

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORP.,
Petitioner,

v.

AUTOCONNECT HOLDINGS, LLC,
Patent Owner.

Case No. IPR2025-00891
U.S. Patent No. 9,147,296

**DECLARATION OF SCOTT DENNING
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 9,147,296**

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I. Introduction

1. I, Scott Denning, submit this declaration to state my opinions on the matter described below.

2. I have been retained by Petitioner Toyota Motor Corp. (“Petitioner”), as an independent expert in this proceeding before the United States Patent and Trademark Office. Although I am being compensated at my usual and customary rate, no part of my compensation depends on the outcome of this proceeding, and I have no other interest in this proceeding.

3. I understand that this proceeding involves U.S. Patent No. 8,793,296 (“the ’296 patent”), and I have been asked to provide my opinions as to the patentability of claims 1-20 of the ’296 patent based on certain prior-art references. I have been asked to consider the state of the art and prior art available as of April 15, 2013. Based on the prior art discussed in this declaration, it is my opinion that claims 1-20 of the ’296 patent are unpatentable for the reasons provided below.

II. Background & Qualifications

4. I believe I am well qualified to serve as a technical expert in this matter based on my educational and work experience in the field of vehicle control systems and computing devices. My curriculum vitae (CV) is submitted as Exhibit 1003.

5. I received a Bachelor of Science degree in Computer Science from Southern College of Technology in 1993. I have a Master of Science in Economic Analytics from Clemson University and with the exception of defending my dissertation, I have completed all requirements for my Ph.D. degree from University of Colorado with a focus on Machine Learning and Natural Language Processing.

6. In formulating my opinions, I have relied upon my training, knowledge, and experience in the relevant art. I have 30 years of experience working with server software, embedded software, communication protocols, mobile devices, computer networks, and vehicle embedded systems. As detailed below, I have contributed architectural design, systems engineering, and millions of lines of functional program code on many projects that are highly relevant to the subject matter of the '296 patent.

7. I worked as a consulting engineer for Optical Robotics in 1995. In my official capacity, I designed and built many robotics components for pipeline

inspection that included user and location profiles, user interfaces including remote displays and graphical user interfaces, infrared scanners, wired and wireless communication assemblies, motor speed and direction controllers, and various sensors including location, direction, inclination, and distance. For this project, data was collected from the user and numerous sensors around the robotic inspection devices as well as from devices within support trucks and stored within profiles by a data logging system. After the data collection process was complete the data was relayed back to servers located at the home office via a cellular connection or was loaded onto removeable media for manual transfer. These systems required user authentication and administrative permissions to manipulate collected data.

8. In 2000 I was employed by Navsys Corporation. I designed the SpotterSensor, a system designed to provide the precise coordinates of objects viewed from within rangefinder binoculars. This system included laser rangefinder binoculars, lcd display, a fiberoptic gyroscope, an electronic compass, a GPS module, a long-range rf transceiver and a control module. This system required user authentication in order to connect to the remote host controller. I designed the firmware for the control module that communicated with each of the sensors and computed the coordinates and the communications protocol for the rf data link.

9. While at Navsys I was also principal engineer for the Personal

Guardian system, a system designed to get assistance for disabled American Veterans in the event that they needed help. This system included many handheld wireless emergency locators having a cellular connection, and a central dispatch center comprised of numerous servers in communication with the emergency locators. The handheld devices had an lcd graphical display, several buttons, a GPS receiver, and a cellular modem. This system required administration and dispatcher authentication, administrative permissions for configuration changes, and included numerous profiles for managing information related to the veterans, their family members, system options, and the dispatch operators. I designed the handheld device firmware, the device and network communications protocols, and many of the routines used by the servers including identifying the veteran, identifying the location of the device, locating the nearest source of help, and notification of friends and family.

10. Additionally, while at Navsys I designed a fleet vehicle dispatch and tracking system for Coca Cola service trucks. This system included a large mapping display along with several servers installed at the dispatch center and GPS logging and user modules installed in the service trucks. The user modules were comprised of a Compaq Ipaq handheld computer connected to a satellite data receiver/transmitter. This system required admin and user authentication, administrative permissions for configuration changes, and included driver, truck,

and client profiles, which were stored on the server and a copy of the client profile stored on the iPaq. I designed the system architecture, developed the communication protocols, and wrote the dispatch server and the iPaq Microsoft Pocket PC software applications.

11. In 2004 while at DRS Technologies I worked on the US Army IMPCS program for ITT developing a satellite bandwidth management system that utilized DRS proprietary high-speed signal processors. This system relied on operational profiles stored on the satellites for approving or denying service to users. Authentication was required for all users and special privileges were required and validated for any changes to the operational profiles. I wrote the control plane processor code for the signal processor, which signaled the satellite controller when a user's bandwidth utilization exceeded that permitted by their profile.

12. In 2005 I founded Purple Mountain Labs in Colorado Spring which focused on supercomputing and high-speed communications research and development. During this time, I was chief scientist and led product development for the client Lockheed, which included a new compact massively parallel multi-core supercomputing architecture for military vehicle applications. These included the Global Hawk and Predator reconnaissance aircraft and Aegis class naval destroyers. I created an image processing library which included many routines used in object recognition. I also ported standard communications and signal

processing libraries to our platform and created a suite of administrative tools utilizing profiles for configuring users, jobs, and groups of computing resources. User and device authentication was required, and administrative permissions had to be validated for any system configuration change.

13. In 2008 I was the CTO of Allied Security Trust and designed the architecture of a patent asset tracking database. This system resided on a web server and comprised an online catalog of all known patents currently for sale. The system used predefined profiles to automatically notify members of patents which might be of interest. The profiles included the member point of contact, patent information, technology domains, and seller/broker. Authentication was required for all users and profile management required permission validation.

III. Materials Considered

14. In forming my opinions, I reviewed the following documents and any other documents cited in my declaration:

Exhibit	Description
Ex. 1001	U.S. Patent No. 9,147,296 to <i>Ricci</i> .
Ex. 1002	Prosecution File History for U.S. Patent No. 9,147,296.
Ex. 1005	U.S. Patent Pub. No. 2008/0215209 to <i>Ikeda</i> et al. (“ <i>Ikeda</i> ”)
Ex. 1006	U.S. Patent Pub. No. 2012/0303178 to <i>Hendry</i> et al. (“ <i>Hendry</i> ”)
Ex. 1007	U.S. Patent Pub. No. 2007/0238491 to <i>He</i> (“ <i>He</i> ”)
Ex. 1008	U.S. Patent No. 8,977,408 to <i>Cazanas</i> et al. (“ <i>Cazanas</i> ”)

IV. Legal Standards

15. In forming my opinions and considering the subject matter of the '296 patent and its claims in light of the prior art, I am relying on certain legal principles that counsel in this case explained to me. My understanding of these concepts is summarized below.

16. I understand that the claims define the invention. I also understand that an unpatentability analysis is a two-step process. First, the claims of the patent are construed to determine their meaning and scope. Second, after the claims are construed, the content of the prior art is compared to the construed claims.

17. I understand that a claimed invention is only patentable when it is new, useful, and non-obvious in light of the "prior art." That is, the invention, as defined by the claims of the patent, must not be anticipated or rendered obvious by the prior art.

A. Claim Construction

18. I understand that the United States Patent and Trademark Office interprets claim terms in an *inter-partes* review proceeding under the same claim construction standard that is used in a United States federal court. I understand that under this standard, the meaning of claim terms is considered from the viewpoint of one of ordinary skill in the art at the time of the alleged invention.

19. I understand that claim terms are generally given their ordinary and

customary meaning as understood by one of ordinary skill in the art in light of the specification and the prosecution history pertaining to the patent. I understand, however, that claim terms are generally not limited by the embodiments described in the specification.

20. I understand that in addition to the claims, specification, and prosecution history, other evidence may be considered to ascertain the meaning of claim terms, including textbooks, encyclopedias, articles, and dictionaries. I have been informed that this other evidence is often less significant and less reliable than the claims, specification, and prosecution history.

B. Anticipation Under 35 U.S.C. § 102

21. I understand that under 35 U.S.C. § 102, a patent claim is invalid if its subject matter was patented or described in a printed publication before the effective filing date of the claimed invention. I have been told that this is referred to as invalidity by anticipation. I have been told that a patent claim is anticipated under § 102 if a single prior art reference discloses all limitations of the claimed invention.

C. Obviousness Under 35 U.S.C. § 103

22. I understand that a patent claim is invalid as obvious if the claimed invention would have been obvious to a person of ordinary skill in the art (“POSITA”) at the time the claimed invention was made. This means that even if

all of the elements of the claim cannot be found in a single prior art reference that would anticipate the claim, a person of ordinary skill in the field who knew about all the prior art would have come up with the claimed invention. I understand that in an obviousness determination, the person of ordinary skill in the art is presumed to have knowledge of all material prior art. I understand that whether a claim is obvious is based upon the determination of several factual issues.

23. I understand that obviousness is a determination of law based on underlying determinations of fact. I understand that these factual determinations include the scope and content of the prior art, the level of ordinary skill in the art, the differences between the claimed invention and the prior art, and secondary considerations of non-obviousness.

24. In considering obviousness, I understand that one must determine the scope and content of the prior art. I understand that, in order to be considered as prior art to a patent being considered, a prior art reference must be reasonably related to the claimed invention of that patent. A reference is reasonably related if it is in the same field as the claimed invention or is from another field to which a person of ordinary skill in the art would look to solve a known problem.

25. I understand that one must determine what differences, if any, existed between the claimed invention and the prior art.

26. I understand that a patent claim composed of several elements is not

proved obvious merely by demonstrating that each of its elements was independently known in the prior art. In evaluating whether such a claim would have been obvious, one may consider whether a reason has been identified that would have prompted a person of ordinary skill in the art to combine the elements or concepts from the prior art in the same way as in the claimed invention. There is no single way to define the line between true inventiveness on the one hand (which is patentable) and the application of common sense and ordinary skill to solve a problem on the other hand (which is not patentable). For example, market forces or other design incentives may be what precipitated a change, rather than true inventiveness.

27. I understand that whether a prior art reference renders a patent claim unpatentable as obvious is determined from the perspective of a person of ordinary skill in the art at the time of the alleged invention. I have been told that there is no requirement that the prior art contain an express suggestion to combine known elements to achieve the claimed invention, but a suggestion to combine known elements to achieve the claimed invention may come from the prior art, as filtered through the knowledge of one skilled in the art. In addition, I have been told that the inferences and creative steps a person of ordinary skill in the art would employ are also relevant to the determination of obviousness.

28. I understand that there is no rigid rule that a reference or combination

of references must contain a “teaching, suggestion, or motivation” to combine references. But I also understand that the “teaching, suggestion, or motivation” test can be a useful guide in establishing a rationale for combining elements of the prior art. I have been told that this test poses the question as to whether there is an express or implied teaching, suggestion, or motivation to combine prior art elements in a way that realizes the claimed invention, and that it seeks to counter impermissible hindsight analysis.

29. I understand that one may consider, e.g., whether (1) the change was merely the predictable result of using prior art elements according to their known functions, or whether it was the result of true inventiveness; (2) there is some teaching or suggestion in the prior art to make the modification or combination of elements claimed in the patent; (3) the claimed innovation applies a known technique that had been used to improve a similar device or method in a similar way; (4) the claimed invention would have been obvious to try, meaning that the claimed innovation was one of a relatively small number of possible approaches to the problem with a reasonable expectation of success by those skilled in the art; (5) the invention merely substituted one known element for another known element in order to obtain predictable results; (6) the invention merely applies a known technique to a known device, method, or product to yield predictable results; or (7) known work in the field may have prompted variations of use of the same

inventions in the same or different fields due to market forces or design incentives that would have been predictable to a person of ordinary skill in the art.

30. I understand that any assertion of secondary considerations of non-obviousness must be accompanied by a nexus between the merits of the invention and the evidence offered. I am not aware of any evidence of secondary considerations that would support a determination of non-obviousness of the claimed subject matter in the '296 patent.

V. The '296 Patent

A. Disclosure

31. The '296 patent claims systems and methods relating to detecting a user in a location in a vehicle and configuring the location to match the user's settings.

32. The specification describes “**determining a location**” in a vehicle associated with a user. '296 patent, 5:21-32. Figure 5A illustrates **locations in a vehicle**:

