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. 9,123,186

Case No.: IPR2025-01524

DECLARATION OF SCOTT ANDREWS

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- **C.** U.S. 2011/0137520 ("Rector" Ex. 1017) 60
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List of Exhibits

Exhibit No.	Description
1001	U.S. Patent No. 9,123,186 ("the '186 Patent")
1002	U.S. Patent No. 9,123,186 Certified File History ("the '186 Patent File History")
1003	Expert Declaration of Scott Andrews
1004	Scott Andrews Curriculum Vitae
1010	U.S. Patent No. 8,768,539 B1 to Clement ("Clement")
1013	U.S. Patent Application Pub. No. 2011/0093153 to Moinzadeh ("Moinzadeh")
1016	U.S. Patent No. 9,002,536 B2 to Hatton ("Hatton")
1017	U.S. Patent Application Pub. No. 2011/0137520 A1 to Rector ("Rector")
1018	U.S. Patent Application Pub. No. 2008/0245598 Al to Gratz et al. ("Gratz")
1028	2010 Ford F-150 Owner's Manual (Ford Motor Company 2009) ("F-150 Manual")
1050	Bosch Handbook, (Automotive Handbook October 2004 6th Edition) ("Bosch")
1051	IEEE Dictionary, (IEEE 100 The Authoritative Dictionary of IEEE Standards Terms 2000 7th Edition) ("IEEE Dictionary")
1052	"Specification of The BlueTooth System" (June 30, 2010). Version 4.0 (Volumes 0-6) Available at https://www.bluetooth.com/specifications/specs/core-specification-4-0/ (Accessed June 27, 2025) ("Bluetooth Specification")
1053	Hossain et al., "A Comprehensive Study of Bluetooth Signal Parameters for Localization," 2007 IEEE 18th International Symposium on Person, Indoor and Mobile Radio Communications Available at https://www.ieeexplore.ieee.org/document/4394215 ("Hossain")
1058	Ghangurde, Mujund "Ford SNYC and Microsoft Windows Embedded Automotive Make Digital Lifestyle a Reality on the Road," *SAE International*, Volume 3, Issue 2, October 19, 2010 SAE2010-01-02319 (Accessed April 25, 2025) ("Ghangurde")

Exhibit No.	Description
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")
1064	MyFord Touch Ford User Guide Ford Motor Company, February 2012 ("MyFord Touch Guide")
1068	Vahid, Frank et al., "Timing is Everything – Why Embedded Systems Demand Early Teaching of Structured Time-Oriented Programming," Proceedings of the 2008 Workshop on Embedded Systems Education, WESE 2008 Atlanta, Georgia October 23, 2008. Available at ("Vahid")
1069	Woerner, Joerg, "Intel and TI: Microprocessors and Microcontrollers" (February 26, 2001). Available at http://www.datamath.org/Story/Intel.htm (Accessed Sept. 9, 2025) ("TI TMS1000")
1070	Pfaffenberger, Bryan (Websters New World Dictionary of Computer Terms 6th Edition (Simon & Schuster, Inc. 1997) ("Computer Terms")
1072	McCartney, Scott, "ENIAC The Triumphs and Tragedies of the World's First Computer," (Walker Publishing Co., Inc. 1999) ("ENIAC")
1073	Evans, Christopher "The Micro Millenium" (The Viking Press 1980) ("Micro Millenium")
1074	U.S. Patent No. 7,663,607 B2 to Hotelling et al. ("Hotelling")

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. 9,123,186 ("the '186 Patent") to Christopher Ricci. (Ex. 1001.)

2. I am being compensated at an hourly consulting rate of $650 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 systems. 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. I also worked with the Robotics Institute at Carnegie Mellon University on robotic vision systems for use in sensing the roadway environment for obstacle detection and automated vehicle operations.

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 providing engineering consultation to various automotive suppliers. For example in 2003, I developed and applied a systematic process for analyzing and describing the entire electronic system for a modern vehicle (in this case a 2003 BMW 5 Series) for Yazaki corporation. This work included developing a detailed model of the keyless entry and other personalization systems in this vehicle

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, and various authentication and security subsystems. 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.

II. Relevant Legal Standards

A. General

23. I have been asked to provide opinions on the claims of the ’186 Patent in light of the prior art.

24. It is my understanding that a claimed invention is unpatentable under 35 USC § 102 if a prior art reference teaches every element of the claim. Further, it is my understanding that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject

matter as a whole would have been obvious at the time the alleged invention was made to a person having ordinary skill in the art to which the subject matter pertains. I also understand that an obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and the claimed subject matter.

25. 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

26. 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 '186 Patent.

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

28. 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.

29. 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

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

31. 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.

32. 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

33. I understand that the following standards govern the determination of whether a patent claim is "anticipated" by the prior art.

34. 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.

35. 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.

36. 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

37. 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.

38. 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."

39. 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.

40. 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.

41. 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.

42. 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:

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.

43. 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 leads away from the line of inquiry disclosed in the reference(s). I understand a reference does not "teach away" from an invention

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

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 ’186 Patent includes vehicle control systems that limit access to vehicle tasks, functions or operations based on a user account. (See the ’186 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 ’186 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 ’186 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 POSA of claimed subject matter the ’186 Patent at the

time of its filing would have been a person having a Bachelor's degree in Electrical Engineering, Mechanical Engineering, or an equivalent degree with at least two years of experience in vehicle control systems, vehicle sensor systems, electronic user interface systems, or related technologies. Additional industry experience could make up for less education and vice versa. Such a person of ordinary skill in the art would have been capable of understanding the '186 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 effective filing date of the '186 Patent. 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. 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 '186 Patent have been rendered from the perspective of a person having ordinary skill in the art at the time of the invention.

49. Intentionally left blank.

IV. U.S. Patent No. 9,123,186 to Ricci

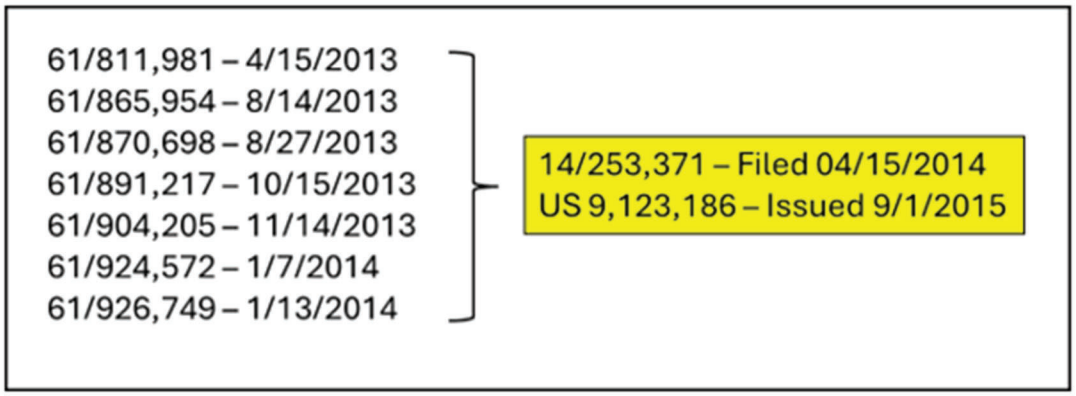
A. Priority Claim

50. The '186 Patent matured from U.S. patent application serial no. 14/253,371 filed April 15, 2014. (Ex.1002, 1.) The '186 Patent claims priority to a

series of provisional patents:

> The present application claims the benefits of and priority, under 35 U.S.C. §119(e), to U.S. Provisional Application Ser. No. 61/811,981, filed on Apr. 15, 2013, entitled "Functional Specification for a Next Generation Automobile"; 61/865,954, filed on Aug. 14, 2013, entitled "Gesture Control of Vehicle Features"; 61/870,698, filed on Aug. 27, 2013, entitled "Gesture Control and User Profiles Associated with Vehicle Features"; 61/891,217, filed on Oct. 15, 2013, entitled "Gesture Control and User Profiles Associated with Vehicle Features"; 61/904,205, filed on Nov. 14, 2013, entitled "Gesture Control and User Profiles Associated with Vehicle Features"; 61/924,572, filed on Jan. 7, 2014, entitled "Gesture Control and User Profiles Associated with Vehicle Features"; and 61/926,749, filed on Jan. 13, 2014, entitled "Method and System for Providing Infotainment in a Vehicle." The entire disclosures of the applications listed above are hereby incorporated by reference, in their entirety, for all that they teach and for all purposes.

('186 Patent, Ex. 1001, 1:7-24.)



The '186 Patent Family

51. I have been informed by Counsel that there are no child patent applications.

52. I have been informed by Counsel that all of the prior-art references applied in the below Grounds predate April 15, 2013 (the earliest priority date), and that I do not need to analyze priority at this time. Therefore, I take no opinion of whether or not the claims of the '186 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 '186 Patent should it become an issue.

B. Overview of the '186 Patent

53. The '186 Patent is titled "Remote Control Of Associated Vehicle Devices" and was filed on April 15, 2014 and issued on September 1, 2015. ('186 Patent, Ex. 1001, Cover.)

54. The '186 Patent relates to "[m]ethods and systems for a vehicle control system to control user access to vehicle tasks, functions and/or operations based on rights and privileges set forth in user accounts." ('186 Patent, Ex. 1001, Abstract.)

55. The '186 Patent discloses a vehicle control system 204 that manages user accounts defining rights and privileges of each authorized user of the vehicle.

> The vehicle control system 204 can manager user accounts that stipulate, control, and define rights and privileges of each user of the vehicle and vehicle network. In some cases these accounts may include user and/or device-specific privileges.

('186 Patent, Ex. 1001, 111:15-20.)

56. Different types of accounts can be created with different levels of rights or privileges. For example, a child user may have fewer rights and privileges than an adult driver or user. ('186 Patent, Ex. 1001, 111:21-63.)

57. The '186 patent does not provide any detailed description of the claimed "accounts" other than to describe that they contain user permission data. For example:

> The account can include rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant.

('186 Patent, Ex. 1001, 9:38-42.)

> (c) accessing an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function and/or operation;

('186 Patent, Ex. 1001, 8:62-64.)

> As provided herein, the user account information may be part of the user profile and/or other data stored in the profile data 252.

('186 Patent, Ex. 1001, 25:33-35, see also 25:14-27.)

58. Figure 27 of the '186 Patent shows operation of the vehicle control system 204 to authenticate a user and enable rights and privileges.

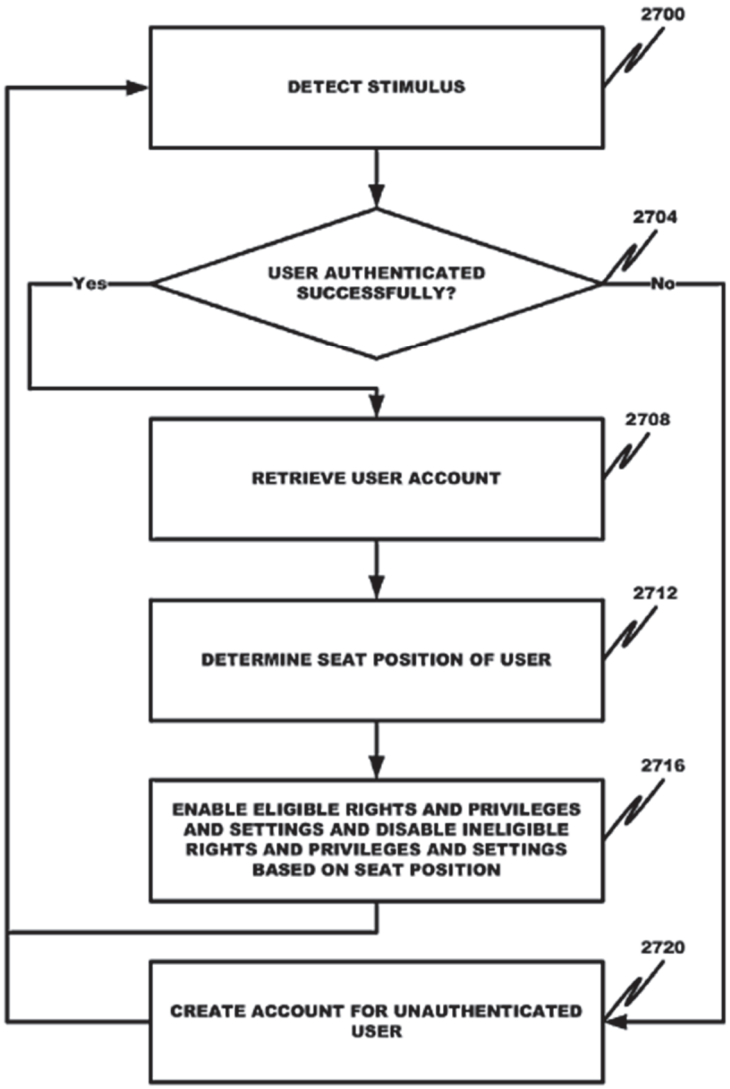


FIG. 27

'186 Patent, Ex. 1001, Fig. 27

59. At operation 2704, the user is authenticated "by any suitable technique" such as receiving valid credentials, e.g., a password, and biometrics, e.g., fingerprints. ('186 Patent, Ex. 1001, 113:54-114:2.)

60. Following successful authentication, the system 204 retrieves the user's account (step 2708) and determines the area and/or zone occupied by the user, e.g.,

seating position (step 2712), e.g., by detecting the location of their cell phone. The system 204 may also determine an operating state of the vehicle, such as vehicle speed.

> In step 2712, the vehicle control system 204 next **determines the area and/or zone (e.g., seat position)** occupied by the authenticated user, such as by using any of the techniques discussed herein, including without limitation image processing information of the various occupants, sensed seat weight, user input, **location coordinates received from a portable computational device, such as a cell phone**, tablet computer, or personal digital assistant associated with the user, and the like. **The vehicle control system 204 may also determine an operating state of the vehicle, e.g., <u>in motion</u>**, parked, in gear, in neutral, and the like.

('186 Patent, Ex. 1001, 114:31-41.)

61. At operation 2716, the system 204 enables and disables the rights and privileges of the user based on the account, and the location of the user and/or the operating state of the vehicle.

> In step 2716, based on location (e.g., seat position) of the corresponding authenticated user and/or the operating state of the vehicle, the vehicle control system 204 enables eligible rights, privileges, settings and configurations set forth in the corresponding account and disables ineligible right or privileges or alters settings and configurations.

('186 Patent, Ex. 1001, 114:42-47.)

62. The '186 Patent explains that the vehicle cabin can be divided into areas

508, e.g., 508A, and that each area is further divided into zones 512, e.g., zone A and zone B of Area 1. (’186 Patent, Ex. 1001, 33:10-42.)

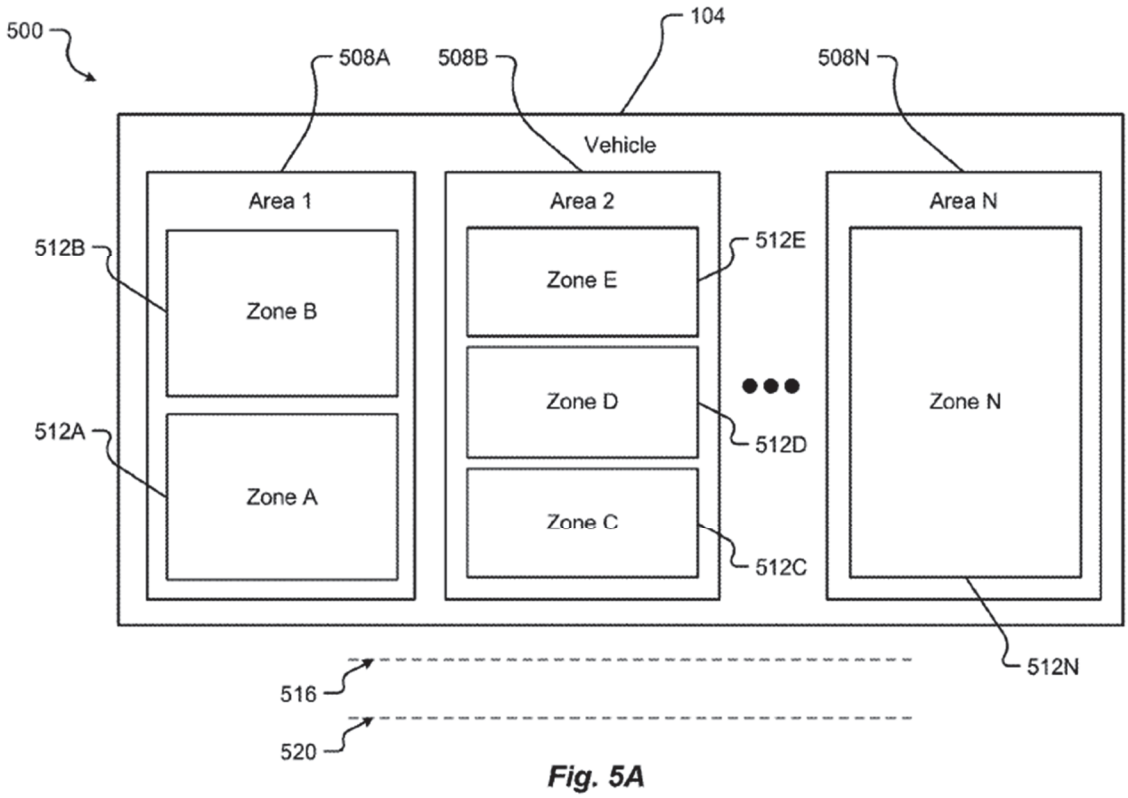


Fig. 5A

’186 Patent, Ex. 1001, Fig. 5A

63. Figure 5A further shows external areas 516 and 520 that are outside the vehicle 104. (’186 Patent, Ex. 1001, 33:17-19, 34:1-6.)

64. Independent claims 1, 8, and 15 are directed to controlling user access to vehicle tasks, functions and/or operations based on rights and privileges set forth in user accounts. The dependent claims add common features, e.g., performing different tasks in different vehicle areas (claims 2, 9, 16), vehicle state based restrictions (claims 3, 10, 17), different authentication procedures for different tasks (claims 5, 12, 19), and entertainment system related tasks (claims 6, 12, 20).

Representative claim 1 recites:

> A method, comprising:
>
> receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation;
>
> (b) determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully;
>
> (c) accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation, wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;
>
> (d) determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and
>
> (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant

and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules:

(i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and

(ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

C. The ’186 Patent File History

65. Flextronics AP, LLC filed U.S. Patent Application No. 14/253,371 on April 15, 2014 with twenty one (21) claims, including independent claims 1, 8, and 15. (’186 Patent File History, Ex. 1002, 182-186.)

66. The Patentee filed an information disclosure statement (IDS) on November 26, 2014, listing over 200 references. (’186 Patent File History, Ex. 1002, 262-269.)

67. The Patent Office determined that the application was being examined under “the first inventor to file provisions of the AIA.” (’186 Patent File History, Ex. 1002, 580.)

68. On December 16, 2014, the Examiner issued the first Office Action. (’186 Patent File History, Ex. 1002, 578-583.) Claims 1-21 were rejected under 35

U.S.C. § 112(a) "as failing to comply with the written description requirement" because "independent claims 1, 8 and 15 recite the limitation 'task, function and/or operation', without defining either in the specification or claims, what activities are tasks, what activities are functions or what activities are operations." ('186 Patent File History, Ex. 1002, 580.) Claims 1-21 were also rejected under 35 U.S.C. § 112(b) as being indefinite because "claims 1, 8 and 15 recite the limitation 'task, function and/or operation' . . . [and] [t]here is insufficient antecedent basis for this limitation in the claims." ('186 Patent File History, Ex. 1002, 581.)

69. Patent Owner did not argue against either rejection and instead amended the claims to overcome the rejections. ('186 Patent File History, Ex. 1002, 604-612.) The main amendment added the following language to claims 1, 8, and 15 addressing the § 112(a) rejections.

> wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, operation of a vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content[.]

('186 Patent File History, Ex. 1002, 605, 607, 609.)

70. Patent Owner also changed "function and/or operation" to "function or operation" in the three independent claims. ('186 Patent File History, Ex. 1002, 605, 608, 609-610.)

71. Patent Owner cited to paragraphs [0338]-[0340] of the specification as allegedly supporting the claim amendments "in connection with defining 'tasks, functions, or operations'." ('186 Patent File History, Ex. 1002, 612.)

72. The Examiner allowed the application following the claim amendments. ('186 Patent File History, Ex. 1002, 616.)

73. The Examiner did not provide an "Examiner's Statement of Reasons For Allowance." ('186 Patent File History, Ex. 1002, 621.)

74. The application issued to Flextronics AP, LLC as the '186 Patent on September 1, 2015. ('186 Patent, Ex. 1001, Cover.) I understand a certificate of correction was filed to fix two errors in claims 8 and 16[1], respectively:

> In the claims
>
> Claim 8, column 126, line 51, delete "s stem" and insert --system--.
>
> Claim 16, column 128, line 35, delete "function" and insert --functions--.

[1] The revisions made to claims 8 and 16 pursuant to the certificate of correction are shown in brackets the first time each claim is quoted. In all subsequent quotations, the claims are presented in their corrected form without brackets.

('186 Patent File History, Ex. 1002, 692.)

75. I understand that the '186 Patent lapsed for failure to pay the maintenance fees; however, Patent Owner revived the '186 Patent. ('186 Patent File History, Ex. 1002, 745.)

76. Gratz (Ex. 1018), Bosch (Ex. 1050), Rector (Ex. 1017), and Moinzadeh (Ex. 1013), were not considered during examination and are not cited on the '186 Patent ('186 Patent, Ex. 1001, pp. 1-4.)

V. Claim Construction

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

A. Claim 1-2, 5-6, 8-9, 12-13, 15-16 and 20-21: "*and/or*"

78. I have been informed by counsel that all instances of "*and/or*" are to be interpreted as "or."

B. Claims 1, 8, and 15: "*at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle*"

79. I have been informed by counsel that this limitation should be

interpreted as "at least one of: (1) an area occupied by the vehicle occupant, (2) a zone occupied by the vehicle occupant, and (3) an operating state of the vehicle."

C. Claims 1, 6, 8, 13, 15, and 20: "*the account defining rights and privileges of the user" means "the account defining permissions of the user*"

80. In the claims, the '186 Patent consistently use the terms "*rights*" and "*privileges*" together as a single noun phrase, "*rights and privileges*." Similarly, the specification mostly uses "rights" and "privileges" together as a noun phrase.

81. The specification also uses the terms "rights" and "privileges" as synonyms in the limited instances in which they are used separately. For example, the specification interchangeably uses "right and privileges," "rights," and "privileges" when describing user permissions. (Ex.1001, 111:15-42.) In this example, when describing "user and/or device-specific privileges" the specification uses the term "rights" and the phrase "rights and privileges." By explaining the user's privileges by listing his rights, the specification makes clear to a POSA that there is no distinction between these terms. This is further made clear when the specification used the phrase "rights and privileges" to describe a single permission, "read only."

> The restricted access by the customer to the first set of blade processors can be done through restrictions on software rights and privileges (e.g., read only rights and privileges to machine code with no right or privilege to modify same).

(Ex.1001, 13:25-28)

82. For the reasons discussed above, a POSA would have understood from the specification that "*rights and privileges*" simply refers to permissions of the user.

83. Intentionally left blank.

84. Intentionally left blank.

VI. State of the Art

A. Automotive basics

1. Vehicle Propulsion

85. An automobile (vehicle) typically has a chassis supported by four wheels. Traditionally, automobiles are typically powered by an internal combustion engine operably coupled to one or more driven wheels. (Bosch, Ex. 1050, p. 448[2].) For example, a rear-wheel drive vehicle has the two rear wheels operably coupled to the engine by a drivetrain that includes a transmission connected to the engine, a driveshaft, and a differential. (Bosch, Ex. 1050, pp. 736-738.) The combination of the engine, transmission, driveshaft, and differential is commonly referred to as the powertrain.

86. The engine is the powerplant of the vehicle that converts liquid fuel,

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

e.g., gasoline, into mechanical torque (and power) through combustion. (Bosch, Ex. 1050, p. 448.) At a high level, the engine receives fuel and air through an intake manifold and compresses the fuel air mixture in the cylinders. (Bosch, Ex. 1050, p. 451.) A spark plug (or simple compression in a diesel engine) ignites the fuel-air mixture. The ensuing explosion drives a piston within the cylinder to turn the crankshaft, which is the output shaft of the engine. (Bosch, Ex. 1050, p. 464-465.) This process repeats in quick succession producing a rotational torque (and power) that turns the wheels.

87. In decades past, the engine was a purely mechanical device having a carburetor that controlled the flow of air and fuel into the engine. (Bosch, Ex. 1050, p. 607.) The carburetor included a throttle plate (sometimes called a butterfly) rotatable to increase or decrease the amount of air flow through the intake manifold. The carburetor delivered a metered amount fuel into the passing air stream. The amount of fuel increased proportion with the flow rate of the air. (Bosch, Ex. 1050, p. 607.) The throttle plate was connected to an accelerator pedal (gas pedal) usually by a cable.

88. By the effective filing date of the ’186 Patent, carburetors had long been phased out in view of electronic fuel injection that had gained dominance by the late 1980s. A fuel-injection system provided the same basic tasks of a carburetor (accurately metering fuel to match the air flow) but in a more precise manner. At a

high level, a fuel-injection system includes a throttle body housing the throttle plate, fuel injectors that deliver injection fuel into the manifold or cylinders, a controller, and sensors. The controller is typically the engine control unit (ECU) or powertrain control module (PCM). (Bosch, Ex. 1050, p. 693.)

89. In both systems, the driver controls the position of the throttle plate using an accelerator control, e.g., a pedal. (F-150 Owner's Manual, Ex. 1028, p. 98-99[3].) The accelerator pedal was placed in the footwell of the driver's seat area. (Bosch, Ex. 1050, p. 594.) Since the advent of internal combustion powered vehicles in the late 1800s the throttle control (e.g., accelerator pedal) was mechanically connected to the throttle plate such as by cable or other linkage. By the effective filing date of the '186 patent, electronic throttles (drive-by-wires) had been widely adopted in which the controller determined a driver-demanded torque based on the pedal position that electronically opened the throttle plate to a position estimated to produce the driver demanded torque. (Bosch, Ex. 1050, p. 636.) Rather than using a cable, the accelerator pedal included a sensor that sensed the position of the pedal. (Bosch, Ex. 1050, p. 636.) That signal was output to the sensor, which interpreted the signal as a position of the pedal and opened the throttle plate to the desired

[3] F-150 Owner's Manual, Ex. 1028, is a true and accurate copy of a manual that I understand was copyrighted by Ford Motor Company in 1997.

position.

2. Starting the engine

a. Ignition system

90. An ignition system includes an ignition switch having multiple positions such as OFF, ACCESSORY, ON (run), and START to place the vehicle in various states of activation. (Hatton, Ex. 1016, 6:36-40.) For example, placing the ignition switch in ACCESSORY energizes the vehicle electrical system but does not start the engine. Placing the ignition system in START is how the driver requests starting of the engine.

91. When the ignition switch is moved to START, current is sent from the battery to the starter motor to crank the engine and the ignition system controls the timing of spark and fuel to achieve stable operation. More specifically, when the ignition switch is activated, the battery powers the ignition coil, which converts low-voltage battery power into high voltage through electromagnetic induction. The engine control module (ECM) precisely triggers the coil to release this energy (via the spark plugs) in synchronization with the engine's rotation, ensuring each cylinder ignites at the correct point in its cycle. (Bosch, Ex. 1050, pp. 623-624.) As the engine reaches operating speed, the ignition system continues to supply timed high-voltage pulses to the spark plugs, allowing combustion to become self-sustaining and the engine to run independently.

92. Traditionally, the ignition switch was a cylinder that received a physical key that the driver turned a key to start the engine. By the effective filing date of the '186 Patent, however, push-button start was well known as was remote start. (Hatton, Ex. 1016, 9:47-49.). These systems used an electronic key to authenticate the key holder to the vehicle, indicating to the vehicle system that the user was authorized to start the vehicle. (Hatton, Ex. 1016, 9:50-63.)

B. Automotive Electronic Control Units

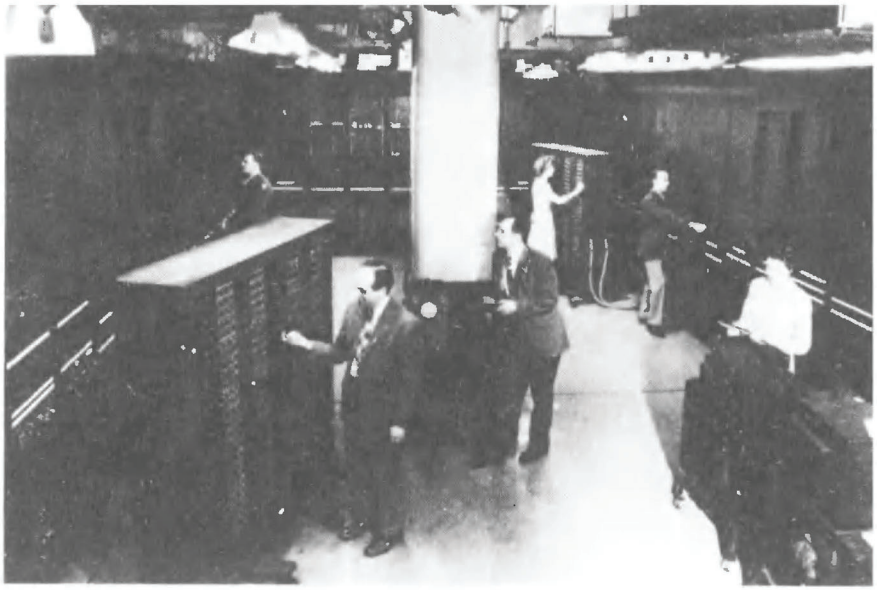
1. Microprocessors and Microcontrollers

93. Prior to the invention of microprocessors in the early 1970s, central processing units (CPUs) were implemented using multiple integrated circuits on multiple circuit boards and could take up entire cabinets or even rooms. For example, the ENIAC computer developed during World War II took up 1800 square feet of space and required 174 kW of electrical power. It was able to perform 5000 additions per second, a process that today's microprocessors can perform in nanoseconds.

> What the army got was a thirty-ton monster that filled 1,800 square feet—the size of a three-bedroom apartment in some cities. It had forty different units, including its twenty accumulators, arranged in the shape of a U, sixteen on each side, and eight in the middle, all connected by a ganglion of heavy black cable as thick as fire hose. It was 1,000 times faster than any numerical calculator, 500 times faster than any existing

computing machine. It could perform 5,000 addition cycles a second and do the work of 50,000 people working by hand...

ENIAC required 174 kilowatts of power to run, about as much electricity as it took to run a large broadcasting station.



Left to right: Homer Spence, Pres Eckert, John Mauchly, Elizabeth Jennings, Captain Herman Goldstine, Ruth Lichterman (Used by permission of the University of Pennsylvania's School of Engineering and Applied Science, formerly known as the Moore School of Electrical Engineering)

(ENIAC, Ex. 1072, pp. 101-102[4].)

94. Rapid technological developments occurred during the 1960s, and Intel released the first commercially available microprocessor, the Intel 4004, in 1971. The Intel 4004 was a single-chip CPU (containing the ALU, control unit, and

[4] ENIAC, Ex. 1072, is a true and accurate copy of a book that I understand was published by Walker Publishing Company, Inc. in 1999.

registers). The Intel 4004 was included in Intel's first microcomputer system, the MCS-4, which further included additional chips for the ROM, RAM, and shift register. The Intel 4004 processor was a 4-bit processing unit that could be used to implement relatively simple processing tasks using a small set (45) of primitive instructions. Between 1975 and 1983, the capability of these devices improved considerably, and from 1983 to the early 1990s computing technology became practical and pervasive. For example:

> This chapter is concerned with changes that are likely to take place in the immediate or short-term future, a future which comes to a close in 1982 or thereabouts. I have taken the Computer Revolution as beginning in 1975—at about the time that the first primitive microprocessors came on the market. Thus, in 1980, it is five years old and its first era has about another two years to run. It will be largely concerned with gadgetry and gimmicks[.] . . .
>
> The second phase, the medium-term future, should run from approximately 1983 to 1990, and it is then that computers will have their most important social effects.

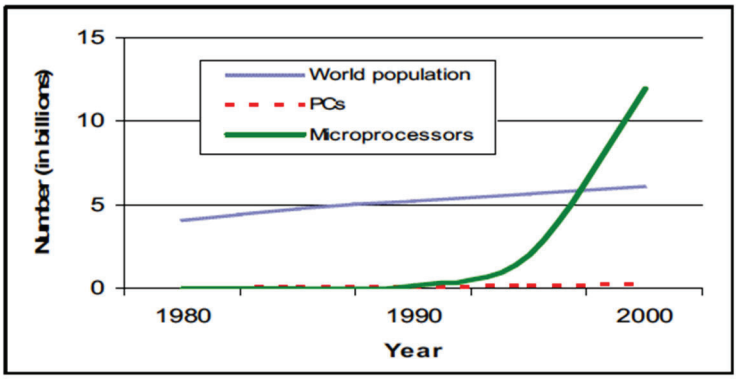
(Micro Millennium, Ex. 1073, p. 73[5].)

95. This trend can be seen in the graph below that shows the annual

[5] Micro Millennium, Ex. 1073, is a true and accurate copy of a book that I understand was published by The Viking Press in 1980.

production of microprocessors between 1980 and 2000.

Figure 1: Growth in number of microprocessors worldwide in past decade due to growth in embedded systems market.



Vahid, Ex. 1068, p. 3[6]

96. While systems such as the MCS-4 require multiple individual components to implement a full working computer, most modern micro-controllers implement all of the required elements on a single chip. This microcontroller includes a microprocessor but also has its own program and working memory and its own I/O system. In practice, most microcontrollers offer a variety of different I/O components to suit a variety of applications. The first commercial microcontroller, the Texas Instruments TMS1000, was released in 1974. (TI TMS1000, Ex. 1069,

[6] Vahid, Ex. 1068, is a true and accurate copy of a presentation that I understand was published by Workshop on Embedded Systems Education in 2008.

p. 3[7].) The only substantive difference then between microcontrollers and microprocessors is that a microprocessor generally requires other components such as memory and I/O peripherals, whereas a microcontroller generally includes all these components on a single chip.

97. It was well-known at the time of the '186 Patent that vehicle systems included electronic control units (controllers) for controlling vehicle functions by processing input signals and generating appropriate output signals. Such controllers included a microprocessor, input and 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. 1051, 693, 872[8]; see also Bosch, Ex. 1050, 94, "The microprocessor represents the integration of a computer's central processing unit on a single chip.")

98. The controllers also included software code that was stored in the memory and executed by the microprocessor to perform a series of operations.

[7] TI TMS1000, Ex. 1069, is a true and accurate copy of an article that I understand was published by Joerg Woerner on February 26, 2001.

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

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.)

99. Input and output units (I/O) are associated with physical and logical/virtual ports. A physical port is "an interface point connecting a communications channel and a device." (IEEE Dictionary, 7th ed. 2000, p. 844, definition 10.) For example, Universal Serial Bus (USB) ports are standardized physical connectors used to transfer data, provide power, and connect peripherals (e.g., flash drives, keyboards, diagnostic tools, mobile devices). It was well known to connect an infotainment system to a peripheral device, e.g., a mobile phone, using a USB connection. (See e.g., Moinzadeh, Ex. 1013, [0069].)

100. A logical or virtual port is a software-defined endpoint or "abstraction of an access point to network communications." (IEEE Dictionary, Ex. 1051, p. 844, definition 13.)

2. Databases

101. A database is a structured system for storing data so that it can be stored

and retrieved efficiently. Examples of simple databases are lists such as a customer list that lists individuals by name and provides for each name a book that they have purchased. In this type of simple database, each individual is represented by a database record, and each record contains the individual's name and the book title in what are known as fields. This approach, however, is somewhat limited, since it requires storing the same information many times. For example, if multiple customers bought the same book, the book title may be listed in numerous records. Similarly, many customers might buy more than one book, and this means that each customer will appear in numerous records. In this admittedly simple example, it is possible to use a more sophisticated structure, known as a relational database, to store information more efficiently and in such a way that all information in the database can be easily retrieved in any order—and with minimal data storage. In a relational database, data is stored in tables that are linked together by shared field entries, that is record fields that appear in more than one table. For example:

> The term "relational" suggests the ability of this type of database software to relate two tables on the basis of this common field and to construct a new, third table based on this relation. For example, suppose a bookstore's database program stores one table listing customer names and customer numbers, and a second table listing customer numbers and the subjects of the books purchased by the customer with this number. By formulating a query, a user could produce .a third, new table, which lists the customer name and the subjects of the books

> purchased by this customer. The customer number provides the common field by which the two original tables can be related.

(Computer Terms, Ex. 1070, p. 442[9].)

102. Because of this structure each book subject (or title) would be represented by a table of customer numbers representing those customers who had purchased that book. Similarly each customer name would be stored in a table indicating that customer's customer number. In this scheme, the customer name would only be stored once, instead of repeated for every book the customer had purchased, and each book would also be stored once. Since there would be separate records for customers and books, it would be possible to search the database in any dimension. For example, one could obtain the names of all the customers who had bought a particular book, or obtain a list of all the different books a particular customer had purchased.

103. While the above example is highly simplified, the concept of separating data elements and representing their relationships to other data elements in this relational fashion becomes extremely useful when there are large numbers of records and different types of data records. One example is found in Moinzadeh, where rules associated with the use of phone applications may be stored in a database together

[9] Computer Terms, Ex. 1070, is a true and accurate copy of a dictionary that I understand was copyrighted by Simon & Schuster in 1997.

with phone numbers identifying individuals. (Moinzadeh, Ex. 1013, Fig. 2, [0023]-[0025].) Here, it would be possible to store a set of such rules within the record for any given phone number. However, if the quantity of phone numbers is large (for example in the hundreds of thousands), the rules would be repeated hundreds of thousands of times. Using a relational structure, instead, each rule would be stored once and the record for any given phone number would simply "point to" the applicable rules. Determining the rules for a given phone number would then only require accessing the phone number record to obtain the pointers to the applicable rules. In this way, the rules would be extensive, but they would be stored only once, and the much more compact pointers would indicate which rules applied and where they could be found in the database.

104. Intentionally Left Blank.

C. Infotainment Systems

105. 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.

106. 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, 103[10].)

1. Ford SYNC Technology

107. 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

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

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; See also.)

108. The SYNC Gen1 system enabled drivers to connect both a digital media player and a mobile phone to the vehicle—media players via a USB cable and phones via Bluetooth. The USB connection not only played media through the car's system but also charged the device. To connect a mobile phone, users first completed a one-time pairing process by entering a 6-digit PIN provided by the SYNC system. After that, the phone could automatically connect by selecting the "connect" option on the vehicle interface. (SYNC Guide 2007, Ex. 1061[11], 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

[11] 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.

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, 33–35[12].)

109. 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 simultaneously, traffic monitoring, emergency contact information, and voice-activated climate control. (MyFord Touch Guide, Ex. 1064, pp. 2–9[13]; see also Ex. 1059[14].) These enhancements were implemented to improve the user experience and

[12] 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.

[13] 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.

[14] 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

enhance overall customer satisfaction.

2. Touch Screens

110. The vehicle head unit is the main human-machine interface (HMI) for the vehicle infotainment system. Head units were known to include touch-screen interfaces prior to the effective filing date of the '186 Patent. (MyFord Touch Guide, Ex. 1064, pp.7-8.) A touch screen is an HMI that includes sensors for detecting a user's finger rather than physical buttons. (Hotelling, Ex. 1074, (1:19-24.) Head units with touch-screen technology included a display, e.g., an LCD screen, and a transparent touch screen/panel overlayed on the outer surface of the display that allowed a user to interact with objects shown on the display, such as an icon.

> The display arrangement 30 includes a display 34 and a transparent touch screen 36 positioned in front of the display 34. The display 34 is configured to display a graphical user interface (GUI) including perhaps a pointer or cursor as well as other information to the user. The transparent touch screen 36, on the other hand, is an input device that is sensitive to a user's touch, allowing a user to interact with the graphical user interface on the display 34. By way of example, the touch screen 36 may allow a user to move an input pointer or make selections

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https://www.caranddriver.com/news/a15128939/ford-introduces-next-gen-connectivity-suite-called-myford-should-be-awesome-car-news/, accessed on June 25, 2025.

> on the graphical user interface by simply pointing at the GUI on the display 34.

(Hotelling, Ex. 1074, 4:17-27.)

111. Prior to the ’186 Patent, “several types of touch screen technologies including resistive, capacitive, infrared, surface acoustic wave, electromagnetic, near field imaging” were known. (Hotelling, Ex. 1074, 1:34-36.) A popular choice in automotive applications is the capacitive touch screen in which “the touch panel is coated with a material that stores electrical charge. When the panel is touched, a small amount of charge is drawn to the point of contact. Circuits located at each corner of the panel measure the charge and send the information to the controller for processing.” (Hotelling, Ex. 1074, 1:46-49.) In this type of touch screen, the touch panel included a “transparent sensing medium configured to detect multiple touches or near touches that occur at a same time and at distinct locations in a plane of the touch panel and to produce distinct signals representative of a location of the touches on the plane of the touch panel for each of the multiple touches.” (Hotteling, Ex. 1074, 21:35-40.) That is, the capacitive sensing medium sensed the location of the touch relative to the screen to determine a user selection.

112. The sensing architecture of a touch screen included row/column matrix of capacitance sensing nodes. “The nodes [] work[ed] independent of the other nodes [] to produce simultaneously occurring signals representative of different points on the touch screen[.]” (Hotteling, Ex. 1074, 5:23-25.) “In self capacitance sensing

arrangements, the transparent conductive medium [was] patterned into spatially separated electrodes and traces. Each of the electrodes represent[ed] a different coordinate and the traces connect[ed] the electrodes to a capacitive sensing circuit." (Hotteling, Ex. 1074, 5:29-34.) This created a coordinate system, e.g., Cartesian, that allowed the touch screen to determine the sensed location of the user's finger. (Hotteling, Ex. 1074, 5:34-46.) Touch screens of this era were able to detect not only touches but also near-touches, i.e., when the location of the finger was close enough to the nodes to register. (Hotelling, Ex. 1074, Abstract.)

3. Bluetooth

113. 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. 1052, Vol. 0, p. 62[15]) and became a ubiquitously available protocol that vehicle infotainment systems have been using

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

to connect and exchange data with other devices (i.e., mobile phones) due to its low power consumption, cost, and ease of use. (Hatton, Ex. 1016, 17:14-20.)

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D. Positioning Methods

115. At the time of the invention, wireless positioning techniques, both outdoor and indoor, had become very popular. For example, Bluetooth provides multiple signal parameters that may be used for determining the location of a mobile device, including: Link Quality (LQ), Received Signal Strength (RSSI), Transmit Power Level (TPL), and Inquiry Result with RSSI. (Hossain, Ex. 1053, 1-2[16].) RSSI was a well-known technique at the time. Because signal strength generally 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, 2-3, 5.) More accurate methods such as those based on multiple signal strength values or triangulation were also known. (Ex. 1010, 3:13-15, 8:49-58.)

[16] Hossain, Ex. 1053, is a true and accurate copy of an article that I understand was published by the IEEE 18th International Symposium on Person, Indoor and Mobile Radio Communications in 2007. Hossain is available at https://www.ieeexplore.ieee.org/document/4394215.

