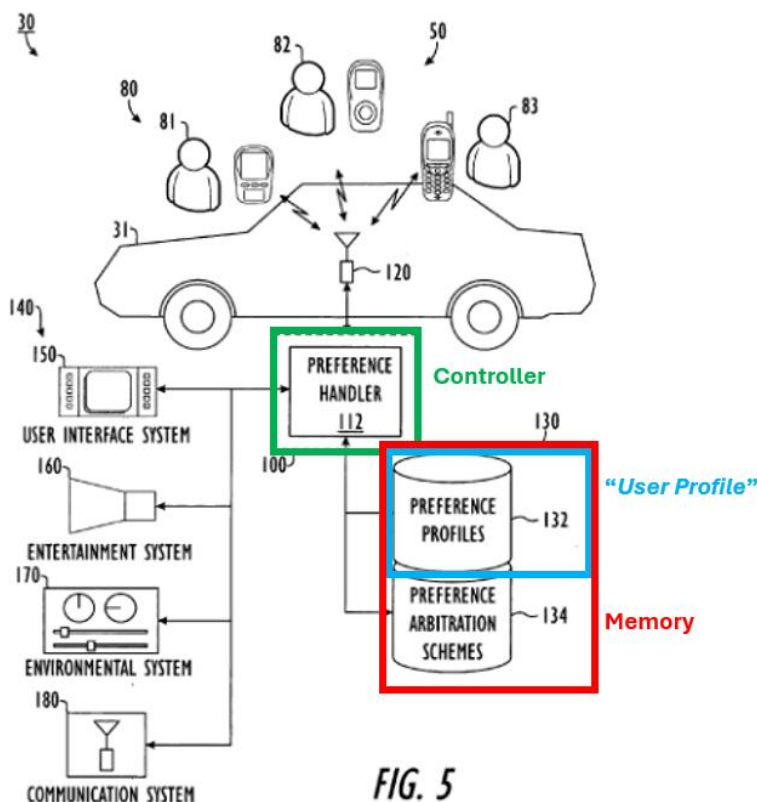
139. Zanchi further discloses that the “preferences can be stored remotely on a network accessible to the controller, stored on individual portable devices, or stored locally at the controller.” (Zanchi, Ex. 1022, [0012].) For example, Zanchi discloses that the controller 100 can store user preferences in memory 130:

The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100. When the particular device 50 and associated user are identified, the controller 100 can access those preferences.

(Zanchi, Ex. 1022, [0044].)

The controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. **The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130** using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.

(Zanchi, Ex. 1022, [0045].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

140. Zancho further discloses that preferences of a compliant user can be accessed or uploaded to the controller 100:

For those compliant users or devices, the preferences associated with them are obtained (Block 208) [sic Block 206]. Obtaining the preferences can involve one of a variety of methods. In one example, a compliant device active in the domain may store preferences for the user, and these preferences can be **accessed or uploaded to the controller**. In another example, a compliant device active in the domain may have an identification associated with it, such as a network or Internet Protocol (IP) address. **This identification can then be used by**

the controller to obtain preferences associated with the user from a storage system or elsewhere using techniques known in the art.²¹

(Zancho, Ex. 1022, [0022].)

²¹ Paragraphs [0022]–[0023] of Zancho state that preferences are both obtained and analyzed at block 208, whereas Figure 2 shows they are obtained at block 206 and analyzed at block 208. Given the chronological flow and clear distinction between blocks 206 and 208, Paragraph [0022] appears erroneous and should instead reference block 206.

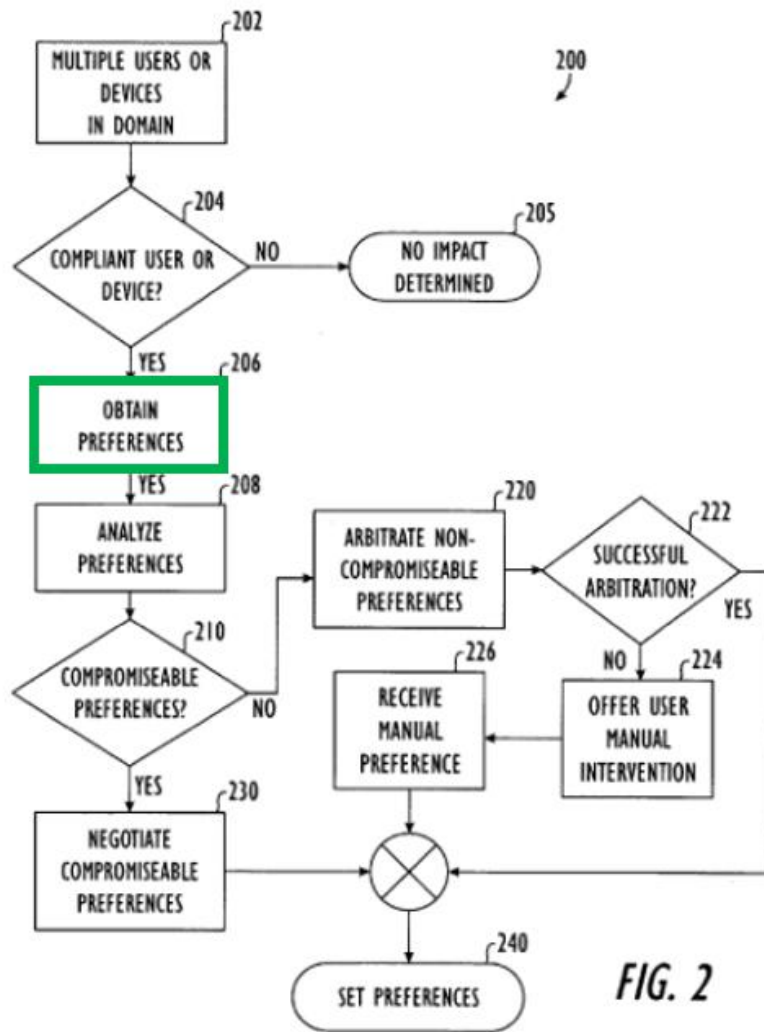


FIG. 2

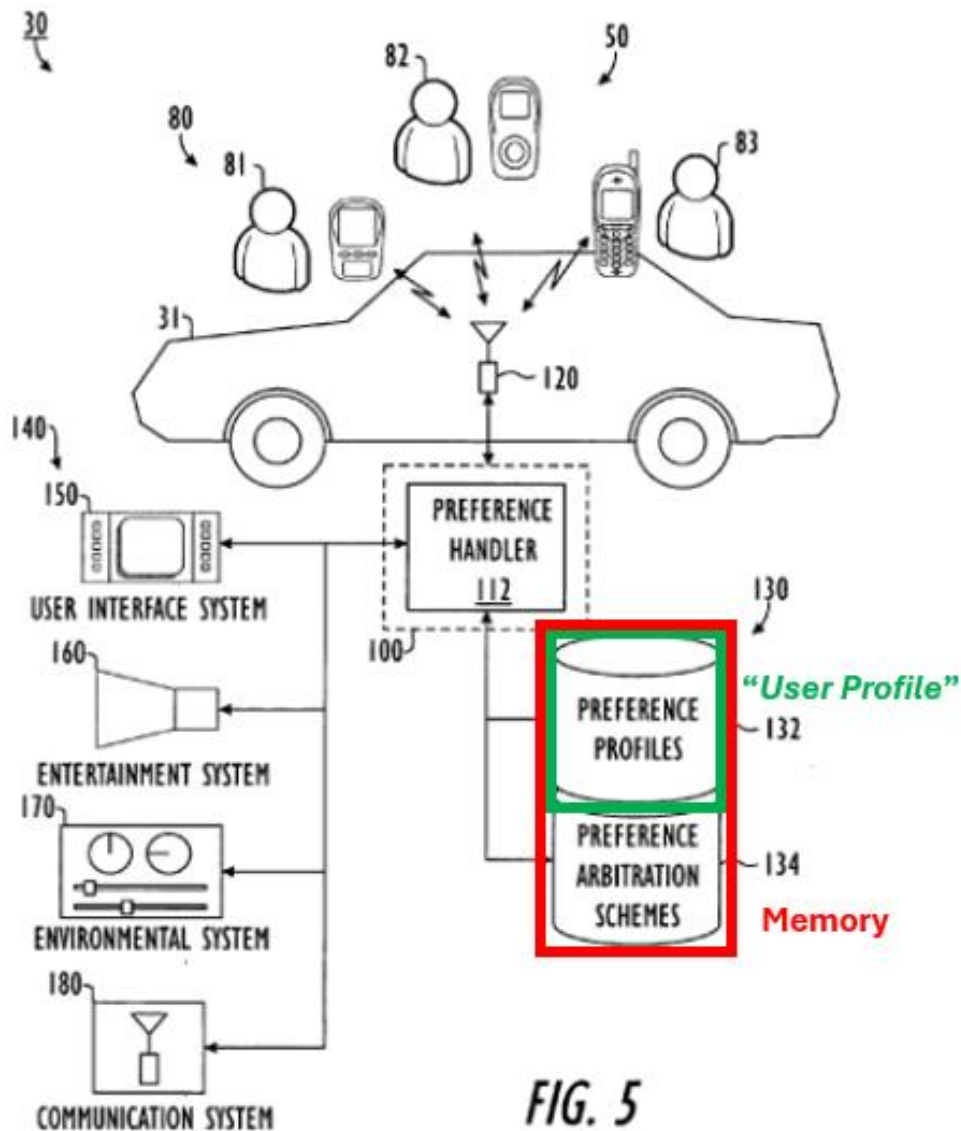
Zancho, Ex. 1022, Fig. 2 (Annotated)

141. Zancho discloses that the personal devices 50 associated with a particular user may interact with the controller 100, that the devices 50 may be accessed by wired or wireless interfaces 122 and 124, and that the devices 50 may be associated with a particular user by an identification number, such as a network or IP address:

The devices 50 can interact with the controller 100 using wired or wireless interfaces 122 and 124 known in the art. One or more of the

devices 50 can contain a dedicated memory for storing preferences associated with the users of the device 50. Preferably, the preferences stored in the device 50 are comprehensive and encompass the various forms of interaction detailed herein. Alternatively, one or more of the devices 50 may not contain a dedicated memory for storing preferences. **Instead, such devices 50 may be associated with a particular user by an identification number, such as a network or IP address. The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100. When the particular device 50 and associated user are identified, the controller 100 can access those preferences.**

(Zancho, Ex. 1022, [0044].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

142. A POSA would have understood that Zancho's disclosure that "the devices 50 can contain a dedicated memory for storing preferences associated with the users of the device 50" and that the "controller 100 can access those preferences" shows that the controller 100 first identifies ("*detect[s]*") the device 50 and its associated user and then retrieves the preferences stored in the memory of that

device, including “*infotainment information*”. (Zancho, Ex. 1022, [0044].) A POSA would have further understood that Zancho’s disclosure that the “devices 50 may be associated with a particular user by an identification number, such as a network or IP address” (Zancho, Ex. 1022, [0044]) discloses that each device can be individually identified and that the controller 100 is able to differentiate between each device, and therefore between specific users, i.e., “*detect[] a user profile associated with a user[.]*”

143. Accordingly, Zancho discloses “*detecting [by controller 100] a user profile [preference profiles 132] associated with a user, the user profile having infotainment information [e.g., preferences such as visual settings, navigation routes, and audio configurations] stored therein [.]*”

[1b] detecting at least one infotainment system associated with the user; and

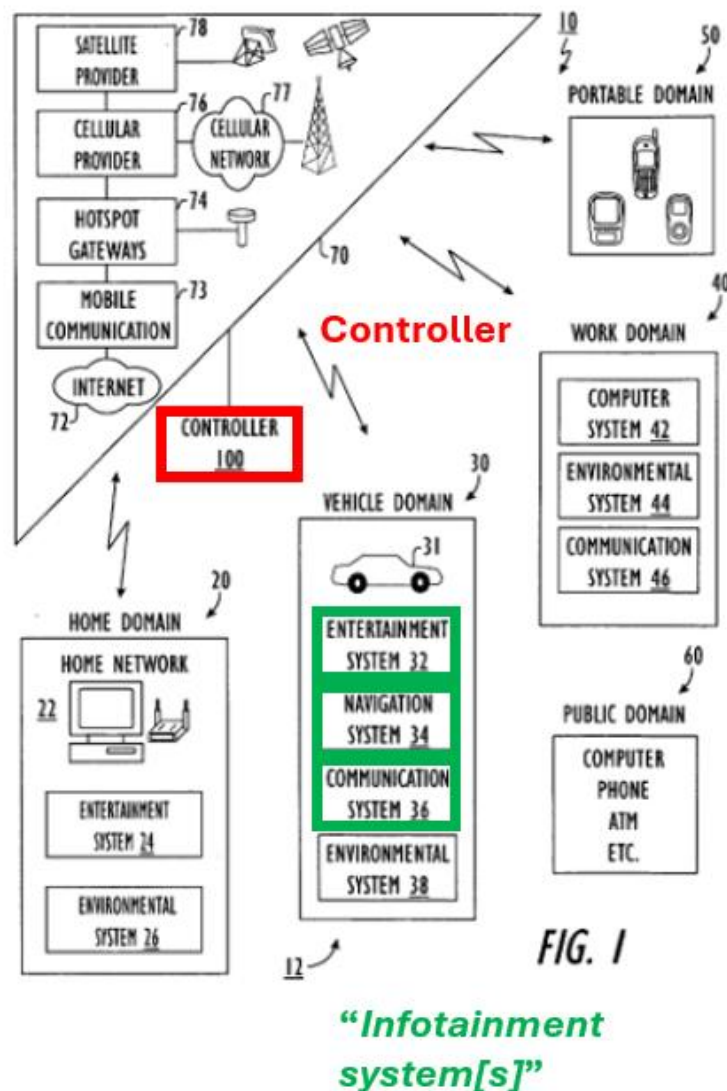
144. Zancho discloses communication over a mobility network. For example, Zancho includes “[a] platform 10 [that] can be a seamless mobility network.” (Zancho, Ex. 1022, [0016].) Zancho further discloses that “the platform 10 has a plurality of domains or environments 12, such as a home domain 20, a **vehicle domain 30**, a work domain 40, a portable domain 50, and a public domain 60.” (Zancho, Ex. 1022, [0017].)

145. With reference to Figure 1, Zancho discloses that the vehicle domain

30 includes various systems, including an entertainment system 32, a navigation system 34, and a communication system 36, i.e., an “infotainment system”:

The domains 12 are defined by a set of circumstances, a set of users, a specific environment (e.g., vehicle, home, office, etc.), and a set of devices and systems capable of operating and interacting in the domains. For example, the home domain 20 can include a home networked computer system 22, an entertainment system 24, and an environmental system 26. **The vehicle domain 30 for a vehicle 31 can include an entertainment system 32, a user interface or navigation system 34, a communication system 36, and an environmental system 38.** The work domain 40 can include a networked computer system 42, a communication system 44, and an environmental system 46. The portable domain 50 can include various portable electronic devices, such as a Personal Digital Assistant (PDA), a portable music player, a portable video player, a portable navigation device, a cellular phone, a wireless headset, and a laptop. Finally, the public domain 60 can include computers, telephones, Automated Teller Machines, and other public devices and systems that a user may encounter and use in public.

(Zancho, Ex. 1022, [0018].)



Zancho, Ex. 1022, Fig. 1 (Annotated)

146. As I explained regarding the state of the art, vehicle infotainment systems at the time of the alleged invention were integrated multimedia interfaces that provided access to one or more of navigation, music, video, communication, and vehicle controls through touchscreen displays, voice commands, and/or manual buttons and may have interacted with mobile devices, such as smartphones and

portable media players to provide information and entertainment. (See ¶¶ 84-86.) A POSA would have understood that Zanchó's entertainment system 32, navigation system 34, and communication system 36 are “*infotainment system[s]*.”

147. Zanchó discloses that the controller 100 is in communication with various devices and systems of the domains 12, including the entertainment system 32, navigation system 34, and communication system 36:

The platform 10 also includes a controller 100 capable of wired and wireless communication with the various devices and systems in the domains 12 and with the sources 70. In one embodiment, the controller 100 is a central server or a host computer system for arbitrating preferences between users in one or more of the various domains 12. In a distributed embodiment, one or more of the domains 12 can include a controller 100. For example, the networked computer system 22 in the home domain 20 can embody features of the controller 100 and can handle preferences in the home domain 20. **In another example, the vehicle domain 30 can include such a controller 100 for arbitrating preferences between portable devices of the portable domain 50 interacting with the vehicle systems 32, 34, 36, and 38.** In a further distributed embodiment, one or more of the devices or systems of the platform 10 can include features of the controller 100.

(Zanchó, Ex. 1022, [0020].)

148. With Reference to Figure 4, Zanchó further discloses that the controller 100 is integrated into the vehicle 31 and communicates with vehicle systems 140,

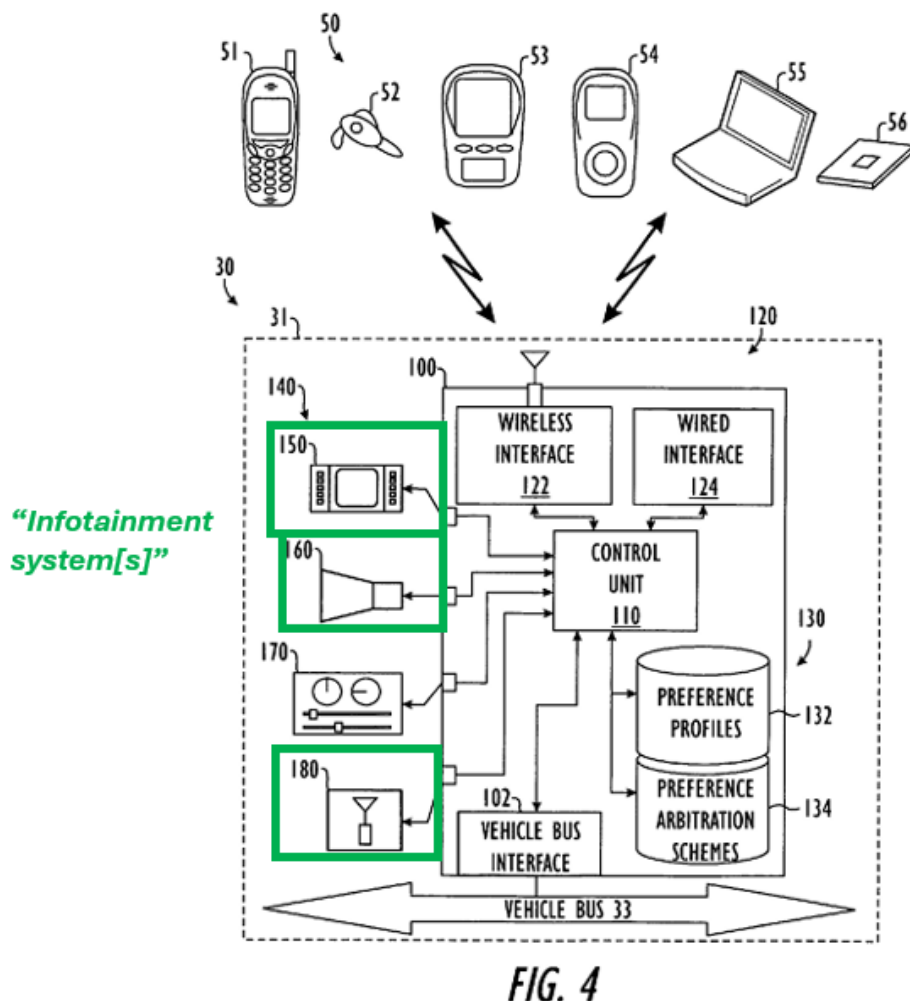
which includes an entertainment system 160 (“*infotainment system*”):

In FIG. 4, the controller 100 is shown in more detail in the vehicle domain 30 of a vehicle 31. In general, the vehicle domain 30 can be part of a platform discussed previously, and the controller 100 can be part of a server or other computer system located somewhere else in the platform. In the present example, however, the controller 100 is integrated into the vehicle 31.

(Zancho, Ex. 1022, [0039].)

The controller 100 is communicatively connected to one or more vehicle systems 140, such as a user interface or navigation system 150, **an entertainment system 160,** an environmental system 170, and a communication system 180 in the vehicle 31. In general, the controller 100 is communicatively connected to the systems 140 using input/output interfaces known in the art or using the vehicle bus interface 102 and vehicle bus 33.

(Zancho, Ex. 1022, [0040].)



Zancho, Ex. 1022, Fig. 4 (Annotated)

149. Although Zancho uses different reference numerals to identify the entertainment system in the Figure 4 embodiment than in the Figure 1 embodiment, a POSA would have understood that Zancho’s teachings with reference to both embodiments are compatible. For example, Zancho explains that “entertainment systems [include] (e.g., radios, video players, TVs)[.]” (Zancho, Ex. 1022, [0032].) Zancho also discloses that the entertainment system 160 includes audio equipment (e.g., a satellite radio) and a video display:

Based on a comparison of the genre selections 304 and their rankings, the preference handler determines which genre satisfies the preferences of the all the users 302. In this case, the arbitration scheme 300 shows that “Rock” is the preferred genre 306. Based on the determination from the preference arbitration scheme 300, the preference handler 112 of FIG. 5 sets or suggests that the satellite radio of the entertainment system 160 be operated with a station having the “Rock” genre. Thus, the preference handler 112 can initially set the satellite radio to a station having the “Rock” genre but may allow the station to be changed.

(Zancho, Ex. 1022, [0056].)

150. Zancho's infotainment system (e.g., entertainment system 160) is “*associated with*” a particular user when the device 50 of the particular user and the infotainment system are both connected to the controller 100, and when the device 50 of the particular user has preferences stored thereon and are utilized to control the settings of the infotainment system.

151. Zancho discloses a personal area network (PAN) that enables multiple devices 50 (annotated in blue below) to interact with the controller 100 (annotated in red):

In the present example, **the interfaces 120 of the controller 100 establish a personal area network (PAN) that defines the extent of the domain 30 in the vehicle 31. Within the personal area network, multiple personal devices 50 can interact simultaneously with the**

controller 100. In the present example, the devices 50 include, but are not limited to, a cellular phone 51, a wireless headset 52, a PDA 53, a portable music player 54, a laptop computer 55, a dedicated donor device 56, portable navigation device (not shown), and a portable video player (not shown).

(Zancho, Ex. 1022, [0042].)

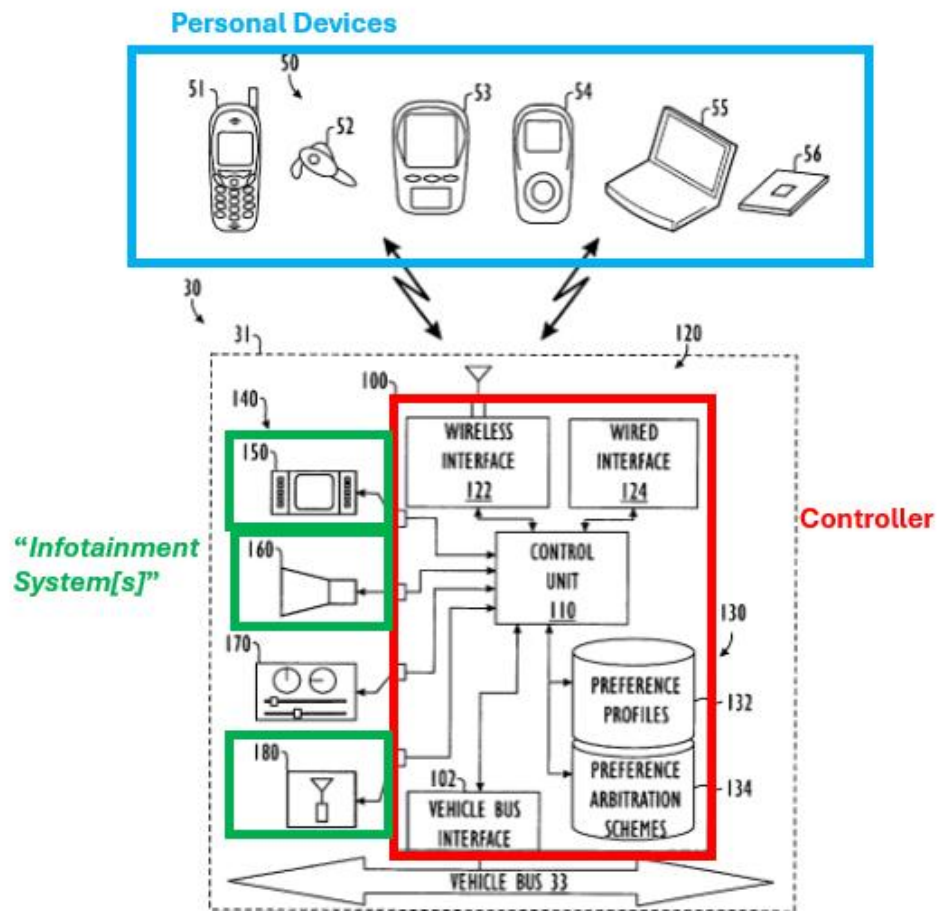


FIG. 4

Zancho, Ex. 1022, Fig. 4 (Annotated)

152. Zancho further discloses that the devices 50 may be associated with a particular user and that the devices 50 contain their own preferences:

The devices 50 can interact with the controller 100 using wired or wireless interfaces 122 and 124 known in the art. One or more of the devices 50 can contain a dedicated memory for storing preferences associated with the users of the device 50. Preferably, the preferences stored in the device 50 are comprehensive and encompass the various forms of interaction detailed herein. **Alternatively, one or more of the devices 50 may not contain a dedicated memory for storing preferences. Instead, such devices 50 may be associated with a particular user by an identification number, such as a network or IP address. The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100.** When the particular device 50 and associated user are identified, the controller 100 can access those preferences.

(Zancho, Ex. 1022, [0044].)

153. As explained above for claim limitation [1a], “the preferences associated with a user can encompass an entire variety of preferred user interactions, such as audio levels, visual effects, preferred media, and others detailed herein.”

(Zancho, Ex. 1022, [0024].)

154. Zancho discloses that the controller 100 identifies users within a domain by monitoring for active devices and obtains the preferences (“*infotainment information*”) associated with each user:

Now that the platform 10 has been described, the present discussion turns to an embodiment of a process 200 shown in FIG. 2 for handling

preferences in a domain. In the preference handling process 200, two or more users and/or their devices enter or are currently active in a domain (Block 202). As disclosed herein, **the controller can identify users by monitoring for active devices associated with users or by receiving manual input.**

(Zancho, Ex. 1022, [0021].)

For those compliant users or devices, the preferences associated with them are obtained (Block 208). Obtaining the preferences can involve one of a variety of methods. In one example, a compliant device active in the domain may store preferences for the user, and these preferences can be accessed or uploaded to the controller. In another example, a compliant device active in the domain may have an identification associated with it, such as a network or Internet Protocol (IP) address. This identification can then be used by the controller to obtain preferences associated with the user from a storage system or elsewhere using techniques known in the art.²²

(Zancho, Ex. 1022, [0022].)

²² Paragraphs [0022]–[0023] of Zancho state that preferences are both obtained and analyzed at block 208, whereas Figure 2 shows they are obtained at block 206 and analyzed at block 208. Given the chronological flow and clear distinction between blocks 206 and 208, Paragraph [0022] appears erroneous and should instead reference block 206.

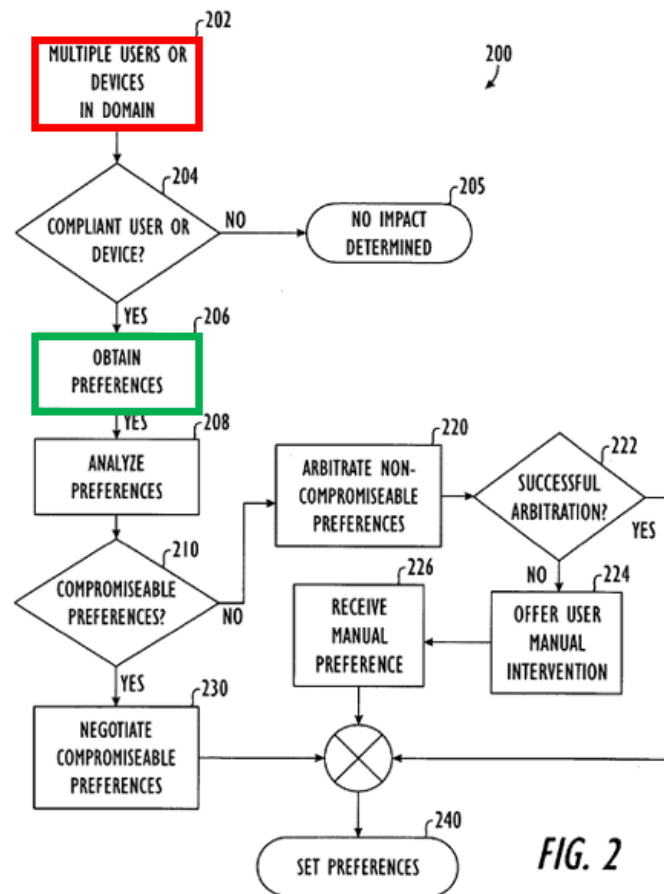


FIG. 2

Zancho, Ex. 1022, Fig. 2

155. Zancho further explains that the controller 100 can differentiate audio levels corresponding to the entertainment system 160 (“infotainment system”) based on a particular user device and its preferences (“infotainment information”):

With this general understanding of the operation of the preferences handler 112, **several examples of arbitrating preferences for multiple users 80 interacting with the controller 100 is discussed.** In a first example of arbitrating preferences, the users 80 have preferences associated with them for controlling audio in the vehicle domain 30. The first user 81 may be the driver, and the second and third users 82

and 83 may be passengers. Accordingly, **these users 80 may have different and potentially conflicting preferences with respect to audio settings, and the preferences can affect how audio should be delivered or controlled in the vehicle 30 with the entertainment system 160.**

(Zancho, Ex. 1022, [0053].)

156. Zancho discloses establishing a personal area network that facilitates interaction between personal devices 50, a controller 100, and an entertainment system 160, where the personal devices 50 are associated with particular users. A POSA would have understood that Zancho's disclosure that "the controller [100] can identify users by monitoring for active devices [50] associated with users" and obtain "the preferences associated with [each user]" which includes "preferences [that] can affect how audio should be delivered or controlled in the vehicle 30 with the entertainment system 160" teaches that controller 100 can establish a connection with the entertainment system 160 and personal devices 50, and determine how to control the entertainment system 160 based on the preferences of a particular device 50. (Zancho, Ex. 1022, [0021]-[0022], [0053].)

157. In sum, the entertainment system 160 ("*infotainment system*") is detected by the connection with the controller 100 and is "*associated with*" a particular user when the device 50 of the particular user is also connected to the controller 100, and when the device 50 of the particular user has preferences

(“*infotainment information*”) stored thereon and are utilized to control the settings of the entertainment system 160 (“*infotainment system*”).

158. Accordingly, Zanchi discloses “*detecting [by controller 100] at least one infotainment system [e.g., entertainment system 32/160] associated with the user[.]*”

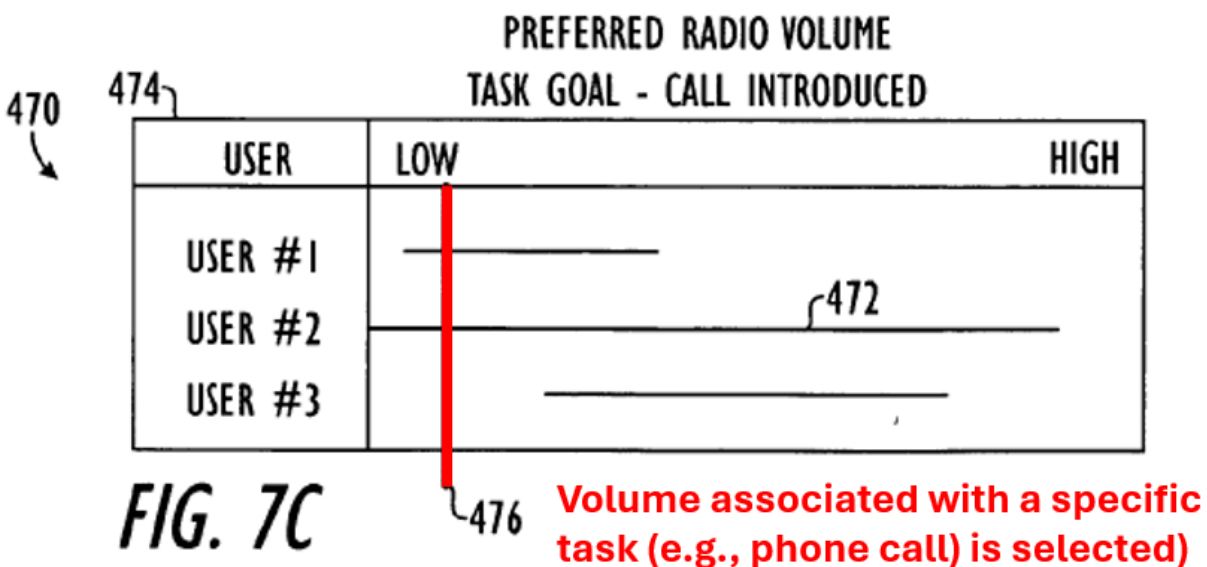
[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:

159. With further reference to Figure 7C, Zanchi discloses an arbitration scheme for arbitrating preferences based on a task goal. This task-based arbitration scheme includes automatically selecting a predefined audio level for the radio when a specific task is initiated, which overrides user preferred levels, essentially overriding the arbitrated outcome in certain situations:

In a fifth example of arbitrating preferences, the users 80 of FIG. 5 have different preferences for audio levels in the vehicle 31. In contrast to previous examples, these **preferred audio levels have a controlling task or other criteria that controls or restricts them**. In FIG. 7C, for example, an arbitration scheme 470 is shown in graphical form for arbitrating preferences based on a task goal. In this example, each user 474 has a preferred range 472 for audio volume to operate the entertainment system in the vehicle. The arbitration scheme 470, however, is restricted by a task goal, which in this example pertains to

a call being introduced in the vehicle. Thus, **an arbitrated or predefined level 476 is automatically selected when a call is introduced in the vehicle.** As a result, the preference handler 112 of FIG. 5 can then control operation of the audio levels of the entertainment system 160 in vehicle 31 according to that preferred level. Another possible controlling task includes automatically switching between visual and audio navigation directions when the vehicle is in drive or when a call is introduced in the vehicle.

(Zancho, Ex. 1022, [0063].)



Zancho, Ex. 1022, Fig. 7C (Annotated)

160. A POSA would have understood that this task-based arbitration scheme “*determin[es] to adjust a configuration*” for the radio (“*infotainment system*”) when the system is set to select a predefined audio level for the radio in the event a specific task is initiated. A POSA would have further understood that “*determining to adjust*

a configuration” is at least based on the user preferred levels (“*infotainment information*”) when such user preferred levels are known and are overridden in favor of the predefined audio level, as illustrated in Figure 7C of Zanchó.

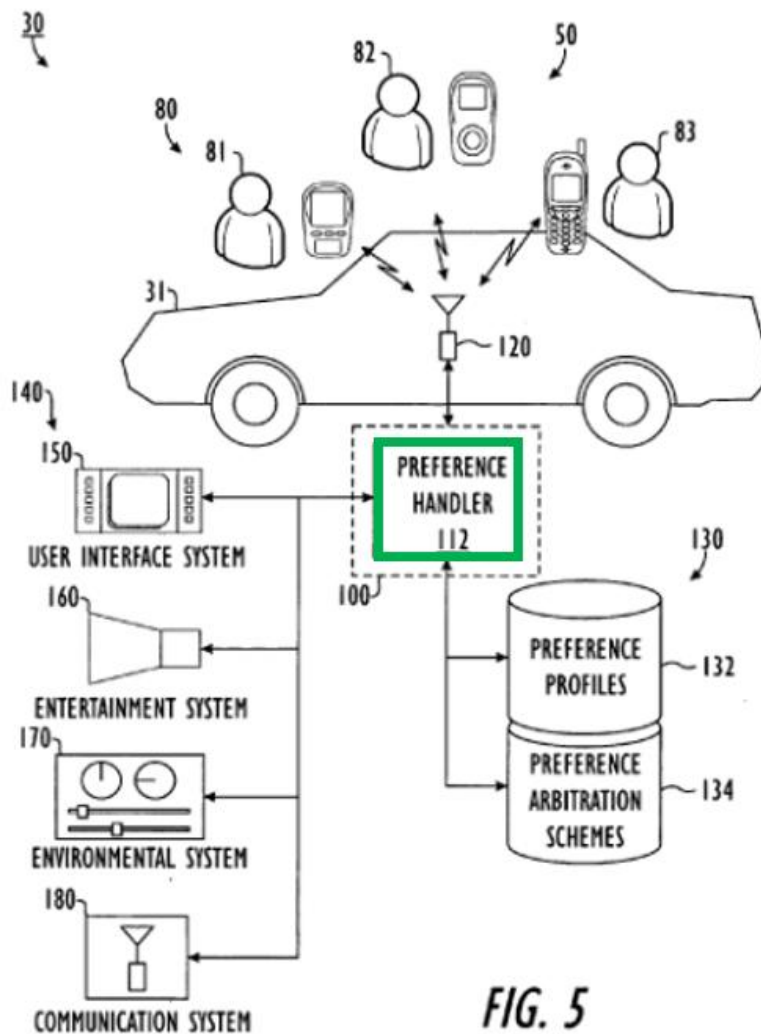
161. With reference to Figure 2, Zanchó discloses “an embodiment of a process for handling preferences in a domain.” (Zanchó, Ex. 1022, [0006].)

162. With reference to Figure 5, Zanchó discloses “an embodiment of the controller handling preferences for multiple users in a vehicle domain.” (Zanchó, Ex. 1022, [0009].) For example, Zanchó discloses that if there are multiple users interacting within the vehicle domain 30, a preference handler 112 determines how to arbitrate between the users:

In FIG. 5, the controller 100 is illustrated relative to some users 80 having portable devices 50 brought into a vehicle 31. **The controller 100 includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80.**

The preference handler 112 is schematically shown as a component of the controller 100 but is preferably embodied in software.

(Zanchó, Ex. 1022, [0046].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

163. Zancho further discloses, with reference to Figure 2 below, that “[a]fter arbitration of the non-compromiseable preferences, a determination is made whether the arbitration scheme was successful in arbitrating a result (Block 222). If the arbitration was successful, the process 200 continues and **sets those arbitrated preferences at step 240.**” (Zancho, Ex. 1022, [0028].)

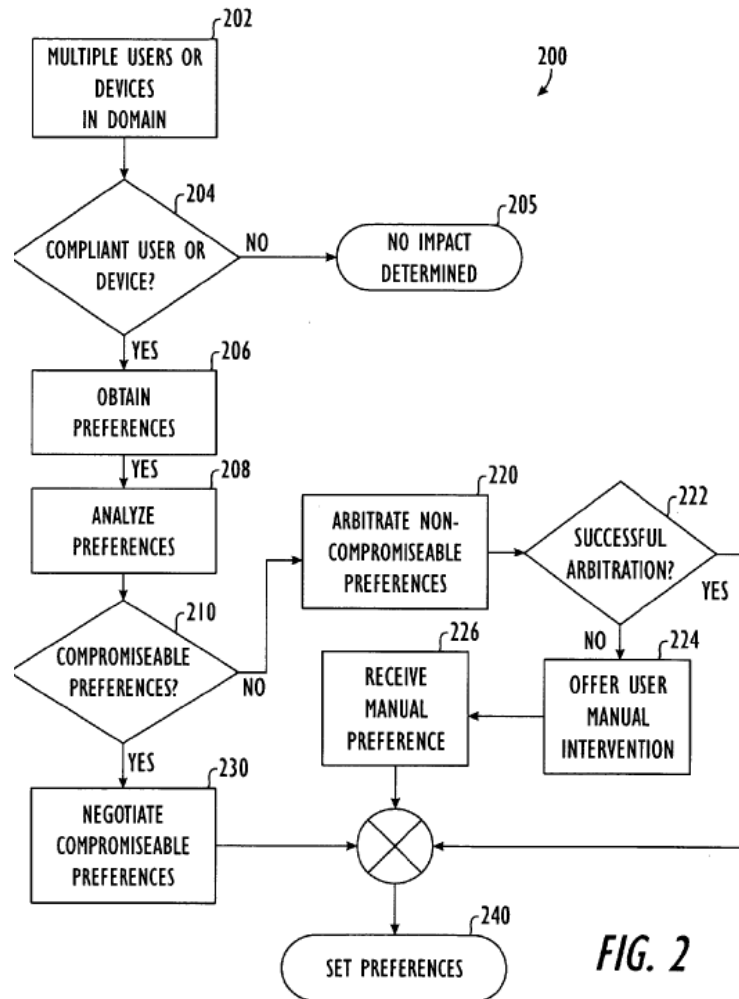


FIG. 2

Zancho, Ex. 1022, Fig. 2

164. Zancho discloses that the various categories of preferences may include various audio preferences, preferred media, and access network media:

For example, various categories (axis 252) for systems (axis 254) in the vehicle domain (axis 256) can include preferences related to audio preferences (e.g., equalization levels, volume levels), preferred media (e.g., genre, songs, preset radio stations, etc.), navigation routes, hands-free cellular phone capabilities (e.g., ability of passengers to have calls routed through vehicle's audio system), access network media (e.g.,

ability of passengers to access subscription based media services in the vehicle), seat and mirror positions, and air-conditioning settings.

(Zancho, Ex. 1022, [0036].)

165. With reference to Figures 6A and 6B, Zancho discloses “embodiments of arbitration schemes in tabular form for arbitrating preferences for multiple users in a vehicle domain.” (Zancho, Ex. 1022, [0010].)

300	302	304			306
DEVICE ID	GENRE SELECTION #1	GENRE SELECTION #2	GENRE SELECTION #3	SELECTED PROGRAMMING	
DRIVER'S DEVICE	NEWS	ROCK	CLASSICAL	ROCK	
PASSANGER'S DEVICE #1	COUNTRY	ROCK	RAP		
PASSANGER'S DEVICE #2	ROCK	COUNTRY	NEWS		

FIG. 6A

350	352	354			356
DEVICE ID	VIDEO SELECTION #1	VIDEO SELECTION #2	VIDEO SELECTION #3	SELECTED PROGRAMMING	
REAR PASSENGER'S DEVICE #1	TITANIC	RAIN MAN	OKLAHOMA	OKLAHOMA	
REAR PASSENGER'S DEVICE #1	STAR GATE	STAR WARS	OKLAHOMA		
REAR PASSENGER'S DEVICE #1	STAR WARS	GREASE	OKLAHOMA		

FIG. 6B

Zancho, Ex. 1022, Fig. 6A and Fig. 6B

166. A POSA would have understood that the preference handler 112 arbitrates the preferences (“infotainment information”) of multiple users, which are stored in preference profiles 132 (“user profile”), and then suggests playing the selected content based on the arbitration process (“determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile”). The preferences (“infotainment information”) include audio preferences, preferred media, and access network media.

167. Accordingly, Zancho discloses “determining to adjust [e.g., arbitrate or

negotiate between preferences] *a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises[.]”*

[1d] determining an access priority of the user; and

168. Zanchi discloses an arbitration scheme that determines a preference for multiple users/devices and alters vehicle control operations based on the arbitration of the preferences:

A preference-handling system includes one or more communication interfaces, user interfaces, memory, and a controller. The controller can be used in a vehicle to handle preferences. The communication interfaces communicatively connect with devices in a domain, and the memory stores preferences for users. The controller is operably coupled to the communication interfaces, the memory, and a domain system. **The controller is configured to monitor for devices active in the domain of the unit and determine a preference for each of at least two users associated with active devices.** Each of the preferences is related to controlling behavioral operation of or content presented by the domain system, which can be an entertainment, user interface, navigation, communication, or environmental system in the vehicle. **The controller arbitrates the preferences based on an arbitration scheme of the controller and controls operation of the system based on the arbitration of the preferences.**

(Zanchi, Ex. 1022, Abstract.)

169. Zanchi further discloses that the arbitration scheme assigns a priority

value to each preference (“*infotainment information*”) associated with a user, as well as assign preferences to various categories:

The arbitration scheme can involve selecting a type in all or most of a list of preferences, selecting a preference having a highest priority, selecting a value within ranges of each of the preferences, selecting a preference having a greatest weighting, or selecting a preference based on a task controlling the domain. In addition, the arbitration scheme can involve assigning preferences to one of a plurality of categories. The categories can include non-compromisable preferences, compromiseable preferences, and yielding preferences.

(Zancho, Ex. 1022, [0014].)

170. Zancho discloses that “the preference handler 112 uses a preference arbitration scheme 134 to decide how to handle preferences when they conflict based on the “context” which includes the user’s identification and location, i.e., “what users 80 are active” and user preferences:

During operation, the preference handler 112 determines the “context” of the domain 30. The context is defined by what users 80 are active, what systems 140 are operating, what operations are requested, and what preferences are associated with the users 80 in the domain 30. Based on the context, the preference handler 112 uses a preference arbitration scheme 134 to decide how to handle preferences when they conflict.

(Zancho, Ex. 1022, [0047].)

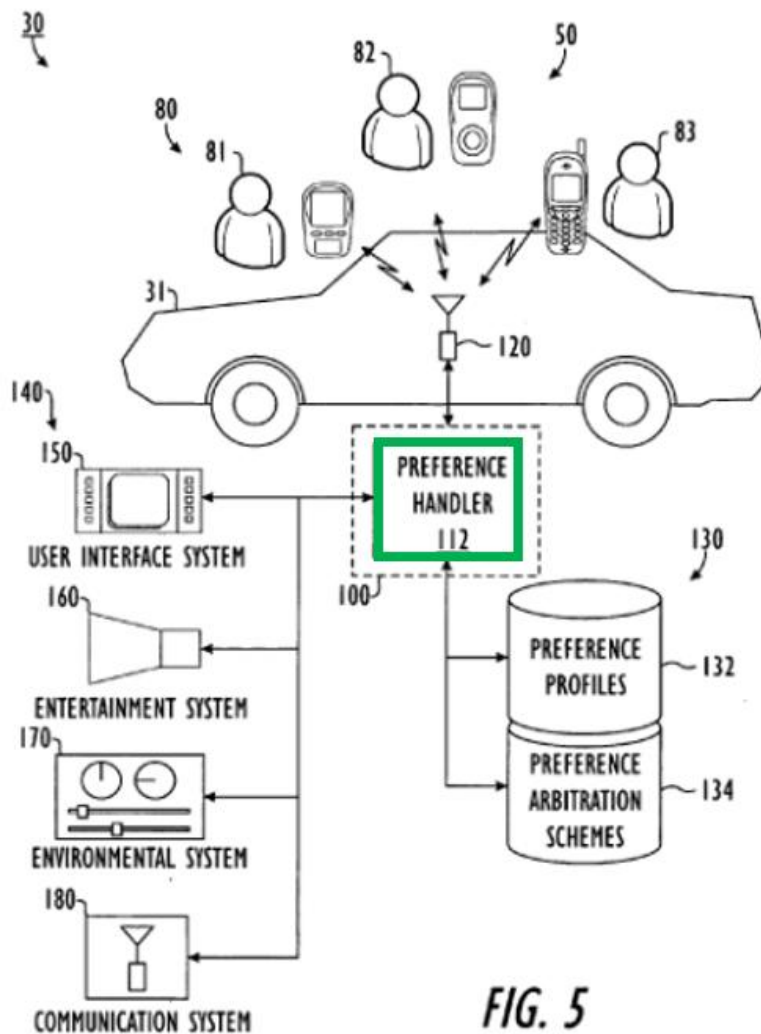


FIG. 5

Zancho, Ex. 1022, Fig. 5 (Annotated)

171. With reference to Figure 2, Zancho further discloses a preference handling process 200. (Zancho, Ex. 1022, [0021].) Zancho discloses that after determining that a user/device is compliant and the user preferences (“*infotainment information*”) are obtained, a determination can then be made as to “who ‘owns’ or controls the domain or a system in the domain”:

Once the relevant preferences have been obtained, an analysis of those preferences is made to determine how to handle the preferences from

multiple users (Block 208). **In this step, a determination is made as to who “owns” or controls the domain or a system in the domain. For example, a particular user may be designated as owner of the domain. The preferences associated with this user may always be applied, or this user's preferences are given more weight in determining how to handle conflicts between preferences. In addition, a determination is made as to what rank the various users have in the domain.** For example, one user may be directly associated with a domain, such as a family member in a home domain. However, another user may have compliant preferences for this home domain, but they may be a friend or the like and may have a lower rank in the home domain compared to the family member's rank.

(Zancho, Ex. 1022, [0023].)