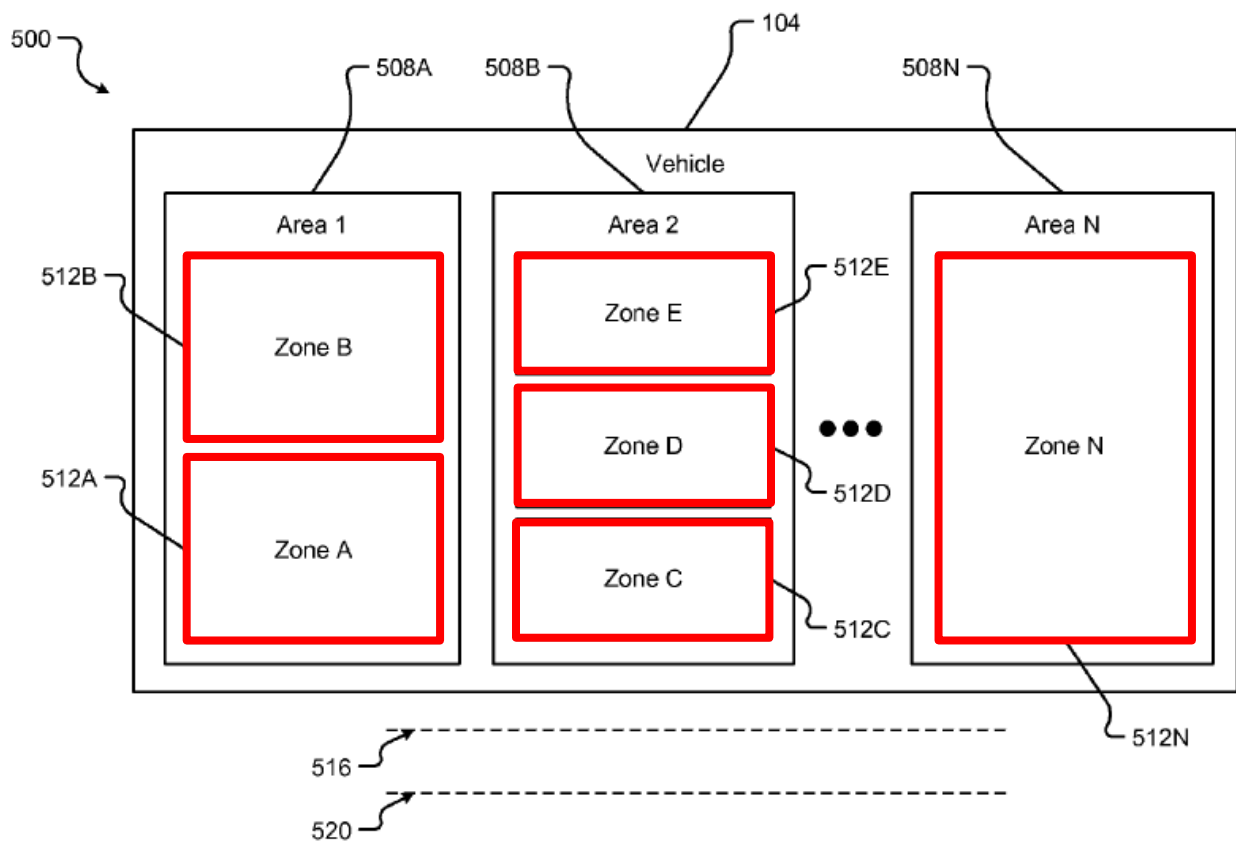


Fig. 5A

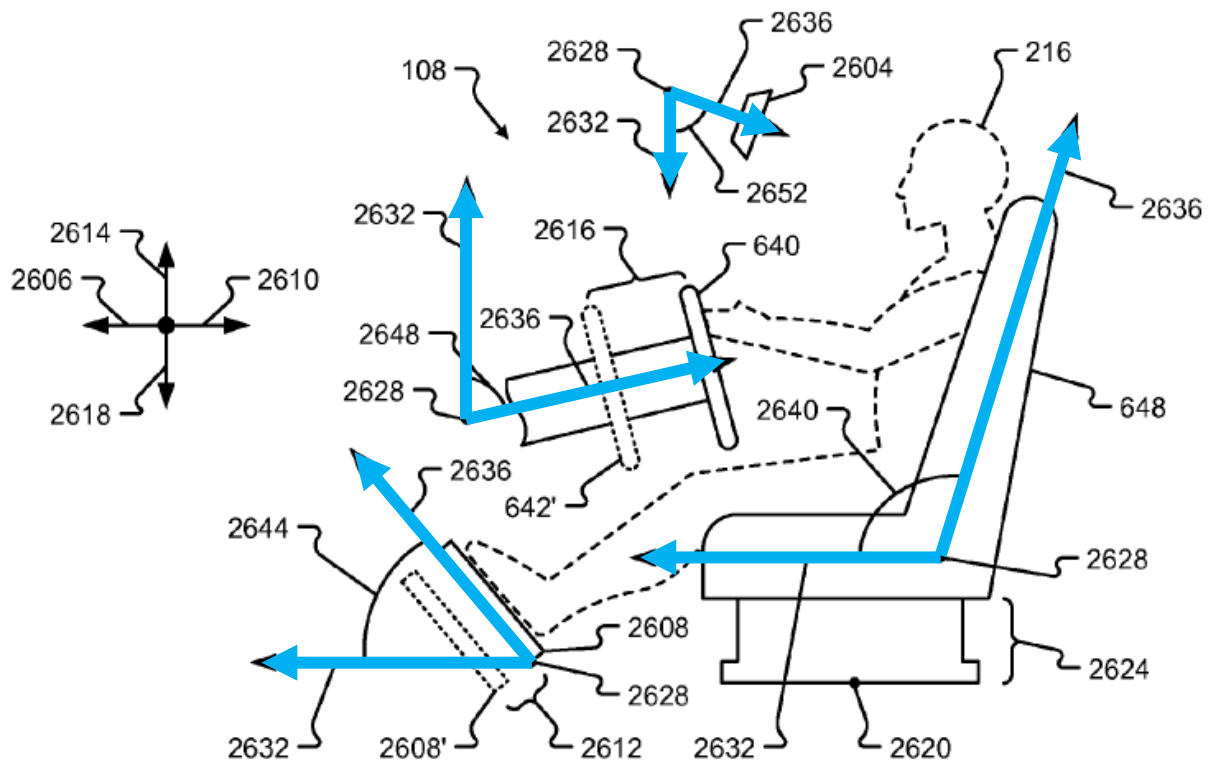
'296 patent, Fig. 5A (annotated).

33. The '296 patent specification further explains that Zone A is

“associated with a driver,” Zone B is “associated with a front passenger,” and Zones C-E are “associated with three passenger seats typically found in the rear passenger area of a vehicle.” ’296 patent, 25:64-26:20.

34. The specification further describes “determining at least one vehicle control associated with the location inside the vehicle.” ’296 patent, 5:21-32.

Figure 26 illustrates **vehicle controls**:



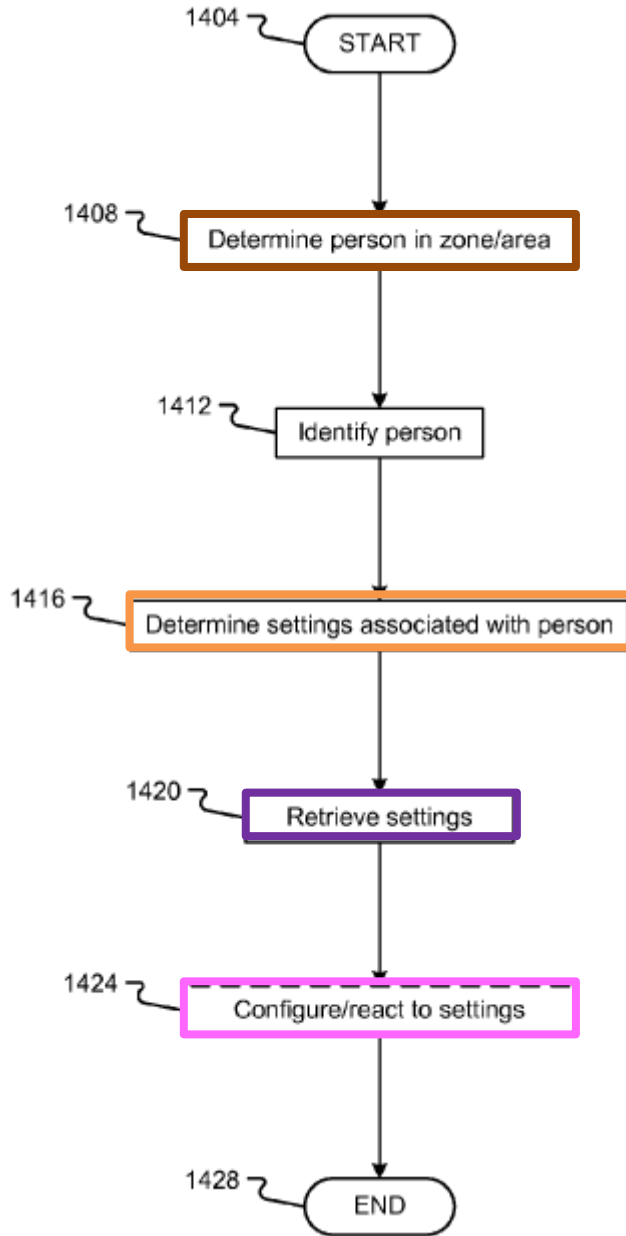
’296 patent, Fig. 26 (annotated).

35. The ’296 specification explains that this figure illustrates “one or more controls, actuators, systems, and components,” including “a speed control pedal 2608,” “steering wheel 640,” and “occupant seating system 648.” ’296

patent, 83:7-12.

36. The specification further explains that these features can be “moved, and/or positioned, in one or more directions” or “according to angular adjustments.” ’296 patent, 83:13-60.

37. Figure 14 of the ’296 patent, as annotated below, illustrates detecting a user’s presence, accessing the user’s profile (including saved settings), reading and retrieving a user’s settings to determine whether vehicle controls **need to be adjusted to match the saved settings**, and **adjusting the vehicle controls to match the saved settings**:



'296 patent, Fig. 14 (annotated).

38. In step 1408, the '296 patent's system "**can determine if a person is in a zone . . . in step 1408.**" '296 patent, 64:40-45.

39. Specifically, the specification explains that the system uses "facial recognition, weight sensors, heat sensors, or other sensors to determine whether a

person is occupying a certain zone 512.” ’296 patent, 64:40-45.

40. After detecting a user’s presence, the system identifies the person (in step 1412). The specification discloses that this identification step can involve the system “obtain[ing] characteristics for the user currently occupying the zone 512 and compar[ing] those characteristics to the identifying features in portion 1212 of data structure 1204.” ’296 patent, 64:46-53.

41. The system then determines “if there are settings associated with the identified person for that zone . . . in step 1416.” ’296 patent, 64:54-60.

42. The specification explains that after referring to the user’s settings in step 1416, the system can then “read and retrieve those settings, in step 1420.” ’296 patent, 64:60-65:3.

43. Finally, the retrieved settings are used “to change the configuration of the vehicle” to match the user’s preferences. ’296 patent, 64:60-65:3.

B. File History

44. I have reviewed the prosecution history of the application that led to the ’296 patent—Exhibit 1002.

45. I am not aware of anything in the prosecution history that changes my opinions expressed in this declaration.

46. To the extent Patent Owners relies on the prosecution history for some point relevant to my opinions, I will respond in a future declaration.

VI. The Prior Art

A. Ikeda

47. *Ikeda* is from the same field of endeavor as the '296 patent, which is vehicle control systems. '296 patent, 2:66-3:7 (“There is a need for a vehicle ecosystem, which can integrate both physical and mental comforts, while seamlessly communicating with current electronic devices to result in a totally intuitive and immersive user experience.”); *Ikeda*, [0003] (“The present invention relate[s] to a driving-environment setup system which sets up a driving environment of a vehicle.”).

48. Further, *Ikeda* is reasonably pertinent to the problem faced by the inventor of the '296 patent, namely, determining whether a recognized user has setting preferences and customizing a vehicle to match the recognized user's preferences. '296 patent, 2:66-3:7 (“There is a need for a vehicle ecosystem, which can integrate both physical and mental comforts, while seamlessly communicating with current electronic devices to result in a totally intuitive and immersive user experience.”); *Ikeda*, [0009] (“[I]t is an object of the present invention to provide a driving-environment setup system which can set the driving environment of a vehicle as a driving environment for a driver[.]”).

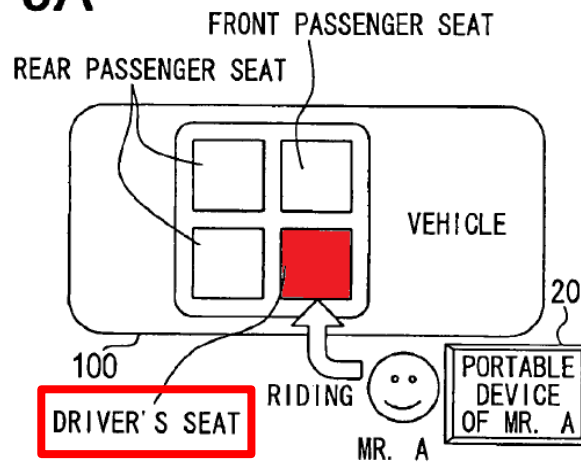
49. Specifically, *Ikeda* discloses a system for detecting a user in a vehicle location, accessing the user's settings, and configuring the location to match the

user's settings.

50. *Ikeda* discloses a location in a vehicle associated with a user. For example, *Ikeda* discloses “the in-vehicle device 10 detects the fact that the driver rides the vehicle 100 with the aid of the seat sensor provided in the driver's seat.”

Ikeda, [0409].

FIG. 5A

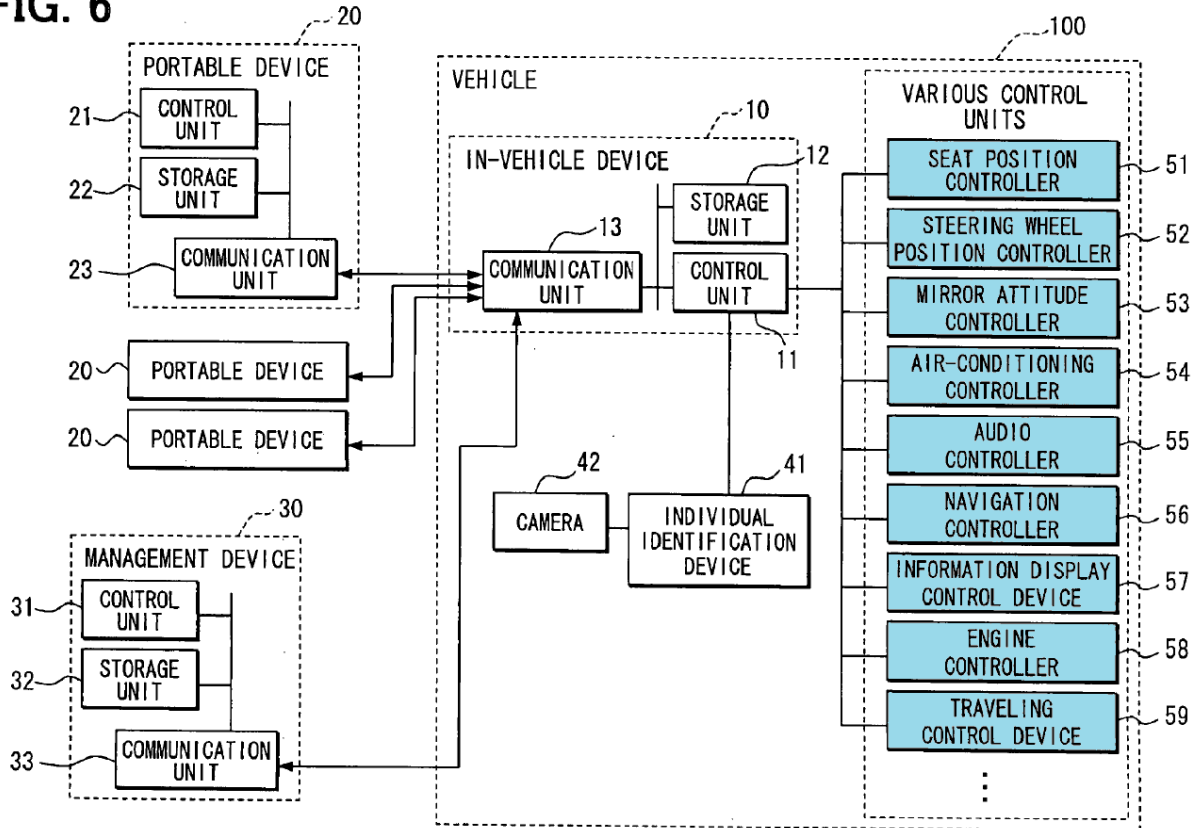


Ikeda, Fig. 5A (annotated).