116. Vehicle systems utilized wireless position techniques to limit driver distraction and to restrict driver access to certain functions. 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 (Clement, Ex. 1010) describes restricting manual control of safety-critical systems to the driver's seat. (Clement, Ex. 1010, 6:9-10, 10:14-26.) U.S. Publication No. 2011/0093153 (Moinzadeh, Ex. 1013) discloses disabling certain non-essential functions like video game playback on the driver display. (Moinzadeh, Ex. 1013, [0026].)

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VII. Overview of the Key Prior Art References Relied Upon

A. U.S. 2008/0245598 ("Gratz" Ex. 1018)

133. Gratz is a U.S. Patent Publication filed June 16, 2008 and published October 9, 2008. (Gratz, Ex. 1018, Cover.) I understand that Gratz is prior art to all claims of the '186 Patent under 35 U.S.C. § 102(a)(1) because it was published before the earliest claimed priority date (April 15, 2013) of the '186 Patent.

134. Gratz discloses a vehicle having a system for restricting a driver's operation of a motor vehicle.

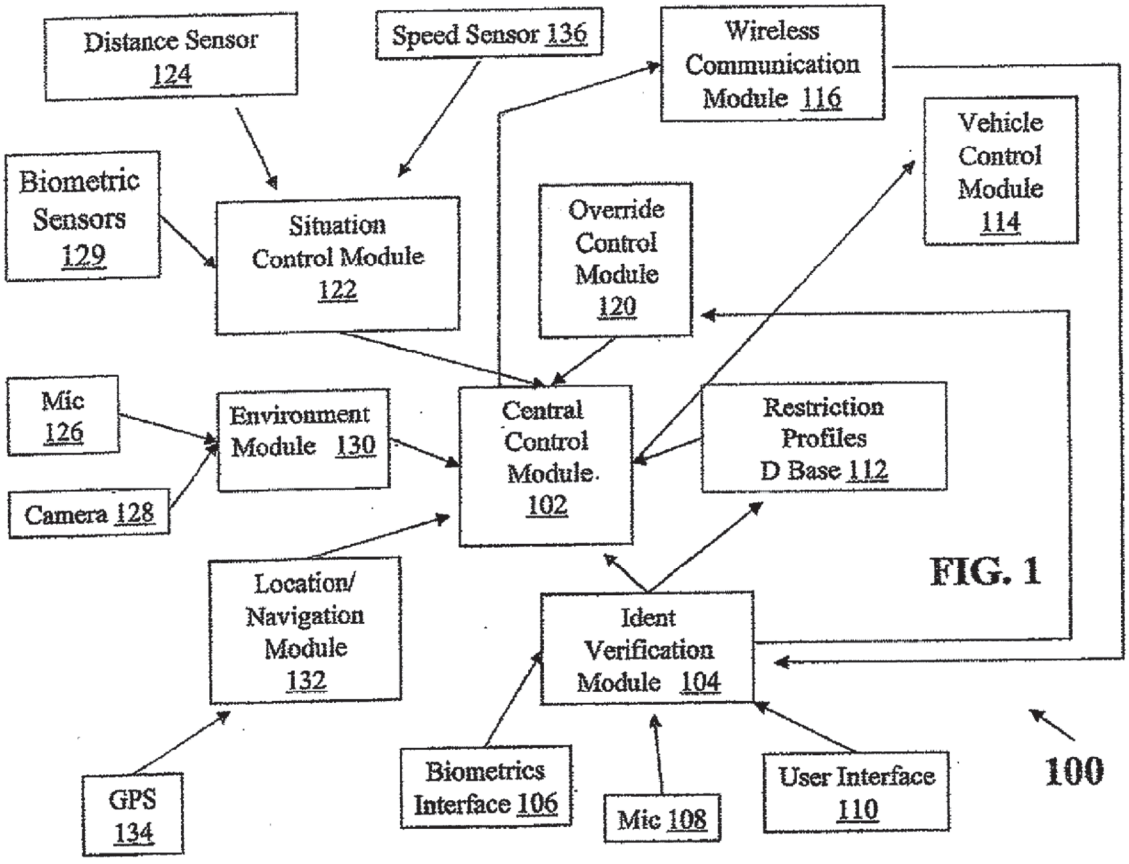
> The invention relates generally to the field of motor vehicle control, and more particularly to a system for restricting a driver's operation of a motor vehicle.

(Gratz, Ex. 1018, [0002].)

135. One purpose of the system is to improve driver safety by imposing restrictions or operating rules such as a maximum vehicle speed. (Gratz, Ex. 1018, [0003]-[0004], [0011]-[0012].)

136. In one embodiment, a motor vehicle restriction control system 100 is

used to restrict vehicle use for one or more drivers of the vehicle, such as the owner's children.



Gratz, Ex. 1018, Fig. 1

137. The system 100 includes a restriction profile database 112 that stores restriction profiles.

> Referring again to FIG. 1 and FIG. 2, in one embodiment, in operation, the motor vehicle restriction control system 100 is used by an owner of a motor vehicle to restrict another driver's operation of the motor vehicle.

(Gratz, Ex. 1018, [0035], see also [0036].)

138. Each restriction profile is associated with a particular person and includes customized permissions and restrictions for that user that are set by the owner of the vehicle.

> The owner of the motor vehicle, such as a parent, for example, logs onto the motor vehicle restriction control system 100 by entering an administrative or superuser password into the identification verification module 104 via the user interface 110 or via remote terminal capable of wirelessly communicating with the wireless communication module 116. **The parent creates a restriction profile for one or more of their children, or other users of the motor vehicle. The restriction profile includes at least one motor vehicle function restriction/operating rule, such as a maximum operating speed.** For example, the parent can set the vehicles maximum operating speed to 40 mph for local roads and 55 mph for highways. Parents can create a complex set of motor vehicle function restriction rules that are dependent on both the age of the driver and the particular situation that the driver is in (e.g. time of day, location, etc.). The restriction profile is stored in the restriction profile database 112 and can only be edited by someone with the administrative password.

(Gratz, Ex. 1018, [0036].)

139. One of the permissions is the right to use the vehicle. Prior to using the vehicle, the driver must authenticate himself/herself before the vehicle can be turned on and the engine started.

> A **user of the owner's motor vehicle, such as a teenage child, for example, must identify himself before the motor vehicle can be used**. The user can identify himself via the user interface 110 by entering a user ID, via the biometric interface 106 by entering fingerprints, or via the microphone 108 by speaking a user ID. The identification verification module 106 takes the entered identification information and verifies the identity of the user.

(Gratz, Ex. 1018, [0037].)

140. Restrictions/operating rules that may be set include maximum vehicle speed, vehicle operating times, and following distance. (Gratz, Ex. 1018, [0015], [0039], [0048].) The values of the restriction are dynamic and can changed based on sensed conditions such as weather, traffic, number of passengers in the vehicle, volume of the radio, and the like.

> The comparison module 208 also receives input from the situation processing module 210, which receives data from the situation control module 122. **The situation processing module 210 interprets internal and external driving conditions and provides additional information to the comparison module 208, which then further determines how the particular function restrictions/operating rules are applied**. Examples of external conditions that may be sensed include: road conditions (e.g., dry, slipping, wet, etc.), traffic (e.g., heavy, easy), people or animals crossing in front of the vehicle on the road ahead, and the distance of the vehicle from any surrounding vehicles. Examples of internal conditions that may be sensed by suitably located vehicle sensor devices include: infant crying in the

> vehicle, passengers talking, or a dog barking and distracting the driver, temperature in a car (e.g. too hot, too cold), a radio playing too loudly, a light on in the vehicle cabin and distracting the driver.

(Gratz, Ex. 1018, [0040].)

B. Bosch Automotive Handbook 6th Edition ("Bosch" Ex. 1050)

141. Bosch is a reference handbook that is "[a]ll about automotive engineering in a pocketbook." (Bosch, Ex. 1050, Back Cover.) Bosch is a well know reference book for automotive engineers and was published by Robert Bosch Gmbh in 2004. (Bosch, Ex. 1050, p. 3 of the exhibit.) I understand that Bosch is prior art to all claims of the '186 Patent under 35 U.S .C. § 102(a)(1) because it was published before the earliest claimed priority date (April 15, 2013) of the '186 Patent. Bosch describes the common structure of an automotive electronic control unit (ECU) as of 2004, including a "[m]icroprocessor" and "memory." (Bosch, Ex. 1050, pp. 94, 96.) Bosch explains that:

> The microprocessor represents the integration of a computer's central processing unit on a single chip. **Microprocessor design seeks to avoid individualization in the face of large-scale integration**, and the units can be programmed to meet the varied requirements associated with specific operation conditions.

(Bosch, Ex. 1050, p. 94.)

C. U.S. 2011/0137520 ("Rector" Ex. 1017)

142. Rector is a U.S. Patent Publication filed December 7, 2009 and published June 9, 2011. (Rector, Ex. 1017, Cover.) I understand that Rector is prior art to all claims of the '186 Patent under 35 U.S.C. § 102(a)(1) because it was published before the earliest claimed priority date (April 15, 2013) of the '186 Patent.

143. Rector, like Gratz, discloses a safety system that sets restrictions for drivers, such as a maximum vehicle speed. (Rector, Ex. 1017, [0002], [0004], [0007]-[0008].) The system includes a unique identifier for each authorized driver that is used to identify the person driving the vehicle and impose the restrictions set for that driver within a database.

> In exemplary embodiments, **a smart vehicle captures a unique identifier from a wireless communication device of the driver of the smart vehicle. This unique identifier is used to reference a database to determine the identity of the driver as well as settings for the driver created by a controlling authority**. The controlling authority may be, for instance, a parent or employer of the driver. **The settings may limit certain devices within the smart vehicle and/or the smart vehicle itself. Speed control settings, radio settings, wireless communication device settings, and various other settings** are all possible to limit distractions to the driver. Further, the settings may be influenced by the number or identities of passengers within the smart vehicle.

(Rector, Ex. 1017, [0008].)

144. Figure 1 shows an example vehicle 100 and a system for controlling driver settings.

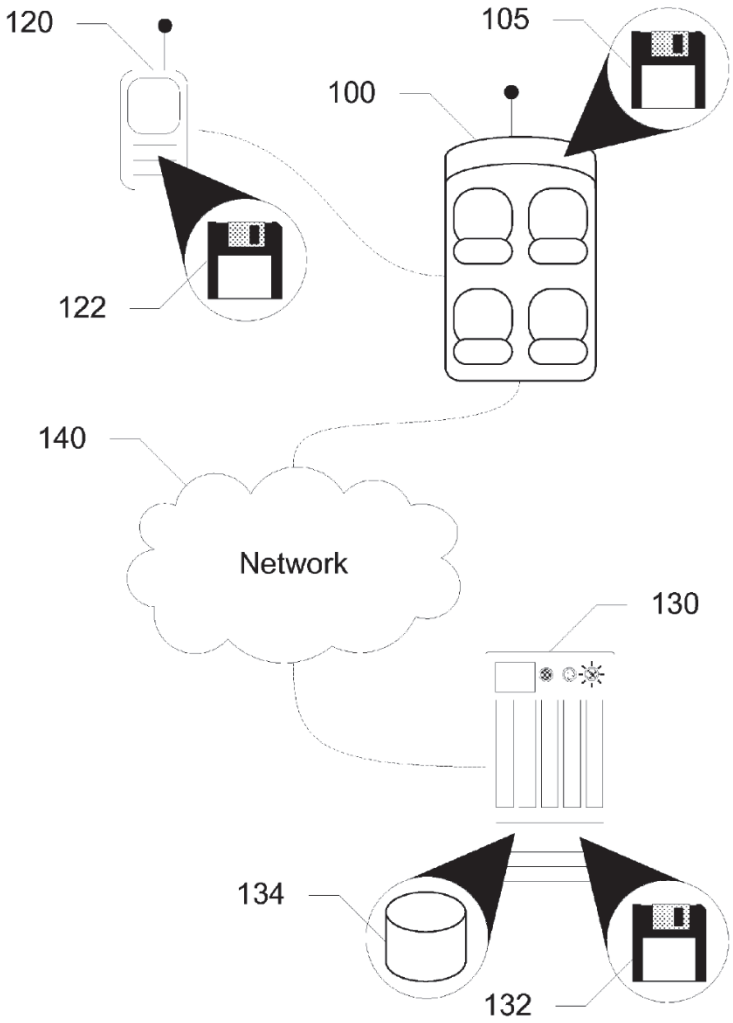


Figure 1

Rector, Ex. 1017, Fig. 1

145. The vehicle 100 is in communication with a settings server 130 over a network 140. The settings server 130 includes database 134 where the settings for the drivers are stored. (Rector, Ex. 1017, [0031].) The settings include both

restriction settings, e.g., maximum vehicle speed, as well as driver-created settings, e.g., seat position and pre-set radio stations. (Rector, Ex. 1017, [0031]-[0033].)

> The **settings may include driver created settings as well as controlling authority settings, such as parental controls, based upon the driver's identity**. The driver created settings may include seat and mirror positions, programmed radio stations, temperature controls, etc. The controlling authority settings may include a maximum speed of smart vehicle 100, radio controls, wireless communication device controls, passenger based controls, etc.

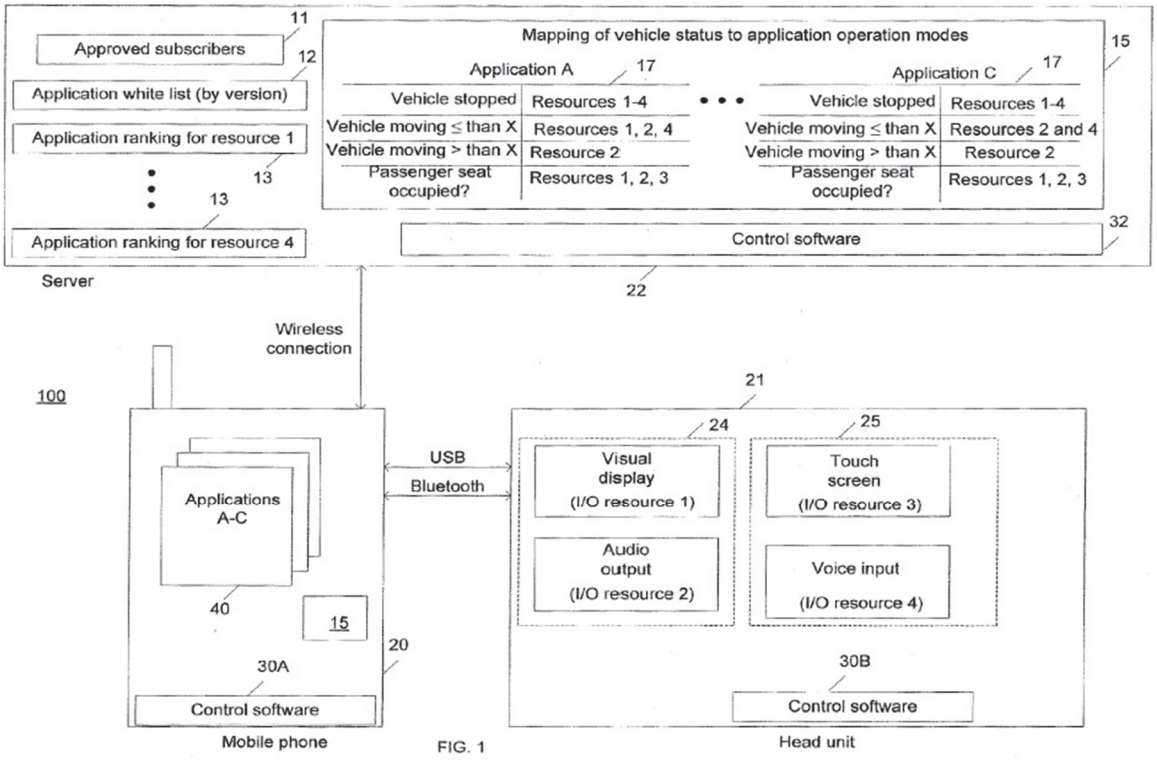
(Rector, Ex. 1017, [0031].)

D. U.S. 2011/0093153 ("Moinzadeh" Ex. 1013)

146. Moinzadeh is a U.S. Patent Publication that was filed March 22, 2010, and published April 21, 2011. (Moinzadeh, Ex. 1013, Cover.) I understand that Moinzadeh is prior art to all claims of the '186 Patent under 35 U.S.C. § 102(a)(1) because it was published before the earliest claimed priority date (April 15, 2013) of the '186 Patent.

147. Moinzadeh is directed to a vehicle system that is configured "to select and distribute applications to a vehicle in a safe and intelligent manner according to user preferences." (Moinzadeh, Ex. 1013, [0016], [0065].) Moinzadeh seeks to improve the control and operation of a smart vehicle, explaining that "[i]t is desirable to provide a mechanism to control, manage, and arbitrate the extension of mobile phone applications operating on the head unit . . . ." (Moinzadeh, Ex. 1013, [0005].)

148. Moinzadeh discloses a system 100 "to control the use of a head unit as an extended interface for a phone application." (Moinzadeh, Ex. 1013, [0020].)



Moinzadeh, Ex. 1013, Fig. 1

149. As shown in Figure 1, the vehicle includes a head unit 21 with inputs and outputs (I/O) resources for the visual display 24, the touch screen 25, the audio output, and the voice input. The system 100 enables a driver to extend applications 40 on his/her mobile phone 20 to I/Os of the head unit 21. The system 100 includes software 30A, 30B, 32 that regulates and controls how applications on the phone 20 access the I/O resources in the vehicle.

> The **system 100** includes software 30A and 30B configured on, respectively, a mobile phone 20 (or other mobile device) and **head unit**

> **21** (or other interface powered by a motor vehicle such as a user interface integrated with a steering wheel or a user interface integrated with a seat back). The **software 30A and 30B** interfaces with the software 32 configured on a remote server 22 to regulate and control when and how applications 40 operating on the phone 20 access I/O resources 1-4 of the head unit 21.

(Moinzadeh, Ex. 1013, [0021].)

150. As shown above in Figure 1, the system 100 includes a subscriber database 11 that stores the user identifiers. (Moinzadeh, Ex. 1013, [0024].) The system also includes an application whitelist that lists applications that are available for extending to the vehicle head unit. (Moinzadeh, Ex. 1013, [0025].) The system 100 further includes mapping 15 that defines permissions for the user's applications 40 based on a sensed operating state of the vehicle, such as stopped or moving.

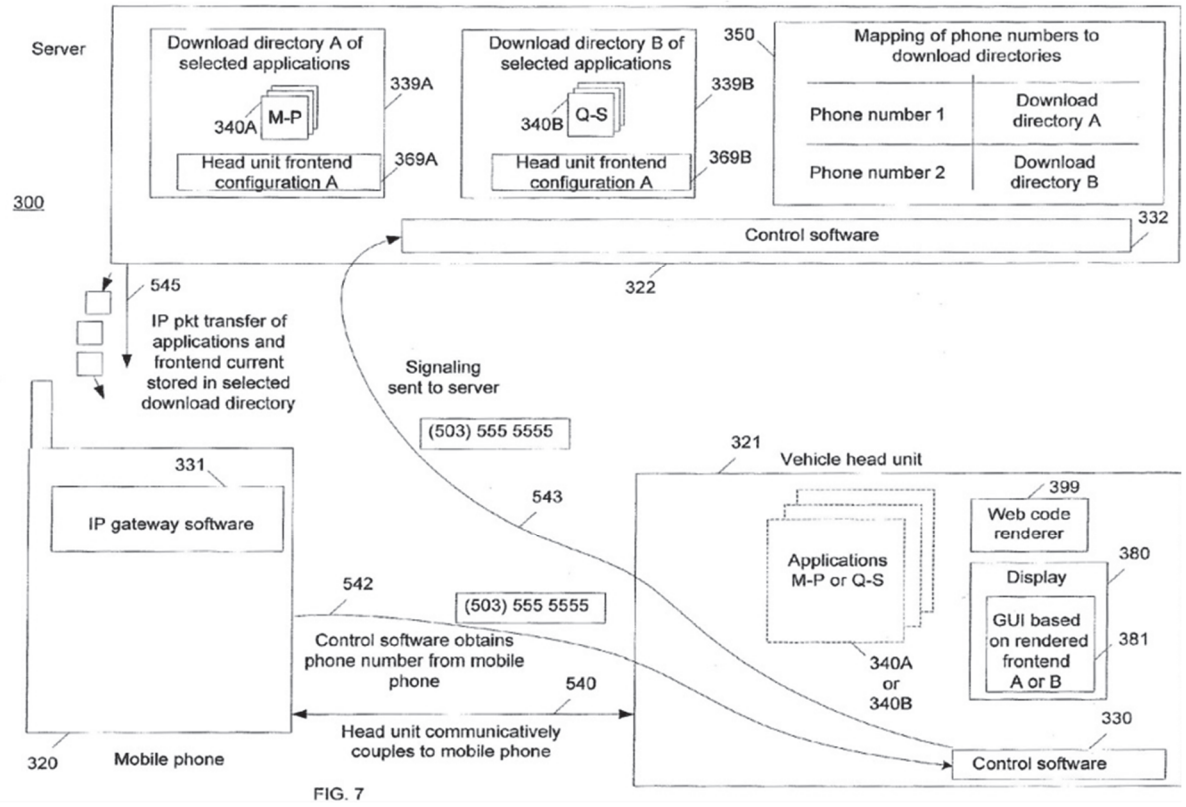
> Otherwise, if the application 40 is authenticated, then in block 206 t**he software 32 compares the application identifier and the current vehicle status information to a mapping 15** of application operation modes. As shown, the mapping 15 can have an entry 17 for each application 40 of the list 12. **Each entry 17 includes a mapping that is particularized for the corresponding application 40**. For example, an entry 17 for application A maps the vehicle status "vehicle moving ≦than X" to resources 1, 2, and 4 (namely application A will be permitted to access the only the screen 1, the speaker 2, and microphone 4 under this vehicle condition) whereas the entry 17 for application C maps the vehicle status "vehicle moving ≦than X" to only resources 2

> and 4 (namely application C will be permitted to access the speaker 2 and microphone 4).

(Moinzadeh, Ex. 1013, [0026].)

151. Moinzadeh discloses the vehicle system 100 includes hardware and associated software, e.g., "one or more processors and software executable on those processors to carry out the operations described." (Moinzadeh, Ex. 1013, [0092].) Moinzadeh further discloses memory associated with a processor, or microprocessor, that "may be stored in the same physical device as the processor ('on-board') memory; for example, RAM or FLASH memory disposed within an integrated circuit microprocessor or the like." (Moinzadeh, Ex. 1013, [0093].)

152. Moinzadeh also discloses a system 300 that may be combined with the system 100. (Moinzadeh, Ex. 1013, [0067], see also [0079].) The system 300 includes a mobile phone 320, a vehicle head unit 321, and a server 322 with software 330-332 distributed amongst all three that "enables a provider to select which applications can be installed on the head unit 321 and control distribution of the selected applications to the vehicle." (Moinzadeh, Ex. 1013, [0066], see also [0069], [0071].)

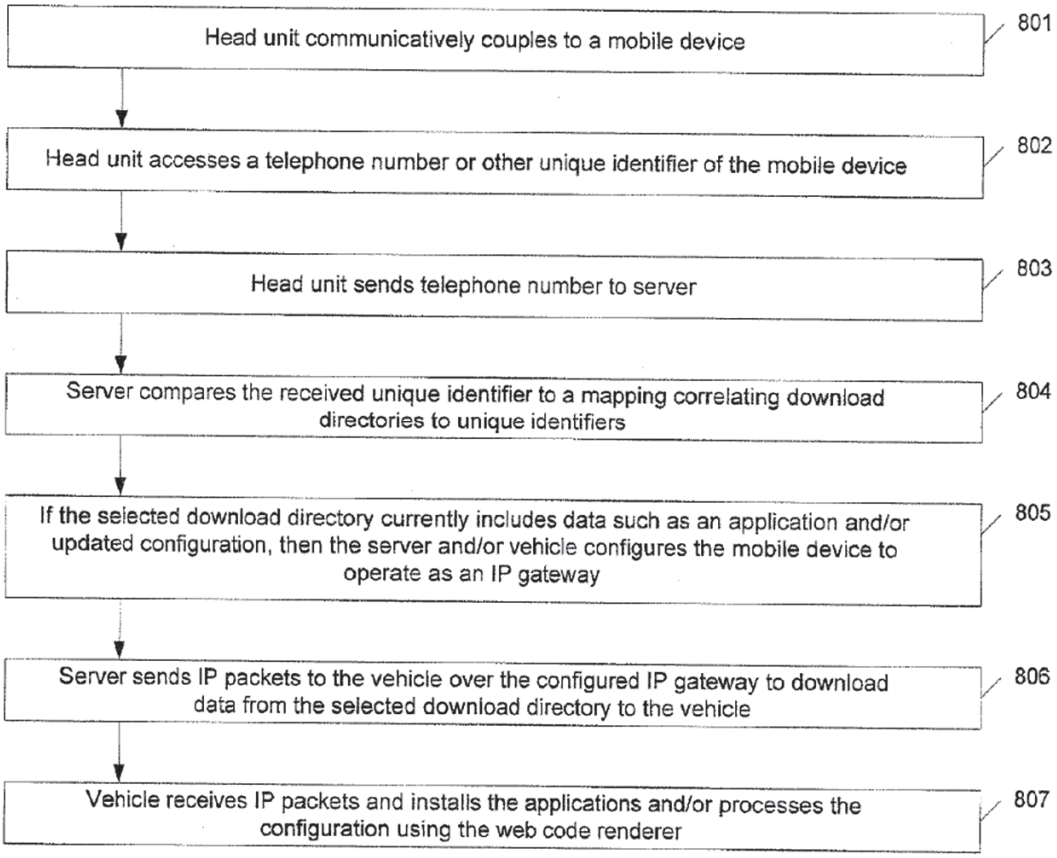


Moinzadeh, Ex. 1013, Fig. 7

153. Moinzadeh notes that "a single system could include some applications installed on a mobile phone using an interface of a vehicle as an extended interface and some applications installed on a component of the vehicle." (Moinzadeh, Ex. 1013, [0067].)

154. With reference to Figure 8, Moinzadeh discloses that a "communicative connection can be established by a user connecting the mobile phone 320 to the head unit 321 using a USB connection." (Moinzadeh, Ex. 1013, [0069].) Alternatively, Moinzadeh discloses that "connection 540 is established via Bluetooth pairing of the head unit 321 and the mobile phone 320." (Moinzadeh, Ex. 1013, [0069].)

Moinzadeh explains that "[t]he Bluetooth pairing can be in response to the vehicle being powered up (causing the head unit to power up and search for a Bluetooth device) . . . ." (Moinzadeh, Ex. 1013, [0069].)



Moinzadeh, Ex. 1013, Fig. 8

155. Moinzadeh discloses that after establishing a connection between the head unit 321 and the mobile phone 320 in block 801, "the control software 330 accesses a telephone number of the mobile phone 320" in block 802. (Moinzadeh, Ex. 1013, [0070], Fig. 8.) Then in "block 803, the control software 330 [of the head unit 321] sends signaling 543 to [a] server 322" that includes "the obtained phone

number." (Moinzadeh, Ex. 1013, [0071], Fig. 8.)

156. Moinzadeh further discloses that the server 322 includes a directory for each user associated with the head unit 321, and "[i]n block 804, the control software 332 [of the server] compares the phone number" to a mapping 350 of phone numbers to directories and selects the directory associated with the phone number. Moinzadeh provides an example, stating, "in the mapping a first phone number is correlated with the download directory A and a second phone number is correlated with the download directory B. The control software 332 selects one of the download directories A-B based on the comparison of the received telephone number to the mapping 350." (Moinzadeh, Ex. 1013, [0072].) "The software 332 then checks the selected one of the download directories A-B to determine if there are any applications currently stored in the selected directory[,]" for example, "applications 340A (M-P) and 340B (Q-S)[.]" (Moinzadeh, Ex. 1013, [0073].)

157. Moinzadeh further discloses that "the download directories A-B [also] include head unit frontend configurations A-B[.]" (Moinzadeh, Ex. 1013, [0074].) "The configurations A-B can be stored as HTML code or other web code processable by [a] web code renderer of the 399." (Moinzadeh, Ex. 1013, [0074].) Based on the chosen configuration downloaded to the head unit 321, "a display 380 of the head unit 321 will display a different graphical user interface." (Moinzadeh, Ex. 1013, [0074].)

158. Moinzadeh explains that "[i]n block 806, the software 332 generates and sends IP packets 545 to download the data from the selected one of the directories onto the vehicle[.]" (Moinzadeh, Ex. 1013, [0076].) Subsequently, "[t]he IP packets 545 are received by the mobile phone 320 and forwarded by operation of the software 331 to the head unit 321." (Moinzadeh, Ex. 1013, [0076].)

159. Then, Moinzadeh discloses that

> In block 807, the software 330 receives the IP packets 545 and installs the applications included therein on the . . . head unit 321. . . . The software 330 also processes the configuration from the IP packets 545 using the web code renderer 399 to generate a particular graphical user interface based on the detected phone number.

(Moinzadeh, Ex. 1013, [0077].)

"For example, each graphical user interface could have its own user customized settings such as a particular wallpaper selected by a user." (Moinzadeh, Ex. 1013, [0074].) Moinzadeh explains that "customizations can include customized graphical interface buttons, customized graphical user interface layout, custom images, etc." (Moinzadeh, Ex. 1013, [0087].)

160. Moinzadeh clarifies that this "invention may be modified in arrangement and detail without departing from such principles." (Moinzadeh, Ex. 1013, [0095].)

VIII. Grounds for Challenge

A. Ground 1 - Claims 1, 5, 8, 15, and 19 are obvious over the Combination of Gratz and Bosch.

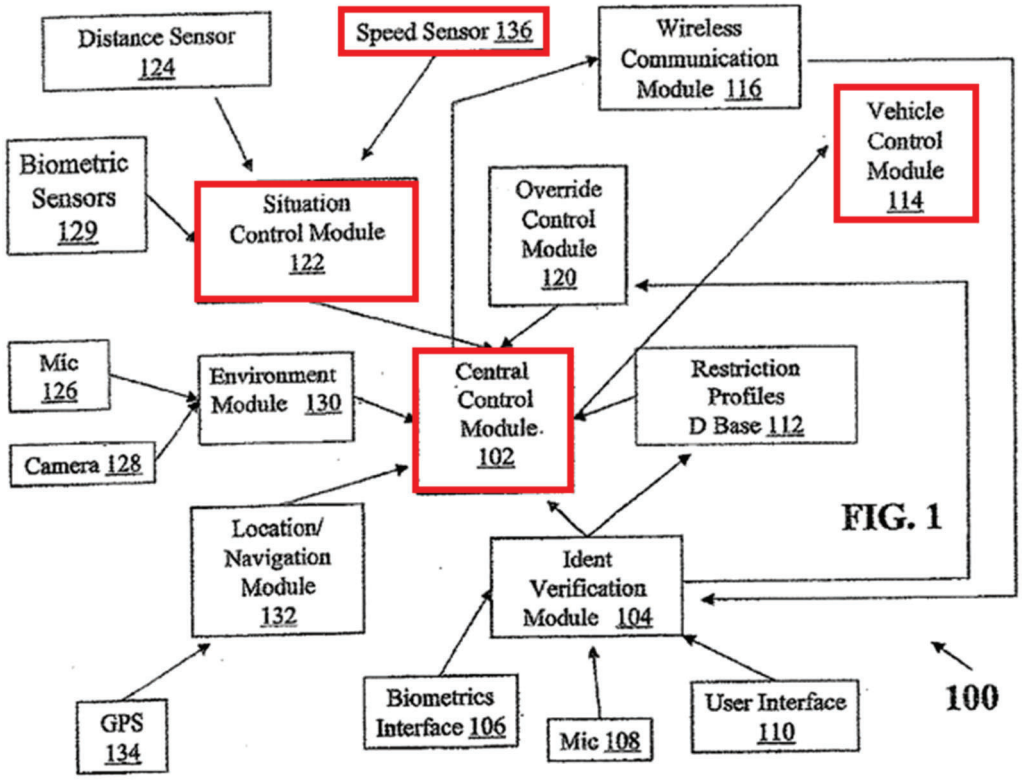
1. Rationale to Combine

161. It would have been obvious to a POSA prior to the effective filing date of the '186 Patent to implement the CPU of Gratz as a microprocessor, as taught by Bosch to improve a similar device in the same way, e.g., to reduce cost and save space for a high-volume component.

162. Gratz and Bosch are both in the same field of automotive systems that include controllers or electronic control units for performing vehicle functions. (Gratz, Ex. 1018, [0002]; Bosch, Ex. 1050, p. 94, 96, 1065.) A POSA would have understood that Gratz and Bosch are complementary technologies that are combinable. For example, Gratz discloses that "[v]ariations, modifications, and other implementations of what is described herein may occur to those of ordinary skill in the art without departing from the spirit and scope of the invention." (Gratz, Ex. 1018, [0057].)

163. Bosch explains the vehicle electronic control units all have a similar design. Their structure can be subdivided in the "conditioning of input signals, the logic processing of these signals in the microcomputer, and the output of logic and power levels as regulation or control signals…." (Bosch, Ex. 1050, p. 1065.) Gratz discloses the restriction system 100 is of the same structure with the central control module 102 receiving input signals from sensors, e.g., speed sensor 136, and

modules, e.g., situation control module 122, and outputting control signal to the actuator modules, e.g., vehicle control module 114. (Gratz, Ex. 1018, [0027]-[0028], Fig. 1.)



Gratz, Ex. 1018, Fig. 1

164. A POSA would have been motivated to implement Gratz's CPU as a microprocessor to execute Gratz's software for the restriction control system 100. (Gratz, Ex. 1018, [0027].) As explained by Bosch, it was well known to use microprocessor-based CPUs in automobiles by 2004. Bosch further explains that using microprocessors in a vehicle computing system was a cost-effective option for high volume automotive applications because "microprocessor design seeks to avoid individualization in the face of large-scale integration." (Bosch, Ex. 1050, p. 94).

That is, microprocessors allow designers to implement data processing in the vehicle without developing each individual processing component. Furthermore, a POSA would have understood that a microprocessor would take up less space in the vehicle and be lighter. Therefore, a POSA would have been motived to implement a restriction control system using widely available microprocessors that can be tailored for specific applications as disclosed by Bosch. (Bosch, Ex. 1050, p. 94).

165. Gratz already discloses a CPU. A POSA would have understood how to implement a CPU as a microprocessor. As disclosed in Bosch, automotive designers were well aware that microprocessor architectures were available and could be easily configured to execute a particular automotive control system, such as Gratz's restriction system 100 (Bosch, Ex. 1050, p. 94).

166. Intentionally left blank.

2. Independent Claim 1

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

U.S. Patent No. 9,123,186
[1.0]. A method, comprising:
[1.1] (a) receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation;

[1.2] (b) determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully;
[1.3] (c) accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,
[1.4] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;
[1.5] (d) determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and
[1.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules:

[1.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and
[1.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

[1.0] A method, comprising:

168. Gratz discloses "method steps for restricting a driver's operation of a motor vehicle."

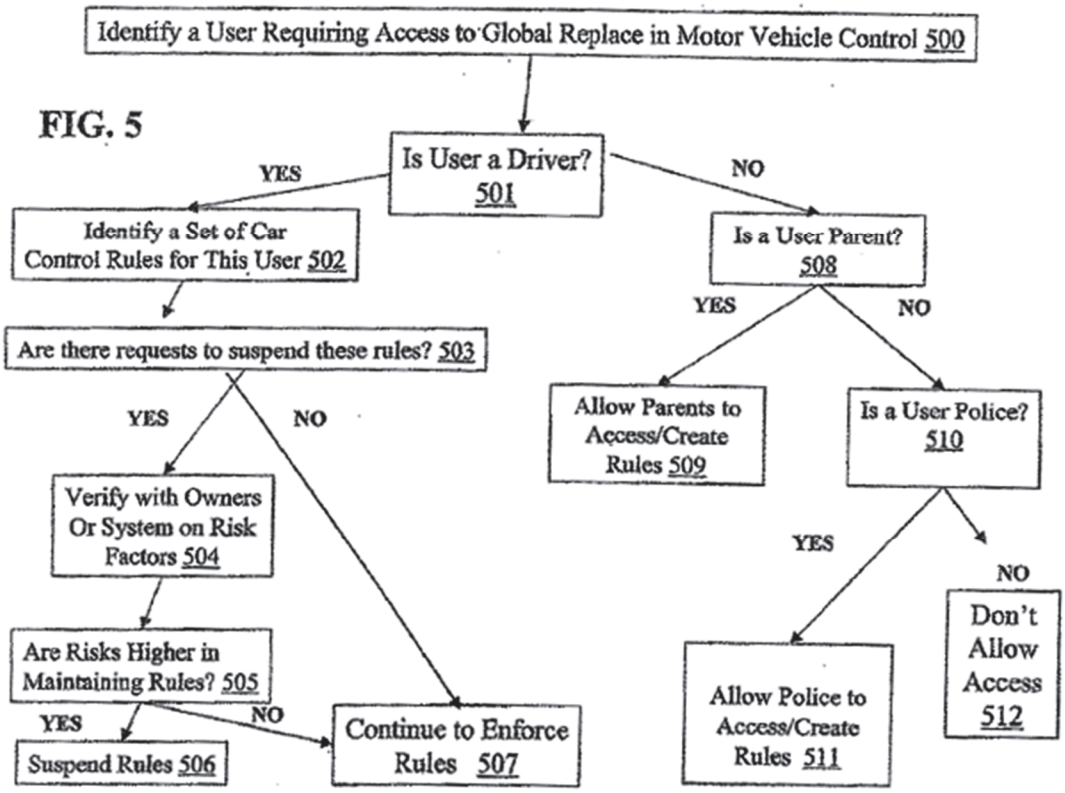
> In yet another aspect, the invention involves a program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine **to perform method steps for restricting a driver's operation of a motor vehicle. The method steps include** providing a driver identification module for identifying the driver operating the motor vehicle, providing a storage device for storing at least one restriction profile defining for the driver at least one restriction of the operation the motor vehicle, and providing a motor vehicle controlling module for restricting the operation of the motor vehicle according to the at least one restriction in response to the driver identification module identifying the driver.

(Gratz, Ex. 1018, [0017].)

169. Gratz also claims "a method for restricting a driver's operation of a

motor vehicle" in claim 18. (Gratz, Ex. 1018, Claim 18.)

170. Gratz further discloses "an illustrative flow diagram of the operation of a motor vehicle restriction control system" in Figure 5, which a POSA would have understood as disclosing, "a method." (Gratz, Ex. 1018, [0024].)



Gratz, Ex. 1018, Fig. 5

171. Thus, the combination of Gratz and Bosch teaches a "*method*."

[1.1] (a) receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation;

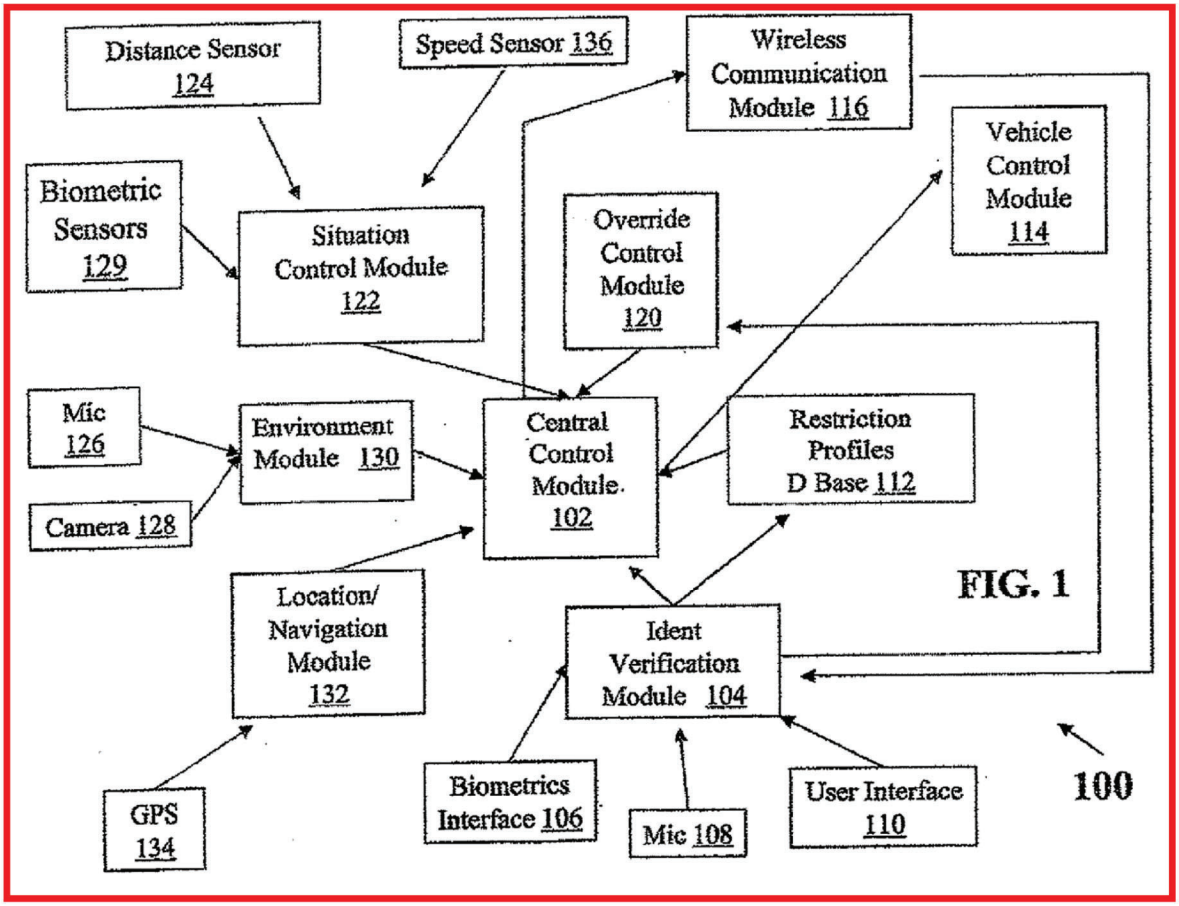
172. Gratz discloses "a system for restricting a driver's operation of a motor

vehicle." (Gratz, Ex. 1018, [0002].) Gratz refers to this system as the "motor vehicle restriction control system 100." (Gratz, Ex. 1018, [0028].) As I will discuss in detail below, a POSA would have considered the combination of Gratz and Bosch as disclosing "*a microprocessor executable vehicle control system*[17][.]"

173. The system 100 includes a central control module 102 (also called central control unit), an identification verification module 104, a restriction profile database 112, a situation control module 122, vehicle control module 114, and various other control modules and sensors to facilitate or restrict operation of the vehicle. For example:

[17] All claim language from the '186 Patent is italicized for identification purposes.

"Vehicle Control System"



Gratz, Ex. 1018, Fig. 1 (Annotated)

Referring to FIG. 1, in one embodiment, a block diagram of a motor **vehicle restriction control system 100** is shown. The motor vehicle restriction control system 100 includes a **central control unit 102**. The central control unit 102 is in communication with an identification verification module 104, a location/navigation module 132, an environment module 130, a **situation control module 122**, an override control module 120, a **vehicle control module 114**, a restriction profile database 112, and a wireless communication module 116.

(Gratz, Ex. 1018, [0028].)

174. Gratz further discloses that the restriction control system is implemented by a computer that includes a CPU, which is an acronym for "central processing unit."

> The **motor vehicle restriction control system includes control and database functions that are implemented as software executed on the CPU and stored in a data storage unit (e.g. hard disk) in communication with the CPU**. The CPU is also in communication with various electromechanical devices disposed within the motor vehicle, which are described in further detail below.