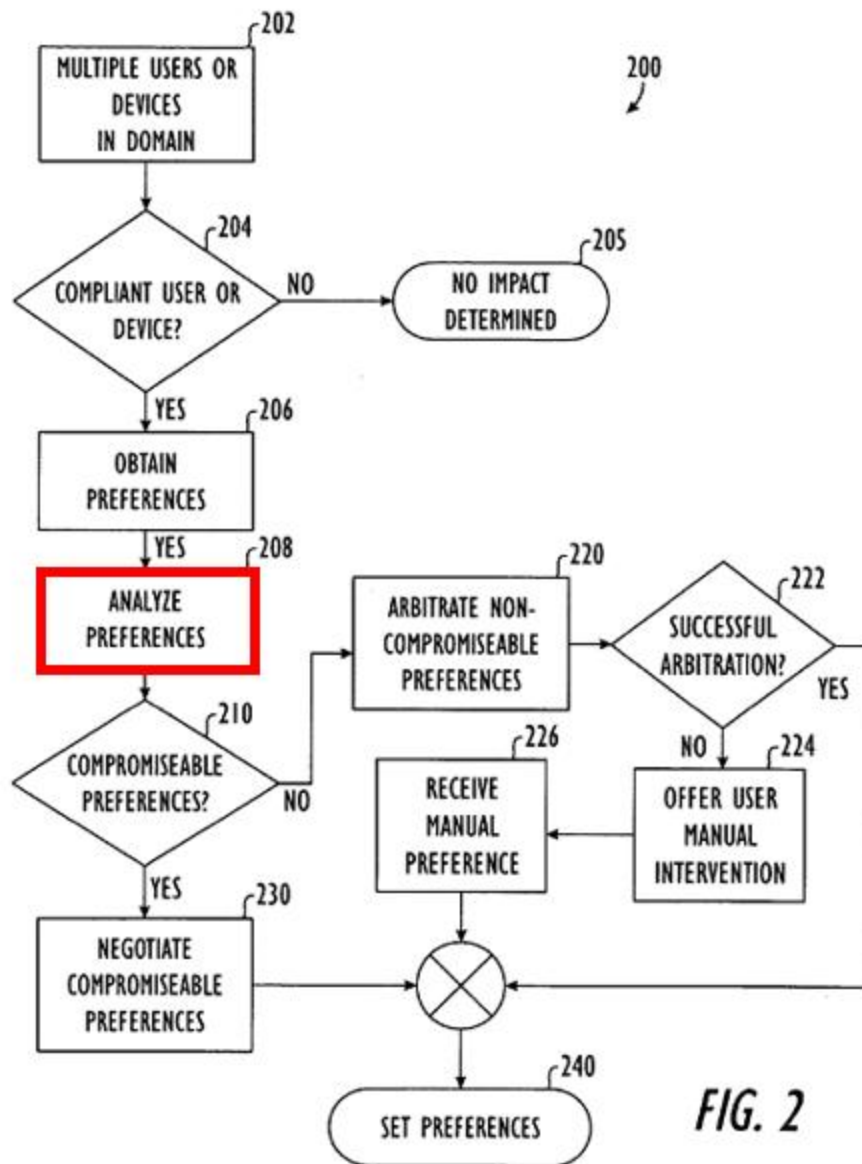


FIG. 2

Zancho, Ex. 1022, Fig. 2 (Annotated)

172. Zancho discloses that in step 210, a determination is made as to what category the preferences should be assigned to (i.e., non-compromiseable, flexible/compromiseable, or yielding). (Zancho, Ex. 1022, [0025].) Zancho explains that a non-compromiseable preference “acts as a veto” to other preferences when in conflict and a yielding preference “automatically yields” to another preference when

in conflict. However, if a preference (“*infotainment information*”) associated with a user is compromiseable, the preference is associated with a “priority” value:

Continuing with the process 200, **step 210 determines what type or category the applicable preferences have. The preferences are classified according to a rigid or non-compromiseable category, a flexible or compromiseable category, or a yielding category.** A preference in the non-compromiseable category does not allow for compromise and acts as a veto to other preferences or alternatives with which it comes in conflict. **A preference in the compromiseable category does allow for compromise and has a range, weight, or priority that can be used to negotiate or compromise with other preferences or alternatives with which it comes in conflict.** A preference in the yielding category automatically yields to any other preference with which it comes in conflict.

(Zancho, Ex. 1022, [0025].)

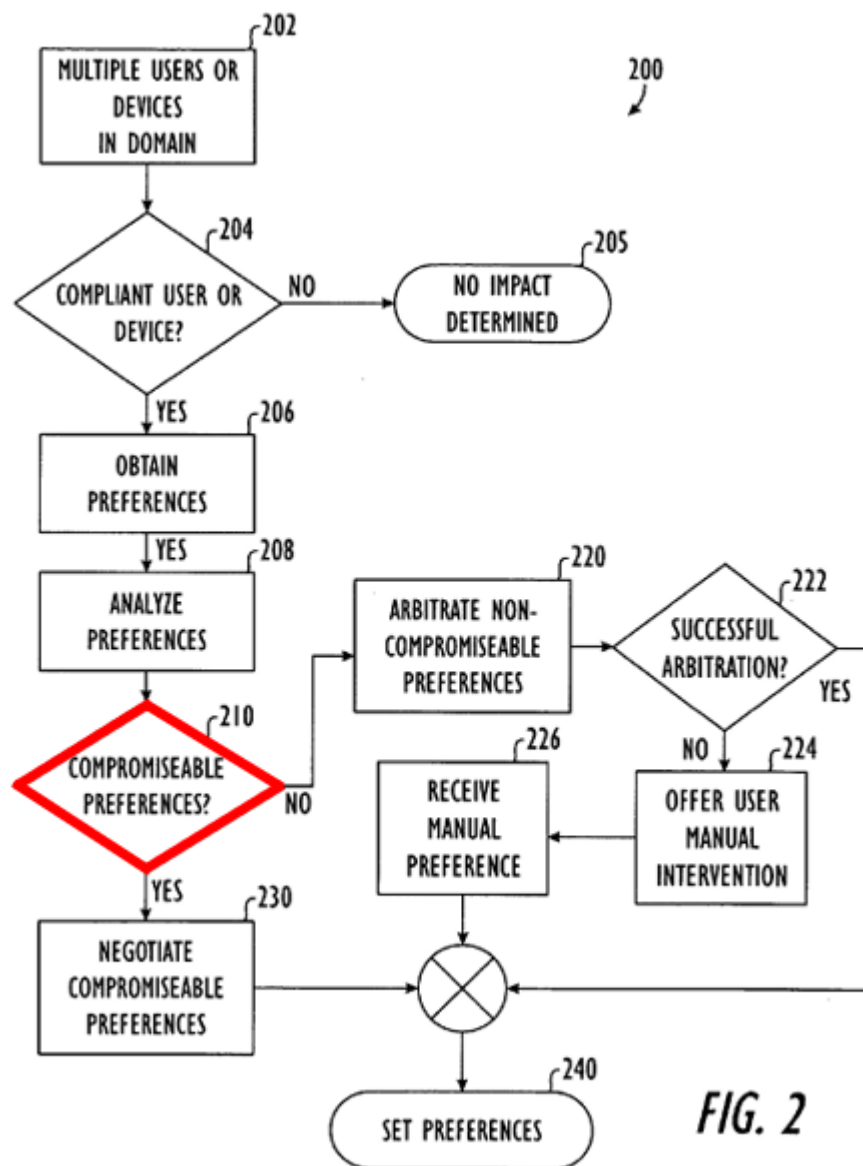


FIG. 2

Zancho, Ex. 1022, Fig. 2 (Annotated)

173. Zancho further discloses arbitrating preferences based on the identity

and location of the user and corresponding categories in Block 220²³, i.e., non-compromisable preferences (“*infotainment information*”) are arbitrated and a determination is made based on the preferences’ weight or ranking associated with the user (“*access priority*”):

Preferences that are non-compromisable are arbitrated or negotiated according to one or more of the arbitration schemes disclosed herein (Block 220). In general, these arbitration schemes are guided by the weightings or rankings associated with the preferences. In particular, preferences associated with the owner of the domain are first selected if the owner of the domain is present (e.g., a device associated with the owner is active or detected in the domain). Next, common preferences associated with all users in the domain are selected. Otherwise, those **remaining preferences associated with the user having the highest ranking are selected.**

(Zancho, Ex. 1022, [0027].)

²³ Zancho uses the term “step” to refer to a textual description of a procedural action, and “block” to refer to a visual representation of that step in a diagram. Therefore a POSA would have understood the terms step and block as used in Zancho refer to the same conceptual element in the process.

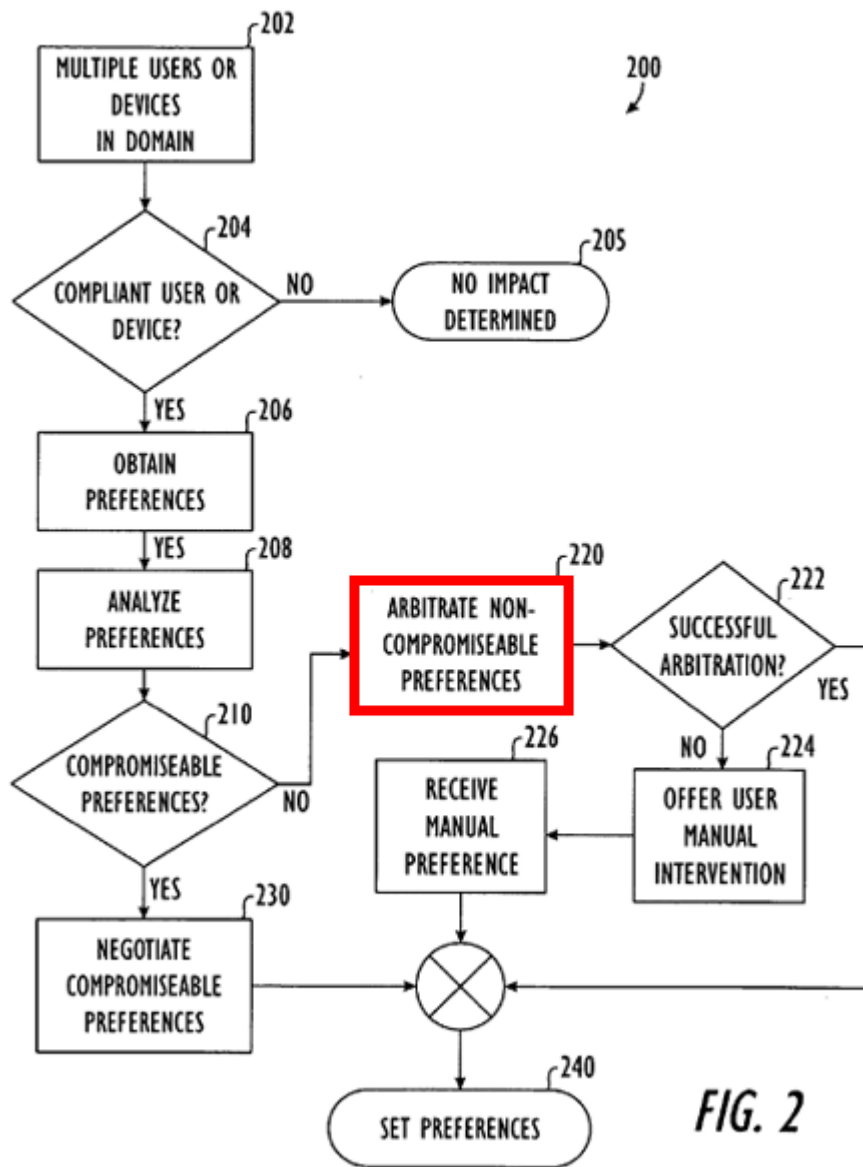


FIG. 2

Zancho, Ex. 1022, Fig. 2 (Annotated)

174. A POSA would have understood that Zancho's disclosure that the controller 100 is configured to determine a preference ("infotainment information") for each of at least two users associated with active devices 50, and that the preferences are arbitrated based on the "context" including user identity and location

which correspond to “priority” and/or “weightings or rankings associated with the preferences[,]” teaches that the controller 100 “*determine[es] an access priority*” of each user including the owner, i.e., “*the user*” and then resolves conflicts between multiple users 80 by applying a hierarchy of priority values and rankings.

[1e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:

175. Zanchi discloses a preference handler 112 that arbitrates between the preferences (“*infotainment information*”) of multiple users when there are multiple users interacting within the vehicle domain 30:

In FIG. 5, the controller 100 is illustrated relative to some users 80 having portable devices 50 brought into a vehicle 31. **The controller 100 includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80.** The preference handler 112 is schematically shown as a component of the controller 100 but is preferably embodied in software.

(Zanchi, Ex. 1022, [0046].)

176. Zanchi further discloses that “the preference handler 112 uses a preference arbitration scheme 134 to decide how to handle preferences when they conflict” based on the “context” which includes the identification, location, and preference of each user, including the owner (“*access priority of the user*”):

During operation, the preference handler 112 determines the “context” of the domain 30. The context is defined by what users 80 are active, what systems 140 are operating, what operations are requested, and what preferences are associated with the users 80 in the domain 30. Based on the context, the preference handler 112 uses a preference arbitration scheme 134 to decide how to handle preferences when they conflict.

(Zancho, Ex. 1022, [0047].)

177. With reference to Figures 6A and 6B, Zancho discloses “embodiments of arbitration schemes in tabular form for arbitrating preferences for multiple users in a vehicle domain.” (Zancho, Ex. 1022, [0010].)

178. Zancho further discloses that “preferences for users are ranked in an order within a preference arbitration scheme 300, which is shown in tabular form. The scheme 300 includes device IDs 302 and ranked genre selections 304 for active devices in the domain.” (Zancho, Ex. 1022, [0055].)

179. “Based on a comparison of the [radio station] genre selections 304 and their rankings, the preference handler determines which genre satisfies the preferences of the all the users 302.” (Zancho, Ex. 1022, [0056].) As illustrated in Figure 6A below, the preference handler selects “Rock” (annotated in red) because it is a common genre selection for each user:

300 302 DEVICE ID	304 GENRE SELECTION #1	304 GENRE SELECTION #2	304 GENRE SELECTION #3	306 SELECTED PROGRAMMING
DRIVER'S DEVICE	NEWS	ROCK	CLASSICAL	ROCK
PASSANGER'S DEVICE #1	COUNTRY	ROCK	RAP	
PASSANGER'S DEVICE #2	ROCK	COUNTRY	NEWS	

Selected Music Genre

FIG. 6A

Zancho, Ex. 1022, Fig. 6A(Annotated)

180. With reference to Figures 7B and 7C, Zancho discloses “embodiments of arbitration schemes in graphical form for arbitrating preferences for multiple users in a vehicle domain.” (Zancho, Ex. 1022, [0011].)

181. With further reference to Figure 7B, Zancho discloses an arbitration scheme for determining which preferred cabin lighting level to set when multiple preferred cabin lighting levels are received from multiple users. Specifically, the arbitration scheme of Figure 7B determines the characteristic of each user and gives preference to the preferred lighting level of the vehicle owner (“the user”) (annotated in red):

In FIG. 7B, a preference arbitration scheme 430 is shown in graphical form for arbitrating a preferred cabin lighting level for a vehicle. The preferred lighting levels 432 of three users 434 associated with the

active devices in the vehicle are shown. Rather than negotiating between the preferred lighting levels 432, the characteristic of each user 434 associated with the preferred lighting levels 432 is determined. For example, **the device associated with the owner of the vehicle may be detected, or one of the users may be defined as the owner of the vehicle domain. Based on this determination, a preferred lighting level 436 of this owner (i.e., User #3) is selected over the other preferred lighting levels 432.**

(Zancho, Ex. 1022, [0062].)

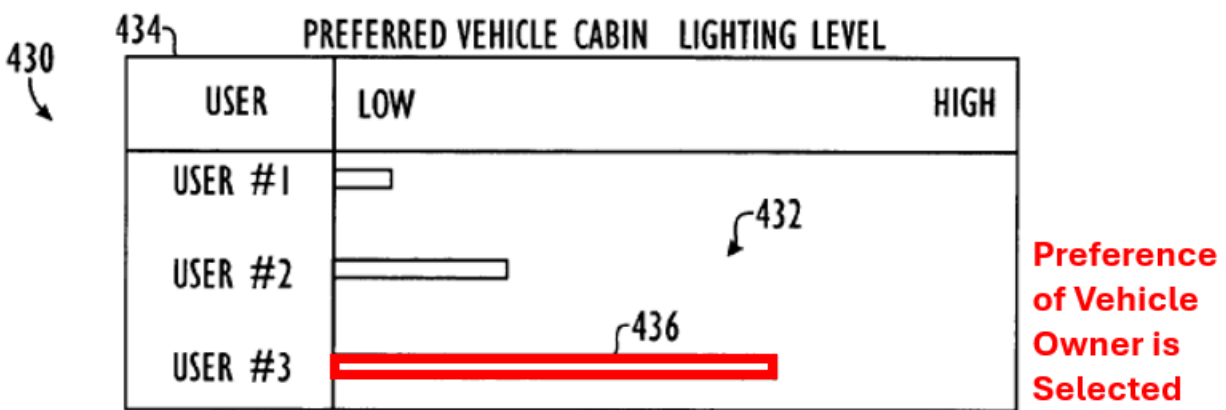


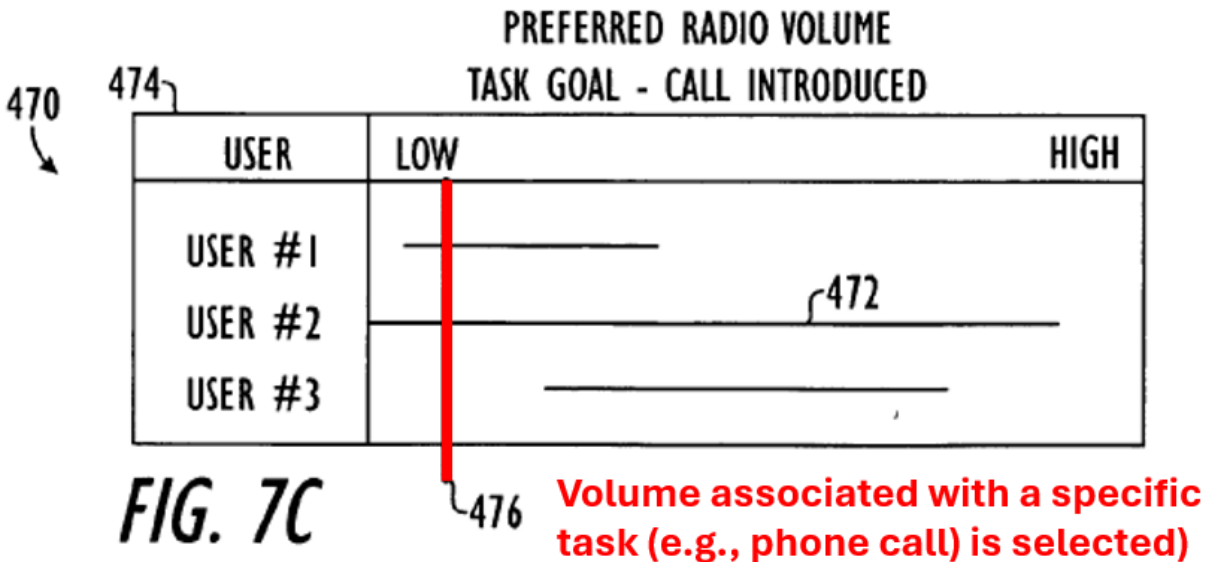
FIG. 7B

Zancho, Ex. 1022, Fig. 7B (Annotated)

182. With further reference to Figure 7C, Zancho discloses an arbitration scheme for arbitrating preferences based on a task goal. This arbitration scheme includes automatically selecting a predefined audio level when a specific task is initiated, which overrides user preferred levels, essentially over-riding the arbitrated outcome in certain situations (the “task”):

In a fifth example of arbitrating preferences, the users 80 of FIG. 5 have different preferences for audio levels in the vehicle 31. In contrast to previous examples, these **preferred audio levels have a controlling task or other criteria that controls or restricts them.** In FIG. 7C, for example, an arbitration scheme 470 is shown in graphical form for arbitrating preferences based on a task goal. In this example, each user 474 has a preferred range 472 for audio volume to operate the entertainment system in the vehicle. The arbitration scheme 470, however, is restricted by a task goal, which in this example pertains to a call being introduced in the vehicle. Thus, **an arbitrated or predefined level 476 is automatically selected when a call is introduced in the vehicle.** As a result, the preference handler 112 of FIG. 5 can then control operation of the audio levels of the entertainment system 160 in vehicle 31 according to that preferred level. Another possible controlling task includes automatically switching between visual and audio navigation directions when the vehicle is in drive or when a call is introduced in the vehicle.

(Zancho, Ex. 1022, [0063].)



Zancho, Ex. 1022, Fig. 7C (Annotated)

183. Zancho discloses a controller that arbitrates the preferences, which are related to controlling behavioral operation of or content presented by the domain system, which can be an entertainment, user interface, navigation, communication, etc. in the vehicle:

The controller is configured to monitor for devices active in the domain of the unit and determine a preference for each of at least two users associated with active devices. **Each of the preferences is related to controlling behavioral operation of or content presented by the domain system, which can be an entertainment, user interface, navigation, communication, or environmental system in the vehicle.** The controller arbitrates the preferences based on an arbitration scheme of the controller and controls operation of the system based on the arbitration of the preferences.

(Zancho, Ex. 1022, Abstract.)

184. Zanco discloses several methods for ranking and selecting preferences for a plurality of categories:

The arbitration scheme can involve selecting a type in all or most of a list of preferences, **selecting a preference having a highest priority, selecting a value within ranges of each of the preferences, selecting a preference having a greatest weighting, or selecting a preference based on a task** controlling the domain. In addition, the arbitration scheme can involve assigning preferences to one of a plurality of categories. The **categories can include non-compromisable preferences, compromiseable preferences, and yielding preferences.**

(Zanco, Ex. 1022, [0014].)

185. Zanco discloses determining what rank (“*access priority*”) the various users have in the domain, including giving more weight to the preferences of the owner (“*the user*”):

Once the relevant preferences have been obtained, an analysis of those preferences is made to determine how to handle the preferences from multiple users (Block 208). **In this step, a determination is made as to who “owns” or controls the domain or a system in the domain. For example, a particular user may be designated as owner of the domain. The preferences associated with this user may always be applied, or this user's preferences are given more weight in determining how to handle conflicts between preferences.** In addition, a determination is made as to what rank the various users have

in the domain. For example, one user may be directly associated with a domain, such as a family member in a home domain. However, another user may have compliant preferences for this home domain, but they may be a friend or the like and may have a lower rank in the home domain compared to the family member's rank.

(Zancho, Ex. 1022, [0023].)

186. Zancho further discloses prioritizing the preferences of an owner of the domain if the owner is present, common preferences, and rankings:

In particular, **preferences associated with the owner of the domain are first selected if the owner of the domain is present** (e.g., a device associated with the owner is active or detected in the domain). Next, **common preferences** associated with all users in the domain are selected. Otherwise, those remaining preferences associated with the user having the **highest ranking** are selected.

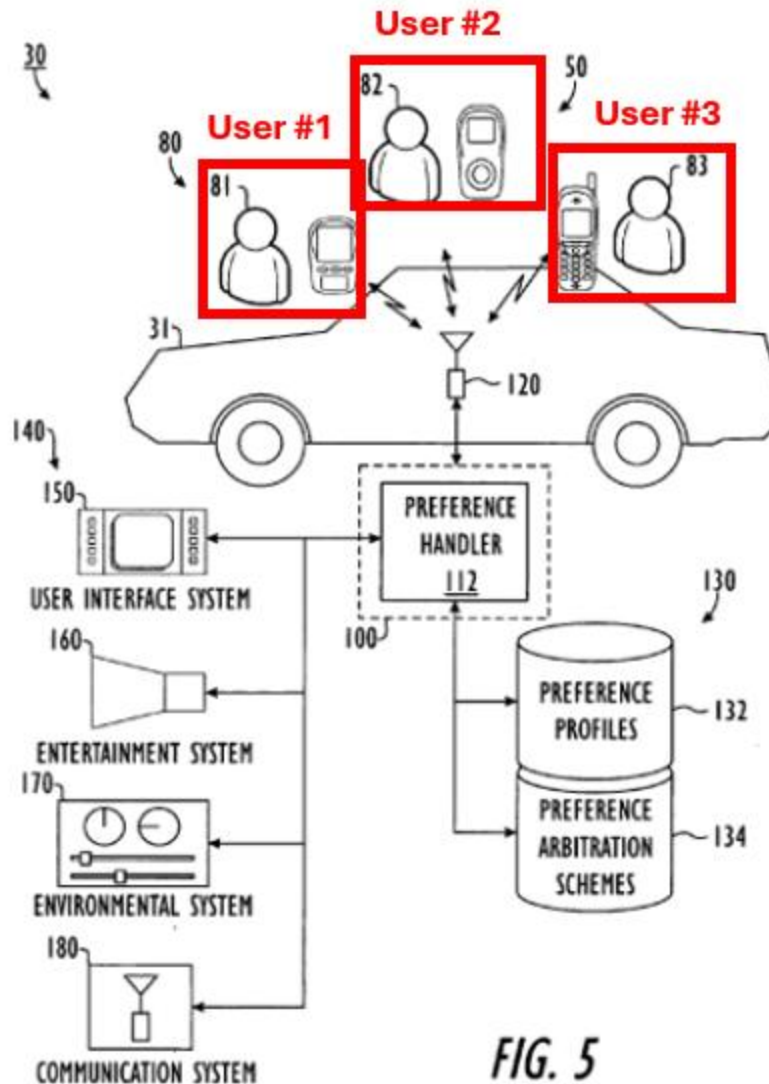
(Zancho, Ex. 1022, [0027].)

187. Zancho discloses monitoring for active devices in a domain, determining preferences for users associated with active devices and corresponding weights or rankings (“*access priority*”), and selecting one of the preferences based on an arbitration scheme that takes into account the “*access priority*”, where the preferences may correspond to preferences associated with an entertainment system (“*infotainment system*”). Accordingly, Zancho discloses “*determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system[.]*”

[1f] determining a second access priority of a second user associated with the infotainment system; and

188. As I explained for claim limitations [1d]-[1e], Zanchi discloses a controller that is configured to monitor for active devices within a domain, determine a preference for **multiple users** associated with active devices, and arbitrate between preferences (“*infotainment information*”), which may include selecting a preference having a highest priority (“*access priority*”). Therefore, I refer back to my analysis of claim limitations [1d]-[1e] to establish that it is met by Zanchi.

189. Zanchi discloses three users in Figure 5, including a first user 81, a second user 82, and a third user 83. (Zanchi, Ex. 1022, [0050].) Zanchi further discloses that “[w]hen two or more users 80 are active in the domain 30, the preference handler 112 determines whether the preferences [*“infotainment information”*] of these users 80 are relevant to the current context of the domain 30 and **uses one or more preference arbitration schemes 134 to handle any conflicts in the preferences.**” (Zanchi, Ex. 1022, [0049].) Therefore, Zanchi teaches determining a ranking or “*access priority*” for each user 81, 82, and 83.



Zancho, Ex. 1022, Fig. 5 (Annotated)

190. Zancho discloses an example in which the first user 81 is the owner, i.e., “the user”, therefore the second user 82 is a non-owner, i.e., the “second user”:

In a first example scenario, a first user 81 has a non-compromisable preference for operating one of the systems 140 in the vehicle 31, while other users 82 and 83 have either compromiseable or yielding preferences. In this situation, the non-compromisable preference of the first user 81 essentially vetoes the preferences of the other users 82 and

83. This may be the case where **the first user 81** is the driver, **the vehicle owner**, or is a user that otherwise owns the domain 30.

(Zancho, Ex. 1022, [0050].)

191. Accordingly, Zancho discloses “*determining a second access priority of a second user associated with the infotainment system[.]*”

[1g] comparing the access priority of the user to the second access priority of the second user,

192. Zancho discloses that “[w]hen two or more users 80 are active in the domain 30, the preference handler 112 determines whether the preferences [“*infotainment information*”] of these users 80 are relevant to the current context of the domain 30 and **uses one or more preference arbitration schemes 134 to handle any conflicts in the preferences.**” (Zancho, Ex. 1022, [0049].)

193. Zancho further arbitrates preferences based on ranges, weightings, or rankings (“*access priority*”) associated with preferences of the users:

In a third example scenario, at least two of the users 81, 82, and 83 have compromiseable preferences. In this situation, the compromiseable preferences are negotiated according to a preference arbitration scheme 134. **In general, the preference arbitration scheme 134 negotiates the preferences by determining a level, attribute, or selection of a preference to operate the system 140 based on ranges, weightings, or rankings associated with preferences of the users 80.**

(Zancho, Ex. 1022, [0051].)

194. Zanchó further discloses establishing a ranking, weighting, or priority (“*access priority*”) for the preferences (“*infotainment information*”) so that the preference handler can resolve conflicts between preferences:

One way of arbitrating preferences is to establish a ranking, weighting, or priority of preferences so that the preference handler 112 can resolve conflicts between preferences. In FIG. 6A, for example, preferences for users are ranked in an order within a preference arbitration scheme 300, which is shown in tabular form. The scheme 300 includes device IDs 302 and ranked genre selections 304 for active devices in the domain. These genre selections 304 can be relevant to the operation of a satellite radio of an entertainment system in a vehicle and can be used to set which station to operate the radio. The device IDs 302 in this example correspond to users having detected devices of in the domain and are listed as “Driver's Device,” “Front Passenger's Device,” etc. for illustrative purposes. Each user has a plurality of genre selections 304 that are ranked in order.

(Zanchó, Ex. 1022, [0055].)

195. Zanchó further discloses selecting the preference (“*infotainment information*”) for a highest ranked user (e.g., the owner) or the preference associated with a first of the users:

In general, **the preference arbitration scheme 134 selects the preference of the owner of the domain 30 if available.** If no owner is present, the preference arbitration scheme 134 determines a level, attribute, or selection of a preference that is common to all of the users

80. If no common selection can be made, **the preference arbitration scheme 134 selects the preference for the highest ranked user 80 currently in the domain 30 or the preference associated with the first of the users 80 to enter the domain 30.**

(Zancho, Ex. 1022, [0052].)

196. Zancho discloses comparing and negotiating preferences (“*infotainment information*”) between multiple users by determining a level, attribute, or selection of a preference to operate a system based on ranges, weightings, and/or rankings (“*access priority*”) associated with the preferences, which may include selecting a preference of a user having a highest priority from multiple users, e.g., selecting a preference of an owner (“*the user*”) over the preference of a non-owner (“*second owner*”). Accordingly, Zancho discloses “*comparing the access priority of the user [e.g., the owner] to the second access priority of the second user [e.g., a non-owner.]*”

[1h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and

197. Zancho discloses selecting the preference of the owner (“*the user*”) over the preference of other users (e.g., “*the second user*”) based on the identity and location of the owner:

In general, **the preference arbitration scheme 134 selects the preference of the owner of the domain 30 if available.** If no owner is

present, the preference arbitration scheme 134 determines a level, attribute, or selection of a preference that is common to all of the users 80. If no common selection can be made, the preference arbitration scheme 134 selects the preference for the highest ranked user 80 currently in the domain 30 or the preference associated with the first of the users 80 to enter the domain 30.

(Zancho, Ex. 1022, [0052].)

198. As discussed for claim [1e], Zancho discloses arbitration schemes. Zancho specifically discloses an arbitration scheme where a user having a non-compromisable preference, e.g., the owner (“*the user*”), vetoes preferences of other users:

In a first example scenario, a first user 81 has a non-compromisable preference for operating one of the systems 140 in the vehicle 31, while other users 82 and 83 have either compromiseable or yielding preferences. **In this situation, the non-compromisable preference of the first user 81 essentially vetoes the preferences of the other users 82 and 83. This may be the case where the first user 81 is the driver, the vehicle owner, or is a user that otherwise owns the domain 30.** In a second example scenario, the first user 81 has a compromiseable preference for operating one of the systems 140, and the other users 82 and 83 have preferences in the yielding category. **In this situation, the compromiseable preference for the first user 81 is used during operation of the system 140. This may be the case where the other users 82 and 83 are guests in the domain 30, and**

any preferences associated with them are automatically set to the yielding category.

(Zancho, Ex. 1022, [0050].)

199. Zancho further discloses “**at least two of the users 80 each have non-compromisable preferences for operating one of the systems 140.** In this situation, the non-compromisable preferences are negotiated according to a preference arbitration scheme 134. In general, **the preference arbitration scheme 134 selects the preference of the owner of the domain 30 if available.**” (Zancho, Ex. 1022, [0052].)

200. A preference in the non-compromisable category does not allow for compromise and “**acts as a veto to other preferences or alternatives** with which it comes in” contact. (Zancho, Ex. 1022, [0025].)

201. Zancho discloses “[A] method . . . wherein the preferences comprise a list of types, a range of values, **a weighting, a priority, a ranking**, a controlling task, a rule, or a restriction, and wherein arbitrating the preferences comprises one or more of: . . . **selecting a preference having a highest priority[.]**” (Zancho, Ex. 1022, Claim 6.)

202. Zancho discloses selecting the preference of a vehicle owner (“*the user*”) over other vehicle occupants, selecting non-compromisable preferences over compromisable preferences, selecting a preference having a highest priority over

other preferences, and selecting from multiple preferences based on rankings of the preferences (“*access priority*”). A POSA would have understood that an adjustment preference of a first user is allowed while an adjustment preference of a second user is denied when the preferences of the first user (e.g., the owner) have a higher ranking or are set to veto the preferences of the second user. Accordingly, Zanchó discloses “*wherein the adjustment is allowed when the access priority of the user [e.g., the owner] is greater than the second access priority of the second user [e.g., not the owner.]*”

[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

203. Zanchó discloses that the preferences of the owner (“*the user*”) are given less weight when the owner is not present in the domain:

In general, the preference arbitration scheme 134 selects the preference of the owner of the domain 30 if available. **If no owner is present,** the preference arbitration scheme 134 determines a level, attribute, or selection of a preference that is common to all of the users 80. If no common selection can be made, the preference arbitration scheme 134 selects the preference for the highest ranked user 80 currently in the domain 30 or the preference associated with the first of the users 80 to enter the domain 30.

(Zanchó, Ex. 1022, [0052].)

204. The analysis for claim limitation [1h] outlines that Zanchó discloses

selecting some preferences over other preferences, and preventing an adjustment to a preference having a lower priority when there are conflicts. For example, Zanchi discloses selecting the preference of a vehicle owner over other users, selecting non-compromisable preferences over compromisable preferences, selecting a preference having a highest priority over other preferences, and selecting from multiple preferences based on rankings of the preferences. A POSA would have understood that an adjustment preference of a first user is prevented when a conflicting adjustment preference of a second user having a higher ranking is selected. For example, the controller may select a non-compromisable preference of a second user over a compromisable preference of a first user, even if the first user is an owner and not present in the domain. Accordingly, Zanchi discloses *“wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.”*

3. Dependent Claims 2, 4-8, and 17-18

205. Claims 2, 4-8, and 17-18 depend from claim 1, which I understand means that these claims require all of the limitations of claim 1 in addition to their additional limitations. Zanchi discloses all of the limitations of claim 1 as described above.

206. Zanchi discloses all the limitations of claim 1 as described above. (See ¶¶ 127-204.)

a. Claim 2

2[pre]. The method of claim 1, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises:

207. Zanchi discloses that the domain system can include various vehicle systems, such as an entertainment, navigation and communication system (“infotainment system”):

A preference-handling system includes one or more communication interfaces, user interfaces, memory, and a controller. The controller can be used in a vehicle to handle preferences. The communication interfaces communicatively connect with devices in a domain, and the memory stores preferences for users. The controller is operably coupled to the communication interfaces, the memory, and a domain system. The controller is configured to monitor for devices active in the domain of the unit and determine a preference for each of at least two users associated with active devices. Each of the preferences is related to controlling **behavioral operation of or content presented by the domain system, which can be an entertainment, user interface, navigation, communication, or environmental system in the vehicle**. The controller arbitrates the preferences based on an arbitration scheme of the controller and controls operation of the system based on the arbitration of the preferences.

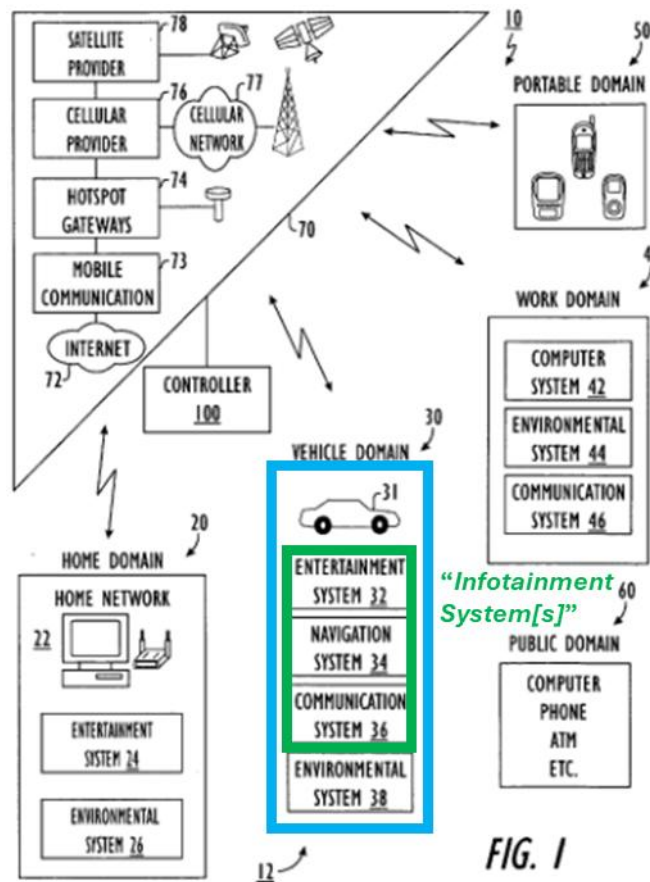
(Zanchi, Ex. 1022, Abstract.)

208. With further reference to Figure 1, Zanchi discloses a vehicle domain

30 that includes various systems, including an entertainment system 32, a navigation system 34, and a communication system 36:

The domains 12 are defined by a set of circumstances, a set of users, a specific environment (e.g., vehicle, home, office, etc.), and a set of devices and systems capable of operating and interacting in the domains. For example, the home domain 20 can include a home networked computer system 22, an entertainment system 24, and an environmental system 26. **The vehicle domain 30 for a vehicle 31 can include an entertainment system 32, a user interface or navigation system 34, a communication system 36, and an environmental system 38.**

(Zancho, Ex. 1022, [0018].)



Zancho, Ex. 1022, Fig. 1 (Annotated)

209. With reference to Figure 5, Zancho discloses that “[t]he controller 100 is communicatively connected to one or more vehicle systems 140, such as a user interface or navigation system 150, an entertainment system 160, an environmental system 170, and a communication system 180 in the vehicle 31.” (Zancho, Ex. 1022, [0040].)

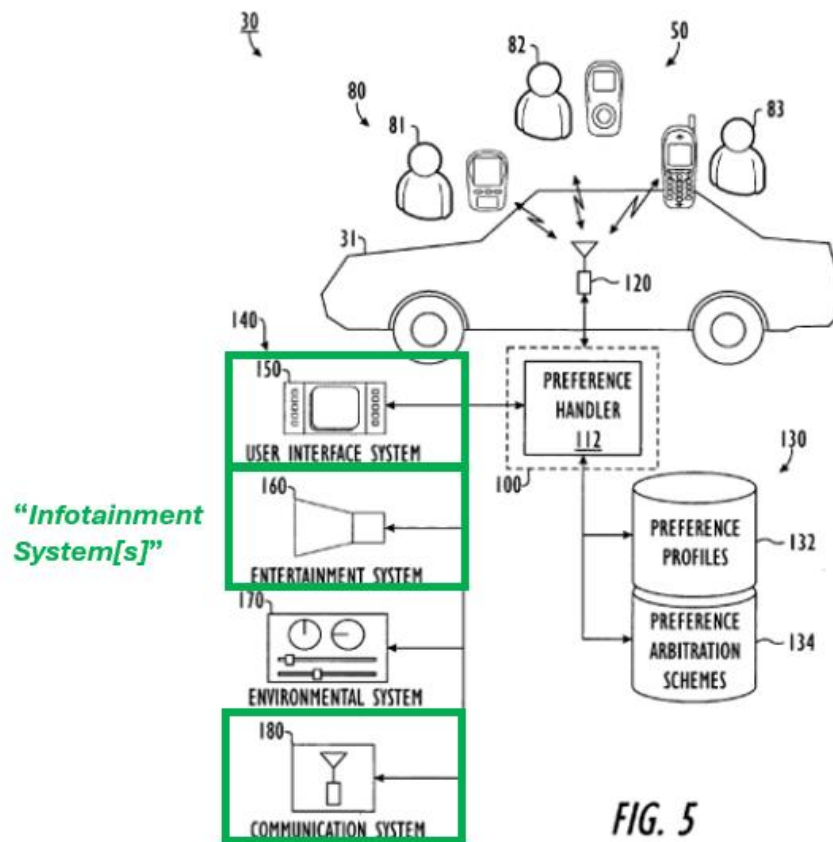


FIG. 5

Zancho, Ex. 1022, Fig. 5 (Annotated)

210. Zancho discloses that vehicle domain 30 for a vehicle 31 includes an entertainment system 32, a navigation system 34, and a communication system 36 (“infotainment system[s]”) and a controller 100 for handling preferences for multiple users in a vehicle domain 30. Accordingly, Zancho discloses “[t]he method of claim 1, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises[.]”

***[2a] identifying the user inside a vehicle via one or more sensors
associated with the vehicle; and***

211. Zanchi discloses that the controller is configured to monitor for devices that are active in the domain:

A preference-handling system includes one or more communication interfaces, user interfaces, memory, and a controller. The controller can be used in a vehicle to handle preferences. The communication interfaces communicatively connect with devices in a domain, and the memory stores preferences for users. The controller is operably coupled to the communication interfaces, the memory, and a domain system. **The controller is configured to monitor for devices active in the domain of the unit and determine a preference for each of at least two users associated with active devices.** Each of the preferences is related to controlling behavioral operation of or content presented by the domain system, which can be an entertainment, user interface, navigation, communication, or environmental system in the vehicle. The controller arbitrates the preferences based on an arbitration scheme of the controller and controls operation of the system based on the arbitration of the preferences.

(Zanchi, Ex. 1022, Abstract.)

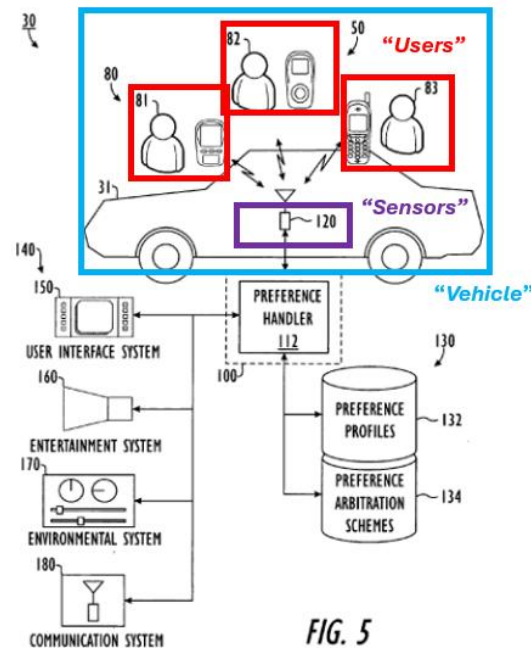
212. With reference to Figure 5, Zanchi discloses that “[t]he controller 100 has a control unit 110, interfaces 120, and memory 130.” (Zanchi, Ex. 1022, [0039].)

213. With further reference to Figure 5, Zanchi discloses that “the controller 100 is illustrated relative to some users 80 having portable devices 50 brought into

a vehicle 31. The controller 100 includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80.” (Zancho, Ex. 1022, [0046].)

214. Zancho discloses that “**determining which users 80 are in the domain 30 can involve monitoring for devices 50 of the users 80 active in the domain 30** and obtaining the preferences associated with those users 80 from the device 50, from local memory 130, or from elsewhere in a network.” (Zancho, Ex. 1022, [0048].) In other words, “the controller 110 can **identify a user 80** based on identification of an active device 50 and can access the user's preferences from local memory 130 or from elsewhere.” (Zancho, Ex. 1022, [0048].) Zancho thus discloses device-based detection for identifying users where the controller identifies a device that acts as a proxy for the user²⁴:

²⁴ The '297 Patent describes identifying a user based on device identification. (See *e.g.*, Ex. 1001, 88:25-31; 44:37-42.)



Zancho, Ex. 1022, Fig. 5 (Annotated)

215. With reference to Figure 4, Zancho discloses that “**the interfaces 120 of the controller 100 establish a personal area network (PAN) that defines the extent of the domain 30 in the vehicle 31. Within the personal area network, multiple personal devices 50 can interact simultaneously with the controller 100.**” (Zancho, Ex. 1022, [0042].)

216. Zancho further discloses that the interfaces 120 may include wired or wireless interfaces 122 and 124 that interact with the devices 50. (Zancho, Ex. 1022, [0044].)

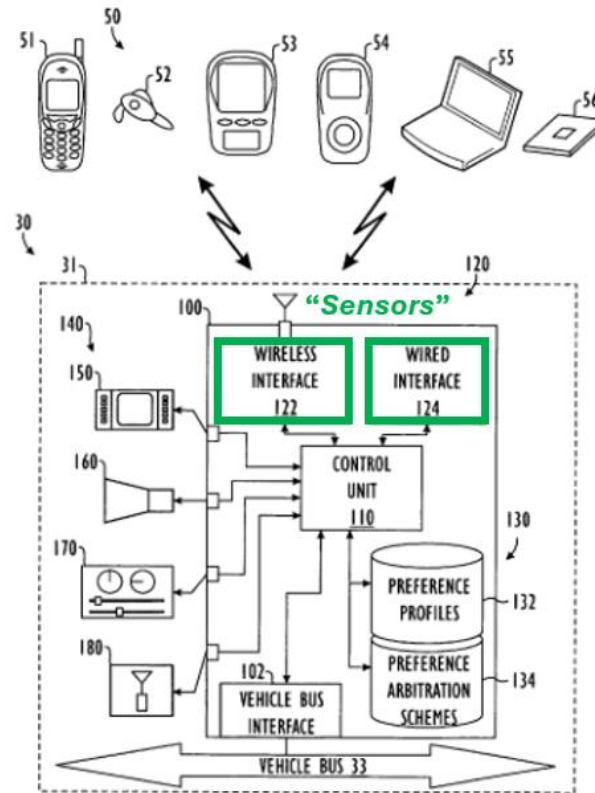


FIG. 4

Zancho, Ex. 1022, Fig. 4 (Annotated)

217. Zancho further discloses that the controller can monitor for wireless devices (“*identifying the user*”) active in the wireless personal area network of the controller:

In another embodiment, a preference-handling system includes one or more communication interfaces, memory, and a controller. The one or more communication interfaces can be used to connect communicatively with devices in a domain of the preference-handling system or with memory. The memory stores preferences for users. The memory can be stored on a portable device active in the domain, can be stored remotely at a network accessible storage system, or can be stored locally at the controller. The controller is operably coupled to the

communication interfaces, the memory, and a domain system, such as previously described. The controller is configured to determine preferences for at least two users active in the domain. For example, **the controller can monitor for wireless devices active in a wireless personal area network of the controller** and can upload preferences from the devices or can access preferences already stored in the controller's memory.

(Zancho, Ex. 1022, [0013].)

218. Zancho discloses that “the devices and systems in the domains 12 are capable of wired or wireless communication with various communication sources 70” and that “examples of wireless communication include cellular communication, **Bluetooth®, Wi-Fi**, Ultra Wide Band (UWB), and other wireless communication techniques known in the art.” (Zancho, Ex. 1022, [0019].) A POSA would have understood that the wireless interface 122 includes a transceiver for wireless communication, and as explained in my state of the art section, Bluetooth communication includes a device discovery process for automatically connecting, or pairing, with wireless devices. (See ¶¶ 91-95.) A POSA would have therefore understood the wireless transceiver to be a “*sensor*” for identifying a device associated with a user.

219. Zancho further discloses that devices may be identified within a domain (“*vehicle*”) by an IP address or by connecting a device to an interface:

In another example, **a compliant device active in the domain may have an identification associated with it, such as a network or Internet Protocol (IP) address.** This identification can then be used by the controller to obtain preferences associated with the user from a storage system or elsewhere using techniques known in the art. In a third example, the user can have a donor device with a memory for storing preferences, and the **user can connect the donor device with an appropriate interface of the controller in the domain.**

(Zancho, Ex. 1022, [0022].)

220. Zancho discloses a controller 100 and interfaces 120 (“*sensors*”), including wireless interfaces 122, to monitor for and detect (“*identify*”) for personal devices 50 within a vehicle 31. A POSA would have understood that since the interfaces 120 (e.g., wireless interfaces 122) are operable to “*identify[]*” users 80 by detecting the personal devices 50 associated with the users 80 within a vehicle 31, the interfaces 120 correspond to or teach sensors that detect the users 80.

221. Zancho discloses identifying the user within a domain (e.g., the vehicle domain) prior to obtaining (“*detecting*”) the user preferences associated with the user, which are stored in the preference profiles 132 (“*user profiles*”). See my analysis above in limitation [1a] regarding the preference profiles 132. (See ¶ 132-143.) Accordingly, Zancho discloses “*prior to detecting the user profile . . . identifying the user inside a vehicle via one or more sensors associated with the vehicle [e.g., wireless interface][.]*”

[2b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

222. Zanchi discloses obtaining user preferences associated with a user from memory 120 after identifying the user:

As noted previously, determining which users 80 are in the domain 30 can involve monitoring for devices 50 of the users 80 active in the domain 30 and obtaining the preferences associated with those users 80 from the device 50, from local memory 130, or from elsewhere in a network. In addition, a user 80 may manually identify herself in the domain 30 using the user interface 150, for example, and the controller 100 can then obtain her preferences from local memory 130 or from elsewhere. Furthermore, **the controller 110 can identify a user 80 based on identification of an active device 50 and can access the user's preferences from local memory 130** or from elsewhere.

(Zanchi, Ex. 1022, [0048].)

223. Zanchi discloses monitoring for devices active in the domain, memory for storing user preferences, and determining preferences of the users associated with active devices:

A preference-handling system includes one or more communication interfaces, user interfaces, memory, and a controller. The controller can be used in a vehicle to handle preferences. **The communication interfaces communicatively connect with devices in a domain, and the memory stores preferences for users.** The controller is operably

coupled to the communication interfaces, the memory, and a domain system. **The controller is configured to monitor for devices active in the domain of the unit and determine a preference for each of at least two users associated with active devices.** Each of the preferences is related to controlling behavioral operation of or content presented by the domain system, which can be an entertainment, user interface, navigation, communication, or environmental system in the vehicle. The controller arbitrates the preferences based on an arbitration scheme of the controller and controls operation of the system based on the arbitration of the preferences.

(Zancho, Ex. 1022, Abstract.)

With reference to Figure 5, Zancho discloses preference profiles 132 (“*user profiles*”) for storing user preferences where the preference profiles 132 are stored in memory:

The controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. **The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130** using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.

(Zancho, Ex. 1022, [0045].)