51. *Ikeda* further discloses **determining vehicle controls** associated with the location in the vehicle. For example, *Ikeda* discloses “**control units**” that “enable a setup (change) of the driving environment according to a driver’s liking.” *Ikeda*, [0063].

52. The determined vehicle controls include drivers-seat location controls such as seat position, steering wheel position, mirror attitude, etc.

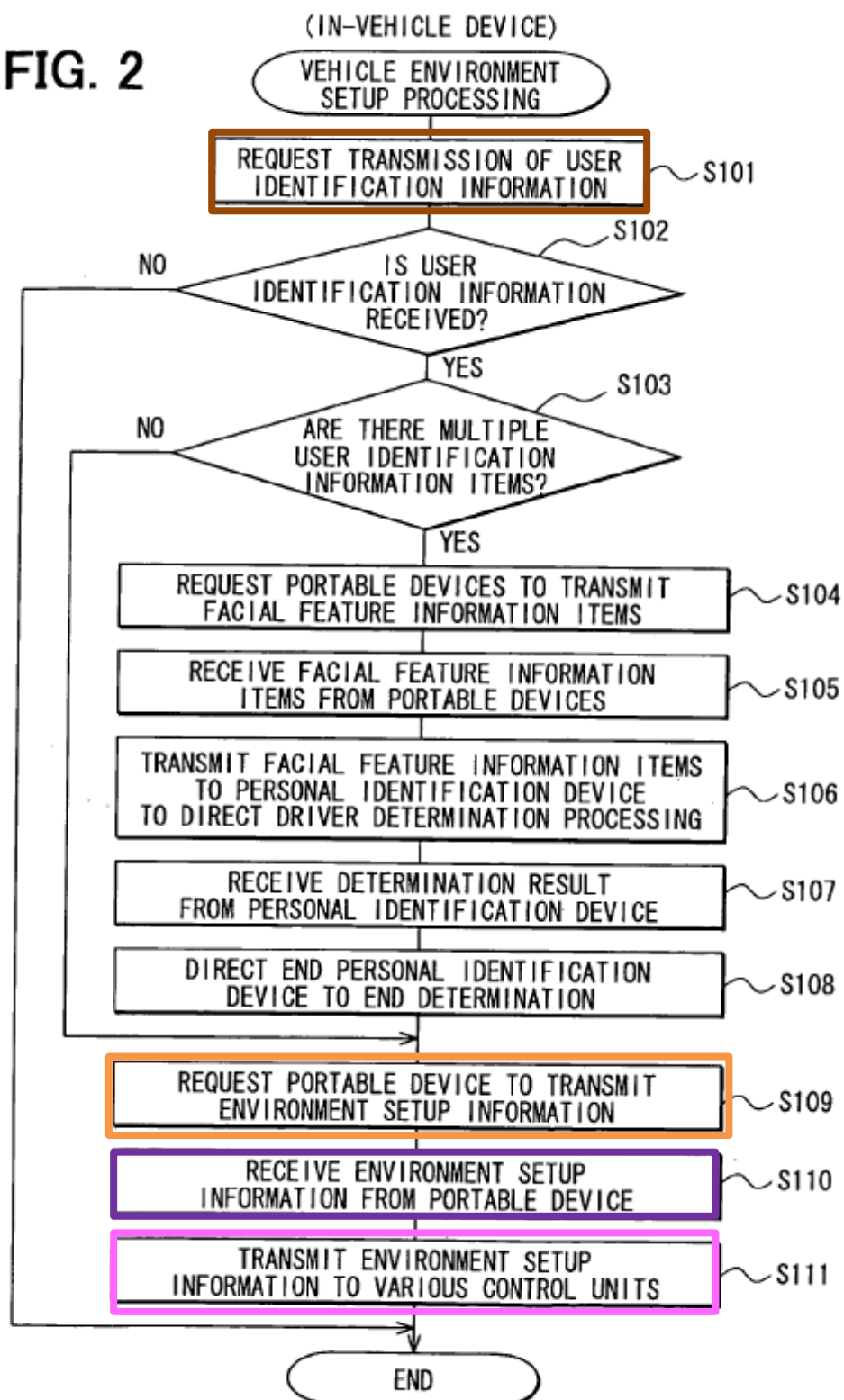
FIG. 6



Ikeda, Fig. 6 (annotated).

53. *Ikeda*'s figure 2, as annotated below, illustrates that its system requests transmission of user identification information (S101), whereby the system detects a user's presence; requests transmission of environment setup information (S109), whereby the system accesses a user's profile; receives environment setup information (S110); and transmits environment setup information to control units (S111):

FIG. 2



Ikeda, Fig. 2 (annotated).

54. *Ikeda* discloses transmitting “an identification information-sending request” in step S101. *Ikeda*, [0080].

55. *Ikeda* discloses that this request is used “to detect that the user is in a state of riding the vehicle.” *Ikeda*, [0080].

56. *Ikeda* further discloses sending, in step S109, a “setup information-sending request” to obtain the “environment setup information item” corresponding to the user detected in step S101. *Ikeda*, [0091].

57. The “environment setup information item” is data regarding a user’s setting preferences. *Ikeda*, [0013], [0064].

58. *Ikeda* further discloses receiving, in response to the “setup information-sending request,” the “environment setup information item” in step 110. *Ikeda*, [0092].

59. Finally, after receiving the “environment setup information item,” *Ikeda* discloses transmitting this information “to various control units” which “reproduce the driving environment indicated by the environment setup information item.” *Ikeda*, [0093], [0064].

B. Hendry

60. *Hendry* is from the same field of endeavor as the ’296 patent, which is vehicle control systems. *Compare* ’296 patent, 2:66-3:7 (“There is a need for a vehicle ecosystem, which can integrate both physical and mental comforts, while

seamlessly communicating with current electronic devices to result in a totally intuitive and immersive user experience.”), *with Hendry*, [0001] (“The present disclosure relates generally to a method and system for establishing user settings of vehicle components of a vehicle.”). Further, both address the same problem: determining whether a recognized user has setting preferences and customizing a vehicle to match the recognized user’s preferences. ’296 patent, 2:66-3:7 (“There is a need for a vehicle ecosystem, which can integrate both physical and mental comforts, while seamlessly communicating with current electronic devices to result in a totally intuitive and immersive user experience.”); *Hendry*, [0027] (“Once a vehicle component has received the personal settings, the vehicle component module will adjust the settings of the vehicle component in accordance with the personal settings associated with the device[.]”).

61. Specifically, *Hendry* discloses a system that “can detect a discoverable external device” and “will retrieve the personal settings associated with the device identifier from an associated datastore,” including settings for “the height of the seat,” “the firmness of the seat,” “the angle of the seat [] back,” “the angle of the seat [] back,” and “the distance of the seat 50 from the steering wheel.” *Hendry*, [0022], [0027]. Upon “receiv[ing] the personal settings,” “the vehicle component module will adjust the settings of the vehicle component in accordance with the personal settings associated with the device.” *Hendry*, [0027].

62. *Hendry* further discloses a process for determining that a user makes a change to an adjusted component's setting and then storing that change. *Hendry* discloses that "if a user changes the settings of the seat 50, the user interface 122 displays a screen to the user asking whether the user would like the vehicle 10 to remember the seat settings." *Hendry*, [0026]. If "the user responds affirmatively, the adjusted settings are saved in a datastore associated with the vehicle component." *Hendry*, [0031].

VII. Level of Ordinary Skill

63. I have been informed that patentability must be analyzed from the perspective of “one of ordinary skill in the art” in the same field as the ’296 patent at the time of the invention. I am also informed that several factors are considered in assessing the level of ordinary skill in the art, including (1) the types of problems encountered in the art; (2) the prior art solutions to those problems; (3) the rapidity with which innovations are made; (4) the sophistication of the technology; and (5) the education level of active workers in the field. I have been instructed to assume a POSITA is not a specific real individual, but rather a hypothetical individual having the qualities reflected by the factors discussed above. In my opinion, a POSITA would have had at least a four-year undergraduate degree in computer science, electrical engineering, automotive engineering, or a closely related field and at least two years of experience in the field of vehicle control systems. More education can supplement practical experience and vice versa. At the earliest priority date of the ’296 patent, I qualified as a POSITA. My analysis and opinions regarding the ’296 patent have been based on the perspective of the POSITA.

VIII. Claim Construction

64. I was asked to construe the phrase “at least one.” In my opinion, “at least one” should be understood as defined in the ’296 patent’s specification: “The phrases ‘at least one,’ [is] both conjunctive and disjunctive in operation.” ’296 patent, 8:64-9:4. Thus, the phrase “at least one of A, B, and C,” in the context of the ’296 patent, “means A alone, B alone, C alone, A and B together, A and C together, B and C together, or A, B and C together.” ’296 patent, 8:64-9:4. I was not asked to construe any other terms or phrases. Instead, I have been asked to assume that the other claim terms generally have their ordinary and customary meaning as understood by one of ordinary skill in the art in light of the specification and the prosecution history. With the exception of “at least one,” no other claim terms of the ’296 patent require construction in this proceeding because the claims encompass the prior-art mappings provided below under any construction consistent with the claim construction principles discussed above (in the legal standards section). If the Patent Owner proposes or the Board adopts a different construction, I will respond to any such construction at the appropriate time.

IX. Summary of Opinions on Unpatentability

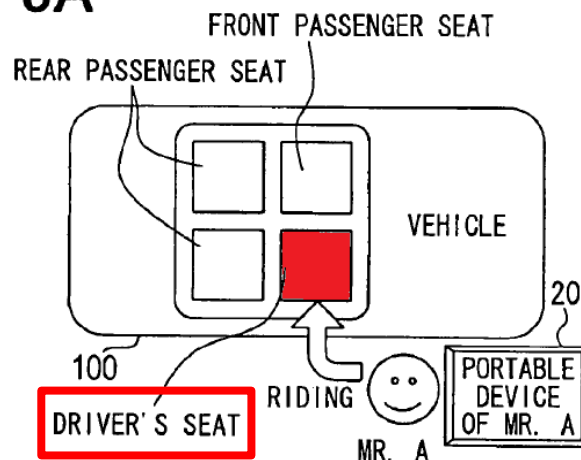
A. Grounds 1a/1b: *Ikeda* anticipates claims 1, 3-9, 11-12, 14-15, 17-18, and 20 (Ground 1a) and renders obvious claims 2, 6, 10, 13, 16, and 19 (Ground 1b).

1. Independent Claim 1

1[a]: A method, comprising: **determining a location inside a vehicle associated with a user;**

65. *Ikeda* discloses *determining a location inside a vehicle associated with a user*. For example, *Ikeda* discloses “the in-vehicle device 10 detects the fact that the driver rides the vehicle 100 with the aid of the seat sensor provided in the driver's seat.” *Ikeda*, [0409].

FIG. 5A



Ikeda, Fig. 5A (annotated).

66. *Ikeda* specifically discloses that “the driver’s seat” is determined to be a location associated with a user, namely the driver. For example, *Ikeda* discloses that “[d]etection of the driver to ride in the vehicle 100 can be performed by, for

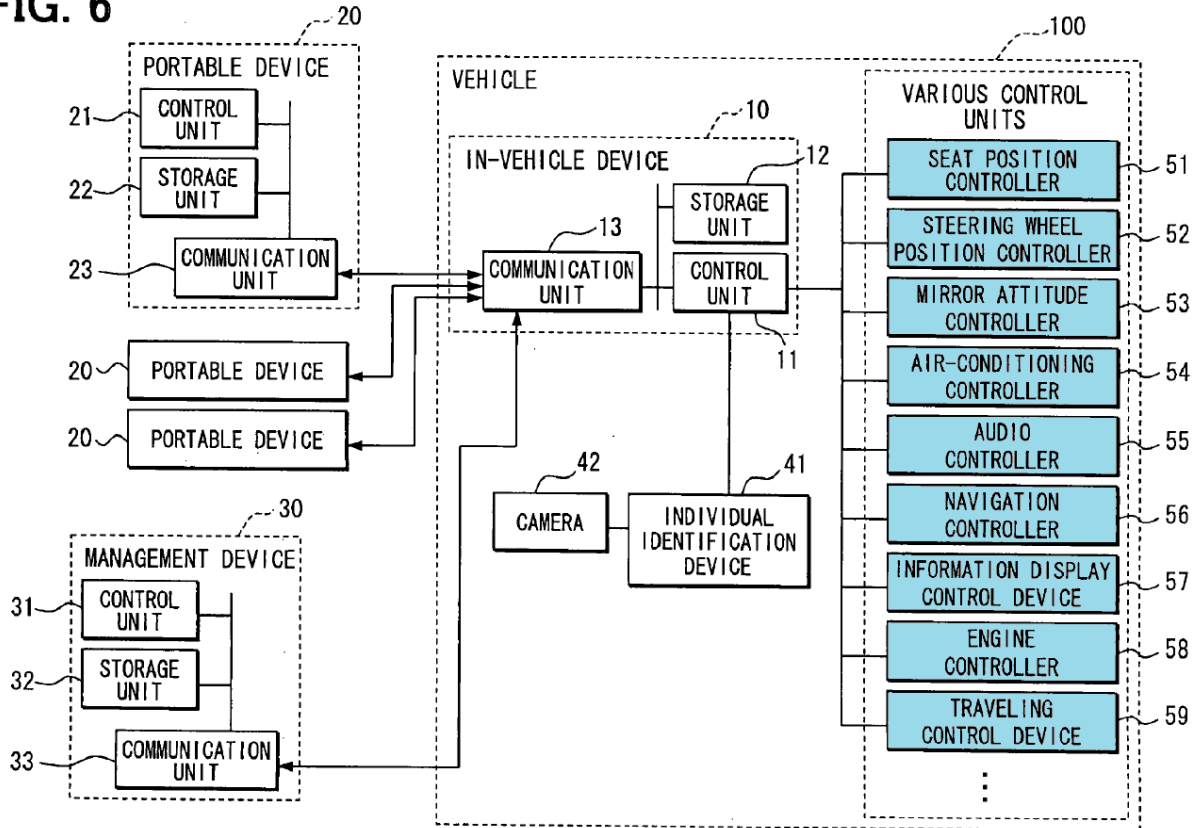
example, detecting a user's seating with a sitting sensor provided in the driver's seat." *Ikeda*, [0079]; *see also Ikeda*, [0080]. *Ikeda* also discloses 1[a] for the reasons discussed for claim 5.

67. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 1.

**1[b]: determining at least one vehicle control
associated with the location inside the vehicle;**

68. *Ikeda* discloses *determining at least one vehicle control associated with the location inside the vehicle*. For example, *Ikeda* discloses "control units" that "enable a setup (change) of the driving environment according to a driver's liking." *Ikeda*, ¶[0063]. The vehicle controls identified include drivers-seat location controls such as seat position, steering wheel position, mirror attitude, etc. and they are therefore determined to be associated with a location inside the vehicle, namely the drivers-side seat position.

FIG. 6



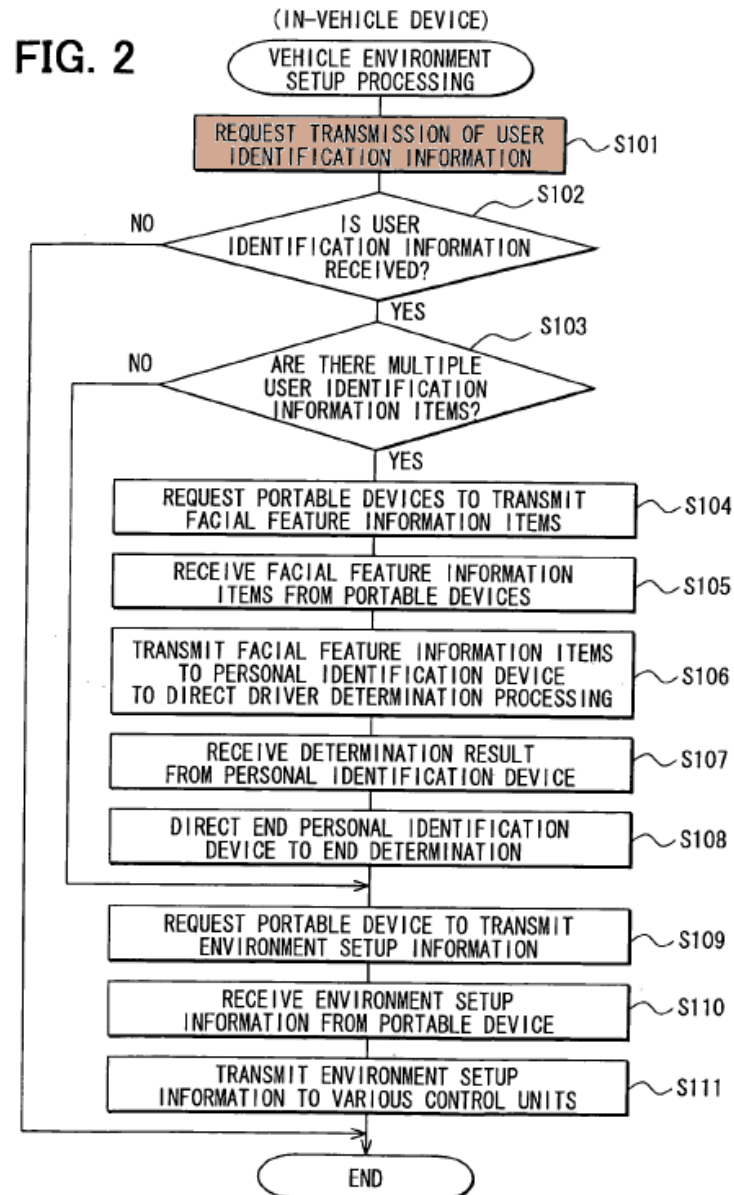
Ikeda, Fig. 6 (annotated).

69. *Ikeda* discloses that its “control units 51-59 enable a setup (change) of the driving environment according to a driver’s liking,” including by adjusting “seat position,” “steering wheel position,” “mirror attitude,” “air-conditioning,” “audio,” “navigation,” and the “information display.” *Ikeda*, [0063]. The “control units” can be controlled manually (“according to the external operation by the user who rides the vehicle”) or automatically (“to reproduce the driving environment indicated by the environment setup information item, when the environment setup information item is inputted”). *Ikeda*, [0064]-[0065]. All of these vehicle controls are determined to be associated with the driver’s seat location in the vehicle.

70. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 1.

1[c]: determining a presence of the user inside the vehicle, wherein determining the presence of the user comprises detecting a device associated with the user in an area of the vehicle;

71. *Ikeda* discloses *determining a presence of the user inside the vehicle, wherein determining the presence of the user comprises detecting a device associated with the user in an area of the vehicle. Infra § IX.A.5 (claim 5).* For example, *Ikeda* discloses transmitting “an identification information-sending request” to a user’s device “to detect that the user is in a state of riding the vehicle.” *Ikeda*, [0080]. This detection is a determination that a user is in the vehicle.



Ikeda, Fig. 2 (annotated).

72. In Step S101 of Fig. 2 shown above, *Ikeda* specifically discloses that “the control unit 11 transmits an identification information-sending request which is a request to the user’s portable device 20 for the transmission of the user identification information.” *Ikeda*, [0080]. *Ikeda* discloses that the purpose of this

request is “to **detect that the user is in a state of riding the vehicle 100,**” which is *determining a presence of the user inside the vehicle. Ikeda, [0080].*

73. *Ikeda* further discloses that “when the portable device 20 exists in the communications area (when a user who possesses the portable device 20 has ridden the vehicle 100), the user information stored in the portable device 20 is transmitted to the in-vehicle device.” *Ikeda, [0080].* Thus, *Ikeda* is designed to *determine the presence of the user by detecting a device (portable device 20) associated with the user in an area of the vehicle.*

74. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 1.

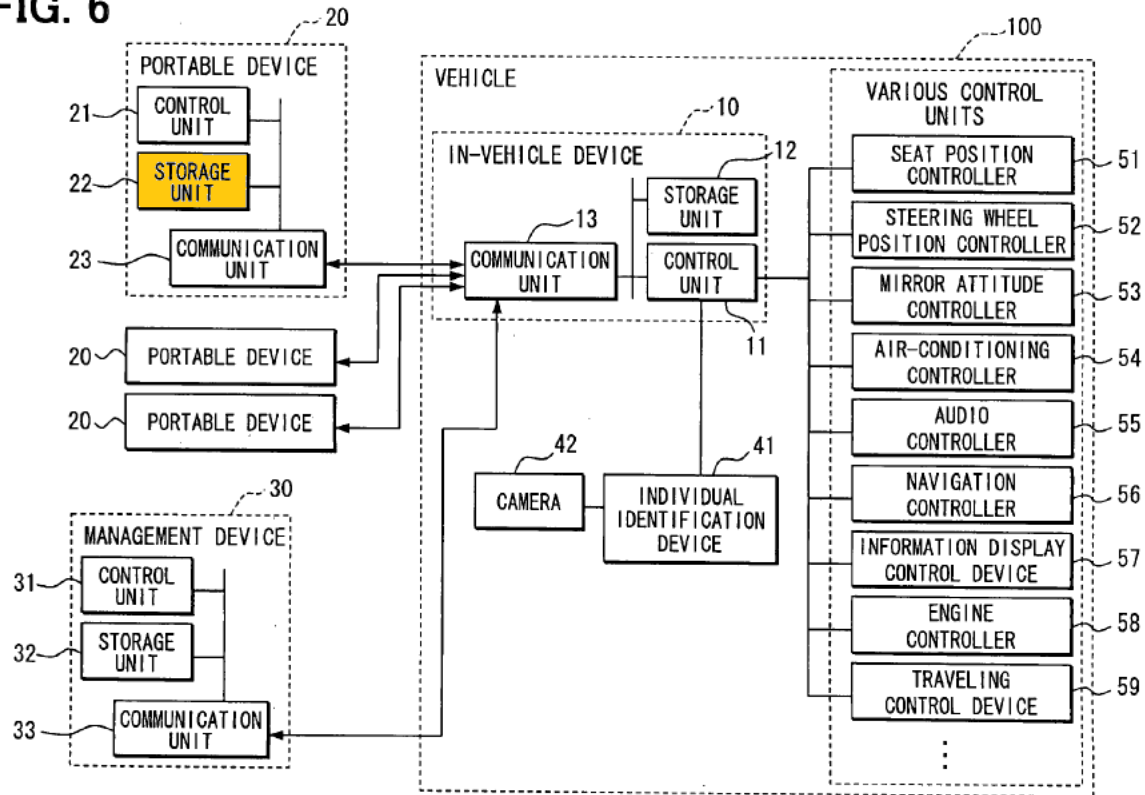
**1[d]: referring to a user profile memory associated
with the user for vehicle control settings;**

75. *Ikeda* discloses *referring to a user profile memory associated with the user for vehicle control settings.* For example, *Ikeda* discloses obtaining “**the environment setup information item** indicative of the driving environment for the **driver**” (*vehicle control settings*) which is stored in the “**storage unit 22**” of **portable device 20** (*user profile memory*). *Ikeda, [0091]; see also Ikeda, [0073].* It does so by sending a “**setup information-sending request**” “to the portable device 20 of the driver.” *Ikeda, [0091]; see also Ikeda, [0246].* This “**setup information-sending request requests the portable device 20 of the driver to send the environment setup information item.**” *Ikeda, [0091]; see also Ikeda, [0246].* Thus, “the environment setup information stored in the portable device 20 of the driver or

the environment setup information item indicative of the driving environment for the driver is transmitted from the portable device 20 to the in-vehicle device 10.”

Ikeda, [0091]; *see also Ikeda*, [0246].

FIG. 6



Ikeda, Fig. 6 (annotated).

76. *Ikeda* further discloses storing in the “storage unit 22” the “environment setup information item,” which is data “indicative of a driving environment of the associated user.” *Ikeda*, [0013]. For example, of the “control units 51-59,” “the seat position controller 51 adjusts the position of the driver’s electric seat.” *Ikeda*, [0064]. A user’s preferential setting for the “seat position controller 51” is stored as part of the “environment setup information item” and

can be recalled so that “the driving environment can be reproduced correctly, without performing fine tuning by the external operation” (i.e., manually). *Ikeda*, [0064].

77. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 1.

1[e]: determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle; and

78. *Ikeda* discloses *determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle*. For example, *Ikeda* discloses that its “control units” operate “to reproduce the driving environment indicated by the environment setup information item.” *Ikeda*, [0064].

79. After receiving the “setup information-sending request,” the “environment setup information item stored in the portable device 20 . . . is transmitted from the portable device 20 to the in-vehicle device 10.” *Ikeda*, [0091]-[0092]; *see also Ikeda*, [0246]. As explained previously, the “environment setup information item” includes a user’s preferred settings (*vehicle control settings*). *Supra* § IX.A.1 (element 1[d]); Specifically, *Ikeda* describes the “environment setup information item” as “indicative of a driving environment of the associated user.” *Ikeda*, [0013]. For example, of the “control units 51-59,” “the seat position controller 51 adjusts the position of the driver’s electric seat.” *Ikeda*, [0064]. Thus,

a user's preferential setting for the "seat position controller 51" is stored as part of the "environment setup information item" and can be recalled so that "the driving environment can be reproduced correctly, without performing fine tuning by the external operation" (i.e., manually). *Ikeda*, [0064].

80. Once the "in-vehicle device 10" receives the "environment setup information item" (*vehicle control settings*), it determines, based on the "environment setup information item" (*based at least partially on the vehicle control settings*) to transmit adjustment instructions to "various" (i.e., one or more) "control units 51-59" (*determining to adjust the at least one vehicle control associated with the location inside the vehicle*). Specifically, after the "in-vehicle device 10" receives the "environment setup information item," it transmits data to "various" (i.e., one or more) "control units 51-59" for the purpose of "set[ting]" "the driving environment of the vehicle 100 . . . as the driving environment for the driver." *Ikeda*, [0092]-[0093]; *see Ikeda*, [0251].

81. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 1.

1[f]: providing an adjustment output to a vehicle control system, wherein the adjustment output is provided based at least partially on determining the user is present in the location inside the vehicle, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle.

82. *Ikeda* discloses *providing an adjustment output to a vehicle control*

system, wherein the adjustment output is provided based at least partially on determining the user is present in the location inside the vehicle, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle. For example, *Ikeda* discloses transmitting “the environment setup information item” to “control units” (*providing an adjustment output to a vehicle control system*) only after “detect[ing] that the user is in a state of riding the vehicle 100” (*based at least partially on determining the user is present in the location inside the vehicle*). *Ikeda*, [0080], [0087], [0093].

83. *Ikeda* discloses *providing an adjustment output to a vehicle control system*. For example, *Ikeda* discloses transmitting “the environment setup information item . . . to various control units.” *Ikeda*, [0093], [0080], [0087]; *see also Ikeda*, Figs. 14, 18A, and 18B, [0233], [0236], [0244], [0251], [0267]-[0269], [0272]. Thus “the driving environment of the vehicle [] is set as the driving environment for the driver.” *Ikeda*, [0093].

84. *Ikeda* further discloses that *the vehicle control system is adapted to control the at least one vehicle control*. The “control units” work together (as a *vehicle control system*) to “enable a setup (change) of the driving environment according to a driver’s liking.” *Ikeda*, [0063].

85. *Ikeda* additionally discloses that *the vehicle control that the vehicle*

control system is adapted to control is associated with the location inside the vehicle. For example, *Ikeda* discloses vehicle controls associated with the driver's seat. Specifically, the "control units 51-59 enable a setup (change) of the driving environment according to a driver's liking," thus indicating that the control units are associated with the driver's seat location. *Ikeda*, [0063]; Further, *Ikeda* discloses vehicle controls that are associated directly with the driver's seat location, including at least the "steering wheel position" and "seat position" controllers. *Ikeda*, [0063].