(Gratz, Ex. 1018, [0027], see also [0026].)

175. Gratz uses the term "central control unit 102" when describing the embodiment of Figure 1 and "CPU" when describing the restriction control system generally. A POSA reading paragraphs 26 to 28 as a whole would have understood Gratz as disclosing that the central control unit 102 is implemented using a CPU.

176. A POSA would have understood Gratz's "CPU" was a "*microprocessor*" as taught by Bosch. Bosch discloses that vehicle controllers include a "microprocessor." (Bosch, Ex. 1050, p. 94.) As I explained in the Rationale-to-Combine section, it would have been obvious for Gratz's central processing unit (CPU)/central control unit 102 to be a "*microprocessor,*" as taught by Bosch. Indeed, all modern CPUs are microprocessors and have been since the 1970s when Intel released the 4004 as discussed above in § VI.B.1. Indeed, vehicles lack the space for the cabinet-sized CPUs that predated the invention of the

microprocessor.

177. Therefore, the combination of Gratz and Bosch teaches a "*microprocessor executable vehicle control system*[.]"

178. Gratz discloses receiving, by the motor vehicle restriction control system 100, a request from a user to perform several different vehicle tasks, functions or operations.

179. One "*task, function or operation*" that can be requested by the user is a request to use and start the vehicle.

> **A user of the owner's motor vehicle, such as a teenage child, for example, must identify himself before the motor vehicle can be used. The user can identify himself via the user interface 110 by entering a user ID, via the biometric interface 106 by entering fingerprints, or via the microphone 108 by speaking a user ID**. The identification verification module 106 takes the entered identification information and verifies the identity of the user. Once the identity of the user is verified the identity of the user is passed to the identity processor 204, which then instructs the rule activation module 202 to retrieve a restriction profile associated with the user from the restriction profile database 112.

(Gratz, Ex. 1018, [0037].)

> In another example, assume the particular function restriction/operating rule limits the particular user's operation of the vehicle to between 8 a.m. and 9 p.m. The comparison module 208 compares this rule to input from the situation control module 122 and input from the

> location/navigation module 132. The situation control module 122 receives time information from an internal clock. The location/navigation module 132 receives location information from the GPS receiver 134. **The comparison module 208 instructs the task request module 212 to instruct the vehicle control module 114 to prevent the vehicle from starting if the vehicle is located at the owner's home and it is after 9 p[.]m. and before 8 a.m.**

(Gratz, Ex. 1018, [0048].)

180. While Gratz's discussion of starting the vehicle focuses on the prevention of starting the vehicle outside permitted hours, a POSA would have understood that the user must be able to start the vehicle between 8 a.m. and 9 p.m, otherwise there is no reason for the restriction. Therefore, paragraph 48 of Gratz teaches that a driver can request starting of the vehicle and a POSA would have understood that a user requests a vehicle start by manually actuating a key or pressing an engine start button. See ¶¶ 91-92 above.

181. Gratz also discloses receiving a request to operate the vehicle above a specific speed, i.e., a request to accelerate the vehicle.

182. Gratz discloses the vehicle control module 114 of the system 100 is configured to limit vehicle speed for certain users, e.g., teenagers, using a governor or by limiting fuel to the engine.

> The parent creates a **restriction profile for one or more of their children**, or other users of the motor vehicle. **The restriction profile**

> **includes at least one motor vehicle function restriction/operating rule, such as a maximum operating speed**. For example, the parent can set the vehicle[']s maximum operating speed to 40 mph for local roads and 55 mph for highways.

(Gratz, Ex. 1018, [0036].)

> For example, assume the particular function restriction/operating rule **limits the particular user's maximum vehicle operating speed to 40 mph for local roads and 55 mph for highways**. The comparison module 208 compares this rule to input from the situation control module 122 and input from the location/navigation module 132. The situation control module 122 receives speed information from the speed sensor 136. The location/navigation module 132 receives input from the location/navigation module 132, which receives location information from the GPS 134. **The comparison module 208 instructs the task request module 212 to instruct the vehicle control module 114 to limit the vehicle's maximum speed** according to the particular road that the user is driving on. For example, in one embodiment, the vehicle **control module 114 controls a programmable governor** (similar to that used in a cruise control), which limits the vehicle's maximum speed, for example, if the vehicle is operated on a local road. **In another embodiment, the vehicle control module 114 controls gas flow to the fuel injectors, which limits the vehicle's maximum speed.**

(Gratz, Ex. 1018, [0039].)

183. Gratz's disclosure of a speed limit teaches that the driver can request

operating the vehicle above the set maximum speed of the vehicle; otherwise, there is no reason to have a restriction/operating rule that limits a particular user's maximum vehicle operating speed.

184. Indeed, a POSA would have known Gratz's vehicle includes an accelerator control actuatable by the driver to increase or decrease the speed of the vehicle (e.g., by controlling fuel to the engine). (Gratz, Ex. 1018, [0039].) A POSA would have understood that in order to drive the vehicle at some non-zero speed, the driver would need to operate the accelerator control, e.g., the accelerator pedal, of the vehicle to request a change in speed. See ¶¶85-89.

185. In all of the above examples, Gratz's "user" is the driver of the vehicle. A POSA would have understood a driver as being a "*vehicle occupant*" as he/she is located within the vehicle when requesting engine start or vehicle acceleration.

186. Accordingly, the combination of Gratz and Bosch teaches "*receiving, by a microprocessor executable vehicle control system* [system 100 with the CPU implemented as a microprocessor], *a request from a vehicle occupant to perform a vehicle task, function or operation* [e.g., a signal indicative of a request to use the vehicle, start the engine, or accelerate/increase vehicle speed.]"

[1.2] (b) determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully;

187. As explained in claim limitation [1.1], the combination of Gratz and

Bosch teaches a "*microprocessor executable vehicle control system*."

188. Gratz discloses that the vehicle cannot be used until the user is identified and verified ("*authenticated*") by the system 100. That is, the system 100 ("*a microprocessor executable vehicle control system*") determines that the user has been authenticated successfully before allowing use of the vehicle and other tasks.

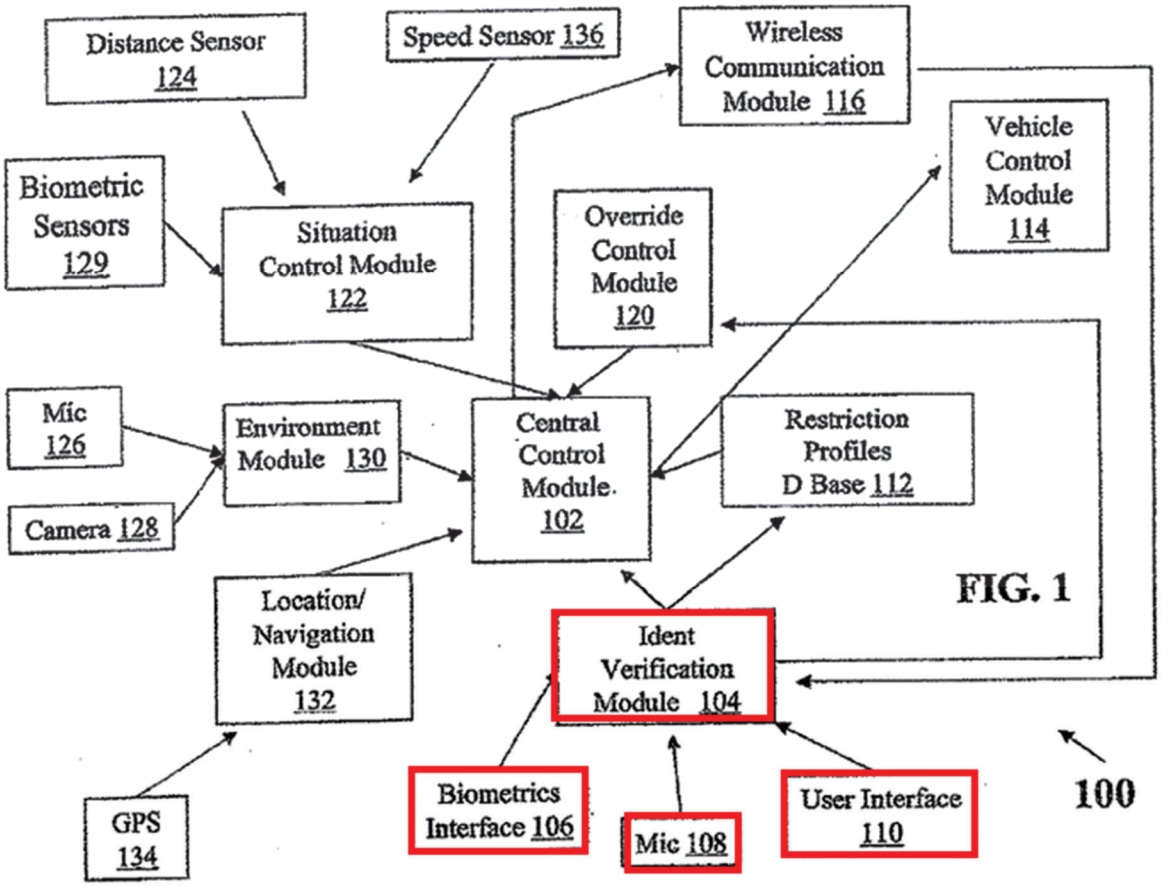
> A user of the owner's motor vehicle, such as a teenage child, for example, must identify himself before the motor vehicle can be used.

(Gratz, Ex. 1018, [0037].)

189. The system 100 includes multiple inputs for a vehicle occupant to authenticate himself. For example, the user may use a user interface 110, a biometric interface 106, or a microphone 108 to input credentials such as a user ID or a biometric signature.

> The user can identify himself via the user interface 110 by entering a user ID, via the biometric interface 106 by entering fingerprints, or via the microphone 108 by speaking a user ID.

(Gratz, Ex. 1018, [0037].)



Gratz, Ex. 1018, Fig. 1

190. The system 100 further has an identification verification module 104 that takes the entered identification information and verifies ("*authenticate[s]*") the identity of the user.

> Referring to FIG. 1, in one embodiment, a block diagram of a motor vehicle restriction control system 100 is shown. The motor vehicle restriction control system 100 includes a central control unit 102. The central control unit 102 is in communication with an **identification verification module 104**, a location/navigation module 132, an environment module 130, a situation control module 122, an override

> control module 120, a vehicle control module 114, a restriction profile database 112, and a wireless communication module 116.

(Gratz, Ex. 1018, [0028].)

> **The identification verification module 106[18] takes the entered identification information and verifies the identity of the user. Once the identity of the user is verified** the identity of the user is passed to the identity processor 204[.]

(Gratz, Ex. 1018, [0037].)

191. Gratz discloses the user is within the vehicle, i.e., is a "*vehicle occupant*," during authentication. Gratz discloses that the restriction system is "implemented a using a computer mounted on the dashboard of a motor vehicle, such as a touch screen." (Gratz, Ex. 1018, [0026].) Therefore, a POSA would have understood the user would have to be inside the vehicle to "identify himself." (Gratz, Ex. 1018, [0037].)

192. Accordingly, the combination of Gratz and Bosch teaches "*determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully* [e.g., by comparing a received user ID or biometric signature to a stored data to verify the identity of the user.]"

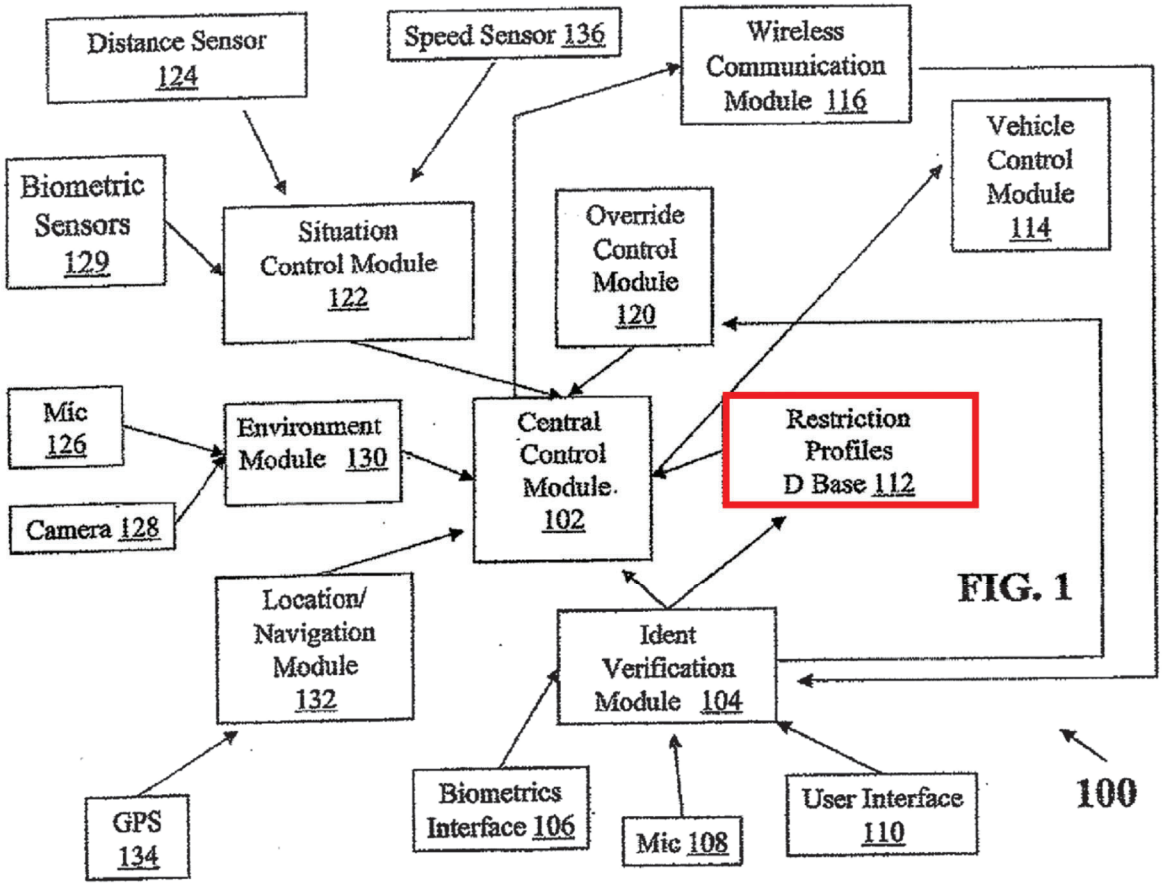
[18] The verification module 104 is misnumbered as 106, which is the biometric interface.

[1.3] (c) accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,

193. I am construing the phrase "*rights and privileges*" as permissions.

194. The system 100 of Gratz allows the vehicle owner to create "restriction profile[s] for . . . children, or other users of the motor vehicle." (Gratz, Ex. 1018, [0036].) A POSA would have understood Gratz's "restriction profiles" as disclosing the claimed "*account[s]*" as they are specific to a user and define restrictions/operating rules for that user. (Gratz, Ex. 1018, [0036].)

195. The restriction profiles are stored in the restriction profile database 112 of the system 100.



Gratz, Ex. 1018, Fig. 1 (Annotated)

The motor vehicle restriction control system 100 includes a central control unit 102. The central control unit 102 is in communication with an identification verification module 104, a location/navigation module 132, an environment module 130, a situation control module 122, an override control module 120, a vehicle control module 114, **a restriction profile database 112**, and a wireless communication module 116.

(Gratz, Ex. 1018, [0028].)

The method steps include providing a driver identification module for identifying the driver operating the motor vehicle, **providing a storage**

> **device for storing at least one restriction profile defining for the driver at least one restriction of the operation the motor vehicle**, and providing a motor vehicle controlling module for restricting the operation of the motor vehicle according to the at least one restriction in response to the driver identification module identifying the driver.

(Gratz, Ex. 1018, [0017].)

196. The restriction profiles limit use of the vehicle to only users stored in the restriction profile database 112 (Gratz, Ex. 1018, [0037]) and further restrict operation of the vehicle, e.g., maximum speed for some users (teenagers). (Gratz, Ex. 1018, [0036].) That is, the restrictions of the restriction profiles set permissions for the user, such as whether or not a vehicle occupant has permission to start the engine or has permission to drive above a certain speed. Since the restriction profiles limit vehicle usage of authorized users, each restriction profile "*defin[es] rights and privileges of the user with respect to controlling a vehicle task, function or operation*[.]"

197. For example, the restriction profiles "*defin[e] rights and privileges of the user with respect to controlling [the] task, function or operation*" of vehicle speed, hours of vehicle operation, following distance, and road type:

> **The restriction profile includes at least one motor vehicle function restriction/operating rule, such as a <u>maximum operating speed</u>**. For example, the parent can set the vehicles maximum operating speed to 40 mph for **local roads** and 55 mph for **highways**. Parents can create a

> complex set of motor vehicle function restriction rules that are dependent on both the age of the driver and the particular situation that the driver is in (e.g. **time of day**, location, etc.).

(Gratz, Ex. 1018, [0036], see also [0011].)

> In another example, assume the particular function **restriction/operating rule limits the particular user's operation of the vehicle to between 8 a.m. and 9 p.m.** The comparison module 208 compares this rule to input from the situation control module 122 and input from the location/navigation module 132. The situation control module 122 receives time information from an internal clock. The location/navigation module 132 receives location information from the GPS receiver 134. The comparison module 208 instructs the task request module 212 to instruct the vehicle control module 114 to **prevent the vehicle from starting if the vehicle is located at the owner's home and it is after 9 p m. and before 8 a.m**.

(Gratz, Ex. 1018, [0048].)

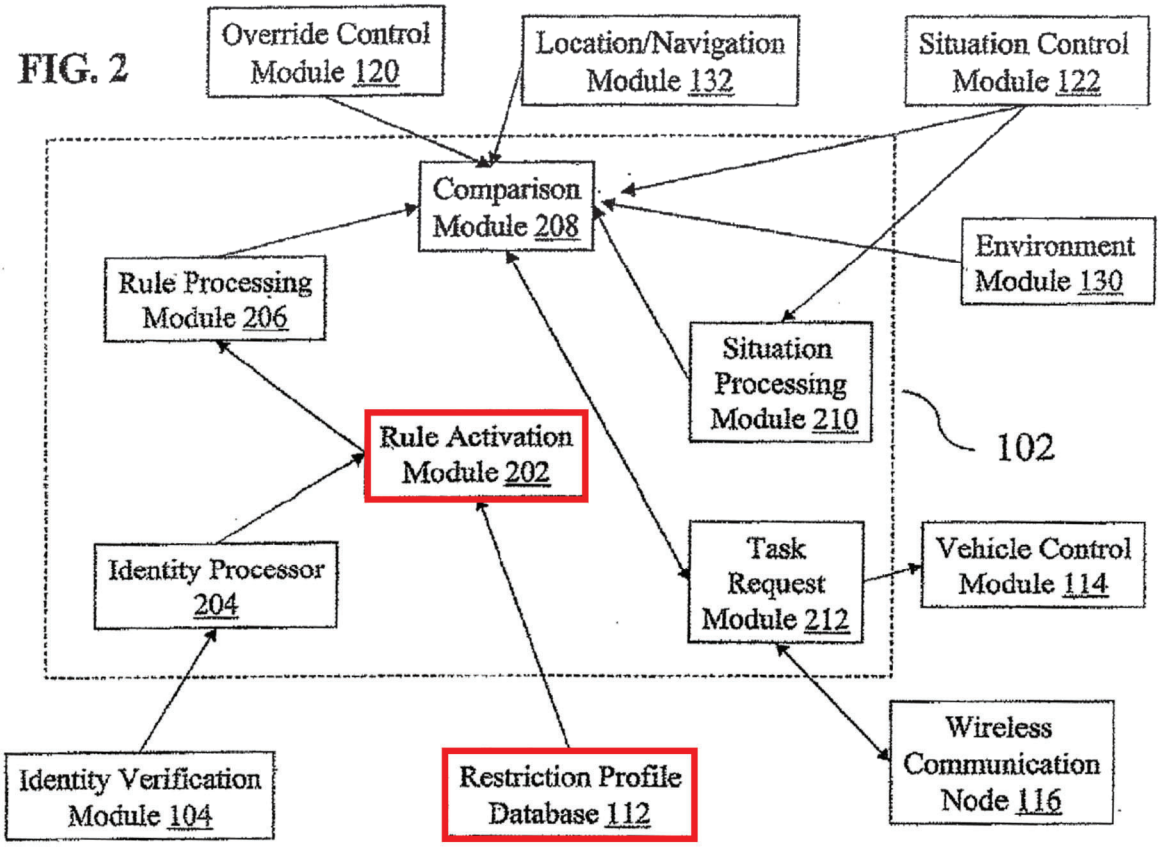
> In yet another embodiment, the system further includes a distance sensor for sensing the distance between the motor vehicle and another vehicle. **The speed limiting device reduces the motor vehicle speed to comply with a predetermined <u>minimum distance restriction</u>**.

(Gratz, Ex. 1018, [0015].)

198. As I discussed in claim limitation [1.2], Gratz's system 100 retrieves the restriction profiles when the user identifies himself with the vehicle.

The identification verification module 106 takes the entered identification information and verifies the identity of the user. Once the identity of the user is verified the identity of the user is passed to the identity processor 204, which then instructs the **rule activation module 202 to retrieve a restriction profile associated with the user from the restriction profile database 112**.

(Gratz, Ex. 1018, [0037].)

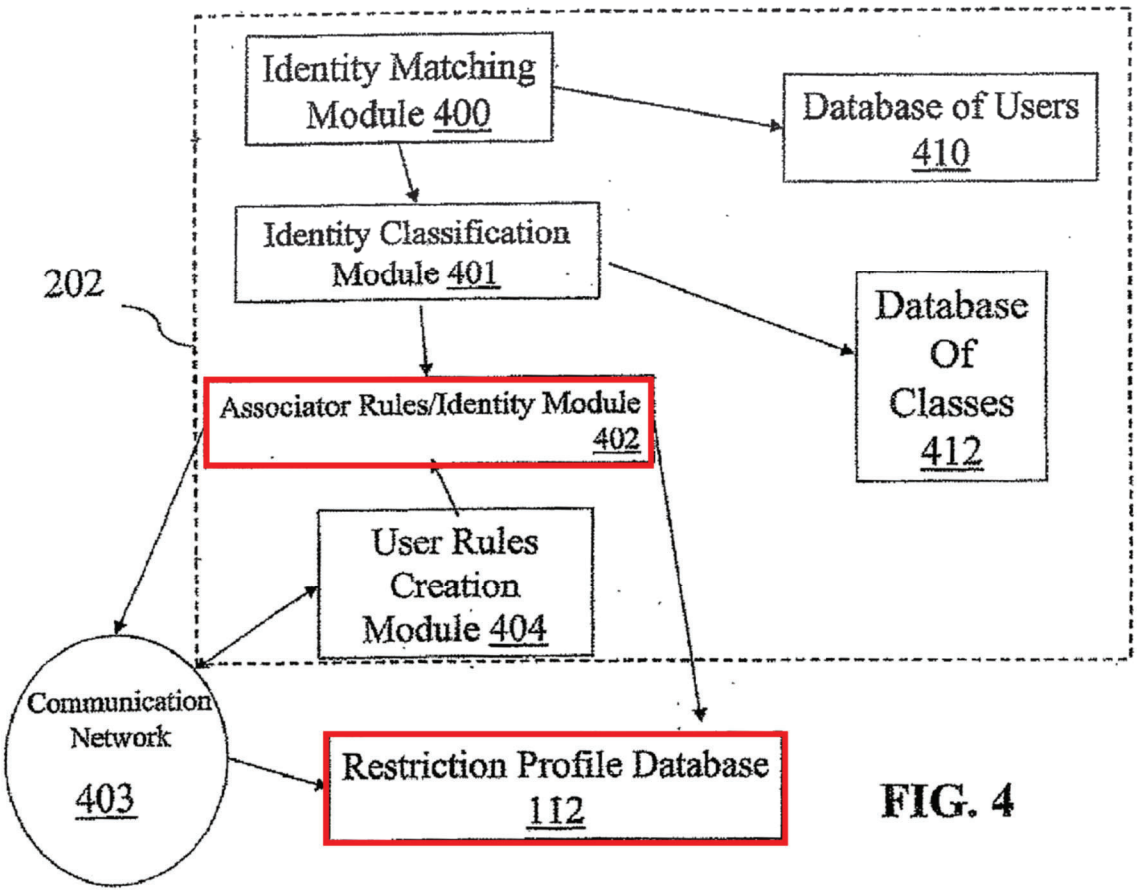


Gratz, Ex. 1018, Fig. 2 (Annotated)

Next, **the associator rules/identity module 402 retrieves from the restriction profile database 112 rules and restrictions associated with the particular user**, or the particular class of user. In one

embodiment, the rules and restriction are retrieved from the restriction profile database 112 directly. In another embodiment, **the rules and restriction are retrieved from the restriction profile database 112** via a communication network 403, such as the internet, for example, or via a wireless communications channel or link.

(Gratz, Ex. 1018, [0047].)



Gratz, Ex. 1018, Fig. 4 (Annotated)

199. A POSA would have understood that the when the system 100 "retrieve[s] a restriction profile" of a driver that the system 100 is "*accessing ... an account for the vehicle occupant*[.]"

200. Accordingly, the combination of Gratz and Bosch teaches "*accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation* [e.g., by retrieving the rules and restrictions associated with the particular user from the restriction profile database 112.]."

[1.4] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;

201. Claim limitation [1.4] recites a long list of vehicle tasks, functions, or operations, but the claim only requires "*one or more*" of them.

202. Gratz discloses the restriction profiles ("*account[s]*") define "*rights and privileges*" for controlling a "*vehicle engine.*" As discussed in claim limitation [1.3], the restriction profiles for some drivers, e.g., teenagers, have a restriction/operating rule that limits vehicle speed to a "maximum operating speed." (Gratz, Ex. 1018, [0036].)

203. Gratz enforces the maximum allowed speed by limiting the "gas flow to the fuel injectors, which limits the vehicle's maximum speed."

> For example, assume the particular function **restriction/operating rule limits the particular user's maximum vehicle operating speed to 40 mph for local roads and 55 mph for highways**. . . The comparison module 208 instructs the task request module 212 to instruct the vehicle control module 114 to limit the vehicle's maximum speed according to the particular road that the user is driving on. For example, in one embodiment, the vehicle control module 114 controls a programmable governor (similar to that used in a cruise control), which limits the vehicle's maximum speed, for example, if the vehicle is operated on a local road. In another embodiment, **the vehicle control module 114 controls gas flow to the fuel injectors, which limits the vehicle's maximum speed**.

(Gratz, Ex. 1018, [0039].)

204. Fuel injectors are components of an internal combustion engine that inject the gas into the combustion chambers of the engine. (Bosch, Ex. 1050, p. 682.) Therefore, Gratz's disclosure of controlling a particular component of an engine (fuel injectors) is also a disclosure of controlling the "*engine*" as claimed.

205. Therefore, a POSA would have found that Gratz's user restrictions/operating rules ("*rights and privileges*") for limiting vehicle speed include "*monitoring, controlling and/or operating a . . . vehicle engine*."

206. Gratz also prevents starting of the vehicle based on the restriction

profiles, such as when the user attempts to start the vehicle during restricted hours.

> **In another example, assume the particular function restriction/operating rule limits the particular user's operation of the vehicle to between 8 a.m. and 9 p.m.** The comparison module 208 compares this rule to input from the situation control module 122 and input from the location/navigation module 132. The situation control module 122 receives time information from an internal clock. The location/navigation module 132 receives location information from the GPS receiver 134. **The comparison module 208 instructs the task request module 212 to instruct the vehicle control module 114 to prevent the vehicle from starting if the vehicle is located at the owner's home and it is after 9 p m. and before 8 a.m**.

(Gratz, Ex. 1018, [0048], see also [0036].)

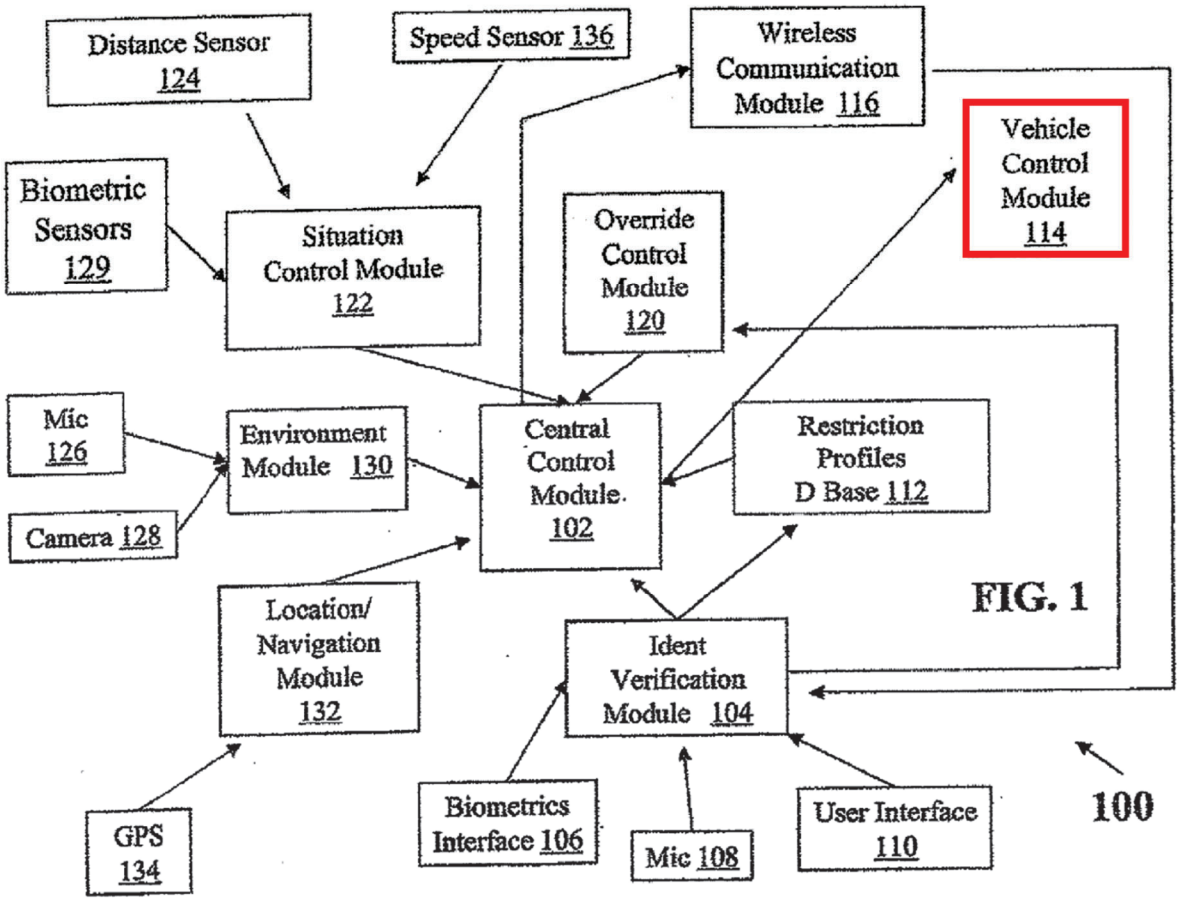
207. Gratz discloses an "ignition disabling means" to prevent the vehicle from starting. (Gratz, Ex. 1018, [0012].) An "ignition" is another component of the engine system used to start the engine (see e.g., Hatton, Ex. 1016, 6:31-56); therefore, a POSA would have understood that the "ignition disabling means" refers to a means for preventing starting of the engine, which is "*controlling [the]. . . vehicle engine*." Moreover, POSA's often use the less precise phrase of "starting the vehicle" to mean "starting the engine of the vehicle." Therefore, a POSA would have understood that paragraph 48 explicitly discloses that the restriction profiles define rights and privileges for controlling the engine.

208. Thus, limiting engine start times, such as between 8 a.m. and 9 p.m.,

also discloses "*rights and privileges*" for "*controlling*" the "*vehicle engine*." (Gratz, Ex. 1018, [0048].)

209. Gratz further discloses, "wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ('ECU')."

210. As discussed above, the restriction system 100 includes a vehicle control module 114.



Gratz, Ex. 1018, Fig. 1 (Annotated)

Referring to FIG. 1, in one embodiment, a block diagram of a motor vehicle restriction control system 100 is shown. The motor vehicle

> restriction control system 100 includes a central control unit 102. The central control unit 102 is in communication with an identification verification module 104, a location/navigation module 132, an environment module 130, a situation control module 122, an override control module 120, **a vehicle control module 114**, a restriction profile database 112, and a wireless communication module 116.

(Gratz, Ex. 1018, [0028].)

211. The vehicle control module 114 is used to enforce the above-discussed speed limit that may be set in some user's restriction profiles. In one embodiment, the vehicle control module 114 controls (restricts) "gas flow to the fuel injectors, which limits the vehicle's maximum speed." (Gratz, Ex. 1018, [0039].) In another embodiment, a governor (part of the VCM 114) limits vehicle speed by monitoring and controlling the engine.

> For example, assume the particular function restriction/operating rule **limits the particular user's maximum vehicle operating speed to 40 mph for local roads and 55 mph for highways**. The comparison module 208 compares this rule to input from the situation control module 122 and input from the location/navigation module 132. The situation control module 122 receives speed information from the speed sensor 136. The location/navigation module 132 receives input from the location/navigation module 132, which receives location information from the GPS 134. The comparison module 208 instructs the task request module 212 to instruct the vehicle control module 114 to limit the vehicle's maximum speed according to the particular road

> that the user is driving on. **For example, in one embodiment, the vehicle control module 114 controls a programmable governor (similar to that used in a cruise control), which limits the vehicle's maximum speed, for example, if the vehicle is operated on a local road. In another embodiment, the vehicle control module 114 controls gas flow to the fuel injectors, which limits the vehicle's maximum speed**.

(Gratz, Ex. 1018, [0039].)

212. A POSA would consider a control module, e.g., vehicle control module 114, that controls fuel injectors or a speed governor to be an "*engine control unit*" as it is controlling operation of the engine to limit vehicle speed independent of the driver's inputs to the accelerator control, e.g., accelerator pedal.

213. A POSA would consider "control module" and "control unit" as synonyms.

214. Therefore, a POSA would have further understood Gratz's restriction profile, which limits vehicle speed, as disclosing an "*account defining rights and privileges*" with respect to "*monitoring, controlling, and/or operating* an *engine control unit ('ECU') . . . vehicle engine*" as claimed in claim limitation [1.4].

215. Accordingly, the combination of Gratz and Bosch teaches "*account defining rights and privileges . . . with respect to controlling a vehicle task, function or operation*," "*wherein the vehicle task, function or operation is. . . monitoring, controlling, and/or operating an engine control unit ('ECU'), . . .* [and] v*ehicle*

engine [e.g., disabling the ignition to prevent starting of the engine and controlling the engine to limit vehicle speed by limiting gas flow or using a speed governor.]"

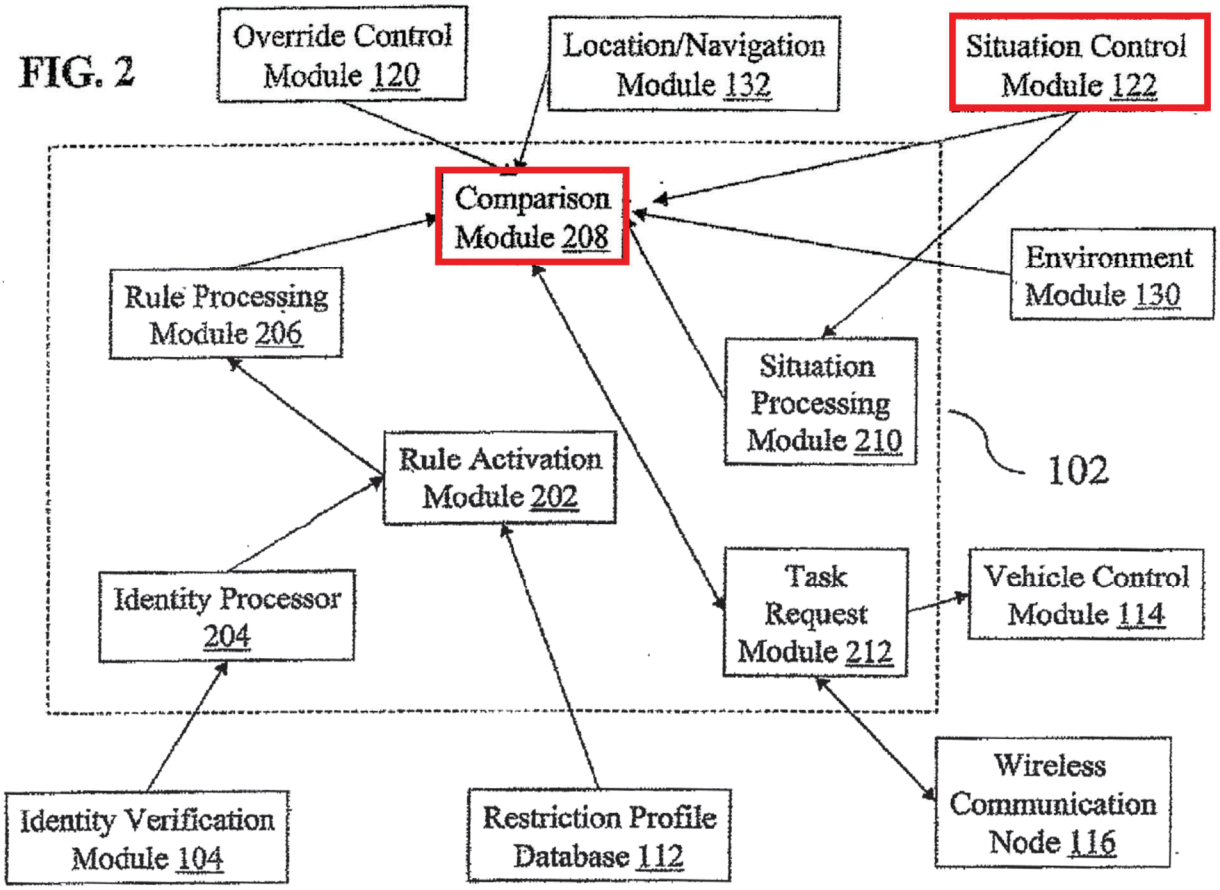
[1.5] (d) determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and

216. I understand claim limitation [1.5] is disclosed by the prior art if the if the prior art discloses determining "at least one of: (1) an area occupied by the vehicle occupant, (2) a zone occupied by the vehicle occupant, and (3) an operating state of the vehicle."

217. Gratz discloses a "*microprocessor executable vehicle control system*" (motor vehicle restriction control system 100) operable to determine "*an operating state of the vehicle*[.]" The system 100 includes a plurality of modules that collect data and communicate that data to a comparison module 208.

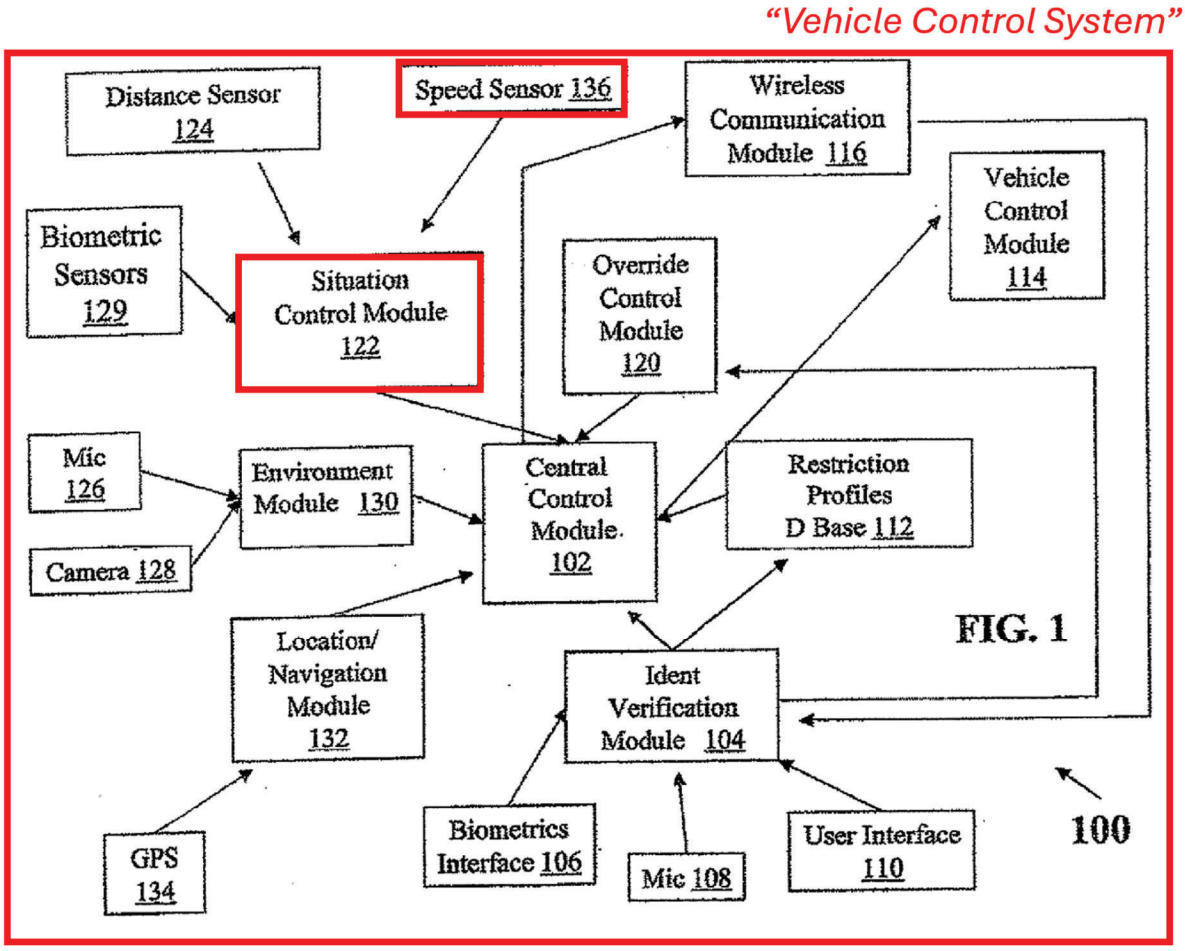
> The rule processing module 206 passes the particular function restrictions/operating rules from the particular restriction profile to the comparison module 208. The comparison module 208 compares the particular function restrictions/operating rules with sensor input data obtained from various sensors, in real time, as the vehicle is operated.

(Gratz, Ex. 1018, [0038].)



Gratz, Ex. 1018, Fig. 2 (Annotated)

218. For example, a situational control module 122 is in communication with a speed sensor 136 to determine a speed of the vehicle.



Gratz, Ex. 1018, Fig. 1 (Annotated)

> The **situation control module 122** is in communication with a distance sensor 124, **a speed sensor 136**, and biometric sensor 129.

(Gratz, Ex. 1018, [0030].)

> The situation control module 122 receives speed information from the **speed sensor 136**.

(Gratz, Ex. 1018, [0039].)

219. A vehicle operating state refers to a vehicle condition or mode in which the vehicle is operating at a given time, e.g., engine on/off, gear selection, and

vehicle speed. Therefore, A POSA would have understood that the vehicle speed, measured by the speed sensor 136, is an "*operating state of the vehicle*" and that the system 100 determines the "*operating state of the vehicle*" with at least the situation control module 122 and the speed sensor 136.