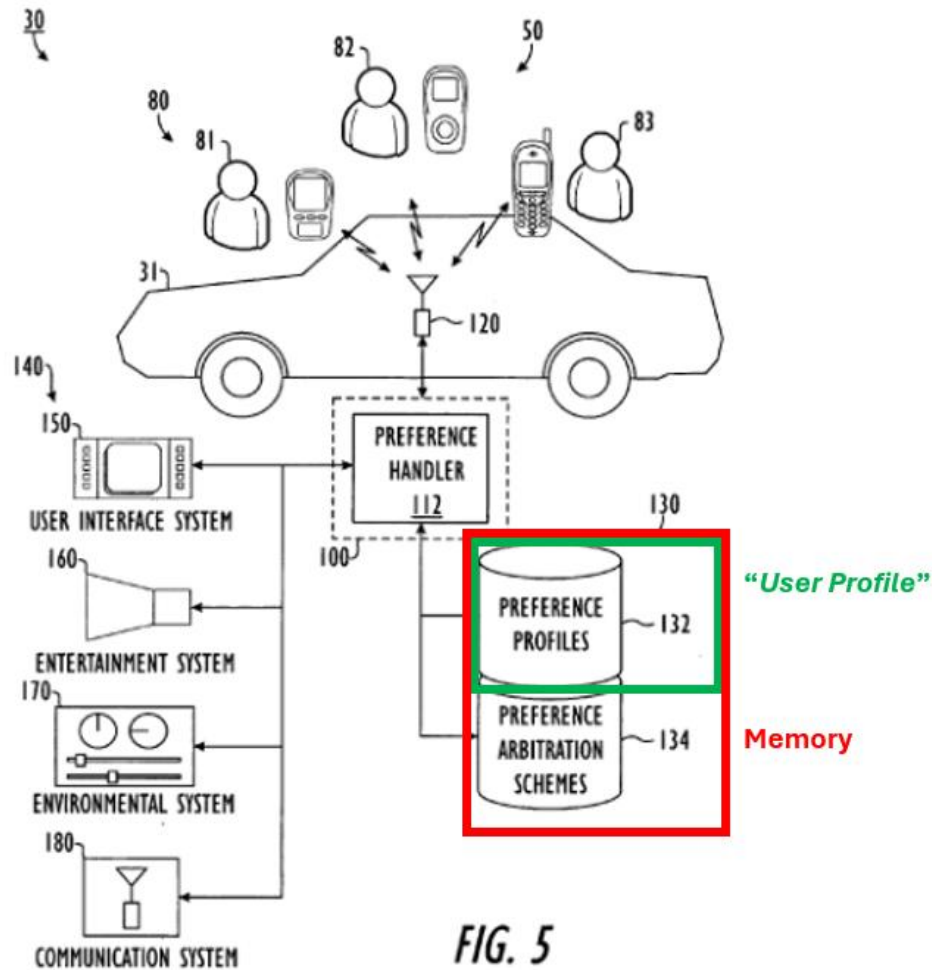


FIG. 5

Zancho, Ex. 1022, Fig. 5 (Annotated)

224. Zancho further discloses storing the user preferences within memory or uploading/accessing the user preferences from memory:

In another embodiment, a preference-handling system includes **one or more communication interfaces, memory, and a controller**. The one or more communication interfaces can be used to connect communicatively with devices in a domain of the preference-handling system or with memory. **The memory stores preferences for users.** The memory can be stored on a portable device active in the domain, can be stored remotely at a network accessible storage system, or can

be stored locally at the controller. . . . For example, the controller can monitor for wireless devices active in a wireless personal area network of **the controller and can upload preferences from the devices or can access preferences already stored in the controller's memory.**

(Zancho, Ex. 1022, [0013].)

225. Zancho discloses memory 130, storing user preferences in the memory 130, identifying a particular user device 50 and associated user 80, accessing the preferences from a preference profile 132 (“*user profile*”) associated with the users upon *identifying* the users, and includes an arbitration scheme 134 that utilizes the preference profiles 132 for determining what content to deliver to an entertainment system (“*infotainment system*”). Accordingly, Zancho discloses “*prior to detecting the user profile . . . referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.*”

b. Claim 4

[4] The method of claim 1, wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.

226. Zancho discloses that the controller also monitors for active devices associated with users within a personal area network and obtaining preferences for users associated with the active devices:

For example, the controller **can monitor for wireless devices active in a wireless personal area network of the controller and obtain the preferences of those users associated with the active devices** from the device itself, from local memory of the controller, or from elsewhere. The determined preferences are related to controlling operation of a domain system in the domain of the controller.

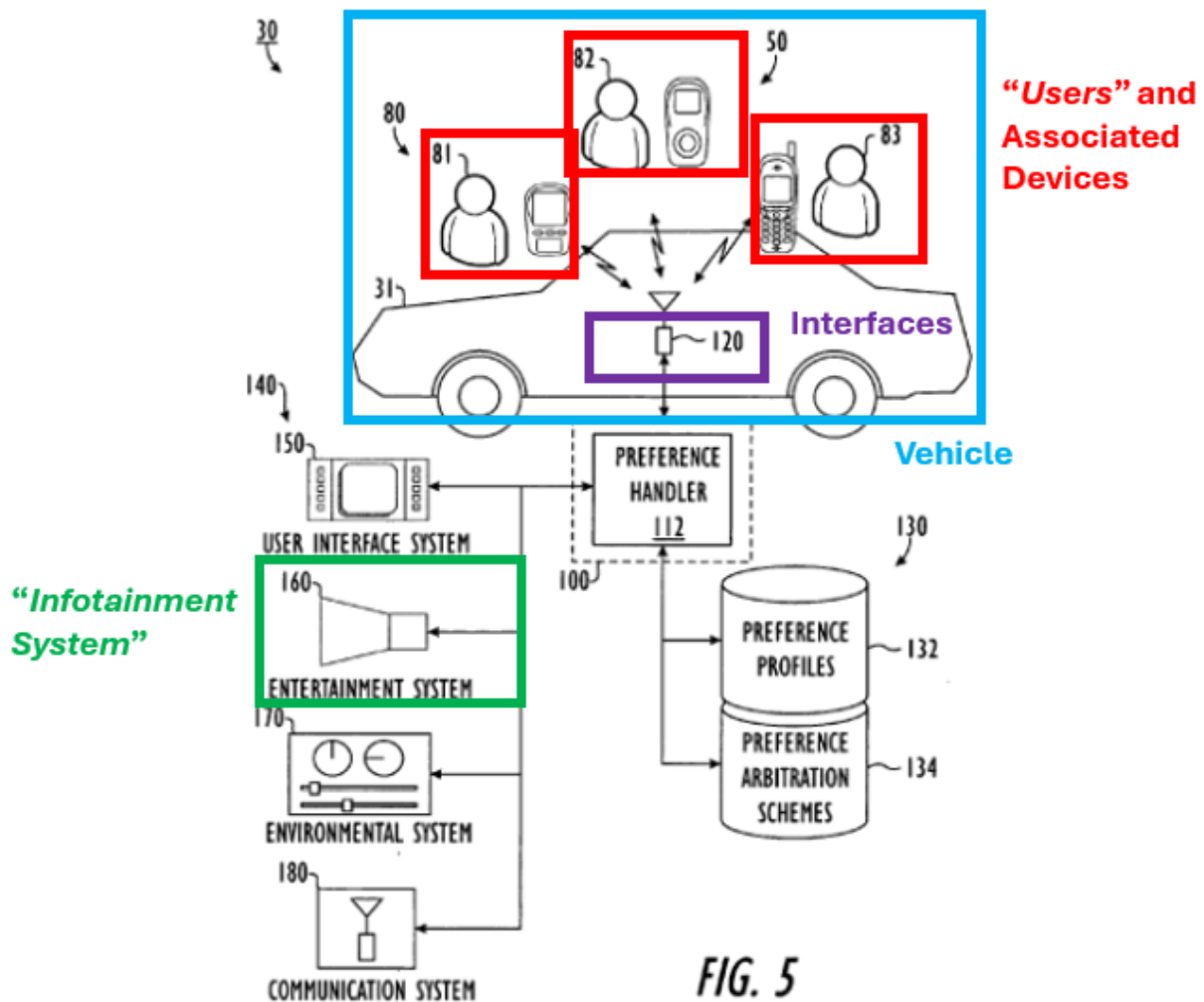
(Zancho, Ex. 1022, [0012].)

227. Zancho discloses that the PAN is constrained within the vehicle:

In the present example, the interfaces 120 of the controller 100 establish a personal area network (PAN) that defines the extent of the domain 30 in the vehicle 31. Within the personal area network, multiple personal devices 50 can interact simultaneously with the controller 100.

(Zancho, Ex. 1022, [0042].)

228. A POSA would have understood that for the personal device 50 to communicate with the controller 100 over the PAN, which is constrained within the vehicle, the personal device 50 is proximate to the controller 100.



Zancho, Ex. 1022, Fig. 5 (Annotated)

229. Zancho further discloses communication within a domain may include various forms of wired or wireless communication:

The various devices and systems in these domains 12 are capable of interacting or communicating with other devices and systems in the same domain or in different domains using communication techniques known in the art. In one example, the devices and systems in the domains 12 are capable of wired or wireless communication with

various communication sources 70, which can include the Internet 72, mobile communication 73 (e.g., Dedicated Short Range Communication (DSRC) and vehicle-to-roadside/vehicle-to-vehicle communication), hotspot gateways 74, cellular service providers 76 and networks 77, and satellite providers 78. Some examples of wireless communication include cellular communication, **Bluetooth®**, Wi-Fi, Ultra Wide Band (UWB), and other wireless communication techniques known in the art.

(Zancho, Ex. 1022, [0019].)

230. A POSA would have understood that a wired connection between the vehicle system and the device would require that the device was in proximity of, if not within, the vehicle. A POSA would have also understood that because of the short range of Bluetooth, a device connected via a Bluetooth wireless connection would be proximate to, if not within, the vehicle.

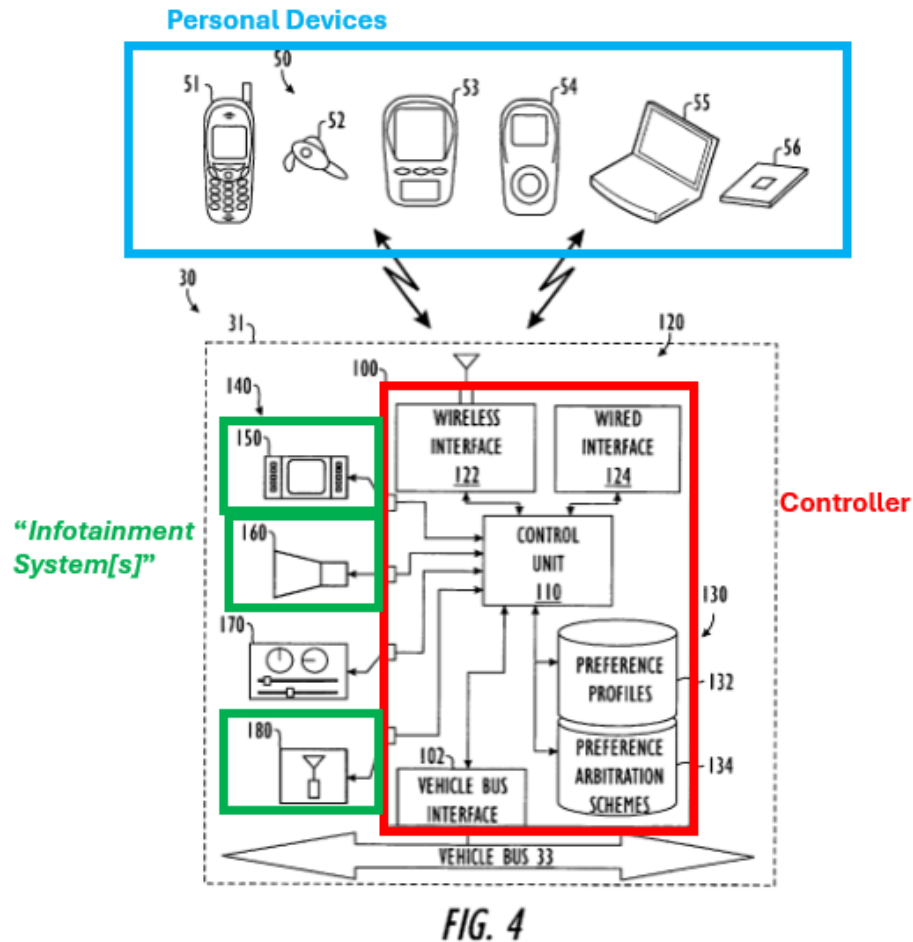
231. Zancho further discloses that the user devices 50 can interact with the controller 100 using wired or wireless interfaces 122, 124 and the user devices may be identified by a network or IP address;

The devices 50 can interact with the controller 100 using wired or wireless interfaces 122 and 124 known in the art. One or more of the devices 50 can contain a dedicated memory for storing preferences associated with the users of the device 50. Preferably, the preferences stored in the device 50 are comprehensive and encompass the various forms of interaction detailed herein. Alternatively, one or more of the

devices 50 may not contain a dedicated memory for storing preferences. Instead, such devices 50 may be associated with a particular user by an identification number, such as a network or IP address. The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100. When the particular device 50 and associated user are identified, the controller 100 can access those preferences.

(Zancho, Ex. 1022, [0044].)

Zancho further discloses that the “controller 100 is communicatively connected to one or more vehicle systems 140, such as a user interface or navigation system 150, an entertainment system 160, an environmental system 170, and a communication system 180 in the vehicle 31.” (Zancho, Ex. 1022, [0040].)



Zancho, Ex. 1022, Fig. 4 (Annotated)

232. A POSA would have understood that connecting the personal devices 50 to the same controller 100 as “infotainment system[s]” facilitates detection of the “infotainment system[s]” and associates the “infotainment system[s]” with the users via the personal devices 50. Furthermore, such detecting of the “infotainment system[s]” occurs based on the users being within the same personal area network (“proximity”) as the “infotainment system[s]”.

233. Accordingly, Zancho discloses “wherein detecting the at least one

infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.”

c. Claim 5

5[pre]. The method of claim 1, wherein determining to adjust the configuration of the at least one infotainment system further comprises:

234. Limitation 5[pre] is substantially similar to the combination of limitations 1[pre] and [1c]. Therefore, I refer back to my analysis of these limitations in claim 1 to establish that it is met by Zanchi. (See ¶¶ 127-130, 159-167.)

[5a] determining the configuration of the at least one infotainment system; and

235. Zanchi discloses which of the preferences are relevant to the current circumstances of the domain, including the vehicle domain 30:

Furthermore, this step 208 involves **determining which of the preferences associated with the users are applicable to the current circumstances in the domain**. For example, the preferences associated with a user can encompass an entire variety of preferred user interactions, such as audio levels, visual effects, preferred media, and others detailed herein. Preferences associated with audio levels and settings would be applicable in the domain if the domain has an entertainment system. Therefore, in this situation, a determination

would be made that audio-related preferences are applicable to current operation of the entertainment system in the domain.

(Zancho, Ex. 1022, [0024].)

When two or more users 80 are active in the domain 30, the preference handler 112 **determines whether the preferences of these users 80 are relevant to the current context of the domain 30** and uses one or more preference arbitration schemes 134 to handle any conflicts in the preferences.

(Zancho, Ex. 1022, [0049].)

236. With reference to Figure 2, Zancho discloses determining if audio-related preferences are applicable to current operation of the entertainment system (*“infotainment system”*):

Furthermore, this step 208 involves **determining which of the preferences associated with the users are applicable to the current circumstances in the domain**. For example, the preferences associated with a user can encompass an entire variety of preferred user interactions, such as audio levels, visual effects, preferred media, and others detailed herein. **Preferences associated with audio levels and settings would be applicable in the domain if the domain has an entertainment system**. Therefore, in this situation, **a determination would be made that audio-related preferences are applicable to current operation of the entertainment system in the domain**.

(Zancho, Ex. 1022, [0024].)

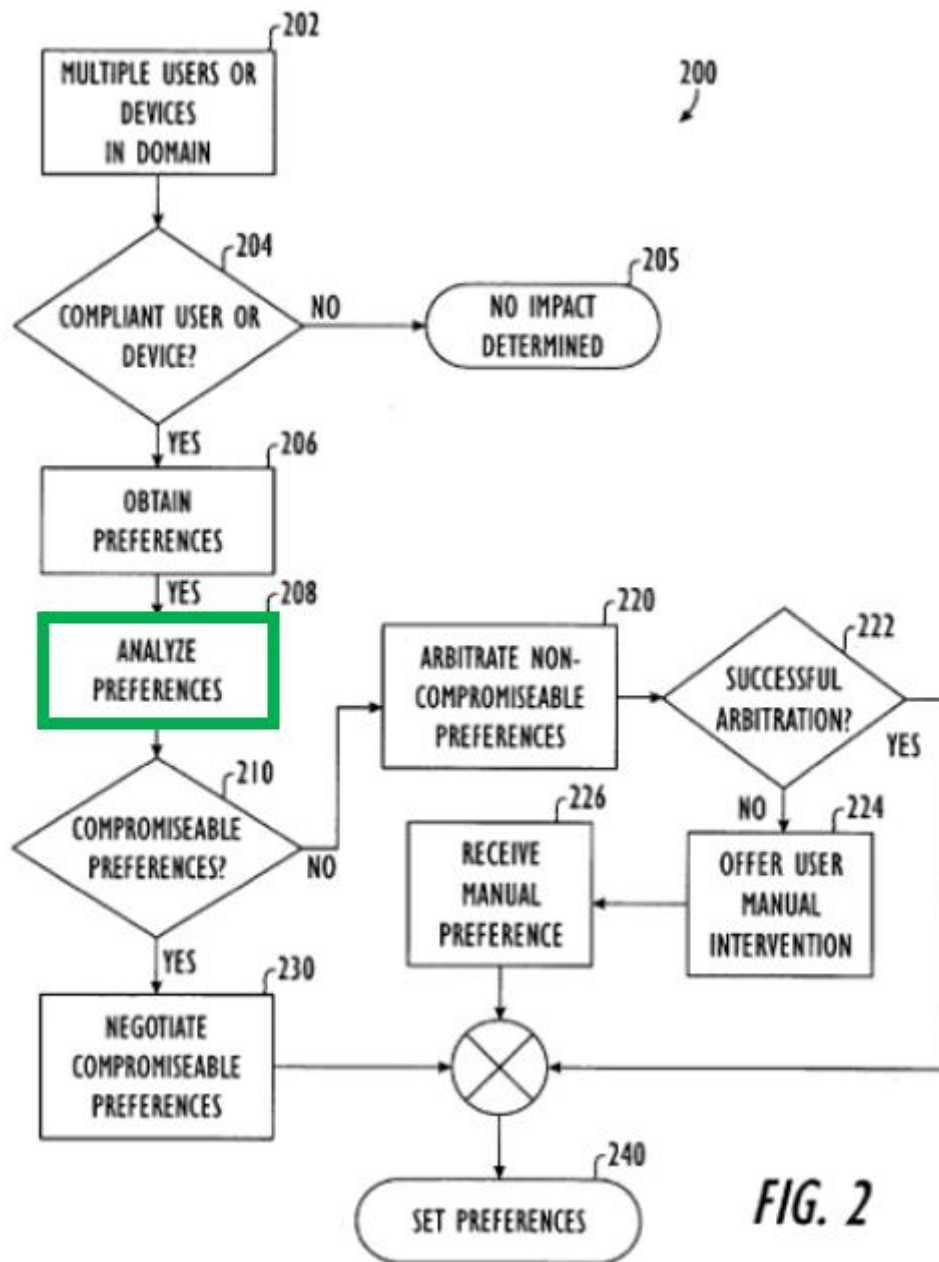


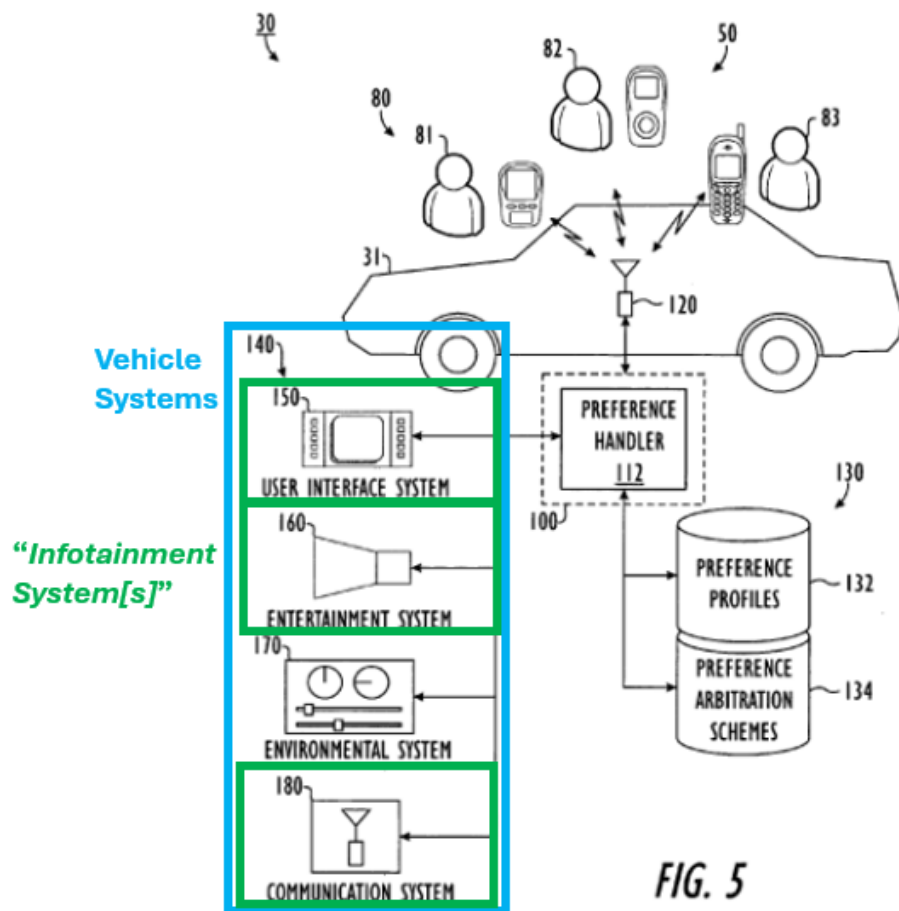
FIG. 2

Zancho, Ex. 1022, Fig. 2 (Annotated)

237. A POSA would have understood that Zancho’s disclosure of the “current circumstances” in the domain and the “current operation” of the infotainment system describe the current infotainment equipment and settings of the infotainment system in the vehicle, and depend at least in part on the configuration

of the infotainment system.

238. With further reference to Figure 5, Zanchi discloses that “the preference handler 112 determines the “context” of the domain 30. The context is defined by what users 80 are active, **what systems 140 are operating**, what operations are requested, and what preferences are associated with the users 80 in the domain 30.” (Zanchi, Ex. 1022, [0047].) The systems 140 include “a user interface or navigation system 150, an entertainment system 160, . . . and a communication system 180 in the vehicle 31 (*“infotainment system[s]”*).” (Zanchi, Ex. 1022, [0040].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

239. A POSA would have understood that Zancho's disclosure of determining if preferences are applicable to the "current operation" of the entertainment system 160, which is an "infotainment system," discloses that the controller first "*determine[es] the configuration of the at least one infotainment system*" before comparing the configuration to the preferences.

240. Zancho discloses determining what vehicle systems 140 are operating and which of the user preferences are currently applicable to the current operation i.e., current settings, of the vehicle systems 140, including the user interface or

navigation system 150, entertainment system 160, and a communication system 180 in the vehicle 31 (“*infotainment system[s]*”). For example, Zanchi discloses determining if audio-related preferences are applicable to current operation of the entertainment system. Accordingly, Zanchi discloses “*determining the configuration of the at least one infotainment system[.]*”

[5b] determining whether the infotainment information matches the determined configuration of the at least one infotainment system,

241. Zanchi further discloses determining which of the preferences are relevant to the current domain, including the vehicle domain 30:

Furthermore, this step 208 involves **determining which of the preferences associated with the users are applicable to the current circumstances in the domain**. For example, the preferences associated with a user can encompass an entire variety of preferred user interactions, such as audio levels, visual effects, preferred media, and others detailed herein. Preferences associated with audio levels and settings would be applicable in the domain if the domain has an entertainment system. Therefore, in this situation, **a determination would be made that audio-related preferences are applicable to current operation of the entertainment system in the domain**.

(Zanchi, Ex. 1022, [0024].)

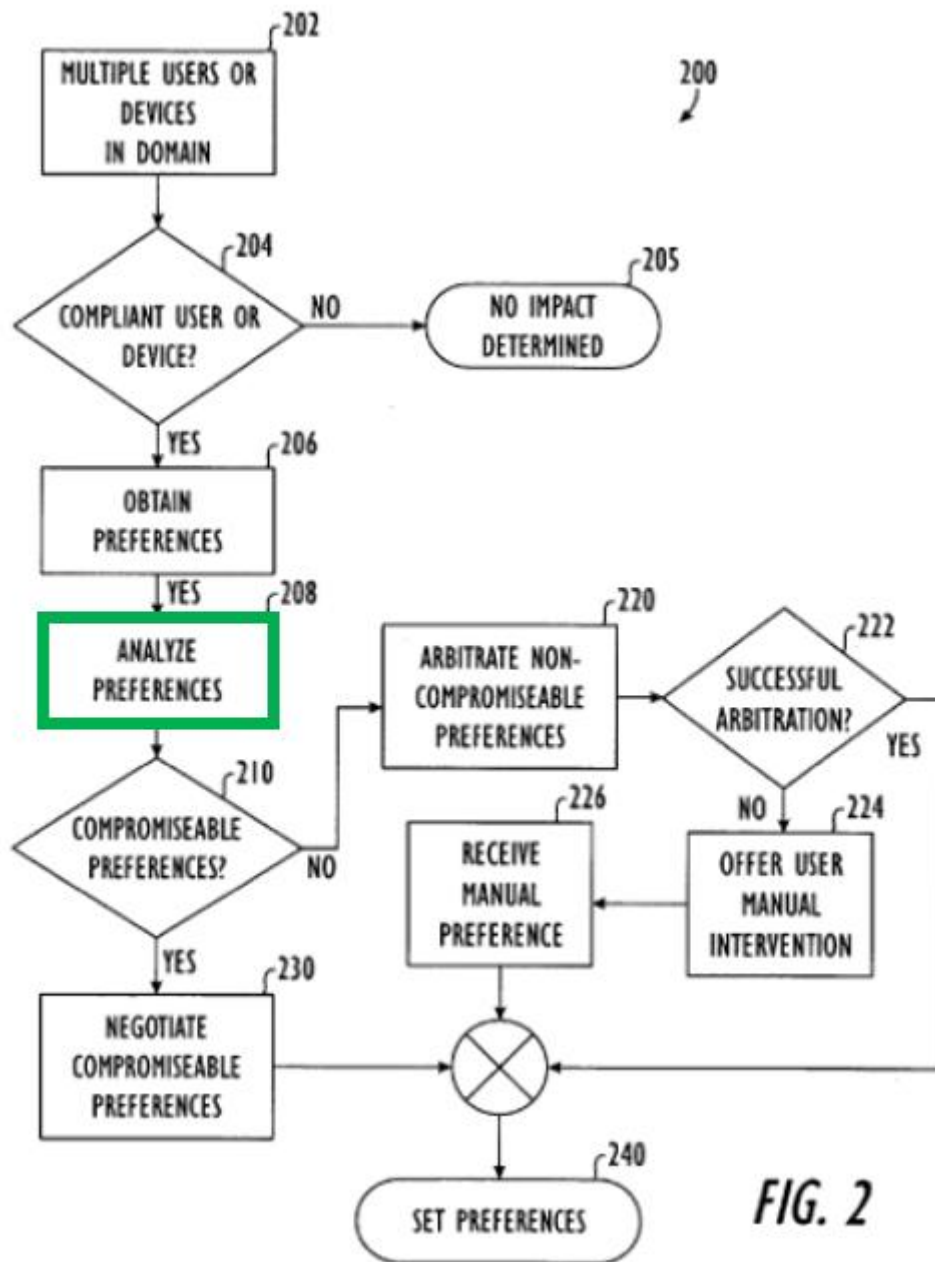


FIG. 2

Zancho, Ex. 1022, Fig. 2 (Annotated)

242. Zancho further discloses several infotainment settings that may be configured or adjusted based on selected user preferences:

For example, various categories (axis 252) for systems (axis 254) in the vehicle domain (axis 256) can include preferences related to audio

preferences (e.g., equalization levels, volume levels), preferred media (e.g., genre, songs, preset radio stations, etc.), navigation routes, hands-free cellular phone capabilities (e.g., ability of passengers to have calls routed through vehicle's audio system), access network media (e.g., ability of passengers to access subscription based media services in the vehicle), seat and mirror positions, and air-conditioning settings.

(Zancho, Ex. 1022, [0036].)

Based on a comparison of the genre selections 304 and their rankings, the preference handler determines which genre satisfies the preferences of the all the users 302. In this case, the arbitration scheme 300 shows that “Rock” is the preferred genre 306. **Based on the determination from the preference arbitration scheme 300, the preference handler 112 of FIG. 5 sets or suggests that the satellite radio of the entertainment system 160 be operated with a station having the “Rock” genre.** Thus, the preference handler 112 can initially set the satellite radio to a station having the “Rock” genre but may allow the station to be changed.

(Zancho, Ex. 1022, [0056].)

In a second example of arbitrating preferences, the users 80 of FIG. 5 have different and potentially conflicting preferences with respect to video, and the preferences can influence how video should be delivered or controlled in the vehicle 31 with a video display of the entertainment system 160. During operation, **one of the users 80 makes a request to play a movie on the video display of the entertainment system 160. Each of the users 80 has different preferred video selections associated with them. The preference handler 112 determines from**

those preferences 132 which video content to deliver with the video display of the entertainment system 160 according to a preference arbitration scheme 134.

(Zancho, Ex. 1022, [0057].)

After determining the preferred video selection, the preference handler 112 of FIG. 5 plays or suggests playing the selected video on the video display of the entertainment system 160. For example, in response to a request in the vehicle 31 to play a video, the preference handler 112 sets the selected video as an initial option to be selected by the users 80 for playing on the video display of the entertainment system 160.

(Zancho, Ex. 1022, [0059].)

243. Zancho discloses several infotainment settings that may be configured or adjusted based on selected user preferences. A POSA would have understood that the system in Zancho is comparing the selected preferences against the current operation (“*determined configuration*”) of the infotainment system and acting to adjust the infotainment system accordingly based on the selected preferences or not acting to adjust the adjust the infotainment system if the current configuration of the infotainment system matches the selected preferences. Accordingly, Zancho discloses “*determining whether the infotainment information matches the determined configuration of the at least one infotainment system[.]*”

[5c] wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.

244. Zanchó discloses that the preferences (“*infotainment information*”) include various “*infotainment setting[s]*” (e.g., volume levels), infotainment “*preference[s]*” (e.g., preset radio stations), and “*content*” (e.g., genre, songs, etc.):

For example, various categories (axis 252) for systems (axis 254) in the vehicle domain (axis 256) can include preferences related to **audio preferences (e.g., equalization levels, volume levels), preferred media (e.g., genre, songs, preset radio stations, etc.), navigation routes, hands-free cellular phone capabilities (e.g., ability of passengers to have calls routed through vehicle's audio system), access network media (e.g., ability of passengers to access subscription based media services in the vehicle), seat and mirror positions, and air-conditioning settings.**

(Zanchó, Ex. 1022, [0036].)

245. For example, Zanchó discloses that the preferences (“*infotainment information*”) may correspond to genre selections (“*content*”) for a satellite radio of an entertainment system (“*infotainment system*”):

One way of arbitrating preferences is to establish a ranking, weighting, or priority of preferences so that the preference handler 112 can resolve conflicts between preferences. In FIG. 6A, for example, preferences for users are ranked in an order within a preference arbitration scheme 300, which is shown in tabular form. **The scheme 300 includes device IDs 302 and ranked genre selections 304 for active devices in the**

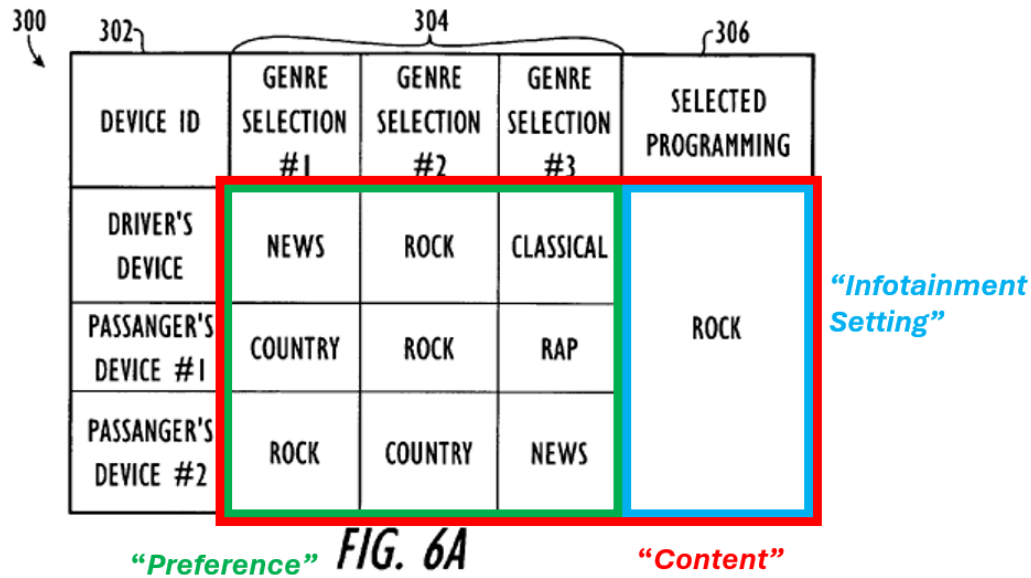
domain. These genre selections 304 can be relevant to the operation of a satellite radio of an entertainment system in a vehicle and can be used to set which station to operate the radio. The device IDs 302 in this example correspond to users having detected devices of in the domain and are listed as “Driver's Device,” “Front Passenger's Device,” etc. for illustrative purposes. Each user has a plurality of genre selections 304 that are ranked in order.

(Zancho, Ex. 1022, [0055].)

246. With reference to Figure 6A, Zancho discloses that the preference handler 112 determines preferred genres (“*content*”) for an entertainment system and which genre satisfies the preferences (“*infotainment information*”) of the all the users:

Based on a comparison of the genre selections 304 and their rankings, the preference handler determines which genre satisfies the preferences of the all the users 302. In this case, the arbitration scheme 300 shows that “Rock” is the preferred genre 306. Based on the determination from the preference arbitration scheme 300, the preference handler 112 of FIG. 5 sets or suggests that the satellite radio of the entertainment system 160 be operated with a station having the “Rock” genre. Thus, the preference handler 112 can initially set the satellite radio to a station having the “Rock” genre but may allow the station to be changed.

(Zancho, Ex. 1022, [0056].)



Zancho, Ex. 1022, Fig. 6A (Annotated)

247. Zancho further discloses video preferences (“*infotainment information*”) that include video “*content*.” For example, Zancho discloses that the arbitration scheme may determine a preferred video “*content*” to deliver to a video display of an entertainment system (“*infotainment system*”):

In a second example of arbitrating preferences, the users 80 of FIG. 5 have different and potentially conflicting preferences with respect to video, and the preferences can influence how video should be delivered or controlled in the vehicle 31 with a video display of the entertainment system 160. During operation, one of the users 80 makes a request to play a movie on the video display of the entertainment system 160. Each of the users 80 has different preferred video selections associated with them. **The preference handler 112 determines from those preferences 132 which video content to deliver with the video**

display of the entertainment system 160 according to a preference arbitration scheme 134.

(Zancho, Ex. 1022, [0057].)

[A]n example of an arbitration scheme 350 where video selections 354 are ranked for each user 352 identified in the domain or having an active device in the domain. **These ranked video selections 354 are relevant to the operation of the video display of the entertainment system in the vehicle and can be used to determine which video to deliver with the video display.** Based on a comparison of the preferred video selections 354 and their rankings, the arbitration scheme 350 shows that “Oklahoma” is the preferred video selection for all three users 352.

(Zancho, Ex. 1022, [0058].)

352 DEVICE ID	354 VIDEO SELECTION #1	354 VIDEO SELECTION #2	354 VIDEO SELECTION #3	356 SELECTED PROGRAMMING
REAR PASSENGER'S DEVICE #1	TITANIC	RAIN MAN	OKLAHOMA	OKLAHOMA
REAR PASSENGER'S DEVICE #1	STAR GATE	STAR WARS	OKLAHOMA	
REAR PASSENGER'S DEVICE #1	STAR WARS	GREASE	OKLAHOMA	

“Preference” **FIG. 6B** *“Content”*

“Infotainment Setting”

Zancho, Ex. 1022, Fig. 6B (Annotated)

248. With reference to Figure 7C, Zancho discloses that the arbitration scheme may set a preferred volume (“*infotainment setting*”):

In FIG. 7C, for example, an arbitration scheme 470 is shown in graphical form for arbitrating preferences based on a task goal. In this example, each user 474 has a preferred range 472 for audio volume to operate the entertainment system in the vehicle. The arbitration scheme 470, however, is restricted by a task goal, which in this example pertains to a call being introduced in the vehicle. Thus, an arbitrated or predefined level 476 is automatically selected when a call is introduced in the vehicle. **As a result, the preference handler 112 of FIG. 5 can then control operation of the audio levels of the entertainment system 160 in vehicle 31 according to that preferred level.** Another possible controlling task includes automatically switching between visual and audio navigation directions when the vehicle is in drive or when a call is introduced in the vehicle.

(Zancho, Ex. 1022, [0063].)

249. Zancho discloses “*infotainment settings*” (e.g., setting a volume level of an audio or video device), “*preferences*” (e.g., preset radio stations), and “*content*” (e.g., music genre). Furthermore, a POSA would have understood that changing a radio station or playing a specific video requires “on” power state of the infotainment device, and adjusting the volume corresponds to increasing or decreasing the amount of power (“*power state*”) being delivered to speakers. Accordingly, Zancho discloses “*wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.*”

d. Claim 6

[6] The method of claim 5, further comprising:

... providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.

250. Zanchi discloses determining which of the preferences are relevant to the current circumstances of the domain, including the vehicle domain 30, which as explained for claim 5, teaches that the controller compares the preferences (“infotainment information”) to the current operation (“determined configuration” of the “infotainment system”):

Furthermore, this step 208 involves **determining which of the preferences associated with the users are applicable to the current circumstances in the domain**. For example, the preferences associated with a user can encompass an entire variety of preferred user interactions, such as audio levels, visual effects, preferred media, and others detailed herein. Preferences associated with audio levels and settings would be applicable in the domain if the domain has an entertainment system. Therefore, in this situation, a determination would be made that audio-related preferences are applicable to current operation of the entertainment system in the domain.

(Zanchi, Ex. 1022, [0024].)

When two or more users 80 are active in the domain 30, the preference handler 112 **determines whether the preferences of these users 80 are relevant to the current context of the domain 30** and uses one or

more preference arbitration schemes 134 to handle any conflicts in the preferences.

(Zancho, Ex. 1022, [0049].)

251. Zancho discloses that the preferences (“*infotainment information*”) correspond to genre selections (“*content*”) for an entertainment system (“*infotainment system*”) and that the genre selections are ranked and used to set the station of a satellite radio:

One way of arbitrating preferences is to establish a ranking, weighting, or priority of preferences so that the preference handler 112 can resolve conflicts between preferences. In FIG. 6A, for example, preferences for users are ranked in an order within a preference arbitration scheme 300, which is shown in tabular form. **The scheme 300 includes device IDs 302 and ranked genre selections 304 for active devices in the domain. These genre selections 304 can be relevant to the operation of a satellite radio of an entertainment system in a vehicle and can be used to set which station to operate the radio.** The device IDs 302 in this example correspond to users having detected devices of in the domain and are listed as “Driver's Device,” “Front Passenger's Device,” etc. for illustrative purposes. Each user has a plurality of genre selections 304 that are ranked in order.

(Zancho, Ex. 1022, [0055].)

252. Zancho further discloses setting a radio station to a preferred genre based on preferences of all the users:

Based on a comparison of the genre selections 304 and their rankings, the preference handler determines which genre satisfies the preferences of the all the users 302. In this case, the arbitration scheme 300 shows that “Rock” is the preferred genre 306. **Based on the determination from the preference arbitration scheme 300, the preference handler 112 of FIG. 5 sets or suggests that the satellite radio of the entertainment system 160 be operated with a station having the “Rock” genre.** Thus, the preference handler 112 can initially set the satellite radio to a station having the “Rock” genre but may allow the station to be changed.

(Zancho, Ex. 1022, [0056].)

300	302	304			306
	DEVICE ID	GENRE SELECTION #1	GENRE SELECTION #2	GENRE SELECTION #3	SELECTED PROGRAMMING
	DRIVER'S DEVICE	NEWS	ROCK	CLASSICAL	ROCK "Infotainment Setting"
	PASSANGER'S DEVICE #1	COUNTRY	ROCK	RAP	
	PASSANGER'S DEVICE #2	ROCK	COUNTRY	NEWS	

"Preference"
"Content"

FIG. 6A

Zancho, Ex. 1022, Fig. 6A (Annotated)

253. Zancho further discloses playing or suggesting playing the selected video on the video display of the entertainment system and setting the selected video as an initial option to be selected by the users for playing on the video display of the

entertainment system:

For example, FIG. 6B shows an example of an arbitration scheme 350 where video selections 354 are ranked for each user 352 identified in the domain or having an active device in the domain. These ranked video selections 354 are relevant to the operation of the video display of the entertainment system in the vehicle and can be used to determine which video to deliver with the video display. **Based on a comparison of the preferred video selections 354 and their rankings, the arbitration scheme 350 shows that “Oklahoma” is the preferred video selection** for all three users 352.

(Zancho, Ex. 1022, [0058].)

After determining the preferred video selection, the preference handler 112 of FIG. 5 plays or suggests playing the selected video on the video display of the entertainment system 160. For example, in response to a request in the vehicle 31 to play a video, **the preference handler 112 sets the selected video as an initial option to be selected by the users 80 for playing on the video display of the entertainment system 160.**

(Zancho, Ex. 1022, [0059].)

FIG. 6B

350	352	354			356
	DEVICE ID	VIDEO SELECTION #1	VIDEO SELECTION #2	VIDEO SELECTION #3	SELECTED PROGRAMMING
	REAR PASSENGER'S DEVICE #1	TITANIC	RAIN MAN	OKLAHOMA	OKLAHOMA
	REAR PASSENGER'S DEVICE #1	STAR GATE	STAR WARS	OKLAHOMA	
	REAR PASSENGER'S DEVICE #1	STAR WARS	GREASE	OKLAHOMA	

“Preference” “Content” “Infotainment Setting”

Zancho, Ex. 1022, Fig. 6B (Annotated)

254. Zancho discloses that the preference handler first determines a level, attribute, or selection of a preference (“*infotainment information*”) for an entertainment system (“*infotainment system*”) followed by selecting (“*adjustment output*”) the specific preference to adjust the entertainment system. A POSA would have understood that selecting the preference for the entertainment system to adjust the output of the entertainment system first requires a determination that the current operation of the entertainment system does not correspond to the selected preference. Accordingly, Zancho discloses “*providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.*”

e. Claim 7

7[pre]. The method of claim 1, further comprising:

255. Limitation 7[pre] is substantially similar to limitation 1[pre]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶ 127-130.)

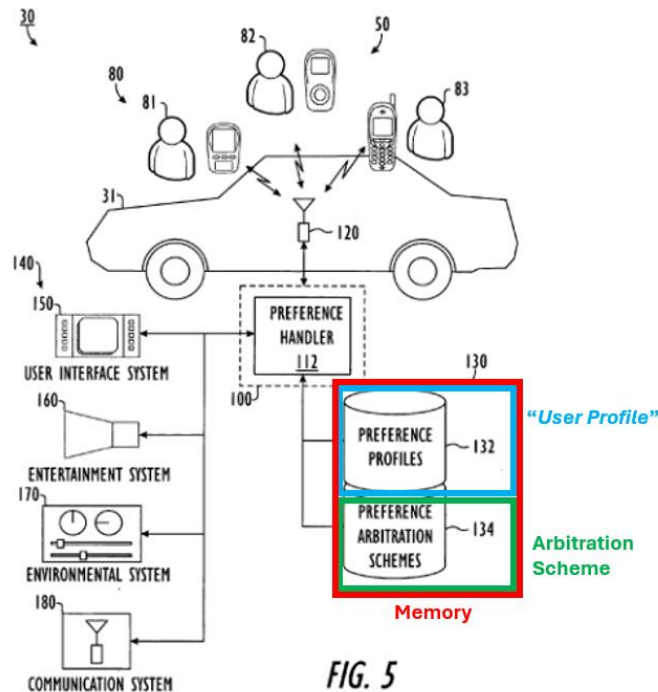
[7a] receiving additional infotainment information via at least one device associated with the user;

256. Zanchi discloses that “the controller can monitor for wireless devices active in a wireless personal area network of the controller and **can upload preferences from the devices or can access preferences already stored in the controller's memory.**” (Zanchi, Ex. 1022, [0013].)

257. With reference to Figure 5, Zanchi discloses that preference profiles (“*user profile*”) and preferences arbitration schemes can be entered and stored in memory:

The controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. **The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130** using direct entry with the user interface 150, **uploads from the devices 50**, or other techniques known in the art.

(Zanchi, Ex. 1022, [0045].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

258. Zancho discloses that the preferences (“infotainment information”) include video selections:

For example, FIG. 6B shows an example of an arbitration scheme 350 where video selections 354 are ranked for each user 352 identified in the domain or having an active device in the domain. These ranked video selections 354 are relevant to the operation of the video display of the entertainment system in the vehicle and can be used to determine which video to deliver with the video display. **Based on a comparison of the preferred video selections 354 and their rankings, the arbitration scheme 350 shows that “Oklahoma” is the preferred video selection for all three users 352.**

(Zancho, Ex. 1022, [0058].)

After determining the preferred video selection, the preference handler 112 of FIG. 5 plays or suggests playing the selected video on the video display of the entertainment system 160. For example, in response to a request in the vehicle 31 to play a video, the preference handler 112 sets the selected video as an initial option to be selected by the users 80 for playing on the video display of the entertainment system 160.

(Zancho, Ex. 1022, [0059].)

DEVICE ID	VIDEO SELECTION #1	VIDEO SELECTION #2	VIDEO SELECTION #3	SELECTED PROGRAMMING
REAR PASSENGER'S DEVICE #1	TITANIC	RAIN MAN	OKLAHOMA	
REAR PASSENGER'S DEVICE #1	STAR GATE	STAR WARS	OKLAHOMA	OKLAHOMA
REAR PASSENGER'S DEVICE #1	STAR WARS	GREASE	OKLAHOMA	

FIG. 6B
“Additional Infotainment Information”

Zancho, Ex. 1022, Fig. 6B (Annotated)

259. Zancho discloses the preference profiles 132, which include the preferences (“infotainment information”), can be entered and stored in the memory 130 of the controller 100 via uploads from the devices 50 associated with the users. (Zancho, Ex. 1022, [0045].) Zancho further discloses that the preferences may include video selections in addition to the audio settings (e.g., volume levels, music

genre, preferred radio stations, etc.) discussed above in the analysis of claim 1. A POSA would have understood that, when video selections are uploaded to the controller in addition to audio settings, the video selections correspond to “*additional infotainment information.*” Accordingly, Zanchow discloses “*receiving additional infotainment information via at least one device associated with the user[.]*”

[7b] determining whether the additional infotainment information qualifies as user profile data; and

260. Zanchow discloses determining whether the user has preferences that are compliant with the preference handling process of the platform:

In the preference handling process 200, two or more users and/or their devices enter or are currently active in a domain (Block 202). As disclosed herein, the controller can identify users by monitoring for active devices associated with users or by receiving manual input. Regardless of how this is done, **a determination is made whether the user has preferences that are compliant with the preference handling process of the platform (Block 204).** For example, a particular device associated with a user may be detected in the domain, but the device may not have the necessary information or preferences associated with it. **If the user or her device is not compliant, then they will have no impact on any preference handling to be performed in the domain (Block 205).**

(Zanchow, Ex. 1022, [0021].)

261. Zanchó further discloses obtaining and storing the preferences of the compliant users:

For **those compliant users or devices, the preferences associated with them are obtained (Block 208)**. Obtaining the preferences can involve one of a variety of methods. In one example, **a compliant device active in the domain may store preferences for the user**, and these preferences can be accessed or uploaded to the controller.²⁵

(Zanchó, Ex. 1022, [0022].)

262. A POSA would have understood that Zanchó's disclosure of determining if preferences are compliant teaches that the preference handler 112 determines if the video selection preferences ("*additional information*") are compliant e.g., with the common platform storage, framework, etc., before being uploaded to the controller. For example, if the video selection is the wrong format or exceeds the available memory storage, then it would not be uploaded.

²⁵ Paragraphs [0022]–[0023] of Zanchó state that preferences are both obtained and analyzed at block 208, whereas Figure 2 shows they are obtained at block 206 and analyzed at block 208. Given the chronological flow and clear distinction between blocks 206 and 208, Paragraph [0022] appears erroneous and should instead reference block 206.