86. *Ikeda* discloses that *providing the adjustment output is based at least partially on determining the user is present in the location inside the vehicle.* For example, *Ikeda* discloses only transmitting "the environment setup information item" after determining that the user is present in the location inside the vehicle. As illustrated in Figure 2, transmitting the "environment setup information item" (*providing the adjustment output*) occurs in Step S111 of the "vehicle environment setup processing." *Ikeda*, [0093], [0079]-[0080]; *see also Ikeda* Figs. 14, 18A, and 18B and [0236], [0244], [0272]. But the "vehicle environment setup processing" would not proceed to Step S111 unless *Ikeda's* system first "detect[s] that the user is in a state of riding the vehicle" in Step S101. *Ikeda*, [0079]-[0080]. This detection can be "performed by, for example, detecting a user's seating with a sitting sensor provided in the driver's seat" (*determining the user is present in the*

location inside the vehicle). Ikeda, [0079]. Thus, Ikeda discloses that *providing the adjustment output is based at least partially on determining the user is present in the location inside the vehicle*.

87. Accordingly, in my opinion, Ikeda discloses this limitation of claim 1.

2. Claim 2

2[a]: The method of claim 1, wherein prior to determining the location inside the vehicle associated with the user the method further comprises: storing, in the user profile memory, information corresponding to locations inside the vehicle occupied by the user;

88. Ikeda further renders obvious *wherein prior to determining the location inside the vehicle associated with the user the method further comprises: storing, in the user profile memory, information corresponding to locations inside the vehicle occupied by the user*. For example, Ikeda discloses that the “environment setup information is stored” in the “storage unit 22” (*user profile memory*) before the “vehicle environment setup processing.” Ikeda, [0073], [0080]; *see supra* § IX.A.1 (element 1[d]).

89. It would have been obvious to a POSITA at the time of the alleged invention to modify Ikeda based on its own teachings and the knowledge of a POSITA to store, *in the user profile memory, information corresponding to locations inside the vehicle occupied by the user*. Ikeda acknowledges that a known user—with settings saved for the driver’s seat—may sit “in any seat except the

driver's seat." *Ikeda*, [0115]. Thus, a POSITA would have been motivated to store information corresponding to the adjustable components of multiple seats (such as adjustable seats, temperature settings, etc.) in a vehicle for registered users so that a user's preferences can be applied regardless of where the user sits.

90. In my opinion, a POSITA would have considered such modifications to *Ikeda* because they involved (A) combining prior-art elements according to known methods to yield predictable results (e.g., applying *Ikeda*'s hardware and software to identify a user and to save location-specific settings, simply extended to include an additional seat); (B) use of a known technique (e.g., *Ikeda*'s user identification and location-specific setting storage techniques) to improve similar devices in the same way (e.g., "any seat except the driver's seat"); (C) applying a known technique (e.g., *Ikeda*'s user identification and location-specific setting storage techniques) to a known device (e.g., "any seat except the driver's seat") ready for improvement to yield predictable results (the same result, except extended to the passenger seat).

91. A POSITA would have had a reasonable expectation of success in extending *Ikeda*'s disclosure to store user settings for more than one location inside the vehicle. For example, *Ikeda*'s disclosure of storing settings corresponding to the driver's seat is equally applicable to store settings corresponding to the passenger seats.

92. Accordingly, in my opinion, *Ikeda* renders obvious any additional limitations in this element of claim 2.

2[b]: collecting vehicle control setting data associated with the user, wherein the vehicle control setting data includes at least one vehicle control setting made by the user in at least one of the locations inside the vehicle; and

93. *Ikeda* discloses *collecting vehicle control setting data associated with the user, wherein the vehicle control setting data includes at least one vehicle control setting made by the user in at least one of the locations inside the vehicle.* For example, *Ikeda* discloses obtaining “the environment setup information item indicative of the current driving environment of the vehicle.” *Ikeda*, [0073].

94. *Ikeda* discloses that the user sets the “driving environment . . . by the user’s external operation.” *Ikeda*, [0073]. *Ikeda* uses the term “external operation” to refer to a user’s manual adjustment of the “control units” such as seat position. *Ikeda*, [0064]; Ultimately, “the portable device 20 stores the received environment setup information item in the storage unit 22.” *Ikeda*, [0073].

95. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 2.

2[c]: storing the vehicle control setting data in the user profile memory.

96. *Ikeda* discloses *storing the vehicle control setting data in the user profile memory.* For example, *Ikeda* discloses storing the “environment setup

information item” (*vehicle control setting data*) “in the storage unit 22 of the portable device 20” (*user profile memory*). *Ikeda*, [0073], Fig. 6; *see supra* § IX.A.1 (element 1[d]).

97. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 2.

3. Claim 3: The method of claim 1, wherein the at least one vehicle control includes one or more vehicle features such as a seat system, a steering control, a foot pedal control, a mirror position, and a display device.

98. *Ikeda* further discloses *wherein the at least one vehicle control includes one or more vehicle features such as a seat system, a steering control, a foot pedal control, a mirror position, and a display device*. For example, *Ikeda* discloses that the “control units 51-59 enable a setup (change) of the driving environment,” including “a seat position controller 51, a steering wheel position controller 52, a mirror attitude controller 53, an air-conditioning controller 54, an audio controller 55, a navigation controller 56, an information display control device 57, an engine controller 58, and a traveling control device 59.” *Ikeda*, [0063].

99. *Ikeda*’s “seat position controller 51” is *a seat system*; its “steering wheel position controller 52” is *a steering control*; its “mirror attitude controller 53” is *a mirror position*; and its “information display control device 57” is *a display device*.

100. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in claim 3.

4. Claim 4: The method of claim 3, wherein the vehicle control settings include at least one of a position, a sensitivity, an angle, and a movement, associated with the one or more vehicle features.

101. *Ikeda* further discloses *wherein the vehicle control settings include at least one of a position, a sensitivity, an angle, and a movement, associated with the one or more vehicle features*. For example, *Ikeda* discloses “a seat position controller 51, a steering wheel position controller 52,” and “a mirror attitude controller 53.” *Ikeda*, [0063].

102. *Ikeda*’s “environment setup information” item is a *vehicle control setting*. For example, the “seat position controller 51” setting is saved as an “environment setup information item.” *Ikeda*, [0064]. Thus, the settings for the various “control units 51-59” are “environment setup information items” or *vehicle control settings*.

103. *Ikeda*’s “environment setup information” items for its “seat position controller 51” and “steering wheel position controller 52” are *vehicle control settings* that include at least *a position associated with the one or more vehicle features*. For example, the “seat position controller 51 adjusts the position of the driver’s electric seat (the height of the seat surface, the positioning the back-and-forth direction, etc.).” *Ikeda*, [0064].

104. *Ikeda*'s "environment setup information item" for its "mirror attitude controller 53" is a *vehicle control setting* that includes at least *an angle associated with the one or more vehicle features*. The term "attitude" refers to the angle of the mirrors. Further, *Ikeda* refers to being able to set "angles of various mirrors."
Ikeda, [0005].

105. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in claim 4.

5. Claim 5

5[a]: The method of claim 1, wherein determining the presence of the user inside the vehicle further comprises: detecting a person via at least one image sensor associated with the vehicle;

106. *Ikeda* further discloses *wherein determining the presence of a user inside the vehicle further comprises: detecting a person via at least one image sensor associated with the vehicle*. For example, *Ikeda* discloses "detect[ing] the fact that the driver rides the vehicle 100" by "us[ing] the taken image of the camera 42." *Ikeda*, [0409].

107. *Ikeda* specifically discloses that "the in-vehicle device 10 detects the fact that the driver rides the vehicle 100 with the aid of the seat sensor provided in the driver's seat." *Ikeda*, [0409]. *Ikeda* clarifies that the invention "is not limited" to using the seat sensor because "it may be possible to detect the fact that the driver rides the vehicle 100, through the detection of opening, closing, and unlocking of

the door of the driver's seat side, or in use of the taken image of the camera 42[.]”

Ikeda, [0409]; *see* [0122] (disclosing that the “in-vehicle device 10” can process signals from “camera 42”).

108. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 5.

5[b]: identifying facial features associated with the person detected via the at least one image sensor; and

109. *Ikeda* discloses *identifying facial features associated with the person detected via the at least one image sensor*. For example, *Ikeda* discloses “detecting a facial feature point from the taken image of the camera 42.” *Ikeda*, [0062].

110. *Ikeda* specifically discloses that “the personal identification device 41 is for authenticating a user sitting in the driver's seat based on his or her physical feature.” *Ikeda*, [0062]. *Ikeda* further discloses *at least one image sensor*. For example, *Ikeda* discloses that “a camera 42 is installed ahead of the driver's seat inside the vehicle 100, and can take an image of a face of a user sitting in the driver's seat.” *Ikeda*, [0062]. *Ikeda* discloses *identifying facial features associated with the person detected*. For example, *Ikeda* discloses that the “personal identification device 41 performs authentication by detecting a facial feature point from the taken image of the camera 42 as the driver's physical feature.” *Ikeda*, [0062].

111. Accordingly, in my opinion, *Ikeda* discloses any additional limitations

in this element of claim 5.

5[c]: determining whether the identified facial features associated with the person match user characteristics stored in a memory.

112. *Ikeda* discloses *determining whether the identified facial features associated with the person match user characteristics stored in a memory*. For example, *Ikeda* discloses “template matching of the facial feature information items received from the in-vehicle device 10 with the image taken with the camera 42.” *Ikeda*, [0097].

113. *Ikeda* discloses sending a “feature information-sending request . . . to request the portable device 20 to send facial feature information.” *Ikeda*, [0085]. In response to this request, “the facial feature information . . . stored in the portable device 20 is transmitted to the in-vehicle device 10.” *Ikeda*, [0085]. The “facial feature information . . . stored in the portable device 20” is *user characteristics stored in a memory*. *Ikeda* discloses that the “in-vehicle device 10 transmits [] facial feature information items . . . to the personal identification device 41” to initiate “driver determination processing.” *Ikeda*, [0087].

114. *Ikeda* discloses that during “driver determination processing,” “the personal identification device 41 identifies the driver’s facial feature information item out of the facial feature information items received from the in-vehicle device 10, by template matching of the facial feature information items received from the

in-vehicle device 10 with the image taken with the camera 42” (*identified facial features*). *Ikeda*, [0097].

115. *Ikeda* discloses that, in this way, “the facial feature information item that belongs to the driver is certainly identified or selected among the multiple facial feature information items received from the in-vehicle device 10.” *Ikeda*, [0097]. Thus, *Ikeda* discloses *determining whether the identified facial features associated with the person match user characteristics stored in a memory*.

116. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 5.

6. Claim 6

**6[a]: The method of claim 1, further comprising:
determining that the user made a change to the
adjusted at least one vehicle control; and**

117. *Ikeda* further discloses or renders obvious *determining that the user made a change to the adjusted at least one vehicle control*. For example, *Ikeda* discloses that “the driving environment for the user is set up by the user’s external operation in the vehicle.” *Ikeda*, [0073].

118. *Ikeda* specifically discloses *determining that the user made a change*. For example, *Ikeda* discloses that “after the driving environment for the user is set up by the user’s external operation,” the “in-vehicle device 10 . . . transmits the environment setup information item indicative of the current driving environment

of vehicle 100 to the portable device.” *Ikeda*, [0073].

119. The “environment setup information item” consists of data that indicates a user’s preferences for the settings of specific “control units.” *Ikeda*, [0064].

120. To the extent it is argued that *Ikeda* does not explicitly disclose this limitation, it would have been obvious to a POSITA at the time of the alleged invention to modify *Ikeda* based on its own teachings and the knowledge of a POSITA to *determine that the user made a change to the adjusted at least one vehicle control*. A POSITA would have recognized that *Ikeda* discloses the hardware and software necessary to *determine that a user has made a change to at least one vehicle control*. For example, *Ikeda* describes a specific action that the “in-vehicle device 10” performs after a user makes a change: the “in-vehicle device 10 . . . transmits the environment setup information item indicative of the current driving environment of vehicle 100 to the portable device.” *Ikeda*, [0073].

121. *Ikeda* further discloses that its system has the ability to “determine[] whether the driving environment is adjusted by the external operation of the driver who rides the vehicle.” *Ikeda*, [0254], Fig. 25B.

122. A POSITA would have been motivated to use this disclosed hardware and software to *determine that the user made a change to the adjusted at least one vehicle control*. For example, a POSITA would have recognized that a user might

not want to keep the same setting saved for the entire time that the driver owns the vehicle. At certain times, due to health, age, or simply changed preferences, a user may, for example, want the seat positioned at a slightly different angle. In such cases, a POSITA would have been motivated to ensure that the system could detect that the user made changes to the adjusted vehicle control so that they could be stored for future use.

123. A POSITA would have been aware of several well-known techniques for determining that the user has made a change to a setting, including having the user press a button to save new settings or causing the vehicle control unit to send a signal when it has been adjusted. For example, U.S. Patent Publication No. 2007/0238491 (“*He*”) describes a system which a “user adjusts the vehicle components, such as seats and mirrors (not shown), to her preferred position or setting” and “then presses buttons located on the user interface [] to set the settings.” *He*, [0021]. After this, “the controller [] stores the setting inputs in the user’s profile.” *He*, [0021]. As another example of well-known technology used to save changes to user settings, U.S. Patent Publication No. 8,977,408 (“*Cazanas*”) describes a system in which a user “may set a variety of adjustable or configurable components [] on the vehicle . . . , such as a seat position, a mirror position, one or more pedal positions, radios station presets, HVAC settings, navigation system settings, radio settings, and the like.” *Cazanas*, 14:28-34. *Cazanas* further

describes that “[e]lectronics of the vehicle [] detect the settings of the adjustable elements” and “[o]nce the adjustable elements on the vehicle [] are set and the settings are detected by the vehicle, the user may save a user profile on the vehicle.” *Cazanas*, 14:34-39. *Cazanas*, 14:28-45 (“For instance, the vehicle [] may have a user interface [] that allows a user to store the settings as a user profile. For instance, a touch screen on a navigation system may allow a user to access a menu that contains a button, or virtual button, that a user may depress to indicate to the vehicle that the current positions of the adjustable elements should be saved as a user profile.”).