220. Accordingly, the combination of Gratz and Bosch teaches "*determining, by the microprocessor executable vehicle control system* [motor vehicle restriction control system 100 with CPU implemented as a microprocessor], *at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle* [e.g., vehicle speed]."

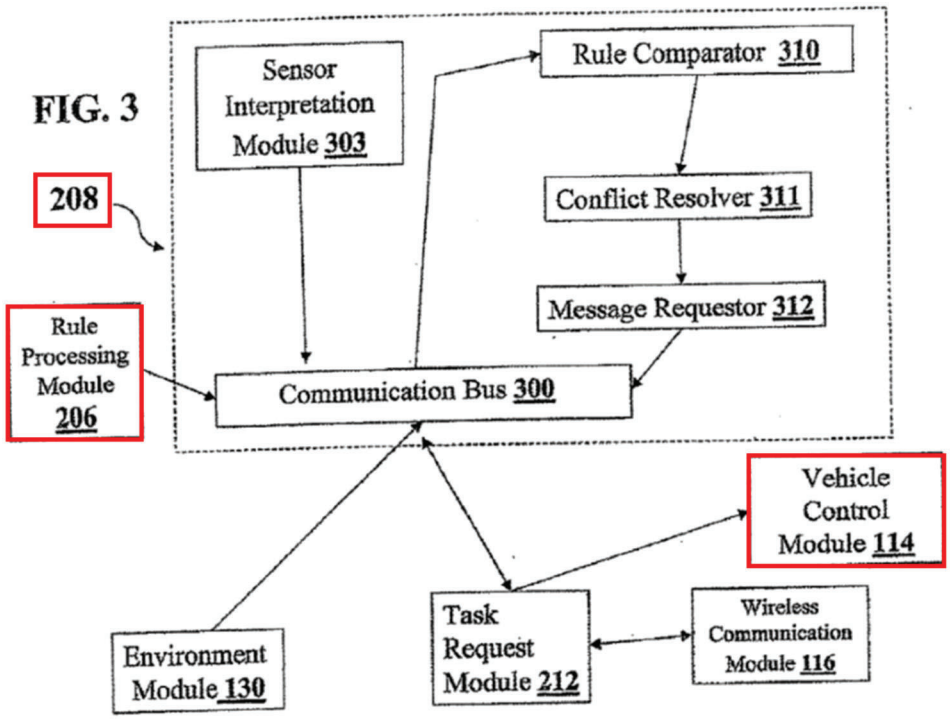
[1.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules:

221. Gratz discloses "*based upon the account*" (restriction profile) and the "*operating state of the vehicle*" (vehicle speed) to apply rules.

222. As discussed above in claim limitations [1.4]-[1.5], "the motor vehicle restriction control system 100 is used by an owner of a motor vehicle to restrict another driver's operation of the motor vehicle." (Gratz, Ex. 1018, [0035].) The owner creates restrictions for drivers by logging onto the restriction control system 100 and creating a restriction profile, which is stored in the restriction profile

database 112. (Gratz, Ex. 1018, [0036], Fig. 1.) As discussed above, the restriction profile may define restrictions/operating rules, such as maximum vehicle speed (Gratz, Ex. 1018, [0039],) time of day restrictions, etc. (Gratz, Ex. 1018, [0038].) This may be done to encourage safe driving for teenage children of the owner. (Gratz, Ex. 1018, [0025].)

223. When the driver requests the vehicle to perform a "*vehicle task, function or operation*" (e.g., increase vehicle speed), the system 100 compares the requested action with the restrictions/operating rules ("*rights and privileges*") defined in restriction profile ("*account*") and then permits or denies the request depending upon whether the request would violate any of the restrictions. (Gratz, [0039].) More specifically, the system 100 includes a comparison module 208 that compares the sensed vehicle operating state (e.g., speed sensor data) with the "restrictions/operating rules" stored in the database 112. (Gratz, [0039].)



Gratz, Ex. 1018, Fig. 3 (Annotated)

> **The comparison module 208** is in communication with rule processing module 206, the override control module 120, the location/navigation module 132, the situation control module 122, the environment module 130, the situation processing module [210], and the task request module 212.

(Gratz, Ex. 1018, [0033].)

224. During operation of the vehicle, the comparison module 208 receives the restrictions/operating rules from the rule processing module 206 (which retrieves from the database 112) and receives the sensor data. The comparison module 208 then compares the rules with the real-time sensor data. The comparison module sends the results of the comparison to the vehicle control module 114 to limit the functionality of the vehicle (or not) to ensure compliance with the restriction profile.

> The comparison module 208 also receives input from the situation processing module 210, which receives data from the situation control module 122. **The situation processing module 210 interprets internal and external driving conditions and provides additional information to the comparison module 208, which then further determines how the particular function restrictions/operating rules are applied**.

(Gratz, Ex. 1018, [0040].)

> **The rule processing module 206 passes the particular function restrictions/operating rules from the particular restriction profile to the comparison module 208. The comparison module 208 compares the particular function restrictions/operating rules with sensor input data obtained from various sensors, in real time, as the vehicle is operated.** In response, the comparison module 208 sends instructions to the task request module 212, **which sends instructions to the vehicle control module 114 to limit the functionality of the motor vehicle according to the particular function restrictions/operating rules**. Types of sensor input data may include, but is not limited to: noise, temperature, speed, time of day, location, distance from other vehicles, and precipitation.

(Gratz, Ex. 1018, [0038], see also [0039].)

225. Accordingly, the combination of Gratz and Bosch teaches "*based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle* [e.g., vehicle speed], *applying, by the microprocessor executable vehicle control*

system [system 100 with CPU implemented as a microprocessor], the following rules[.]"

[1.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and

226. As I discussed above, the owner can program speed limits in a user's restriction profile. (Gratz, Ex. 1018, [0011], [0036].) In the example disclosed in Gratz, the parent enters a "maximum operating speed [of] 40 mph for local roads and 55 mph for highways" in the restriction profile of a teenage driver. (Gratz, Ex. 1018, [0036].) During operation of the vehicle, the comparison module 208 compares the operating rule from the restriction profile ("*account*") with speed data from the speed sensor 136 ("*operating state of the vehicle*"). The comparison module 208 then instructs the control module 114 to limit vehicle speed or not based on the comparison.

> For example, assume the particular function restriction/operating rule **limits the particular user's maximum vehicle operating speed to 40 mph for local roads and 55 mph for highways**. The comparison module 208 compares this rule to input from the situation control module 122 and input from the location/navigation module 132. **The situation control module 122 receives speed information from the speed sensor 136**. The location/navigation module 132 receives input from the location/navigation module 132, which receives location information from the GPS 134. **The comparison module 208 instructs**

> **the task request module 212 to instruct the vehicle control module 114 to limit the vehicle's maximum speed according to the particular road that the user is driving on**.

(Gratz, Ex. 1018, [0039].)

227. While the text of Gratz is written to focus on restricting vehicle speed when it would violate a user's restriction, a POSA would have understood that the requested vehicle acceleration would be permitted when the vehicle speed is less than the speed limit. Therefore, in the example of Gratz, a POSA would have understood that the control module 114 would allow the engine to accelerate the vehicle when the vehicle speed is less than 55 mph on the highway.

228. Therefore, Gratz discloses the system 100, when the restriction profile ("*account*") "*permits the vehicle occupant*" to increase the vehicle speed as requested ("*vehicle task, function or operation*"), "*performing or causing to be performed*" an increase in engine power to accelerate the vehicle to a vehicle speed that is less than a maximum speed set for the user in the restriction profile.

229. Accordingly, the combination of Gratz and Bosch teaches "*when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation* [e.g., permitting the driver to drive at a requested vehicle speed that is less than a maximum speed set for the user in the restriction profile.]"

[1.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

230. Gratz discloses the system 100 prevents an increase in vehicle speed when the restriction profile defines a speed limit and the current vehicle speed is at or above the limit.

231. In one example disclosed in Gratz, the parent enters a "maximum operating speed [of] 40 mph for local roads and 55 mph for highways" in the restriction profile of a teenage driver. (Gratz, Ex. 1018, [0036].) During operation of the vehicle, the comparison module 208 compares the rule from the restriction profile ("*account*") with speed data from the speed sensor 136 ("*operating state of the vehicle*"). The comparison module 208 then instructs the control module 114 to limit vehicle speed if it would exceed the speed limit.

> For example, assume the particular function restriction/operating rule **limits the particular user's maximum vehicle operating speed to 40 mph for local roads and 55 mph for highways**. The comparison module 208 compares this rule to input from the situation control module 122 and input from the location/navigation module 132. **The situation control module 122 receives speed information from the speed sensor 136**. The location/navigation module 132 receives input from the location/navigation module 132, which receives location information from the GPS 134. **The comparison module 208 instructs**

> **the task request module 212 to instruct the vehicle control module 114 to limit the vehicle's maximum speed according to the particular road that the user is driving on**. For example, in one embodiment, the vehicle control module 114 controls a **programmable governor** (similar to that used in a cruise control), which limits the vehicle's maximum speed, for example, if the vehicle is operated on a local road. In another embodiment, the vehicle control module 114 **controls gas flow to the fuel injectors**, which limits the vehicle's maximum speed.

(Gratz, Ex. 1018, [0039].)

232. As underlined in the above quotation, Gratz provides two ways for controlling the engine so that the speed limit is not violated. The first is a programmable governor (e.g., cruise control). (See also Gratz, Ex. 1018, [0006].)

233. The second example is limiting fuel to the engine. (Gratz, Ex. 1018, [0039].) Similar to the governor embodiment, here, the system 100 causes the requested vehicle speed to not be performed by controlling the fuel injectors to inject less fuel than would otherwise occur based on the driver's request for vehicle acceleration.

234. Therefore, the combination of Gratz and Bosch teaches that "when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation [of operating the vehicle above a specified vehicle speed], not performing or causing to be performed the vehicle task, function or operation [of

operating the vehicle above a set maximum]" e.g., by controlling the engine to produce less power.

3. Dependent Claim 5

235. Claim 5 depends from claim 1, which I understand means that claim 5 requires all of the claim limitations of claim 1, in addition to its own claim limitations.

236. The combination of Gratz and Bosch teaches all of the claim limitations of claim 1 as described above.

[5.0] The method of claim 1, wherein a different authentication procedure is used for the vehicle occupant when requesting a first set of vehicle tasks, functions, or operations, than when requesting a second set of vehicle tasks, functions, or operations, and

237. Gratz discloses that an owner of the vehicle can request a first set of tasks including (i) creating a restriction profile for another user and (ii) editing a restriction profile.

> The owner of the motor vehicle, such as a parent, for example, logs onto the motor vehicle restriction control system 100 by entering an administrative or superuser password into the identification verification module 104 via the user interface 110 or via remote terminal capable of wirelessly communicating with the wireless communication module 116. **The parent <u>creates</u> a restriction profile for one or more of their children, or other users of the motor vehicle**. The restriction profile includes at least one motor vehicle function restriction/operating rule,

> such as a maximum operating speed. For example, the parent can set the vehicles maximum operating speed to 40 mph for local roads and 55 mph for highways. Parents can create a complex set of motor vehicle function restriction rules that are dependent on both the age of the driver and the particular situation that the driver is in (e.g. time of day, location, etc.). **The restriction profile is stored in the restriction profile database 112 and can only be edited by someone with the administrative password.**

(Gratz, Ex. 1018, [0036].)

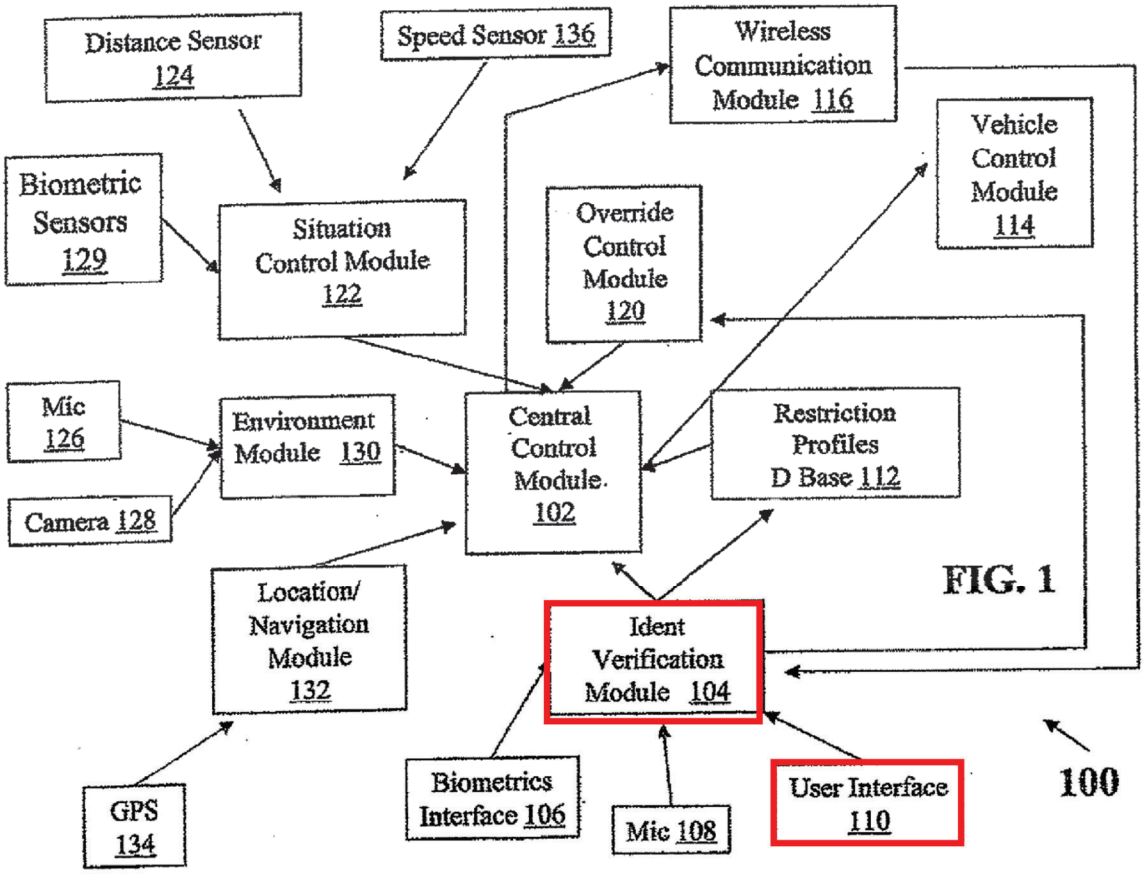
238. Gratz discloses that this first set of tasks can be performed using the user interface 110, such as a touch screen, that is located within the vehicle. (Gratz, Ex. 1018, [0026], [0036]). Therefore, the owner is a "*vehicle occupant*" when requesting the first set of tasks.

239. Gratz requires authentication prior to allowing the first set of tasks. The authentication procedure involves the "*vehicle occupant*" "entering an administrative or superuser password into the identification verification module 104 via the user interface 110."

> **The owner of the motor vehicle, such as a parent, for example, logs onto the motor vehicle restriction control system 100 by entering an administrative or superuser password** into the identification verification module 104 via the user interface 110 or via remote terminal capable of wirelessly communicating with the wireless communication module 116. The parent creates a restriction profile for one or more of their children, or other users of the motor vehicle. …

The restriction profile is stored in the restriction profile database 112 and can only be edited by someone with the administrative password.

(Gratz, Ex. 1018, [0036].)



Gratz, Ex. 1018, Fig. 1

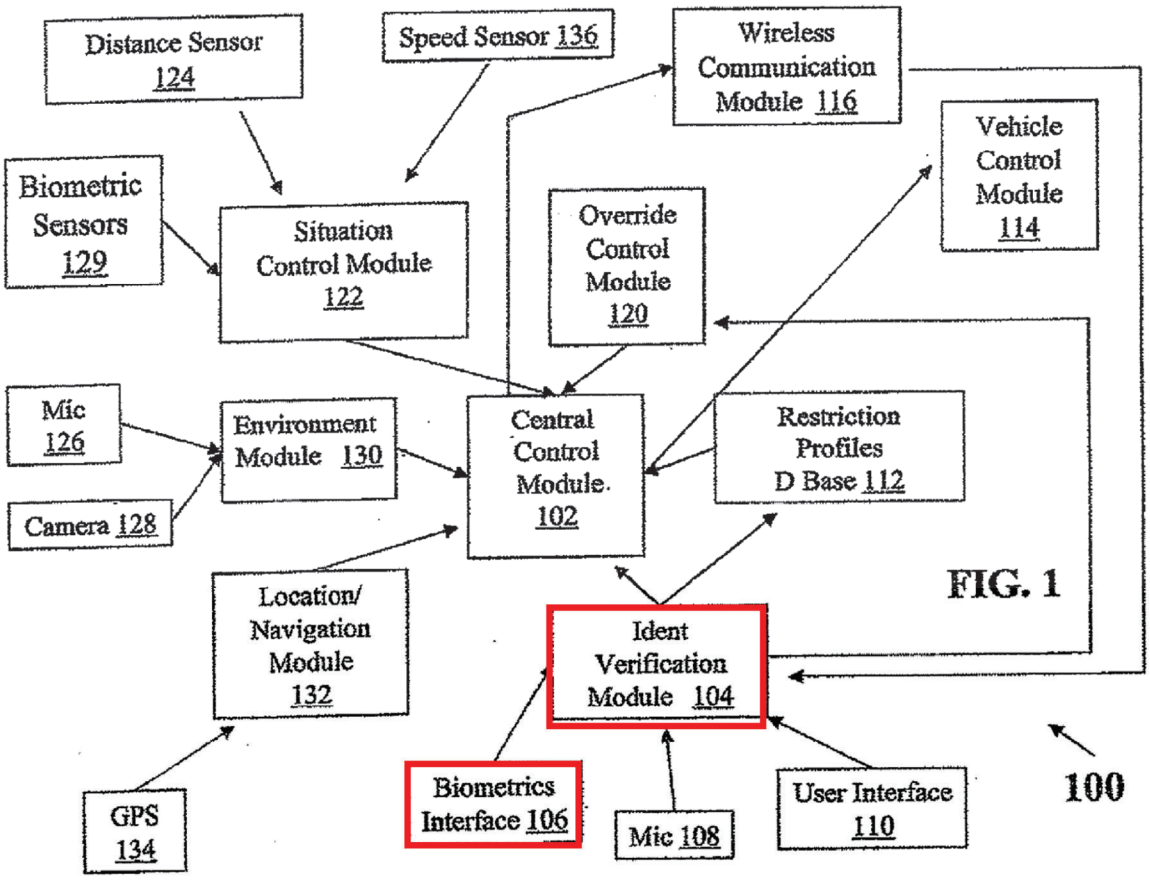
240. Gratz discloses that a driver can request a second set of tasks including (i) using the vehicle, (ii) starting the engine, (iii) playing the radio, (iv) turning on a cabin light, and (v) driving the vehicle. (Gratz, Ex. 1018, [0036]-[0037], [0039]-[0040].)

241. Gratz provides a different authentication procedure for allowing the

second set of tasks. For example, the authentication procedure for the second set of tasks involves fingerprint identification using biometric interface 106.

> **A user of the owner's motor vehicle, such as a teenage child, for example, must identify himself before the motor vehicle can be used.** The user can identify himself via the user interface 110 by entering a user ID, via the biometric interface 106 by **entering fingerprints**, or via the microphone 108 by speaking a user ID. The identification verification module 106 takes the entered identification information and verifies the identity of the user. Once the identity of the user is verified the identity of the user is passed to the identity processor 204, which then instructs the rule activation module 202 to retrieve a restriction profile associated with the user from the restriction profile database 112.

(Gratz, Ex. 1018, [0037].)



Gratz, Ex. 1018, Fig. 1 (Annotated)

242. Accordingly, the combination of Gratz and Bosch teaches "*wherein a different authentication procedure is used for the vehicle occupant* [owner of the motor vehicle] *when requesting a first set of vehicle tasks, functions, or operations* [e.g., entering an administrative or superuser password into ID verification module before creating restriction profile for another user], *than when requesting a second set of vehicle tasks, functions, or operations* [e.g., fingerprint identification before vehicle can be used, starting the engine, playing the radio, etc.]"

[5.1] wherein the task, function, or operation is monitoring, controlling, and/or operation a vehicle sensor,

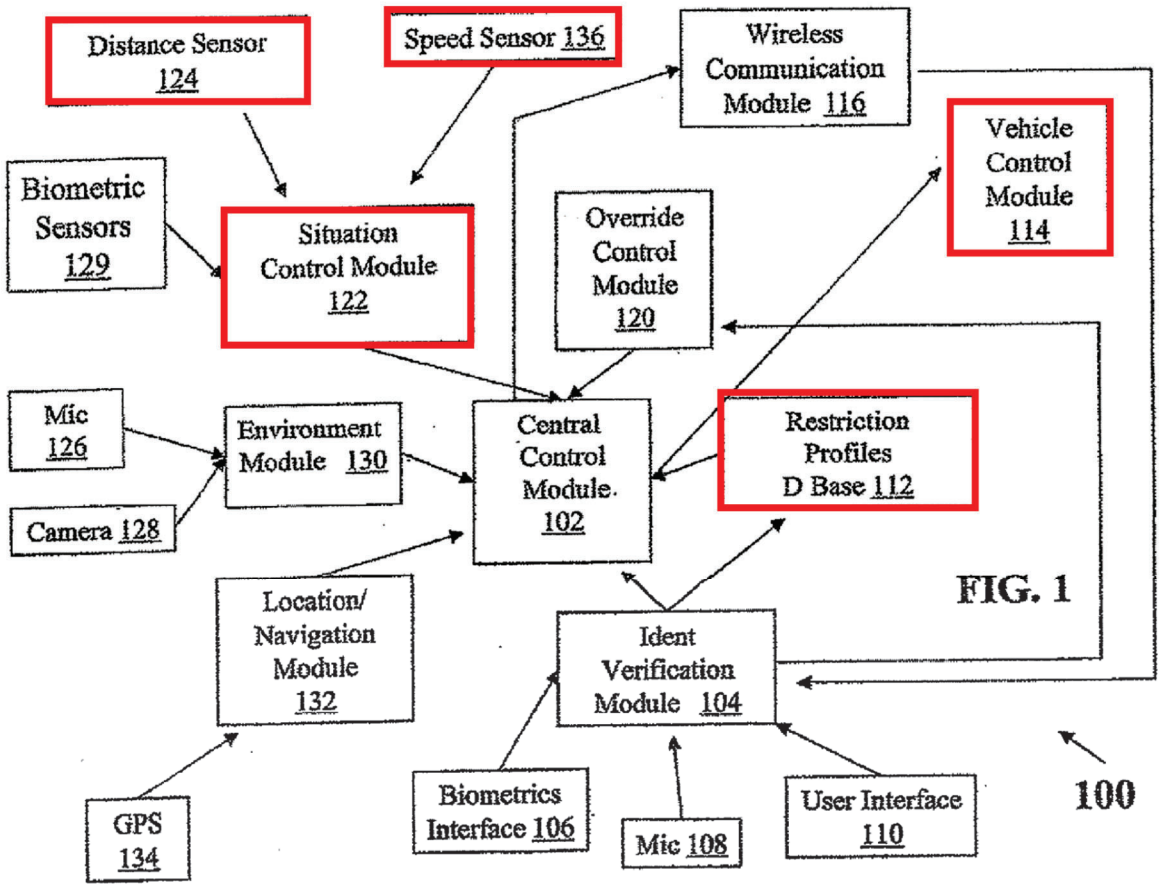
243. Regarding the first set of tasks, functions, or operations, Gratz discloses a touch screen for entering the "super user password." (Gratz, Ex.1018, [0026].) As I discussed in my state-of-the-art section, a touch screen includes sensors, such as capacitive or resistive sensors, that sense the touches or near touches of a user's finger. (See §VI.C.2.) Therefore, "*the task, function, or operation is monitoring, controlling, and/or operation a vehicle sensor* [e.g., touch screen]."

244. The second set of tasks, functions, or operations is "*monitoring, controlling, and/or operati[ng]*" a "*vehicle sensor*[.]" For example, Gratz discloses a speed sensor 136 that the driver can "*monitor[]*" while driving to control the speed of the vehicle. (Gratz, Ex. 1018, [0026], [0030].) The speed sensor 136 also is part of the restriction system 100 and is "*monitor[ed]*" by the system 100 to ensure compliance with the set restrictions/operating rules, such as maximum vehicle speed, while the vehicle is being driven.

> For example, assume the **particular function restriction/operating rule limits the particular user's maximum vehicle operating speed to 40 mph for local roads and 55 mph for highways**. The comparison module 208 compares this rule to input from the situation control module 122 and input from the location/navigation module 132. **The situation control module 122 receives speed information from the speed sensor 136**. The location/navigation module 132 receives input from the location/navigation module 132, which receives location information from the GPS 134. **The comparison module 208 instructs**

the task request module 212 to instruct the vehicle control module 114 to limit the vehicle's maximum speed according to the particular road that the user is driving on. For example, in one embodiment, the vehicle control module 114 controls a programmable governor (similar to that used in a cruise control), which limits the vehicle's maximum speed, for example, if the vehicle is operated on a local road. In another embodiment, the vehicle control module 114 controls gas flow to the fuel injectors, which limits the vehicle's maximum speed.

(Gratz, Ex. 1018, [0039].)



Gratz, Ex. 1018, Fig. 1

245. Gratz also discloses a distance sensor 124. The distance sensor 124 is monitored by system 100 while the vehicle is being driven to ensure compliance with a set minimum distance restriction. (Gratz, Ex. 1018, [0015], [0030], [0038].)

> For example, the situation control module 122 may send information received from the **distance sensor 124** to the situation processing module 210 regarding how far the vehicle is from another vehicle. The situation processing module 210 then implements an algorithm to determine that the maximum operating speed should be reduced by a certain amount to increase the distance between the two vehicles. This information is sent to the comparison module 208, which then instructions the task request module 212 to instruct the vehicle control module 114 to limit further the vehicle's maximum operating speed.

(Gratz, Ex. 1018, [0041].)

246. Gratz further discloses sensors for external conditions, such as wet or dry pavement.

> The situation processing module 210 interprets internal and external driving conditions and provides additional information to the comparison module 208, which then further determines how the particular function restrictions/operating rules are applied. **Examples of external conditions that may be sensed include**: **road conditions (e.g., dry, slipping, wet, etc.)**, traffic (e.g., heavy, easy), people or animals crossing in front of the vehicle on the road ahead, and the distance of the vehicle from any surrounding vehicles.

(Gratz, Ex. 1018, [0040], see also [0038].)

247. The restriction control system 100 monitors the sensed road conditions when the vehicle is being driven to enforce the restrictions/operating rules for the driver.

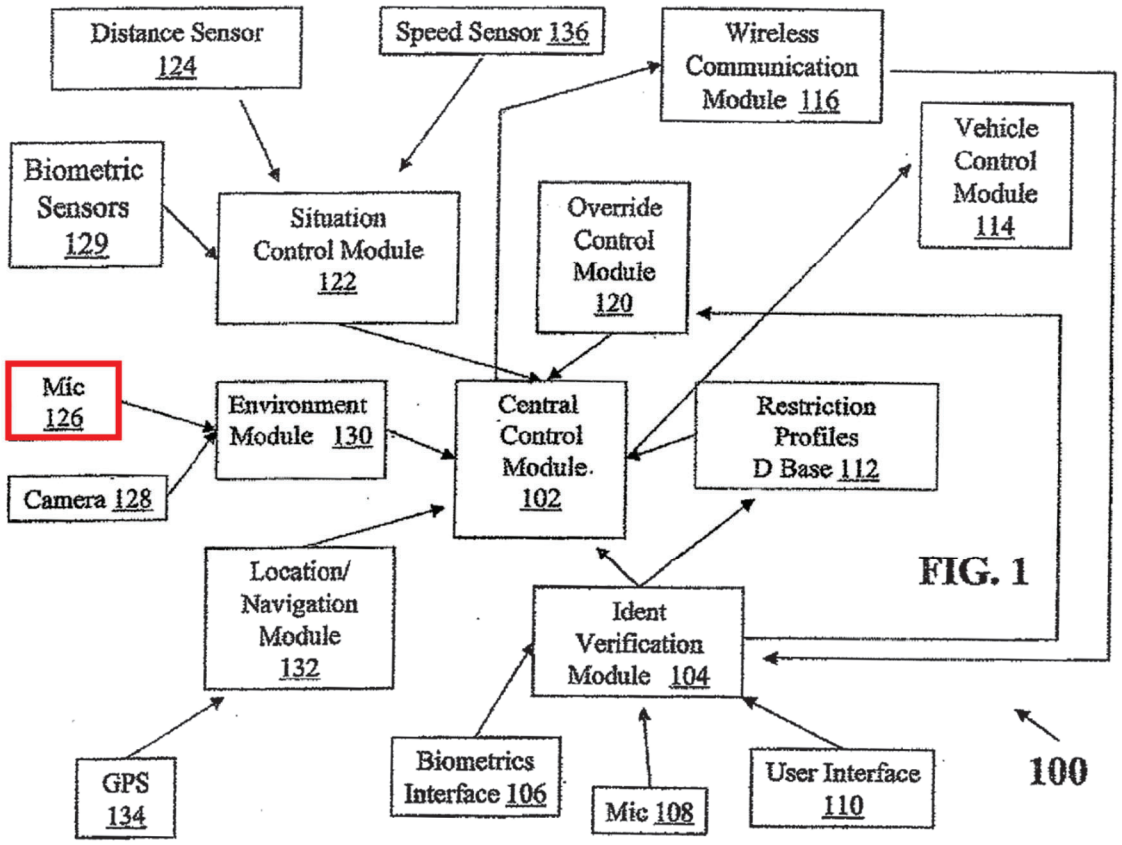
> The rule processing module 206 passes the particular function restrictions/operating rules from the particular restriction profile to the comparison module 208. **The comparison module 208 compares the particular function restrictions/operating rules with sensor input data obtained from various sensors, in real time, as the vehicle is operated**. In response, the comparison module 208 sends instructions to the task request module 212, which sends instructions to the vehicle control module 114 to limit the functionality of the motor vehicle according to the particular function restrictions/operating rules. Types of **sensor input data may include**, but is not limited to: noise, temperature, speed, time of day, location, distance from other vehicles, and **precipitation**.

(Gratz, Ex. 1018, [0038].)

248. Gratz also discloses sensors (microphone 126) for sensing internal conditions, such as the radio playing too loudly and passengers talking.

> Examples of **internal conditions that may be sensed by suitably located vehicle sensor devices include**: infant crying in the vehicle, **passengers talking**, or a dog barking and distracting the driver, temperature in a car (e.g. too hot, too cold), a **radio playing too loudly**, a light on in the vehicle cabin and distracting the driver.

(Gratz, Ex. 1018, [0040].)



Gratz, Ex. 1018, Fig. 1 (Annotated)

249. The system 100 monitors the internal conditions when the vehicle is being driven to determine "how the particular function restrictions/operating rules are applied." (Gratz, Ex. 1018, [0040].) Accordingly, the combination of Gratz and Bosch teaches "*wherein the task, function, or operation is monitoring, controlling, and/or operation a vehicle sensor* [e.g., speed sensor 136, distance sensor 124]."

> ***[5.2] the vehicle sensor being one or more of: a collision sensor, nearby object sensing system, sensor for setting a seat belt, power source controller and energy output sensor, engine temperature sensor, oil pressure sensor, hydraulic pressure sensor, sensor for headlight, sensor for other light, vehicle control system sensor,***

steering/torque sensor, wireless network sensor, cellular data sensor, seating system sensor, ambient (outdoor) weather reading sensor, odometer reading sensor, trip mileage reading sensor, road condition sensor, brake wear sensor, oxygen sensor, ambient lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) sensor, water sensor, air-fuel ratio meter, hall effect sensor, microphone, radio frequency (RF) sensor, and infrared (IR) sensor.

250. Regarding the first set of tasks, functions, or operations, the sensors of a touch screen are a "*nearby object sensing system*[.]" As I discussed in the state-of-the-art section, touch screens include a two-dimensional grid of sensing nodes. (See VI.C.2.) The sensing nodes detect a user's finger (an object) when it is "nearby" the touch screen panel to determine the location of the finger on the two-dimensional grid. (*Id*.) Therefore, a POSA would have understood Gratz's touch screen as including a "nearby object sensing system" used to detect a user's finger when it was nearby the touch screen panel. (Hotelling, Ex. 1074, Abstract.)

251. A POSA would have further understood that the touch screen of Gratz disclosed the claimed, "*vehicle control system sensor*." A POSA would have understood the claimed "*vehicle control system sensor*" as being an input sensor of the vehicle control system. Gratz discloses the touch screen is part of the restriction control system and a POSA would have understood the touch screen as being an input sensor that receives inputs from the user's finger to control various vehicle

functions, for example, the restriction system, e.g., entering the superuser password and creating/editing restriction profiles. (Gratz, Ex. 1018 [0026], [0036].)

252. Regarding the second set of tasks, functions, or operations, the restriction control system 100 and speed sensor 136 disclose a "*vehicle control system sensor*[.]" The speed sensor 136 is part of the restriction system 100, which is a "*vehicle control system*." Data from the speed sensor 136 is used by the situation control module of the restriction system 100 to impose maximum speed restrictions for select users of the vehicle. (Gratz, Ex. 1018, [0039].) Therefore, Gratz discloses a "*vehicle control system sensor*."

253. A POSA would have considered the distance sensor 124 as being the claimed "*ranging sensor*" since the sensor 124 is operable to sense objects, e.g., another vehicle, and determine how far away that object is from the host vehicle.

> For example, the situation control module 122 may send information received from the **distance sensor 124** to the situation processing module 210 **regarding how far the vehicle is from another vehicle**. The situation processing module 210 then implements an algorithm to determine that the maximum operating speed should be reduced by a certain amount to increase the distance between the two vehicles.

(Gratz, Ex. 1018, [0041].)

254. A POSA would have understood that Gratz's wet/dry sensor senses the presence of water on the road.

> **Examples of external conditions that may be sensed include: road conditions (e.g., dry, slipping, wet, etc.)**, traffic (e.g., heavy, easy), people or animals crossing in front of the vehicle on the road ahead, and the distance of the vehicle from any surrounding vehicles.

(Gratz, Ex. 1018, [0040].)

255. Therefore, the wet/dry sensor is the claimed "*ambient (outdoor) weather sensor*" and "*road condition sensor*."

256. Gratz's sensor that senses "passengers talking" discloses the claimed "microphone." (Gratz, Ex. 1018, [0040].) Gratz discloses that the system 100 includes a microphone 126 "used to determine how many people are in the vehicle and what their ages are." (Gratz [0053].) Based on this, a POSA would have understood that the microphone 126 actively senses cabin noise while the vehicle is being driven to sensor if "passengers are talking." (Gratz, Ex. 1018, [0040].) Accordingly, the combination of Gratz and Bosch teaches "*the vehicle sensor being one or more of: [a] vehicle control system sensor* [restriction control system 100 with speed sensor 136]*, ambient (outdoor) weather reading sensor* [e.g., wet/dry sensor]*, road condition sensor* [e.g., wet/dry sensor]*, ranging sensor* [e.g., distance sensor 124] [or] *microphone* [e.g., microphone 126]."

4. Independent Claim 8

257. Independent claim 8 is largely duplicative of independent claim 1. To illustrate, the table below shows a side-by-side comparison of claims 1 and 8. Claim

8 is "marked up" to show the minor difference.

Independent Claim 1	Independent Claim 8
[1.0] A method, comprising:	[8.0] A vehicle, comprising:
[1.1] (a) receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation;	[8.1] a microprocessor executable vehicle control system operable to: [8.2] receive a request from a vehicle occupant to perform a vehicle task, function or operation;
[1.2] (b) determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully;	[8.3] determine [ ] that the vehicle occupant has been authenticated successfully;
[1.3] (c) accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of	[8.4] access an account for the vehicle occupant, the account defining rights and privileges of

Independent Claim 1	Independent Claim 8
the user with respect to controlling a vehicle task, function or operation,	the user with respect to controlling a vehicle task, function or operation,
[1.4] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;	[8.5] wherein the vehicle task, function, or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system and media and/or multimedia content;

Independent Claim 1	Independent Claim 8
[1.5] (d) determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and	[8.6] determine [ ] at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and
[1.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules:	[8.7] based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, apply the following rules:
[1.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be	[8.7.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be

Independent Claim 1	Independent Claim 8
performed the vehicle task, function or operation; and	performed the vehicle task, function or operation; and
[1.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.	[8.7.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

[8.0] A vehicle, comprising:

258. Gratz discloses a vehicle:

> The invention relates generally to the field of motor vehicle control, and more particularly to a system for restricting a driver's operation of a **motor vehicle**.

(Gratz, Ex. 1018, [0002].)

[8.1] a microprocessor executable vehicle control system operable to:

[8.2] receive a request from a vehicle occupant to perform a vehicle task, function or operation;

259. Claim limitations [8.1] and [8.2] are substantially similar to claim

limitation [1.1]. Claim limitations [8.1] and [8.2] require "*a microprocessor executable vehicle control system* [computer program] *operable to: receive a request from a vehicle occupant to perform a vehicle task, function or operation*[.]" Whereas claim limitation [1.1] requires "*receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation*[.]" There is no substantive difference between claim limitation [1.1] and claim limitations [8.1]-[8.2] and therefore, claim limitations [8.1]-[8.2] are obvious over the combination of Gratz and Bosch for the same reasons discussed in claim limitation [1.1].

[8.3] determine that the vehicle occupant has been authenticated successfully;

260. Claim limitation [8.3] is substantially similar to claim limitation [1.2]. Claim limitation [8.3] requires "*determine that the vehicle occupant has been authenticated successfully*[.]" Whereas claim limitation [1.2] requires "*determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully*[.]"

261. There is no substantive difference between claim limitation [8.3] and claim limitation [1.2] and therefore, claim limitation [8.3] is obvious over the combination of Gratz and Bosch for the same reasons discussed in claim limitation [1.2].

[8.4] access an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,

262. Claim limitation [8.4] is substantially similar to claim limitation [1.3]. Claim limitation [8.4] requires "*access an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation*[.]" Whereas claim limitation [1.3] requires "accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation[.]"

263. There is no substantive difference between claim limitation [8.4] and claim limitation [1.3] and therefore, claim limitation [8.4] is obvious over the combination of Gratz and Bosch for the same reasons discussed in claim limitation [1.3].

[8.5] wherein the vehicle task, function, or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment s[y]stem, and media and/or multimedia content;

264. Claim limitation [8.5] is identical to claim limitation [1.4] and therefore is obvious over the combination of Gratz and Bosch for the same reasons discussed in claim limitation [1.4].

[8.6] determine at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and

265. Claim limitation [8.6] is substantially similar to claim limitation [1.5]. Claim limitation [8.6] requires "*determine at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle*[.]" Whereas claim limitation [1.5] requires "*determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle*[.]"

266. There is no substantive difference between claim limitation [8.6] and claim limitation [1.5] and therefore, claim limitation [8.5] is obvious over the combination of Gratz and Bosch for the same reasons discussed in claim limitation [1.5].

[8.7] based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, apply the following rules:

267. Claim limitation [8.7] is substantially similar to claim limitation [1.6]. Claim limitation [8.7] requires "based upon the account corresponding to the vehicle

occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, apply the following rules[.]" Whereas claim limitation [1.6] requires "*based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules*[.]"

268. There is no substantive difference between claim limitation [8.7] and claim limitation [1.6] and therefore, claim limitation [8.7] is obvious over the combination of Gratz and Bosch for the same reasons discussed in claim limitation [1.6].

> ***[8.7.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and***
>
> ***[8.7.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.***

269. Claim limitations [8.7.i]-[8.7.ii] are identical to claim limitations [1.6.i]-[1.6.ii] and therefore, are obvious over the combination of Gratz and Bosch for the same reasons discussed in claim limitations [1.6.i]-[1.6.ii].

5. Independent Claim 15

270. Independent claim 15 is largely duplicative of independent claim 1. To

illustrate, the table below shows a side-by-side comparison of claims 1 and 15. Claim 15 is "marked up" to show the minor differences.

Independent Claim 1	Independent Claim 15
[1.0] A method comprising:	[15.0] A tangible and non-transient computer readable medium comprising microprocessor executable instructions to perform functions, comprising:
[1.1] (a) receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation;	[15.1] (a) receiving [ ] a request from a vehicle occupant to perform a vehicle task, function or operation,
[1.2] (b) determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully;	[15.3] (b) determining [ ] that the vehicle occupant has been authenticated successfully;
[1.3] (c) accessing, by the microprocessor executable vehicle control system,	[15.4] (c) accessing [ ]

Independent Claim 1	Independent Claim 15
an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,	an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation;
[1.4] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control,	[15.2] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control,

Independent Claim 1	Independent Claim 15
entertainment system, and media and/or multimedia content;	entertainment system, and media and/or multimedia content.
[1.5] (d) determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and	[15.5] (d) determining [ ] at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and
[1.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules:	[15.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying the following rules:
[1.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or	[15.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or

Independent Claim 1	Independent Claim 15
operation, performing or causing to be performed the vehicle task, function or operation; and	operation, performing or causing to be performed the vehicle task, function or operation; and
[1.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.	[15.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

[15.0] A tangible and non-transient computer readable medium comprising microprocessor executable instructions to perform functions, comprising:

271. Gratz discloses a "tangible and non-transient computer readable medium[.]"

> In yet another aspect, the invention involves **a program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine** to perform method steps for restricting a driver's operation of a motor vehicle.

(Gratz, Ex. 1018, [0017].)

> A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for restricting a driver's operation of a motor vehicle . . . .

(Gratz, Ex. 1018, Claim 19.)

272. As recited in the above quotations, Gratz's program storage device includes instructions "executable by the machine to perform method steps for restricting a driver's operation of a motor vehicle." (Gratz, Ex. 1018, [0017].) Therefore, Gratz further discloses the claimed "*comprising . . . executable instructions to perform functions*[.]"

273. Gratz does not explicitly state that executable instructions are microprocessor executable instructions. However, as discussed in claim limitation [1.1] and the rational to combine, the combination of Gratz and Bosch teaches a microprocessor. The above discussed "program of instructions" of Gratz would be executed by the microprocessor and therefore are, "*microprocessor executable instructions*[.]"

274. Accordingly, the combination of Gratz and Bosch teaches "*[a] tangible and non-transient computer readable medium comprising microprocessor executable instructions to perform functions comprising*[.]"

[15.1] (a) receiving a request from a vehicle occupant to perform a vehicle task, function or operation,

275. Claim limitation [15.1] is substantially similar to claim limitation [1.1].

Claim limitation [15.1] requires "*receiving a request from a vehicle occupant to perform a vehicle task, function or operation*[.]" Whereas claim limitation [1.1] requires "*receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation*[.]"

276. There is no substantive difference between claim limitation [15.1] and claim limitation [1.1] and therefore, claim limitation [15.1] is obvious over Gratz and Bosch for the same reasons discussed in claim limitation [1.1].

[15.2] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;

277. Claim limitation [15.2] is identical to claim limitation [1.4] and therefore, is obvious over Gratz and Bosch for the same reasons discussed in claim limitation [1.4].

[15.3] (b) determining that the vehicle occupant has been authenticated successfully;

278. Claim limitation [15.3] is substantially similar to claim limitation [1.2]. Claim limitation [15.3] requires "*determining that the vehicle occupant has been*

authenticated successfully[.]" Whereas claim limitation [1.2] requires "*determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully*[.]"

279. There is no substantive difference between claim limitation [15.3] and claim limitation [1.2] and therefore, claim limitation [15.3] is obvious over Gratz and Bosch for the same reasons discussed in claim limitation [1.2].