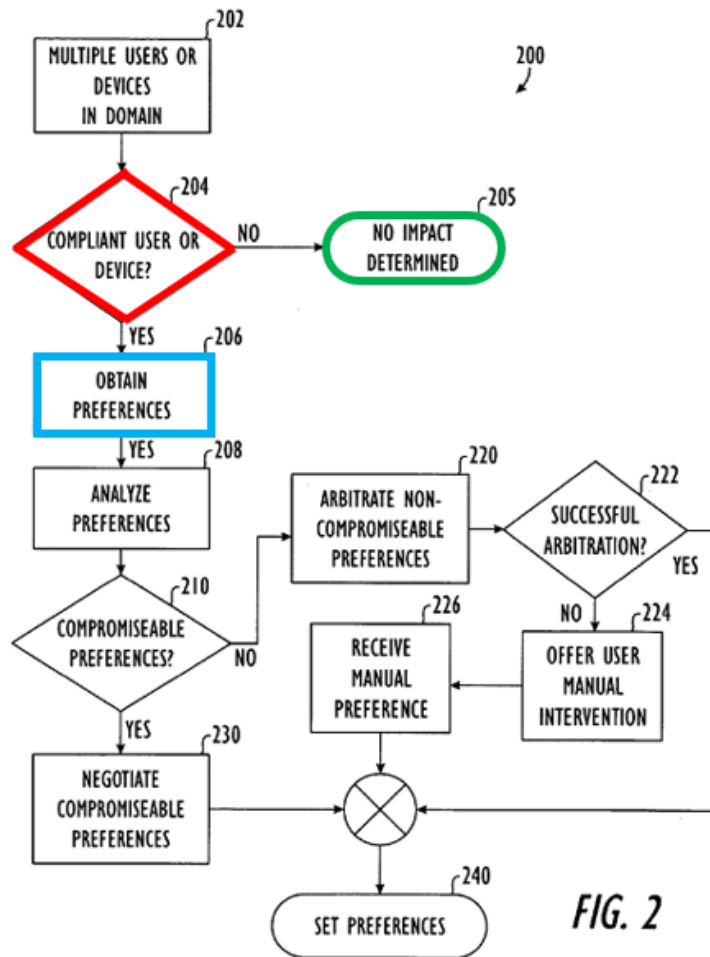


FIG. 2

Zancho, Ex. 1022, Fig. 2 (Annotated)

263. Zancho's system determines whether a device (or user) is "compliant" by checking if it has the necessary information or preferences required for the platform's preference handling process:

To be compliant, the various devices 50, controller 100, interfaces 120, memory 130, and other necessary components must support the common platform's memory storage, architectural framework, data structures, communication protocols, software, etc., as will be apparent to one skilled in the art.

(Zancho, Ex. 1022, [0043].)

264. Zancho discloses distinguishing between preferences (“*infotainment information*”) that are compliant or non-compliant with the arbitration process at block 204, as annotated in red in Figure 2 of Zancho above. Zancho further discloses that if the preferences are non-complaint they will have no impact on the preference handling process at block 205, as annotated in green in Figure 2 of Zancho above. On the other hand, if the preferences are compliant, the preferences are obtained at block 206, as annotated in blue in Figure 2 of Zancho above, which includes storing the preferences. Storing the preferences corresponds to storing the preferences in the preference profiles 132 (“*user profile[s]*”). (See Zancho, Ex. 1022, [0045].)

265. A POSA would have understood that preferences analyzed in block 204 that are not compliant and do not advance to block 206 are not stored in the preference profiles 132. A POSA would have further understood that the preferences that are part of the “*user profile data*” are distinguished from the preferences that are not part of “*user profile data*” at block 204 since the preferences that move on to block 206 are stored in the preference profiles 132 (“*user profile[s]*”), while the preferences that do not move on to block 206 are not. Accordingly, Zancho discloses “*determining whether the additional infotainment information qualifies as user profile data[.]*”

[7c] storing, based at least partially on determining that the additional infotainment information qualifies as user profile data, the additional infotainment information in the user profile associated with the user.

266. Zanchi discloses memory for storing the preferences remotely on a network accessible to the controller, on individual portable devices, or locally at the controller:

For example, these preferences can be stored remotely on a network accessible to the controller, stored on individual portable devices, or stored locally at the controller. Preferences are determined for at least two users in the domain of the controller. For example, the controller can monitor for wireless devices active in a wireless personal area network of the controller and obtain the preferences of those users associated with the active devices from the device itself, from local memory of the controller, or from elsewhere. The determined preferences are related to controlling operation of a domain system in the domain of the controller. The domain system can be a networked computer system, a user interface, an entertainment system, an environmental system, or a communication system.

(Zanchi, Ex. 1022, [0012].)

267. Zanchi discloses determining whether the user has preferences that are compliant with the preference handling process of the platform:

In the preference handling process 200, two or more users and/or their devices enter or are currently active in a domain (Block 202). As

disclosed herein, the controller can identify users by monitoring for active devices associated with users or by receiving manual input. Regardless of how this is done, a determination is made whether the user has preferences that are compliant with the preference handling process of the platform (Block 204). For example, a particular device associated with a user may be detected in the domain, but the device may not have the necessary information or preferences associated with it. If the user or her device is not compliant, then they will have no impact on any preference handling to be performed in the domain (Block 205).

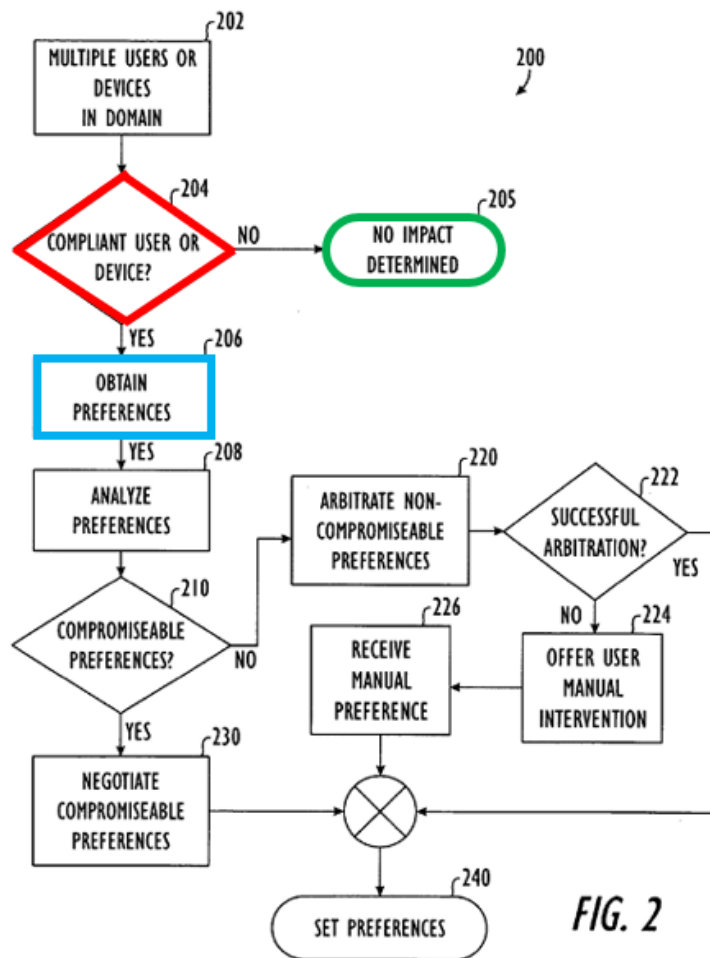
(Zancho, Ex. 1022, [0021].)

268. Zancho further discloses obtaining and storing the preferences of the compliant devices and users:

For those compliant users or devices, the preferences associated with them are obtained (Block 208). Obtaining the preferences can involve one of a variety of methods. In one example, **a compliant device active in the domain may store preferences for the user**, and these preferences can be accessed or uploaded to the controller.²⁶

²⁶ Paragraphs [0022]–[0023] of Zancho state that preferences are both obtained and analyzed at block 208, whereas Figure 2 shows they are obtained at block 206 and analyzed at block 208. Given the chronological flow and clear distinction between blocks 206 and 208, Paragraph [0022] appears erroneous and should instead reference block 206.

(Zancho, Ex. 1022, [0022].)



Zancho, Ex. 1022, Fig. 2 (Annotated)

269. Zancho discloses distinguishing between preferences (“*infotainment information*”) that are compliant or non-compliant with the arbitration process at block 204, as annotated in red in Figure 2 of Zancho above. Zancho further discloses that if the preferences are non-complaint they will have no impact on the preference handling process at block 205, as annotated in green in Figure 2 of Zancho above. On the other hand, if the preferences are compliant, the preferences are obtained at

block 206, as annotated in blue in Figure 2 of Zanchi above, which includes storing the preferences. Storing the preferences corresponds to storing the preferences in the preference profiles 132 (“*user profile[s]*”). (See Zanchi, Ex. 1022, [0045].)

270. A POSA would have understood that preferences analyzed in block 204 that do not advance to block 206 are not stored in the preference profiles 132. A POSA would have further understood that the preferences that are part of the “*user profile data*” are distinguished from the preferences that are not part of “*user profile data*” at block 204 since the preferences that move on to block 206 are stored in the preference profiles 132 (“*user profile[s]*”), while the preferences that do not move on to block 206 are not. Accordingly, Zanchi discloses “*storing, based at least partially on determining that the additional infotainment information qualifies as user profile data, the additional infotainment information in the user profile associated with the user.*”

f. Claim 8

[8] The method of claim 1, further comprising:

adjusting the configuration of the at least one infotainment system, wherein adjusting the configuration includes at least one of tuning to a station, setting an infotainment input, selecting a content genre, and recording content for playback to the user.

271. The limitations in claim 8 that generally correspond to “*adjusting the configuration of the at least one infotainment system*” are substantially similar to

limitation [1c]. Therefore, I refer back to my analysis of this portion in claim 1 to establish that it is met by Zanchi. (See ¶¶ 159-167.)

272. Zanchi discloses determining a radio station genre based on the preferences and selecting a radio station that satisfies the determined genre:

For example, the satellite radio of the entertainment system 160 can have predefined radio stations pertaining to certain types or genres of music available from a satellite radio provider. One of the users 80 makes a request to operate the satellite radio of the entertainment system 160, but the users 80 have preferences for different genres of music. The device handler 112 uses an arbitration scheme 134 to determine from the preferences stored in **the profiles 132 what genre to use for a station of the satellite radio so that the selected station satisfies the preferred genres of the users 80 in the vehicle domain 30.**

(Zanchi, Ex. 1022, [0054].)

273. Zanchi discloses adjusting a satellite radio station of the entertainment system 32, 160 (“*infotainment system*”) that satisfies the preferred genres of the users 80. Accordingly, Zanchi discloses “*adjusting the configuration of the at least one infotainment system, wherein adjusting the configuration includes at least one of tuning to a station, setting an infotainment input, selecting a content genre, and recording content for playback to the user.*”

g. Claim 17²⁷

17[pre]. The method of claim 1, further comprising:

274. Limitation 17[pre] is identical to limitation 1[pre]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 127-130.)

[17a] collecting, while the at least one infotainment system is online, additional infotainment information associated with the user; and

275. With respect to the limitation in [17a] corresponding to “collecting[] . . . additional information associated with the user[,]” this portion of the limitation is required by limitation [7a], which requires “receiving additional infotainment information via at least one device associated with the user.” Therefore, I refer back to my analysis of this portion of the limitation in claim 7 to establish that it is met by Zanchi. (See ¶¶ 256-259.)

276. As I explained regarding the state of the art, it was well known at the relevant time for vehicle systems to connect to remote systems, e.g., servers through wireless communication, e.g., cellular communication and/or the internet. (See ¶¶ 83.) It was also well known for vehicle systems to connect to remote systems and services using a mobile device as a gateway. (See ¶¶ 84-86.) Accordingly, in my

²⁷ I analyze claims 17 and 18 here out of sequence because they depend from independent claim 1.

opinion, a POSA would have understood that an infotainment system is “*online*” when it is connected via communications to various remote services, for example via the Internet or cellular communication.

277. Zanco discloses storing user preferences remotely on a network that is accessible to a controller:

Systems and methods for handling multiple preferences in a domain are disclosed. In one embodiment, a preference-handling method involves storing user preference accessible to a controller. For example, **these preferences can be stored remotely on a network accessible to the controller**, stored on individual portable devices, or stored locally at the controller. Preferences are determined for at least two users in the domain of the controller. For example, the controller can monitor for wireless devices active in a wireless personal area network of the controller and obtain the preferences of those users associated with the active devices from the device itself, from local memory of the controller, or from elsewhere.

(Zanco, Ex. 1022, [0012].)

278. Zanco discloses a variety of wireless connections including an internet connection to the various domains 12, which includes the vehicle domain 30, which further includes the entertainment system 32:

In one example, **the devices and systems in the domains 12 are capable of wired or wireless communication** with various communication sources 70, which can include the Internet 72, mobile

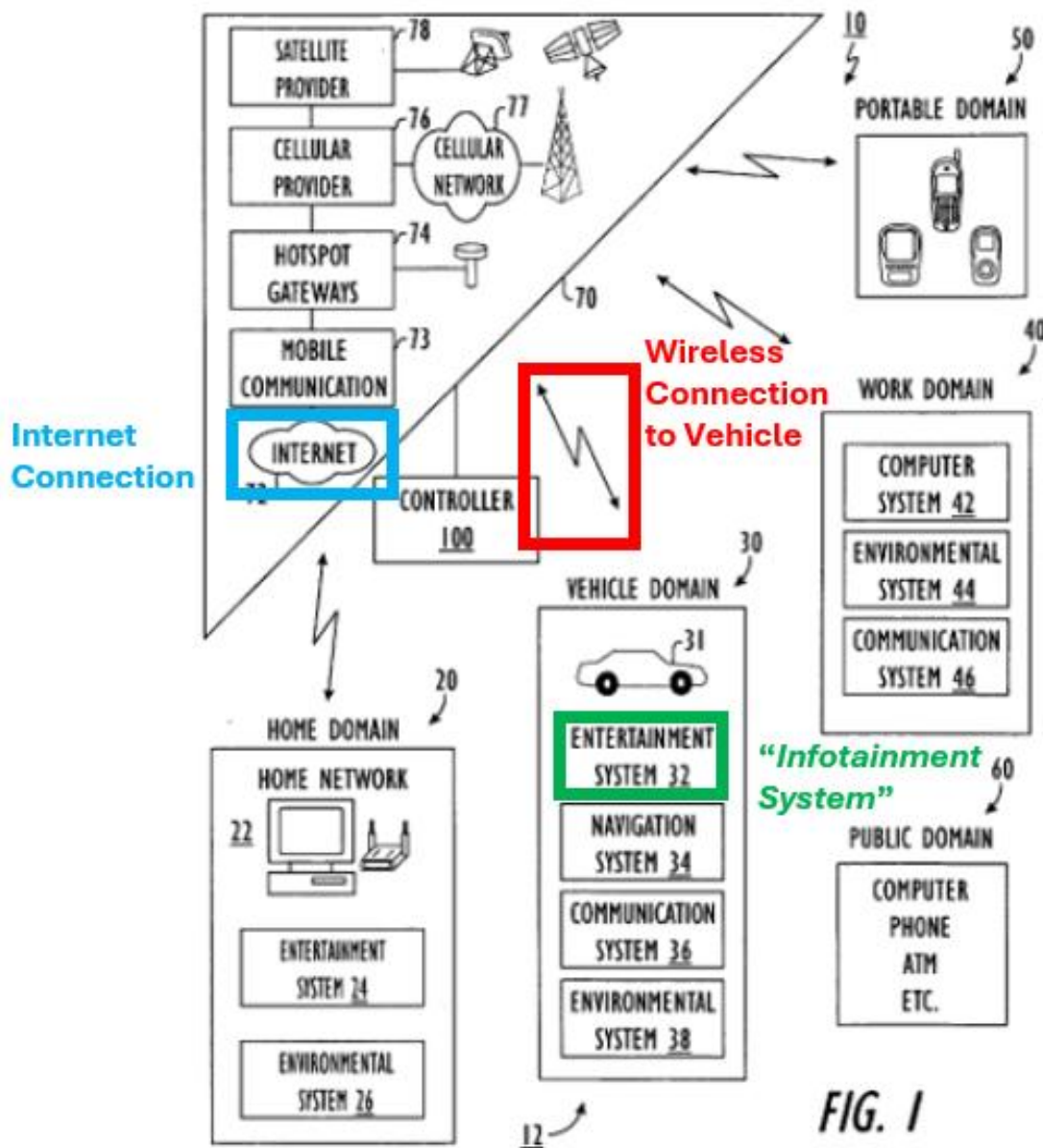
communication 73 (e.g., Dedicated Short Range Communication (DSRC) and vehicle-to-roadside/vehicle-to-vehicle communication), hotspot gateways 74, cellular service providers 76 and networks 77, and satellite providers 78. Some examples of wireless communication include cellular communication, Bluetooth®, Wi-Fi, Ultra Wide Band (UWB), and other wireless communication techniques known in the art.

(Zancho, Ex. 1022, [0019].)

The platform 10 also includes a controller 100 capable of wired and wireless communication with the various devices and systems in the domains 12 and with the sources 70. In one embodiment, the controller 100 is a central server or a host computer system for arbitrating preferences between users in one or more of the various domains 12.

(Zancho, Ex. 1022, [0020].)

279. Zancho further discloses that the domains include a vehicle domain 30 and that the vehicle domain 30 includes an entertainment system 32, 160. (Zancho, Ex. 1022, [0017]-[0018].)



Zancho, Ex. 1022, Fig. 1 (Annotated)

280. Zancho further discloses collecting user preferences from remote sources, including network-accessible storage systems and memories stored outside the vehicle domain:

Alternatively, one or more of the devices 50 may not contain a dedicated memory for storing preferences. Instead, such devices 50

may be associated with a particular user by an identification number, such as a network or IP address. **The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30** or stored locally in memory 130 of the controller 100. **When the particular device 50 and associated user are identified, the controller 100 can access those preferences.**

(Zancho, Ex. 1022, [0044].)

281. Zancho discloses “collecting . . . additional infotainment information associated with the user” as described in limitation [7a]. Zancho further discloses that the devices and systems in the domains, including the entertainment system 32, 160 (“infotainment system”) are capable of wired or wireless communication (“the at least one infotainment system is online”) with various communication sources, including remote sources over the Internet, cellular service providers, and networks. Accordingly, Zancho discloses “collecting, while the at least one infotainment system is online, additional infotainment information associated with the user;[e.g., collecting preferences from a remote storage over a network.]”

[17b] storing the additional infotainment information in the user profile associated with the user.

282. Zancho discloses accessing preferences that are stored remotely and storing user preferences locally:

Systems and methods for handling multiple preferences in a domain are disclosed. In one embodiment, a preference-handling method involves

storing user preference accessible to a controller. For example, **these preferences can be stored remotely on a network accessible to the controller**, stored on individual portable devices, or **stored locally at the controller**. Preferences are determined for at least two users in the domain of the controller. For example, the controller can monitor for wireless devices active in a wireless personal area network of the controller and obtain the preferences of those users associated with the active devices from the device itself, from local memory of the controller, or from elsewhere.

(Zancho, Ex. 1022, [0012].)

283. A POSA would have understood that Zancho teaches accessing preferences that are stored remotely (“*additional information*”) and then storing these user preferences locally, e.g., in the vehicle memory, so that the preferences are readily available in the event that communication with the remote server is offline or not available. Accordingly, Zancho teaches “*storing the additional infotainment information in the user profile associated with the user.*”

h. Claim 18

[18] The method of claim 17, wherein the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences.

284. Zancho discloses that the various categories of preferences may include

various audio preferences, preferred media, and access network media:

For example, various categories (axis 252) for systems (axis 254) in the vehicle domain (axis 256) can include **preferences related to audio preferences (e.g., equalization levels, volume levels), preferred media (e.g., genre, songs, preset radio stations, etc.), navigation routes, hands-free cellular phone capabilities (e.g., ability of passengers to have calls routed through vehicle's audio system), access network media (e.g., ability of passengers to access subscription based media services in the vehicle), seat and mirror positions, and air-conditioning settings.**

(Zancho, Ex. 1022, [0036].)

285. Zancho discloses determining a radio station genre based on the preferences and selecting a radio station that satisfies the determined genre:

For example, the satellite radio of the entertainment system 160 can have predefined radio stations pertaining to certain types or genres of music available from a satellite radio provider. One of the users 80 makes a request to operate the satellite radio of the entertainment system 160, but the users 80 have preferences for different genres of music. The device handler 112 uses an arbitration scheme 134 to determine from the preferences stored in **the profiles 132 what genre to use for a station of the satellite radio so that the selected station satisfies the preferred genres of the users 80 in the vehicle domain 30.**

(Zancho, Ex. 1022, [0054].)

286. With reference to Figure 6A, Zancho discloses that the preference

handler 112 determines which genres (“*content*”) satisfy the preferences (“*infotainment information*”) of the users:

Based on a comparison of the genre selections 304 and their rankings, the preference handler determines which genre satisfies the preferences of the all the users 302. In this case, the arbitration scheme 300 shows that “Rock” is the preferred genre 306. Based on the determination from the preference arbitration scheme 300, the preference handler 112 of FIG. 5 sets or suggests that the satellite radio of the entertainment system 160 be operated with a station having the “Rock” genre. Thus, the preference handler 112 can initially set the satellite radio to a station having the “Rock” genre but may allow the station to be changed.

(Zancho, Ex. 1022, [0056].)

302 DEVICE ID	304 GENRE SELECTION #1	GENRE SELECTION #2	GENRE SELECTION #3	306 SELECTED PROGRAMMING
DRIVER'S DEVICE	NEWS	ROCK	CLASSICAL	ROCK
PASSANGER'S DEVICE #1	COUNTRY	ROCK	RAP	
PASSANGER'S DEVICE #2	ROCK	COUNTRY	NEWS	

FIG. 6A

Zancho, Ex. 1022, Fig. 6A

287. Zancho discloses that the preferences (“*infotainment information*”) include video selections:

For example, FIG. 6B shows an example of an arbitration scheme 350 where video selections 354 are ranked for each user 352 identified in the domain or having an active device in the domain. These ranked video selections 354 are relevant to the operation of the video display of the entertainment system in the vehicle and can be used to determine which video to deliver with the video display. **Based on a comparison of the preferred video selections 354 and their rankings, the arbitration scheme 350 shows that “Oklahoma” is the preferred video selection for all three users 352.**

(Zancho, Ex. 1022, [0058].)

FIG. 6B is a table illustrating an arbitration scheme 350. The table has five columns: 'DEVICE ID' (labeled 352), 'VIDEO SELECTION #1' (labeled 354), 'VIDEO SELECTION #2' (labeled 354), 'VIDEO SELECTION #3' (labeled 354), and 'SELECTED PROGRAMMING' (labeled 356). There are three rows of data, each representing a 'REAR PASSENGER'S DEVICE #1'. The first row shows 'TITANIC', 'RAIN MAN', and 'OKLAHOMA'. The second row shows 'STAR GATE', 'STAR WARS', and 'OKLAHOMA'. The third row shows 'STAR WARS', 'GREASE', and 'OKLAHOMA'. The 'SELECTED PROGRAMMING' column for all three rows is 'OKLAHOMA'.

352 DEVICE ID	354 VIDEO SELECTION #1	354 VIDEO SELECTION #2	354 VIDEO SELECTION #3	356 SELECTED PROGRAMMING
REAR PASSENGER'S DEVICE #1	TITANIC	RAIN MAN	OKLAHOMA	OKLAHOMA
REAR PASSENGER'S DEVICE #1	STAR GATE	STAR WARS	OKLAHOMA	
REAR PASSENGER'S DEVICE #1	STAR WARS	GREASE	OKLAHOMA	

FIG. 6B

Zancho, Ex. 1022, Fig. 6B

288. Zancho discloses a radio station genre, viewing content, music genre, preferred media, etc. as the user preferences (“*infotainment information*”).

Accordingly, Zanco discloses “wherein the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences.”

4. Independent Claim 9

289. Claim 9 is largely duplicative of claim 1. To illustrate the similarities, the table below shows a side-by-side comparison of claims 1 and 9. Claim 9 is “marked up” to show the minor differences:

Claim 1	Claim 9
1[pre]. A method, comprising:	9[pre]. <u>A non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform</u> a method comprising:
[1a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;	[9a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;
[1b] detecting at least one infotainment system associated with the user; and	[9b] detecting at least one infotainment system associated with the user; and

[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:	[9c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:
[1d] determining an access priority of the user; and	[9d] determining an access priority of the user; and
[1e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:	[9e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:
[1f] determining a second access priority of a second user associated with the infotainment system; and	[9f] determining a second access priority of a second user associated with the infotainment system; and

[1g] comparing the access priority of the user to the second access priority of the second user,	[9g] comparing the access priority of the user to the second access priority of the second user,
[1h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and	[9h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and
[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.	[9i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

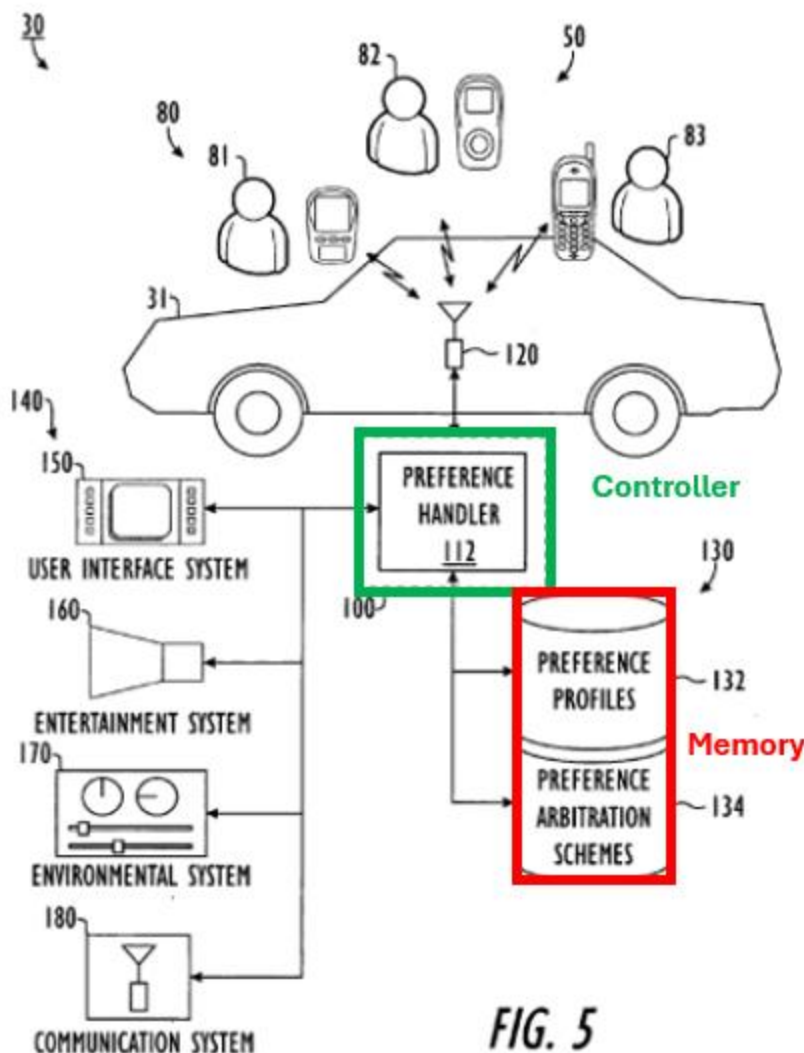
9[pre]. A non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform a method comprising:

290. With further reference to Figure 5, Zanchi discloses that the various devices 50, controller 100, interfaces 120, memory 130, and other necessary components must support the common platform's memory storage, architectural framework, data structures, communication protocols, software, etc.:

The devices 50 and the controller 100 are associated with the same platform, such as previously discussed, so that all of the devices 50 and

controller 100 are compliant with techniques disclosed herein for arbitrating conflicting preferences. To be compliant, **the various devices 50, controller 100, interfaces 120, memory 130, and other necessary components must support the common platform's memory storage, architectural framework, data structures, communication protocols, software, etc.,** as will be apparent to one skilled in the art.

(Zancho, Ex. 1022, [0043].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

291. Zancho further discloses that “[t]he controller 100 includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80.” (Zancho, Ex. 1022, [0046].) The preference handler 112 is shown in Figure 5 above and “is preferably embodied in software.” (Zancho, Ex. 1022, [0046].) A POSA would have understood that the preference handler 112 software is also stored in the memory 130 so that it can access the user preferences

and preference arbitration schemes 134 and is accessible by the controller 100. For example, if the preference handler 112 software was stored at a remote server, then it would not be accessible if the vehicle was located in a location without cellular service.

292. Zanchó discloses that the controller includes memory that stores, among other things, the preferences for various users:

For example, **these preferences can be stored remotely on a network accessible to the controller, stored on individual portable devices, or stored locally at the controller.** Preferences are determined for at least two users in the domain of the controller. For example, the controller can monitor for wireless devices active in a wireless personal area network of the controller and obtain the preferences of those users associated with the active devices from the device itself, from local memory of the controller, or from elsewhere. **The determined preferences are related to controlling operation of a domain system in the domain of the controller.** The domain system can be a networked computer system, a user interface, an entertainment system, an environmental system, or a communication system.

(Zanchó, Ex. 1022, [0012].)

293. Thus, Zanchó discloses storing instructions, e.g., preference handler software, including arbitration schemes 134, in non-transitory memory.

294. Zanchó discloses that the controller is in communication with one or more interfaces and memory, and that the preferences are operably coupled to the

controller:

In another embodiment, a preference-handling system includes one or more communication interfaces, memory, and a controller. The one or more communication interfaces can be used to connect communicatively with devices in a domain of the preference-handling system or with memory. The memory stores preferences for users. The memory can be stored on a portable device active in the domain, can be stored remotely at a network accessible storage system, or can be stored locally at the controller. **The controller is operably coupled to the communication interfaces, the memory, and a domain system, such as previously described.** The controller is configured to determine preferences for at least two users active in the domain. For example, the controller can monitor for wireless devices active in a wireless personal area network of the controller and can upload preferences from the devices or can access preferences already stored in the controller's memory. The determined preferences are related to controlling operation of the domain system operably coupled to the controller. The controller arbitrates the preferences based on an arbitration scheme and controls operation of the domain system based on the arbitration of the preferences.

(Zancho, Ex. 1022, [0013].)

295. As described above a POSA would have understood that the memory 130 is a “*non-transitory computer readable medium*” because it stores the preference handler software 112, preference profiles 132, and arbitration schemes 134. In addition, Zancho discloses memory, data structures, communication protocols, and

software. And finally a POSA would have understood that memory 130 is a “*non-transitory computer readable medium*” because, as I explained regarding the state of the art, 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, Flash, or memory card. (Bosch, Ex. 1050, 94-95; IEEE Dictionary, Ex. 1051, 152; see ¶¶ 105-113.)

296. A POSA would have also understood that the control unit 110 includes a “*processor*” because the control unit 110 is connected to the memory 130 to access the preference profiles 132 and the arbitration schemes 134 and is further connected to the vehicle systems 140 for operating the vehicle systems 140. (Zancho, Ex. 1022, [0040], [0045], [0048], and Fig. 4.)

297. Accordingly, Zancho discloses “*A non-transitory computer readable medium [e.g., memory 130] having instructions [e.g., arbitration schemes 134] stored thereon that, when executed by a processor [e.g., control unit 110], perform a method [e.g., the process for handling preferences of Figure 2.]*”

[9a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;

298. Limitation [9a] is identical to limitation [1a]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zancho. (See ¶¶

132-143.)

[9b] detecting at least one infotainment system associated with the user; and

299. Limitation [9b] is identical to limitation [1b]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 144-158.)

[9c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:

300. Limitation [9c] is identical to limitation [1c]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 159-167.)

[9d] determining an access priority of the user; and

301. Limitation [9d] is identical to limitation [1d]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 168-174.)

[9e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:

302. Limitation [9e] is identical to limitation [1e]. Therefore, I refer back to

my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 175-187.)

[9f] determining a second access priority of a second user associated with the infotainment system; and

303. Limitation [9f] is identical to limitation [1f]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 188-191.)

[9g] comparing the access priority of the user to the second access priority of the second user,

304. Limitation [9g] is identical to limitation [1g]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 192-196.)

[9h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and

305. Limitation [9h] is identical to limitation [1h]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 197-202.)

[9i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

306. Limitation [9i] is identical to limitation [1i]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶

203-204.)

5. Dependent Claims 10, 12-14, and 19-20

307. Claims 10, 12-14, and 19-20 depend from claim 9, which I understand means that these claims require all of the limitations of claim 9 in addition to their additional limitations. Zanco discloses all the limitations of claim 9 as described above. (See ¶¶ 290-306).

a. Claim 10

10[pre]. The non-transitory computer readable medium of claim 9, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises: [10a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and [10b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

308. Claim 10 is largely duplicative of claim 2. To illustrate the similarities, the table below shows a side-by-side comparison of claims 2 and 10. Claim 10 is “marked up” to show the minor differences:

Claim 2	Claim 10
2[pre]. The method of claim 1,	10[pre]. The <u>non-transitory computer readable medium</u> of claim 9,

wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises:	wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises:
[2a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and	[10a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and
[2b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.	[10b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

309. Claim 10 is substantially similar to the limitations in claim 2 other than the “*non-transitory computer readable medium*” limitation, which is taught by Zanchi (see analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 2 and 9[pre] to establish that they are met by Zanchi. (See ¶¶ 207-255, 290-297.)

b. Claim 12

[12] The non-transitory computer readable medium of claim 9, wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.

310. Claim 12 is largely duplicative of claim 4. To illustrate the similarities, the table below shows a side-by-side comparison of claims 4 and 12. Claim 12 is “marked up” to show the minor differences:

Claim 4	Claim 12
[4] The method of claim 1, wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.	[12] The <u>non-transitory computer readable medium</u> of claim 9, wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.

311. Claim 12 is substantially similar to the limitations in claim 4 other than the “*non-transitory computer readable medium*” limitation, which is taught by Zanchó (see analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 4 and 9[pre] to establish that they are met by Zanchó. (See ¶¶ 226-233, 290-297.)

c. Claim 13

[13][pre]. The non-transitory computer readable medium of claim 9, wherein determining to adjust the configuration of the at least one infotainment system further comprises: [13a] determining the configuration of the at least one infotainment system; and [13b] determining whether the infotainment information matches the determined configuration of the at least one infotainment system, [13c] wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.

312. Claim 13 is largely duplicative of claim 5. To illustrate the similarities, the table below shows a side-by-side comparison of claims 5 and 13. Claim 13 is “marked up” to show the minor differences:

Claim 5	Claim 13
5[pre]. The method of claim 1, wherein determining to adjust the configuration of the at least one infotainment system further comprises:	13[pre]. The <u>non-transitory computer readable medium</u> of claim 9, wherein determining to adjust the configuration of the at least one infotainment system further comprises:
[5a] determining the configuration of the at least one infotainment system; and	[13a] determining the configuration of the at least one infotainment system; and

[5b] determining whether the infotainment information matches the determined configuration of the at least one infotainment system,	[13b] determining whether the infotainment information matches the determined configuration of the at least one infotainment system,
[5c] wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.	[13c] wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.

313. Claim 13 is substantially similar to the limitations in claim 5 other than the “*non-transitory computer readable medium*” limitation, which is taught by Zanchó (see analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 5 and 9[pre] to establish that they are met by Zanchó. (See ¶¶ 234-249, 290-297.)

d. Claim 14

[14] The non-transitory computer readable medium of claim 13, wherein the method further comprises:

... providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.

314. Claim 14 is largely duplicative of claim 6. To illustrate the similarities,

the table below shows a side-by-side comparison of claims 6 and 14. Claim 14 is “marked up” to show the minor differences:

Claim 6	Claim 14
<p>[6] The method of claim 5, further comprising:</p> <p>providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.</p>	<p>[14] The <u>non-transitory computer readable medium</u> of claim 13, wherein the method further comprises:</p> <p>providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.</p>

315. Claim 14 is substantially similar to the limitations in claim 6 other than the “*non-transitory computer readable medium*” limitation, which is taught by Zanchó (see analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 6 and 9[pre] to establish that they are met by Zanchó. (See ¶¶ 250-254, 290-297.)

e. Claim 19

19[pre]. The non-transitory computer readable medium of claim 9, wherein the method further comprises: [19a] collecting, while the at least one infotainment system is online, additional infotainment information associated with the user; and [19b] storing the additional infotainment information in the user profile associated with the user.

316. Claim 19 is largely duplicative of claim 17. To illustrate the similarities, the table below shows a side-by-side comparison of claims 17 and 19. Claim 19 is “marked up” to show the minor differences:

Claim 17	Claim 19
17[pre]. The method of claim 1, further comprising:	19[pre]. The <u>non-transitory computer readable medium</u> of claim 9, wherein the method further comprises:
[17a] collecting, while the at least one infotainment system is online, additional infotainment information associated with the user; and	[19a] collecting, while the at least one infotainment system is online, additional infotainment information associated with the user; and
[17b] storing the additional infotainment information in the user profile associated with the user.	[19b] storing the additional infotainment information in the user profile associated with the user.

317. Claim 19 is substantially similar to the limitations in claim 17 other

than the “*non-transitory computer readable medium*” limitation, which is taught by Zanchó (see analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 17 and 9[pre] to establish that they are met by Zanchó. (See ¶¶ 274-283, 290-297.)

f. Claim 20

[20] The non-transitory computer readable medium of claim 19, wherein the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences.

318. Claim 20 is largely duplicative of claim 18. To illustrate the similarities, the table below shows a side-by-side comparison of claims 18 and 20. Claim 20 is “marked up” to show the minor differences:

Claim 18	Claim 20
[18] The method of claim 17, wherein the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings,	[20] The <u>non-transitory computer readable medium</u> of claim 19, wherein the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings,

genres, content consumption habits, and recording preferences.	genres, content consumption habits, and recording preferences.
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319. Claim 20 is substantially similar to the limitations in claim 18 other than the “*non-transitory computer readable medium*” limitation, which is taught by Zanchi (see analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 18 and 9[pre] to establish that they are met by Zanchi. (See ¶¶ 284-288, 290-297.)

6. Independent Claim 15

320. Claim 15 is largely duplicative of claim 1. To illustrate the similarities, the table below shows a side-by-side comparison of claims 1 and 15. Claim 15 is “marked up” to show the minor differences:

Claim 1	Claim 15
1[pre]. A method, comprising:	15[pre]. An <u>infotainment control system</u> , comprising: <u>a profile identification module contained in a memory and executed by a processor of the infotainment control system</u> ,

<p>[1a] detecting</p> <p>a user profile associated with a user, the user profile having infotainment information stored therein;</p>	<p>[15a] <u>the profile identification module configured to</u> detect</p> <p>a user profile associated with a user, the user profile having infotainment information stored therein,</p>
<p>[1b] detecting</p> <p>at least one infotainment system associated with the user; and</p>	<p>[15b] detect</p> <p>at least one infotainment system associated with the user, and</p>
<p>[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:</p>	<p>[15c] determine to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration comprises</p>
<p>[1d] determining an access priority of the user; and</p>	<p>[15d] determining an access priority of the user, and</p>
<p>[1e] determining whether the access priority of the user allows for the adjustment to the configuration of the at</p>	<p>[15e] determining whether the access priority of the user allows for the adjustment to the configuration of the at</p>

least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:	least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment comprises
[1f] determining a second access priority of a second user associated with the infotainment system; and	[15f] determining a second access priority of a second user associated with the infotainment system, and
[1g] comparing the access priority of the user to the second access priority of the second user,	[15g] comparing the access priority of the user to the second access priority of the second user,
[1h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and	[15h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and
[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.	[15i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

15[pre]. An infotainment control system, comprising: a profile identification module contained in a memory and executed by a

processor of the infotainment control system,

321. Zanchi discloses that personal devices 50 associated with particular users interact with the controller 100 (“*infotainment control system*”), that the devices 50 may be accessed by wired or wireless interfaces 122 and 124, and that the devices 50 may be associated with a particular user by an identification number, such as a network or IP address:

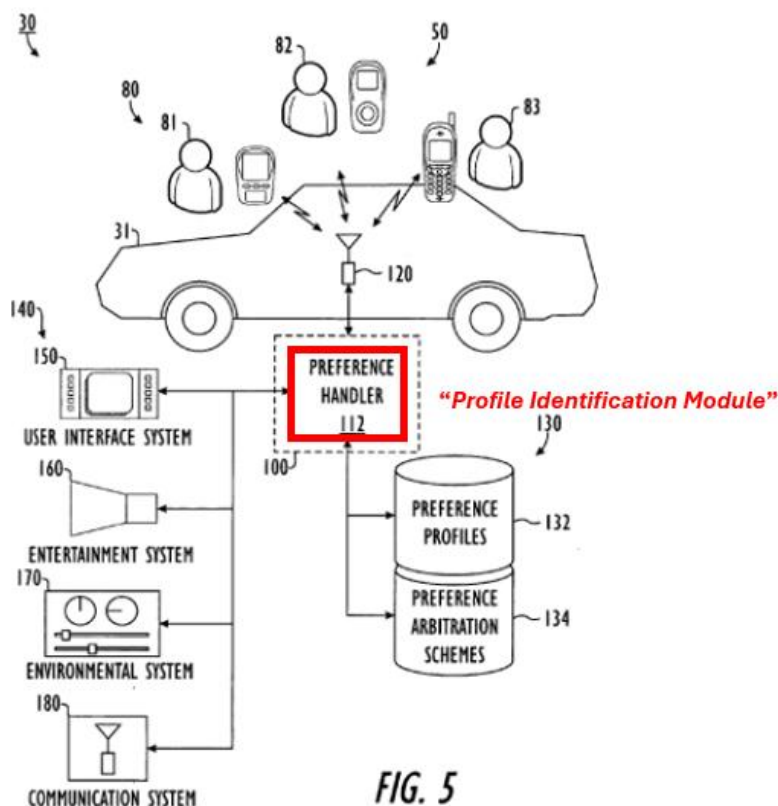
The devices 50 can interact with the controller 100 using wired or wireless interfaces 122 and 124 known in the art. One or more of the devices 50 can contain a dedicated memory for storing preferences associated with the users of the device 50. Preferably, the preferences stored in the device 50 are comprehensive and encompass the various forms of interaction detailed herein. Alternatively, one or more of the devices 50 may not contain a dedicated memory for storing preferences. **Instead, such devices 50 may be associated with a particular user by an identification number, such as a network or IP address. The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100. When the particular device 50 and associated user are identified, the controller 100 can access those preferences.**

(Zanchi, Ex. 1022, [0044].)

322. Zanchi discloses that “[t]he controller 100 is communicatively connected to one or more vehicle systems 140, such as a user interface or navigation system 150, an entertainment system 160, an environmental system 170, and a

communication system 180 in the vehicle 31.” (Zancho, Ex. 1022, [0040].)

323. Zancho further discloses that “[t]he controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130 using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.” (Zancho, Ex. 1022, [0045].) Zancho also discloses that “[t]he controller 100 includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80. **The preference handler 112 is schematically shown as a component of the controller 100 but is preferably embodied in software.**” (Zancho, Ex. 1022, [0046].) A POSA would have understood that the preference handler 112 software (“*profile identification module*”) is also stored in the memory 130 so that is accessible by the controller 100.



Zancho, Ex. 1022, Fig. 5 (Annotated)

324. Zancho further discloses that the arbitrating preferences (“infotainment information”) may include establishing a ranking, weighting, or priority of preferences:

One way of arbitrating preferences is to establish a ranking, weighting, or priority of preferences so that the preference handler 112 can resolve conflicts between preferences. In FIG. 6A, for example, preferences for users are ranked in an order within a preference arbitration scheme 300, which is shown in tabular form. The scheme 300 includes device IDs 302 and ranked genre selections 304 for active devices in the domain. **These genre selections 304 can be relevant to the operation of a satellite radio of an entertainment**

system in a vehicle and can be used to set which station to operate the radio. The device IDs 302 in this example correspond to users having detected devices of in the domain and are listed as “Driver's Device,” “Front Passenger's Device,” etc. for illustrative purposes. Each user has a plurality of genre selections 304 that are ranked in order.

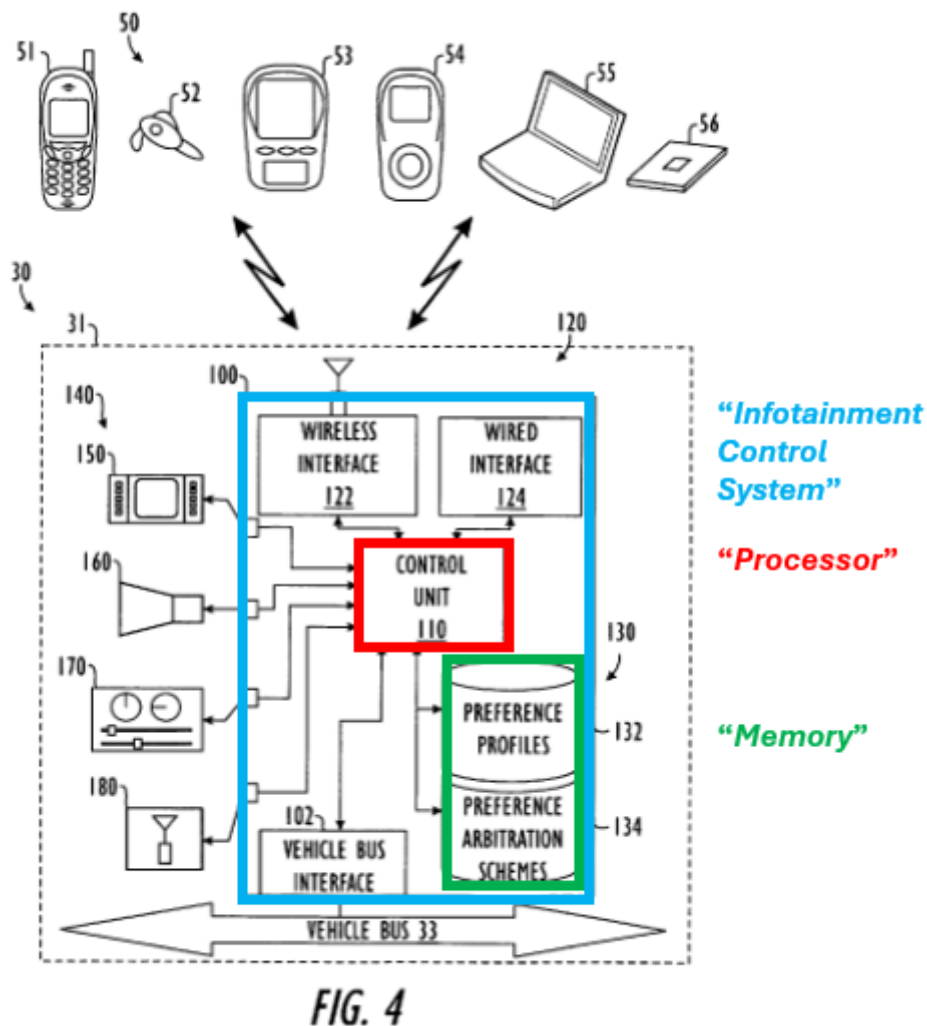
(Zancho, Ex. 1022, [0055].)

325. Zancho discloses using an arbitration scheme to determine from the preferences stored in the profiles what genre to use for a station:

The device handler 112 uses **an arbitration scheme 134 to determine from the preferences stored in the profiles 132 what genre to use** for a station of the satellite radio so that the selected station satisfies the preferred genres of the users 80 in the vehicle domain 30.

(Zancho, Ex. 1022, [0054].)

326. With reference to Figure 4, Zancho discloses “a controller in a vehicle domain according to certain teachings of the present disclosure.” (Zancho, Ex. 1022, [0008].) Zancho further discloses that “[t]he controller 100 has a control unit 110, interfaces 120, and memory 130.” (Zancho, Ex. 1022, [0039].)

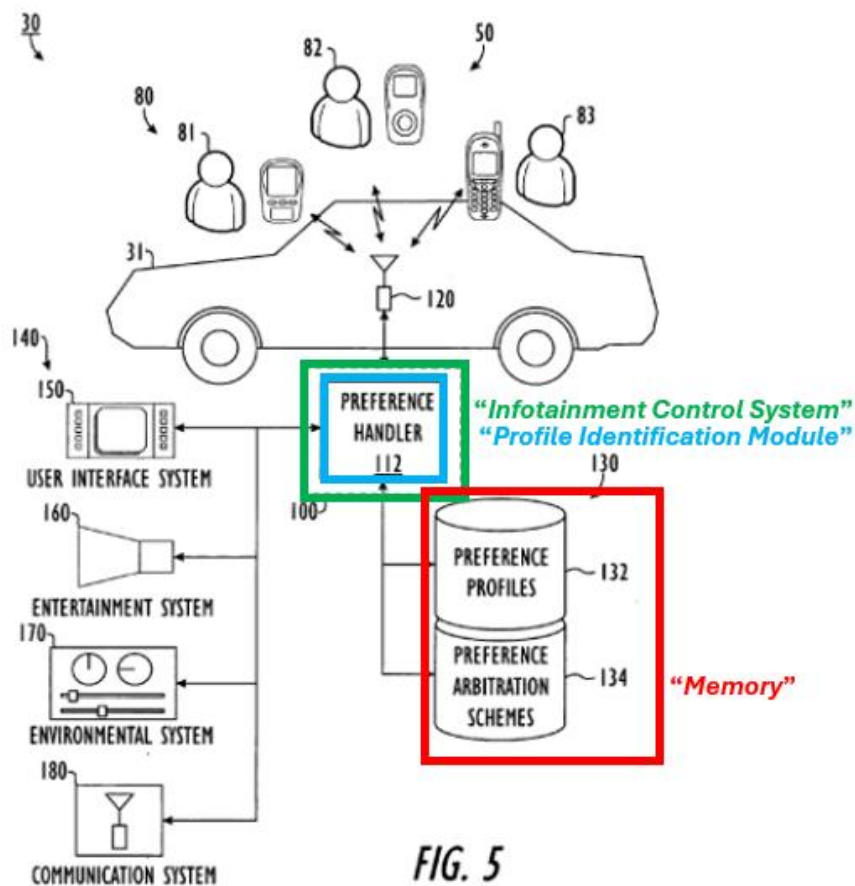


Zancho, Ex. 1022, Fig. 4 (Annotated)

327. A POSA would have understood that the control unit 110 includes a “processor” because the control unit 110 is connected to the memory 130 to access the preference profiles 132 and the arbitration schemes 134. The control unit 110 then executes procedural steps (i.e. processes), is connected to the vehicle systems 140 for operating the vehicle systems 140, and is connected to wireless and wired interfaces (122 and 124), which a POSA would have known to require software

controlled processing steps to send and receive data. (Zancho, Ex. 1022, [0040], [0045], [0048], and Fig. 4.)