124. A variety of rationales show why a POSITA would have applied techniques for determining when adjustments to vehicle controls had been made, to *Ikeda*’s disclosure. For example, such modifications would have merely involved combining prior-art elements according to known methods to yield predictable results. For example, *Ikeda* discloses the necessary hardware and software to determine a change has been made to a vehicle control. *Ikeda*, [0073]. Applying this hardware and software to detect changes made to an adjusted setting would be matter of simply adjusting the program instructions—to the extent such adjustment is even necessary—an operation well within the skill of a POSITA at the time of the alleged invention. Further, the modifications to *Ikeda* would have included use of a known technique to improve similar devices in the same way. *Ikeda* already

discloses the necessary hardware and software to determine that a change has been made to a vehicle control. A POSITA would have known that determining such a change as a known technique at the time of the alleged invention. And this modification would simply be used to improve a vehicle control system (including its vehicle control units) by enabling the system to detect and save a new setting. Further, this modification would have involved simply applying a known technique (e.g., *Ikeda*'s determining changes made to vehicle control units) to a known device (e.g., determining changes made to adjusted vehicle controls) ready for improvement to yield predictable results.

125. A POSITA would have had a reasonable expectation of success in extending *Ikeda*'s disclosure to determine changes made to adjusted vehicle controls. *Ikeda*'s disclosure of determining that a user has made changes to vehicle control settings would be applicable to determining that a user has made changes to adjusted vehicle controls. *Ikeda* discloses the necessary hardware and software to determine that a change has been made to a vehicle control. *Ikeda*, [0073]. To the extent a modification is necessary to achieve the claimed invention, a POSITA would only have had to adjust the relevant program instructions. Adjusting programming was well within the ability of a POSITA at the time of the alleged invention.

126. Accordingly, in my opinion, *Ikeda* discloses or renders obvious any

additional limitations in this element of claim 6.

6[b]: storing the change made to the adjusted at least one vehicle control in the user profile memory.

127. *Ikeda* discloses *storing the change made to the adjusted at least one vehicle control in the user profile memory*. For example, *Ikeda* discloses that the “environment setup information is stored in the storage unit.” *Ikeda*, [0073].

128. *Ikeda*’s “storage unit 22” is a *user profile memory*.

129. *Ikeda*’s “environment setup information item” consists of data that captures “the user’s external operation in the vehicle 100,” which is *the change made to the adjusted at least one vehicle control*.

130. Thus, *Ikeda* discloses *storing the change made to the adjusted at least one vehicle control in the user profile memory*. For example, *Ikeda* discloses that the “environment setup information is stored in the storage unit.” *Ikeda*, [0073].

131. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 6.

7. Claim 7

7[a]: A method, comprising: determining a location inside a vehicle associated with a user;

132. *Ikeda* discloses *determining a location inside a vehicle associated with a user*. *Supra* § IX.A.1 (element 1[a]).

133. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 7.

**7[b]: determining at least one vehicle control
associated with the location inside the vehicle;**

134. *Ikeda* discloses *determining at least one vehicle control associated with the location inside the vehicle. Supra § IX.A.1 (element 1[b]).*

135. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 7.

**7[c]: referring to a user profile memory associated
with the user for vehicle control settings;**

136. *Ikeda* discloses *referring to a user profile memory associated with the user for vehicle control settings. Supra § IX.A.1 (element 1[d]).*

137. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 7.

**7[d]: determining, based at least partially on the
vehicle control settings, to adjust the at least one
vehicle control associated with the location inside the
vehicle; and**

138. *Ikeda* discloses *determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle. Supra § IX.A.1 (element 1[e]).*

139. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 7.

**7[e]: providing an adjustment output to a vehicle
control system, wherein the vehicle control system is
adapted to control the at least one vehicle control
associated with the location inside the vehicle,
wherein the at least one vehicle control is adjusted via
the adjustment output to match the vehicle control
settings in the user profile memory.**

140. *Ikeda* discloses *providing an adjustment output to a vehicle control*

system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle, wherein the at least one vehicle control is adjusted via the adjustment output to match the vehicle control settings in the user profile memory. See supra § IX.A.1 (element 1[f]). For example, Ikeda discloses transmitting “the environment setup information item” to “control units.” Ikeda, [0080], [0087], [0093]; see also Ikeda, [0233], [0251], [0267]-[0269].

141. *Ikeda’s discloses that its “control units” are a vehicle control system adapted to control at least one vehicle control associated with the location inside the vehicle. For example, for the “control units 51-59” “the seat position controller 51 adjusts the position of the driver’s electric seat.” Ikeda, [0064].*

142. *Ikeda discloses that its “environment setup information item[s]” are vehicle control settings. For example, Ikeda discloses that its “environment setup information item” is data “indicative of a driving environment of the associated user.” Ikeda, [0013];*

143. *Ikeda further discloses that its “environment setup information item” (vehicle control settings) is in the user profile memory. For example, Ikeda discloses that the “environment setup information item” is “stored in the storage unit 22.” Ikeda, [0073].*

144. *Ikeda’s discloses that its “transmi[ssion]” of the “environment setup*

information item” is *an adjustment output* that instructs the “control units” to make adjustments to “set” the “driving environment for the driver.” *Ikeda*, [0093], [0013], [0079]-[0080].

145. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 7.

8. Claim 8

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

146. *Ikeda* discloses *a non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform a method.* For example, *Ikeda* discloses “the vehicle environment setup processing performed by the control unit 11 of the in-vehicle device 10.” *Ikeda*, [0079].

147. *Ikeda* discloses that its “in vehicle device . . . includes a computer readable medium and program instructions.” *Ikeda*, [0015]. *Ikeda* further discloses that these “program instructions . . . caus[e] the computer to serve as driver identifying means and driving-environment setup means.” *Ikeda*, [0015].

148. Additionally, *Ikeda* discloses that its “in-vehicle device 10 possesses or includes a control unit 11” and that the “control unit 11 includes as a main element a microcomputer having a CPU, a ROM, a RAM, and executes various processing.” *Ikeda*, [0060]-[0061].

149. Given these disclosures, a POSITA would have understood that the

driver identifying and environment setup processing in *Ikeda*, including all the claimed processing discussed below, is carried out by control unit 11 based on instructions stored in a non-transitory computer readable medium. A POSITA would have recognized the claimed processing below is all part of “the vehicle environment setup processing” that *Ikeda* discloses is “performed by the control unit 11 of the in-vehicle device 10.” *Ikeda*, [0079].

150. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 8.

**8[b]: determining a location inside a vehicle
associated with a user;**

151. *Ikeda* discloses *determining a location inside a vehicle associated with a user*. *Supra* § IX.A.1 (element 1[a]).

152. *Ikeda* discloses that the “[d]etection of the driver to ride in the vehicle” is the first step of the “vehicle environment setup processing” as “performed by the control unit 11 of the in vehicle device 10,” acting via its CPU. *Ikeda*, [0079]. The “in vehicle device . . . includes a computer readable medium and program instructions” that “caus[e] the computer to serve as driver identifying means.” *Ikeda*, [0015]. A POSITA would have understood that the “[d]etection of the driver to ride in the vehicle” (*determining a location inside a vehicle associated with a user*) is the first step to identifying a driver. A POSITA would further have understood that the “in vehicle device 10’s” “program instructions” included instructions to detect the driver riding in the vehicle because it is those instructions

that would cause control unit 11 to operate as described by *Ikeda*.

153. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 8.

**8[c]: determining at least one vehicle control
associated with the location inside the vehicle;**

154. *Ikeda* discloses *determining at least one vehicle control associated with the location inside the vehicle*. *Supra* § IX.A.1 (element 1[b]).

155. Part of the “vehicle environment setup processing” (“performed by the control unit 11 of the in vehicle device 10”) is *determining at least one vehicle control* to adjust. *Ikeda*, [0079], [0093]. *Ikeda* discloses that its “control units 51-59 enable a setup (change) of the driving environment according to a driver’s liking,” including by adjusting “seat position,” “steering wheel position,” “mirror attitude,” “air-conditioning,” “audio,” “navigation,” and the “information display.” *Ikeda*, [0063]. *Ikeda*, thus, determines *at least one vehicle control* to adjust that is associated with the driver’s seat location in the vehicle.

156. The “in vehicle device includes a computer readable medium and program instructions” that “caus[e] the computer to serve as . . . driving-environment setup means.” *Ikeda*, [0015]. A POSITA would have understood that determining control units to adjust (*determining at least one vehicle control*) is part of setting up the driving-environment. A POSITA would further have understood that the “in vehicle device 10’s” “program instructions” included instructions to make this determination because it is those instructions that would cause control

unit 11 to operate as described by *Ikeda*.

157. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 8.

**8[d]: referring to a user profile memory associated
with the user for vehicle control settings;**

158. *Ikeda* discloses *referring to a user profile memory associated with the user for vehicle control settings*. *Supra* § IX.A.1 (element 1[d]).

159. *Ikeda* further discloses that obtaining “the environment setup information indicative of the driving environment for the driver” is part of the “vehicle environment setup processing” (“performed by the control unit 11 of the in vehicle device 10”). *Ikeda*, [0091], [0079], Fig. 2.

160. The “in vehicle device . . . includes a computer readable medium and program instructions” that “caus[e] the computer to serve as . . . driving-environment setup means.” *Ikeda*, [0015]. A POSITA would have understood that obtaining the “environment setup information” (*referring to a user profile memory associated with the user for vehicle control settings*) is part of setting up the driving-environment. A POSITA would further have understood that the “in vehicle device 10’s” “program instructions” included instructions to make this determination because it is those instructions that would cause control unit 11 to operate as described by *Ikeda*.

161. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 8.

8[e]: determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle; and

162. *Ikeda* discloses *determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle. Supra § IX.A.1 (element 1[e]).*

163. *Ikeda* discloses that its “control units” operate “to reproduce the driving environment indicated by the environment setup information item” which is part of the “vehicle environment setup processing” (“performed by the control unit 11 of the in vehicle device 10”). *Ikeda*, [0064], [0093], [0079], Fig. 2.

164. The “in vehicle device . . . includes a computer readable medium and program instructions” that “caus[e] the computer to serve as . . . driving-environment setup means.” *Ikeda*, [0015]. A POSITA would have understood that “reproduc[ing] the driving environment indicated by the environment setup information item” (*determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle*) is part of setting up the driving-environment. A POSITA would further have understood that the “in vehicle device 10’s” “program instructions” included instructions to adjust the driving environment based on the “environment setup information item” because it is those instructions that would cause control unit 11 to operate as described by *Ikeda*.

165. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 8.

8[f]: providing an adjustment output to a vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle, wherein the at least one vehicle control is adjusted via the adjustment output to match the vehicle control settings in the user profile memory.

166. *Ikeda* discloses *providing an adjustment output to a vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle, wherein the at least one vehicle control is adjusted via the adjustment output to match the vehicle control settings in the user profile memory. See supra § IX.A.1 (element 1[f]), § IX.A.7 (element 7[e]).* For example, *Ikeda* discloses transmitting “the environment setup information item” to “control units.” *Ikeda*, [0080], [0087], [0093]; *see also Ikeda*, [0233], [0251], [0267]-[0269].

167. *Ikeda* discloses that transmitting “the environment setup information” “to various control units” is part of the “vehicle environment setup processing.” (“performed by the control unit 11 of the in vehicle device 10,” via its CPU). *Ikeda*, [0093], [0079], Fig. 2; *see also Ikeda*, [0233], [0251], [0267]-[0269].

168. The “in vehicle device includes a computer readable medium and program instructions” that “caus[e] the computer to serve as . . . driving-environment setup means.” *Ikeda*, [0015]. A POSITA would have understood that

transmitting “environment setup information item” to “various control units” is part of setting up the driving-environment. A POSITA would further have understood that the “in vehicle device 10’s” “program instructions” included instructions to transmit the “environment setup information item” to “various control units” because it is those instructions that would cause control unit 11 to operate as described by *Ikeda*.

169. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 8.

9. Claim 9: The non-transitory computer readable medium of claim 8, wherein prior to providing the adjustment output, the method further comprises: determining a presence of the user inside the vehicle, wherein the adjustment output is provided based at least partially on determining the user is present in the location of the vehicle.

170. *Ikeda* further discloses *wherein prior to providing the adjustment output, the method further comprises: determining a presence of the user inside the vehicle, wherein the adjustment output is provided based at least partially on determining the user is present in the location of the vehicle*. For example, *Ikeda* discloses transmitting “an identification information-sending request” to a user’s device “to detect that the user is in a state of riding the vehicle” as part of the “vehicle environment setup processing,” which is “performed by the control unit 11.” *Ikeda*, [0079]-[0080]; Fig. 2; *see supra* § IX.A.1 (element 1[c]).

171. For example, in the first embodiment, *Ikeda* discloses transmitting the “identification information-sending request” (in, for example, Step S101)

(determining a presence of the user inside the vehicle) prior to transmitting “the environment setup information item . . . to various control units” (in, for example, Step S111) (providing the adjustment output). Ikeda, [0080], [0093], Fig. 2. Ikeda discloses that both of these steps are part of the “vehicle environment setup processing,” which is “performed by the control unit 11.” Ikeda, [0093], [0079], Fig. 2

172. *Ikeda discloses that its providing the adjustment output is based at least partially on determining the user is present in the location inside the vehicle. Supra § IX.A.1 (element 1[f]). The “in-vehicle device . . . includes a computer readable medium and program instructions” that “caus[e] the computer to serve as . . . driving-environment setup means.” Ikeda, [0015]. A POSITA would have understood that transmitting the “identification information-sending request” (determining a presence of the user inside the vehicle) occurs prior to transmitting “the environment setup information item . . . to various control units” (providing the adjustment output). A POSITA would further have understood that the “in vehicle device 10’s” “program instructions” included instructions to this effect.*

173. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in claim 9.

10. Claim 10

10[a]: The non-transitory computer readable medium of claim 8, wherein prior to determining the location

inside the vehicle associated with the user the method further comprises: storing, in the user profile memory, information corresponding to locations inside the vehicle occupied by the user;

174. *Ikeda* further renders obvious *wherein prior to determining the location inside the vehicle associated with the user the method further comprises: storing, in the user profile memory, information corresponding to locations inside the vehicle occupied by the user. Supra § IX.A.2 (element [2a]).*

175. Accordingly, in my opinion, *Ikeda* renders obvious any additional limitations in this element of claim 10.

10[b]: collecting vehicle control setting data associated with the user, wherein the vehicle control setting data includes at least one vehicle control setting made by the user in at least one of the locations inside the vehicle; and

176. *Ikeda* further discloses these limitations. *See supra § IX.A.2 (element 2[b]).*

177. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 10.