[15.4] (c) accessing an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation;

280. Claim limitation [15.4] is substantially similar to claim limitation [1.3]. Claim limitation [15.4] requires "*accessing an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation*[.]" Whereas claim limitation [1.3] requires "*accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation*[.]"

281. There is no substantive difference between claim limitation [15.4] and claim limitation [1.3] and therefore, claim limitation [15.4] is obvious over Gratz and Bosch for the same reasons discussed in claim limitation [1.3].

[15.5] (d) determining at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and

282. Claim limitation [15.5] is substantially similar to claim limitation [1.5]. Claim limitation [15.5] requires "*determining at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle*[.]" Whereas claim limitation [1.5] requires "*determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle*[.]"

283. There is no substantive difference between claim limitation [15.5] and claim limitation [1.5] and therefore, claim limitation [15.5] is obvious over Gratz and Bosch for the same reasons discussed in claim limitation [1.5].

[15.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying the following rules:

284. Claim limitation [15.6] is substantially similar to claim limitation [1.6]. Claim limitation [15.6] requires "based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying the following rules[.]" Whereas claim limitation [1.6] requires "*based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules*[.]"

285. There is no substantive difference between claim limitation [15.6] and claim limitation [1.6] and therefore, claim limitation [15.6] is obvious over Gratz and Bosch for the same reasons discussed in claim limitation [1.6].

[15.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and

[15.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

286. Claim limitations [15.6.i]-[15.6.ii] are identical to claim limitations [1.6.i]-[1.6.ii] and are therefore obvious over Gratz and Bosch for the same reasons discussed in claim limitations [1.6.i]-[1.6.ii].

6. Dependent Claim 19

287. Claim 19 depends from claim 15, which I understand means that claim 19 requires all of the claim limitations of claim 15, in addition to its own claim limitations.

288. The combination of Gratz and Bosch teaches all of the claim limitations of claim 15 as described above.

[19.0] The computer readable medium of claim 15, wherein a different authentication procedure is used for the vehicle occupant when requesting a first set of vehicle tasks, functions, or operations

than when requesting a second set of vehicle tasks, functions or operations.

289. Claim 19 is largely duplicative of claim 5. To illustrate the similarities, the table below shows a side-by-side comparison of claims 5 and 19. Claim 19 is "marked up" to show the minor differences.

Claim [5.0]	Claim 19
[5.0] The method of claim 1,	**[19.0]** The computer readable medium of claim 15,
wherein a different authentication procedure is used for the vehicle occupant when requesting a first set of vehicle tasks, functions, or operations, than when requesting a second set of vehicle tasks, functions, or operations, and	wherein a different authentication procedure is used for the vehicle occupant when requesting a first set of vehicle tasks, functions, or operations than when requesting a second set of vehicle tasks, functions or operations.

290. As the differences between claims 5 and 19 are not substantial and they contain identical language other than the claims they depend from, I refer back to my analysis of claim 5 to establish that these limitations are met by the combination of Gratz and Bosch.

B. Ground 2 – Claims 6–7, 12–14, and 20–21 are Obvious Over the Combination of Gratz, Bosch, and Rector

1. Rationale to Combine Gratz, Bosch, and Rector

291. It would have been obvious to a POSA at the time of the alleged invention to combine the restriction control system 100 disclosed in the Gratz/Bosch combination with the user-created settings disclosed in Rector. A POSA would have understood that Gratz, Bosch, and Rector are complementary technologies that are combinable, for example, Gratz discloses that:

> Variations, modifications, and other implementations of what is described herein may occur to those of ordinary skill in the art without departing from the spirit and scope of the invention.

(Gratz, Ex. 1018, [0057].)

292. Gratz, Bosch and Rector are from the same field—automotive systems that include controllers or electronic control units for performing vehicle functions. Gratz discloses, "a system for restricting a driver's operation of a motor vehicle." (Gratz, Ex. 1018, [0002].) As discussed above in Ground 1, Gratz's restriction system 100 allows a vehicle owner to create "at least one restriction profile defining for the driver at least one restriction of the operation [of] the motor vehicle, and a motor vehicle controlling module for restricting the operation of the motor vehicle according to the at least one restriction . . . ." (Gratz, Ex. 1018, [0009].)

293. Similarly, Rector discloses "a means for identifying a driver of a

vehicle in order to place restrictions or otherwise create settings for the driver." (Rector, Ex. 1017, [0007].) Rector discloses a smart vehicle 100 that can identify a driver by matching the driver's unique identifier (received from the driver's cell phone) with a database 134. (Rector, Ex. 1017, [0030]-[0031].) The database 134 also stores settings associated with each unique identifier. The setting may be restrictions, such as a maximum allowed vehicle speed, and personal settings, such as seating position. (Rector, Ex. 1018, [0031]-[0032].)

294. Gratz and Rector also address the same problem of teenage-driver safety by enabling parents to limit the speed of the vehicle for their teenage drivers, as well as set other limitations. (Rector, Ex. 1017, [0004]-[0007], [0034], [0042], [0045]; Gratz, Ex. 1018, [0004], [0008]-[0009], [0017], [0036].)

295. Gratz is silent regarding whether or not a user can add personalized settings, e.g., seating position, to his/her restriction profile. Rector, however, explicitly discloses that a driver can add driver-created settings on the setting server 130, in addition to the restriction settings created by the controlling authority.

> **Settings server 130 includes settings for the driver that is associated with the unique identifier** transmitted from wireless communication device 120. **The settings, at least in part, are set by a controlling authority, such as a parent or superior of the driver**. The settings may be set by the controlling authority through a web browser, by text message, by a dedicated application on the authority's wireless communication device, etc. Server logic 132 matches the driver's

> identity with corresponding settings from database 134 on settings server 130. **The settings may include driver created settings as well as controlling authority settings**, such as parental controls, based upon the driver's identity. **The driver created settings may include seat and mirror positions, programmed radio stations, temperature controls, etc**. The controlling authority settings may include a maximum speed of smart vehicle 100, radio controls, wireless communication device controls, passenger based controls, etc.

(Rector, Ex. 1017, [0031].)

296. It would have been obvious to add the driver-created settings of Rector to the restriction profiles of Gratz to add personal settings, e.g., seating position, programmed radio stations, etc., for each restriction profile ("*account*") so that the vehicle automatically customizes to the settings set by the driver at KeyON.

297. A POSA would have understood how to add the driver-created settings of Rector to the restriction profiles of Gratz as it is merely a software modification that requires adding data fields to Gratz's profile database 112 that stores the restriction profiles.

298. A POSA would have been motivated to add the driver-created settings taught in Rector to the restriction profiles of Gratz to further customize the vehicle based on the driver. Including personal settings, for example, removes the annoyance of having to reposition the driver seat after a driver change. It also automatically sets the radio preset stations enabling easier operation of the radio. This not only

improves each driver's experience, but also improves safety (an objective of both Gratz and Rector) because it is less distracting to toggle through preset stations than to use the tuning knob/button to find desired stations while driving, and it is safer to have the vehicle configured to the driver's preferences automatically as opposed to the driver, for example making such adjustments while driving.

299. A POSA would have been particularly motivated to the add driver-created settings taught by Rector to the restriction profiles (as opposed to some other location) because of Gratz's authentication sequence. In Gratz, the driver must first "identify himself via the user interface 110" before he can use the vehicle. (Gratz, Ex. 1018, [0037].) Once the driver successfully identifies himself, the system 100 retrieves the restriction profile and permits use of the vehicle. (Gratz, Ex. 1018, [0037].) Since this will typically occur immediately upon entry into the vehicle, it logically flows to store the driver-created settings with the restriction profile (as taught by Rector, Ex. 1017, [0031]) so that the driver-created customizations are implemented as soon as the driver is able to use the vehicle. For example, a POSA would have understood the benefits of having the seat move to the pre-set position as soon as the driver is authenticated so that the vehicle is immediately ready to be driven.

300. A POSA would have been particularly motivated to look to Rector given similarities to Gratz. Both Gratz and Rector have databases that store driver

accounts with restrictions. (Rector, Ex. 1017, [0030]-[0032]; Gratz, Ex. 1018, [0009], [0017], [0036]-[0037].) Rector improves functionality of Gratz's restriction profiles ("*accounts*") by disclosing to also store driver-created settings ("*personal settings*") for each "*account*." Therefore, a POSA reading Rector would have understood that the database 112 of Gratz could also store accounts with both safety settings (restrictions) and "*personal settings*." Furthermore, from Rector, a POSA would have understood that it was desirable to provide both. Indeed, Rector explicitly states, "[w]hat is needed is a means for identifying a driver of a vehicle in order to place restrictions or otherwise create settings for the driver." (Rector, Ex. 1017, [0007].)

301. Adding the driver-created settings of Rector to Gratz's restriction profile is a combination of prior-art elements (safety restrictions and driver-created settings) according to known methods. Rector already explicitly teaches an account that includes driver restrictions and driver-created settings. (Rector, Ex. 1017, [0031].) From this explicit teaching of Rector, a POSA would have known how and why to add personal settings to the restriction profiles of Gratz for the reasons I discussed above and the combination predictably results in an account having both restriction setting and driver-created settings as the restriction settings and the driver-created settings function the same together as they do separately.

302. Therefore, it would have been obvious to add the driver-created settings

of Rector to the restriction profiles of Gratz.

303. It also would have been obvious to have radio-volume restrictions in the restriction profiles of Gratz. Gratz recognizes safety issues related to the "radio playing too loudly" because it is "distracting [to] the driver." (Gratz, Ex. 1018, [0040].) Gratz describes radio volume as being an example of "internal conditions" used to "determine[] how the particular function restrictions/operating rules are applied" rather than being a restriction stored in the restriction profile. (Gratz, Ex. 1018, [0040].) That is, rather than directly limiting radio volume to mitigate distraction, Gratz will enforce other restrictions differently, such as reducing the speed limit, when the radio is too loud to mitigate the distraction. (Gratz, Ex. 1018, [0039]-[0040].)

304. Unlike Gratz, Rector takes a direct approach that prevents the radio volume from becoming too loud in the first place by setting a maximum volume. (Rector, Ex. 1017, [0031], [0033].) A POSA would have recognized Rector's direct approach as an improvement to Gratz's indirect approach as the distraction of excessive volume is completely eliminated. As such, a POSA would have been motivated to add a radio volume limit to the restriction profile of Gratz as taught in Rector.

305. Adding a radio volume limit to the restriction profile of Gratz was well within the level of ordinary skill as of the effective filing date of the '186 Patent.

Gratz already discloses a base system (e.g., restriction system 100 with restriction profiles) that can determine radio volume. All that is needed to limit radio volume with the restriction system 100 is to add the option of an additional restriction/operating rule to limit radio volume to the existing restriction profiles of Gratz. This is merely a software modification that requires adding data fields to the profile database 112 so that the controlling authority or parent can set a radio volume limit, much like the speed limit already present, and adding software to prevent the radio volume from exceeding the set limit. Therefore, adding the radio volume limit of Rector to the restriction profile of Gratz would have predictably resulted in eliminating excessive volume as a driver distraction and would have been obvious.

2. Dependent Claims 6–7, 12–14, and 20–21

a. Dependent Claim 6

306. Claim 6 depends from claim 1, which I understand means that claim 6 requires all of the claim limitations of claim 1, in addition to its own claim limitations.

307. The combination of Gratz and Bosch disclose all of the claim limitations of claim 1 as described above in Ground 1.

[6.0] The method of claim 1, wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements

and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and

308. Claim 6 includes a string of "and" and "and/or" statements. Counsel has informed me to read the string as follows:

the account comprises

rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, [and]

security and/or authentication requirements and/or credentials for the vehicle occupant, and

personal settings of the vehicle occupant.

309. As discussed in claim 1, Gratz discloses a "restriction profile" stored in database 112 that defines "*rights and privileges*" for the vehicle occupant with respect to a "*vehicle task, function or operation*," such as use of the vehicle, starting the engine, and limiting vehicle speed.

310. As also discussed in claim 1, Gratz's restriction profiles ("accounts") comprise "*security and/or authentication requirements and/or credentials for the vehicle occupant*" such as user password, voice, and fingerprints that the user must enter in order to gain access to the vehicle. This information is used to identify and authenticate the user, and is used to "instruct(s) the rule activation module 202 to retrieve a restriction profile associated with the user from the restriction profile database 112". (Gratz, Ex. 1018, [0037].)

311. Gratz does not discuss the storing of "*personal settings*" in the database 112.

312. Rector, however, discloses both user restrictions and driver-created settings, which a POSA would have understood as disclosing the claimed "*personal settings of the vehicle occupant*."

> Client logic 105 transmits the unique identifier and location to settings server 130 via network 140. This transmission may occur via WiFi, GPRS, or other protocols capable of communicating such information across a wide-area network such as the Internet. **Settings server 130 includes settings for the driver that is associated with the unique identifier transmitted from wireless communication device 120**. The settings, at least in part, are set by a controlling authority, such as a parent or superior of the driver. The settings may be set by the controlling authority through a web browser, by text message, by a dedicated application on the authority's wireless communication device, etc. Server logic 132 matches the driver's identity with corresponding settings from database 134 on settings server 130. **The settings may include driver created settings** as well as controlling authority settings, such as parental controls, based upon the driver's identity. The **driver created settings may include seat and mirror positions, programmed radio stations, temperature controls, etc**.

(Rector, Ex. 1017, [0031].)

313. A POSA would have found it obvious to add Rector's driver-created settings to the restriction profiles of Gratz for the reasons discussed above in the

Rational to Combine section. See ¶¶ 291-305). Once added to Gratz's restriction database 112, the restriction profiles ("accounts") would include "*personal settings of the vehicle occupant*."

314. Therefore, the combination of Gratz, Bosch, and Rector teaches "*wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation* [e.g., controlling the engine to change vehicle speed], *security and/or authentication requirements and/or credentials for the vehicle occupant* [e.g., passwords, voice, and fingerprints], *and personal settings of the vehicle occupant* [e.g., driver created setting, e.g., seat and mirror positions.]"

[6.1] wherein the vehicle task, function, or operation is one or more of the following: entertainment system and media and/or multimedia content.

315. As I discussed in claim 1 and claim limitation [6.0], Gratz discloses a "*vehicle task, function, or operation*," such as use of the vehicle, starting the engine, and limiting vehicle speed.

316. Gratz does not disclose an "*entertainment system [or] media and/or multimedia content*" as a "*vehicle task, function, or operation*." Rector, however, discloses limiting operation of an "entertainment system."

317. Rector discloses a "unique identifier" ("*account*") for each authorized user of the vehicle. (Rector, Ex. 1017, [0030].) A "controlling authority" (e.g., a parent) can setup restrictions that are saved in a database 134. (Rector, Ex. 1017,

Abstract, [0031].) One of the restrictions is radio controls.

> Client logic 105 transmits **the unique identifier** and location to settings server 130 via network 140. This transmission may occur via WiFi, GPRS, or other protocols capable of communicating such information across a wide-area network such as the Internet. **Settings server 130 includes settings for the driver that is associated with the unique identifier** transmitted from wireless communication device 120. The settings, at least in part, are set by a controlling authority, such as a parent or superior of the driver. **The settings may be set by the controlling authority** through a web browser, by text message, by a dedicated application on the authority's wireless communication device, etc. Server logic 132 matches the driver's identity with corresponding settings from **database 134** on settings server 130. The settings may include driver created settings as well as controlling authority settings, such as parental controls, based upon the driver's identity. The driver created settings may include seat and mirror positions, programmed radio stations, temperature controls, etc. The controlling authority settings may include a maximum speed of smart vehicle 100, radio controls, wireless communication device controls, passenger based controls, etc. **The controlling authority settings may include a maximum speed of smart vehicle 100, radio controls, wireless communication device controls, passenger based controls, etc.**

(Rector, Ex. 1017, [0031].)

318. The restrictions on radio controls includes maximum radio volume, allowed radio stations, prohibited radio stations, and prohibited compact discs.

> **Radio controls may also be set by the controlling authority**. The controlling authority may **set a maximum radio volume, allowed radio stations, prohibited radio stations, prohibited compact discs, etc**. For example, certain satellite radio stations use language or play songs which a parent may not wish their child to listen to, especially while driving. The parent may prohibit these stations in the settings for the child. An employer may not want an employee to play loud music while driving the company car. The employer may set a maximum volume level for employees in the settings for each employee, for the smart vehicle, for certain times, etc.

(Rector, Ex. 1017, [0033].)

319. For example, Figure 11 of Rector shows example parental controls restricting the maximum radio volume and blocked radio stations. (Rector, Ex. 1017, [0059].)

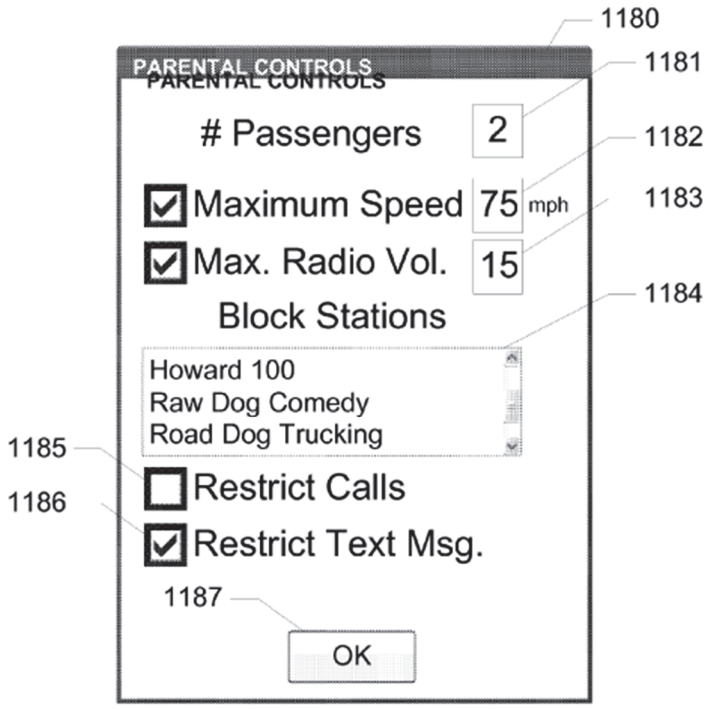


Figure 11

Rector, Ex. 1017, Fig. 11

320. The radio is part of the vehicle's "*entertainment system*." Operating the radio is a "*vehicle task, function, or operation*[.]" Therefore, Rector discloses "*rights and privileges*" for the vehicle occupant with respect to the vehicle task, function or operation controlling the radio volume ("*entertainment system*").

321. A POSA would have found it obvious to add Rector's restrictions regarding radio controls to the restriction profiles of Gratz for the reasons discussed above in the Rationale to Combine section. (See ¶¶ 291-305.) Once added to the Gratz's restriction database 112, the restriction profiles ("*accounts*") "*comprise[]*

rights and privileges for the vehicle occupant with respect to" the "*entertainment system*."

322. Accordingly, the combination of Gratz, Bosch and Rector teaches "*wherein the vehicle task, function, or operation is one or more of the following: entertainment system and media and/or multimedia content* [e.g., control/restrict radio volume]."

b. Dependent Claim 7

[7.0] The method of claim 6, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific personalization and selections, and a display setting and configuration.

323. Claim 7 depends from claim 6, which depends from claim 1; therefore I understand that claim 7 requires all of the claim limitations of claims 6 and 1, in addition to its own claim limitations. The combination of Gratz and Bosch disclose all of the claim limitations of claim 1 as described above in Ground 1. I interpret claim 7 as requiring two ("*a plurality*") of the listed "*personal settings*." Rector discloses at least four of the claimed personal settings:

> The driver created settings may include seat and mirror positions, programmed radio stations, temperature controls, etc.

(Rector, Ex. 1017, [0031].)

324. Rector's setting for a seat position discloses "*a seat setting*[.]" Rector's setting for mirror position discloses a "*rear view mirror setting*[.]" Rector's setting for programmed radio stations discloses a "*media channel setting or preset*[.]" Rector's setting for temperature controls discloses a "*climate control setting*[.]" Accordingly, the combination of Gratz, Bosch, and Rector teaches "*personal settings of the vehicle occupant compris[ing] a plurality of a seat setting, climate control setting, . . . rear view mirror setting, . . . [and] media channel setting or preset*[.]"

c. Dependent Claim 12

325. Claim 12 depends from claim 8, which I understand means that claim 12 requires all of the claim limitations of claim 8, in addition to its own claim limitations.

326. The combination of Gratz and Bosch disclose all of the claim limitations of claim 8 as described above in Ground 1.

> ***[12.0] The vehicle of claim 8, wherein a different authentication procedure is used for the vehicle occupant when requesting a first set of vehicle tasks, functions or operations than when requesting a second set of vehicle tasks, functions or operations and***

327. Claim limitation [12.0] is duplicative of claim limitation [5.0]. To illustrate, the table below shows a side-by-side comparison. Claim limitation [12.0] is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 5	Dependent Claim 12
[5.0] The method of claim 1, wherein a different authentication procedure is used for the vehicle occupant when requesting a first set of vehicle tasks, functions, or operations, than when requesting a second set of vehicle tasks, functions, or operations, and	**[12.0]** The vehicle of claim 8, wherein a different authentication procedure is used for the vehicle occupant when requesting a first set of vehicle tasks, functions or operations than when requesting a second set of vehicle tasks, functions, or operations, and

328. As shown in the above table, the bodies of claim limitations [5.0] and [12.0] are identical. Therefore, claim limitation [12.0] is disclosed for the same reasons discussed in claim limitation [5.0].

[12.1] wherein the vehicle task, function or operation is one or more of the following: entertainment system and media and/or multimedia content.

329. Claim limitation [12.1] is duplicative of claim limitation [6.1]. To illustrate, the table below shows a side-by-side comparison.

Dependent Claim 6.1	Dependent Claim 12.1
[6.1] wherein the vehicle task, function, or operation is one or more of the following: entertainment system and media and/or multimedia content.	[**12.1**] wherein the vehicle task, function, or operation is one or more of the following: entertainment system and media and/or multimedia content.

330. As shown above, claim limitation [12.1] is disclosed for the same reasons discussed in claim limitation [6.1].

331. Therefore, Gratz and Bosch combined with Rector teach a second set of "*vehicle tasks, functions or operations*" including an "*entertainment system*," that are authenticated differently, e.g., by fingerprints (Gratz, Ex. 1018, [0037]), than the first set of "*vehicle tasks, functions or operations*," e.g., by a "superuser password." (Gratz, Ex. 1018, [0036].)

d. Dependent Claim 13

332. Dependent claim 13 depends from claim 8, which I understand means that claim 13 requires all of the claim limitations of claim 8, in addition to its own claim limitations.

333. Gratz and Bosch disclose all of the claim limitations of claim 8 as described above in Ground 1.

[13.0] The vehicle of claim 8, wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and

334. Claim limitation [13.0] is the same as claim limitation [6.0]. To illustrate, the table below shows a side-by-side comparison of [6.0] and [13.0]. Claim limitation [13.0] is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 6	Dependent Claim 13
[6.0] The method of claim 1, wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and	**[13.0]** The vehicle of claim 8, wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and

335. Therefore, claim limitation [13.0] is obvious over the combination of

Gratz, Bosch, and Rector for the same reasons discussed in claim limitation [6.0].

[13.1] wherein the task, function or operation is monitoring, controlling, and/or operation a vehicle sensor,

336. As I discussed in Ground 1, claim limitations [1.1] and [1.3], Gratz discloses a restriction profile ("*account*") that defines "*rights and privileges of the user with respect to a vehicle task, function or operation*" of operating the vehicle including controlling the engine.

> **A user of the owner's motor vehicle, such as a teenage child, for example, must identify himself before the motor vehicle can be used**. The user can identify himself via the user interface 110 by entering a user ID, via the biometric interface 106 by entering fingerprints, or via the microphone 108 by speaking a user ID. The identification verification module 106 takes the entered identification information and verifies the identity of the user. Once the identity of the user is verified the identity of the user is passed to the identity processor 204, which then instructs the rule activation module 202 to retrieve a restriction profile associated with the user from the restriction profile database 112.

(Gratz, Ex. 1018, [0037].)

337. The "*rights and privileges*" to operate the vehicle include "*monitoring, controlling, and/or operation [of] a vehicle sensor*[.]" As I discussed in claim 1, Gratz's restrictions regarding a maximum vehicle speed are carried out by comparing the current vehicle speed, measured by speed sensor 136, with the set

maximum speed in the restriction profile. (Gratz, Ex. 1018, [0039].) Therefore, the restriction profile ("*account*") "*comprises rights and privileges for the vehicle occupant with respect to . . . monitoring . . . a vehicle sensor* [e.g., speed sensor 136.]"

> ***[13.2] the vehicle sensor being one or more of: a collision sensor, nearby object sensing system, sensor for setting a seat belt, power source controller and energy output sensor, engine temperature sensor, oil pressure sensor, hydraulic pressure sensor, sensor for headlight, sensor for other light, vehicle control system sensor, steering/torque sensor, wireless network sensor, cellular data sensor, seating system sensor, ambient (outdoor) weather reading sensor, odometer reading sensor, trip mileage reading sensor, road condition sensor, brake wear sensor, oxygen sensor, ambient lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) sensor, water sensor, air-fuel ratio meter, hall effect sensor, microphone, radio frequency (RF) sensor, and infrared (IR) sensor.***

338. Claim limitation [13.2] is the same as claim limitation [5.2]. To illustrate, the table below shows a side-by-side comparison of [5.2] and [13.2].

Dependent Claim 6	Dependent Claim 13
[5.2] the vehicle sensor being one or more of: a collision sensor, nearby object sensing system,	**[13.2]** the vehicle sensor being one or more of: a collision sensor, nearby object sensing system,

Dependent Claim 6	Dependent Claim 13
sensor for setting a seat belt, power source controller and energy output sensor, engine temperature sensor, oil pressure sensor, hydraulic pressure sensor, sensor for headlight, sensor for other light, vehicle control system sensor, steering/torque sensor, wireless network sensor, cellular data sensor, seating system sensor, ambient (outdoor) weather reading sensor, odometer reading sensor, trip mileage reading sensor, road condition sensor, brake wear sensor, oxygen sensor, ambient lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) sensor,	sensor for setting a seat belt, power source controller and energy output sensor, engine temperature sensor, oil pressure sensor, hydraulic pressure sensor, sensor for headlight, sensor for other light, vehicle control system sensor, steering/torque sensor, wireless network sensor, cellular data sensor, seating system sensor, ambient (outdoor) weather reading sensor, odometer reading sensor, trip mileage reading sensor, road condition sensor, brake wear sensor, oxygen sensor, ambient lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) sensor,

Dependent Claim 6	Dependent Claim 13
water sensor, air-fuel ratio meter, hall effect sensor, microphone, radio frequency (RF) sensor, and infrared (IR) sensor.	water sensor, air-fuel ratio meter, hall effect sensor, microphone, radio frequency (RF) sensor, and infrared (IR) sensor.

339. Therefore, Gratz's restriction control system and speed sensor 136 is a "*vehicle control system* sensor" for the reasons discussed in claim limitation [5.2].

e. Dependent Claim 14

340. Claim 14 depends from claim 13, which depends from independent claim 8; therefore I understand claim 14 requires all of the claim limitations of claims 8 and 13, in addition to its own claim limitations.

341. Gratz and Bosch disclose all of the claim limitations of claims 8 and 13 as described above in Ground 1.

[14.0] The vehicle of claim 13, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific

personalization and selections, and a display setting and configuration.

342. Claim 14 is duplicative of claim 7. To illustrate, the table below shows a side-by-side comparison of claims 7 and 14. Claim 14 is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 7	Dependent Claim 14
[7.0] The method of claim 6, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-	**[14.0]** The vehicle of claim 13, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-

Dependent Claim 7	Dependent Claim 14
specific personalization and selections, and a display setting and configuration.	specific personalization and selections, and a display setting and configuration.

343. As shown in the above table, the bodies of claims 7 and 14 are identical. Therefore, claim 14 is obvious over the combination of Gratz, Bosch, and Rector for the same reasons discussed in claim 7.

f. Dependent Claim 20

344. Claim 20 depends from claim 15, which I understand means that claim 20 requires all of the claim limitations of claim 15, in addition to its own claim limitations. Gratz and Bosch disclose all of the claim limitations of claim 15 as described above in Ground 1.

[20.0] The computer readable medium of claim 15, wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and

[20.1] wherein the vehicle task, function or operation is one or more of the following: entertainment system and media and/or multimedia content.

345. Claim 20 is duplicative of claim 6. To illustrate, the table below shows

a side-by-side comparison of claims 6 and 20. Claim 20 is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 6	Dependent Claim 20
[6.0] The method of claim 1,	**[20.0]** The computer readable medium of claim 15,
wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and	wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and
[6.1] wherein the vehicle task, function, or operation is one or more of the following: entertainment system and media and/or multimedia content.	**[20.1]** wherein the vehicle task, function or operation is one or more of the following: entertainment system and media and/or multimedia content.

346. As shown in the above table, the bodies of claims 6 and 20 are identical.

Therefore, claim 20 is obvious over the combination of Gratz, Bosch, and Rector for the same reasons discussed in claim 6.

g. Dependent Claim 21

347. Claim 21 depends from claims 15 and 20, which I understand means that claim 21 requires all of the claim limitations of claims 15 and 20, in addition to its own claim limitations. Gratz and Bosch disclose all of the claim limitations of claims 15 and 20 as described above.

> ***[21.0] The computer readable medium of claim 20, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific personalization and selections, and a display setting and configuration and***

348. Claim limitation [21.0] is duplicative of claim limitation [7.0]. To illustrate, the table below shows a side-by-side comparison of claim limitations [7.0] and [21.0]. Claim limitation [21.0] is "marked up" to show the minor differences.

Dependent Claim 7	Dependent Claim 21
[7.0] The method of claim 6,	**[21.0]** The computer readable medium of claim 20,

Dependent Claim 7	Dependent Claim 21
wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific personalization and selections, and a display setting and configuration.	wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific personalization and selections, and a display setting and configuration and

349. As shown in the above table, the bodies of claim limitations [7.0] and [21.0] are substantively identical. Therefore, claim limitation [21.0] is obvious over

the combination of Gratz, Bosch, and Rector for the same reasons discussed in claim [7.0].

[21.1] wherein the task, function or operation is monitoring, controlling, and/or operation a vehicle sensor,

[21.2] the vehicle sensor being one or more of: a collision sensor, nearby object sensing system, sensor for setting a seat belt, power source controller and energy output sensor, engine temperature sensor, oil pressure sensor, hydraulic pressure sensor, sensor for headlight, sensor for other light, vehicle control system sensor, steering/torque sensor, wireless network sensor, cellular data sensor, seating system sensor, ambient (outdoor) weather reading sensor, odometer reading sensor, trip mileage reading sensor, road condition sensor, brake wear sensor, oxygen sensor, ambient lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) sensor, water sensor, air-fuel ratio meter, hall effect sensor, microphone, radio frequency (RF) sensor, and infrared (IR) sensor.

350. Claim limitations [21.1] and [21.2] are the same as claim limitations [13.1] and [13.2] as shown in the below table.

Dependent Claim 13	Dependent Claim 21
[13.1] wherein the task, function or operation is monitoring, controlling, and/or operation a vehicle sensor,	**[21.1]** wherein the task, function or operation is monitoring, controlling, and/or operation a vehicle sensor,

Dependent Claim 13	Dependent Claim 21
[13.2] the vehicle sensor being one or more of: a collision sensor, nearby object sensing system, sensor for setting a seat belt, power source controller and energy output sensor, engine temperature sensor, oil pressure sensor, hydraulic pressure sensor, sensor for headlight, sensor for other light, vehicle control system sensor, steering/torque sensor, wireless network sensor, cellular data sensor, seating system sensor, ambient (outdoor) weather reading sensor, odometer reading sensor, trip mileage reading sensor, road condition sensor, brake wear sensor, oxygen sensor, ambient	**[21.2]** the vehicle sensor being one or more of: a collision sensor, nearby object sensing system, sensor for setting a seat belt, power source controller and energy output sensor, engine temperature sensor, oil pressure sensor, hydraulic pressure sensor, sensor for headlight, sensor for other light, vehicle control system sensor, steering/torque sensor, wireless network sensor, cellular data sensor, seating system sensor, ambient (outdoor) weather reading sensor, odometer reading sensor, trip mileage reading sensor, road condition sensor, brake wear sensor, oxygen sensor, ambient

Dependent Claim 13	Dependent Claim 21
lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) sensor, water sensor, air-fuel ratio meter, hall effect sensor, microphone, radio frequency (RF) sensor, and infrared (IR) sensor.	lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) sensor, water sensor, air-fuel ratio meter, hall effect sensor, microphone, radio frequency (RF) sensor, and infrared (IR) sensor.

351. Therefore, claim limitations [21.1] and [21.2] are obvious over the combination of Gratz, Bosch, and Rector for the same reasons discussed in claim limitations [13.1] and [13.2].

352. Intentionally left blank.

353. Intentionally left blank.

354. Intentionally left blank.

C. Ground 3 – Claims 1–4, 6–11, 14–18, and 20 are Obvious Over Moinzadeh.

1. Independent Claim 1

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

U.S. Patent No. 9,123,186
[1.0] A method, comprising:
[1.1] (a) receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation;
[1.2] (b) determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully;
[1.3] (c) accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,
[1.4] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;
[1.5] (d) determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and

[1.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules:
[1.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and
[1.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

[1.0] A method, comprising:

356. Moinzadeh discloses, with reference to Figure 1, a system 100 "to control the use of a head unit [21] as an extended interface for a phone application [40] . . . ." (Moinzadeh, Ex. 1013, [0020].)

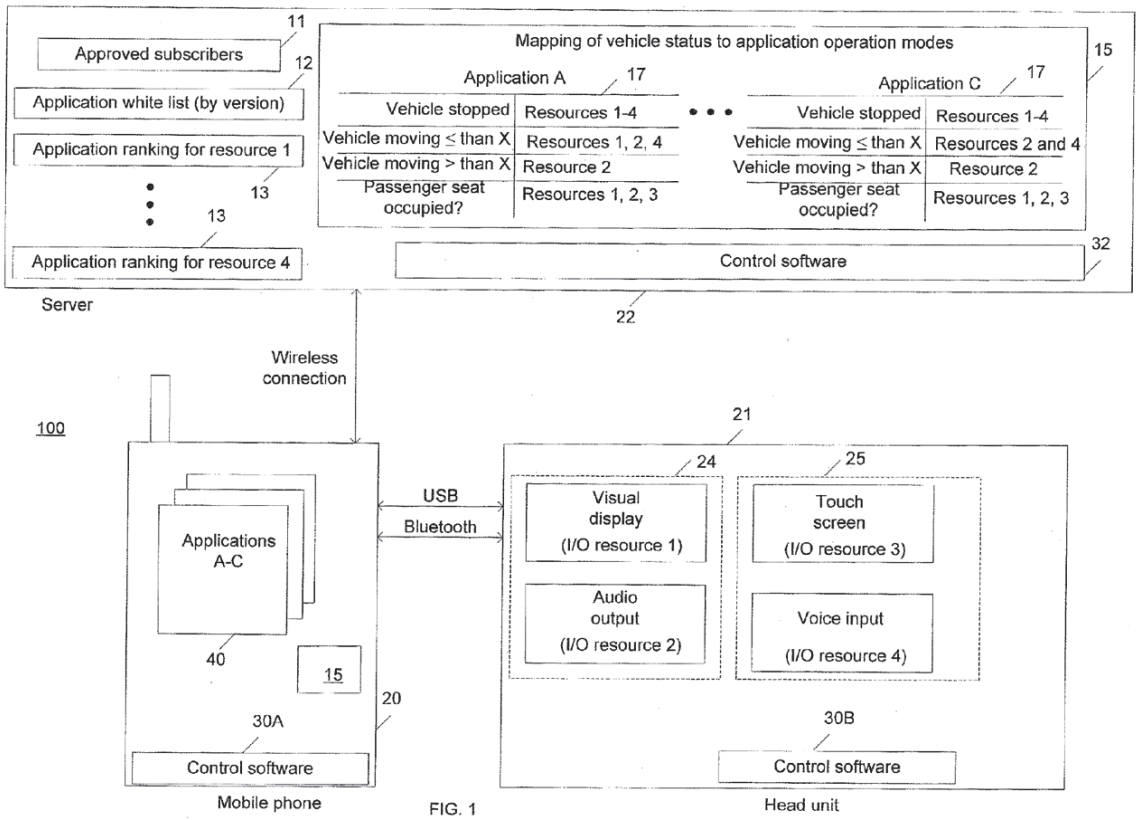


FIG. 1

Moinzadeh, Ex. 1013, Fig. 1

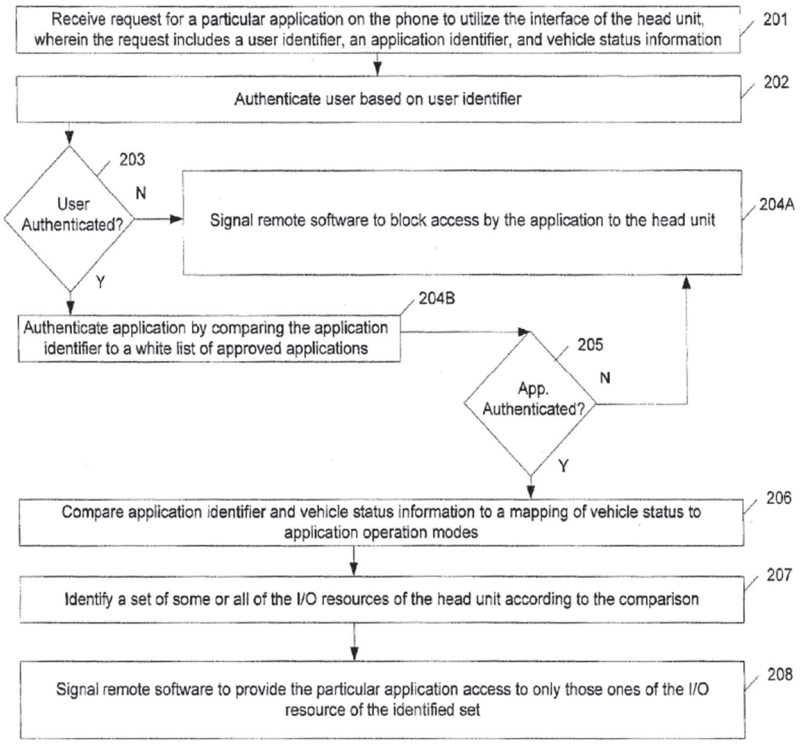
357. Moinzadeh discloses "*[a] method*" in Figure 2A for using a vehicle head unit as an extended interface for a phone application (Fig. 1) and for selecting and distributing applications to the vehicle head unit (Figs. 4, 7). (Moinzadeh, Ex. 1013, [0009]-[0017].)

> The application can reside on the mobile device and utilize the vehicle interface as an extended interface, or the application can reside on the vehicle.

(Moinzadeh, Ex. 1013, Abstract.)

FIG. 2A illustrates a flow chart showing operation of the software 32[19] of FIG. 1.

(Moinzadeh, Ex. 1013, [0022].)



Moinzadeh, Ex. 1013, Fig. 2A

358. Moinzadeh describes the operation of Figure 2A as "*[a] method*":

15. A method, comprising:

storing a mapping of application operation modes to vehicle conditions, wherein the vehicle conditions include at least a first condition of the

[19] As discussed in more detail in claim limitation [1.1] below, the functionality of the server software 32 can be performed by the software 30B of the head unit 21. (Moinzadeh, Ex.1013, [0035], [0042].

vehicle powered but not moving and a second condition of the vehicle moving;

receiving a wirelessly transmitted request for a particular application to utilize an interface powered by the vehicle, wherein the received request includes an application identifier;

comparing the received request to the mapping and identifying a portion of the vehicle interface according to the comparison; and

signaling control software on the vehicle to permit the particular application to access only the identified portion of the vehicle interface.

(Moinzadeh, Ex. 1013, Claim 15.)

359. Thus, Moinzadeh discloses a "*method*."

[1.1] (a) receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation;

360. I will first discuss how Moinzadeh discloses "*a vehicle control system*[.]" Moinzadeh discloses a system 100 "to control the use of a head unit [21] as an extended interface for a phone application [40]." (Moinzadeh, Ex. 1013, [0020], see also [0021].) The system 100 includes a server 22 having databases, e.g., approved subscribers 11, and software 32 that interfaces with software 30A of the mobile phone 20 and software 30B of the head unit 21 to extend phone applications 40 from the mobile phone 20 on the head unit 21.

> **The system 100 includes software 30A and 30B** configured on, respectively, a mobile phone 20 (or other mobile device) and **head unit 21** (or other interface powered by a motor vehicle such as a user interface integrated with a steering wheel or a user interface integrated with a seat back). **The software 30A and 30B interfaces with the software 32 configured on a remote server 22 to regulate and control when and how applications 40 operating on the phone 20 access I/O resources 1-4 of the head unit 21**.

(Moinzadeh, Ex. 1013, [0021].)

361. Although Moinzadeh explains that the server software 32 performs certain functionality with respect to Figure 2A, Moinzadeh explains that the system 100 functionality may reside anywhere, including on the vehicle head unit software 30B:

> **It should be that certain details can depart from the specific example described above while still being within the principles described herein**. For example, **any functions described above as being performed by the software of the head unit 21 described above can alternatively be performed by the software of the mobile phone in other examples, and vice versa**. Similarly, functions described above as being performed by the software of the mobile phone 20 described above can alternatively be performed by the software of the server 22 in other examples, and vice versa. Similarly, **functions described above as being performed by the software of the head unit 21 described above can alternatively be performed by the software of the server 22 in other examples, and vice versa**.

> Furthermore, **it should be readily apparent that the functions described above can be distributed in any manner between the mobile phone 20, the head unit 21, and the server 22 by changing the configuration of the software distributed over the system 100**.

(Moinzadeh, Ex. 1013, [0042].)

362. Based on this explicit teaching in paragraph 42, a POSA would have understood Moinzadeh as disclosing the head unit software 30B as performing the functions of the system 100, including any functions attributed to the server software 32. Indeed, a POSA would have understood that having the head-unit software 30B perform the functionalities of the system would result in a more direct control of the system and avoid the need to connect with the server. Accordingly, a POSA would have understood the head unit 21 to be a "*vehicle control system*" to control operation of the vehicle head unit 21 when extending a phone application 40 to one or more of the I/O resources.