328. With reference to Figure 5, Zancho discloses “an embodiment of the controller handling preferences for multiple users in a vehicle domain.” (Zancho, Ex. 1022, [0009].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

329. Zancho discloses the controller 100 (“infotainment control system”) is connected to an entertainment system 160 (“infotainment system”), the controller 100 having preference profiles 132 for storing user preferences in memory 130, the

controller 100 having a preference handler 112 (“*profile identification module*”) for handling the preferences of multiple users, wherein “the preference handler 112 uses a preference arbitration scheme 134 to decide how to handle preferences when they conflict. (Zancho, Ex. 1022, [0047].) Accordingly, Zancho discloses “[a]n infotainment control system, comprising: a profile identification module contained in a memory and executed by a processor of the infotainment control system[.]”

[15a] the profile identification module configured to detect a user profile associated with a user, the user profile having infotainment information stored therein,

330. Limitation [15a] is substantially similar to limitation [1a] other than the form of the verb “*detect*” and the profile identification module that performs the detecting, which was introduced in 15[pre].

331. Zancho discloses, with reference to the process for handling preferences of Figure 2, that “a compliant device active in the domain may have an identification associated with it, such as a network or Internet Protocol (IP) address” and that “[t]his identification can then be used by the controller to obtain preferences associated with the user” (Ex. 1022, [0022].) Thus, Zancho discloses that the controller 100, executing the preference handler 112 software (“*profile identification module*”) of Figure 2, “*detect[s] a user profile associated with a user.*” Regarding the remaining limitations, I refer back to my analysis of this limitation in claim [1a] to establish that it is met by Zancho. (See ¶¶ 132-143.)

[15b] detect at least one infotainment system associated with the user, and

332. Limitation [15b] is substantially similar to limitation [1b] other than the form of the verb “detect.” Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 144-158.)

[15c] determine to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration comprises

333. Limitation [15c] is substantially similar to limitation [1c] other than the form of the verb “determine.” Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 159-167.)

[15d] determining an access priority of the user, and

334. Limitation [15d] is substantially similar to limitation [1d]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zanchi. (See ¶¶ 168-174.)

[15e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment comprises

335. Limitation [15e] is substantially similar to limitation [1e]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by

Zancho. (See ¶¶ 175-187.)

[15f] determining a second access priority of a second user associated with the infotainment system, and

336. Limitation [15f] is substantially similar to limitation [1f]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zancho. (See ¶¶ 188-191.)

[15g] comparing the access priority of the user to the second access priority of the second user,

337. Limitation [15g] is identical to limitation [1g]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zancho. (See ¶¶ 192-196.)

[15h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and

338. Limitation [15h] is identical to limitation [1h]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zancho. (See ¶¶ 197-202.)

[15i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

339. Limitation [15i] is identical to limitation [1i]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by Zancho. (See ¶¶ 203-204.)

7. Dependent Claim 16

340. Claims 16 depends from claim 15, which I understand means that this claim requires all of the limitations of claim 15 in addition to its additional limitations. Zanco discloses all of the limitations of claim 15 as described above. (See ¶¶ 321-339.)

a. Claim 16

16[pre] The system of claim 15, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the profile identification module is further configured to [16a] identify the user inside a vehicle via one or more sensors associated with the vehicle, and [16b] refer, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

341. Claim 16 is largely duplicative of claim 2. To illustrate the similarities, the table below shows a side-by-side comparison of claims 2 and 16. Claim 16 is “marked up” to show the minor differences:

Claim 2	Claim 16
2[pre]. The method of claim 1, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises:	16[pre]. The <u>system</u> of claim 15, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile <u>the profile identification module is further configured to</u>
[2a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and	[16a] identify the user inside a vehicle via one or more sensors associated with the vehicle, and
[2b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.	[16b] refer, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

342. Claim 16 is substantially similar to the limitations in claim 2 other than the “*the profile identification module*” limitation, which is also disclosed in Zanchi (See analysis above with respect to limitation 15[pre]). Therefore, I refer back to my analyses of these limitations in claims 2 and 15[pre] to establish that they are

met by Zanchi. (See ¶¶ 207-225, 321-329.)

**B. Ground 2 – The Combination of Zanchi and Sundaram
Teach All of the Limitations of Claims 3 and 11**

1. Overview of Sundaram

343. Sundaram is directed to “a method and system for providing an integrated platform for entertainment, information, communication, control and computing applications in a vehicle. The system includes an in-vehicle computer residing in user's vehicle. The in-vehicle computer is used for user's entertainment and transfer of information between user's vehicle and other application servers[.]” (Sundaram, Ex. 1027, Abstract.)

344. Sundaram discloses that “there is a need for a method and a system for enabling a platform which integrates various discrete entertainment and computing applications in a vehicle, thereby allowing greater personalization and customization of the vehicle as per the requirements and needs of a user.” Sundaram, Ex. 1027, [0005].) Sundaram discloses establishing usage profiles for various vehicle systems:

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].)

345. Sundaram further discloses identifying users via visual recognition using a camera, voice recognition, finger print identification etc.to enable a user's usage profile:

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.

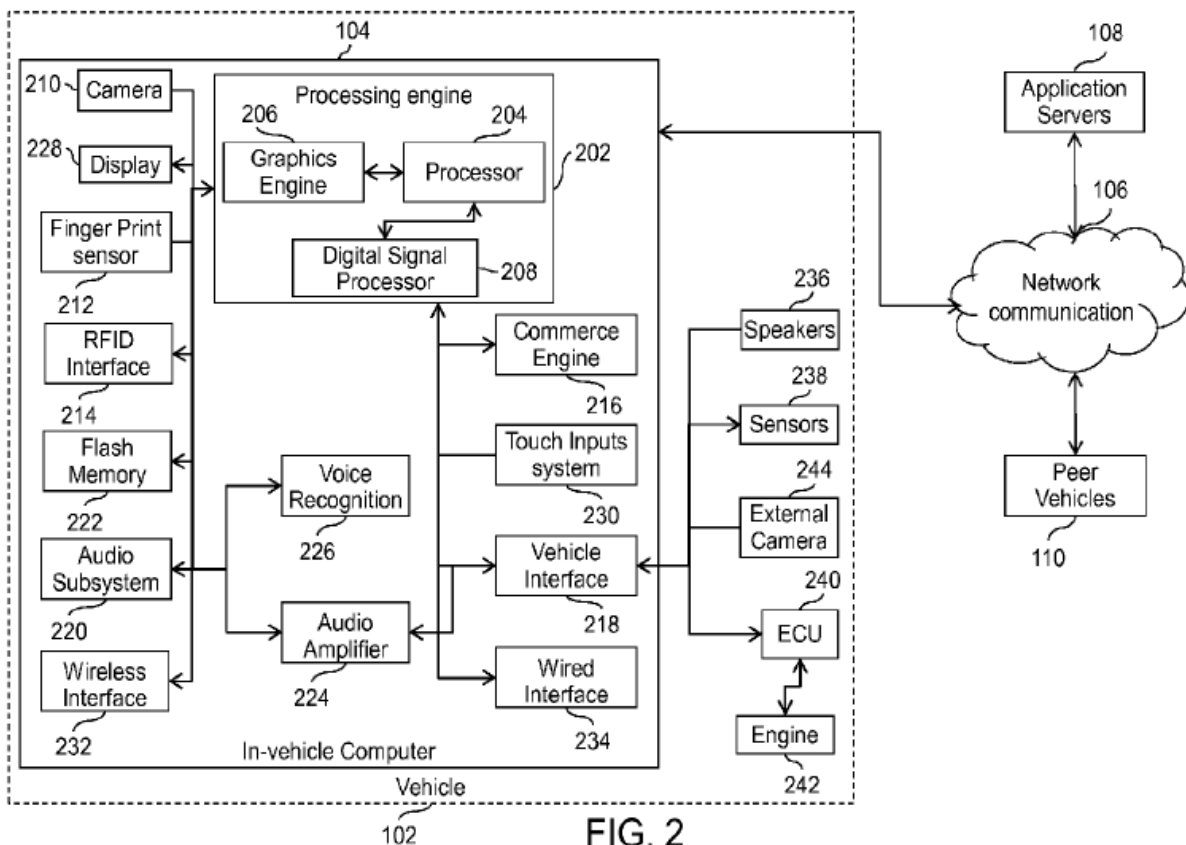
(Sundaram, Ex. 1027, [0020].)

346. Sundaram discloses that the camera that provides inputs to a processor regarding driver identification and status, and enables the in-vehicle computer to provide entertainment:

Camera 210 is interfaced to processor 204 and provides 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].)



Sundaram, Ex. 1027, Fig. 2

2. Rationale to Combine

347. It would have been obvious to a POSA to combine the system of identifying users based on their devices and associating preferences with the users and arbitrating between the preferences as disclosed in Zanchi, with the known technique of identifying users via visual recognition, fingerprint identification, voice recognition, etc. as disclosed in Sundaram to provide refined control and improved performance in identifying specific users. For example, Zanchi contemplates methods of identifying users other than via detecting personal devices associated with the users. Specifically, Zanchi states that “a user 80 may manually identify herself in the domain 30 using the user interface 150[.]” (Zanchi, Ex. 1022, [0048].) Sundaram’s user identification techniques confirm a user’s identification automatically and thereby improve on Zanchi’s manual entry approach.

348. As explained in detail below, a POSA would have understood that Zanchi and Sundaram describe complementary technologies in the same field of automotive infotainment systems that address similar problems of customization and are combinable.

a. Same Field of Endeavor

349. Zanchi and Sundaram disclose systems for controlling vehicle systems, including infotainment systems, based on user preferences or user profiles, for example Zanchi discloses:

In a third example scenario, at least two of the users 81, 82, and 83 have compromiseable preferences. In this situation, the compromiseable preferences are negotiated according to a preference arbitration scheme 134. In general, **the preference arbitration scheme 134 negotiates the preferences by determining a level, attribute, or selection of a preference to operate the system 140 based on ranges, weightings, or rankings associated with preferences of the users 80.**

(Zancho, Ex. 1022, [0051].)

With this general understanding of the operation of the preferences handler 112, several examples of arbitrating preferences for multiple users 80 interacting with the controller 100 is discussed. **In a first example of arbitrating preferences, the users 80 have preferences associated with them for controlling audio in the vehicle domain 30.** The first user 81 may be the driver, and the second and third users 82 and 83 may be passengers. Accordingly, these users 80 may have different and potentially conflicting preferences with respect to audio settings, and the preferences can affect how audio should be delivered or controlled in the vehicle 30 with the entertainment system 160.

(Zancho, Ex. 1022, [0053].)

350. Zancho further discloses that “[t]he controller 100 is communicatively connected to one or more vehicle systems 140, such as a user interface or navigation system 150, an entertainment system 160[.]” (Zancho, Ex. 1022, [0040].)

351. Sundaram discloses a computer 104 that enables the setting of different usage profiles for different users and exposes different users to different features of

the vehicle 102, such a radio setting:

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].)

In various embodiments, **a setting may include a radio station.**
A.3 The vehicle of embodiment A further including a radio, in which the first setting is a radio station, and in which, in issuing instructions, **the processor is operable to issue instructions for the radio to tune to the radio station.**

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

b. Solve Similar Problems

352. Both Zanchi and Sundaram address the problem of existing infotainment systems being rigid and the inconvenience of customizing a new device by programming their preferences:

Typically, users must program a device with their preferences. Consequently, each time a user encounters a new device, she must program her preferences into the device or simply use the preprogrammed forms of user interaction established in the device by default. As a solution to this problem, U.S. Pat. Nos. 5,633,484 and 5,814,798, which are incorporated herein by reference in their

entireties, disclose techniques for establishing and managing preferences for a user. Using the disclosed techniques, a user can readily transport her preferences to various devices, such as telephones, automobiles, and computers, which she uses and encounters.

(Zancho, Ex. 1022, [0003].)

Entertainment platforms and applications such as audio/video player, streaming of media, synchronization of playlists with other media devices like MP3 players etc. have become an integral feature of cars. Further, computational platforms applications like speedometer, determining fuel efficiency, GPS navigator, in-car computing devices etc. have become very common in modern vehicles. **However, the existing platforms are very rigid and are restricted to what is provided by the manufacturer, thus preventing customization of a vehicle based on requirements and needs of a user.** Further, different vehicle manufacturers provide different entertainment and computational platforms which are usually not compatible with vehicles manufactured by others; hence a user cannot implement all the desirable features and applications available in the market in a single vehicle.

(Sundaram, Ex. 1027, [0003].)

353. Zancho further explains that these programing problems increase when there is a group of users that interact with the domain or device:

In a network, various devices and users can interact with one another in an environment. One type of network is a seamless mobility network that **allows devices of various users to interact seamlessly in a**

plurality of environments or domains, such as a vehicle, a home, an office, etc. Typically, the users in the seamless mobility network have different preferences. When a group of users interacts together in a domain, conflicts may arise when there are conflicting preferences applicable to current circumstances in the domain. For example, two users in a vehicle may have different preferences for what volume and equalization levels should be used to deliver music in a vehicle. Thus, determining what volume and equalization levels to use in the vehicle presents a problem if both users attempt to apply their particular preferences to devices in the vehicle.

(Zancho, Ex. 1022, [0004].)

354. Sundaram further discloses enabling settings of different usage profiles for different users:

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].)

c. Zancho Contemplates Modification

355. Zancho specifically contemplates modifications to its system:

The foregoing description of preferred and other embodiments is not intended to limit or restrict the scope or applicability of the inventive

concepts conceived of by the Applicants. In exchange for disclosing the inventive concepts contained herein, the Applicants desire all patent rights afforded by the appended claims. Therefore, it is intended that the appended claims include all modifications and alterations to the full extent that they come within the scope of the following claims or the equivalents thereof.

(Zancho, Ex. 1022, [0064].)

d. Motivation to Combine Zancho with Sundaram

356. Zancho acknowledges potential conflicts when a group of users interacts together in a domain. (Zancho, Ex. 1022, [0004].) However, Zancho's solution, i.e., device based user identification, does not solve all potential conflicts, thereby motivating a POSA to look for a solution, such as that described in Sundaram.

357. A POSA would have understood that Zancho's solution of identifying users based on associated devices could lead to conflicts, e.g., misidentifying users, especially when there are multiple users and multiple devices in a vehicle domain. For example, a user could use another user's device and/or multiple users could place their devices in a common location, e.g., within a center console located between two front seats, resulting in the system misidentifying a user and adjusting a device based on a different user's preferences. Zancho discloses car seat position preferences and mirror position preferences. (Zancho, Ex. 1022, [0034].) A POSA would have recognized that it would be inconvenient if the system misidentified a

driver of a vehicle and adjusted the seat and/or mirror for the driver based on the preferences of another occupant, especially if there is a large difference between the sizes of the two users.

358. A POSA would have understood that combining Zanchó with Sundaram improves the accuracy and operation of the system in Zanchó. For example, identifying a user based on physical characteristics via visual recognition, fingerprint identification, voice recognition, etc. **allows the system in Zanchó to accurately distinguish between particular users** and avoid conflicts, e.g., when a device associated with a particular user is not present, when one user is controlling a device associated with another user, or when a device associated with a particular user is not compliant.

359. Sundaram discloses identifying a user based on physical characteristics via visual recognition, fingerprint identification, voice recognition, etc.:

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].)

360. Sundaram also resolves the problem presented in Zanchi of manually entering user preferences into the user interface, which is time consuming and requires an association between the user and a compliant device, by teaching the use of biometric and multimodal identification methods such as visual recognition, fingerprint identification, and voice recognition to automatically identify the user. This allows a user to be reliably and quickly identified, and authenticated automatically even without a compliant device, allowing their preferences to be retrieved from a biometric-linked profile and included in the arbitration process.

361. A POSA would have understood identifying users via biometric authentication as opposed to device detection is an application of a known technique (identification via biometric authentication or image processing) to known technique (identification via device detection) that is ready for improvement to yield predictable results, e.g., more accurate user identification. A POSA would have also understood that it would have been “obvious to try” using biometric authentication in place of or in addition to device detection since each are subsets of a finite and well understood set of solutions for identifying users.

e. A POSA Would Have Understood How to

Combine Zanchi with Sundaram

362. A POSA would have understood how to combine Zanchi and Sundaram with a reasonable expectation of success. In terms of hardware modifications, a POSA would have modified Zanchi's system that detects users based on detecting personal devices associated with the users via a wired or wireless interfaces to include sensors that detect users based on physical characteristics via visual recognition, fingerprint identification, voice recognition, etc.

363. Zanchi discloses identifying users by detecting devices associated with the users. For example, Zanchi discloses that "the controller **can identify users by monitoring for active devices associated with users** or by receiving manual input." (Zanchi, Ex. 1022, [0021].)

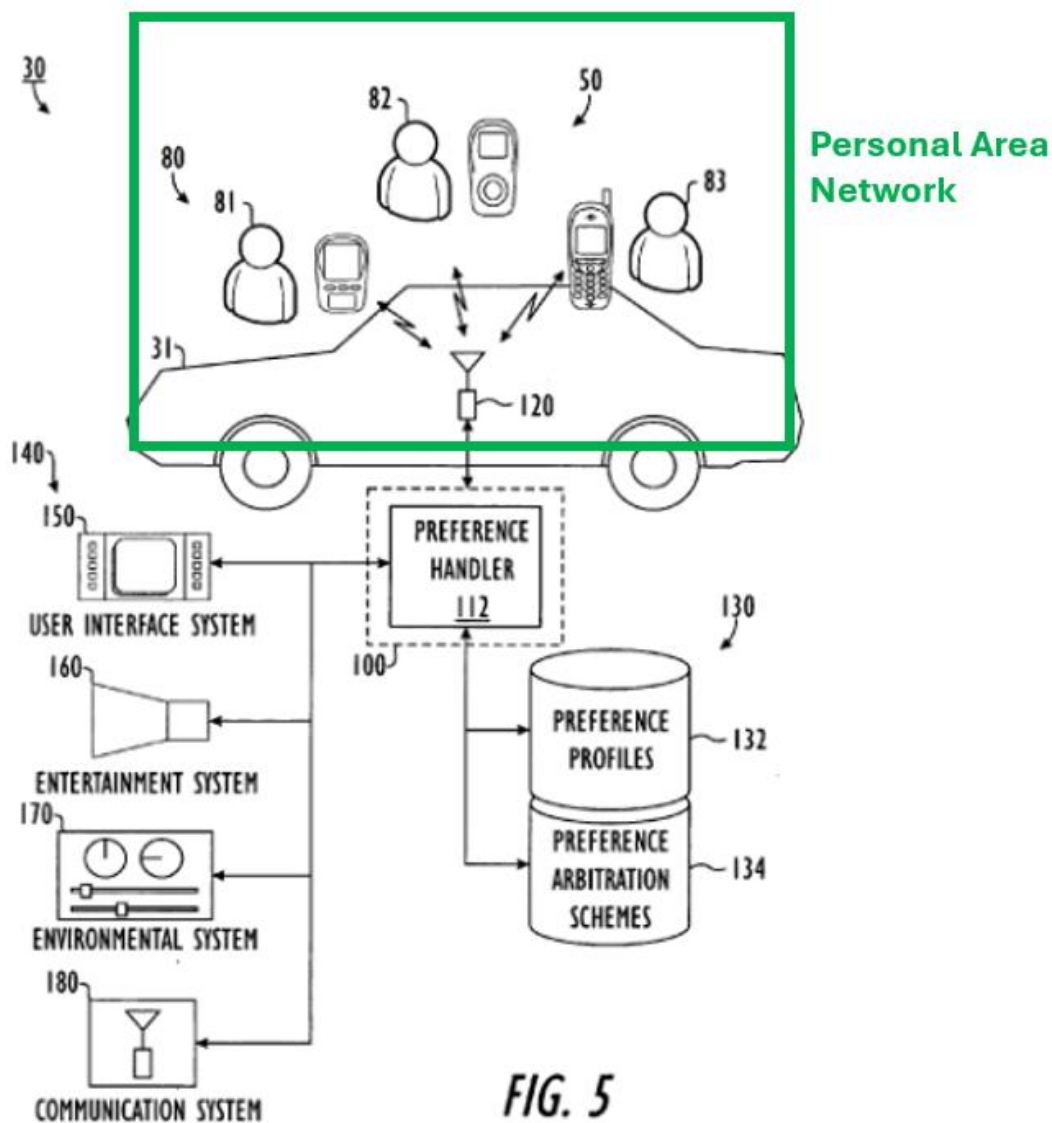
364. Zanchi further states that the interfaces of the controller establish a personal area network (PAN), that personal devices may interact with the controller within the network, and that personal devices may be associated with particular users via a network or IP address:

In the present example, **the interfaces 120 of the controller 100 establish a personal area network (PAN) that defines the extent of the domain 30 in the vehicle 31**. Within the personal area network, multiple personal devices 50 can interact simultaneously with the controller 100.

(Zanchi, Ex. 1022, [0042].)

Instead, **such devices 50 may be associated with a particular user by an identification number, such as a network or IP address.** The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100. When the particular device 50 and associated user are identified, the controller 100 can access those preferences.

(Zancho, Ex. 1022, [0044].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

365. However, Zanco does not disclose using sensors to detect users based on physical characteristics via visual recognition, fingerprint identification, voice recognition, etc.

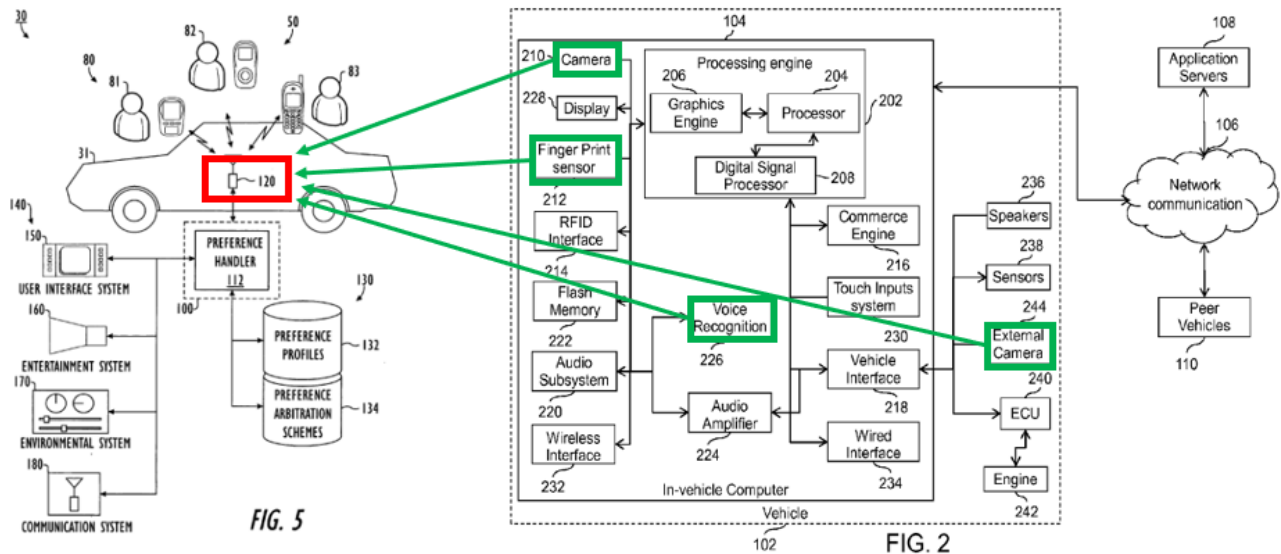
366. Sundaram does disclose identifying a user based on physical characteristics via visual recognition, fingerprint identification, voice recognition, etc.:

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].)

367. A POSA would have been motivated to combine Zanco's interfaces 120 with Sundaram's visual recognition using a camera, voice recognition, finger print identification, etc. as shown in the image below to yield predictable results, e.g., identifying users by physical characteristics to provide refined control and

improved performance in identifying specific users.



Zancho, Ex. 1022, Fig. 5; Sundaram, Ex. 1027, Fig. 2 (Annotated)

368. These modifications would have been a straightforward and well-known combination of known elements in the prior art, e.g., using visual recognition using a camera, voice recognition, finger print identification, etc., to yield the predictable result of identifying a user by a known method (e.g., by detecting physical characteristics via sensors) in addition to or in lieu of identifying users via detecting devices associated with the users. A POSA would have understood that the modification would have provided a more accurate identification of the user and would automatically identify a user as compared to Zancho's manual entry.

369. Accordingly, a POSA would have been motivated to modify Zancho to include Sundaram's system of identifying a user via visual recognition using a

camera, voice recognition, finger print identification, etc. This modification would have been a simple combination of known elements in the prior art, e.g., detecting a user via visual recognition using a camera, voice recognition, finger print identification using a finger print sensor, etc. A POSA would have been further motivated to modify the software in Zanchi to include image or sound processing for detecting a user since this only requires a simple substitution of one known element (e.g., software for detecting a user via detecting the user's device) for another (e.g., detecting a user via image or sound recognition) to obtain predictable results (e.g., detecting/identifying a user).

3. Dependent Claims 3 and 11

370. Claim 3 depends from claims 1 and 2, which I understand means that this claim requires all of the limitations of claims 1 and 2 in addition to its additional limitations. Zanchi teaches all of the limitations of claims 1 and 2 as described above in ground 1. (See ¶¶ 127-204, 207-225.)

371. Claim 11 depends from claims 9 and 10, which I understand means that this claim requires all of the limitations of claims 9 and 10 in addition to its additional limitations. Zanchi teaches all of the limitations of claims 9 and 10 as described above in ground 1. (See ¶¶ 290-306, 308-309.)

a. Claim 3

3[pre]. The method of claim 2, wherein identifying the user further comprises:

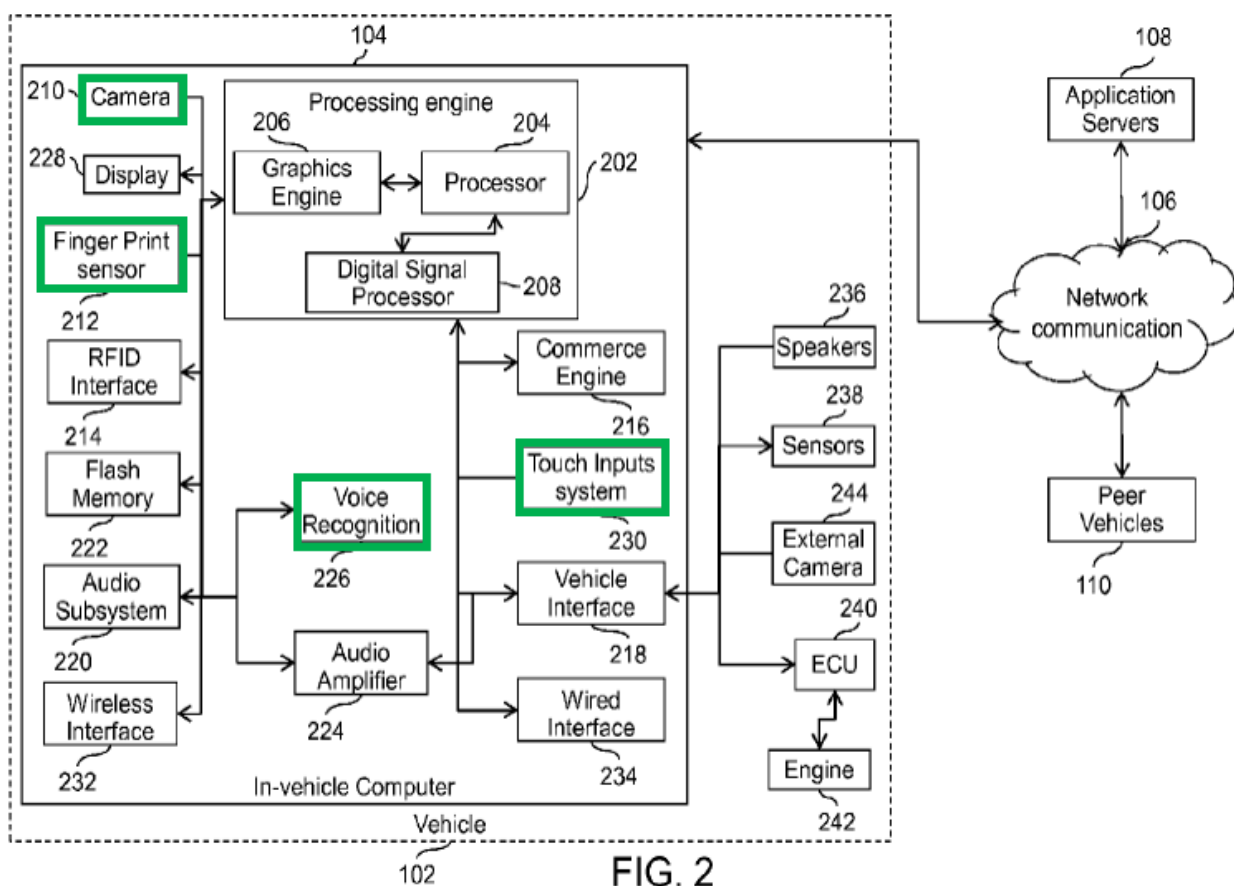
372. Limitation 3[pre] is substantially similar to limitation [2a]. Therefore, I refer back to my analysis of this limitation in claim 2 to establish that it is met by Zanchi. (See ¶¶ 211-221.)

[3a] receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and

373. With reference to Figure 2 below, Sundaram discloses identifying users via visual recognition using a camera, voice recognition, finger print identification etc. (annotated in green below):

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].)



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

374. A POSA would have understood that the system in Zanchi, which identifies a user by identifying the user's device via receiving wireless signals that includes characteristics associated with the user (e.g., IP address), could be adapted by Sundaram to identify the user by visual recognition, finger print identification, or voice recognition ("*identifying characteristics associated with the user*") for the purpose of improved accuracy of the system in Zanchi, which requires distinguishing between particular users, for situations where a device associated with a user is not present or when one user is controlling a device associated with another

user. Accordingly, the combination of Zanchi and Sundaram teaches “*receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and [.]*”

[3b] determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.

375. With reference to Figure 2, Sundaram discloses establishing usage profiles of various vehicles systems for different users:

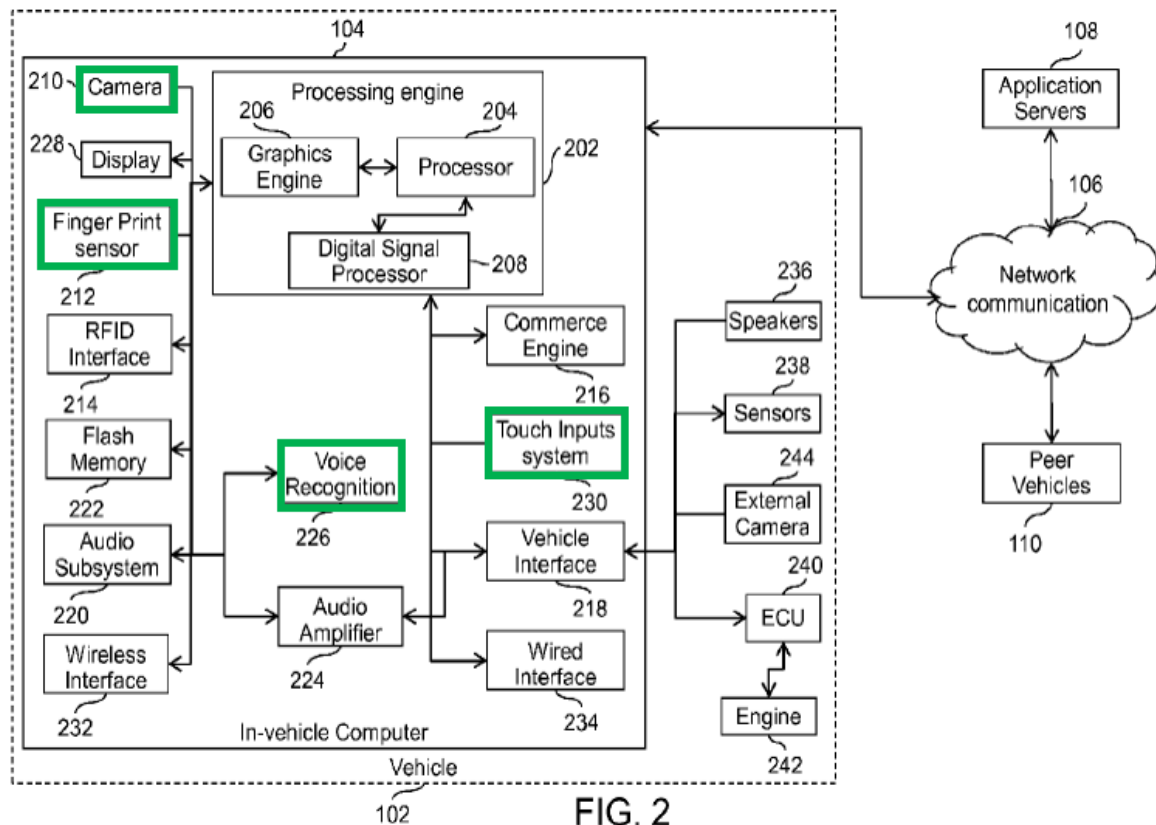
In-vehicle computer 104 **enables the setting of different usage profiles for different users, exposing one user to a set of features of vehicle 102 and another other user with a different set of features.** The features corresponding to a usage profile may include without limitation, vehicle 102's speed,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

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

376. With further reference to Figure 2, Sundaram discloses enabling a user's usage profile based on identifying characteristics:

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].)



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

377. A POSA would have understood that it would have been obvious to modify the system in Zanchi, which identifies a user by identifying the user's device via receiving wireless signals that include characteristics (e.g., IP address) associated with the user, to store and identify the user by visual recognition, finger print

identification, or voice recognition characteristics (“*identifying characteristics associated with the user*”) as taught by Sundaram, for the purpose of improving the accuracy of the system in Zanchi, which requires distinguishing between particular users, for situations where a device associated with a particular user is not present, when one user is controlling a device associated with another user, or when a device associated with a particular user is not compliant. Accordingly, the combination of Zanchi and Sundaram teaches “*determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.*”

b. Claim 11

11[pre]. The non-transitory computer readable medium of claim 10, wherein identifying the user further comprises: [11a] receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and [11b] determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.

378. Claim 11 depends from claim 10. I have shown above, in Ground 1 that Zanchi discloses the elements of claim 10.

379. Claim 11 is largely duplicative of claim 3. To illustrate the similarities,

the table below shows a side-by-side comparison of claims 3 and 11. Claim 11 is “marked up” to show the minor differences:

Claim 3	Claim 11
3[pre]. The method of claim 2, wherein identifying the user further comprises:	11[pre]. <u>The non-transitory computer readable medium</u> of claim 10, wherein identifying the user further comprises:
[3a] receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and	[11a] receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and
[3b] determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.	[11b] determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.

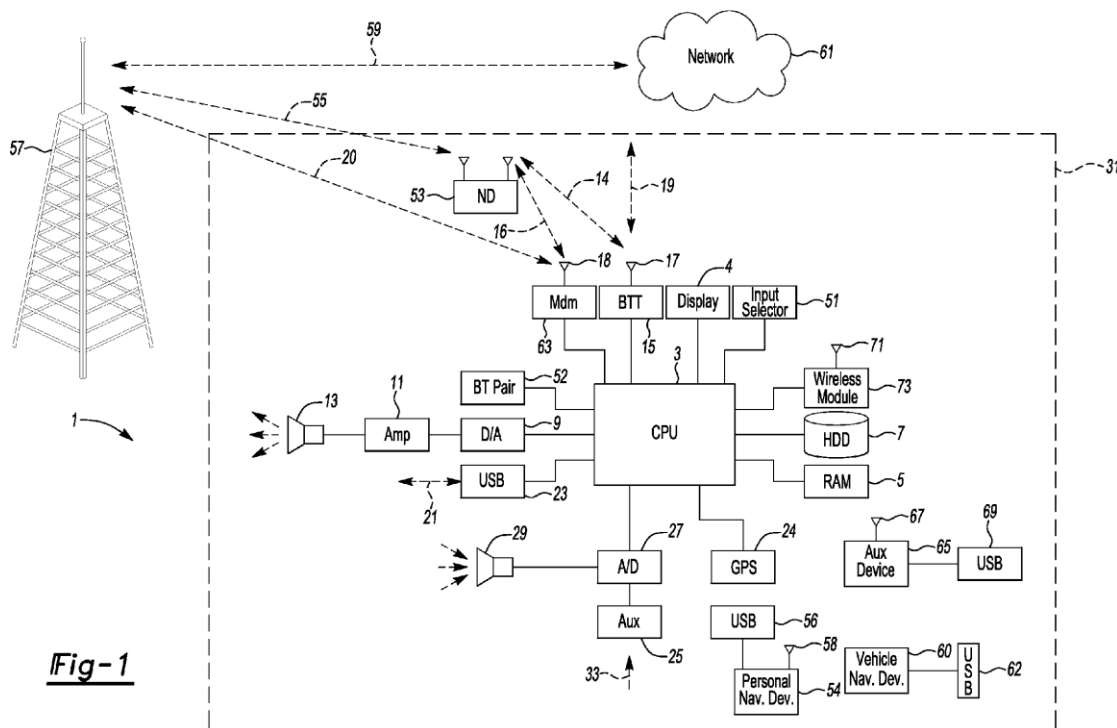
380. Claim 11 is substantially similar to the limitations in claim 3 other than the “*non-transitory computer readable medium*” limitation, which is taught by Zanchó (see analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 3 and 9[pre] to establish that they are met by the combination of Zanchó and Sundaram. (See ¶¶ 290-297, 372-377.)

C. Ground 3 – The Combination of Demeniuk and Zanchó Teaches All of the Limitations of Claims 1-20

1. Overview of Demeniuk

381. Demeniuk is directed to “[a] vehicle computing system enabling one or more processors to establish a communication connection with at least one of a plurality of handheld computing devices within a vehicle while enabling and determining infotainment control based on the location of the handheld device in the vehicle.” (Demeniuk, Ex. 1023, Abstract.)

382. Demeniuk discloses “a vehicle infotainment system implementing a user-interactive vehicle information display system[.]” (Demeniuk, Ex. 1023, 3:7-9, Fig. 1.)



Demeniuk, Ex. 1023, Fig. 1

383. Demeniuk discloses that “a processor 3 controls at least some portion of the operation of the vehicle-based computing system. Provided within the vehicle, the processor allows onboard processing of commands and routines. Further, the processor is connected to both non-persistent 5 and persistent storage 7.” (Demeniuk, Ex. 1023, 4:21-26.)

384. Demeniuk discloses infotainment features that a vehicle occupant may communicate with and adjust using their handheld/nomadic device:

FIG. 4 is an example of embodiments **disclosing several infotainment features an occupant may communicate with using their nomadic device connected to the vehicle-based computer**. The infotainment features that a customer may control using their nomadic device 400

may include, but is not limited to, navigation directions, destination information, vehicle climate controls, seat adjustment, and music selection. The infotainment features may be shared or adjusted by the customer's nomadic device interfacing with the VCS. The driver may set restrictions on what options or features an occupant may have access to control, adjust, download and/or share.

(Demeniuk, Ex. 1023, 12:37-48.)

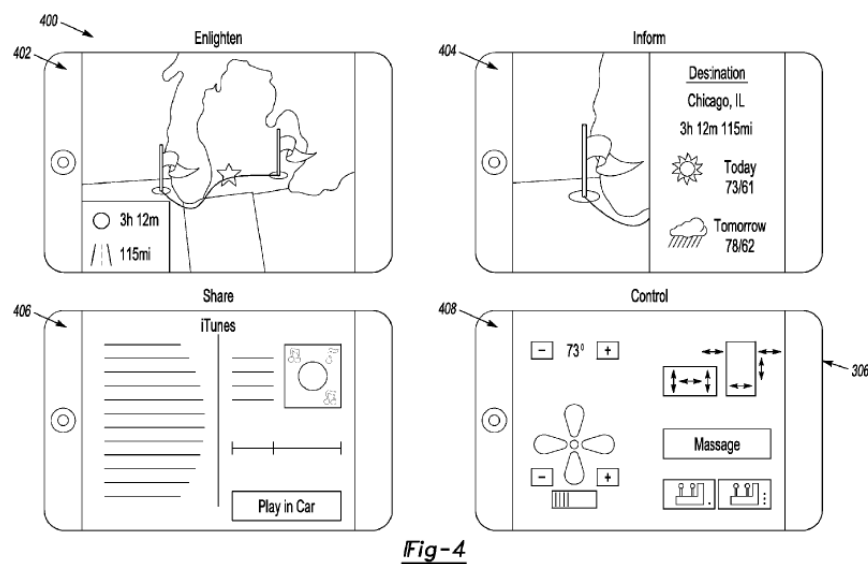


Fig-4

Demeniuk, Ex. 1023, Fig. 1

385. Demeniuk discloses controlling vehicle features with handheld/nomadic devices:

“At step 510, after synchronization, the occupant may select a vehicle feature to control. Using their handheld device, the occupant may have control of vehicle systems, including but not limited to, climate control, navigation command, and/or media selection.”

(Demeniuk, Ex. 1023, 14:16-20.)

386. Demeniuk further discloses enabling and limiting infotainment control based on a detected location of handheld/nomadic devices:

The system may determine if the at least one of a plurality of handheld computing devices is a driver or non-driver handheld computing device based on a detected location of the communication connection. The system may determine that the at least one of a plurality of handheld computing devices is a non-driver handheld computing device based on the detected location, therefore enabling infotainment control from the non-driver handheld device. The system may determine that the at least one of a plurality of handheld computing devices is a driver handheld computing device based on the detected location, therefore limiting infotainment control from the driver handheld device.

(Demeniuk, Ex. 1023, Abstract.)

387. Demeniuk discloses restricting control of the vehicle features to one or more of the handheld/nomadic devices: “At step 602, the driver may set passenger restrictions to prevent the occupant from controlling certain vehicle features with their nomadic device. For example, the driver may restrict the passenger from operating media controls like volume adjustment using their smart phone.”

(Demeniuk, Ex. 1023, 14:46-50.)

388. Demeniuk discloses “whether or not the nomadic device belongs to the driver using one or more methods at step 914.” (Demeniuk, Ex. 1023, 19:22-23.)

Demeniuk discloses detecting occupant location via connected devices: At step 902,

the VCS may detect a nomadic device using wireless technology and/or by detecting a connection using a physical port. The wireless technology may include, but is not limited to BLUETOOTH technology, WiFi, and/or WiMax network. The VCS may determine if the detected mobile device may have been previously paired with the system at step 904. In another embodiment, the system may not require pairing of the nomadic device. (Demeniuk, Ex. 1023, 18:41-48.) Demeniuk discloses determining an amount of control that is allowed to a particular user and limiting control of certain features:

At step 920, if the detected nomadic device belongs to a non-driver, **the system may determine the amount of control that may be allowed to the non-driver nomadic device. The driver may limit certain vehicle features and functions that a non-driver nomadic device may control including, but not limited to entertainment control, climate control, and/or navigation control.** For example, the driver may deny vehicle infotainment control from a backseat passenger's non-driver nomadic device while allowing control to another detected passenger nomadic device sitting in the front passenger seat in a vehicle. **The driver and/or vehicle owner may allow or limit a passenger control of vehicle features and function using their nomadic device at step 922. The driver may use the vehicle infotainment system interface to adjust settings and/or limits on a passenger's nomadic device remote control access of the infotainment system.** If the driver input rejects a passenger's nomadic

device to communicate with one or more vehicle features, the passenger's device may end communication with the VCS at step 926.

(Demeniuk, Ex. 1023, 19:38-56.)

389. Demeniuk discloses establishing priority control between different users:

The communication manager may assign a priority for each device connected to the VCS. **Priority of which handheld device may communicate with a vehicle function or feature when multiple devices are trying to communicate at the same time may be configured by the driver or vehicle owner.** An example of priority of which handheld device may override the other devices connected to the VCS may be set to enforce the front passenger to have priority over the back seat passengers. Another example of priority being configured when multiple handheld devices are communicating with the VCS may be that if the driver's handheld device is commanding a playlist, the passengers may not override that infotainment function.

(Demeniuk, Ex. 1023, 16:2-14.)

It must be stated that **the VCS may prioritize passenger's nomadic device commanded controls requested allowing a ranking between the multiple nomadic devices connected to the VCS at the same time.** The prioritization may be configured by the driver, owner or other passengers communicating with the VCS.

(Demeniuk, Ex. 1023, 15:35-41.)

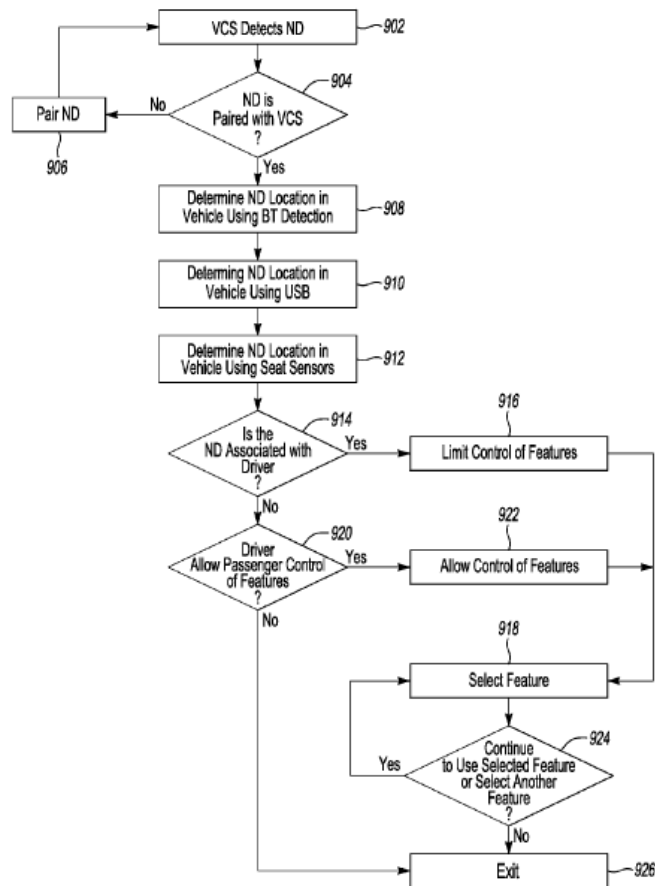


Fig-9

Demeniuk, Ex. 1023, Fig. 9

2. Rationale to Combine

390. I have described Zanchio in detail in Ground 1 of this declaration. See *e.g.*, VII.A.1.

391. It would have been obvious to a POSA to modify the VCS of Demeniuk with Zanchio to store the limits and restrictions associated with specific users (e.g., drivers and non-drivers) in memory, so that the limits or restrictions may be applied by the VCS in Demeniuk once a handheld/nomadic device is identified as driver or

non-driver based on a previous pairing.

392. As explained in detail below, a POSA would have further understood that Zanchi and Demeniuk describe complementary technologies in the same field of automotive infotainment systems that address similar problems, regarding existing infotainment systems being cumbersome and limited with respect to the interaction between vehicle occupants and the vehicle infotainment systems, and are combinable.

a. Same Field of Endeavor

393. Demeniuk and Zanchi disclose systems that allow multiple users to control an infotainment system in a vehicle and prioritize/rank control between the users to resolve conflicts that may stem from multiple users controlling the infotainment system. For example, Demeniuk discloses “[t]he infotainment features may be shared or adjusted by the customer's nomadic device interfacing with the VCS. The driver may set restrictions on what options or features an occupant may have access to control, adjust, download and/or share.” (Demeniuk, Ex. 1023, 12:44–48.)

394. Demeniuk further discloses controlling/adjusting infotainment features based on user preferences, and assigning priority for control over the infotainment features between multiple users based on seating position of the users in the vehicle:

The communication manager may assign a priority for each device connected to the VCS. Priority of which handheld device may communicate with a vehicle function or feature when multiple devices are trying to communicate at the same time may be configured by the driver or vehicle owner. An example of priority of which handheld device may override the other devices connected to the VCS may be set to enforce the front passenger to have priority over the back seat passengers. Another example of priority being configured when multiple handheld devices are communicating with the VCS may be that if the driver's handheld device is commanding a playlist, the passengers may not override that infotainment function.

(Demeniuk, Ex. 1023, 16:2–14.)

395. Zanchó also discloses a user interface system 150 that controls various systems in a vehicle, including infotainment systems:

The user interface system 150 can include various controls for other components of the vehicle 31 and can include a navigation system. The entertainment system 160 can include a radio, a video display, a DVD player, etc.

(Zanchó, Ex. 1022, [0041].)

396. Zanchó discloses that “[t]he controller 100 includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80. (Zanchó, Ex. 1022, [0046].) Zanchó further discloses that “the preference handler 112 . . . uses one or more preference arbitration schemes 134 to handle any conflicts in the preferences.” (Zanchó, Ex. 1022, [0049].)

b. Solves Similar Problems

397. Demeniuk and Zanchi address the problem of existing infotainment systems being cumbersome and limited with respect to the interaction between vehicle occupants and the vehicle infotainment systems.

398. Demeniuk, for example, explains that prior art infotainment systems are cumbersome and overly limit user control:

User interaction by a vehicle occupant with current vehicle computing systems can sometimes be cumbersome. For example, “core” controls, controls that are most commonly used, may not always be easily found and/or accessible to all occupants of the vehicle. As another example, the display may present items in such a manner that the vehicle occupant(s) may need to look at the display to select an operation. At times, this may even lead to an unpleasant riding experience for a passenger in the back seat since they often have zero interaction with the vehicle or its systems. Additionally, many vehicles are only equipped with one core controls display, usually located in the center stack.

Many passenger interactions with vehicle controls are often limited to power window control or climate adjustment. Front-seat passengers may be able to interact with center stack-mounted touchscreens, however these often enter reduced functionality mode while driving, rendering many of their features useless. As a result, passengers often look up information on their mobile phones, tablets, or other devices and attempt to verbally relay that information to the driver. **The integration of handheld devices with the vehicle-based computing**

system and core operations of the vehicle infotainment system may allow limitless interaction with device applications and the vehicle to improve the passenger riding experience.

(Demeniuk, Ex. 1023, 3:64–4:9.)

399. Zanchó explains that prior art infotainment systems require users to program their preferences each time a new device is encountered:

Typically, users must program a device with their preferences. Consequently, each time a user encounters a new device, she must program her preferences into the device or simply use the preprogrammed forms of user interaction established in the device by default. As a solution to this problem, U.S. Pat. Nos. 5,633,484 and 5,814,798, which are incorporated herein by reference in their entireties, disclose techniques for establishing and managing preferences for a user. Using the disclosed techniques, a user can readily transport her preferences to various devices, such as telephones, automobiles, and computers, which she uses and encounters.