10[c]: storing the vehicle control setting data in the user profile memory.

178. *Ikeda* further discloses these limitations. *See supra § IX.A.2 (element 2[c]).*

179. The “in vehicle device . . . includes a computer readable medium and

program instructions” that “caus[e] the computer to serve as . . . driving-environment setup means.” *Ikeda*, [0015]. A POSITA would have understood that the additional steps of claim 10 would have been part of setting up the driving-environment. Further, a POSITA would have understood that the “in vehicle device 10’s” “program instructions” would have included instructions to perform the additional steps of claim 10 because it is those instructions that would cause control unit 11 to operate as described by *Ikeda*.

180. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 10.

11. Claim 11: The non-transitory computer readable medium of claim 8, wherein the at least one vehicle control includes one or more vehicle features such as a seat system, a steering control, a foot pedal control, a mirror position, and a display device, and wherein the vehicle control settings include at least one of a position, a sensitivity, an angle, and a movement, associated with the one or more vehicle features.

181. *Ikeda* further discloses these limitations. *See supra* § IX.A.3-4 (claims 3 and 4).

182. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in claim 11.

12. Claim 12

12[a]: The non-transitory computer readable medium of claim 9, wherein determining the presence of the user inside the vehicle further comprises: detecting a

person via at least one image sensor associated with the vehicle;

183. *Ikeda* discloses *wherein determining the presence of the user inside the vehicle further comprises: detecting a person via at least one image sensor associated with the vehicle. Supra § IX.A.5 (element 5[a]).*

184. *Ikeda* discloses that “the in-vehicle device 10 detects the fact that the driver rides the vehicle 100.” *Ikeda*, [0409]. The “in-vehicle device 10” includes “a control unit 11,” and the “control unit 11” is the part of the “in-vehicle device 10” that “executes various processing,” including “[d]etection of the driver.” *Ikeda*, [0060]-[0061], [0079]-[0080].

185. *Ikeda* discloses *at least one image sensor*. For example, *Ikeda* discloses “detecting a facial feature point from the taken image of the camera 42.” *Ikeda*, [0062]. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 12.

12[b]: identifying facial features associated with the person detected via the at least one image sensor; and

186. *Ikeda* further discloses *identifying facial features associated with the person detected via the at least one image sensor*. For example, *Ikeda* discloses the “personal identification device 41” “detecting a facial feature point from the taken image of the camera 42.” *Ikeda*, [0062]; *see supra* § IX.A.5 (element 5[b]).

187. *Ikeda* further discloses that the “control unit 11 is . . . capable of

communicating with a personal identification device” and that “the control unit 11” performs “the vehicle environment setup processing,” including using the “personal information device 41” “to perform the driver determination processing in order to identify or select a facial feature information item of the driver.” *Ikeda*, [0061], [0079], [0087]-[0088]. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 12.

12[c]: determining whether the identified facial features associated with the person match user characteristics stored in a memory.

188. *Ikeda* further discloses *determining whether the identified facial features associated with the person match user characteristics stored in a memory*. For example, *Ikeda* discloses “template matching of the facial feature information items received from the in-vehicle device 10 with the image taken with the camera 42.” *Ikeda*, [0097]; *see supra* § IX.A.5 (element 5[c]).

189. *Ikeda* discloses the “control unit 11,” which performs the “vehicle environment setup processing,” sending a “feature information-sending request . . . to request the portable device 20 to send facial feature information” (*user characteristics stored in a memory*). *Ikeda*, [0079], [0085].

190. *Ikeda* further discloses the “control unit 11” directing “the personal identification device 41” “to perform the driver determination processing.” *Ikeda*, [0079], [0085]. *Ikeda* specifically discloses that “the personal identification device

41 identifies the driver's facial feature information item out of the facial feature information items received from the in-vehicle device 10, by template matching of the facial feature information items received from the in-vehicle device 10 [*(user characteristics stored in a memory)*] with the image taken with the camera 42 [*(identified facial features)*].” *Ikeda*, [0097]. The “in vehicle device . . . includes a computer readable medium and program instructions” that “caus[e] the computer to serve as driver identifying means.” *Ikeda*, [0015]. A POSITA would have understood that the additional steps of claim 12 would have been part of setting up the driver identifying means. A POSITA would further have thus further understood that the “in vehicle device 10’s” “program instructions” would have included instructions to perform the additional steps of claim 12. Accordingly, in my opinion, *Ikeda* discloses any additional limitations in this element of claim 12.

13. Claim 13

13[a]: The non-transitory computer readable medium of claim 8, wherein the method further comprises: determining that the user made a change to the adjusted at least one vehicle control; and

191. *Ikeda* further discloses or renders obvious *wherein the method further comprises: determining that the user made a change to the adjusted at least one vehicle control. Supra* § IX.A.6 (element 6[a]).

192. Regarding this additional aspect of the method being performed by the processor when the instructions stored on the computer readable medium are

executed, as explained above, *Ikeda* discloses that its “in-vehicle device . . . includes a computer readable medium and program instructions.” *Ikeda*, [0015]. *Ikeda* further discloses that these “program instructions . . . caus[e] the computer to serve as driver identifying means and driving-environment setup means.” *Ikeda*, [0015], [0061]; *see supra* § IX.A.8 (element 8[a]). *Ikeda*’s “in-vehicle device 10 possesses or includes a control unit 11” and the “control unit 11 includes as a main element a microcomputer having a CPU, a ROM, a RAM, and executes various processing.” *Ikeda*, [0060]-[0061].

193. *Ikeda* discloses that “control unit 11 of the in-vehicle device 10,” acting via its CPU, performs the “vehicle environment setup processing” that includes “determin[ing] whether the driving environment is adjusted by the external operation of the driver who rides the vehicle,” or this would have at least been obvious for the same reasons discussed for element 6[a]. *Ikeda*, [0254], Fig. 25B; *supra* § VII.A.6 (element 6[a]).

194. Accordingly, in my opinion, *Ikeda* discloses or renders obvious any additional limitations of this element of claim 13.

13[b]: storing the change made to the adjusted at least one vehicle control in the user profile memory.

195. *Ikeda* further discloses *storing the change made to the adjusted at least one vehicle control in the user profile memory*. *Supra* § IX.A.6 (element 6[b]).

196. Regarding this additional aspect of the method being performed by the processor when the instructions stored on the computer readable medium are executed, as explained above, *Ikeda* discloses that “the in-vehicle device 10,” containing the “control unit 11,” which acts via its CPU, “transmits the environment setup information item indicative of the current driving environment of the vehicle 100 [*(change made to the adjusted at least one vehicle control)*] to the portable device 10,” where “the portable device 20 stores the received environment setup information item in the storage unit 22” (*user profile memory*). Thus, based on the in-vehicle device 10’s transmission of “the environment setup information item . . . to the portable device 20,” “the portable device 20 stores the received environment setup information item in the storage unit 22.” *Ikeda*, [0073]. *Ikeda* thus discloses storing the change made to the adjusted at least one vehicle control in the user profile memory.

197. Accordingly, in my opinion, *Ikeda* discloses any additional limitations of this element of claim 13.

14. Claim 14

14[a]: A vehicle control system, comprising: a profile identification module contained in a memory and executed by a processor of the vehicle control system,

198. *Ikeda* discloses *a vehicle control system, comprising: a profile identification module contained in a memory and executed by a processor of the*

vehicle control system. See supra § IX.A.8 (element 8[a]). For example, *Ikeda* discloses “the vehicle environment setup processing performed by the control unit 11 of the in-vehicle device 10.” *Ikeda*, [0079], Fig. 2.

199. *Ikeda* discloses that its “in vehicle device . . . includes a computer readable medium and program instructions” (*profile identification module contained in a memory*). *Ikeda*, [0015]; *Ikeda* further discloses that these “program instructions . . . caus[e] the computer to serve as driver identifying means and driving-environment setup means.” *Ikeda*, [0015].

200. Additionally, *Ikeda* discloses that its “in-vehicle device 10 possesses or includes a control unit 11” and that the “control unit 11 includes as a main element a microcomputer having a CPU, a ROM, a RAM, and executes various processing” (*executed by a processor of the vehicle control system*). *Ikeda*, [0060]-[0061].

201. Given these disclosures, a POSITA would have understood that the driver identifying and environment setup processing in *Ikeda*, including all the claimed processing discussed below, is carried out by a profile identification module contained in a memory and executed by a processor of the vehicle control system. A POSITA would have recognized the claimed processing below is all part of “the vehicle environment setup processing” that *Ikeda* discloses is “performed by the control unit 11 of the in-vehicle device 10.” *Ikeda*, [0079]. A POSITA

would have understood *Ikeda*'s "computer readable medium and program instructions" that are included in the "in vehicle device" to include a *profile identification module* because *Ikeda* discloses that it performs the processing necessary to identify a user's profile, as described below. A POSITA would thus have understood that the *profile identification module* to be contained in the in-vehicle device's "program instructions."

202. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 14.

14[b]: the profile identification module configured to determine a location inside a vehicle associated with a user,

203. *Ikeda* further discloses *the profile identification module configured to determine a location inside a vehicle associated with a user. See supra § IX.A.8 (element 8[b]).*

204. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 14.

14[c]: determine at least one vehicle control associated with the location inside the vehicle,

205. *Ikeda* further discloses *determine at least one vehicle control associated with the location inside the vehicle. See supra § IX.A.8 (element 8[c]).*

206. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 14.

14[d]: refer to a user profile memory associated with the user for vehicle control settings, and

207. *Ikeda* further discloses *refer to a user profile memory associated with the user for vehicle control settings. See supra §§ IX.A.1 and IX.A.8 (elements 1[d] and 8[d]).*

208. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim 14.

14[e]: determine, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle, provide an adjustment output to the vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle, wherein the at least one vehicle control is adjusted via the adjustment output to match the vehicle control settings in the user profile memory.

209. *Ikeda* further discloses *determine, based at least, partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle, provide an adjustment output to the vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle, wherein the at least one vehicle control is adjusted via the adjustment output to match the vehicle control settings in the user profile memory. See supra §§ IX.A.1, IX.A.7, IX.A.8 (elements 1[e], 1[f], 7[e], 8[e] and 8[f]).*

210. Accordingly, in my opinion, *Ikeda* discloses this limitation of claim

14.

15. Claim 15: The vehicle control system of claim 14, wherein prior to providing the adjustment output, the profile identification module is further configured to determine a presence of the user inside the vehicle, wherein the adjustment output is provided based at least partially on determining the user is present in the location of the vehicle.

211. *Ikeda* discloses these limitations. *See supra* §§ IX.A.1 and IX.A.9

(element 1[f] and claim 9).

212. Accordingly, in my opinion, *Ikeda* discloses any additional limitations of claim 15.

16. Claim 16: The vehicle control system of claim 14, wherein prior to determining the location inside the vehicle associated with the user the profile identification module is further configured to store, in the user profile memory, information corresponding to locations inside the vehicle occupied by the user, collect vehicle control setting data associated with the user, wherein the vehicle control setting data includes at least one vehicle control setting made by the user in at least one of the locations inside the vehicle, and store the vehicle control setting data in the user profile memory.

213. *Ikeda* renders obvious these limitations. *See supra* §§ IX.A.2 and IX.A.10 (claims 2 and 10).

214. Accordingly, in my opinion, *Ikeda* renders obvious any additional limitations of claim 16.

17. Claim 17: The vehicle control system of claim 14, wherein the at least one vehicle control includes one or more vehicle

features such as a seat system, a steering control, a foot pedal control, a mirror position, and a display device, and wherein the vehicle control settings include at least one of a position, a sensitivity, an angle, and a movement, associated with the one or more vehicle features.

215. *Ikeda* discloses these limitations. *See supra* §§ IX.A.3 and IX.A.4 (claims 3 and 4).
216. Accordingly, in my opinion, *Ikeda* discloses any additional limitations of claim 17.

18. Claim 18: The vehicle control system of claim 15, wherein, in determining the presence of the user inside the vehicle, the user the profile identification module is further configured to detect a person via at least one image sensor associated with the vehicle, identify facial features associated with the person detected via the at least one image sensor, and determine whether the identified facial features associated with the person match user characteristics stored in a memory.

217. *Ikeda* discloses these limitations. *See supra* §§ IX.A.5 and IX.A.12 (elements 5[a]-[c] and 12[a]-[c]).
218. Accordingly, in my opinion, *Ikeda* discloses any additional limitations of claim 18.

19. Claim 19: The vehicle control system of claim 14, wherein the profile identification module is further configured to determine that the user made a change to the adjusted at least one vehicle control, and store the change made to the adjusted at least one vehicle control in the user profile memory.

219. *Ikeda* discloses or renders obvious these limitations. *See supra* §§ IX.A.6 (elements 6[a] and 6[b]), IX.A.13 (elements 13[a] and 13[b]), and IX.A.14

(element 14[a]).

220. Accordingly, in my opinion, *Ikeda* discloses or renders obvious any additional limitations of claim 19.

20. Claim 20: The vehicle control system of claim 14, wherein the profile identification module is further configured to determine a presence of the user inside the vehicle based at least partially on detecting a device associated with the user in an area of the vehicle, and wherein the adjustment output is provided based at least partially on determining the user is present in the location inside the vehicle.

221. *Ikeda* discloses these limitations. *See supra* §§ IX.A.1, IX.A.9, and IX. A.14 (elements 1[c] and 1[f] and claims 9 and 15).

222. Accordingly, in my opinion, *Ikeda* discloses any additional limitations of claim 20.

B. Ground 2: *Ikeda* in view of *Hendry* renders obvious claims 6, 13, and 19 under Section 103.

1. Claim 6

**6[a]: The method of claim 1, further comprising:
determining that the user made a change to the
adjusted at least one vehicle control; and**

223. *Ikeda* discloses or renders obvious these limitations, as described above in Ground 1. To the extent it is argued that *Ikeda* does not disclose or render obvious these limitations, they would have been obvious in further view of *Hendry*.