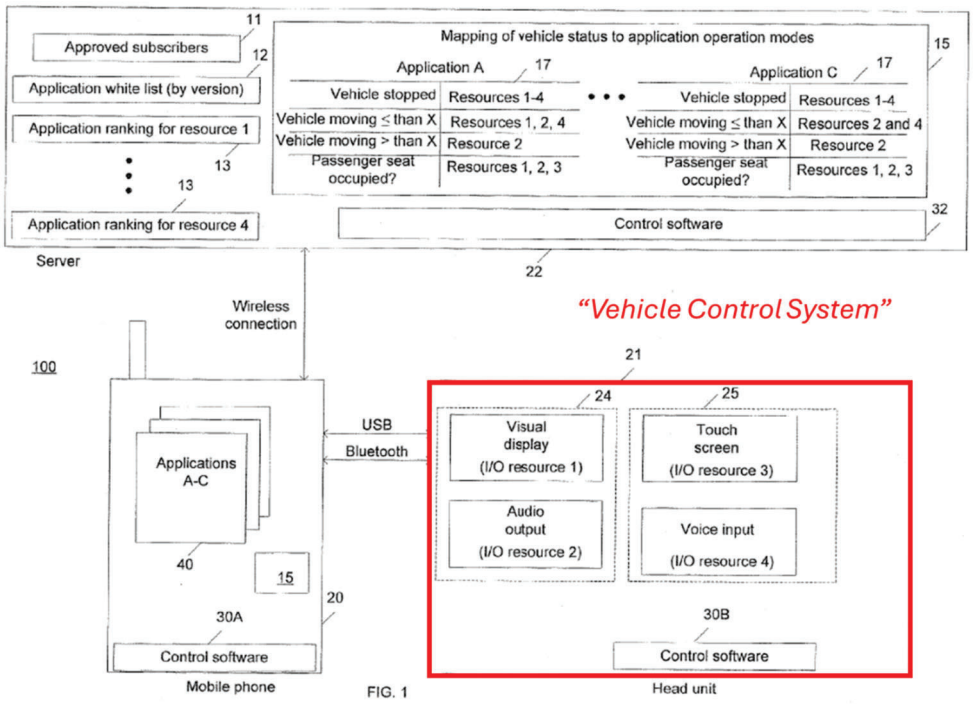


FIG. 1

Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

363. Moinzadeh further discloses "*a microprocessor*":

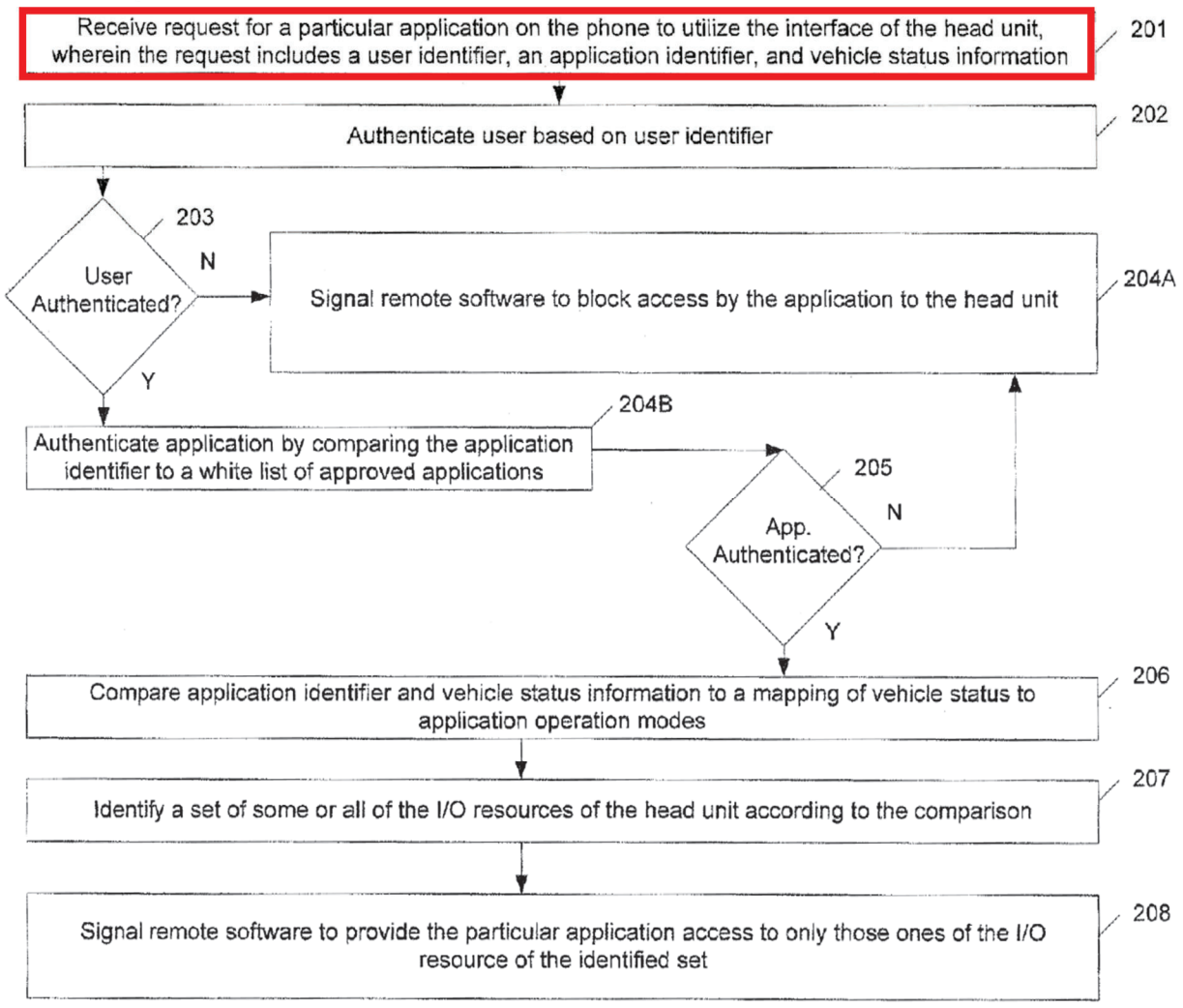
> Memory for storing software again is well known. In some embodiments, memory associated with a given processor may be stored in the same physical device as the processor ("on-board" memory); for example, RAM or FLASH memory disposed within an **integrated circuit microprocessor** or the like.

(Moinzadeh, Ex. 1013, [0093], see also [0092], [0094].)

364. Therefore, a POSA would have understood that the system 100 discloses "*a microprocessor executable vehicle control system*" as the system controls the vehicle and includes a microprocessor.

365. Moinzadeh further discloses that the system 100 receives "*a request from a vehicle occupant to perform a vehicle task, function or operation*[.]" Figure

2A of Moinzadeh is a "flow chart showing operation" of the system 100, which Moinzadeh discloses as being performed by the software 30B of the head unit in one or more embodiments. (Moinzadeh, Ex. 1013, [0010], [0042].) The first step or block 201 of the flow chart is to receive a request from a user to perform the "*vehicle task, function or operation*" of utilizing the interface of the head unit 21 of the vehicle to extend an application of a phone within the vehicle.



Moinzadeh, Ex. 1013, Fig. 2A (Annotated)

> In block 201, the software 32 **receives a request for a particular application 40 on the phone 20 to utilize the interface (including input 24 resources 1-2 and output 25 resources 3-4) of the head unit 21**. The request includes a user identifier corresponding to the user of the motor vehicle and/or head unit 21, an application identifier corresponding to the particular application 40, and vehicle status information. The user identifier could be an identifier provided by the user when the control software 30A was first activated in the mobile phone 100, user's phone number, etc.

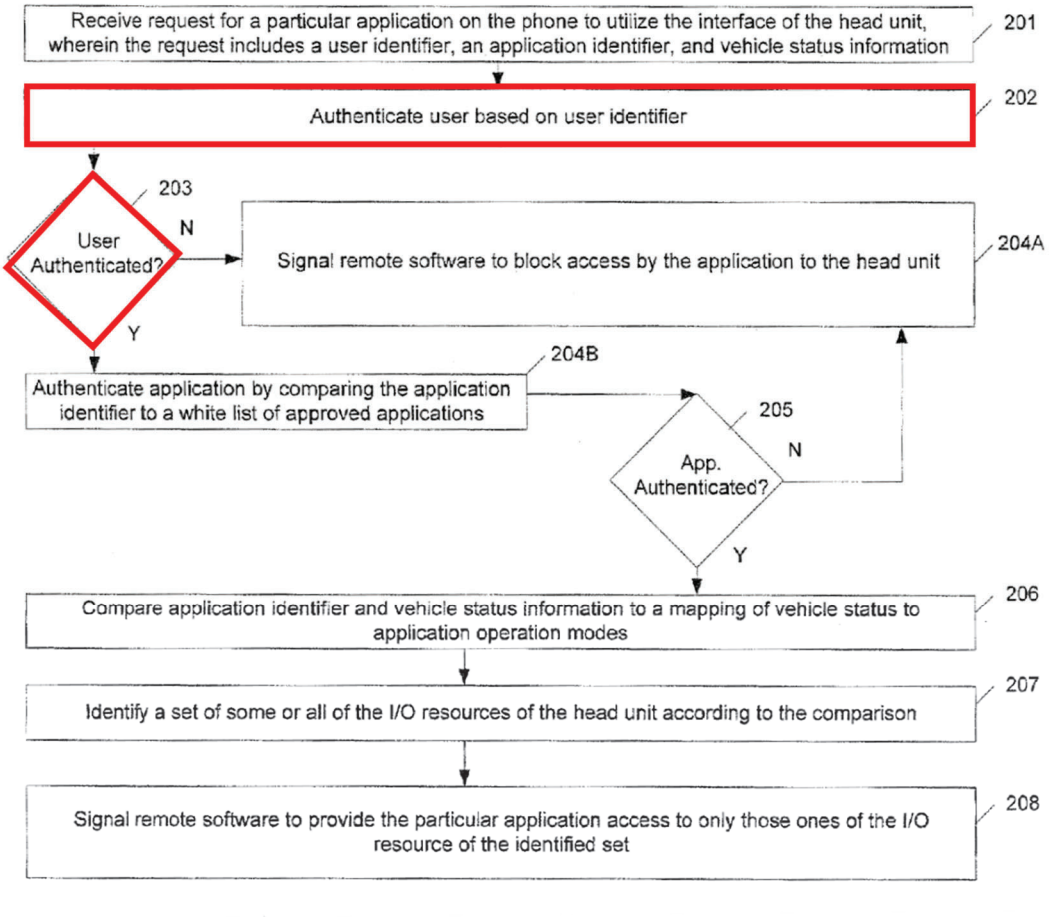
(Moinzadeh, Ex. 1013, [0023].)

366. Since the user and head unit 21 are inside the vehicle when extending his/her cell phone application to the head unit 21, he/she is a "*vehicle occupant*."

367. Accordingly, Moinzadeh discloses "r*eceiving, by a microprocessor executable vehicle control system* [head unit 21], *a request from a vehicle occupant to perform a vehicle task, function or operation* [e.g., to extend an application to the head unit 21.]"

[1.2] (b) determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully;

368. Blocks 202-203 of Figure 2 describe determining if a "*vehicle occupant has been authenticated successfully*[.]"



Moinzadeh, Ex. 1013, Fig. 2A (Annotated)

> In block 202, **the software 32 authenticates the user**. This can include determining whether the user **identified by the user identifier matches a database 11 of subscribers for the service** of extending the interface of the phone 20 using the head unit 21. If the user is not authenticated in diamond 203, then in block 204A the software 32 signals the software 30A/B to block access by the application 40 to the head unit 21.

(Moinzadeh, Ex. 1013, [0024].)

369. The user ("*vehicle occupant*") is authenticated using a user identifier,

such as the user's phone number, which is compared to the database 11 to determine a match.

> In block 201, the software 32 **receives a request for a particular application 40 on the phone 20 to utilize the interface** (including input 24 resources 1-2 and output 25 resources 3-4) of the head unit 21. The **request includes a user identifier corresponding to the user of the motor vehicle and/or head unit 21**, an application identifier corresponding to the particular application 40, and vehicle status information. **The user identifier could be an identifier provided by the user when the control software 30A was first activated in the mobile phone 100, user's phone number, etc.**

(Moinzadeh, Ex. 1013, [0023].)

370. As I discussed above, the functionality of the flow chart illustrated in Fig. 2A can be implemented by the software 30B of the head unit 21. (Ex.1013, [0042].)

371. Therefore, Moinazadeh discloses "*determining, by the microprocessor executable vehicle control system* [e.g., head unit 21], *that the vehicle occupant has been authenticated successfully* [e.g., by matching a user identifier with the database 11 of subscribers for the service.]"

> ***[1.3] (c) accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,***

372. Moinzadeh discloses that the server 22 includes a subscriber database 11.

> In block 202, the software 32 authenticates the user. This can include determining whether **the user identified by the user identifier matches a database 11 of subscribers for the service** of extending the interface of the phone 20 using the head unit 21. If the user is not authenticated in diamond 203, then in block 204A the software 32 signals the software 30A/B to block access by the application 40 to the head unit 21.

(Moinzadeh, Ex. 1013, [0024].)

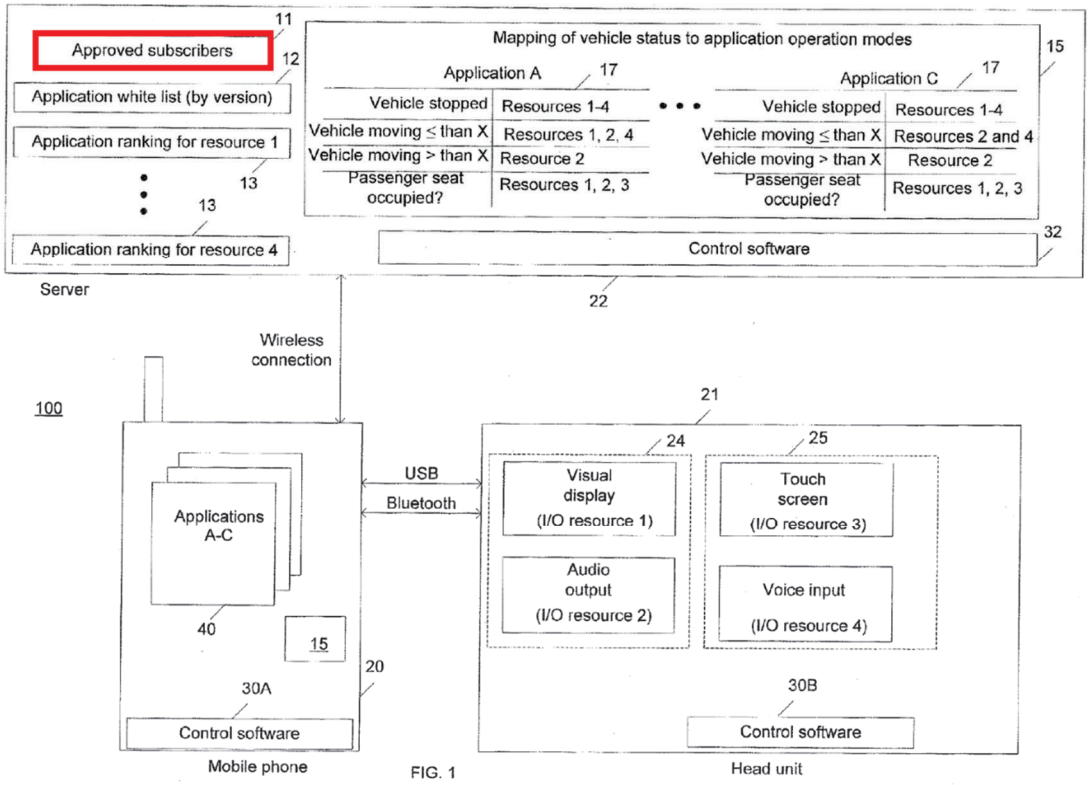


FIG. 1

Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

373. As explained in the above passage of Moinzadeh, the subscriber

database 11 includes a collection of user identifiers. In the example of Figure 1, the subscriber database 11 is in the cloud on the remote server 22, however, Moinzadeh explains that it could be stored on the vehicle. (Moinzadeh, Ex. 1013, [0042], Abstract.)

374. The server 22 also includes an application whitelist 12 that lists applications that are available for extending to the vehicle head unit. Therefore, the whitelist 12 defines "*rights and privileges*" for which applications 40 a user can extend to the head unit 21.

> Otherwise, if the user is authenticated, then in block 204B the software 32 authenticates the application 40 by comparing the application identifier to **a list 12 of applications (also referred to as a whitelist)**. This list 12 can be compared by version number such that one particular version of an application 40 can be identified on the list while a different version is excluded. **If the particular application 40 (or particular version) is not on the list 12** in diamond 205, then in block 204A **the software 32 signals the software 30A-B to block access** by the application 40 to the head unit 21.

(Moinzadeh, Ex. 1013, [0025].)

375. The server 22 further includes mapping 15 that defines permissions for the user's applications 40 based on a sensed operating state of the vehicle, such as stopped or moving.

> Otherwise, if the application 40 is authenticated, then **in block 206 the software 32 compares the application identifier and the current**

> **vehicle status information to a mapping 15 of application operation modes. As shown, the mapping 15 can have an entry 17 for each application 40 of the list 12. Each entry 17 includes a mapping that is particularized for the corresponding application 40. For example, an entry 17 for application A maps the vehicle status "vehicle moving ≦than X" to resources 1, 2, and 4 (namely application A will be permitted to access the only the screen 1, the speaker 2, and microphone 4 under this vehicle condition) whereas the entry 17 for application C maps the vehicle status "vehicle moving ≦than X" to only resources 2 and 4 (namely application C will be permitted to access the speaker 2 and microphone 4)**. One real world example might be a navigation application A and a video game application C, where even when a passenger is present the system 100 will not allow the video game application C to be displayed on the head unit 21 screen 1 as this is deemed to be too much of a distraction for a driver whereas the navigation application A can be displayed on the head unit 21 screen 1.

(Moinzadeh, Ex. 1013, [0026].)

376. In the example of Figure 1, the application white list 12 and the mapping 15 is in the cloud on the remote server 22, however, Moinzadeh explains that it could be stored on the vehicle. (Moinzadeh, Ex. 1013, [0042].)

377. A POSA would have understood that server 22 includes a collection of databases including database 11 that stores user identification used for authentication, database 12 that stores whitelisted applications the user can extend,

and mapping 15 that includes rules for extending applications 40 from a mobile phone to the head unit 21. (Moinzadeh, Ex. 1013, [0024]-[0026].) A POSA would have further understood that this collection of databases discloses an "*account for the vehicle occupant*" as it includes all of the information relevant to a user for the purposes of using the system 100 to extend an application 40 on the head unit 21.

378. A POSA would have also understood that this user data could be stored in a single database, or in linked database records without altering the basic operation of the system. (§ VI.B.2.) For example, Moinzadeh's system could use separate database records containing all of the authentication, application whitelists, and application rules for each user. Or, the system could use relational database properties to store a **single** set of rules, and those rules would be individually applied to any given user through a database relation, which is what is described in Moinzadeh's embodiment of system 100. A POSA would have understood that Moinzadeh's approach would avoid replicating the rules for each user, and instead would save storage space and improve efficiency by simply storing the rules once, e.g., mapping 15, and providing references to the applicable rules for that user in the user's database record in database 11.

379. Moinzadeh's "*account*" defines "*rights and privileges*" for the "*vehicle occupant*" as I will now explain.

380. The subscriber database 11 defines "*rights and privileges*" of the

vehicle occupant to use the system 100 to extend his/her phone on the head unit 21. As I explained above, the system 100 includes an authentication process in which a received user identification is compared to the stored user identifications within the database 11 to grant or deny the request. (Moinzadeh, Ex. 1013, [0024].)

381. The whitelist 12 defines "*rights and privileges*" for which applications can be extended to the head unit 21. (Moinzadeh, Ex. 1013, [0025].)

382. The mapping 15 defines "*rights and privileges*" for which I/O resources of the head unit 21 as an extended application 40 can use based on the vehicle operating state such as parked or moving. For example, the mapping does not allow application A (navigation) to use the touch screen 25 once the vehicle is in motion. (Moinzadeh, Ex. 1013, [0026].)

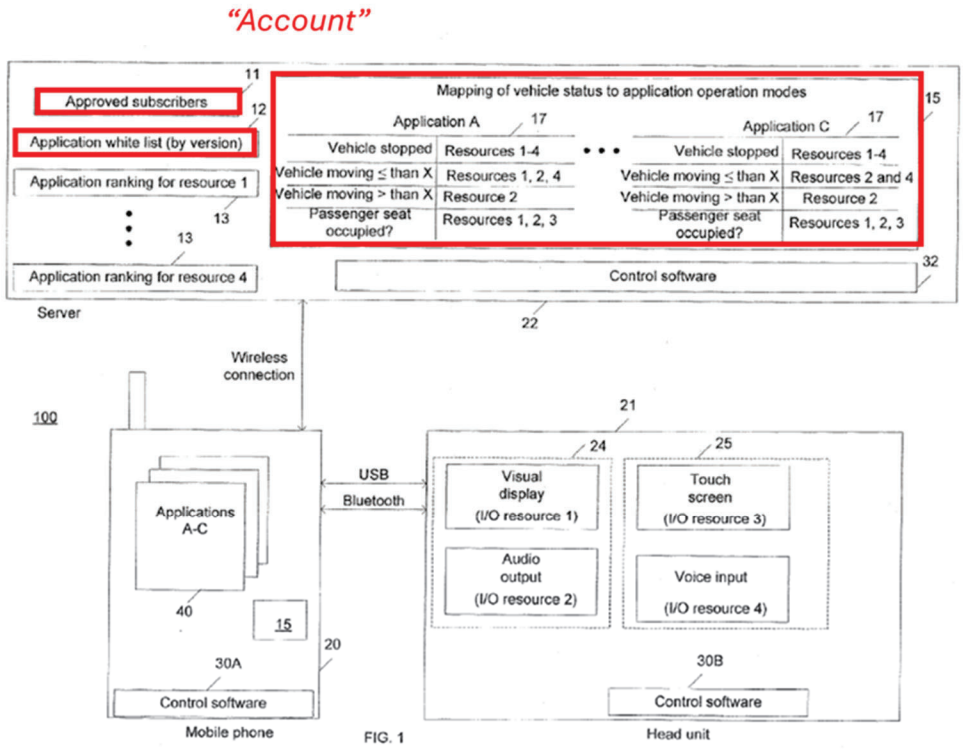


FIG. 1

Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

383. Therefore, Moinzadeh discloses the claimed "an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation[.]"

384. Moinzadeh discloses multiple contexts in which the "*account*" is accessed. As discussed above in claim limitation [1.2], the *"account"* is accessed to compare the received user identification with the subscriber database 11 during authentication. As also discussed above, the system 100, e.g., the software 30B, accesses the whitelist 12 and mapping 15 of the "*account*" to determine if and how to extend a phone application 40 to the head unit 21. (Moinzadeh, Ex. 1013, [0025]-

[0026], [0042].)

385. Therefore, Moinzadeh discloses "*accessing, by the microprocessor executable vehicle control system* [e.g., head unit 21], *an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation* [e,g., extending applications from a mobile phone to a vehicle head unit.]"

[1.4] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;

386. As discussed in claim limitation [1.3], Moinzadeh discloses an "*account*" for a "*vehicle occupant*" that enables the "*vehicle occupant*" to request extending an application 40 from a phone to the head unit.

387. Moinzadeh discloses that the head unit 21 includes I/O resources 1-4

including "input 24 resources 1-2 and output 25 resources 3-4."[20] (Moinzadeh, Ex. 1013, [0023], see also [0021].) Moinzadeh discloses a visual display (I/O resource 1), an audio output (I/O resource 2), a touch screen (I/O resource 3) and a voice input as (I/O resource 4). (Moinzadeh. Ex.1013, Fig. 1, [0021], [0023].)

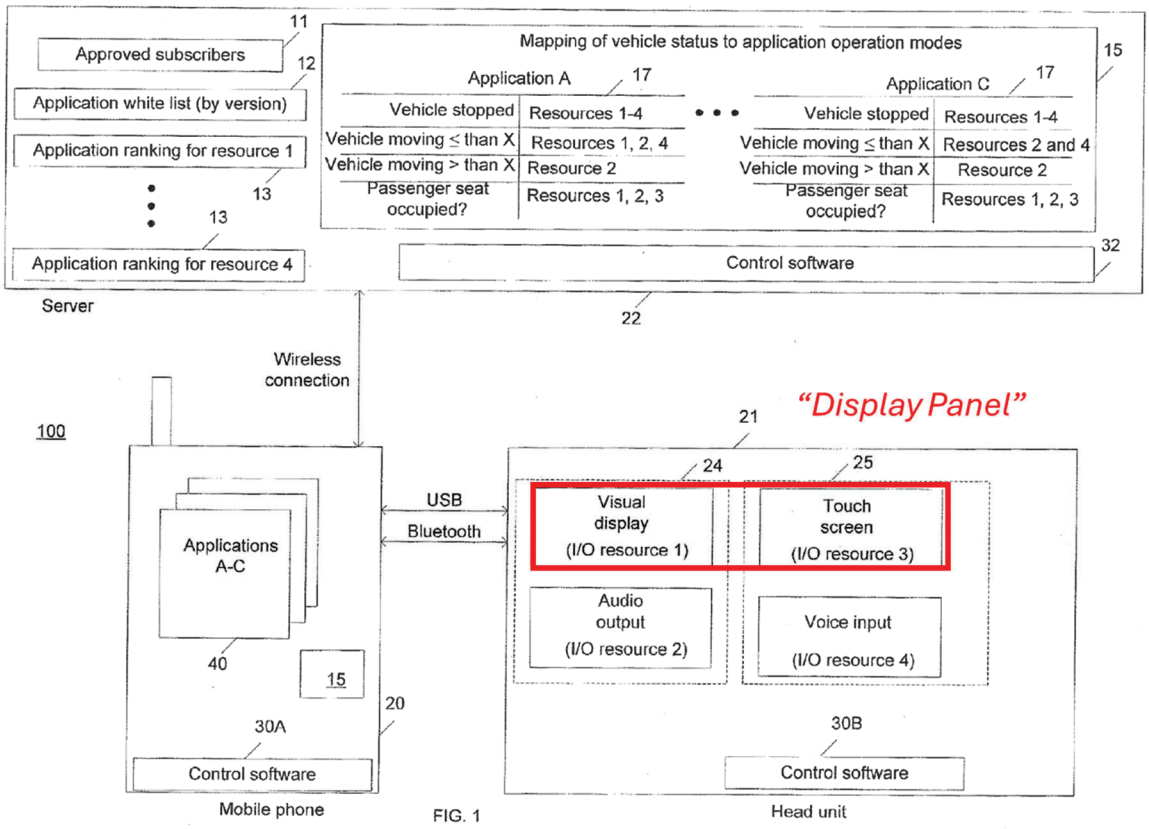


FIG. 1

Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

[20] Although Moinzadeh appears to have inadvertently transposed reference numerals 24 and 25 in Fig. 1, a POSA would have understood that and that all four resources are considered I/O resources.

388. Moinzadeh discloses that extended applications can request to use one or more of the I/O resources of the head unit 21. (Moinzadeh, Ex. 1013, [0023].) Moinzadeh discloses the example applications of a navigation application A and a video game application C.

> One real world example might be a **navigation application A** and a **video game application C**, where even when a passenger is present the system 100 will not allow the **video game application C to be displayed on the head unit 21 screen 1** as this is deemed to be too much of a distraction for a driver whereas the **navigation application A** can be displayed on the head unit 21 screen 1. Another real world application can be a vehicle with a plurality of interfaces, such as a head unit and a display attached to the back of a seat. An application can be granted access to the back seat display under conditions where the same application would not be granted access to the head unit.

(Moinzadeh, Ex. 1013, [0026].)

389. Moinzadeh discloses that the phone applications, including the navigation application A and a video game application C, can be extended to the vehicle head unit 21 using the system 100 as discussed above. The ability to extend any application to the head unit is defined in the subscriber database 11 of the "*account*" and the ability to extend a particular application is defined in the whitelist 12 and mapping 15 of the "*account*."

390. Therefore, the "*defin[ed] rights and privileges*" related to the use of applications, such as the navigation application A and the video game application C,

includes "*monitoring, controlling, and/or operating*" a visual display 24 ("*display panel*") and the head unit 21 ("*entertainment system*").

391. A POSA would have understood the head unit 21 is an "*entertainment system*" because it includes a display and audio output. Indeed, Moinzadeh explains that the head unit can be used to play video games, which is a form of entertainment. (Moinzadeh, Ex. 1013, [0026].) A POSA would have further understood a video game application to be "*media and/or multimedia content*."

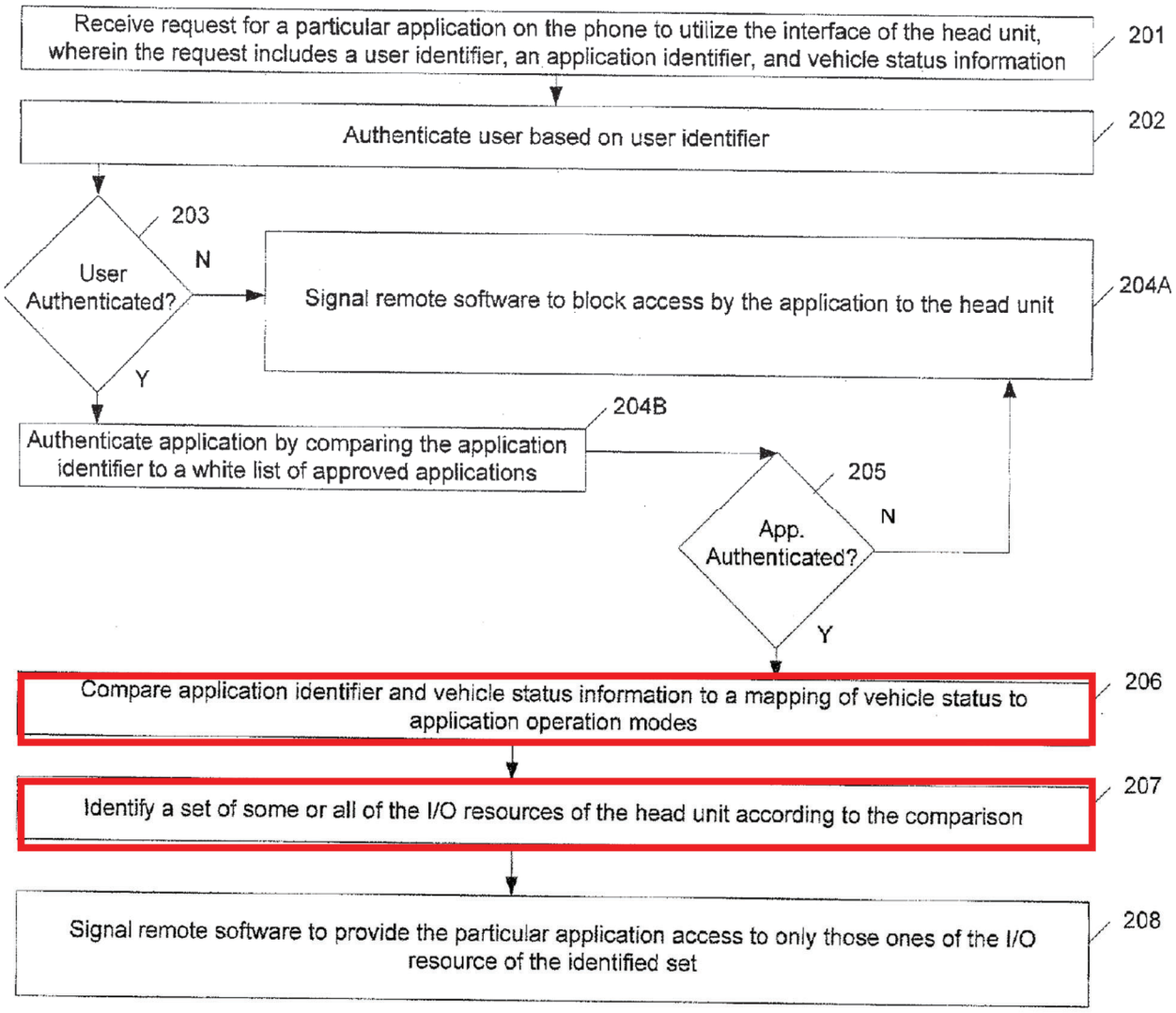
392. Accordingly, Moinzadeh discloses "*wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating . . . display panel* [visual display 24 with touch screen 25], . . . *entertainment system, and media and/or multimedia content* [e.g., the system 100 controls the head unit to display a video game application under certain conditions.]"

[1.5] (d) determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and

393. Moinzadeh discloses "*determining, by the microprocessor executable vehicle control system, . . . an operating state of the vehicle*[,]" such as whether or not the vehicle is stopped or moving, as well as a vehicle speed. (Moinzadeh, Ex. 1013, [0026].)

394. Following authentication, the system 100 determines an operating state of the vehicle. This is used to permit or restrict the I/O resources an extended

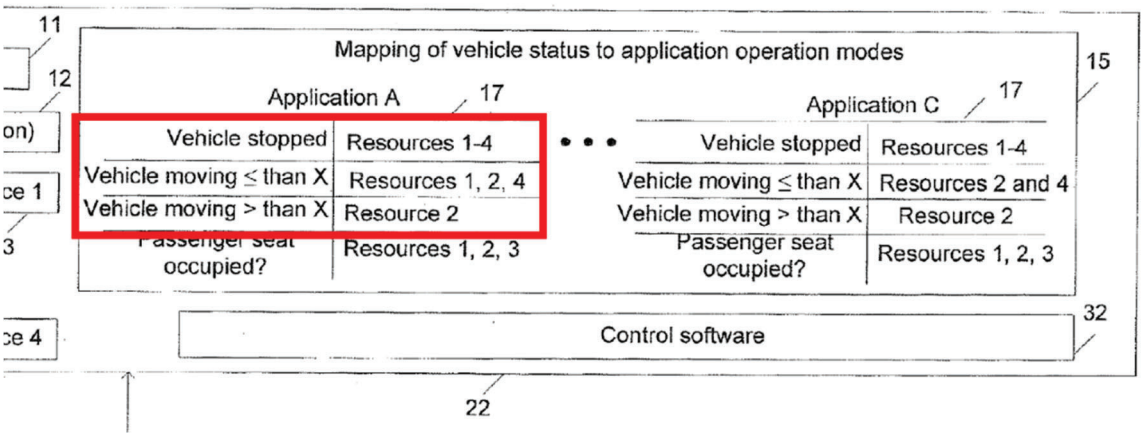
application 40 can use. The purpose of the restrictions is to increase safety. (Moinzadeh, Ex. 1013, [0019].)



Moinzadeh, Ex. 1013, Fig. 2A (Annotated)

395. In blocks 206-207, the system 100 "compares the application identifier and the current vehicle status information ("*operating state*") to a mapping 15 of application operation modes" and then identifies which I/O resources of the head unit 21 an application 40 can utilize based on the comparison. (Moinzadeh, Ex.1013,

[0026].) As discussed above, Moinzadeh discloses the head-unit software 30B can perform this comparison. (Ex. 1013, [0042].) For example, the system 100 does not allow the Navigation Application A to access the touch screen (I/O Resource 3) once the vehicle is in motion, but allows it to access the visual display (I/O Resource 1) at low speeds ("Vehicle moving ≦ than X).



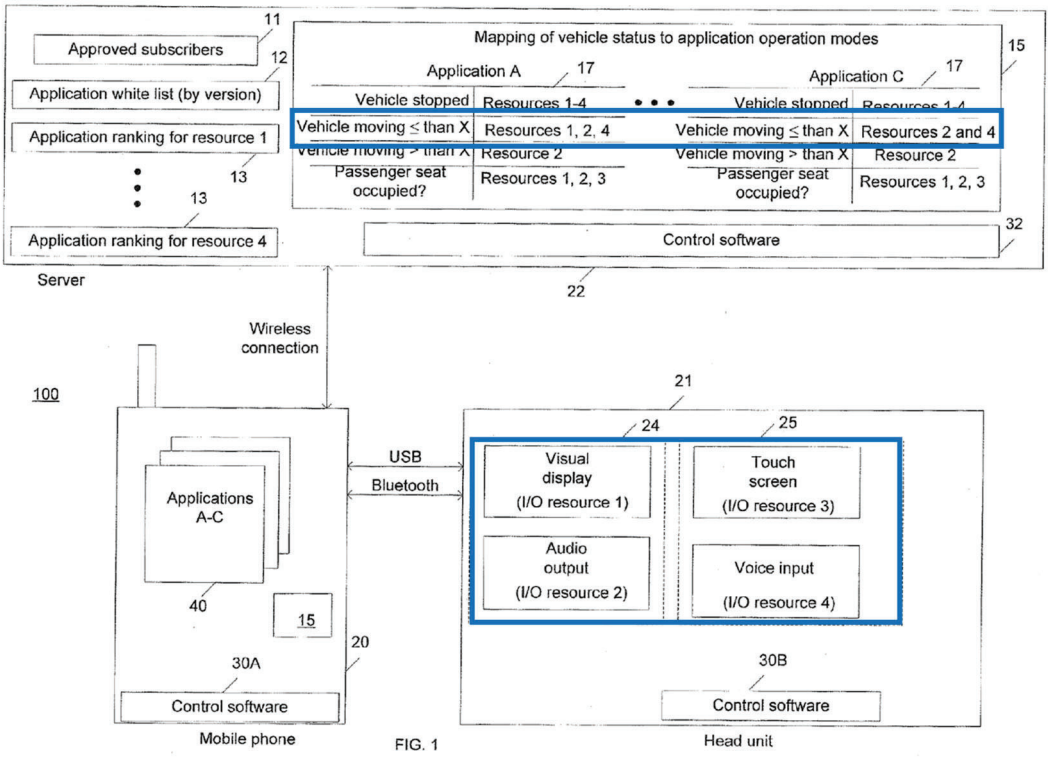
Moinzadeh, Ex. 1013, Fig. 1 (Annotated and Cropped)

396. Moinzadeh discloses that when the "'vehicle [is] moving ≦ than X'" speed, the system 100 permits the navigation "application A . . . to access the only the screen 1, the speaker 2, and microphone 4" and permits the game "application C . . . to access the speaker 2 and microphone 4[.]" (Ex. 1013, [0026].)

> Otherwise, if the application 40 is authenticated, then in block 206 the software 32 compares the application identifier and the current vehicle status information to a mapping 15 of application operation modes. As shown, the mapping 15 can have an entry 17 for each application 40 of the list 12. Each entry 17 includes a mapping that is particularized for the corresponding application 40. **For example, an entry 17 for**

> **application A maps the vehicle status "vehicle moving ≦than X" to resources 1, 2, and 4 (namely application A will be permitted to access the only the screen 1, the speaker 2, and microphone 4 under this vehicle condition) whereas the entry 17 for application C maps the vehicle status "vehicle moving ≦than X" to only resources 2 and 4 (namely application C will be permitted to access the speaker 2 and microphone 4)**. One real world example might be a navigation application A and a video game application C, where even when a passenger is present the system 100 **will not allow the video game application C to be displayed on the head unit 21 screen 1 as this is deemed to be too much of a distraction for a driver** whereas the navigation application A can be displayed on the head unit 21 screen 1.

(Moinzadeh, Ex. 1013, [0026].)



Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

397. Moinzadeh further discloses limiting access to only the audio output I/O Resource 2 when the vehicle is moving over a predetermined speed ("Vehicle moving > than X") as annotated in red below. This indicates that the system 100 prevents the Application A (navigation) and Application C (Game) from being displayed on the visual display (I/O resource 1) or accessible using the touch screen (I/O resource 3) once the vehicle is traveling above speed "X". Moinzadeh also discloses that the system 100 allows access to all I/O "Resources 1-4" when the "Vehicle [is] stopped" as annotated in green below. (Moinzadeh, Ex.1013, [0026].)

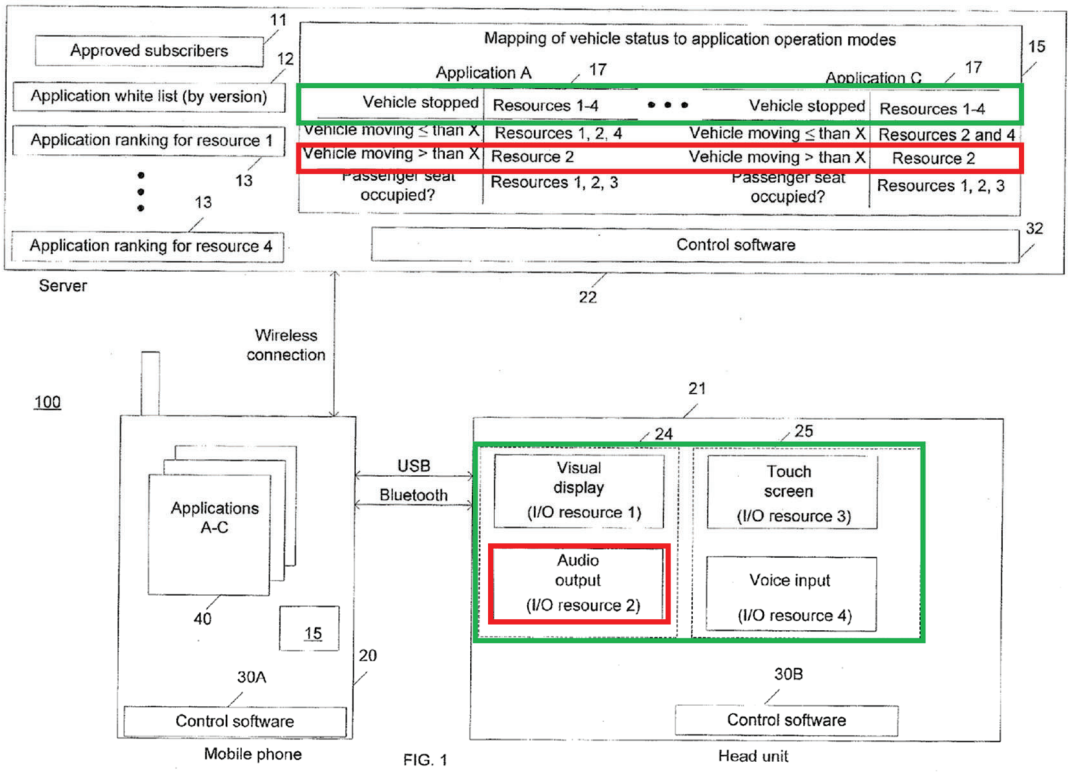


FIG. 1

Moinzadeh, Ex.1013, Fig. 1(Annotated)

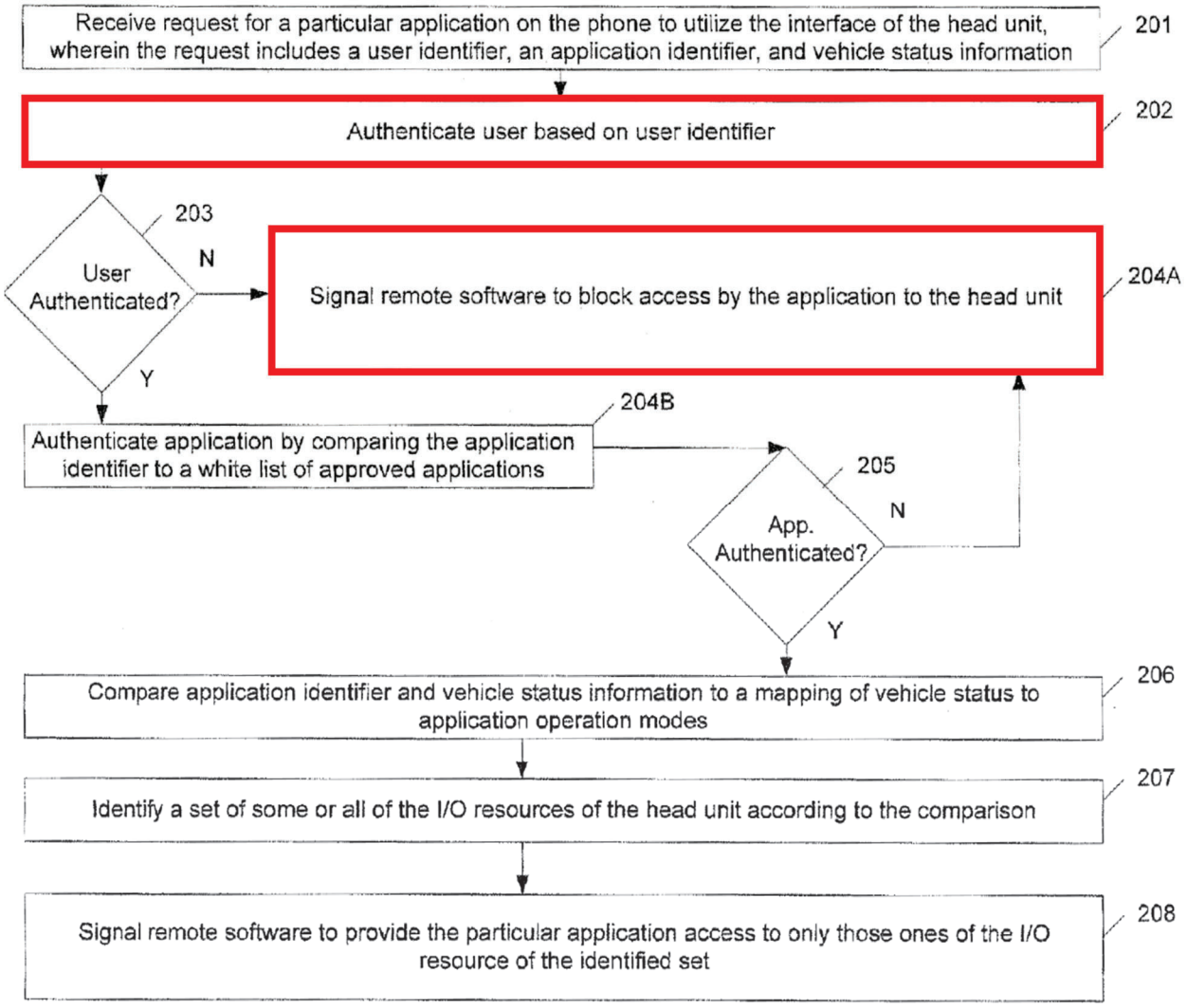
398. As discussed above, Moinzadeh discloses the head-unit software 30B can perform these operations. (Ex. 1013, [0042],) Therefore, the system 100 "*determin[es] . . . an operating state of the vehicle*," such as if the vehicle is moving or stopped.