(Zanchó, Ex. 1022, [0003].)

400. Zanchó further explains that these programming problems increase when there is a group of users that interact with the domain or device:

In a network, various devices and users can interact with one another in an environment. One type of network is a seamless mobility network that **allows devices of various users to interact seamlessly in a plurality of environments or domains, such as a vehicle, a home, an office, etc. Typically, the users in the seamless mobility network**

have different preferences. When a group of users interacts together in a domain, conflicts may arise when there are conflicting preferences applicable to current circumstances in the domain. For example, two users in a vehicle may have different preferences for what volume and equalization levels should be used to deliver music in a vehicle. Thus, determining what volume and equalization levels to use in the vehicle presents a problem if both users attempt to apply their particular preferences to devices in the vehicle.

(Zancho, Ex. 1022, [0004].)

401. Demeniuk further provides a solution for conflicts that may arise between users:

Another example of determining occupant location within the passenger compartment of the vehicle may include, but is not limited to, near field communication, while assigning priority to each paired wireless device. **Assigning priority to each handheld device connected to the VCS may determine which device controls a certain feature or function.**

(Demeniuk, Ex. 1023, 7:43–59.)

c. Demeniuk Contemplates Modification

402. Furthermore, Demeniuk specifically contemplates modification to the embodiments disclosed therein:

While exemplary embodiments are described above, it is not intended that these embodiments describe all possible forms of the invention. Rather, the words used in the specification are words of description

rather than limitation, and it is understood that various changes may be made without departing from the spirit and scope of the invention. Additionally, the features of various implementing embodiments may be combined to form further embodiments of the invention. (Demeniuk, Ex. 1023, 19:66–20:6.)

d. Motivation to Combine Demeniuk with Zanchi

403. Demeniuk does not expressly disclose storing user profiles. However, Demeniuk discloses that “[t]he driver and/or vehicle owner may allow or **limit** a passenger control of vehicle features and function using their nomadic device.” (Demeniuk, Ex. 1023, 19:48-50.) Demeniuk further discloses that “the driver may set passenger restrictions to prevent the occupant from controlling certain vehicle features with their nomadic device.” (Demeniuk, Ex. 1023, 14:46-48.)

404. Demeniuk discloses that the passenger limits and restrictions are applied once a handheld/nomadic device is identified as either a driver or non-driver passenger handheld/nomadic device. Therefore, Demeniuk suggests that “*user profile[s]*” [e.g., passenger restrictions] associated with a “*user*” [e.g. driver or non-driver] are stored in memory so that once the above identification is made the preferences can be implemented accordingly.

405. Demeniuk expressly discloses limits and restrictions (e.g., *user profile[s]*).

406. Zanchi further discloses preference profiles 132 (“*user profiles*”) for

storing user preferences (“*infotainment information*”) associated with particular users in memory 130 where the preferences are accessed by a preference handler 112 for arbitrating between the preferences:

The controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130 using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.

(Zancho, Ex. 1022, [0045].)

The device handler 112 uses an arbitration scheme 134 to determine from the preferences stored in the profiles 132 what genre to use for a station of the satellite radio so that the selected station satisfies the preferred genres of the users 80 in the vehicle domain 30.

(Zancho, Ex. 1022, [0054].)

407. A POSA would have modified Demeniuk’s VCS to include Zancho’s strategy of storing and accessing the passenger restrictions, so that the restrictions may be applied by the VCS in Demeniuk once a handheld/nomadic device is identified as corresponding to a particular user.

408. This allows the system in Demeniuk to operate as intended and apply the limitations/restrictions once a handheld/nomadic device is identified. If the limits or restrictions were not stored in memory and not communicated to the VCS in

Demeniuk when a device is identified, the passenger restrictions would not be applied each time a device is paired to the VCS, which is contrary to the operation of the system described in Demeniuk. Such a modification is simply applying a known technique to a known device to yield predictable results, and in this case to yield the intended results. Furthermore, such a modification improves the system by ensuring that owner's restrictions are applied under all conditions even if the owner and/or the other passengers were to change positions within the vehicle.

e. A POSA Would Have Understood How to Combine Demeniuk with Zanchó

409. A POSA would have understood how to combine Demeniuk and Zanchó with a reasonable expectation of success. In terms of hardware modifications, a POSA would have modified Demeniuk's memory and processor to store and access the limits and restrictions in user profiles as disclosed in Zanchó, so that the limits or restrictions may be applied by the VCS in Demeniuk once a handheld/nomadic device is identified as corresponding to a particular user based on a previous pairing.

410. Demeniuk discloses "[t]he driver may limit certain vehicle features and functions that a non-driver nomadic device may control including, but not limited to entertainment control, climate control, and/or navigation control." (Demeniuk, Ex. 1023, 19:38–56.) Demeniuk further discloses that "the driver may set passenger restrictions to prevent the occupant from controlling certain vehicle features with

their nomadic device.” Demeniuk also discloses that “[t]he VCS may determine if the detected mobile device may have been previously paired with the system at step 904. (Demeniuk, Ex. 1023, 18:45–47.).

411. Zanchi discloses preference profiles 132 (“user profiles”) for storing user preferences (“infotainment information”) associated with particular users in memory 130. (Zanchi, Ex. 1022, [0045].)

412. Modifying Demeniuk with Zanchi to store and access the limits and restrictions, so that the limits or restrictions are applied by the VCS in Demeniuk once a handheld/nomadic device is identified as corresponding to a particular user based on a previous pairing, improves the system in Demeniuk by ensuring that the limitations and restrictions are applied to the correct users, even when a specific user changes from a driver to a non-driver, or vice versa, relative to a previous pairing.

413. A POSA would have understood that storing and accessing the limits and restrictions in and from user profiles is an application of a known technique (storing and accessing data related to specific users) to a known method (applying set limits and restrictions to specific users) to yield predictable results, e.g., more accurate application of the limits and restrictions to specific users.

3. Independent Claim 1

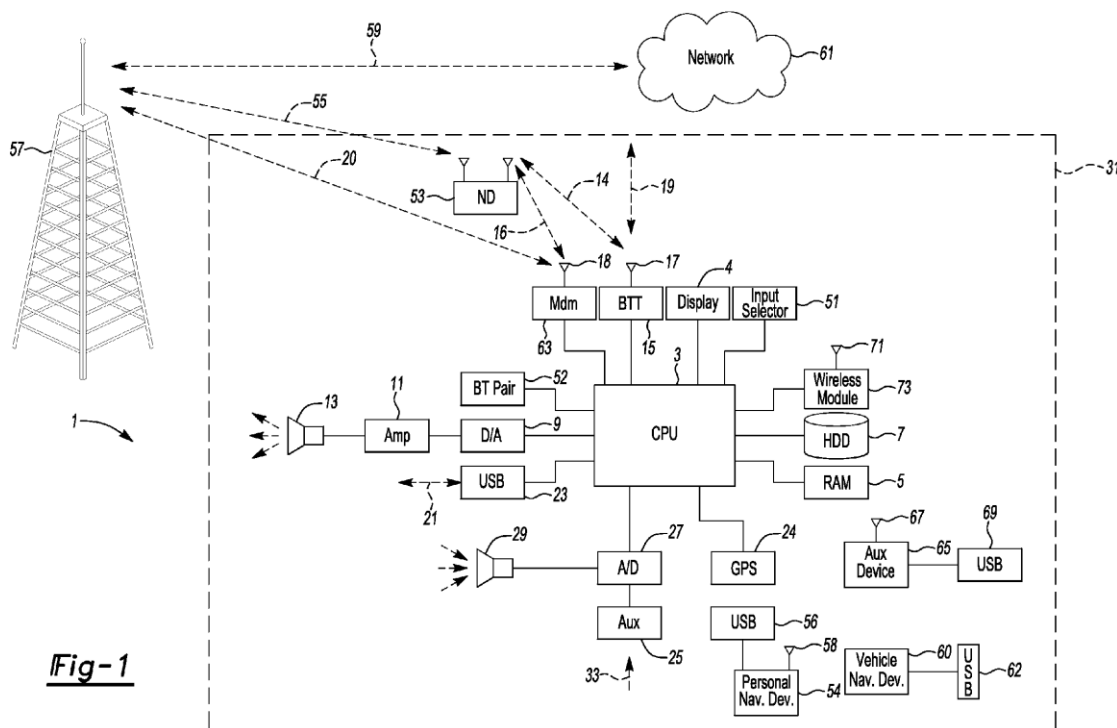
414. I have given each of the limitations of claim 1 a unique numerical identifier, as shown in the chart below:

U.S. Patent No. 9,147,297	
1[pre]. A method, comprising:	
[1a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;	
[1b] detecting at least one infotainment system associated with the user; and	
[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:	
[1d] determining an access priority of the user, and	
[1e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:	
[1f] determining a second access priority of a second user associated with the infotainment system; and	
[1g] comparing the access priority of the user to the second access priority of the second user,	
[1h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and	

[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

1[pre]. A method, comprising:

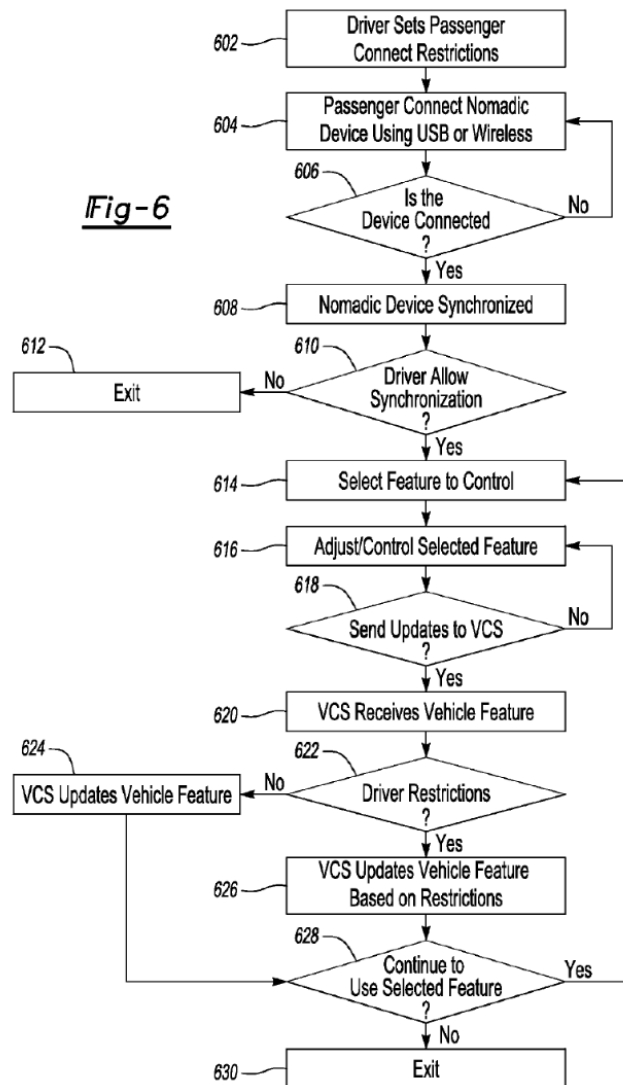
415. Demeniuk discloses “a vehicle infotainment system implementing a user-interactive vehicle information display system[.]” (Demeniuk, Ex. 1023, 3:7-9.) With reference to Figure 1 below, Demeniuk discloses a vehicle based computing system (VCS) 1 that includes a processor 3 that is connected to memory, including both non-persistent 5 and persistent storage 7. (Demeniuk, Ex. 1023, 4:10-11, 21-26.)



Demeniuk, Ex. 1023, Fig. 1

416. With further reference to Figure 6, Demeniuk discloses “a flow chart

illustrating an example method of a driver restricting a passenger's nomadic device control of vehicle features[,]” and the VCS enforcing the restrictions. (Demeniuk, Ex. 1023, 14:42-44.)



Demeniuk, Ex. 1023, Fig. 6

417. With reference to Figure 9, Demeniuk discloses “a flow chart illustrating an example method of a vehicle computing system [VCS] detecting

occupant location using connected devices[,]” and then limiting vehicle controls based on the location of the nomadic connected devices. (Demeniuk, Ex. 1023, 3:36-38, 14:42-44.)

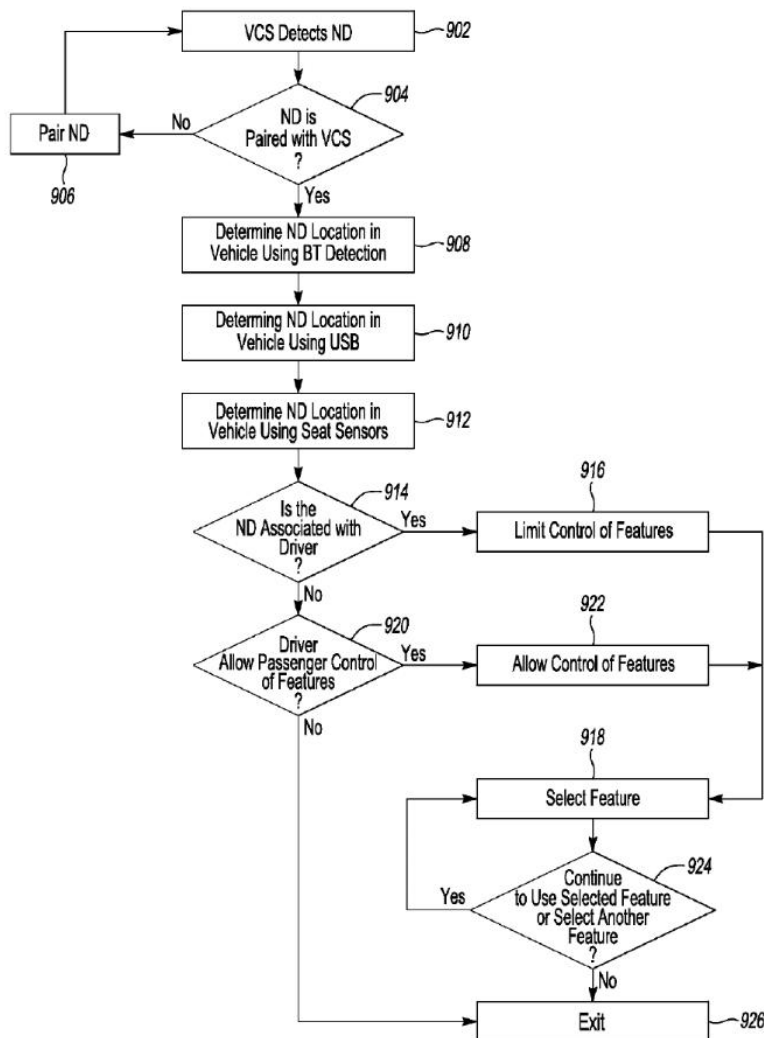


Fig-9

Demeniuk, Ex. 1023, Fig. 9

418. Thus, Demeniuk discloses “[a] method.”

Fig. 1

Demeniuk, Ex. 1023, Fig. 1

419. Demeniuk discloses that the VCS establishes communication connections with multiple handheld/nomadic computing devices²⁸ and determines if the handheld/nomadic devices are driver or non-driver devices:

A vehicle computing system enabling one or more processors to establish a communication connection with at least one of a plurality of handheld computing devices within a vehicle while enabling and determining infotainment control based on the location of

²⁸ Demeniuk uses the terms “handheld device,” “handheld computing device,” “nomadic device,” and “mobile device” interchangeably.

the handheld device in the vehicle. **The system may determine if the at least one of a plurality of handheld computing devices is a driver or non-driver handheld computing device based on a detected location of the communication connection.** The system may determine that the at least one of a plurality of handheld computing devices is a non-driver handheld computing device based on the detected location, therefore enabling infotainment control from the non-driver handheld device. The system may determine that the at least one of a plurality of handheld computing devices is a driver handheld computing device based on the detected location, therefore limiting infotainment control from the driver handheld device.

(Demeniuk, Ex. 1023, Abstract.)

420. Demeniuk further discloses that the location of the handheld/nomadic device may be detected wirelessly, and that the location is used to distinguish between front seat passengers and rear seat passengers:

Using wireless connection (e.g., BLUETOOTH technology), the VCS may detect a non-driver handheld device by using many methods including, but not limited to, wireless zones within the passenger compartment of the vehicle. Setting up wireless zones within the passenger compartment may allow the VCS to identify locations of the handheld device communicating with the VCS. For example, **if the handheld device is detected as being in the front passenger seat, the VCS may allow the passenger to access more functions than someone sitting in the backseat.** Another example of determining occupant location within the passenger compartment of the vehicle may

include, but is not limited to, near field communication, while assigning priority to each paired wireless device. Assigning priority to each handheld device connected to the VCS may determine which device controls a certain feature or function.

(Demeniuk, Ex. 1023, 7:34–49.)

421. With further reference to Figure 9, Demeniuk discloses that “the VCS may detect a nomadic device using wireless technology and/or by detecting a connection using a physical port[.] [and] that [t]he wireless technology may include, but is not limited to BLUETOOTH technology, WiFi, and/or WiMax network.”

(Demeniuk, Ex. 1023, 18:41–45.)

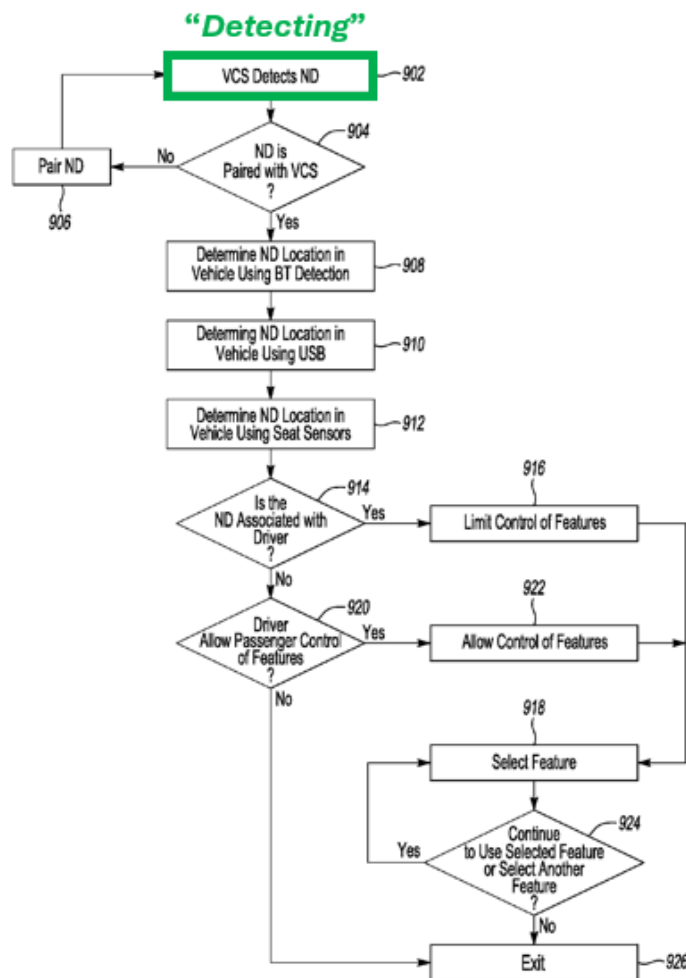


Fig-9

Demeniuk, Ex. 1023, Fig. 9 (Annotated)

422. Demeniuk discloses that a user may control a variety of infotainment features using their nomadic device:

FIG. 4 is an example of embodiments disclosing several infotainment features an occupant may communicate with using their nomadic device connected to the vehicle-based computer. **The infotainment features that a customer may control using their nomadic device 400 may include, but is not limited to, navigation directions,**

destination information, vehicle climate controls, seat adjustment, and music selection. The infotainment features may be shared or adjusted by the customer's nomadic device interfacing with the VCS. The driver may set restrictions on what options or features an occupant may have access to control, adjust, download and/or share.

(Demeniuk, Ex. 1023, 12:37–48.)

423. Demeniuk discloses controlling vehicle features with handheld/nomadic devices, including navigation and media selections:

At step 510, after synchronization, the occupant may select a vehicle feature to control. Using their handheld device, the occupant may have control of vehicle systems, including but not limited to, climate control, navigation command, and/or media selection.” (Demeniuk, Ex. 1023, 14:16–20.)

424. Demeniuk further discloses that “[t]he VCS **may determine if the detected mobile device may have been previously paired with the system** at step 904. In another embodiment, the system may not require pairing of the nomadic device. (Demeniuk, Ex. 1023, 18:45–48.)

425. Demeniuk further discloses determining whether or not the handheld/nomadic device belongs to a driver or non-driver based on a previous pairing of the system.

[T]he system may determine whether or not the nomadic device belongs to the driver using one or more methods at step 914. **The one or more methods to determine whether a nomadic device belongs**

to a driver may include, but is not limited to, previous pairing of the nomadic device, location of the nomadic device in the vehicle cabin using wireless detection, and/or the physical connection of the nomadic device using an assigned USB port.

(Demeniuk, Ex. 1023, 19:21–29.)

426. Demeniuk discloses that if it is determined that the handheld/nomadic device belongs to a driver, then the VCS may allow limited control of features and functions from that device:

At step 916, **if the nomadic device belongs to a driver, then the VCS may allow limited control of features and functions from that device. The limited control of features and functions may include ‘locking out’ one or more inputs to vehicle infotainment controls while the vehicle is moving** including, but not limited to, navigation control inputs, radio selections, and/or one or more applications based off the nomadic device communicated to the VCS.

(Demeniuk, Ex. 1023, 19:30–37.)

427. A POSA would have understood these restrictions to be “*a user profile associated with a user*” who is the driver of the vehicle.

428. Demeniuk further discloses that the driver and/or vehicle owner may use the vehicle infotainment system to **limit** certain features that a non-driver handheld/nomadic device may control, including entertainment and navigation features:

At step 920, if the detected nomadic device belongs to a non-driver, the system may determine the amount of control that may be allowed to the non-driver nomadic device. **The driver may limit certain vehicle features and functions that a non-driver nomadic device may control including, but not limited to entertainment control, climate control, and/or navigation control.** For example, the driver may deny vehicle infotainment control from a backseat passenger's non-driver nomadic device while allowing control to another detected passenger nomadic device sitting in the front passenger seat in a vehicle. **The driver and/or vehicle owner may allow or limit a passenger control of vehicle features and function using their nomadic device at step 922. The driver may use the vehicle infotainment system interface to adjust settings and/or limits on a passenger's nomadic device remote control access of the infotainment system.** If the driver input rejects a passenger's nomadic device to communicate with one or more vehicle features, the passenger's device may end communication with the VCS at step 926.

(Demeniuk, Ex. 1023, 19:38–56.)

429. Demeniuk discloses that the driver may **restrict** certain features that a non-driver handheld/nomadic device may control, including entertainment features:

At step 602, **the driver may set passenger restrictions to prevent the occupant from controlling certain vehicle features with their nomadic device.** For example, the driver may restrict the passenger from operating media controls like volume adjustment using their smart phone.

(Demeniuk, Ex. 1023, 14:46–53.)

430. A POSA would have understood these passenger limitations and restrictions to be “*a user profile associated with a user*” who is a passenger of the vehicle.

431. Demeniuk discloses “*detecting*” handheld/nomadic devices associated with vehicle occupants (e.g., drivers and non-drivers) and that the VCS facilitates limited or restricted control of “*infotainment system[s]*” (e.g., entertainment and navigation systems) from particular handheld/nomadic devices (e.g. a non-driver) based on limits or restrictions (e.g., *user profile[s]*) set by the vehicle driver and/or owner. Therefore, these limits and restrictions in Demeniuk include “*infotainment information*” with regard to properly setting the desired user limits or restrictions for controlling of the “*infotainment system[s]*”.

432. Demeniuk further suggests that the set limits or restrictions (e.g., *user profile[s]*) are stored in memory, particularly with respect to the vehicle owner set limits and restrictions. A POSA would have understood that in order for the VCS to execute the limits or restrictions after they have been set by the vehicle owner, the limits and restrictions must be retrieved from memory.

433. Demeniuk expressly discloses limits and restrictions (e.g., *user profile[s]*).

434. Zanchi further discloses preference profiles 132 for storing user

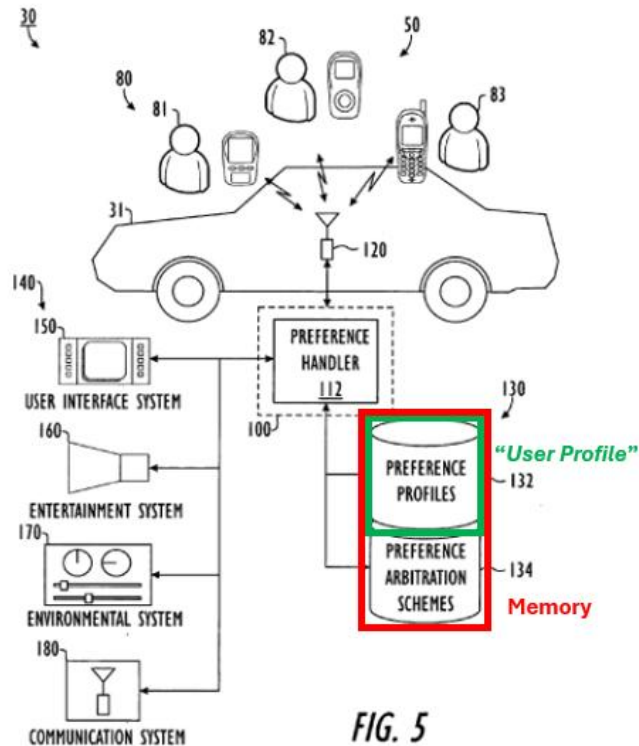
preferences (“*infotainment information*”) associated with particular users in memory 130 where the preferences are accessed by a preference handler 112 for arbitrating between the preferences:

The controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130 using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.

(Zancho, Ex. 1022, [0045].)

The device handler 112 uses an arbitration scheme 134 to determine from the preferences stored in the profiles 132 what genre to use for a station of the satellite radio so that the selected station satisfies the preferred genres of the users 80 in the vehicle domain 30.

(Zancho, Ex. 1022, [0054].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

435. A POSA would have modified Demeniuk with Zancho to store and access the limits and restrictions (“*user profile[s]*”) associated with particular users, including the “*infotainment information*” for applying the limits and restrictions for controlling the “*infotainment system*”, so that the limits or restrictions may be applied by the VCS in Demeniuk once a handheld/nomadic device is identified as corresponding to a particular user.

436. This allows the system in Demeniuk to operate as intended and apply the limitations/restrictions once a handheld/nomadic device associated with a particular user is identified. If the limits or restrictions were not stored in memory and not communicated to the VCS in Demeniuk when a device is identified, the

limits or restrictions would not be applied each time a device is paired to the VCS, which is contrary to the operation of the system described in Demeniuk. Such a modification is simply applying a known technique to a known device to yield predictable results, and in this case to yield the intended results. Furthermore, such a modification improves the system by ensuring that owner's restrictions are applied under all conditions even if the owner and/or the other passengers were to change positions within the vehicle.

437. Accordingly, Demeniuk combined with Zanchi teaches “*detecting a user profile associated with a user, the user profile having infotainment information stored therein[.]*”

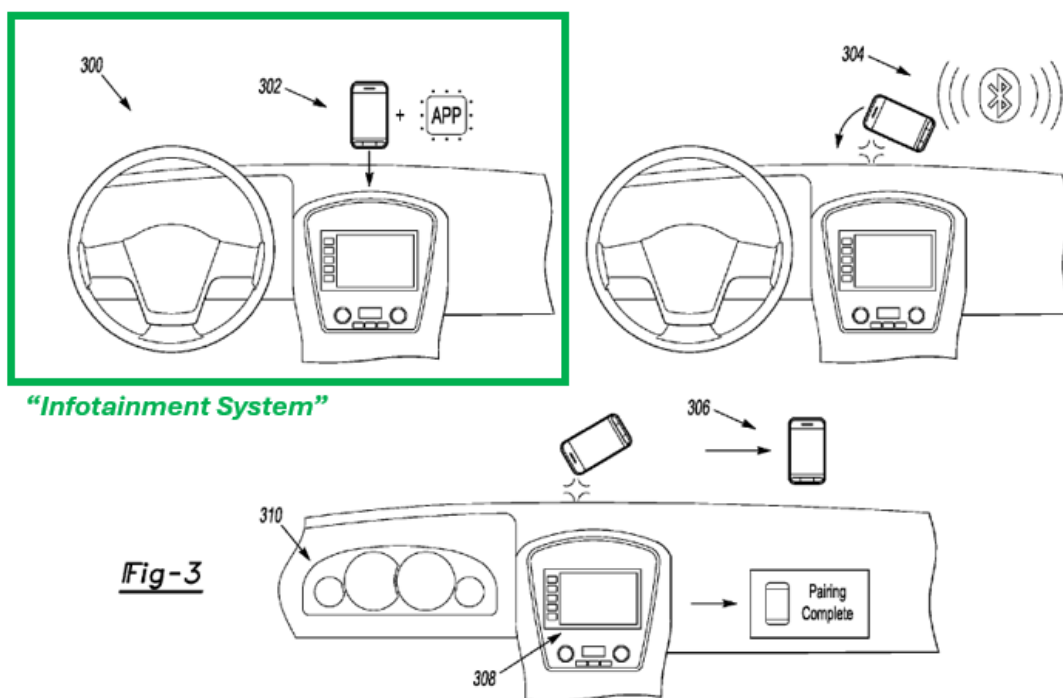
[1b] detecting at least one infotainment system associated with the user; and

438. Demeniuk discloses using an application on a handheld/nomadic device to configure specific features of a vehicle, including an infotainment system 300:

FIG. 3 is an illustrative example of configuring the infotainment system offline and synchronizing the configuration with the vehicle before a driving event. This includes configuration of the infotainment system 300 when a driver develops a favorable configuration offline with a handheld device using an application, then pushes the configuration to the VCS using a driver-only connection point. The driver may configure specific features or function to display when driving the vehicle by using an application on a

nomadic device offline and to later synchronize the configuration to the VCS. The offline application may include, but not limited to, configuring of the instrument panel, centralized control display, seat position, and ambient lighting within the vehicle. The configuration may include the display of data on the instrument panel, for example, the presentation of fuel economy data or navigation information.

(Demeniuk, Ex. 1023, 11:54-12:2.)



Demeniuk, Ex. 1023, Fig. 3 (Annotated)

439. Demeniuk discloses that the passenger's smart phone (e.g., handheld/nomadic device) may select media controls and push a playlist from their smart phone to the VCS to play over the vehicle's entertainment system:

At step 614, **the passenger may select a vehicle feature to control once the nomadic device has been synchronized with the VCS.** For example, the passenger's smart phone may select media controls

and push a playlist form [sic from] their smart phone to the VCS to play over the vehicle's entertainment system. The passenger may adjust and control the selected vehicle feature that may include, but not limited to, selecting the song to play, controlling music volume, and/or adjusting tuning features of the entertainment system at step 616.

(Demeniuk, Ex. 1023, 15:12-20.)

440. Demeniuk discloses using an application on the handheld/nomadic device to connect with the VCS to configure specific features of a vehicle, including an infotainment system 300. Demeniuk further discloses that the passenger's smart phone may select media controls and push a playlist from their smart phone to the VCS to play over the vehicle's entertainment system (*"infotainment system"*). Furthermore, such a connection between a passenger's smart phone and infotainment system is an example of a bi-directional pairing such as a Bluetooth connection. (See Demeniuk, Ex. 1023, 18:41–45.) As I explained regarding the state of the art, Bluetooth devices may discover one another by one device transmitting inquiry messages to determine if any other devices are in range. Upon receiving an inquiry packet, a device in range may then respond with an inquiry response packet. Once these packets are mutually received, the devices can then exchange additional data (addresses, channel information, etc.) to form a network. Thus, Bluetooth devices carry out this discovery process in order to detect other Bluetooth device in range.

441. In the case of an infotainment system, for example a POSA would have understood that the infotainment system or the mobile device could transmit an inquiry packet, and the other device would transmit the inquiry response packet, and at that point the user device would discover the infotainment system and vice versa. By establishing a system for connecting with the VCS to configure or control the infotainment system that includes a bi-directional pairing, such as Bluetooth, Demeniuk discloses “*detecting [e.g. via Bluetooth] at least one infotainment system associated with the user[.]*”

[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:

442. Demeniuk discloses “detecting occupant location using connected devices.” (Demeniuk, Ex. 1023, 3:36–38.)

443. Demeniuk discloses that the driver may limit certain features that a non-driver handheld/nomadic device may control, including entertainment and navigation features and then the system determines the amount of control allowed to the non-driver at step 920 based on these restrictions (“*information in the user profile*”):

At step 920, if the detected nomadic device belongs to a non-driver, the system may determine the amount of control that may be

allowed to the non-driver nomadic device. The driver may limit certain vehicle features and functions that a non-driver nomadic device may control including, but not limited to entertainment control, climate control, and/or navigation control. For example, the driver may deny vehicle infotainment control from a backseat passenger's non-driver nomadic device while allowing control to another detected passenger nomadic device sitting in the front passenger seat in a vehicle. The driver and/or vehicle owner may allow or limit a passenger control of vehicle features and function using their nomadic device at step 922. The driver may use the vehicle infotainment system interface to adjust settings and/or limits on a passenger's nomadic device remote control access of the infotainment system. If the driver input rejects a passenger's nomadic device to communicate with one or more vehicle features, the passenger's device may end communication with the VCS at step 926.

(Demeniuk, Ex. 1023, 19:38–56.)

444. With further reference to Figure 9, Demeniuk discloses remote infotainment control of vehicle features and function using connected devices:

At step 918, **once the nomadic device is allowed remote infotainment control of vehicle features and/or functions, the user may select one or more vehicle features to control using their device.** The nomadic device may continue to control the selected feature and/or decide to exit and select another vehicle feature at step 924. If the nomadic device user decides that she is done communicating with the VCS, and/or the vehicle system has powered down, the nomadic device may end communication to the system at step 926.

(Demeniuk, Ex. 1023, 19:57–65.)

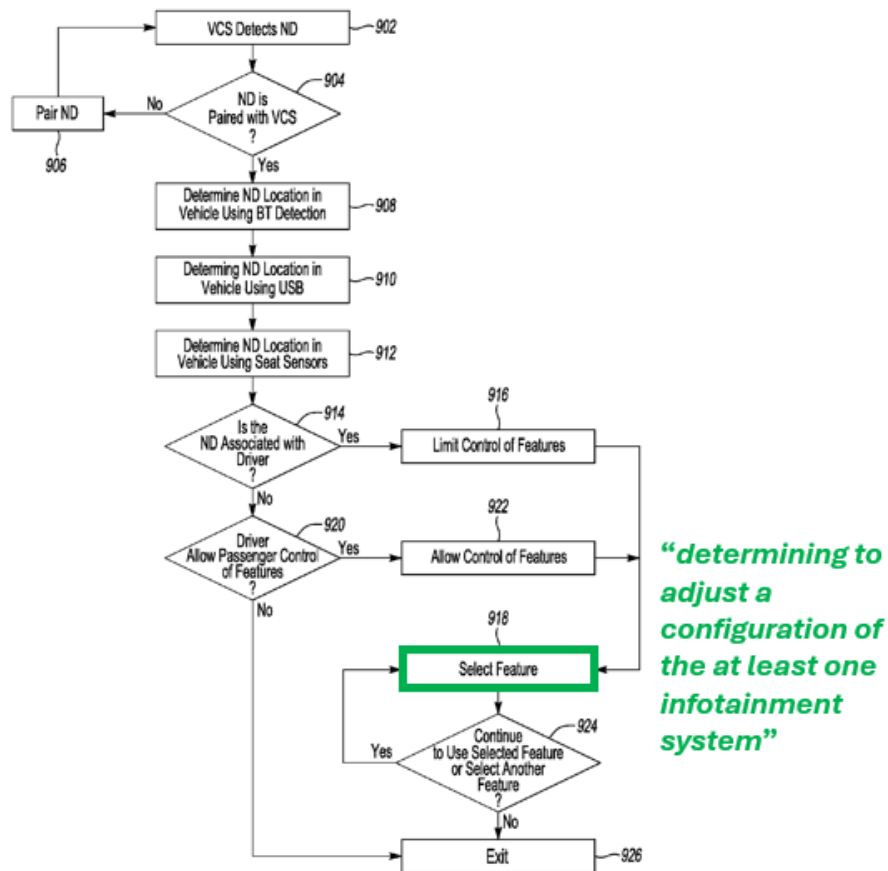


Fig-9

Demeniuk, Ex. 1023, Fig. 9 (Annotated)

445. Demeniuk discloses that if it is determined that the handheld/nomadic device belongs to a driver, then the VCS may allow limited control of features and functions from that device

At step 916, if the nomadic device belongs to a driver, then the VCS may allow limited control of features and functions from that device. The limited control of features and functions may include ‘locking out’ one or more inputs to vehicle infotainment controls while the vehicle is moving including, but not limited to, navigation

control inputs, radio selections, and/or one or more applications based off the nomadic device communicated to the VCS.

(Demeniuk, Ex. 1023, 19:30–37.)

446. Demeniuk further discloses that the driver may limit certain features that a non-driver handheld/nomadic device may control, including entertainment and navigation features:

At step 920, if the detected nomadic device belongs to a non-driver, the system may determine the amount of control that may be allowed to the non-driver nomadic device. **The driver may limit certain vehicle features and functions that a non-driver nomadic device may control including, but not limited to entertainment control, climate control, and/or navigation control.** For example, the driver may deny vehicle infotainment control from a backseat passenger's non-driver nomadic device while allowing control to another detected passenger nomadic device sitting in the front passenger seat in a vehicle. The driver and/or vehicle owner may allow or limit a passenger control of vehicle features and function using their nomadic device at step 922. The driver may use the vehicle infotainment system interface to adjust settings and/or limits on a passenger's nomadic device remote control access of the infotainment system. If the driver input rejects a passenger's nomadic device to communicate with one or more vehicle features, the passenger's device may end communication with the VCS at step 926.

(Demeniuk, Ex. 1023, 19:38–56.)

447. Demeniuk discloses that the driver may restrict certain features that a

non-driver handheld/nomadic device may control, including entertainment features:

At step 602, **the driver may set passenger restrictions to prevent the occupant from controlling certain vehicle features with their nomadic device.** For example, the driver may restrict the passenger from operating media controls like volume adjustment using their smart phone.

(Demeniuk, Ex. 1023, 14:46–50.)

448. Demeniuk discloses that the handheld/nomadic device is allowed remote infotainment control of vehicle features and/or functions (“*determining to adjust a configuration of the at least one infotainment system*”). Demeniuk further discloses facilitating limited or restricted control of the “*infotainment system[s]*” (e.g., entertainment and navigation systems) based on set limits or restrictions (“*user profile[s]*”) for controlling the “*infotainment system[s]*”. As previously stated in my analysis of [1a], the “*user profile[s]*” in Demeniuk include “*infotainment information*” for applying the limits and restrictions for controlling the *infotainment system*. Accordingly, Demeniuk discloses “*determining to adjust a configuration of the at least one infotainment system [e.g., entertainment system] based at least partially on the infotainment information in the user profile[.]*”

[1d] determining an access priority of the user; and

449. With reference to Figure 9, Demeniuk discloses that “the system may determine whether or not the nomadic device belongs to the driver using one or more

methods at step 914” as annotated in red below. (Demeniuk, Ex. 1023, 19:21–23.)

“At step 916, if the nomadic device belongs to a driver, then the VCS may allow limited control of features and functions from that device.” (Demeniuk, Ex. 1023, 19:30-32.)

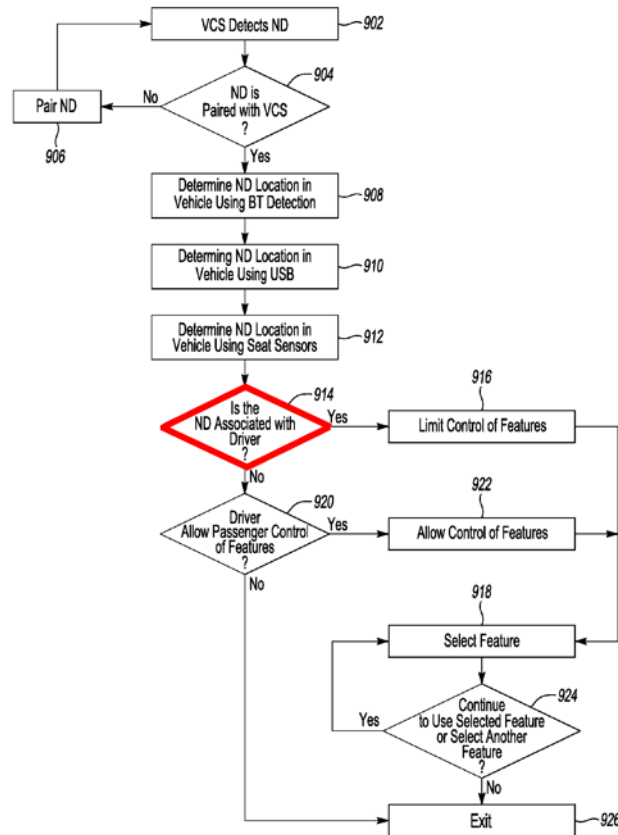


Fig-9

Demeniuk, Ex. 1023, Fig. 9 (Annotated)

450. Demeniuk discloses that “[i]t must be stated that **the VCS may prioritize passenger's nomadic device commanded controls requested allowing a ranking between the multiple nomadic devices** connected to the VCS at the same time. The prioritization may be configured by the driver, owner or other

passengers communicating with the VCS.” (Demeniuk, Ex. 1023, 15:35–41.)

451. With respect to priority, Demeniuk further discloses that a communication manager may assign a priority for each device connected to the VCS:

The communication manager may assign a priority for each device connected to the VCS. Priority of which handheld device may communicate with a vehicle function or feature when multiple devices are trying to communicate at the same time may be configured by the driver or vehicle owner. **An example of priority of which handheld device may override the other devices connected to the VCS may be set to enforce the front passenger to have priority over the back seat passengers.** Another example of priority being configured when multiple handheld devices are communicating with the VCS may be that if the driver's handheld device is commanding a playlist, the passengers may not override that infotainment function.

(Demeniuk, Ex. 1023, 16:2–14.)

452. Demeniuk discloses distinguishing between different users within a vehicle based on a seating position to allow occupants to control features that the driver cannot. Demeniuk further discloses prioritizing control over vehicle functions and features, including infotainment systems, between the handheld/nomadic devices of specific users within the vehicle (e.g., drivers or passengers). Demeniuk further discloses that the VCS limits control of certain features to the driver by “‘locking out’ one or more inputs to vehicle infotainment controls while the vehicle

is moving including, ... navigation control inputs, radio selections, and/or one or more applications[.]” (Demeniuk, Ex. 1023, 19:32-36.) Accordingly, Demeniuk discloses “*determining an access priority of the user[.]*”

[1e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:

453. With reference to Figure 9, Demeniuk discloses allowing and limiting control of vehicle features and functions, including infotainment controls, from the handheld/nomadic devices:

At step 916, if the nomadic device belongs to a driver, **then the VCS may allow limited control of features and functions from that device. The limited control of features and functions may include ‘locking out’ one or more inputs to vehicle infotainment controls** while the vehicle is moving including, but not limited to, navigation control inputs, radio selections, and/or one or more applications based off the nomadic device communicated to the VCS.

(Demeniuk, Ex. 1023, 19:30–37.)

The driver and/or vehicle owner **may allow or limit a passenger control of vehicle features and function** using their nomadic device at step 922. The driver may use the vehicle infotainment system interface to **adjust settings and/or limits on a passenger's nomadic device remote control access of the infotainment system.**

(Demeniuk, Ex. 1023, 19:48–53.)

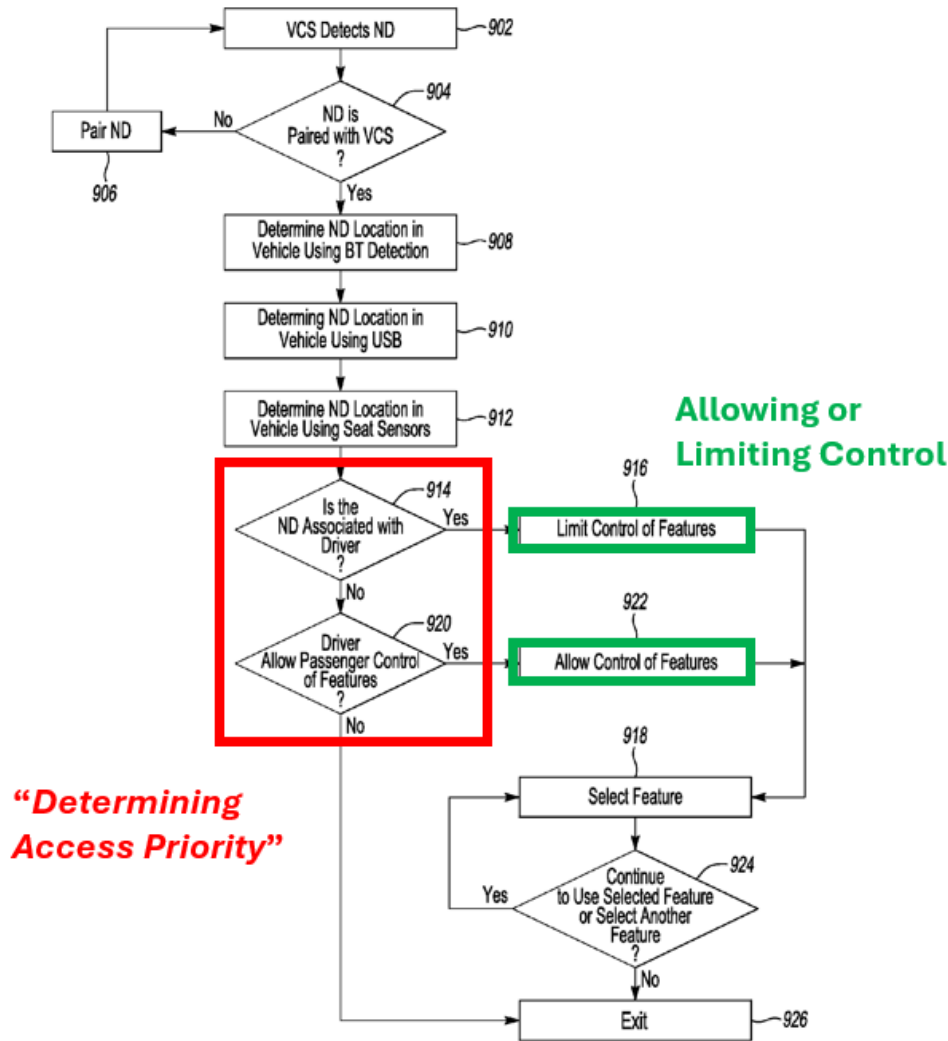


Fig-9

Demeniuk, Ex. 1023, Fig. 9 (Annotated)

454. Demeniuk discloses allowing or limiting control of vehicle features, including features of the infotainment system, based on the whether or not a handheld/nomadic device is associated with a particular user within the vehicle (e.g., the driver, vehicle owner, or passenger). Accordingly, Demeniuk discloses “determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system[.]”

[1f] determining a second access priority of a second user associated with the infotainment system; and

455. Demeniuk discloses that “[i]t must be stated that **the VCS may prioritize passenger's nomadic device commanded controls requested allowing a ranking between the multiple nomadic devices** connected to the VCS at the same time. The prioritization may be configured by the driver, owner or other passengers communicating with the VCS.” (Demeniuk, Ex. 1023, 15:35–41.)

456. Demeniuk further discloses that a front passenger has priority (“*access priority*”) over the back seat passengers, including control over a playlist:

The communication manager may assign a priority for each device connected to the VCS. Priority of which handheld device may communicate with a vehicle function or feature when multiple devices are trying to communicate at the same time may be configured by the driver or vehicle owner. **An example of priority of which handheld device may override the other devices connected to the VCS may be set to enforce the front passenger to have priority over the back seat passengers.** Another example of priority being configured when multiple handheld devices are communicating with the VCS may be that **if the driver's handheld device is commanding a playlist, the passengers may not override that infotainment function.**

(Demeniuk, Ex. 1023, 16:2–14.)

457. Demeniuk further discloses that “[t]he driver may limit certain vehicle features and functions that a non-driver nomadic device may control including, ...

entertainment control, ... and/or navigation control.” (Ex. 1023, 19:40-44.) Therefore, “[a]t step 920, if the [VCS determines that] the detected nomadic device belongs to a non-driver, the system may determine the amount of control that may be allowed to the non-driver nomadic device.” (Ex. 1023, 19:38-40.) Demeniuk discloses prioritizing (“*access priority*”) control over vehicle functions and features, including infotainment function, between the handheld/nomadic devices of multiple-specific users (e.g., drivers and passengers; front seat passenger and rear seat passengers) within the vehicle. Accordingly, Demeniuk discloses “*determining a second access priority of a second user associated with the infotainment system; and[.]*”

[1g] comparing the access priority of the user to the second access priority of the second user,

458. With reference to Figure 9, Demeniuk discloses that the VCS allows, and limits control of vehicle features and functions from the driver’s handheld/nomadic device, including infotainment controls:

At step 916, if the nomadic device belongs to a driver, then the VCS may allow limited control of features and functions from that device. The limited control of features and functions may include ‘locking out’ one or more inputs to vehicle infotainment controls while the vehicle is moving including, but not limited to, navigation control inputs, radio selections, and/or one or more applications based off the nomadic device communicated to the VCS.

(Demeniuk, Ex. 1023, 19:30–37.)

459. Demeniuk further discloses that the VCS allows, and limits control of vehicle features and functions from the passenger's handheld/nomadic device, including infotainment controls:

The driver and/or vehicle owner may allow or limit a passenger control of vehicle features and function using their nomadic device at step 922. The driver may use the vehicle infotainment system interface to adjust settings and/or **limits on a passenger's nomadic device remote control access of the infotainment system.**

(Demeniuk, Ex. 1023, 19:48–53.)

460. Demeniuk further discloses prioritizing infotainment control of one vehicle occupant (e.g., the driver) over other vehicle occupants (e.g., passengers):

Another example of priority being configured when multiple handheld devices are communicating with the VCS may be that **if the driver's handheld device is commanding a playlist, the passengers may not override that infotainment function.**

(Demeniuk, Ex. 1023, 16:11–14.)