224. *Hendry* discloses *determining that the user made a change to the*

adjusted at least one vehicle control. For example, *Hendry* discloses that “a user may opt to change or add his or her personal settings after some time” and that if “the user does so, the user may be prompted by the user interface 122 to indicate if the adjusted settings of the one or more vehicle components are to be saved.”

Hendry, [0031]. *Hendry* discloses that “if a user changes the settings of the seat 50, the user interface 122 displays a screen to the user asking whether the user would like the vehicle 10 to remember the seat settings.” *Hendry*, [0026]. Thus, *Hendry* discloses *determining that the user made a change to the adjusted at least one vehicle control.* This process is illustrated in *Hendry*’s Figure 4B, where the user “opt[ing] to change the settings of one or more of the vehicle components” is shown in step 356 and the “adjusted settings [being] saved in a datastore associated with the vehicle component” is shown in step 358. *Hendry*, [0031].

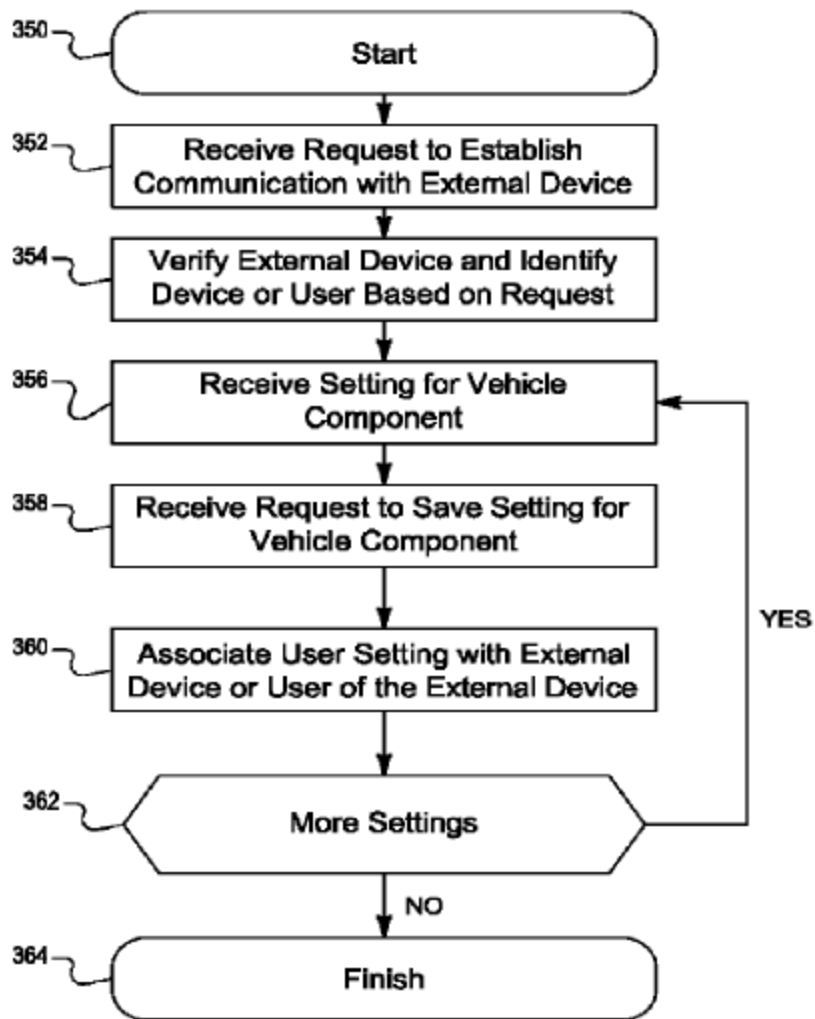


Fig - 4B

225. It would have been obvious to a POSITA to modify *Ikeda* to include *Hendry*'s teaching of determining that a user has made a change to an adjusted vehicle control.

226. A POSITA would have recognized that *Ikeda* and *Hendry* are complementary technologies that are combinable. Both references relate to vehicle control systems. *Ikeda*, [0003] ("The present invention relate[s] to a driving-

environment setup system which sets up a driving environment of a vehicle.”); *Hendry*, [0001] (“The present disclosure relates generally to a method and system for establishing user settings of vehicle components of a vehicle.”). Further, both references address the same problem: determining whether a recognized user has setting preferences and customizing a vehicle to match the recognized user’s preferences. *Ikeda*, [0009] (“[I]t is an object of the present invention to provide a driving-environment setup system which can set the driving environment of a vehicle as a driving environment for a driver[.]”); *Hendry*, [0027] (“Once a vehicle component has received the personal settings, the vehicle component module will adjust the settings of the vehicle component in accordance with the personal settings associated with the device[.]”).

227. It would have been obvious to a POSITA at the time of the alleged invention to modify *Ikeda* to incorporate *Hendry*’s teaching of determining that a user has made a change to an adjusted vehicle control. For example, a POSITA would have recognized that a user might not want to keep the same setting saved for the entire time that the driver owns the vehicle. At certain times, due to health, age, or simply changed preferences, a user may, for example, want the seat positioned at a slightly different angle. In such cases, a POSITA would have been motivated to ensure that the system could detect that the user made changes to the adjusted vehicle control so that they could be stored for future use. In such cases, a

POSITA would have been motivated to ensure that its system could detect that the user made changes to the adjusted vehicle control. *Hendry* discloses that just such a motivation was known in the art. For example, *Hendry* notes that it “can be appreciated” that “a user may opt to change or add his or her personal settings after some time.” *Hendry*, [0031]; *see also Hendry*, [0026] (“[I]f a user changes the settings of the seat 50, the user interface 122 displays a screen to the user asking whether the user would like the vehicle 10 to remember the seat settings.”).

Additionally, a POSITA would have recognized that *Hendry* makes this disclosure in the context of a vehicle control system that implements a user’s preferential settings. For example, *Hendry* describes a system and method “for reinstating settings of a least one vehicle component of a vehicle.” *Hendry*, [0004]-[0005].

Hendry discloses that “one or more users can personalize settings of the various vehicle components and a user settings system can reinstate the personalized settings.” *Hendry*, [0013]; *see Hendry*, Fig. 2. Specifically, *Hendry* discloses that “a user can adjust the settings of the audio/visual system 30 of the vehicle, the HVAC system 40 of the vehicle, one or more seats 50 of the vehicle, the lighting system [] of the vehicle, and the mirrors 60 of the vehicle 10.” *Hendry*, [0012].

Hendry further discloses that the “user settings system reinstates a user’s personal settings when an external device 20 associated with the user is detected in the vicinity of the vehicle.” *Hendry*, [0012]. Thus, a POSITA would have recognized

that *Hendry*'s disclosure appears within the same context as that of *Ikeda*'s disclosure. A POSITA would further have known that determining changes have been made to a user's preferred vehicle settings was well known in the art. *See, e.g., Cazanas*, claim 16 ("receiving, from the vehicle unit, a revised vehicle user profile based on adjustments made by the user while in the vehicle; and storing the revised vehicle user profile in association with the user's account").

228. Combining *Hendry*'s teaching with *Ikeda* would have been routine and conventional to a POSITA. A POSITA would have considered modifying *Ikeda* with the teaching of *Hendry* to be an example of (A) combining prior-art elements according to known methods to yield predictable results (e.g., *Ikeda*'s vehicle setting system with *Hendry*'s teaching of determining that a user made a change to an adjusted vehicle control); (B) use of a known technique (e.g., *Hendry*'s teaching of determining that a user makes a change to an adjusted vehicle control) to improve similar devices in the same way (e.g., *Ikeda*'s vehicle setting system); (C) applying a known technique (e.g., *Hendry*'s teaching of determining that a user makes a change to an adjusted vehicle control) to a known device (e.g., *Ikeda*'s vehicle setting system) ready for improvement to yield predictable results.

229. A POSITA would have had a reasonable expectation of success in combining *Hendry*'s teaching of determining that a user has made a change to an adjusted vehicle control with *Ikeda*'s vehicle setting system. As explained above,

Ikeda itself discloses the functionality and information necessary to determine that a user has made a change to an adjusted vehicle control. *Supra* § IX.A.6 (element 6[a]).

230. Further *Hendry* notes that, in the context of a vehicle setting system, “a user may opt to change or add his or her personal settings after some time.” *Hendry*, [0031]. Thus, a POSITA would have been able to incorporate *Hendry*’s teaching with *Ikeda*’s system without undue experimentation.

231. Accordingly, in my opinion, *Ikeda* in further view of *Hendry* discloses or renders obvious any additional limitations of this element of claim 6.

6[b]: storing the change made to the adjusted at least one vehicle control in the user profile memory.

232. *Ikeda* discloses these limitations, as fully described above in Ground 1. To the extent that the Board finds that *Ikeda* does not disclose these limitations, they would have been obvious in further view of *Hendry*.

233. *Hendry* discloses *storing the change made to the adjusted at least one vehicle control in the user profile memory*. For example, *Hendry* discloses that when the user changes an adjusted vehicle control, “the user may be prompted by the user interface 1221 to indicate if the adjusted settings of the one or more vehicle components are to be saved” and, if “the user responds affirmatively, the adjusted settings are saved in a datastore associated with the vehicle component.” *Hendry*, [0031].

234. It would have been obvious to a POSITA to modify *Ikeda* to include *Hendry*'s teaching of storing the change made to the adjusted vehicle control in a user profile memory for all the same reasons it would have been obvious for element 6[a].

235. Further, combining *Hendry*'s teaching with *Ikeda* would have been routine and conventional to a POSITA. A POSITA would have considered modifying *Ikeda* with the teaching of *Hendry* to be an example of (A) combining prior-art elements according to known methods to yield predictable results (e.g., *Ikeda*'s vehicle setting system with *Hendry*'s teaching of storing a change to an adjusted vehicle control); (B) use of a known technique (e.g., *Hendry*'s teaching of storing a change to an adjusted vehicle control) to improve similar devices in the same way (e.g., *Ikeda*'s vehicle setting system); (C) applying a known technique (e.g., *Hendry*'s teaching of storing a change to an adjusted vehicle control) to a known device (e.g., *Ikeda*'s vehicle setting system) ready for improvement to yield predictable results.

236. A POSITA would have had a reasonable expectation of success in combining *Hendry*'s teaching of storing a change to an adjusted vehicle control with *Ikeda*'s vehicle setting system. As explained above, *Ikeda* itself discloses the functionality and information necessary to store a change to an adjusted vehicle control. Thus, a POSITA would have been able to incorporate *Hendry*'s teaching

with *Ikeda*'s system without undue experimentation.

237. Accordingly, in my opinion, *Ikeda* discloses or in view of *Hendry* renders obvious any additional limitations of this element of claim 6.

2. Claim 13

13[a]: The non-transitory computer readable medium of claim 8, wherein the method further comprises: determining that the user made a change to the adjusted at least one vehicle control; and

238. *Ikeda* further discloses or renders obvious, alone or in further view of *Hendry*, wherein the method further comprises: determining that the user made a change to the adjusted at least one vehicle control. *Supra* §§ IX.A.6 (element 6[a]) and IX.A.13 (element 13[a]).

239. *Hendry* notes that the “apparatuses and methods described herein may be implemented by one or more applications executed by one or more processors.” *Hendry*, [0038]. Specifically, *Hendry* notes that its “applications include processor-executable instructions that are stored on a non-transitory tangible computer readable medium.” *Hendry*, [0038]; *see Hendry*, [0037]. Thus, to the extent it is necessary to look to *Hendry* for determining that the user made a change to the adjusted at least one vehicle control, *Hendry* discloses this limitation as executed by a processor.

240. Thus, since both *Ikeda* and *Hendry* disclose using a processor for operations involving determining that a user made a change to a vehicle control

setting, a POSITA would have had a reasonable expectation of success in making this combination. Any combination necessary to achieve the claimed invention would have simply involved the modification of the relevant program instructions. And *Hendry* recognizes that its “apparatus and methods . . . may be implemented by one or more applications executed by one or more processors.” *Hendry*, [0038]. And *Hendry* recognizes that its disclosures are implemented using “processor-executable instructions that are stored on a non-transitory tangible computer readable medium.” Adjusting programming and utilizing well-known processor technology for executing programmable instructions was well within the ability of a POSITA at the time of the alleged invention.

241. Accordingly, in my opinion, *Ikeda* in view of *Hendry* renders obvious any additional limitations of this element of claim 13.

13[b]: storing the change made to the adjusted at least one vehicle control in the user profile memory.

242. *Ikeda* further discloses or renders obvious, alone or in further view of *Hendry*, *storing the change made to the adjusted at least one vehicle control in the user profile memory*. *Supra* §§ IX.A.6 (element 6[b]) and IX.A.13 (element 13[b]).

243. *Hendry* notes that its teachings are implemented using “one or more processors” that execute “instructions that are stored on a non-transitory tangible computer readable medium.” *Hendry*, [0038]; *see Hendry*, [0037]. Thus, to the extent it is necessary to look to *Hendry* for *storing the change made to the adjusted*

at least one vehicle control in the user profile memory, Hendry discloses this limitation as executed by a processor.

244. Thus, since both *Ikeda* and *Hendry* disclose using a processor for operations involving storing a change made to an adjusted vehicle control in a user profile memory, a POSITA would have had a reasonable expectation of success in making this combination.

245. Accordingly, in my opinion, *Ikeda* discloses or in view of *Hendry* renders obvious any additional limitations of this element of claim 13.

3. Claim 19: The vehicle control system of claim 14, wherein the profile identification module is further configured to determine that the user made a change to the adjusted at least one vehicle control, and store the change made to the adjusted at least one vehicle control in the user profile memory.

246. *Ikeda* discloses or renders obvious these limitations. *See supra* §§ IX.B.1 (elements 6[a] and 6[b]), IX.B.2 (elements 13[a] and 13[b]), and IX.A.14 (element 14[a]).

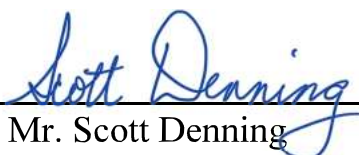
247. Accordingly, in my opinion, *Ikeda* discloses or in view of *Hendry* renders obvious any additional limitations of claim 19.

X. Conclusion

248. For the reasons set forth above, I believe claims 1-20 of the '296 patent are unpatentable in view of the prior art. In signing this declaration, I understand that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in this case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

249. I declare that all statements made herein of my knowledge are true, that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: April 29, 2025

By: 
Mr. Scott Denning