[1.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules:

399. As discussed in claim limitation [1.3], Moinzadeh discloses an

"*account.*" As discussed in claim limitation [1.5], Moinzadeh discloses to "*determin[e] . . . an operating state of the vehicle*[.]" The system 100 applies rules for allowing or rejecting a request from the user based on the subscriber database 11, the mapping 15, and the operating state of the vehicle, e.g., stopped vs. moving.

400. Moinzadeh discloses that the system 100 applies rules based on the account by accessing the approved subscriber's database 11 to determine if a user request to extend an application should be blocked, which occurs when the user identifier does not match a subscriber in the subscriber database 11.

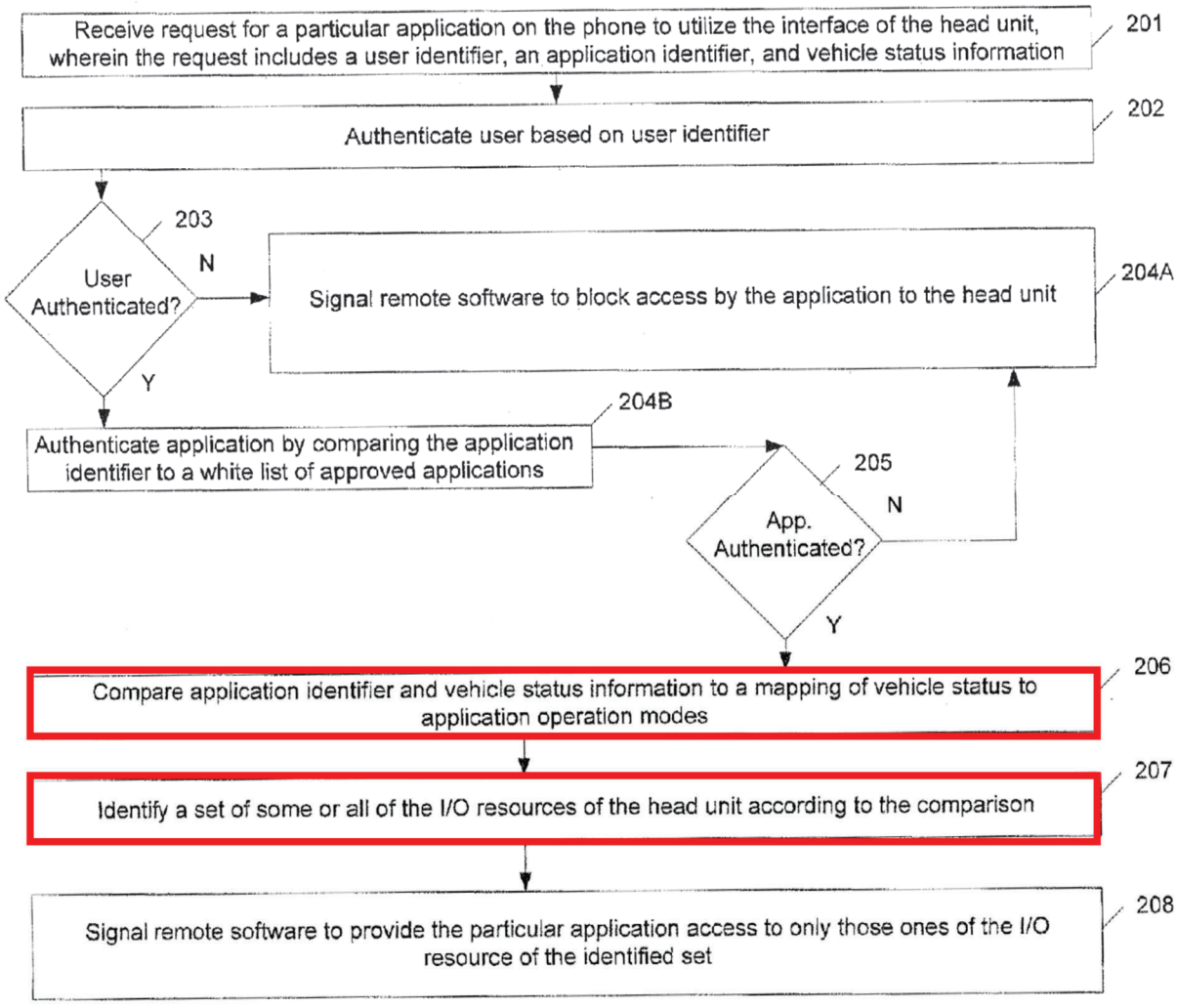


Moinzadeh, Ex. 1013, Fig. 2A (Annotated)

In block 202, **the software 32 authenticates the user**. This can include determining whether the user identified by the user identifier matches a database 11 of subscribers for the service of extending the interface of the phone 20 using the head unit 21. **If the user is not authenticated in diamond 203, then in block 204A the software 32 signals the software 30A/B to block access by the application 40 to the head unit 21**. It should be understood that the system 100 can be configured so that block 202 is optional.

(Moinzadeh, Ex. 1013, [0024].)

401. If the request is not blocked, i.e., Y in block 203, Moinzadeh further looks at the mapping 15 of the "*account*" and vehicle operating state in deciding whether or not to grant a request for an application to use a particular I/O of the head unit 21. (Moinzadeh, Ex. 1013, [0026].)



Moinzadeh, Ex. 1013, Fig. 2A (Annotated)

402. Therefore, Moinzadeh applies rules for extending applications to the vehicle head unit based on the "*account*" and the "*operating state of the vehicle*[.]"

This application of rules will be further explained below in claim limitations [1.6.i] and [1.6.ii].

> ***[1.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and***

403. Moinzadeh discloses that when (i) the subscriber database 11 of the "*account*" permits a "*vehicle occupant*" to use the system 100 and (ii) the mapping 15 of the "*account*" allows the requested application 40 to use the requested I/O resource of the head unit 21 in view of the vehicle operating state, "*performing or causing to be performed the vehicle task, function or operation*" of extending the application 40 to the requested one or more I/O resources of the head unit 21 occurs.

> Otherwise, if the application 40 is authenticated, then in **block 206 the software 32 compares the application identifier and the current vehicle status information to a mapping 15 of application operation modes**. As shown, the mapping 15 can have an entry 17 for each application 40 of the list 12. Each entry 17 includes a mapping that is particularized for the corresponding application 40. For example, **an entry 17 for application A maps the vehicle status "vehicle moving ≦than X" to resources 1, 2, and 4 (namely application A will be permitted to access the only the screen 1, the speaker 2, and microphone 4 under this vehicle condition) whereas the entry 17 for application C maps the vehicle status "vehicle moving ≦than X" to only resources 2 and 4 (namely application C will be permitted to access the speaker 2 and microphone 4). One real**

> **world example might be a navigation application A and a video game application C, where even when a passenger is present the system 100 will not allow the video game application C to be displayed on the head unit 21 screen 1 as this is deemed to be too much of a distraction for a driver <u>whereas the navigation application A can be displayed on the head unit 21 screen 1</u>.**

(Moinzadeh, Ex. 1013, [0026].)

404. Figure 1, for example, shows that when the user is permitted to extend the application to the head unit and the vehicle is stopped, the system 100 "*perform[s] or caus[es] to be performed the vehicle task, function or operation*" of showing Application A on the display 24 (also called screen 1) and allowing the touch screen 25 to interact with Application A. See green boxes below.

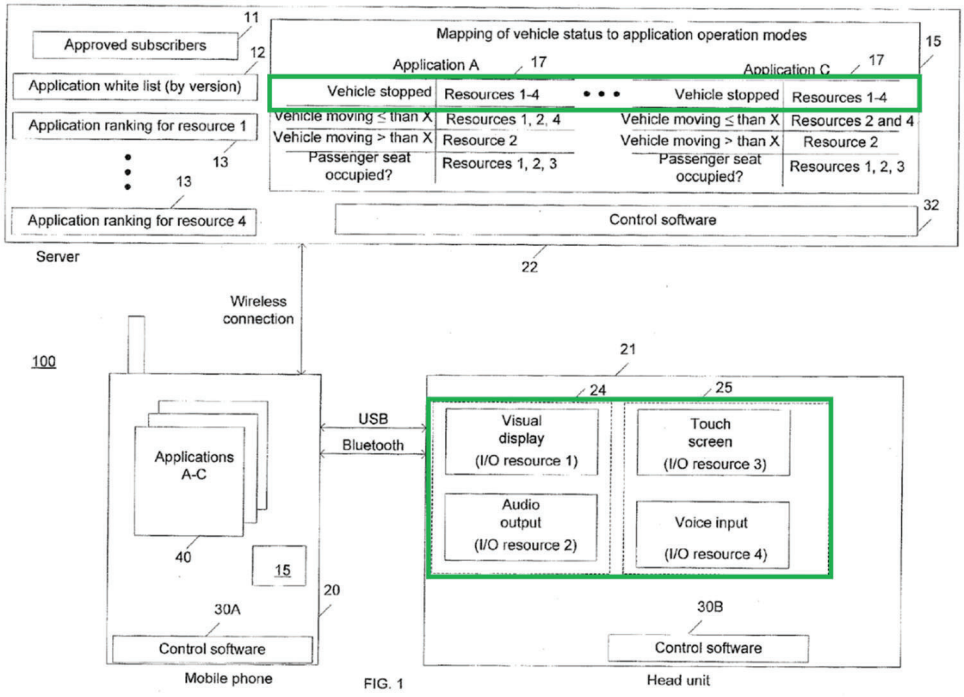


FIG. 1

Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

[1.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

405. Continuing with the Example of Figure 1, Moinzadeh discloses that when the "vehicle [is] moving ≦ than X" speed, the system 100 permits the navigation "application A . . . to access the only the screen 1, the speaker 2, and microphone 4" and permits the game "application C . . . to access the speaker 2 and microphone 4" as annotated in blue in Fig. 1 below. (Moinzadeh, Ex. 1013, [0026].) Thus, when the vehicle is moving the control software 32 prevents ("*not performing or causing to be performed*") the "*vehicle occupant*" from entering inputs via the touch screen 25 (I/O Resource 3). (Moinzadeh, Ex.1013, [0026].)

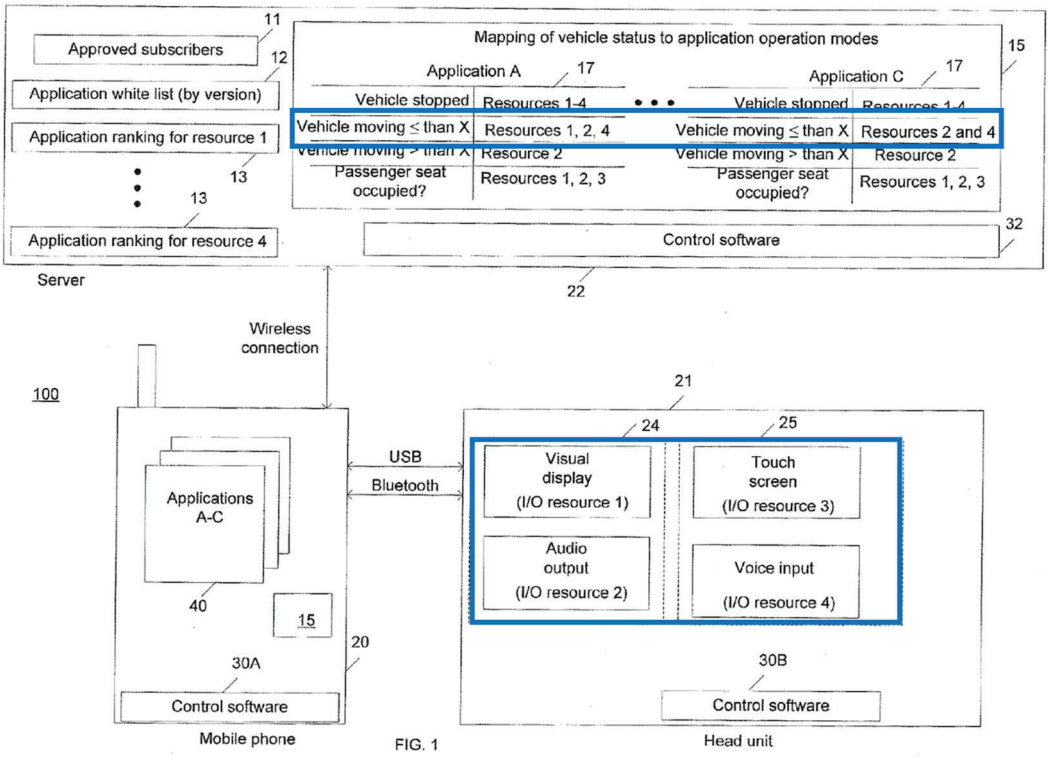


FIG. 1

Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

406. The system 100 also prevents the vehicle occupant from accessing Application A on the display 24 ("*vehicle task, function, or operation*") when the vehicle is moving above a threshold speed (X) (another "*operating state of the vehicle*"). (Moinzadeh, Ex. 1013, Fig.1, [0026].)

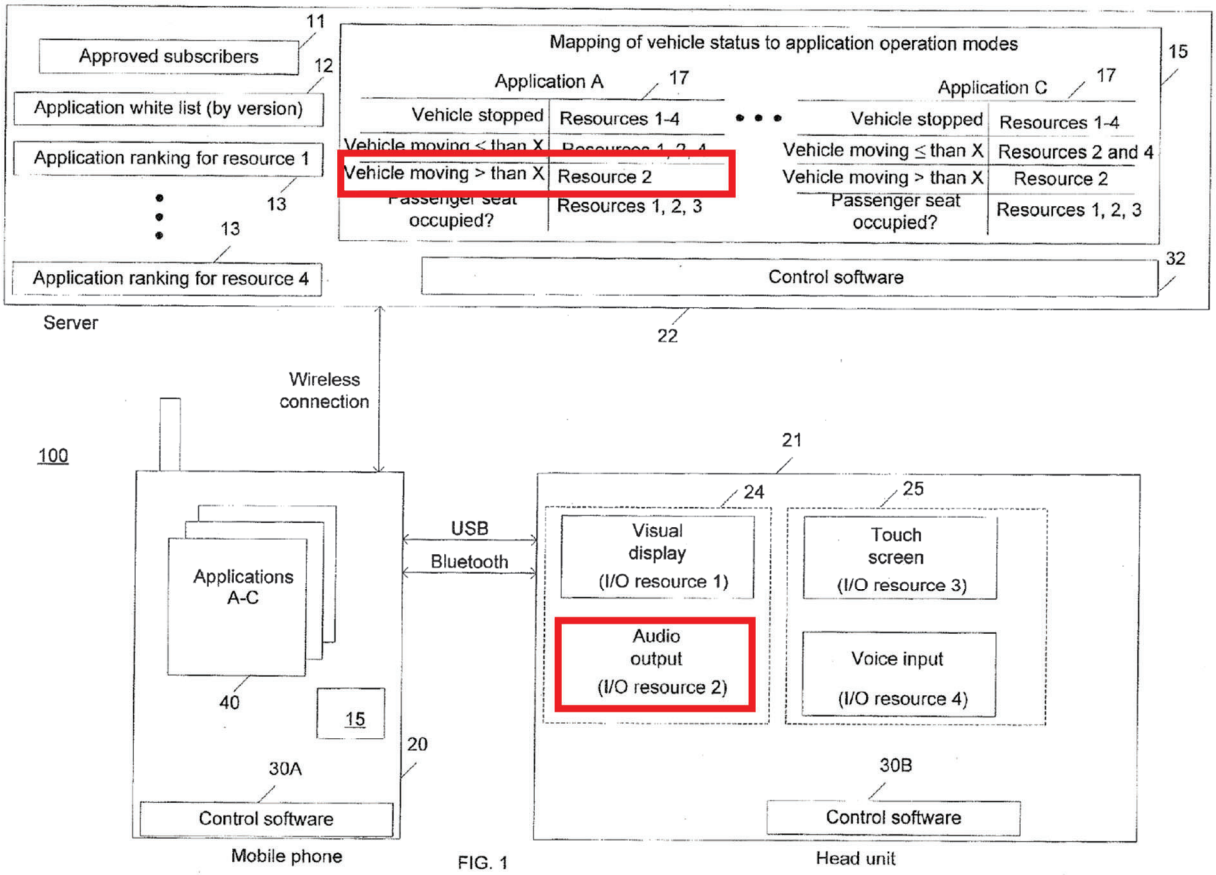


FIG. 1

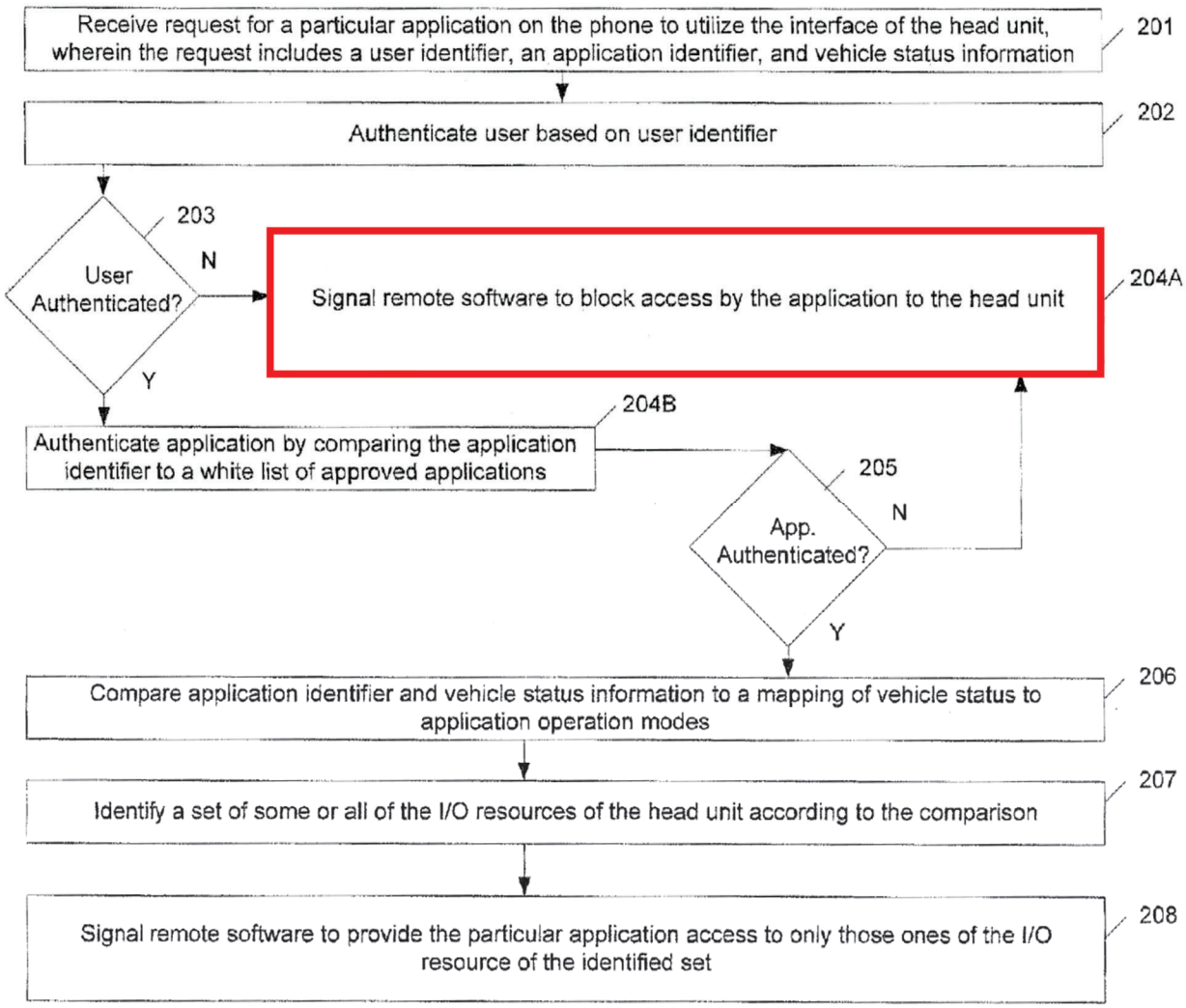
Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

407. Moinzadeh also discloses that when the requested application 40 does not match with the application whitelist 12 portion of the vehicle occupant's "*account*," the system 100 "*does not permit the vehicle occupant to perform the requested vehicle task, function or operation*" of extending that application to the head unit in any capacity.

> **If the particular application 40 (or particular version) is not on the list 12** in diamond 205, then in block 204A the software 32 signals the software 30A-B to **block access by the application 40 to the head unit 21**.

(Moinzadeh, Ex. 1013, [0025].)

408. Moinzadeh further discloses that when the subscriber database 11 does not have a match with the vehicle occupant (Moinzadeh, Ex. 1013, [0024]), the system 100 "*does not permit the vehicle occupant to perform the requested vehicle task, function or operation*."



Moinzadeh, Ex. 1013, Fig. 2A (Annotated)

3. Dependent Claims 2-4, 6-7

a. Claim 2

409. Claim 2 depends from claim 1, which I understand means that claim 2 requires all of the claim limitations of claim 1, in addition to its own claim limitations.

410. Moinzadeh discloses all of the claim limitations of claim 1 as described above.

> ***[2.0] The method of claim 1, wherein, in step (e), the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the area and/or zone occupied by the vehicle occupant and***

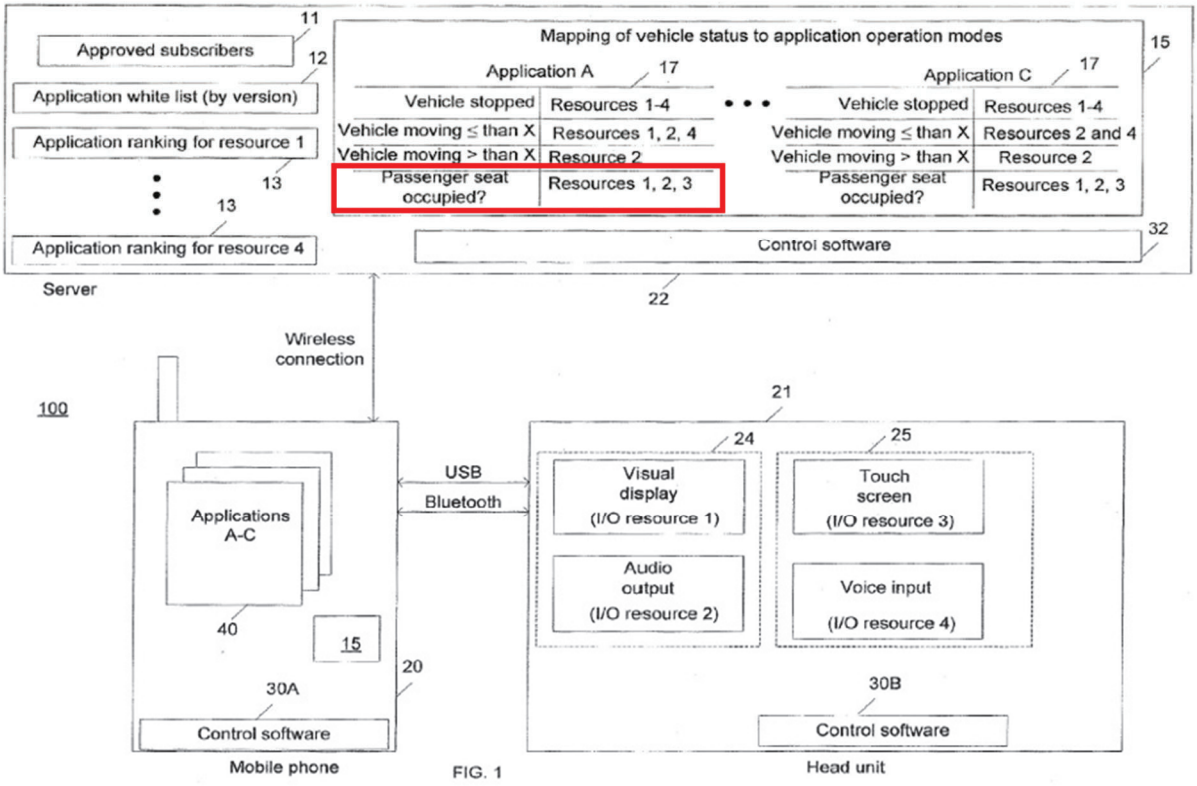
411. Moinzadeh discloses that the system 100 also considers whether the passenger seat is occupied when evaluating vehicle conditions:

> 12. The memory of claim 1, wherein the vehicle conditions include at least a third condition of a passenger seat being occupied.

(Moinzadeh, Ex. 1013, Claim 12.)

> It should be understood that the mapping 15 can have any vehicle statuses and that the four illustrated examples are merely some examples. For example, another vehicle status could be whether the vehicle is moving more than speed 'X' AND a passenger is present.

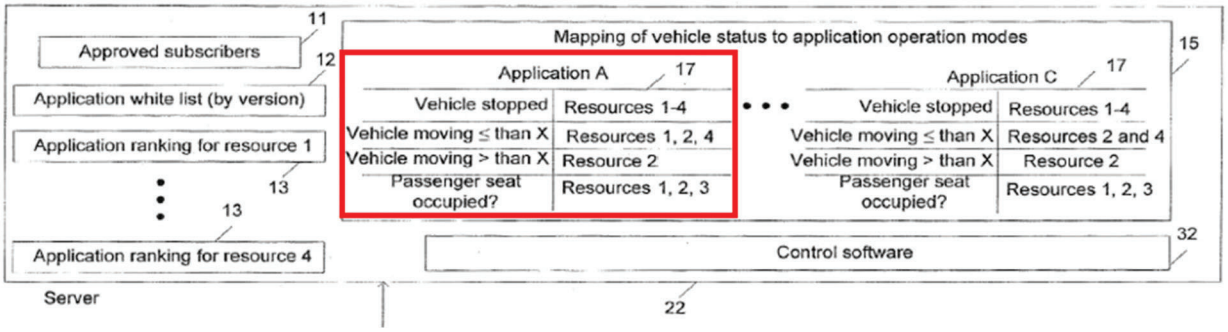
(Moinzadeh, Ex. 1013, [0038].)



Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

412. A POSA would have understood the passenger seat to be an "*area and/or zone*" of the vehicle. Indeed, the driver's seat, passenger's seat, and backseat are all well-known areas of a vehicle passenger cabin.

413. Moinzadeh further discloses to apply rules based on if a "*vehicle occupant*" is in the passenger seat. As shown in the mapping 15 of Figure 1, the available I/O resources change based on whether or not the passenger seat is occupied. In the example of Application A, when the passenger seat is unoccupied and the vehicle is moving, resource 3 (touch screen 25) is not available. However, when the passenger seat is occupied, resource 3 is available at any vehicle speed.



Ex. 1013, Moinzadeh, Fig. 1 (Annotated and Cropped)

414. Moinzadeh discloses an embodiment in which "even when a passenger is present the system 100 will not allow the video game application C to be displayed on the head unit 21 screen 1 as this is deemed to be too much of a distraction for a driver whereas the navigation application A can be displayed on the head unit 21 screen 1." (Moinzadeh, Ex. 1013, [0026].)

415. Therefore, Moinzadeh discloses "*the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the area and/or zone* [e.g., passenger seat] occupied by the vehicle occupant[.]"

[2.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a different set of vehicle tasks, functions, or operations when in a different second area and/or zone.

416. Moinzadeh discloses that the "*vehicle occupant can perform a first set of vehicle tasks, functions or operations*" of extending Application A to only I/O Resources 1–2 and 4 when the vehicle is moving and the "*vehicle occupant*" is seated

in the driver's seat ("*first area and/or zone*"). Moinzadeh further discloses the "*vehicle occupant*" can perform a "*different set of vehicle tasks, functions, or operations*" of extending application A to Resources 1, 2, and 3 when seated in the passenger seat ("*second area and/or zone*")[21].

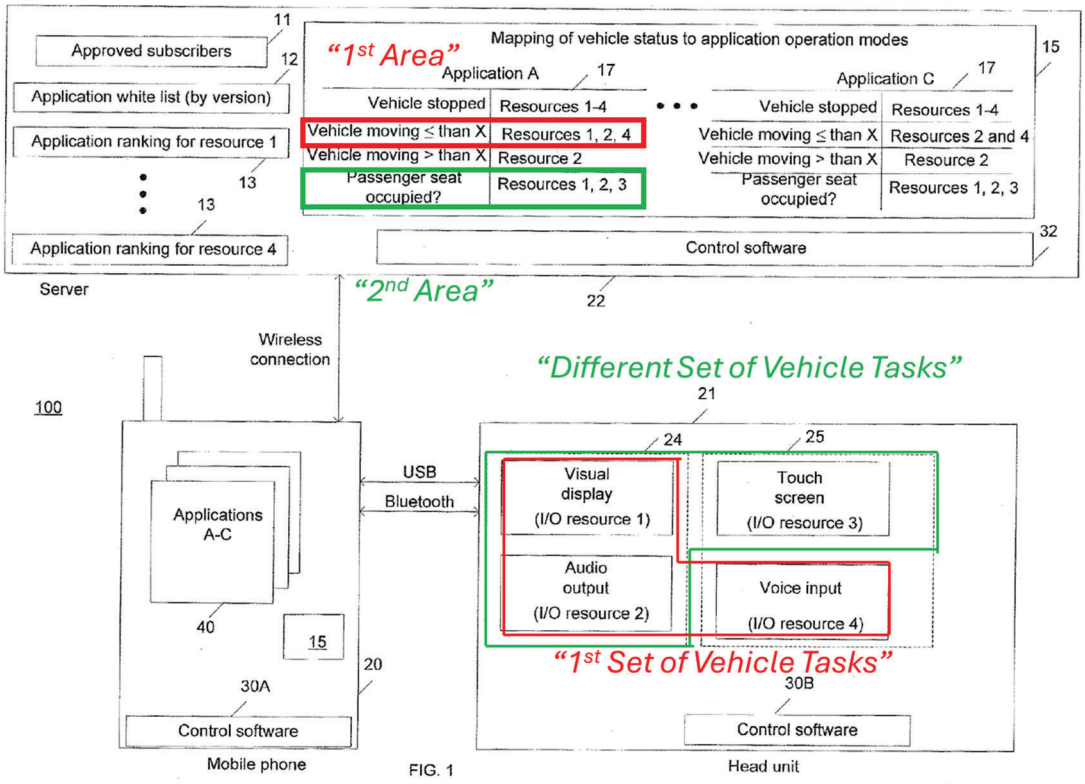


FIG. 1

Moinzadeh, Ex.1013, Fig.1 (Annotated)

[21] Moinzadeh further discloses that the mapping may consider both speed and passenger seat occupied when defining available I/O resources. (Moinzadeh, Ex. 1013, [0026], [0038].)

417. The first and second sets are different because the "*vehicle occupant*" cannot use the touch screen 25 when they are seated in the driver's seat and can use the touch screen 25 when seated in the passenger seat. Accordingly, Moinzadeh discloses that the "*vehicle occupant can perform a first set of vehicle tasks, functions or operations* [of extending Application A to only I/O Resources 1–2 and 4 when the vehicle is moving] *when in a first area and/or zone* [the driver's seat] *and a different set of vehicle tasks, functions, or operations* [of extending application A to Resources 1, 2, and 3] *when in a different second area and/or zone* [the passenger's seat]."

b. Claim 3

418. Claim 3 depends from claim 1, which I understand means that claim 3 requires all of the claim limitations of claim 1, in addition to its own claim limitations.

419. Moinzadeh discloses all of the claim limitations of claim 1 as described above.

[3.0] The method of claim 1, wherein, in step (e), the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the operating state of the vehicle and

420. Claim 1 required "*an area and/or zone occupied by the vehicle occupant" or "an operating state of the vehicle*[.]" Claim 3 now explicitly requires

the "*operating state of the vehicle*."

421. As I discussed above in [1.6]-[1.6.ii], Moinzadeh applies the rules based on if the vehicle occupant has an "*account*" and the "*operating state of the vehicle*," such as, whether the vehicle is moving. (Moinzadeh, Ex. 1013, [0026].) Therefore, Moinzadeh discloses claim limitation [3.0] for the reasons discussed in claim 1.

[3.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when the vehicle is in a first operating state and a different set of vehicle tasks, functions, or operations when the vehicle is in a second operating state.

422. Moinzadeh discloses that a vehicle occupant "*can perform a first set of vehicle tasks, functions or operations*" of extending Application A to I/O Resources 1–4 when the vehicle is in a "*first operating state*" (vehicle stopped). Moinzadeh further discloses the vehicle occupant can perform a "*different set of vehicle tasks, functions, or operations*" of extending application A to Resources 1, 2, and 4 when the vehicle is in a "*second operating state*" (vehicle moving).

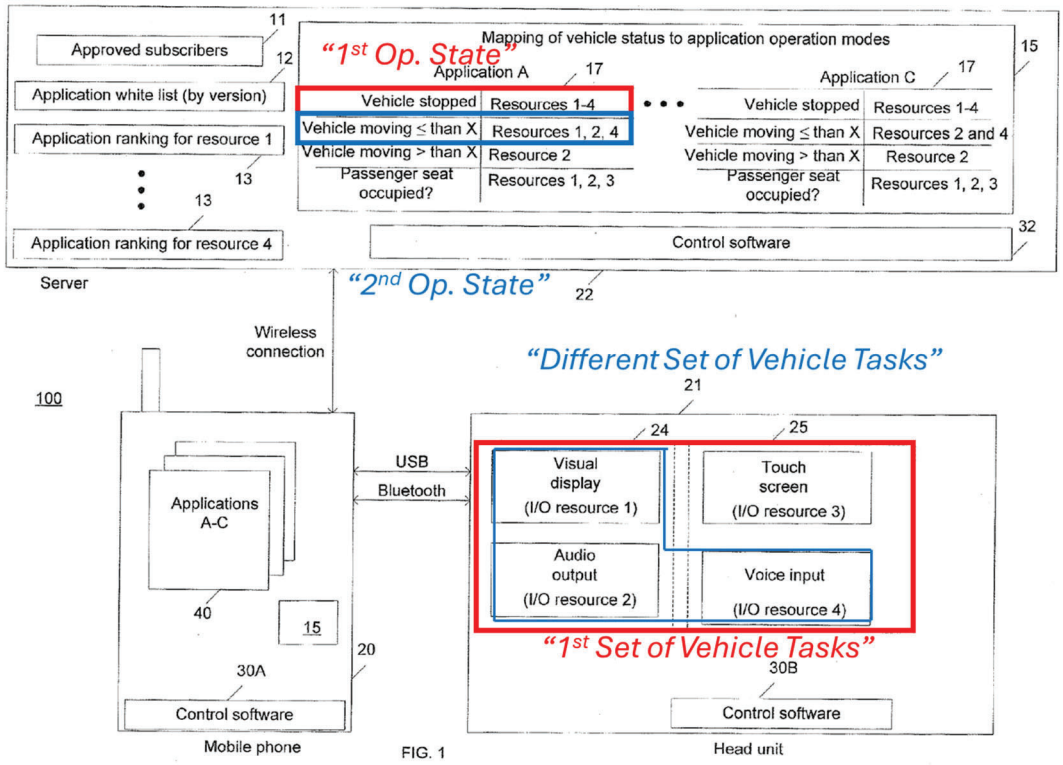


FIG. 1

Moinzadeh, Ex. 1013, Fig. 1 (Annotated)

Otherwise, if the application 40 is authenticated, then in block 206 the software 32 compares the application identifier and the current vehicle status information to a mapping 15 of application operation modes. As shown, the mapping 15 can have an entry 17 for each application 40 of the list 12. **Each entry 17 includes a mapping that is particularized for the corresponding application 40. For example, an entry 17 for application A maps the vehicle status "vehicle moving ≦than X" to resources 1, 2, and 4 (namely application A will be permitted to access the only the screen 1, the speaker 2, and microphone 4 under this vehicle condition) whereas the entry 17 for application C maps the vehicle status "vehicle moving ≦than X" to only resources 2 and 4** (namely application C will be permitted to access the speaker 2 and

> microphone 4). One real world example might be a **navigation application A** and a **video game application C**, where even when a passenger is present the system 100 will not allow the video game application C to be displayed on the head unit 21 screen 1 as this is deemed to be too much of a distraction for a driver whereas the navigation application A can be displayed on the head unit 21 screen 1. Another real world application can be a vehicle with a plurality of interfaces, such as a head unit and a display attached to the back of a seat. An application can be granted access to the back seat display under conditions where the same application would not be granted access to the head unit.

(Moinzadeh, Ex. 1013, [0026].)

423. The first set of "*vehicle tasks, functions or operations*" is different from the second set because the vehicle occupant is unable to use the touch screen 25 (I/O Resource 3) for Application A during the second operating state. Accordingly, Moinzadeh discloses that the "*vehicle occupant can perform a first set of vehicle tasks, functions or operations* [of extending Application A to I/O Resources 1–4] *when the vehicle is in a first operating state* [stopped] *and a different set of vehicle tasks, functions, or operations* [of extending application A to Resources 1, 2, and 4] *when the vehicle is in a second operating state* [moving].

c. Claim 4

424. Claim 4 depends from claim 1, which I understand means that claim 4 requires all of the claim limitations of claim 1, in addition to its own claim

limitations.

425. Moinzadeh discloses all of the claim limitations of claim 1 as described above.

[4.0] The method of claim 1, wherein rule (i) applies and the vehicle occupant is able to control the requested vehicle task, function or operation using one or more of a cell phone, laptop, tablet computer, and personal digital assistant.

426. Moinzadeh discloses a mobile phone 20, which is another name for a "*cell phone*."

> The system 100 includes software 30A and 30B configured on, respectively, **a mobile phone 20** (or other mobile device) and head unit 21 (or other interface powered by a motor vehicle such as a user interface integrated with a steering wheel or a user interface integrated with a seat back). The software 30A and 30B interfaces with the software 32 configured on a remote server 22 to regulate and control when and how applications 40 operating on the phone 20 access I/O resources 1-4 of the head unit 21.

(Moinzadeh, Ex. 1013, [0021].)

427. The vehicle occupant is able to control the requested "*vehicle task, function or operation*" of extending an application 40 from the mobile phone 20 on the head unit 21 using the mobile phone 20.

> In block 201, **the software 32 receives a request for a particular application 40 on the phone 20 to utilize the interface (including**

> **input 24 resources 1-2 and output 25 resources 3-4) of the head unit 21**. The request includes a user identifier corresponding to the user of the motor vehicle and/or head unit 21, an application identifier corresponding to the particular application 40, and vehicle status information. The user identifier could be an identifier provided by the user when the control software 30A was first activated in the mobile phone [20], user's phone number, etc.

(Moinzadeh, Ex. 1013, [0023].)

> In block 207, the software 32 identifies a set of some or all of the I/O resources of the head unit 21 according to the comparison. In block 208, the software 32 signals the remote software to provide the particular application 40 access to only those ones of the I/O resources 1-4 of the identified set. **In one example, such signaling can include controlling the software 30A on the mobile phone 20 so that <u>all access requests sent from the mobile phone 20</u> conform to the identified set of the I/O resources**. In another example, such signaling can include **<u>controlling the software 30B on the head unit 21 to block access requests sent from the mobile phone 20</u>** in any manner such as by simply disabling I/O resources on the head unit 21. In yet other examples, such signaling can include controlling both the software 30A and the software 30B.

(Moinzadeh, Ex. 1013, [0028].)

428. Moreover, Moinzadeh discloses, "any functions described above as being performed by the software of the head unit 21 described above can alternatively be performed by the software of the mobile phone in other examples[.]"

(Moinzadeh, Ex. 1013, [0042].) Therefore, it would have been obvious for the system 100 to enable the "*vehicle occupant . . . to control the requested vehicle task, function or operation using one or more of a cell phone*[.]"

429. Accordingly, Moinzadeh discloses "*wherein rule (i) applies and the vehicle occupant is able to control the requested vehicle task, function or operation* [extending an application 40 from the mobile phone 20 on the head unit 21] *using one or more of a cell phone* [mobile phone 20], *laptop, tablet computer, and personal digital assistant*."

d. Claim 6

430. Claim 6 depends from claim 1, which I understand means that claim 6 requires all of the claim limitations of claim 1, in addition to its own claim limitations.