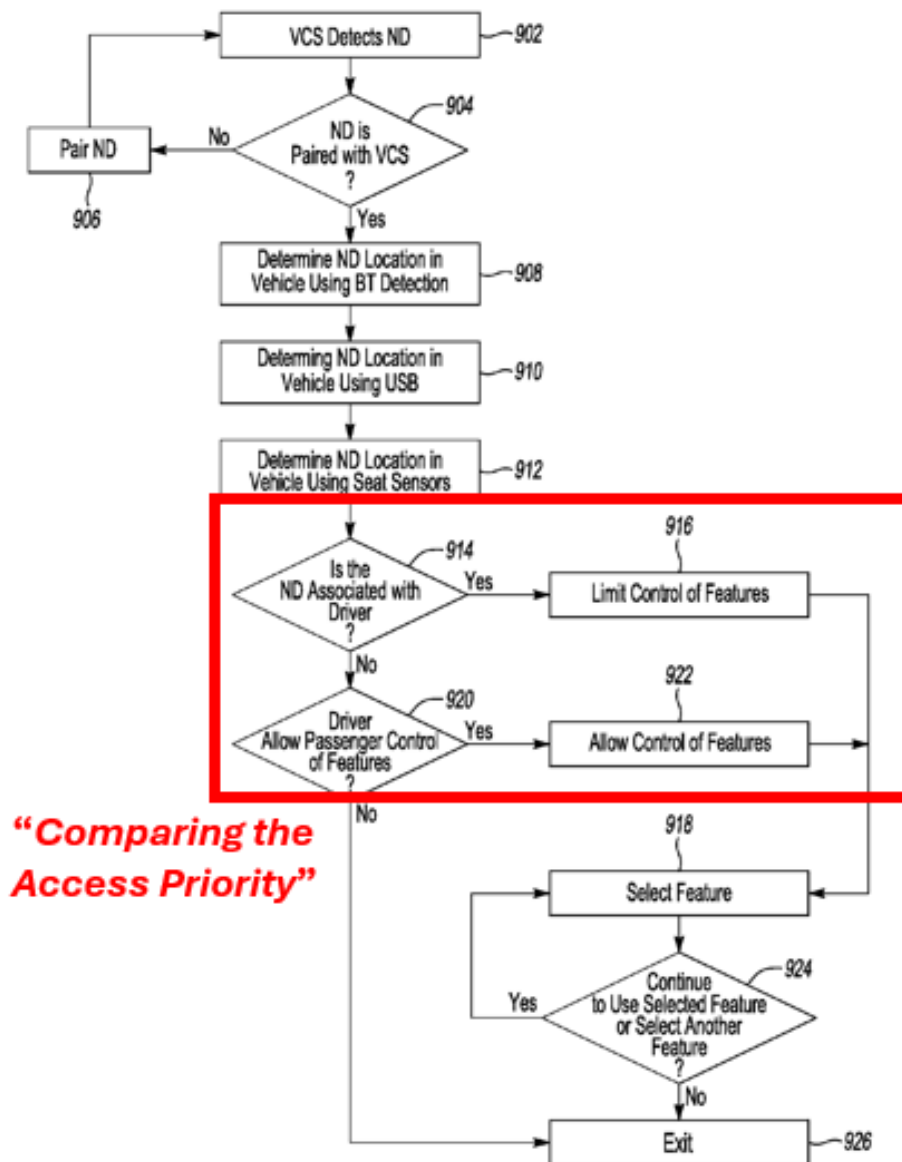


Fig-9

Demeniuk, Ex. 1023, Fig. 9 (Annotated)

461. Demeniuk discloses determining whether the handheld/nomadic devices belong to specific vehicle occupants (e.g., driver or a non-driver), limiting or allowing control of the vehicle features and functions (“*comparing the access priority*”) based on whether the handheld/nomadic devices belong to a specific

vehicle occupant, and prioritizing infotainment control of one vehicle occupant over other vehicle occupants. Accordingly, Demeniuk discloses “*comparing the access priority of the user to the second access priority of the second user[.]*”

[1h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and

462. Demeniuk discloses prioritizing passenger (“*user*”) control over driver (“*second user*”) control of the vehicle functions and features, including infotainment systems:

It must be stated that the VCS may prioritize passenger's nomadic device commanded controls requested allowing a ranking between the multiple nomadic devices connected to the VCS at the same time. The prioritization may be configured by the driver, owner or other passengers communicating with the VCS.

(Demeniuk, Ex. 1023, 15:35–41.)

463. Demeniuk further discloses prioritizing front passenger (“*user*”) control over back seat passenger (“*second user*”) control of the vehicle functions and features, including infotainment systems. Demeniuk alternatively discloses prioritizing driver (“*user*”) control over passenger (“*second user*”) control of the vehicle functions and features, including infotainment systems:

The communication manager may assign a priority for each device connected to the VCS. Priority of which handheld device may

communicate with a vehicle function or feature when multiple devices are trying to communicate at the same time may be configured by the driver or vehicle owner. **An example of priority of which handheld device may override the other devices connected to the VCS may be set to enforce the front passenger to have priority over the back seat passengers.** Another example of priority being configured when multiple handheld devices are communicating with the VCS may be that **if the driver's handheld device is commanding a playlist, the passengers may not override that infotainment function.**

(Demeniuk, Ex. 1023, 16:2–14.)

464. Demeniuk discloses prioritizing control over vehicle functions and features, including infotainment systems, between the handheld/nomadic devices of specific users within the vehicle. For example, if the driver's handheld/nomadic device is commanding a playlist, the passengers may not override that infotainment function. Under this example, the Driver's adjustments to the playlist would be allowed. Accordingly, a POSA would have understood that Demeniuk discloses *“wherein the adjustment [e.g., controlling a playlist] is allowed when the access priority of the user is greater than the second access priority of the second user[.]”*

[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

465. Demeniuk discloses prioritizing passenger (“second user”) control over driver (“user”) control of the vehicle functions and features, including infotainment systems when the vehicle is in motion and the driver control is locked out:

At step 916, if the nomadic device belongs to a driver, then the VCS may allow limited control of features and functions from that device. **The limited control of features and functions may include ‘locking out’ one or more inputs to vehicle infotainment controls while the vehicle is moving** including, but not limited to, navigation control inputs, radio selections, and/or one or more applications based off the nomadic device communicated to the VCS.

(Demeniuk, Ex. 1023, 19:30-37.)

466. Accordingly, a POSA would have understood that Demeniuk discloses “*wherein the adjustment [e.g., controlling a playlist] is prevented when the access priority of the user [driver] is less than the second access priority of the second user [passenger, e.g., when the vehicle is in motion].*”

4. Dependent Claims 2-8 and 17-18

467. Claims 2-8 depend from claim 1, which I understand means that these claims require all of the limitations of claim 1 in addition to their additional limitations. Demeniuk and Zanchi teach all of the limitations of claim 1 as described above.

468. The combination of Demeniuk and Zanchi disclose all the limitations of claim 1 as described above. (See ¶¶ 415-466.).

a. Claim 2

2[pre]. The method of claim 1, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises:

469. Demeniuk discloses “an exemplary block topology of a vehicle infotainment system implementing a user-interactive vehicle information display system[.]” (Demeniuk, Ex. 1023, 3:7-9.)

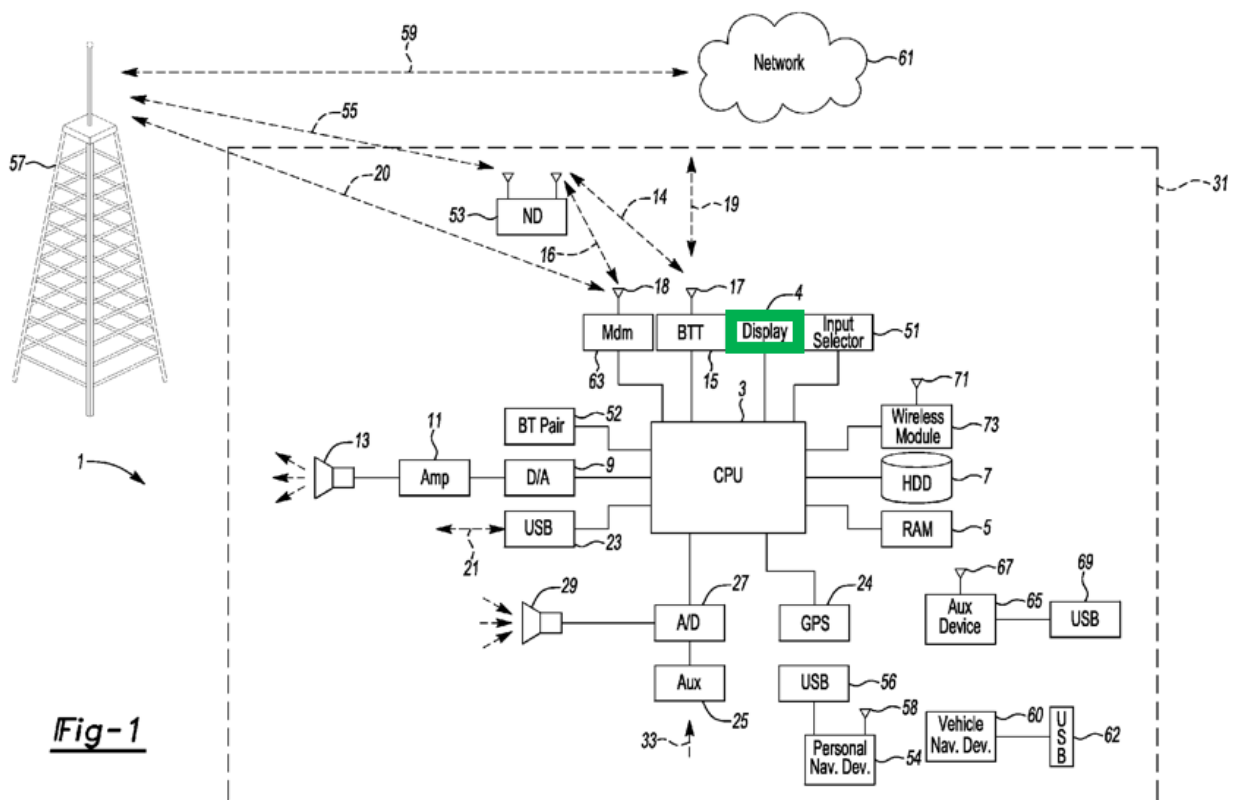
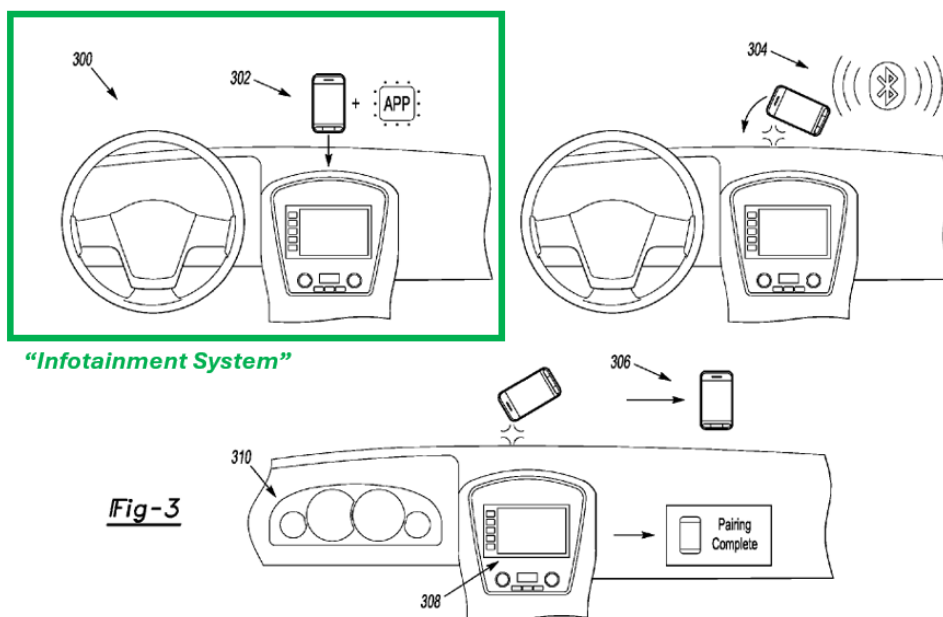


Fig-1

Demeniuk, Ex. 1023, Fig. 1 (Annotated)

470. With reference to Figure 3, Demeniuk discloses “an illustrative example of configuring the infotainment system” (Demeniuk, Ex. 1023, 3:16-17.)



Demeniuk, Ex. 1023, Fig. 3 (Annotated)

471. Demeniuk further discloses that “[t]he integration of handheld devices with the vehicle-based computing system and core operations of the vehicle infotainment system may allow limitless interaction with device applications and the vehicle to improve the passenger riding experience.” (Demeniuk, Ex. 1023, 4:5–8.)

472. Accordingly, Demeniuk discloses “*wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises[.]*”

[2a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and

473. Demeniuk discloses identifying user nomadic devices associated with locations in the vehicle, and the users associated with occupied locations in the

vehicle are the claimed “users”. For example, with reference to Figure 8, Demeniuk discloses “using a seat to identify nomadic device communication control with a vehicle computing system [.]” (Demeniuk, Ex. 1023, 3:33–35.)

474. With further reference to Figure 8, Demeniuk discloses detecting occupant presence, e.g., “[t]he **seat 802** may contain one or more sensors to validate an occupant presence at that seating position in the vehicle. The seat 802 may contain one or more back sensors 804, and one or more seat sensors 806 to ensure an occupant is present in that seat.” (Demeniuk, Ex. 1023, 17:44–48.)

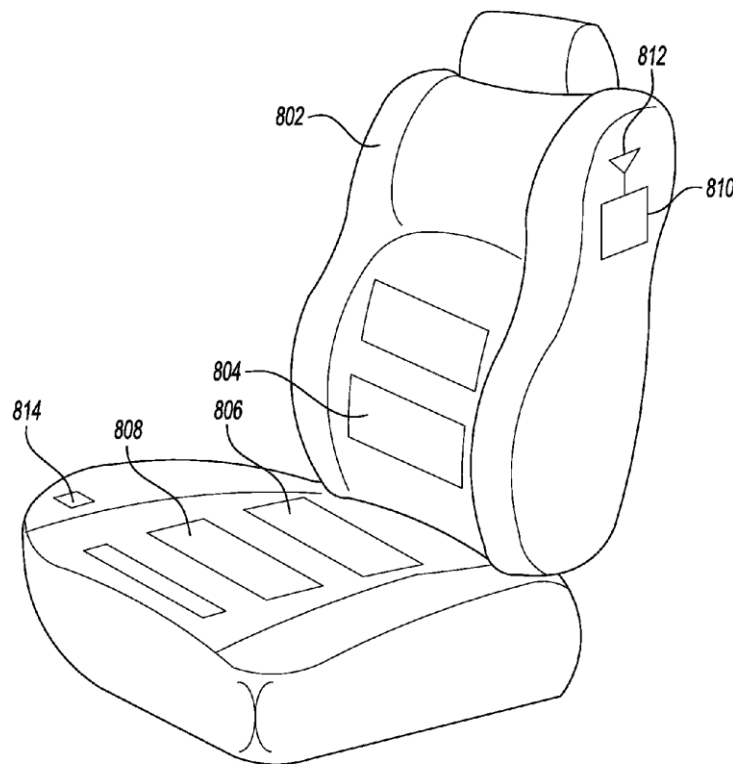


Fig-8

Demeniuk, Ex. 1023, Fig. 8

475. Demeniuk discloses that the VCS receives input from a camera system

to identify where passengers are located in the vehicle before allowing access to vehicle features and functions:

In another embodiment, in addition to or in combination of the one or more seat sensors, the vehicle may implement an in-vehicle camera system to identify where a passenger is located in the vehicle before allowing access to vehicle features and functions using the passenger's nomadic device. The in-vehicle camera system may eliminate the use of seat sensors and communicate passenger location to the VCS. The camera system may also communicate with the one or more seat inputs to determine a location of the passenger and the detected nomadic device. The in-vehicle camera system may have a camera mounted on the dashboard.

(Demeniuk, Ex. 1023, 18:4–14.)

476. Accordingly, Demeniuk discloses “*identifying the user inside a vehicle via one or more sensors associated with the vehicle[.]*”

[2b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

477. Demeniuk discloses determining whether a device belongs to a driver or passenger using seat sensors in combination with one or more methods at steps 912 and 914:

At step 912, once the nomadic device is recognized the system may perform an analysis of the passenger's nomadic device location using one or more seat sensors in a vehicle. If the system discovers that one

nomadic device has been detected, however there is a driver and a non-driver in the vehicle based on the one or more seat sensors, then the system may determine whether or not the nomadic device belongs to the driver using one or more methods at step 914. The one or more methods to determine whether a nomadic device belongs to a driver may include, but is not limited to, previous pairing of the nomadic device, location of the nomadic device in the vehicle cabin using wireless detection, and/or the physical connection of the nomadic device using an assigned USB port.

(Demeniuk, Ex. 1023, 19:16-29.)

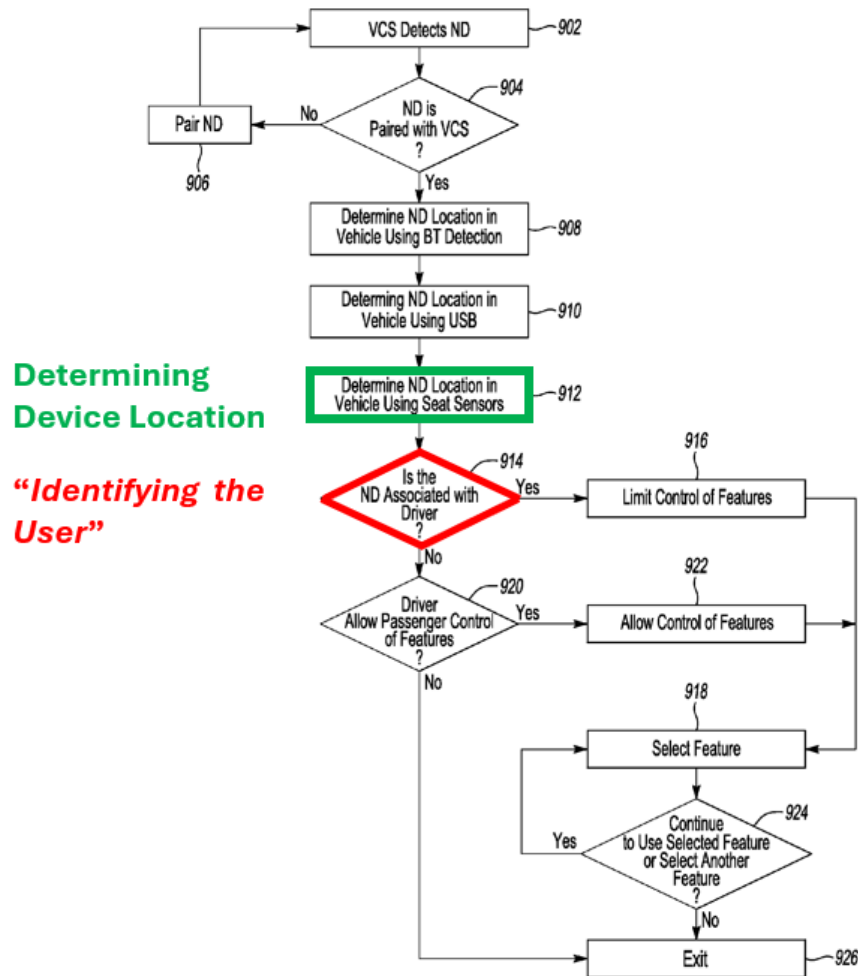


Fig-9

Demeniuk, Ex. 1023, Fig. 9 (Annotated)

478. Demeniuk further discloses that the VCS limits control of features in response to determining that the device belongs to the driver:

At step 916, if the nomadic device belongs to a driver, then the VCS may allow limited control of features and functions from that device. The limited control of features and functions may include ‘locking out’ one or more inputs to vehicle infotainment controls while the vehicle is moving including, but not limited to, navigation control inputs, radio

selections, and/or one or more applications based off the nomadic device communicated to the VCS.

(Demeniuk, Ex. 1023, 19:30-37.)

479. In addition to “*identifying the user inside a vehicle via one or more sensors associated with the vehicle*” per my analysis above with respect to limitation [2a], I refer back to my analysis of limitation [1a] to establish that a POSA would have modified Demeniuk with Zanchi to store and access the “*user profile[s]*” [e.g., limits and restrictions for controlling the infotainment system]. I further refer back to my analysis of limitation [1a] to establish that the limits or restrictions (“*user profile[s]*”) in Demeniuk are applied once a handheld/nomadic device is identified. A POSA would have understood that in order apply such limits or restrictions that are stored in a memory after identifying a user, these limits or restrictions are accessed from the memory. Accordingly, Demeniuk combined with Zanchi teaches “*referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.*”

b. Claim 3

3[pre]. The method of claim 2, wherein identifying the user further comprises:

480. Limitation 3[pre] is substantially similar to limitation [2a]. Therefore, I refer back to my analysis of this limitation in claim 2 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 211-221.)

[3a] receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and

481. Demeniuk discloses a camera that identifies where passengers are located in the vehicle before allowing access to vehicle features and functions:

In another embodiment, in addition to or in combination of the one or more seat sensors, the vehicle may implement an in-vehicle camera system to identify where a passenger is located in the vehicle before allowing access to vehicle features and functions using the passenger's nomadic device. The in-vehicle camera system may eliminate the use of seat sensors and communicate passenger location to the VCS [vehicle based computing system]. The camera system may also communicate with the one or more seat inputs to determine a location of the passenger and the detected nomadic device. The in-vehicle camera system may have a camera mounted on the dashboard.

(Demeniuk, Ex. 1023, 18:4–14.)

482. Demeniuk discloses that the vehicle controller receives inputs from the camera to verify the location of the vehicle occupant:

For example, a passenger may be in the passenger seat of the vehicle and the module and/or wireless transceiver 810 may detect the nomadic device to initiate a handshake between the VCS and detected device. The module and/or transceiver 810 may communicate to the VCS that the wireless device was detected at the passenger seat. **The VCS may receive input from the camera system to verify that the occupant is**

a non-driver and is located in the passenger seat to allow greater access to remote control one or more vehicle features that may normally be ‘locked out’ when the vehicle is moving using the passenger's mobile device.

(Demeniuk, Ex. 1023, 18:15–26.)

483. Demeniuk further discloses that the location of an occupant in the vehicle may be determined by detecting the handheld/nomadic device via communication between the handheld/nomadic device and the vehicle:

FIG. 9 is a flow chart illustrating **an example method of a vehicle computing system detecting occupant location using connected devices**. The passenger nomadic device detection process communicating with the VCS may be implemented through a computer algorithm, machine executable code, non-transitory computer readable storage medium, or software instructions programmed into a suitable programmable logic device(s) of the vehicle, such as the VCS, the entertainment module, other controller in the vehicle, or a combination thereof.

(Demeniuk, Ex. 1023, 18:27–36.)

484. Demeniuk discloses a camera that identifies locations of occupants within a vehicle and that the vehicle controller receives signals from the camera (“*image sensor*”). Demeniuk further discloses that the location of the occupant in the vehicle may be determined via communication between the handheld/nomadic device and the vehicle. A POSA would have understood that images of an individual

captured by the camera in Demeniuk includes “*identifying characteristics*” such as facial features. Accordingly, Demeniuk discloses “*receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user[.]*”

[3b] determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.

485. In addition to “*receiving identifying characteristics associated with the user via an image sensor*” [camera], per my analysis above with respect to limitation [3a], I refer back to my analysis of limitation [1a] to establish that Demeniuk discloses “*user profile[s]*” [e.g., limits and restrictions for controlling the infotainment system] and that a POSA would have modified Demeniuk with Zanchi to store the “*user profile[s]*” in memory. I further refer back to my analysis of limitation [1a] to establish that the “*user profile[s]*” are applied once a handheld/nomadic device is identified.

486. Demeniuk teaches that control priorities can be set according to “*user profile[s]*” [e.g., limits and restrictions for controlling the infotainment system] based on their locations in the vehicle. Zanchi uses device information to uniquely identify users. For example, Zanchi discloses storing the user preference profiles in memory, identifying personal devices associated with specific users, associating the

user preference profiles with personal devices, and accessing the preferences within the preference profile upon detecting the personal devices associated with the users:

The devices 50 can interact with the controller 100 using wired or wireless interfaces 122 and 124 known in the art. **One or more of the devices 50 can contain a dedicated memory for storing preferences associated with the users of the device 50.** Preferably, the preferences stored in the device 50 are comprehensive and encompass the various forms of interaction detailed herein. Alternatively, one or more of the devices 50 may not contain a dedicated memory for storing preferences. **Instead, such devices 50 may be associated with a particular user by an identification number, such as a network or IP address. The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100. When the particular device 50 and associated user are identified, the controller 100 can access those preferences.**

(Zancho, Ex. 1022, [0044].)

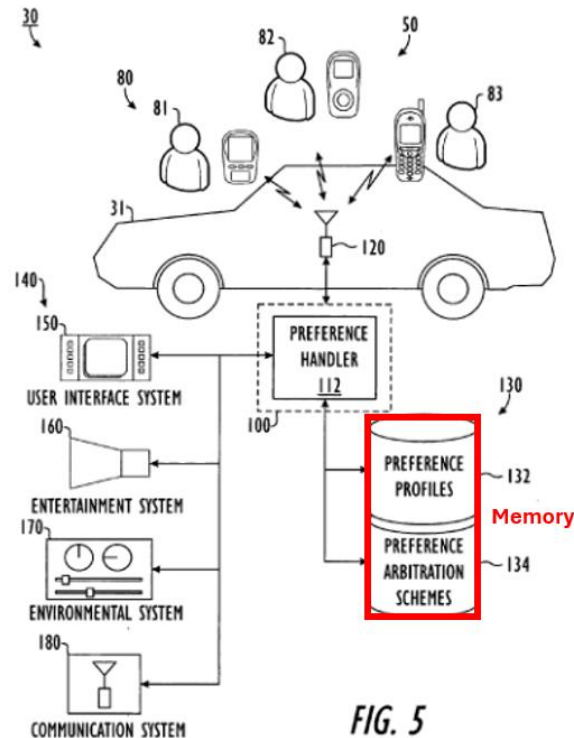


FIG. 5

Zancho, Ex. 1022, Fig. 5 (Annotated)

487. It would have been obvious to a POSA to incorporate the unique user identifications into the control scheme of Demeniuk after identifying the specific users via the cameras to increase the granularity of control and provide additional prioritization options. For example, a POSA would have combined Demeniuk's control priorities with Zancho's device information to uniquely identify users having certain preferences where the specific users are identified by the cameras of Demeniuk for the purpose of providing priority to specific occupants within the vehicle. This is a predictable use of prior art elements in Demeniuk and Zancho according to their established functions. Accordingly, Demeniuk combined with Zancho teaches "*determining whether the identifying characteristics associated with*

the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.”

c. Claim 4

[4] The method of claim 1, wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.

488. Demeniuk discloses detecting handheld/nomadic devices within a vehicle, establishing communication connections between the handheld/nomadic devices and the controller, and enabling the handheld/nomadic device to control the infotainment system via communication with the controller based on the location of the handheld/nomadic device in the vehicle:

A vehicle computing system **enabling one or more processors to establish a communication connection with at least one of a plurality of handheld computing devices within a vehicle while enabling and determining infotainment control based on the location of the handheld device in the vehicle.** The system may determine if the at least one of a plurality of handheld computing devices is a driver or non-driver handheld computing device based on a detected location of the communication connection. The system may determine that the at least one of a plurality of handheld computing devices is a non-driver handheld computing device based on the detected location, therefore enabling infotainment control from the non-driver handheld device. The system may determine that the at least

one of a plurality of handheld computing devices is a driver handheld computing device based on the detected location, therefore limiting infotainment control from the driver handheld device.

(Demeniuk, Ex. 1023, Abstract.)

489. Demeniuk discloses that the VCS detects “a nomadic device [relative] to a non-driver using a physical connection and/or wireless antenna in connection with one or more seat sensors.” (Demeniuk, Ex. 1023, 17:7–10.)

490. Demeniuk discloses that the VCS may allow control of vehicle features and functions with the use of a brought-in device based on determining where the device is connected to the VCS in the vehicle:

The VCS may allow control of vehicle features and functions with the use of a brought-in device including, but not limited to, a mobile phone, media player and/or tablet. Passenger interaction with the VCS may be determined where the device is connected to the VCS in the vehicle, using wire and/or wireless technology including, but not limited to, USB and BLUETOOTH technology.

(Demeniuk, Ex. 1023, 17:11–17.)

491. Demeniuk discloses detecting the physical presence of an occupant within the vehicle via a physical connection port 814, vehicle seat wireless transceiver 810, and/or a passenger detection sensor 808:

In an embodiment shown in FIG. 8, the physical connection port 814 is securely mounted to the passenger seat 802. The arrangement allows for employing a system and method for interconnecting a passenger's

brought-in handheld device by detecting where the passenger is located in the vehicle. **The passenger detection system may monitor one or more seat inputs including, but not limited to, physical connection port 814, vehicle seat wireless transceiver 810, and/or a passenger detection sensor 808.** For example, if the passenger connects the nomadic device to the physical connection port 814 (e.g. USB) on the seat, the VCS may detect that the passenger is connecting from that seat 802 by receiving the physical connection port address and/or monitoring the one or more seat sensors 804, 806, 808.

(Demeniuk, Ex. 1023, 17:17–31.)

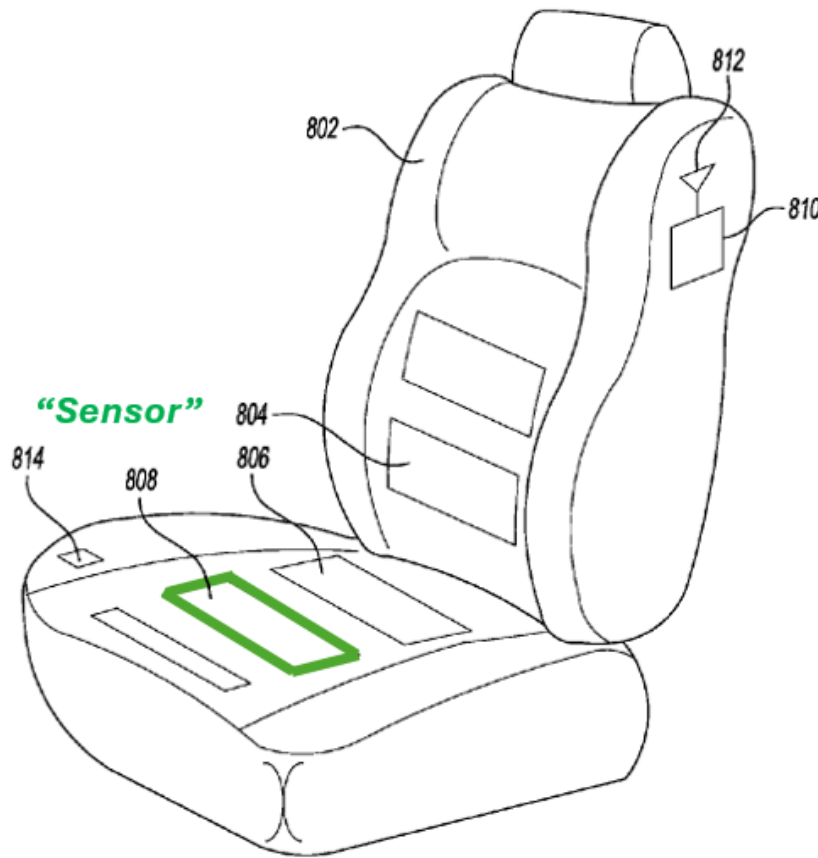


Fig-8

Demeniuk, Ex. 1023, Fig. 8 (Annotated)

492. Demeniuk discloses sensors for validating the presence of an occupant in a particular seat within the vehicle:

The seat 802 may contain one or more sensors to validate an occupant presence at that seating position in the vehicle. The seat 802 may contain one or more back sensors 804, and one or more seat sensors 806 to ensure an occupant is present in that seat. The seat 802 may also have one or more additional sensors 808 that may detect one or more occupant features including, but not limited to, body

temperature, and/or a weight sensor. The seat sensors may be placed on all seats in the vehicle including, but not limited to, front seats, backseats, and/or bench seating.

(Demeniuk, Ex. 1023, 17:44–53.)

493. Demeniuk discloses detecting handheld/nomadic devices within a vehicle associated with users, detecting the presence of users with the vehicle, establishing communication connections between the handheld/nomadic devices and the controller, and enabling the handheld/nomadic device to control the infotainment system via communication (“*detecting*”) with the controller based on the location (“*proximity*”) of the handheld/nomadic device in the vehicle. Accordingly, Demeniuk discloses “*wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.*”

d. Claim 5

5[pre]. The method of claim 1, wherein determining to adjust the configuration of the at least one infotainment system further comprises:

494. Limitation 5[pre] is substantially similar to the combination of limitations 1[pre] and [1c]. Therefore, I refer back to my analysis of these limitations in claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 415-418, 442-448.)

[5a] determining the configuration of the at least one infotainment system; and

495. Dememiuk discloses adjusting, updating, and modifying vehicle features via the handheld/nomadic device, and displaying the vehicle features' current settings on the handheld/nomadic device (e.g., a smart phone):

At step 504, the connection of the nomadic device to the VCS [vehicle based computing system] may begin once the device connects using the USB port or is within the range to be detected by BLUETOOTH. Once the smart phone is connected to the VCS an attempt to synchronize the device with the system may begin at step 506. **If the device is connected, synchronization may begin allowing the smart phone to access vehicle features that can be adjusted, updated, or modified at step 508.** The synchronization step may include, but not limited to, having the smart phone configured to **have the vehicle features' current settings shown on the smart phone display screen.**

(Demeniuk, Ex. 1023, 14:4–14.)

496. Demeniuk further discloses that “[t]he infotainment features that a customer may control using their nomadic device 400 may include, but is not limited to, navigation directions, destination information, vehicle climate controls, seat adjustment, and music selection.” (Demeniuk, Ex. 1023, 12:40–44.)

497. Demeniuk discloses adjusting, updating, and modifying vehicle features via the handheld/nomadic device, displaying the vehicle features' current settings (“*determining the configuration*”) on the handheld/nomadic device, and the

handheld/nomadic device controlling the infotainment features. Accordingly, Demeniuk teaches “*determining the configuration of the at least one infotainment system[.]*”

[5b] determining whether the infotainment information matches the determined configuration of the at least one infotainment system,

498. As previously stated in my analysis of [1a], Demeniuk discloses facilitating limited or restricted control of the “*infotainment system[s]*” (e.g., entertainment and navigation systems) based on set limits or restrictions (“*user profile[s]*”) for controlling the “*infotainment system[s]*”, and that the “*user profile[s]*” in Demeniuk include “*infotainment information*” for applying the limits and restrictions for controlling the *infotainment system*.

499. Demeniuk further discloses that a customer may control infotainment features using their handheld/nomadic device:

FIG. 4 is an example of embodiments disclosing several infotainment features an occupant may communicate with using their nomadic device connected to the vehicle-based computer. **The infotainment features that a customer may control using their nomadic device 400 may include, but is not limited to, navigation directions, destination information, vehicle climate controls, seat adjustment, and music selection. The infotainment features may be shared or adjusted by the customer's nomadic device interfacing with the VCS.** The driver may set restrictions on what options or features an occupant may have access to control, adjust, download and/or share.

(Demeniuk, Ex. 1023, 12:37–48.)

500. Infotainment features that may be controlled by the user's handheld/nomadic device comprise “*infotainment information*”, in addition to the “*infotainment information*” for applying the limits and restrictions for controlling the “*infotainment system*”.

501. A POSA would have understood that a determination of whether or not a music or other selection (e.g., “*infotainment information*”) matches the current settings (“*determining the configuration*”) of the infotainment system would be determined depending on whether the selection is within the set limits or is restricted. If the selection is not within the set limits or is restricted, the infotainment system will not be adjusted, and the selection will not match the current settings of the infotainment system. If the selection is within the set limits and is not restricted, the infotainment system will be adjusted, and the selection will match the current settings of the infotainment system. Accordingly, Demeniuk discloses “*determining whether the infotainment information matches the determined configuration of the at least one infotainment system[.]*”

[5c] wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.

502. Demeniuk discloses infotainment features and settings, including music selection, media selection, and radio preset settings:

At step 308, the centralized control display may notify the driver when the synchronization is taking place and when it is complete. Once complete, the centralized control display may be configured based on the offline configuration application settings. For example, **the centralized control display may be configured to the radio preset settings requested by the driver and configured based off the synchronization of the offline configure application settings to the VCS [vehicle based computing system]**. At step 310, the instrument panel (or display information center) may be configured to display certain features and settings based on the offline configuration application settings. For example, the instrument panel may display specific information requested by the driver based on the offline configuration applications settings including, but not limited to, navigation directions, fuel economy information, display color and graphics, or engine performance parameters.”

(Demeniuk, Ex. 1023, 12:21–36.)

FIG. 4 is an example of embodiments disclosing several infotainment features an occupant may communicate with using their nomadic device connected to the vehicle-based computer. **The infotainment features that a customer may control using their nomadic device 400 may include**, but is not limited to, navigation directions, destination information, vehicle climate controls, seat adjustment, and **music selection**. The infotainment features may be shared or adjusted by the customer's nomadic device interfacing with the VCS. The driver may set restrictions on what options or features an occupant may have access to control, adjust, download and/or share.

(Demeniuk, Ex. 1023, 12:37–48.)

At step 510, after synchronization, the occupant may select a vehicle feature to control. Using their handheld device, the occupant may have control of vehicle systems, including but not limited to, climate control, navigation command, and/or **media selection**.

(Demeniuk, Ex. 1023, 14:16–20.)

503. Demeniuk further discloses that “[t]he passenger may adjust and control the selected vehicle feature that may include, but not limited to, selecting the song to play, controlling music volume, and/or adjusting tuning features of the entertainment system at step 616.” (Demeniuk, Ex. 1023, 15:17–20.)

504. Demeniuk discloses infotainment features and settings (“*infotainment setting[s]*”), including music selection, media selection, radio preset settings (“*preference[s]*”), selecting the song (“*content*”) to play, and controlling music volume (“*power state*”). Furthermore, it is commonly known that infotainment devices (e.g., radios) have on/off power states. However, adjusting the music volume also corresponds to a power state of the infotainment system, since adjusting the volume corresponds to increasing or decreasing the amount of power (“*power state*”) being delivered to speakers.

505. Accordingly, Demeniuk discloses “*wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.*”

e. Claim 6

6. The method of claim 5, further comprising:

... providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.

506. Demeniuk discloses that a vehicle occupant may have control over some vehicle systems including media selection:

At step 510, after synchronization, the occupant may select a vehicle feature to control. **Using their handheld device, the occupant may have control of vehicle systems, including but not limited to, climate control, navigation command, and/or media selection.**

(Demeniuk, Ex. 1023, 14:16–20.)

507. Demeniuk discloses the driver establishing preset settings based on an offline configuration and the display panel being configured to display certain features and settings based on the offline configuration:

At step 308, the centralized control display may notify the driver when the synchronization is taking place and when it is complete. Once complete, the centralized control display may be configured based on the offline configuration application settings. **For example, the centralized control display may be configured to the radio preset settings requested by the driver and configured based off the synchronization of the offline configure application settings to the VCS.** At step 310, the instrument panel (or display information

center) may be configured to display certain features and settings based on the offline configuration application settings. For example, the instrument panel may display specific information requested by the driver based on the offline configuration applications settings including, but not limited to, navigation directions, fuel economy information, display color and graphics, or engine performance parameters.

(Demeniuk, Ex. 1023, 12:21–36.)

508. Demeniuk discloses that the driver may set restrictions on what options or infotainment features an occupant may have access to control, adjust, download and/or share:

FIG. 4 is an example of embodiments disclosing several infotainment features an occupant may communicate with using their nomadic device connected to the vehicle-based computer. The infotainment features that a customer may control using their nomadic device 400 may include, but is not limited to, navigation directions, destination information, vehicle climate controls, seat adjustment, and music selection. The infotainment features may be shared or adjusted by the customer's nomadic device interfacing with the VCS. **The driver may set restrictions on what options or features an occupant may have access to control, adjust, download and/or share.**

(Demeniuk, Ex. 1023, 12:37–48.)

509. Demeniuk discloses that a vehicle driver may establish preset settings based on an offline configuration, that the driver may set restrictions on what options

or infotainment features an occupant may have access to control, that the display panel is configured to display certain features and settings based on the offline configuration, and what options or infotainment features an occupant may have access to control, adjust, download and/or share. A POSA would have understood that under a scenario where an occupant attempts to select an infotainment feature that is different from the current setting and that the driver has restricted the occupant from controlling (e.g., non-allowed radio station selections), the infotainment system will not allow the selected change in the infotainment feature, e.g., a radio station will not change from a currently selected station (“*determined configuration*”), and the display panel will only display selectable settings (“*adjustment output*”), such as allowed radio station selections. Accordingly, Demeniuk teaches “*providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.*”

f. Claim 7

7[pre]. The method of claim 1, further comprising:

510. Limitation 7[pre] is substantially similar to limitation 1[pre]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 415-418.)

[7a] receiving additional infotainment information via at least one device associated with the user;

511. Demeniuk discloses transmitting information from a user's handheld/nomadic device to the vehicle controller, including music, movies, and other entertainment features:

An occupant's nomadic device connected to the VCS may also share information including, but not limited to, music, movies, and other entertainment features 406 that may be transmitted to the VCS. For example, the nomadic device may share a play list or music selection and transmit this to the VCS allowing for the music to be heard over the vehicle's entertainment system. An occupant in the back seat may now be able to share information from their smart phone, and distribute to the VCS entertainment system at the same time other occupants are connected to the VCS. The passenger in the front seat may enjoy the playlist that was shared by the backseat passenger and download it to their handheld device form the VCS. The transmitting of a playlist and/or receiving a playlist from a passenger to another passenger within the vehicle compartment may be done with the use of the VCS as an interface.

(Demeniuk, Ex. 1023, 13:31–46.)

512. Demeniuk discloses that the infotainment information may be transmitted to the VCS from handheld/nomadic devices of rear seat passengers:

Another embodiment allowing passenger nomadic device interconnection with the VCS is a USB port mounted for rear seat

passengers 106. A rear seat passenger may plug in their nomadic device using the USB port to interact with the VCS. **The rear seat passenger may allow information to be transmitted from their handheld device to the VCS including, but is not limited to, destination, music, and/or climate control adjustment.** Allowing a rear seat passenger to plug into the VCS with their handheld device may give the rear seat passenger functions to control certain features of the VCS and present updated function or feature information on the display 104.

(Demeniuk, Ex. 1023, 7:14–25.)

513. Demeniuk discloses that the infotainment information that may be transmitted to the VCS from handheld/nomadic devices may include music:

The passenger, or non-driver computing device, functions may include, but are not limited to, allowing the passenger to transmit ('push') information from the brought-in handheld device to the VCS. The information being transmitted may include, but is not limited to, navigation, waypoint, points of interest, and/or music. Allowing passengers to interface with the VCS may include configuration to the system via the brought in device to control their immediate physical environment including, but not limited to, climate control, fan speed, heat or cooled seat functions, and seat position. Another example of passenger functions may include, but is not limited to, navigation functions by allowing the passenger to search, set, or update the destination to which the vehicle is traveling, while the vehicle is in motion.

(Demeniuk, Ex. 1023, 7:50–63.)

514. With reference to Figure 4, Demeniuk discloses several infotainment features an occupant may communicate with using their nomadic device connected to the vehicle-based computer:

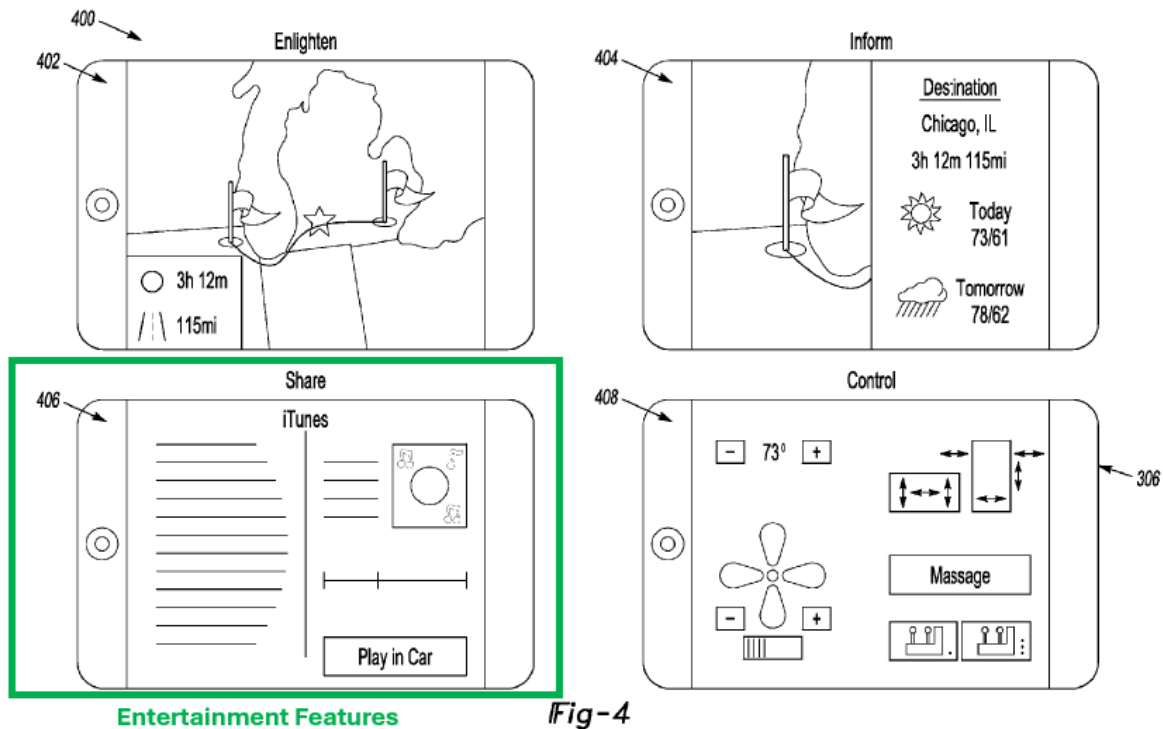
FIG. 4 is an example of embodiments disclosing several infotainment features an occupant may communicate with using their nomadic device connected to the vehicle-based computer. The infotainment features that a customer may control using their nomadic device 400 may include, but is not limited to, **navigation directions, destination information**, vehicle climate controls, seat adjustment, and **music selection**.

(Demeniuk, Ex. 1023, 12:37–44.)

515. With reference to Figure 4, Demeniuk discloses that an occupant's handheld/nomadic device may share information including, but not limited to, music, movies, and other entertainment features:

An occupant's nomadic device connected to the VCS may also share information including, but not limited to, music, movies, and other entertainment features 406 that may be transmitted to the VCS. For example, the nomadic device may share a play list or music selection and transmit this to the VCS allowing for the music to be heard over the vehicle's entertainment system.

(Demeniuk, Ex. 1023, 13:31–37.)



Demeniuk, Ex. 1023, Fig. 4 (Annotated)

516. Demeniuk discloses that the VCS receives multiple types of infotainment information including music, movies, and other entertainment features. A POSA would have understood that, upon the VCS having received both a first type of infotainment information (e.g., limitations and restrictions) and a second type of infotainment information (e.g., shared information such as music and movies), the second type of infotainment information is provided in addition to the first type. Accordingly, Demeniuk discloses “*receiving additional infotainment information [e.g., shared information] via at least one device associated with the user*” since the second type of information is in addition to the first type of information.

[7b] determining whether the additional infotainment information qualifies as user profile data; and

517. Demeniuk discloses that the system may give priority to infotainment information associated with specific vehicle occupants (e.g., a driver's playlist may be given priority so that it cannot be overridden by passengers). A POSA would have combined Demeniuk with Zanchi to include determining whether the additional infotainment information qualifies as user profile data, so that the vehicle based computing system (VCS) can distinguish between the driver's infotainment preferences (e.g., a playlist) and the passengers' infotainment preferences with respect to any additional data to ensure that the desired priority is applied (e.g., driver's preferences control the output of the infotainment system, and in order to prevent a driver's preferences, such as a playlist, from being overridden by the passengers' preferences).

518. With reference to Figure 2, Zanchi discloses that the preferences ("*infotainment information*") may be stored, accessed, or uploaded to the controller:

For those compliant users or devices, the preferences associated with them are obtained (Block 208). Obtaining the preferences can involve one of a variety of methods. In one example, **a compliant**

device active in the domain may store preferences for the user, and these preferences can be accessed or uploaded to the controller.²⁹

(Zancho, Ex. 1022, [0022].)

519. With further reference to Figure 2, Zancho discloses that the preferences may be stored, accessed, or uploaded to the controller:

Furthermore, this step 208 **involves determining which of the preferences associated with the users are applicable to the current circumstances in the domain. For example, the preferences associated with a user can encompass an entire variety of preferred user interactions, such as audio levels, visual effects, preferred media, and others detailed herein. Preferences associated with audio levels and settings would be applicable in the domain if the domain has an entertainment system.** Therefore, in this situation, a determination would be made that audio-related preferences are applicable to current operation of the entertainment system in the domain.

(Zancho, Ex. 1022, [0024].)

²⁹ Paragraphs [0022]–[0023] of Zancho state that preferences are both obtained and analyzed at block 208, whereas Figure 2 shows they are obtained at block 206 and analyzed at block 208. Given the chronological flow and clear distinction between blocks 206 and 208, Paragraph [0022] appears erroneous and should instead reference block 206.

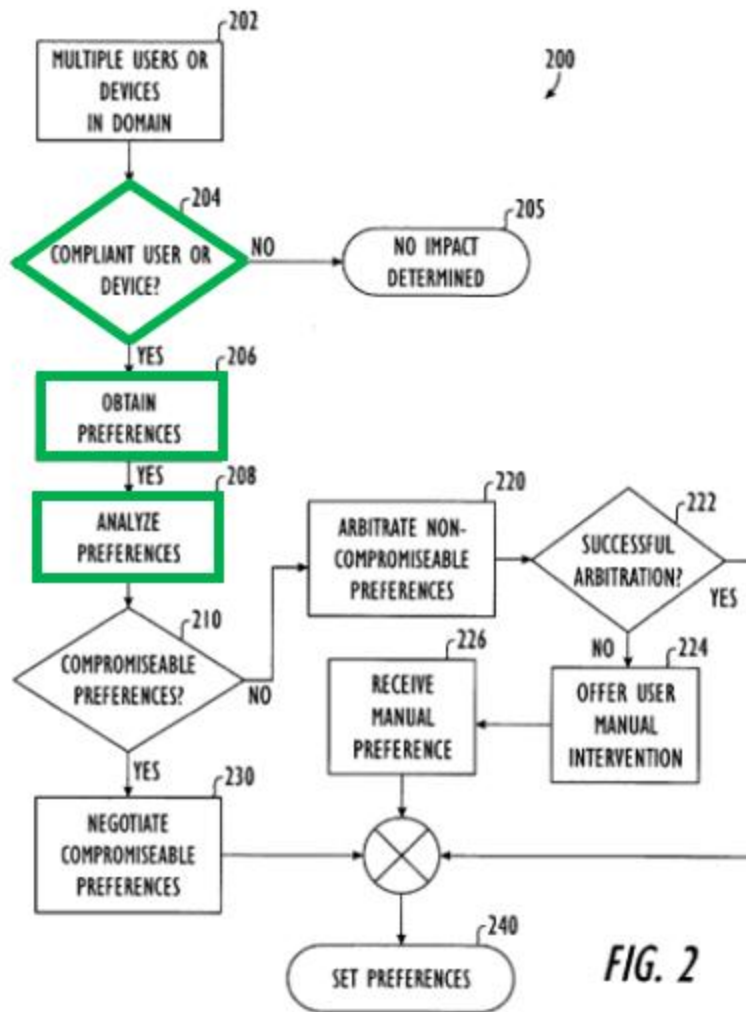


FIG. 2

Zancho, Ex. 1022, Fig. 2 (Annotated)

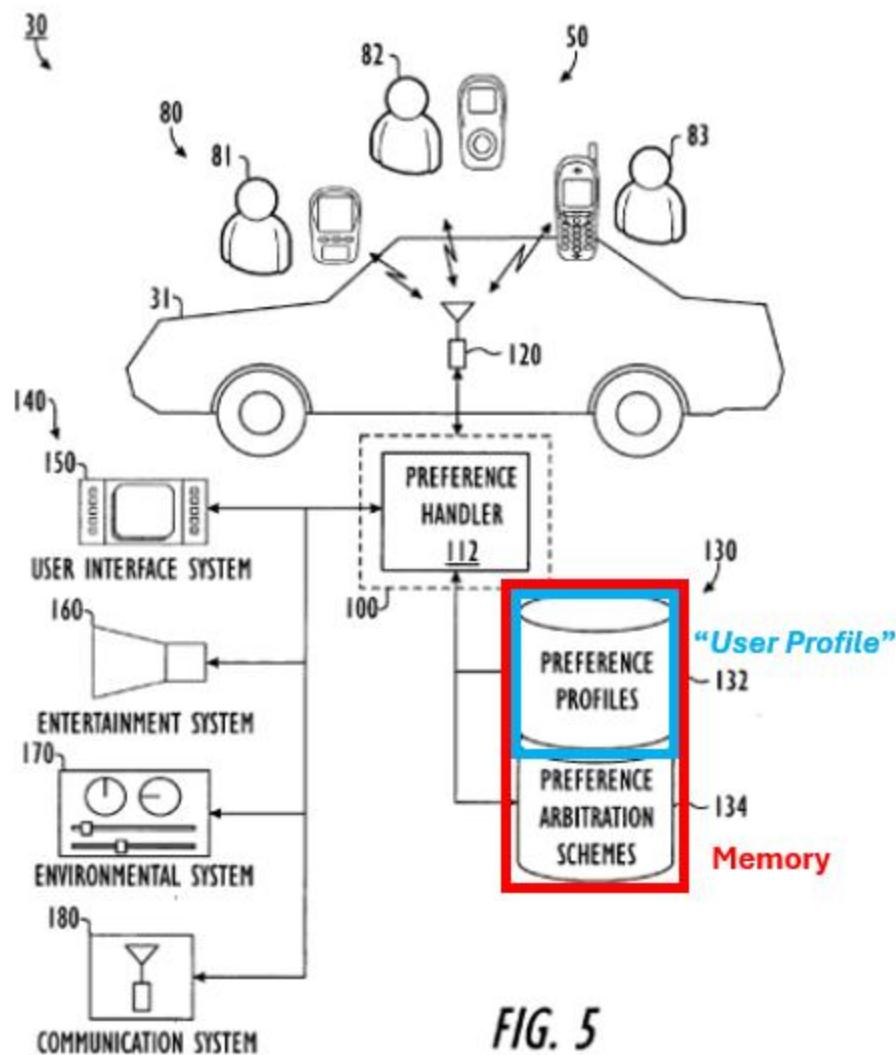
520. Zancho further discloses that “preferences can be stored remotely on a network accessible to the controller, stored on individual portable devices, or stored locally at the controller.” (Zancho, Ex. 1022, [0012].) For example, Zancho discloses that the controller 100 has preference profiles 132 (“*user profiles*”) for storing user preferences (“*infotainment information*”) in memory 130:

The preferences associated with the user of such a device 50 may be stored elsewhere outside the vehicle domain 30 or stored locally in memory 130 of the controller 100. When the particular device 50 and associated user are identified, the controller 100 can access those preferences.

(Zancho, Ex. 1022, [0044].)

The controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130 using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.

(Zancho, Ex. 1022, [0045].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

521. Demeniuk discloses that “[a]n occupant's nomadic device connected to the VCS may also share information including, but not limited to, music, movies, and other entertainment features 406 that may be transmitted to the VCS.” (Ex. 1023, 13:31–33.) Zancho discloses that the controller has preference profiles for storing user preferences (“*user profile data*”) in memory.

522. A POSA would have been motivated to modify

Demeniuk's vehicle controller that receives information from handheld/nomadic devices with Zanchi to include "*determining whether the additional infotainment information qualifies as user profile data*", so that the vehicle based computing system (VCS) can distinguish between the preferences of an occupant having higher priority (e.g., the driver's infotainment preferences, such as a playlist) and the infotainment preferences of an occupant having lower priority with respect to any "*additional infotainment information*" (e.g., shared information).

523. This ensures that the higher priority preferences control the output of the infotainment system and prevents the higher priority preferences from being overridden by the lower priority preferences. Such a modification includes applying the known technique from Zanchi (i.e., utilizing data from a user profile in an arbitration scheme to determine control priority of an infotainment system) to the known system in Demeniuk (prioritizing control of a first user over a second user) which is ready for improvement to yield predictable results (e.g., maintaining the intended function of the system in Demeniuk, which dictates priority of a first user over a second user, in response to receiving "*additional infotainment information*" that is being utilized to control the infotainment system). Accordingly, Demeniuk combined with Zanchi teaches "*determining whether the additional infotainment [e.g., shared information] information qualifies as user profile data [e.g., preferences][.]*"

[7c] storing, based at least partially on determining that the additional infotainment information qualifies as user profile data, the additional infotainment information in the user profile associated with the user.

524. Demeniuk discloses that the system may give priority to infotainment information associated with one vehicle occupant over another vehicle occupant (e.g., a driver's playlist may be given priority so that it cannot be overridden by passengers).

525. Zanchi discloses memory for storing the preferences (“*infotainment information*”) remotely on a network accessible to the controller, stored on individual portable devices, or stored locally at the controller:

For example, these preferences can be stored remotely on a network accessible to the controller, stored on individual portable devices, or stored locally at the controller. Preferences are determined for at least two users in the domain of the controller. For example, the controller can monitor for wireless devices active in a wireless personal area network of the controller and obtain the preferences of those users associated with the active devices from the device itself, from local memory of the controller, or from elsewhere. The determined preferences are related to controlling operation of a domain system in the domain of the controller. The domain system can be a networked computer system, a user interface, an entertainment system, an environmental system, or a communication system.

(Zanchi, Ex. 1022, [0012].)

526. Zanco further discloses preference profiles 132 for storing user preferences:

The controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130 using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.

(Zanco, Ex. 1022, [0045].)

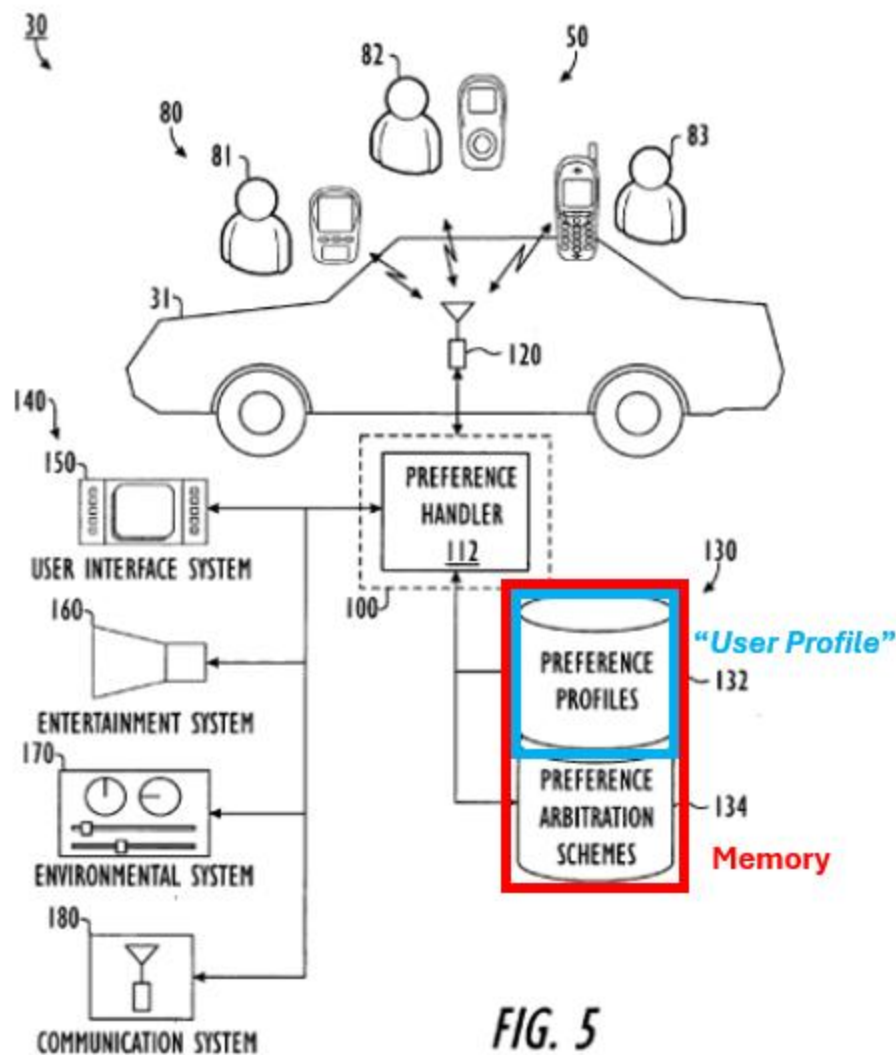


FIG. 5

Zancho, Ex. 1022, Fig. 5 (Annotated)

527. The preference profiles 132 (“*user profile[s]*”) in Zancho correspond to a portion of the memory 130 that is dedicated for storing user preferences (“*user profile data*”). A POSA would have understood that with respect to any incoming “*additional infotainment information*” that is meant to be stored within the memory 130, it must first be determined if the “*additional infotainment information*” corresponds to preferences (“*user profile data*”) before storing the additional

information in the preference profiles 132.

528. It would have been obvious to combine Demeniuk with Zanchi to include storing and processing “*additional infotainment information*” based on the infotainment information being “*user profile data*,” so that the vehicle based computing system (VCS) can readily access and distinguish between the occupants’ infotainment preferences (e.g., playlists) with respect to the “*additional infotainment information*” to ensure the desired prioritization is applied.

529. Such a modification includes applying the known technique from Zanchi (i.e., storing and processing “*user profile data*” within a dedicated memory) to the known system in Demeniuk (prioritizing control of a first user over a second user) which is ready for improvement to yield predictable results (e.g., storing additional information that qualifies as “*user profile data*” so that the additional information can be readily accessed and applied for prioritization).

530. Accordingly, combination of Demeniuk and Zanchi teaches “*storing, based at least partially on determining that the additional infotainment information qualifies as user profile data, the additional infotainment information in the user profile associated with the user.*”

g. Claim 8

[8] The method of claim 1, further comprising:

***adjusting the configuration of the at least one infotainment system,
wherein adjusting the configuration includes at least one of tuning
to a station, setting an infotainment input, selecting a content genre,
and recording content for playback to the user.***

531. The limitations in claim 8 that generally correspond to “*adjusting the configuration of the at least one infotainment system*” are substantially similar to limitation 1[c]. Therefore, I refer back to my analysis of this portion in claim 1 to establish that it is disclosed by Demeniuk. (See ¶¶ 442-448.)

532. Demeniuk discloses that “[t]he passenger may adjust and control the selected vehicle feature that may include, but not limited to, selecting the song to play, controlling music volume, and/or adjusting tuning features of the entertainment system at step 616.” (Demeniuk, Ex. 1023, 15:17–20.)

533. Demeniuk further discloses “[t]he limited control of features and functions may include ‘locking out’ one or more inputs to vehicle infotainment controls while the vehicle is moving including, but not limited to, navigation control inputs, radio selections, and/or one or more applications based off the nomadic device communicated to the VCS.” (Demeniuk, Ex. 1023, 19:32–37.)

534. Accordingly, Demeniuk discloses “*adjusting the configuration of the at least one infotainment system, wherein adjusting the configuration includes at least one of tuning to a station, setting an infotainment input, selecting a content genre,*

and recording content for playback to the user.”

h. Claim 17

17[pre]. The method of claim 1, further comprising:

535. Limitation 17[pre] is substantially similar to limitation 1[pre]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it disclosed by Demeniuk. (See ¶¶ 415-418.)

[17a] collecting, while the at least one infotainment system is online, additional infotainment information associated with the user; and

536. With respect to “*collecting . . . additional infotainment information associated with the user*” portion of limitation [17a], this portion of limitation [17a] is required by the portion of limitation [7a], which requires “*receiving additional infotainment information via at least one device associated with the user.*” Therefore, I refer back to my analysis of this portion of the limitation in claim 7 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 511-516.)

537. As I explained regarding the state of the art, it was well known at the relevant time for vehicle systems to connect to remote systems, e.g., servers through wireless communication, e.g., cellular communication and/or the internet. (See ¶ 83.) It was also well known for vehicle systems to connect to remote systems and services using a mobile device as a gateway. (See ¶¶ 84-86.) Accordingly, in my opinion, a POSA would have understood that an infotainment system is “online” when it is

connected via communications to various remote services, for example via the Internet or cellular communication.

538. Demeniuk discloses that “[a]n occupant's nomadic device connected to the VCS may also **share information** including, but not limited to, music, movies, and other entertainment features 406 that may be transmitted to the VCS.” (Ex. 1023, 13:31–33.) Demeniuk further discloses that “[d]ata is passed from the handheld device to the vehicle communication system through a communication link 213. This can be a wired or wireless link, and can be half or full duplex. In one non-limiting example, the link is a BLUETOOTH link.” (Demeniuk, Ex. 1023, 8:29–33.)

539. Demeniuk discloses that “[a]t step 902, the VCS may detect a nomadic device using wireless technology and/or by detecting a connection using a physical port. The wireless technology may include, but is not limited to BLUETOOTH technology, WiFi, and/or WiMax network.” (Demeniuk, Ex. 1023, 19:41–45.)

540. Demeniuk further discloses that the exemplary processes may be executed by a computing system in communication with a vehicle computing system, which may include a wireless device and a remote computing system (e.g., a server) connected through the wireless device:

In addition to having an exemplary processes executed by a vehicle computing system located in a vehicle, in certain embodiments, the exemplary processes may be executed by a computing system in communication with a vehicle computing system. **Such a system may**

include, but is not limited to, a wireless device (e.g., and without limitation, a mobile phone) or a remote computing system (e.g., and without limitation, a server) connected through the wireless device.

(Demeniuk, Ex. 1023, 6:29–35.)

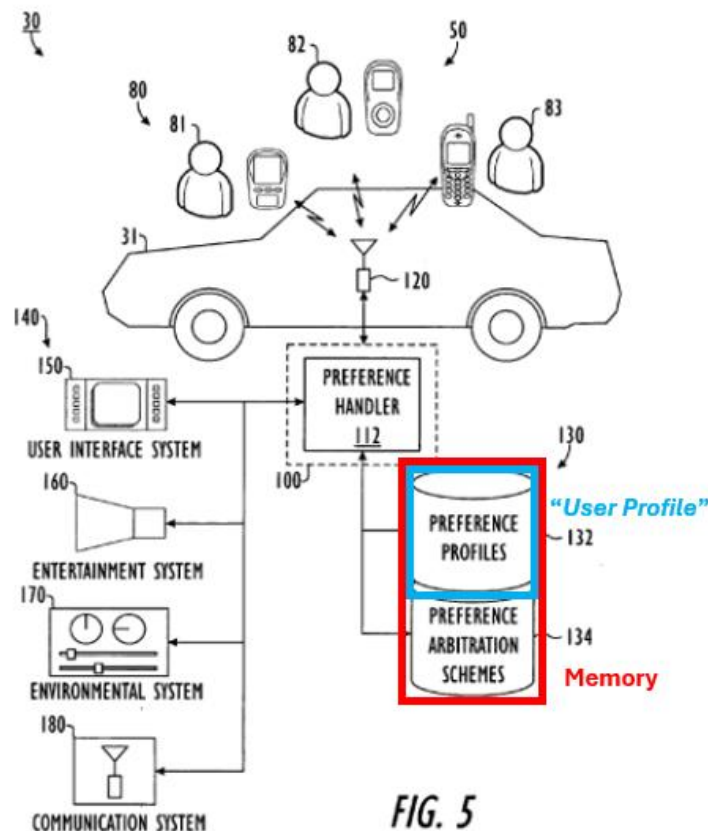
541. A POSA would have understood that, upon the VCS having received both a first type of infotainment information (e.g., limitations and restrictions) and a second type of infotainment information (e.g., shared information), the second type of infotainment information is provided in addition to the first type. A POSA would have further understood that a process (such as the VCS receiving shared infotainment information for controlling the infotainment system) that is executed by a server that is connected to the vehicle computer system through the wireless device occurs while the infotainment system is online. Accordingly, Demeniuk discloses “*collecting, while the at least one infotainment system is online, additional infotainment information associated with the user[.]*”

[17b] storing the additional infotainment information in the user profile associated with the user.

542. Demeniuk discloses that “[a]n occupant's nomadic device connected to the VCS may also share information including, but not limited to, music, movies, and other entertainment features 406 that may be transmitted to the VCS.” (Demeniuk, Ex. 1023, 13:31–33.)

543. Zanchi discloses that the controller has preference profiles for storing

user preferences (“user profile data”) in memory. For example, Zancho discloses that “controller 100 has preference profiles 132 for storing user preferences . . . arbitration schemes 134 for handling preferences of multiple users[.] The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130[.]” (Zancho, Ex. 1022, [0045].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

544. A POSA would have been motivated to modify Demeniuk’s vehicle controller that receives information from handheld devices with Zancho to include “*storing the additional infotainment information in the user profile associated with the user*”, so that the vehicle based computing system (VCS)

can distinguish between the preferences of an occupant having higher priority (e.g., the driver's infotainment preferences, such as a playlist) and the infotainment preferences of an occupant having lower priority with respect to any "*additional infotainment information*" (e.g., shared information).

545. Such a modification includes applying the known technique from Zanchi (i.e., utilizing data from a user profile in an arbitration scheme to determine control priority of an infotainment system) to the known system in Demeniuk (prioritizing control of a first user over a second user) which is ready for improvement to yield predictable results (e.g., maintaining the intended function of the system in Demeniuk, which dictates priority of a first user over a second user, in response to receiving "*additional infotainment information*" that is being utilized to control the infotainment system). Accordingly, Demeniuk combined with Zanchi teaches "*storing the additional infotainment information in the user profile associated with the user [.]*"

i. Claim 18

[18] The method of claim 17,

... wherein the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences.

546. Demeniuk discloses that the handheld/nomadic device may share

information including, but not limited to, music, movies, and other entertainment features (“*infotainment information*”) that may be transmitted to the VCS:

An occupant's nomadic device connected to the VCS may also share information including, but not limited to, music, movies, and other entertainment features 406 that may be transmitted to the VCS. For example, the nomadic device may share a play list or music selection and transmit this to the VCS allowing for the music to be heard over the vehicle's entertainment system. An occupant in the back seat may now be able to share information from their smart phone, and distribute to the VCS entertainment system at the same time other occupants are connected to the VCS. The passenger in the front seat may enjoy the playlist that was shared by the backseat passenger and download it to their handheld device form the VCS. The transmitting of a playlist and/or receiving a playlist from a passenger to another passenger within the vehicle compartment may be done with the use of the VCS as an interface.

(Demeniuk, Ex. 1023, 13:31–46.)

547. Demeniuk further discloses that the rear seat passenger may allow information, including music, to be transmitted from their handheld/nomadic device to the VCS:

Another embodiment allowing passenger nomadic device interconnection with the VCS is a USB port mounted for rear seat passengers 106. A rear seat passenger may plug in their nomadic device using the USB port to interact with the VCS. **The rear seat passenger**

may allow information to be transmitted from their handheld device to the VCS including, but is not limited to, destination, music, and/or climate control adjustment. Allowing a rear seat passenger to plug into the VCS with their handheld device may give the rear seat passenger functions to control certain features of the VCS and present updated function or feature information on the display 104.

(Demeniuk, Ex. 1023, 7:14–25.)

The passenger, or non-driver computing device, functions may include, but are not limited to, allowing the passenger to transmit (‘push’) information from the brought-in handheld device to the VCS. The information being transmitted may include, but is not limited to, navigation, waypoint, points of interest, and/or music. Allowing passengers to interface with the VCS may include configuration to the system via the brought in device to control their immediate physical environment including, but not limited to, climate control, fan speed, heat or cooled seat functions, and seat position. Another example of passenger functions may include, but is not limited to, navigation functions by allowing the passenger to search, set, or update the destination to which the vehicle is traveling, while the vehicle is in motion.

(Demeniuk, Ex. 1023, 7:50–63.)

548. Accordingly, Demeniuk combined with Zanchi teaches “*wherein the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences.*”

5. Independent Claim 9

549. Claim 9 is largely duplicative of claim 1. To illustrate the similarities, the table below shows a side-by-side comparison of claims 1 and 9. Claim 9 is “marked up” to show the minor differences:

Claim 1	Claim 9
1[pre]. A method, comprising:	9[pre]. <u>A non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform</u> a method comprising:
[1a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;	[9a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;
[1b] detecting at least one infotainment system associated with the user; and	[9b] detecting at least one infotainment system associated with the user; and
[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment	[9c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment

information in the user profile, wherein determining to adjust the configuration further comprises:	information in the user profile, wherein determining to adjust the configuration further comprises:
[1d] determining an access priority of the user; and	[9d] determining an access priority of the user; and
[1e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:	[9e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:
[1f] determining a second access priority of a second user associated with the infotainment system; and	[9f] determining a second access priority of a second user associated with the infotainment system; and
[1g] comparing the access priority of the user to the second access priority of the second user,	[9g] comparing the access priority of the user to the second access priority of the second user,
[1h] wherein the adjustment is allowed when the access priority of the user is	[9h] wherein the adjustment is allowed when the access priority of the user is

greater than the second access priority of the second user, and	greater than the second access priority of the second user, and
[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.	[9i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

9[pre]. A non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform a method comprising:

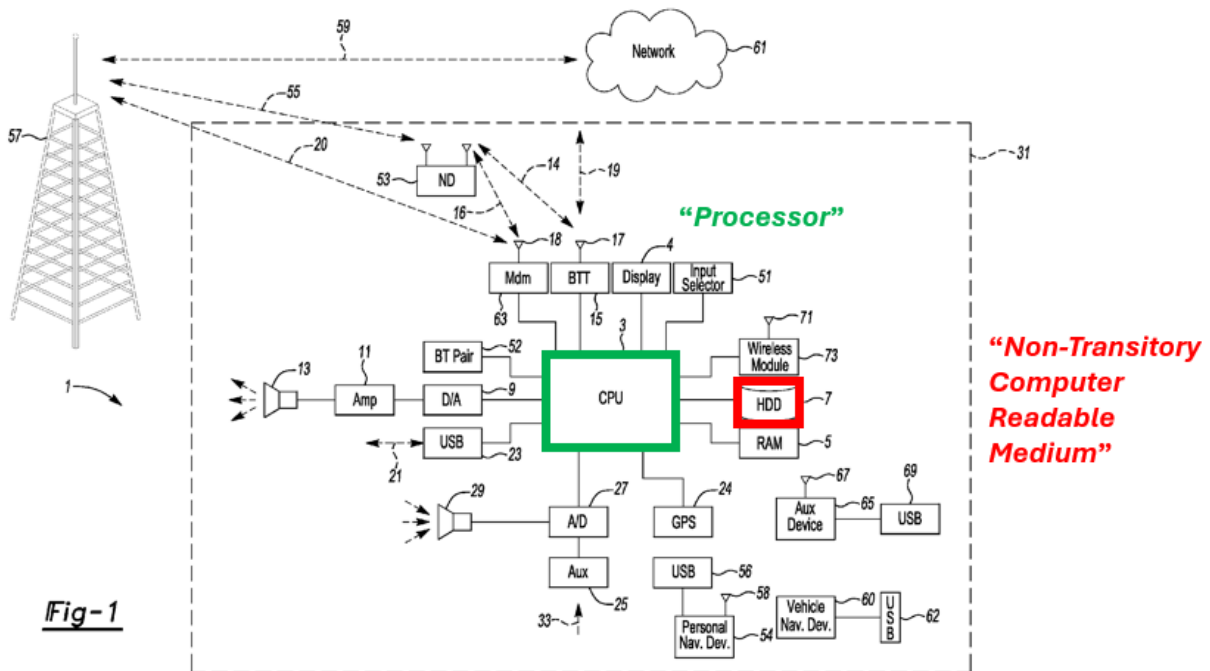
550. With reference to Figure 1, Demeniuk discloses “an exemplary block topology of a vehicle infotainment system implementing a user-interactive vehicle information display system[.]” (Demeniuk, Ex. 1023, 3:7–9.)

551. With further reference to Figure 1, Demeniuk discloses a processor 3 that controls at least some portion of the operation of the vehicle-based computing system, that the processor is connected to storage, and that the storage may include persistent (non-transitory) memory:

In the illustrative embodiment 1 shown in FIG. 1, **a processor 3 controls at least some portion of the operation of the vehicle-based computing system. Provided within the vehicle, the processor allows onboard processing of commands and routines. Further, the processor is connected to both non-persistent 5 and persistent**

storage 7. In this illustrative embodiment, the non-persistent storage is random access memory (RAM) and the persistent storage is a hard disk drive (HDD) or flash memory. In general, persistent (**non-transitory**) memory can include all forms of memory that maintain data when a computer or other device is powered down. These include, but are not limited to, HDDs, CDs, DVDs, magnetic tapes, solid state drives, portable USB drives and any other suitable form of persistent memory.

(Demeniuk, Ex. 1023, 4:21–34.)



Demeniuk, Ex. 1023, Fig. 1 (Annotated)

552. Demeniuk further discloses that the VCS (vehicle based computing system) may be implemented through a computer algorithm, machine executable code, non-transitory computer readable storage medium, or software instructions:

FIG. 9 is a flow chart illustrating an example method of a vehicle computing system detecting occupant location using connected devices. **The passenger nomadic device detection process communicating with the VCS may be implemented through a computer algorithm, machine executable code, non-transitory computer readable storage medium, or software instructions programmed into a suitable programmable logic device(s) of the vehicle, such as the VCS, the entertainment module, other controller in the vehicle, or a combination thereof.**

(Demeniuk, Ex. 1023, 18:27–36.)

553. Thus, Demeniuk discloses “A *non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform a method[.]*”

[9a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;

554. Limitation [9a] is identical to limitation [1a]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 419-437.)

[9b] detecting at least one infotainment system associated with the user; and

555. Limitation [9b] is identical to limitation [1b]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 438-441.)

[9c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:

556. Limitation [9c] is identical to limitation [1c] other than the form of the verb “determine.” Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 442-448.)

[9d] determining an access priority of the user; and

557. Limitation [9d] is identical to limitation [1d]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 449-452.)

[9e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:

558. Limitation [9e] is identical to limitation [1e]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 453-454.)

[9f] determining a second access priority of a second user associated with the infotainment system; and

559. Limitation [9f] is identical to limitation [1f]. Therefore, I refer back to

my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 455-457.)

[9g] comparing the access priority of the user to the second access priority of the second user,

560. Limitation [9g] is identical to limitation [1g]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 458-461.)

[9h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and

561. Limitation [9h] is identical to limitation [1h]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 462-464.)

[9i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

562. Limitation [9i] is identical to limitation [1i]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 465-466.)

6. Dependent Claims 10-14 and 19-20

563. Claims 10–14 and 19–20 depend from claim 9, which I understand means that these claims require all of the limitations of claim 9 in addition to their

additional limitations. Zanchó and Demeniuk teach all of the limitations of claim 9 as described above.

564. The combination of Demeniuk and Zanchó disclose all the limitations of claim 9 as described above. (See ¶¶ 550-562).

a. Claim 10

10[pre]. The non-transitory computer readable medium of claim 9, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises: [10a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and [10b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

565. Claim 10 is largely duplicative of claim 2. To illustrate the similarities, the table below shows a side-by-side comparison of claims 2 and 10. Claim 10 is “marked up” to show the minor differences:

Claim 2	Claim 10
2[pre]. The method of claim 1, wherein the at least one infotainment system is a vehicle infotainment system,	10[pre]. The <u>non-transitory computer readable medium</u> of claim 9, wherein the at least one infotainment system is a vehicle infotainment system,

and wherein prior to detecting the user profile the method further comprises:	and wherein prior to detecting the user profile the method further comprises:
[2a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and	[10a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and
[2b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.	[10b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

566. Claim 10 is substantially similar to the limitations in claim 2 other than the “*non-transitory computer readable medium*” limitation, which is disclosed by Demeniuk (See analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 2 and 9[pre] to establish that they are met by the combination of Demeniuk and Zanchó. (See ¶¶ 469-479, 550-553.)

b. Claim 11

11[pre]. The non-transitory computer readable medium of claim 10, wherein identifying the user further comprises: [11a] receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and [11b] determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.

567. Claim 11 is largely duplicative of claim 3. To illustrate the similarities, the table below shows a side-by-side comparison of claims 3 and 11. Claim 11 is “marked up” to show the minor differences:

Claim 3	Claim 11
3[pre]. The method of claim 2, wherein identifying the user further comprises:	11[pre]. <u>The non-transitory computer readable medium</u> of claim 10, wherein identifying the user further comprises:
[3a] receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and	[11a] receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and

[3b] determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.	[11b] determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user.
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568. Claim 11 is substantially similar to the limitations in claim 3 other than the “*non-transitory computer readable medium*” limitation, which is disclosed by Demeniuk (See analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 3 and 9[pre] to establish that they are met by the combination of Demeniuk and Zanchó. (See ¶¶ 480-487, 550-553.)

c. Claim 12

[12] The non-transitory computer readable medium of claim 9, wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.

569. Claim 12 is largely duplicative of claim 4. To illustrate the similarities, the table below shows a side-by-side comparison of claims 4 and 12. Claim 12 is “marked up” to show the minor differences:

Claim 4	Claim 12
4. The method of claim 1, wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.	12. The <u>non-transitory computer readable medium</u> of claim 9, wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system.

570. Claim 12 is substantially similar to the limitations in claim 4 other than the “*non-transitory computer readable medium*” limitation, which is disclosed by Demeniuk. (See analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 4 and 9[pre] to establish that they are met by the combination of Demeniuk and Zanchi. (See ¶¶ 488-493, 550-553.)

d. Claim 13

13[pre]. The non-transitory computer readable medium of claim 9, wherein determining to adjust the configuration of the at least one infotainment system further comprises: [13a] determining the configuration of the at least one infotainment system; and [13b] determining whether the infotainment information matches the determined configuration of the at least one infotainment system, [13c] wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.

571. Claim 13 is largely duplicative of claim 5. To illustrate the similarities, the table below shows a side-by-side comparison of claims 5 and 13. Claim 13 is “marked up” to show the minor differences:

Claim 5	Claim 13
5[pre]. The method of claim 1, wherein determining to adjust the configuration of the at least one infotainment system further comprises:	13[pre]. The <u>non-transitory computer readable medium</u> of claim 9, wherein determining to adjust the configuration of the at least one infotainment system further comprises:
[5a] determining the configuration of the at least one infotainment system; and	[13a] determining the configuration of the at least one infotainment system; and
[5b] determining whether the infotainment information matches the	[13b] determining whether the infotainment information matches the

determined configuration of the at least one infotainment system,	determined configuration of the at least one infotainment system,
[5c] wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.	[13c] wherein the infotainment information includes at least one infotainment setting, preference, content, and power state.

572. Claim 13 is substantially similar to the limitations in claim 5 other than the “*non-transitory computer readable medium*” limitation, which is disclosed by Demeniuk (See analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 5 and 9[pre] to establish that they are met by the combination of Demeniuk and Zanchi. (See ¶¶ 494-505, 550-553.)

e. Claim 14

[14] The non-transitory computer readable medium of claim 13, wherein the method further comprises: providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.

573. Claim 14 is largely duplicative of claim 6. To illustrate the similarities, the table below shows a side-by-side comparison of claims 6 and 14. Claim 14 is “marked up” to show the minor differences:

Claim 6	Claim 14
6[pre]. The method of claim 5, further comprising: providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.	14[pre]. The <u>non-transitory computer readable medium</u> of claim 13, wherein the method further comprises: providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system.

574. Claim 14 is substantially similar to the limitations in claim 6 other than the “*non-transitory computer readable medium*” limitation, which is disclosed by Demeniuk (See analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 6 and 9[pre] to establish that they are met by the combination of Demeniuk and Zanchi. (See ¶¶ 506-509, 550-553.)

f. Claim 19

19[pre]. The non-transitory computer readable medium of claim 9, wherein the method further comprises: [19a] collecting, while the at least one infotainment system is online, additional infotainment information associated with the user; and [19b] storing the additional infotainment information in the user profile associated with the user.

575. Claim 19 is largely duplicative of claim 17. To illustrate the similarities, the table below shows a side-by-side comparison of claims 17 and 19. Claim 19 is “marked up” to show the minor differences:

Claim 17	Claim 19
17[pre]. The method of claim 1, further comprising:	19[pre]. The <u>non-transitory computer readable medium</u> of claim 9, wherein the method further comprises:
[17a] collecting, while the at least one infotainment system is online, additional infotainment information associated with the user; and	[19a] collecting, while the at least one infotainment system is online, additional infotainment information associated with the user; and
[17b] storing the additional infotainment information in the user profile associated with the user.	[19b] storing the additional infotainment information in the user profile associated with the user.

576. Claim 19 is substantially similar to the limitations in claim 17 other

than the “*non-transitory computer readable medium*” limitation, which is disclosed by Demeniuk (See analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 17 and 9[pre] to establish that they are met by the combination of Demeniuk and Zanchi. (See ¶¶ 535-545, 550-553.)

g. Claim 20

*[20] The non-transitory computer readable medium of claim 19,
... wherein the additional infotainment information includes one or more of preferred radio stations, content applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences.*

577. Claim 20 is largely duplicative of claim 18. To illustrate the similarities, the table below shows a side-by-side comparison of claims 18 and 20. Claim 20 is “marked up” to show the minor differences:

Claim 18	Claim 20
18. The method of claim 17, wherein the additional infotainment information includes one or more of preferred radio stations, content	20. The <u>non-transitory computer readable medium</u> of claim 19, wherein the additional infotainment information includes one or more of preferred radio stations, content

applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences.	applications, listening content, viewing content, content playback settings, genres, content consumption habits, and recording preferences.
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578. Claim 20 is substantially similar to the limitations in claim 18 other than the “*non-transitory computer readable medium*” limitation, which is disclosed by Demeniuk (See analysis above with respect to limitation 9[pre]). Therefore, I refer back to my analyses of these limitations in claims 18 and 9[pre] to establish that they are met by the combination of Demeniuk and Zanchi. (See ¶¶ 546-548, 550-553.)

7. Independent Claim 15

579. Claim 15 is largely duplicative of claim 1. To illustrate the similarities, the table below shows a side-by-side comparison of claims 1 and 15. Claim 15 is “marked up” to show the minor differences:

Claim 1	Claim 15
1[pre]. A method, comprising:	15[pre]. An <u>infotainment control system</u> , comprising: <u>a profile identification module</u> <u>contained in a memory and executed</u>

	<u>by a processor of the infotainment control system,</u>
[1a] detecting a user profile associated with a user, the user profile having infotainment information stored therein;	[15a] <u>the profile identification module configured to</u> detect a user profile associated with a user, the user profile having infotainment information stored therein,
[1b] detecting at least one infotainment system associated with the user; and	[15b] detect at least one infotainment system associated with the user, and
[1c] determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration further comprises:	[15c] determine to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration comprises
[1d] determining an access priority of the user; and	[15d] determining an access priority of the user, and
[1e] determining whether the access priority of the user allows for	[15e] determining whether the access priority of the user allows for the

the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment further comprises:	adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment comprises
[1f] determining a second access priority of a second user associated with the infotainment system; and	[15f] determining a second access priority of a second user associated with the infotainment system, and
[1g] comparing the access priority of the user to the second access priority of the second user,	[15g] comparing the access priority of the user to the second access priority of the second user,
[1h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and	[15h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and
[1i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.	[15i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

15[pre]. An infotainment control system, comprising: a profile identification module contained in a memory and executed by a processor of the infotainment control system,

580. As I explained above in the overview of the '297 patent, “*module*” refers to hardware, software, firmware, artificial intelligence, fuzzy logic, or a combination of hardware and software that is capable of performing the functionality associated with that element. (See ¶ 66.)

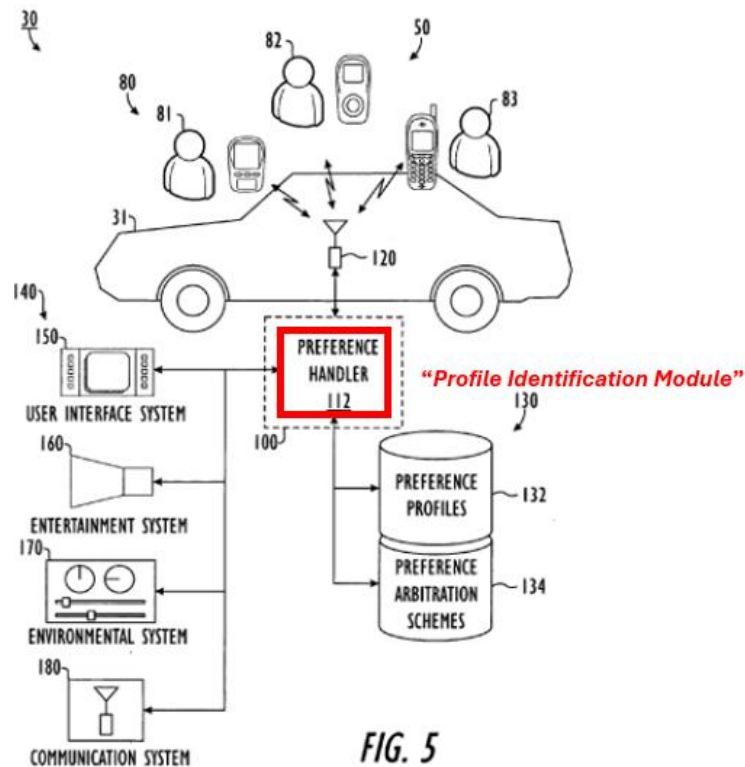
581. As previously stated in my analysis of [1a], Demeniuk discloses detecting handheld/nomadic devices associated with vehicle occupants (e.g., drivers and non-drivers), facilitating limited or restricted control of “*infotainment system[s]*” (e.g., entertainment and navigation systems) from particular handheld/nomadic devices (e.g. driver or non-driver) based on set limits or restrictions (“*user profile[s]*”), and that the “*a user profile[s]*” in Demeniuk include “*infotainment information*” with regard to properly setting the desired user limitations or restrictions for controlling of the “*infotainment system[s]*”.

582. Also, as previously stated in my analysis of [1a], the set limits or restrictions in Demeniuk are applied once a handheld/nomadic device is identified as either a driver or non-driver passenger handheld/nomadic device. Therefore, Demenik discloses “*a user profile*” [e.g., limits or restrictions] associated with a user [e.g. driver or non-driver].

583. Zanco discloses preferences via a preference handler 112 that accesses preference profiles 132 and utilizes arbitration schemes 134 to select between the preferences within the profiles.

584. Specifically, Zanco discloses that “[t]he controller 100 includes a preference handler 112 for determining how to arbitrate or negotiate between various preferences of the users 80. **The preference handler 112 is schematically shown as a component of the controller 100 but is preferably embodied in software.**” (Zanco, Ex. 1022, [0046].) A POSA would have understood that the preference handler 112 software (“*profile identification module*”) is also stored in the memory 130 so that it is accessible by the controller 100.

585. Zanco further discloses that “[t]he controller 100 has preference profiles 132 for storing user preferences and preference arbitration schemes 134 for handling preferences of multiple users. The preference profiles 132 and preferences arbitration schemes 134 can be entered and stored in memory 130 using direct entry with the user interface 150, uploads from the devices 50, or other techniques known in the art.” (Zanco, Ex. 1022, [0045].)



Zancho, Ex. 1022, Fig. 5 (Annotated)

586. Zancho further discloses that arbitrating preferences (“infotainment information”) may include establishing a ranking, weighting, or priority of preferences so that the preference handler 112 can resolve conflicts between preferences:

One way of arbitrating preferences is to establish a ranking, weighting, or priority of preferences so that the preference handler 112 can resolve conflicts between preferences. In FIG. 6A, for example, preferences for users are ranked in an order within a preference arbitration scheme 300, which is shown in tabular form. The scheme 300 includes device IDs 302 and ranked genre selections 304 for active devices in the domain. These genre selections 304 can be

relevant to the operation of a satellite radio of an entertainment system in a vehicle and can be used to set which station to operate the radio. The device IDs 302 in this example correspond to users having detected devices of in the domain and are listed as “Driver's Device,” “Front Passenger's Device,” etc. for illustrative purposes. Each user has a plurality of genre selections 304 that are ranked in order.

(Zancho, Ex. 1022, [0055].)

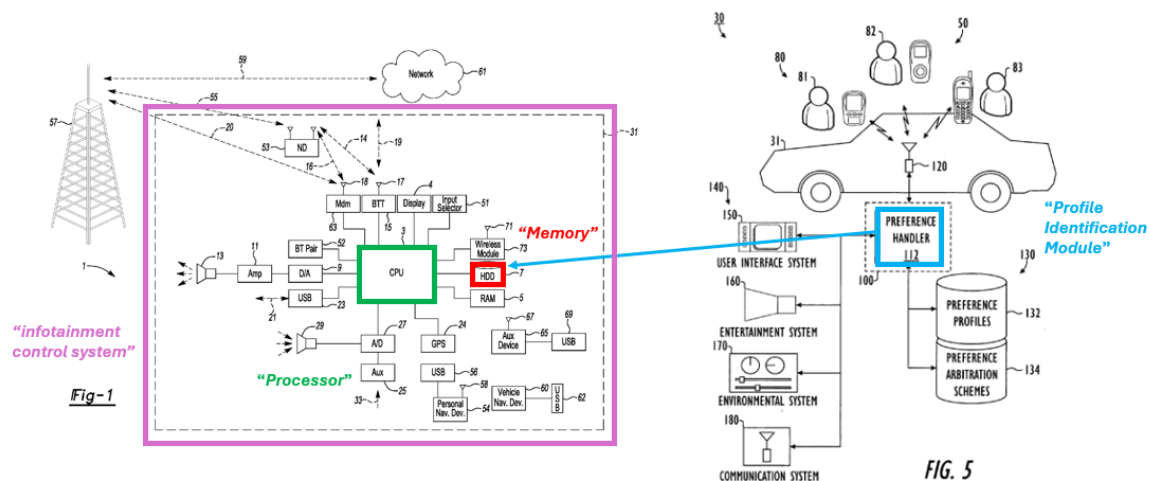
587. Zancho discloses the preference handler 112 uses an arbitration scheme to determine from the preferences stored in the profiles what genre to use for a station:

The device handler 112 uses an arbitration scheme 134 to determine from the preferences stored in the profiles 132 what genre to use for a station of the satellite radio so that the selected station satisfies the preferred genres of the users 80 in the vehicle domain 30.

(Zancho, Ex. 1022, [0054].)

588. A POSA would have modified Demeniuk with Zancho to incorporate the preference handler 112 (“*profile identification module*”), so that the limits or restrictions (“*user profile[s]*”) may be accessed by the VCS in Demeniuk once a handheld/nomadic device is identified based on a previous pairing. Specifically, the preference handler 112 may be stored within the memory (e.g., persistent storage 7) of Demeinuk and accessed by the processor 3. This allows the system in Demeniuk to operate as intended and apply the limitations/restrictions once a

handheld/nomadic device is identified as either a driver or a non-driver device. If the limits or restrictions were not stored in memory and not communicated to the VCS in Demeniuk when a device is identified based on a previous pairing, the limits or restrictions would not be applied each time a device is paired to the VCS, which is contrary to the operation of the system described in Demeniuk. Such a modification is simply applying a known technique to a known device to yield predictable results, and in this case to yield the intended results.



Demeniuk, Ex. 1023, Fig. 1 and Zanchi, Ex. 1022, Fig. 4 (Both annotated)

589. Accordingly, Demeniuk combined with Zanchi teaches “[a]n infotainment control system, comprising: a profile identification module contained in a memory and executed by a processor of the infotainment control system[.]”

[15a] the profile identification module configured to detect a user profile associated with a user, the user profile having infotainment information stored therein,

590. Limitation [15a] is substantially similar to limitation [1a] other than the

form of the verb “detect” and the profile identification module that performed the detecting, which was introduced in 15[pre]. Therefore, I refer back to my analysis of this limitation in 15[pre] and claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 419-437, 580-589.)

[15b] detect at least one infotainment system associated with the user, and

591. Limitation [15b] is substantially similar to limitation [1b] other than the form of the verb “detect.” Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 438-441.)

[15c] determine to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile, wherein determining to adjust the configuration comprises

592. Limitation [15c] is substantially similar to limitation [1c] other than the form of the verb “determine.” Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 442-448.)

[15d] determining an access priority of the user, and

593. Limitation [15d] is identical to limitation [1d]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the

combination of Demeniuk and Zanch. (See ¶¶ 449-452.)

[15e] determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system, wherein determining whether the access priority of the user allows for the adjustment comprises

594. Limitation [15e] is substantially similar to limitation [1e]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 453-454.)

[15f] determining a second access priority of a second user associated with the infotainment system, and

595. Limitation [15f] is identical to limitation [1f]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 455-457.)

[15g] comparing the access priority of the user to the second access priority of the second user,

596. Limitation [15g] is identical to limitation [1g]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanch. (See ¶¶ 458-461.)

[15h] wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and

597. Limitation [15h] is identical to limitation [1h]. Therefore, I refer back

to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 462-464.)

[15i] wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user.

598. Limitation [15i] is identical to limitation [1i]. Therefore, I refer back to my analysis of this limitation in claim 1 to establish that it is met by the combination of Demeniuk and Zanchi. (See ¶¶ 465-466.)

8. Dependent Claim 16

599. Claim 16 depends from claim 15, which I understand means that claim 16 requires all of the limitations of claim 15 in addition to its additional limitations. The combination of Demeniuk and Zanchi disclose all the limitations of claim 15 as described above. (See ¶¶ 580-598.)

a. Claim 16

16[pre]. The system of claim 15, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the profile identification module is further configured to [16a] identify the user inside a vehicle via one or more sensors associated with the vehicle, and [16b] refer, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

600. Claim 16 is largely duplicative of claim 1. To illustrate the similarities, the table below shows a side-by-side comparison of claims 1 and 15. Claim 15 is

“marked up” to show the minor differences:

Claim 2	Claim 16
2[pre]. The method of claim 1, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises:	16[pre]. The <u>system</u> of claim 15, wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting <u>the user profile the profile identification module is further configured to</u>
[2a] identifying the user inside a vehicle via one or more sensors associated with the vehicle; and	[16a] identify the user inside a vehicle via one or more sensors associated with the vehicle, and
[2b] referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.	[16b] refer, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

601. Claim 16 is substantially similar to the limitations in claim 2 other than the “*the profile identification module*” limitation, which is also taught by the combination of Demeniuk or Zanchi. (See analysis above with respect to limitation

15[pre])). Therefore, I refer back to my analyses of these limitations in claims 2 and 15[pre] to establish that they are met by the combination of Demeniuk and Zanchi. (See ¶¶ 469-479, 580-589.)

VIII. Objective Indicia Does Not Support Patentability

602. Considering the information that I have reviewed, my general knowledge of the field of vehicle communication systems and limiting access to vehicle systems based on the location of a mobile device, 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 '297 Patent. Further, from my review of the file history (Ex. 1002) of the '297 Patent, I did not see that the applicant raised any secondary indicia of non-obviousness during prosecution. I am not otherwise aware of any publicly available evidence of secondary indicia of non-obviousness. Should any alleged secondary indicia of non-obviousness be presented, I reserve the right to provide an opinion thereon.

IX. Conclusion

603. In my opinion, all the elements of the challenged claim limitations are disclosed by the references discussed above and the claims are unpatentable in view of these prior art references.

604. 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.

Executed on: December 4, 2025



Scott Andrews