431. Moinzadeh discloses all of the claim limitations of claim 1 as described above.

[6.0] The method of claim 1, wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and

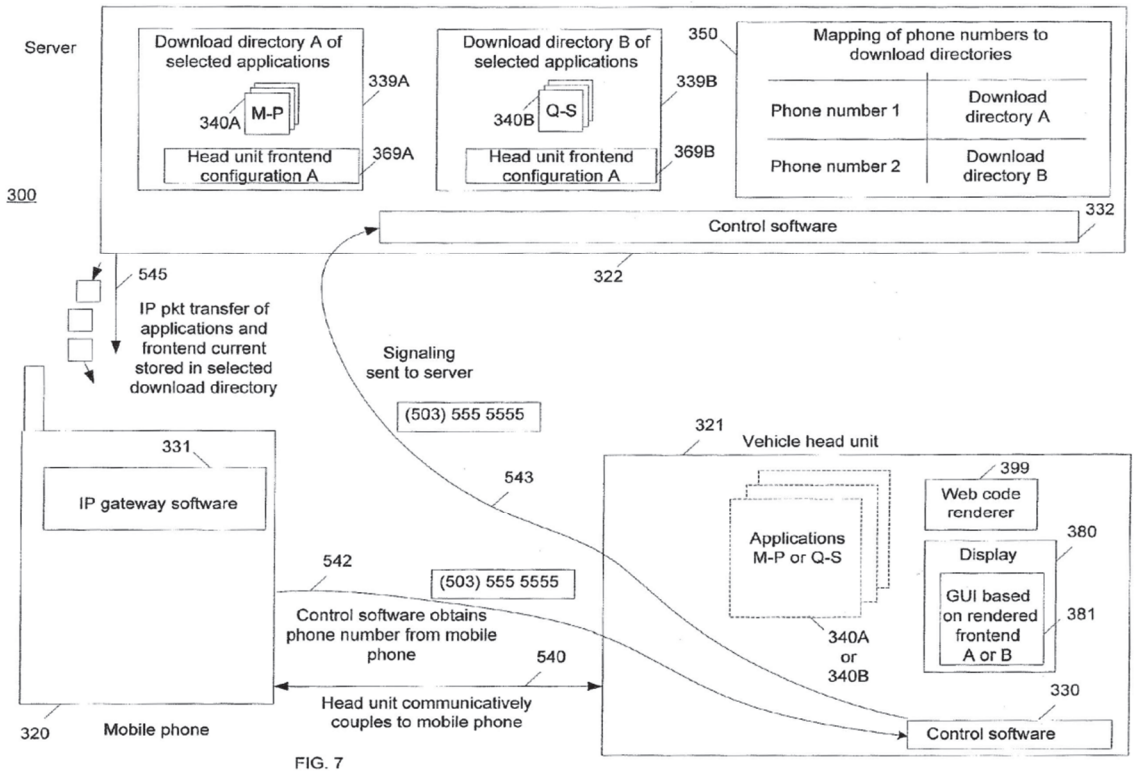
432. As discussed in claim limitation [1.3], the "*account*" defines "*rights and privileges of the* [vehicle occupant] *with respect to controlling a vehicle task,*

function or operation[.]"

433. As discussed in claim limitation [1.2], the "*account*" is used to authenticate the vehicle occupant. As previously discussed, the vehicle occupant has a user identifier, e.g., phone number, that is compared to the subscriber database 11 of the "*account*." The phone number is a "*credential[] for the vehicle occupant*" and the database 11 of the "*account*" comprises "*security and/or authentication requirements*" in the form of user identifications used for authenticating the vehicle occupant with the system 100. (Moinzadeh, Ex. 1013, [0023]-[0024].)

434. Moinzadeh further discloses to store "*personal settings*" in the "*account*."

435. Moinzadeh discloses, with reference to Figure 7 below, a system 300 that differs from the system 100 by storing applications on the head unit 321. (Moinzadeh, Ex. 1013, [0066].) The system 300 may have all the above-described structures and functions of system 100, and the systems 100 and 300 can be combined to form a single system. (Moinzadeh, Ex. 1013, [0067], [0079].)



Moinzadeh, Ex. 1013, Fig. 7

436. The system 300 further discloses additional attributes of the "*account*" that further define "*rights and privileges of the user*" in the form of mapping 350 and download directories 339. The download directories 339 are each a collection of applications for a particular user, i.e., one of the approved subscribers stored in the database 11. Figure 7 shows the system 300 and provides an example download directory A (339A), including the user selected applications 340A (M-P), and download directory B (339B), including the user applications 340A (Q-S).

> In block 804, the **control software 332 compares the phone number included in the signaling 543 to the mapping 350. The mapping correlates each of a plurality of download directories A-B accessible via this particular head unit 321 to a particular phone**

> **number**. For example, in the mapping a first phone number is correlated with the download directory A and a second phone number is correlated with the download directory B. **The control software 332 selects one of the download directories A-B based on the comparison of the received telephone number to the mapping 350**.

(Moinzadeh, Ex. 1013, [0072].)

> The software 332 then checks the selected one of the download directories A-B to determine if there are any applications currently stored in the selected directory. A scheme for intelligently selecting applications that are present in the download directories A-B will be discussed in detail later with reference to FIG. 9. For now, let it be assumed for the purposes of illustration that the download directories 339A and 339B currently include applications 340A (M-P) and 340B (Q-S), respectively, in addition to the head unit frontend configurations 369A and 369B.

(Moinzadeh, Ex. 1013, [0073].)

437. Moinzadeh discloses a user web portal 905 that allows the user to select the application(s) to be included in his/her download directory 339.

> FIG. 9 illustrates the user **web portal 905 that can be involved in creating the download directories 339A-B and selection of the applications on a per-directory basis** and describes an example use of this web portal 905.

(Moinzadeh, Ex. 1013, [0083].)

> During or after profile creation the **web portal 905 can be operated to select applications to be included in the download directories 339A-B** using a computing terminal 926, for example using any interne[t] accessible computing device such as the mobile device or a desktop computer.

(Moinzadeh, Ex. 1013, [0085].)

438. The mapping 350 correlates the directories 339 to the user via their phone number so that the correct applications are downloaded when the user connects his/her phone with the vehicle.

> According to the above, applications can be accumulated into the per-vehicle download directories 339A-B on a per-directory basis. **Upon the head unit coupling to a particular one of the mobile devices, data from a corresponding one of the download directories 339A-B can be downloaded and installed onto the vehicle** to provide a customized application set and a customized user interface.

(Moinzadeh, Ex. 1013, [0088].)

439. A POSA would have understood the additional databases of the download directories 339A/339B and the mapping 350 are also part of the "*account*" and that the download directories 339A/339B and the mapping 350 "*defin[e] rights and privileges of the user with respect to controlling a vehicle task, function or operation*" of the head unit 321 in the form of which applications can be downloaded to the head unit 321.

440. The download directories 339A/339B also include head unit frontend

configurations 369A and 369B.

> For now, let it be assumed for the purposes of illustration that the download directories 339A and 339B currently include applications 340A (M-P) and 340B (Q-S), respectively, in addition to the **head unit frontend configurations 369A and 369B**.

(Moinzadeh, Ex. 1013, [0073].)

441. The frontend configurations 369A/369B include "*personal settings*" for how the display looks, such as the wallpaper and GUI.

> As noted briefly in the previous paragraph, **the download directories A-B include head unit frontend configurations A-B, respectively, in addition to the applications 340A and 340B**. The configurations A-B can be stored as HTML code or other web code processable by the web code renderer of the 399. **Depending on which one of the head unit frontend configurations A-B is downloaded to the head unit 321, a display 380 of the head unit 321 will display a different graphical user interface**. Each of the different web code files 369A and 369B will produce a different graphical user interface when displayed using the display 380 and the renderer 399. For example, **each graphical user interface could have its own user customized settings such as a particular wallpaper selected by a user**. A scheme for generating the different head unit frontend configurations A-B will be discussed in detail later with reference to FIG. 9.

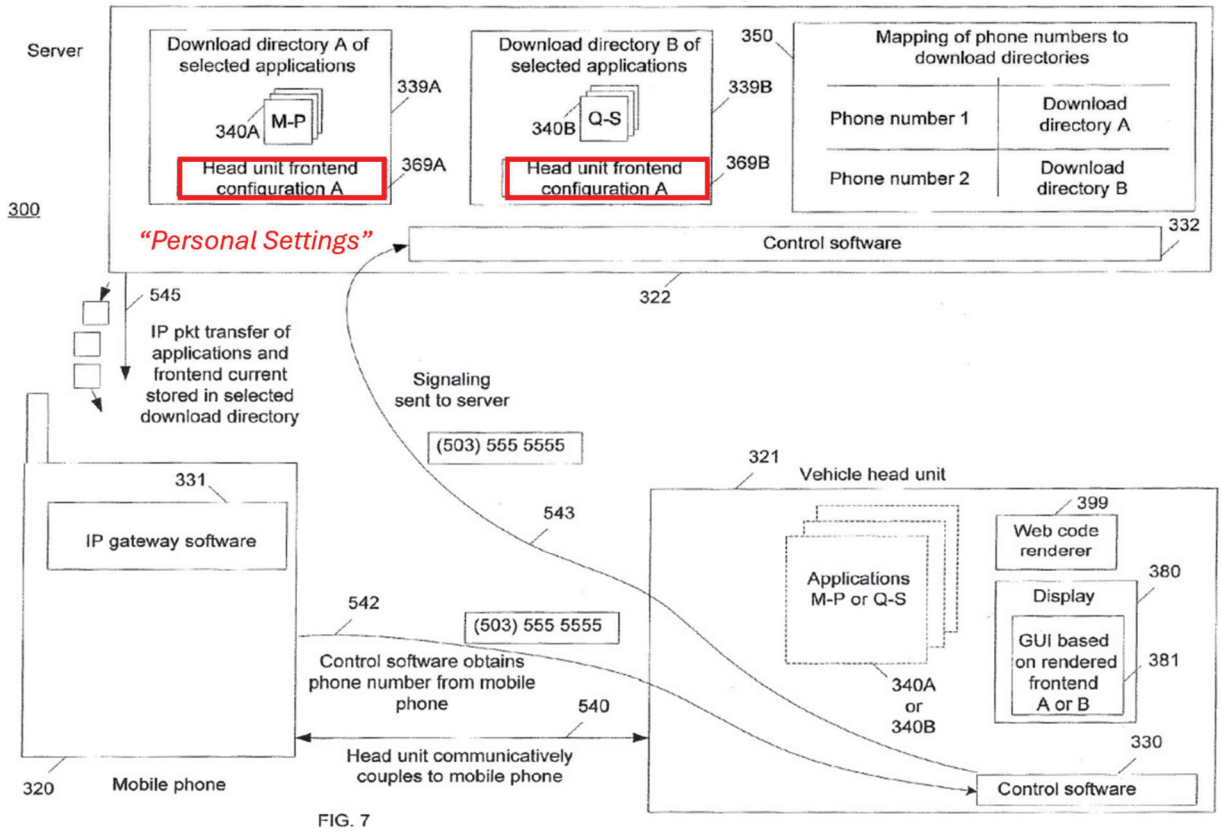
(Moinzadeh, Ex. 1013, [0074].)

> The user web portal 905 can also include a head unit frontend configuration customization portion 928. **This portion 928 allows new**

> **configurations 369A-B to be added to the download directories 339A-B**, with each person's configuration customized according to their requests. For example, a first wallpaper background can be added to the download directory 339A and a second different wallpaper background can be added to the download directory 339B. **Other customizations can include customized graphical interface buttons, customized graphical user interface layout, custom images**, etc.

(Moinzadeh, Ex. 1013, [0087].)

442. The head unit front end configurations 369A/369B are stored in the download directories 339A/339B, which as discussed above, are part of the "*account*."



Moinzadeh, Ex. 1013, Fig. 7 (Annotated)

443. Accordingly, Moinzadeh discloses "*wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements* [e.g., database 11] *and/or credentials for the vehicle occupant* [e.g., user's phone number], *and personal settings of the vehicle occupant* [e.g., head unit front end configurations 339A/339B.]"

[6.1] wherein the vehicle task, function, or operation is one or more of the following: entertainment system and media and/or multimedia content.

444. As discussed above in claim limitation [1.4], the head unit is an "*entertainment system*." As also discussed in [1.4], Moinzadeh discloses "*the vehicle task, function, or operation*" of extending "*media and/or multimedia content*" in the form of a video game application (Application B). (Moinzadeh, Ex. 1013, [0026].) Accordingly, Moinzadeh discloses "*wherein the vehicle task, function, or operation is one or more of the following: entertainment system* [head unit] *and media and/or multimedia content* [extending Application B (video game) on head unit]."

e. Claim 7

445. Claim 7 depends from claims 1 and 6, which I understand means that claim 7 requires all of the claim limitations of claims 1 and 6, in addition to its own claim limitations.

446. Moinzadeh discloses all of the claim limitations of claims 1 and 6 as

described above.

[7.0] The method of claim 6, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific personalization and selections, and a display setting and configuration.

447. As I discussed in claim 6 above, Moinzadeh discloses "*personal settings*" for how the display looks, such as the wallpaper and the graphical user interface (GUI). A POSA would have understood this as disclosing the claimed "*a display setting and configuration*" because these settings control how the display is configured.

448. The "*account[s]*" disclosed in Moinzadeh further comprise settings for "*synchronization with cloud-based data associated with the vehicle occupant*," i.e., the directories 339A and 339B as I will now discuss in detail.

449. In one embodiment, the system 300 has a cloud-based server 322 in communication with the vehicle head unit 321.

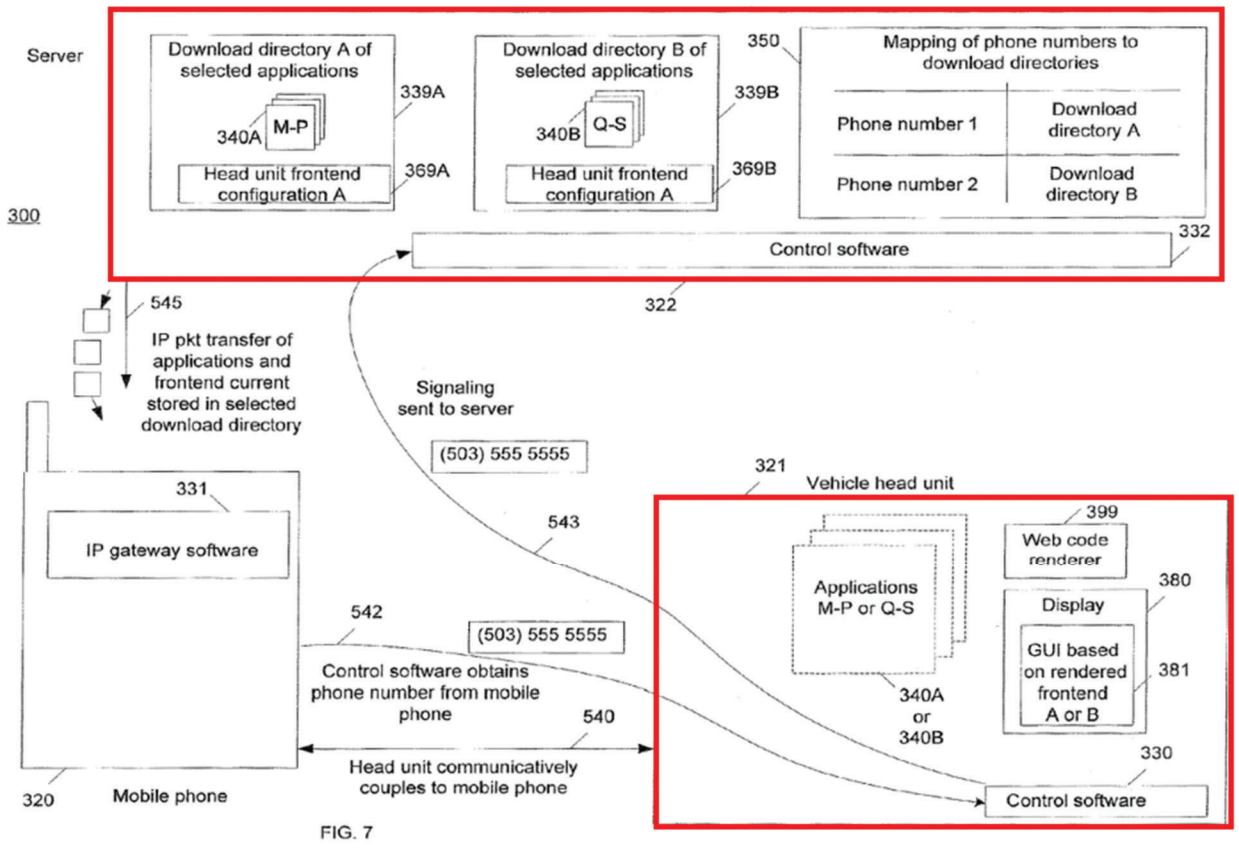
> In block 803, the **control software 330 sends signaling 543 to the server 322**. The signaling 543 can be sent over a local connection such

> as a USB, Bluetooth, or WiFi connection to be relayed by the mobile device 320 over **a wireless telecommunications network**.

(Moinzadeh, Ex. 1013, [0071].)

> In the example described above, the **control software 330 sends the accessed unique identifier (phone number in this example) to the server 322**. In other examples, the mapping 350 can be stored on the vehicle. In such a case, the control software 330 identifies a particular download directory listed in the mapping according to the comparison and sends an identifier specifying the particular download to the server 322. The server 322 may then respond with IP packets 545 sending data from the identified download directory.

(Moinzadeh, Ex. 1013, [0081].)



Moinzadeh, Ex. 1013, Fig. 7 (Annotated)

450. The server 322 includes download directories 339A/339B ("*cloud-based data*") of user-selected applications that are each associated with a "*vehicle occupant*" by the mapping 350 (also "*cloud-based data*"). For example, Directory A is associated with a "*vehicle occupant*" (through their phone number) having Phone number 1 and includes a personalized collection of his/her selected applications.

> The software 332 then checks the selected one of the **download directories A-B to determine if there are any applications currently stored in the selected directory**. A scheme for intelligently selecting applications that are present in the download directories A-B will be discussed in detail later with reference to FIG. 9. For now, let it be assumed for the purposes of illustration that the **download directories**

> **339A and 339B currently include applications 340A (M-P) and 340B (Q-S), respectively**, in addition to the head unit frontend configurations 369A and 369B.

(Moinzadeh, Ex. 1013, [0073], see also [0083].)

> In block 804, **the control software 332 compares the phone number included in the signaling 543 to the mapping 350**. The **mapping correlates each of a plurality of download directories A-B accessible via this particular head unit 321 to a particular phone number**. For example, in the mapping a first phone number is correlated with the download directory A and a second phone number is correlated with the download directory B. The control software 332 selects one of the download directories A-B based on the comparison of the received telephone number to the mapping 350.

(Moinzadeh, Ex. 1013, [0072].)

451. The system 300 downloads the applications from the download directories 339 to the head unit 321 when the vehicle is started based on the vehicle occupant. Thus, the head unit 321 is synchronized with the download directory ("*cloud-based data associated with the vehicle occupant*") so that the correct applications are available on the head unit 321.

> In block 805, **the software 332 generates and sends signaling to cause the IP gateway software 331 on the mobile phone 320 to operate as an IP gateway for forwarding applications to the head unit 321** similar to the scheme described in FIG. 4. In one example, similar to FIG. 4, such signaling includes communications to

dynamically load the mobile phone 320 with the software 331 to cause the software 331 to operate thereon for the download to vehicle.

(Moinzadeh, Ex. 1013, [0075].)

In block 806, **the software 332 generates and sends IP packets 545 to download the data from the selected one of the directories onto the vehicle, e.g. either applications M-P and configuration A or applications Q-S and configuration B. The IP packets 545 are received by the mobile phone 320 and forwarded by operation of the software 331 to the head unit 321**. It should be understood that in this particular illustration the IP packets 545 include both applications and a configuration for the graphical user interface, but in other scenarios the IP packets 545 might contain either an application or a configuration.

(Moinzadeh, Ex. 1013, [0076].)

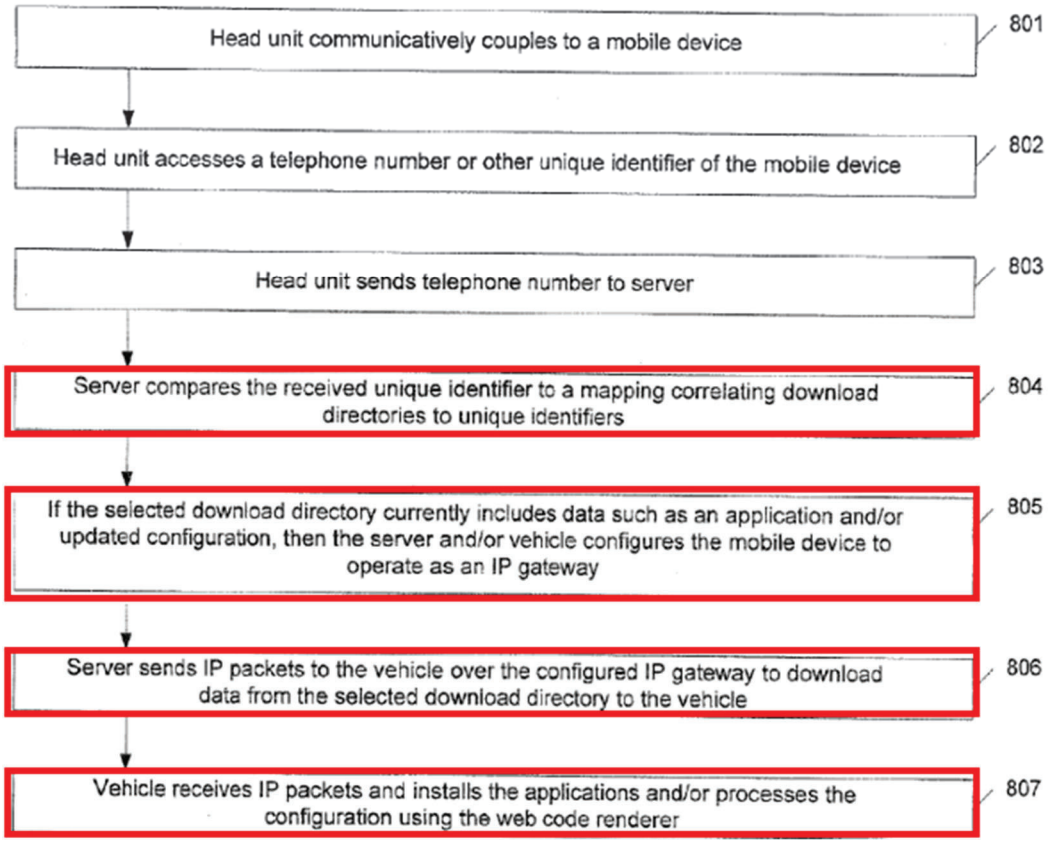
In block 807, **the software 330 receives the IP packets 545 and installs the applications included therein on the vehicle** (installation can be on components of the head unit 321 or other vehicle components). The software 330 also processes the configuration from the IP packets 545 using the web code renderer 399 **to generate a particular graphical user interface based on the detected phone number**.

(Moinzadeh, Ex. 1013, [0077].)

Thereafter, **the graphical user interface output via the display 380 will correspond to one of the configurations A-B stored in the selected download directory**. A user of the vehicle can operate the

installed applications M-P or Q-S using the head unit 321 as an interface.

(Moinzadeh, Ex. 1013, [0078].)



Moinzadeh, Ex. 1013, Fig. 8 (Annotated)

452. Therefore, the "*account*" includes "*personal settings*" for synchronizing the head unit 321 with "*cloud-based data*" (selected applications 340A/340B) associated with the "*vehicle occupant*." Accordingly, Moinzadeh discloses "*synchronization with cloud-based data* [e.g., the cloud-based data in download directories 339A/339B containing user-selected applications synchronize with the head unit 321] *associated with the vehicle occupant* [by the occupant's unique identifier, e.g., a phone number] . . . *and a display setting and configuration*

[e.g., customized settings such as a particular wallpaper and GUI are displayed based on the occupant's directory configuration].

4. Independent Claim 8

453. Independent claim 8 is largely duplicative of independent claim 1. To illustrate, the table below shows a side-by-side comparison of claims 1 and 8. Claim 8 is "marked up" to show the minor differences.

Independent Claim 1	Independent Claim 8
[1.0] A method comprising:	[8.0] A vehicle, comprising:
[1.1] (a) receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation;	[8.1] a microprocessor executable vehicle control system operable to: [8.2] receive a request from a vehicle occupant to perform a vehicle task, function or operation;
[1.2] (b) determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully;	[8.3] determine that the vehicle occupant has been authenticated successfully;

Independent Claim 1	Independent Claim 8
[1.3] (c) accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,	[8.4] access an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,
[1.4] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control	[8.5] wherein the vehicle task, function, or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control

Independent Claim 1	Independent Claim 8
unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;	unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system and media and/or multimedia content;
[1.5] (d) determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and	[8.6] determine at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and
[1.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating	[8.7] based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating

Independent Claim 1	Independent Claim 8
state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules:	state of the vehicle, apply the following rules:
[1.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and	[8.7.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and
[1.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.	[8.7.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

[8.0] A vehicle, comprising:

454. Moinzadeh discloses a vehicle:

> **A motor vehicle can be equipped with a "head unit"** having a user interface. The user interface can include various resource components such as a screen, speakers, a microphone, a touch screen and/or keypad, etc.

(Moinzadeh, Ex. 1013, [0003].)

> The application can reside on the mobile device and utilize the **vehicle interface** as an extended interface, **or the application can reside on the vehicle itself**. Additional aspects and advantages of this invention will be apparent from the following detailed description of preferred embodiments, which proceeds with reference to the accompanying drawings.

(Moinzadeh, Ex. 1013, [0008].)

[8.1] a microprocessor executable vehicle control system operable to:

[8.2] receive a request from a vehicle occupant to perform a vehicle task, function or operation;

455. Claim limitations [8.1] and [8.2] are substantially similar to claim limitation [1.1]. Claim limitations [8.1] and [8.2] require "*a microprocessor executable vehicle control system operable to: receive a request from a vehicle occupant to perform a vehicle task, function or operation*[.]" Whereas claim limitation [1.1] requires "*receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation*[.]

456. There is no substantive difference between claim limitation [1.1] and claim limitations [8.1]-[8.2] and therefore, claim limitations [8.1]-[8.2] are obvious over Moinzadeh for the same reasons discussed in claim limitation [1.1].

[8.3] determine that the vehicle occupant has been authenticated successfully;

457. Claim limitation [8.3] is substantially similar to claim limitation [1.2]. Claim limitation [8.3] requires "*determine that the vehicle occupant has been authenticated successfully*[.]" Whereas claim limitation [1.2] requires "*determining, by the microprocessor executable vehicle control system, that the vehicle occupant has been authenticated successfully*[.]"

458. There is no substantive difference between claim limitation [8.3] and claim limitation [1.2] and therefore, claim limitation [8.3] is obvious over Moinzadeh for the same reasons discussed in claim limitation [1.2].

[8.4] access an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation,

459. Claim limitation [8.4] is substantially similar to claim limitation [1.3]. Claim limitation [8.4] requires "*access an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation*[.]" Whereas claim limitation [1.3] requires "*accessing, by the microprocessor executable vehicle control system, an account for*

the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation[.]"

460. There is no substantive difference between claim limitation [8.4] and claim limitation [1.3] and therefore, claim limitation [8.4] is obvious over Moinzadeh for the same reasons discussed in claim limitation [1.3].

[8.5] wherein the vehicle task, function, or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system and media and/or multimedia content;

461. Claim limitation [8.5] is identical to claim limitation [1.4] and is therefore obvious over Moinzadeh for the same reasons discussed in claim limitation [1.4].

[8.6] determine at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and

462. Claim limitation [8.6] is substantially similar to claim limitation [1.5]. Claim limitation [8.6] requires "*determine at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle*[.]" Whereas claim limitation [1.5] requires "*determining, by the microprocessor executable*

vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle[.]"

463. There is no substantive difference between claim limitation [8.6] and claim limitation [1.5] and therefore, claim limitation [8.6] is obvious over Moinzadeh for the same reasons discussed in claim limitation [1.5].

[8.7] based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, apply the following rules:

464. Claim limitation [8.7] is substantially similar to claim limitation [1.6]. Claim limitation [8.7] requires "*based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, apply the following rules*[.]" Whereas claim limitation [1.6] requires "*based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules*[.]"

465. There is no substantive difference between claim limitation [8.7] and claim limitation [1.6] and therefore, claim limitation [8.7] is obvious over Moinzadeh for the same reasons discussed in claim limitation [1.6].

[8.7.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and

[8.7.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

466. Claim limitations [8.7.i]-[8.7.ii] are identical to claim limitations [1.6.i]-[1.6.ii] and therefore, are obvious over Moinzadeh for the same reasons discussed in claim limitations [1.6.i]-[1.6.ii].

5. Dependent Claims 9-11, 14

f. Claim 9

[9.0] The vehicle of claim 8, wherein the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the area and/or zone occupied by the vehicle occupant and

[9.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a different set of vehicle tasks, functions or operations when in a different second area and/or zone.

467. Claim 9 depends from claim 8, which I understand means that claim 9 requires all of the claim limitations of claim 8, in addition to its own claim limitations.

468. Moinzadeh discloses all of the claim limitations of claim 8 as described above.

469. Claim 9 is duplicative of claim 2. To illustrate, the table below shows a side-by-side comparison of claims 2 and 9. Claim 9 is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 2	Dependent Claim 9
[2.0] The method of claim 1, wherein, in step (e), the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the area and/or zone occupied by the vehicle occupant and	**[9.0]** The vehicle of claim 8, wherein[] the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the area and/or zone occupied by the vehicle occupant and
[2.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a	**[9.1]** wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a

different set of vehicle tasks, functions, or operations when in a different second area and/or zone.	different set of vehicle tasks, functions or operations when in a different second area and/or zone.

470. As shown in the above table, the bodies of claims 2 and 9 are identical. Therefore, claim 9 is obvious over Moinzadeh for the same reasons discussed in claim 2.

g. Claim 10

471. Claim 10 depends from claim 8, which I understand means that claim 10 requires all of the claim limitations of claim 8, in addition to its own claim limitations.

472. Moinzadeh discloses all of the claim limitations of claim 8 as described above.

[10.0] The vehicle of claim 8, wherein the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the operating state of the vehicle and

[10.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when the vehicle is in a first operating state and a different set of vehicle tasks, functions, or operations when the vehicle is in a second operating state.

473. Claim 10 is duplicative of claim 3. To illustrate, the table below shows

a side-by-side comparison of claims 3 and 10. Claim 10 is "marked up" to show the minor differences, which are only in the preamble

Dependent Claim 3	Dependent Claim 10
[3.0] The method of claim 1, wherein, in step (e), the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the operating state of the vehicle and	**[10.0]** The vehicle of claim 8, wherein [] the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the operating state of the vehicle and
[3.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when the vehicle is in a first operating state and a different set of vehicle tasks, functions, or operations when the vehicle is in a second operating state.	**[10.1]** wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when the vehicle is in a first operating state and a different set of vehicle tasks, functions, or operations when the vehicle is in a second operating state.

474. As shown in the above table, the bodies of claims 3 and 10 are identical.

Therefore, claim 10 is obvious over Moinzadeh for the same reasons discussed in claim 3.

h. Claim 11

475. Claim 11 depends from claim 8, which I understand means that claim 11 requires all of the claim limitations of claim 8, in addition to its own claim limitations.

476. Moinzadeh discloses all of the claim limitations of claim 8 as described above.

[11.0] The vehicle of claim 8, wherein rule (i) applies and the vehicle occupant is able to control the requested vehicle task, function or operation using one or more of a cell phone, laptop, tablet computer, and personal digital assistant.

477. Claim 11 is duplicative of claim 4. To illustrate, the table below shows a side-by-side comparison of claims 4 and 11. Claim 11 is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 4	Dependent Claim 11
[4.0] The method of claim 1, wherein rule (i) applies and the vehicle occupant is able to control the requested vehicle task, function	**[11.0]** The vehicle of claim 8, wherein rule (i) applies and the vehicle occupant is able to control the requested vehicle task, function

or operation using one or more of a cell phone, laptop, tablet computer, and personal digital assistant.	or operation using one or more of a cell phone, laptop, tablet computer, and personal digital assistant.

478. As shown in the above table, the bodies of claims 4 and 11 are identical. Therefore, claim 11 is obvious over Moinzadeh for the same reasons discussed in claim 4.

i. Claim 14

479. Claim 14 depends from claims 8 and 13, which I understand means that claim 14 requires all of the claim limitations of claims 8 and 13, in addition to its own claim limitations.

> ***[14.0] The vehicle of claim 13, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific personalization and selections, and a display setting and configuration.***

480. Claim 14 is duplicative of claim 7. To illustrate, the table below shows a side-by-side comparison of claims 7 and 14. Claim 14 is "marked up" to show the

minor differences, which are only in the preamble.

Dependent Claim 7	Dependent Claim 14
[7.0] The method of claim 6, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific personalization and selections, and a display setting and configuration.	**[14.0]** The vehicle of claim 13, wherein the personal settings of the vehicle occupant comprise a plurality of a seat setting, climate control setting, lighting setting, configuration of an instrument cluster on a screen, rear view mirror setting, driving mode, media channel setting or preset, media delivery preference, music genre preference, scheduled program, playlist, synchronization with cloud-based data associated with the vehicle occupant, application-specific personalization and selections, and a display setting and configuration.

481. As shown in the above table, the bodies of claims 7 and 14 are identical.

Therefore, claim 14 is obvious over Moinzadeh for the same reasons discussed in claim 7

6. Independent Claim 15

[15.0] A tangible and non-transient computer readable medium comprising microprocessor executable instructions to perform functions, comprising:

482. First, Moinzadeh discloses a "*computer readable medium*."

> As is well known, computer programs generally comprise instructions that are stored in machine-readable or **computer-readable storage media**. Some embodiments of the present invention may include executable programs or instructions that are stored in machine-readable or computer-readable storage media, such as a digital memory.

(Moinzadeh, Ex. 1013, [0092].)

> All such **memories are** "machine readable" or **"computer-readable"** and may be **used to store executable instructions** for implementing the functions described herein.

(Moinzadeh, Ex. 1013, [0093], see also [0094].)

483. Second, Moinzadeh's computer-readable storage media are "*tangible and non-transient*." Moinzadeh gives the examples of flash memory, which is a type of "*tangible and non-transient computer readable medium*." (See above, § VI.B.1.)

> In some embodiments, memory associated with a given processor may be stored in the same physical device as the processor ("on-board"

> memory); for example, RAM or **FLASH memory** disposed within an integrated circuit microprocessor or the like.

(Moinzadeh, Ex. 1013, [0093].)

484. Third, Moinzadeh's computer-readable storage media comprises "*executable instructions to perform functions*[.]"

> All such memories are "machine readable" or "computer-readable" and may be used to store **executable instructions for implementing the functions** described herein.

(Moinzadeh, Ex. 1013, [0093].)

485. Fourth, as discussed in claim 1, Moinzadeh discloses a microprocessor that executes the instructions. (Moinzadeh, Ex. 1013, [0092].) Therefore, the "executable instructions" disclosed in Moinzadeh's paragraph 93 are "*microprocessor executable instructions*."

486. Accordingly, Moinzadeh discloses "*[a] tangible and non-transient computer readable medium comprising microprocessor executable instructions to perform functions*[.]"

[15.1] (a) receiving a request from a vehicle occupant to perform a vehicle task, function or operation,

487. Claim limitation [15.1] is substantially similar to claim limitation [1.1]. Claim limitation [15.1] requires "*receiving a request from a vehicle occupant to perform a vehicle task, function or operation*[.]" Whereas claim limitation [1.1]

requires "*receiving, by a microprocessor executable vehicle control system, a request from a vehicle occupant to perform a vehicle task, function or operation*[.]"

488. There is no substantive difference between claim limitation [15.1] and claim limitation [1.1] and therefore, claim limitation [15.1] is obvious over Moinzadeh for the same reasons discussed in claim limitation [1.1].

[15.2] wherein the vehicle task, function or operation is one or more of the following: monitoring, controlling, and/or operating an engine control unit ("ECU"), transmission control unit ("TCU"), door setting, window setting, blind spot monitor, safety equipment, vehicle sensor, vehicle engine, head light control unit, power steering, display panel, switch state control unit, power control unit, brake control unit, alert to a user and/or remote monitoring entity of a potential problem with a vehicle operation, emission control, entertainment system, and media and/or multimedia content;

489. Claim limitation [15.2] is identical to claim limitation [1.4] and is therefore obvious over Moinzadeh for the same reasons discussed in claim limitation [1.4].

[15.3] (b) determining that the vehicle occupant has been authenticated successfully;

490. Claim limitation [15.3] is substantially similar to claim limitation [1.2]. Claim limitation [15.3] requires "*determining that the vehicle occupant has been authenticated successfully*[.]" Whereas claim limitation [1.2] requires "*determining, by the microprocessor executable vehicle control system, that the vehicle occupant*

has been authenticated successfully[.]"

491. There is no substantive difference between claim limitation [15.3] and claim limitation [1.2] and therefore, claim limitation [15.3] is obvious over Moinzadeh for the same reasons discussed in claim limitation [1.2].

[15.4] (c) accessing an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation;

492. Claim limitation [15.4] is substantially similar to claim limitation [1.3]. Claim limitation [15.4] requires "*accessing an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation*[.]" Whereas claim limitation [1.3] requires "*accessing, by the microprocessor executable vehicle control system, an account for the vehicle occupant, the account defining rights and privileges of the user with respect to controlling a vehicle task, function or operation*[.]"

493. There is no substantive difference between claim limitation [15.4] and claim limitation [1.3] and therefore, claim limitation [15.4] is obvious over Moinzadeh for the same reasons discussed in claim limitation [1.3].

[15.5] (d) determining at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle; and

494. Claim limitation [15.5] is substantially similar to claim limitation [1.5]. Claim limitation [15.5] requires "*determining at least one of an area and/or zone*

occupied by the vehicle occupant and an operating state of the vehicle[.]" Whereas claim limitation [1.5] requires "*determining, by the microprocessor executable vehicle control system, at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle*[.]"

495. There is no substantive difference between claim limitation [15.5] and claim limitation [1.5] and therefore, claim limitation [15.5] is obvious over Moinzadeh for the same reasons discussed in claim limitation [1.5].

[15.6] (e) based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying the following rules:

496. Claim limitation [15.6] is substantially similar to claim limitation [1.6]. Claim limitation [15.6] requires "*based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying the following rules*[.]" Whereas claim limitation [1.6] requires "*based upon the account corresponding to the vehicle occupant and the at least one of an area and/or zone occupied by the vehicle occupant and an operating state of the vehicle, applying, by the microprocessor executable vehicle control system, the following rules*[.]"

497. There is no substantive difference between claim limitation [15.6] and claim limitation [1.6] and therefore, claim limitation [15.6] is obvious over

Moinzadeh for the same reasons discussed in claim limitation [1.6].

[15.6.i] (i) when the account permits the vehicle occupant to perform the requested vehicle task, function or operation, performing or causing to be performed the vehicle task, function or operation; and

[15.6.ii] (ii) when the account does not permit the vehicle occupant to perform the requested vehicle task, function or operation, not performing or causing to be performed the vehicle task, function or operation.

498. Claim limitations [15.6.i]-[15.6.ii] are identical to claim limitations [1.6.i]-[1.6.ii] and therefore, are obvious over Moinzadeh for the same reasons discussed in claim limitations [1.6.i]-[1.6.ii].

7. Dependent Claims 16-18 and 20

j. Claim 16

499. Claim 16 depends from claim 15, which I understand means that claim 16 requires all of the claim limitations of claim 15, in addition to its own claim limitations.

500. Moinzadeh discloses all of the claim limitations of claim 15 as described above.

[16.0] The computer readable medium of claim 15, wherein, in function (e), the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the area and/or zone occupied by the vehicle occupant and

[16.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a different set of vehicle tasks, functions or operations when in a different second area and/or zone.

501. Claim 16 is duplicative of claim 2. To illustrate, the table below shows a side-by-side comparison of claims 2 and 16. Claim 16 is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 2	Dependent Claim 16
[2.0] The method of claim 1, wherein, in step (e), the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the area and/or zone occupied by the vehicle occupant and	**[16.0]** The computer readable medium of claim 15, wherein, in function (e), the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the area and/or zone occupied by the vehicle occupant and
[2.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a different set of vehicle tasks, functions, or operations when in a different second area and/or zone.	**[16.1]** wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a different set of vehicle tasks, function[s] or operations when in a different second area and/or zone.

502. As shown in the above table, the bodies of claims 2 and 16 are identical.

Therefore, claim 16 is obvious over Moinzadeh for the same reasons discussed in claim 2.

k. Claim 17

503. Claim 17 depends from claim 15, which I understand means that claim 17 requires all of the claim limitations of claim 15, in addition to its own claim limitations.

504. Moinzadeh discloses all of the claim limitations of claim 15 as described above.

> ***[17.0] The computer readable medium of claim 15, wherein, in function (e), the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the operating state of the vehicle and***
>
> ***[17.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when the vehicle is in a first operating state and a different set of vehicle tasks, functions, or operations when the vehicle is in a second operating state.***

505. Claim 17 is duplicative of claim 3. To illustrate, the table below shows a side-by-side comparison of claims 3 and 17. Claim 17 is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 3	Dependent Claim 17
[3.0] The method of claim 1,	**[17.0]** The computer readable

Dependent Claim 3	Dependent Claim 17
wherein, in step (e),	medium of claim 15, wherein, in function (e),
the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the operating state of the vehicle and	the microprocessor executable vehicle control system applies the rules based on the account corresponding to the vehicle occupant and the operating state of the vehicle and
[3.1] wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a different set of vehicle tasks, functions, or operations when the vehicle is in a second operating state.	**[17.1]** wherein the vehicle occupant can perform a first set of vehicle tasks, functions or operations when in a first area and/or zone and a different set of vehicle tasks, functions, or operations when the vehicle is in a second operating state.

506. As shown in the above table, the bodies of claims 3 and 17 are identical. Therefore, claim 17 is obvious over Moinzadeh for the same reasons discussed in claim 3.

l. Claim 18

507. Claim 18 depends from claim 15, which I understand means that claim 18 requires all of the claim limitations of claim 15, in addition to its own claim limitations.

508. Moinzadeh discloses all of the claim limitations of claim 15 as described above.

[18.0] The computer readable medium of claim 15, wherein rule (i) applies and the vehicle occupant is able to control the requested vehicle task, function or operation using one or more of a cell phone, laptop, tablet computer, and personal digital assistant.

509. Claim 18 is duplicative of claim 4. To illustrate, the table below shows a side-by-side comparison of claims 4 and 18. Claim 18 is "marked up" to show the minor differences, which are only in the preamble.

Dependent Claim 4	Dependent Claim 18
[4.0] The method of claim 1,	**[18.0]** The computer readable medium of claim 15,
wherein rule (i) applies and the vehicle occupant is able to control the requested vehicle task, function or operation using one or more of a	wherein rule (i) applies and the vehicle occupant is able to control the requested vehicle task, function or operation using one or more of a

Dependent Claim 4	Dependent Claim 18
cell phone, laptop, tablet computer, and personal digital assistant.	cell phone, laptop, tablet computer, and personal digital assistant.

510. As shown in the above table, the bodies of claims 4 and 18 are identical. Therefore, claim 18 is obvious over Moinzadeh for the same reasons discussed in claim 4.

m. Dependent Claim 20

511. Claim 20 depends from claim 15, which I understand means that claim 20 requires all of the claim limitations of claim 15, in addition to its own claim limitations.

512. Moinzadeh discloses all of the claim limitations of claim 15 as described above.

[20.0] The computer readable medium of claim 15, wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and

[20.1] wherein the vehicle task, function or operation is one or more of the following: entertainment system and media and/or multimedia content.

513. Claim 20 is duplicative of claim 6. To illustrate, the table below shows

a side-by-side comparison of claims 6 and 20. Claim 20 is "marked up" to show the minor differences, which are only in the preamble

Dependent Claim 6	Dependent Claim 20
[6.0] The method of claim 1,	**[20.0]** The computer readable medium of claim 15,
wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and	wherein the account comprises rights and privileges for the vehicle occupant with respect to a vehicle task, function or operation, security and/or authentication requirements and/or credentials for the vehicle occupant, and personal settings of the vehicle occupant and
[6.1] wherein the vehicle task, function, or operation is one or more of the following: entertainment system and media and/or multimedia content.	**[20.1]** wherein the vehicle task, function, or operation is one or more of the following: entertainment system and media and/or multimedia content.

514. As shown in the above table, the bodies of claims 6 and 20 are identical. Therefore, claim 20 is obvious over Moinzadeh for the same reasons discussed in claim 6.

IX. Conclusion

515. 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.

516. 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: 9/10/2025



Scott Andrews