

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. IPR2025-00890
U.S. Patent No. 8,793,034

PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,793,034

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LIST OF EXHIBITS

Exhibit	Description
Ex. 1001	U.S. Patent No. 8,793,034 to <i>Ricci</i> .
Ex. 1002	Prosecution File History for U.S. Patent No. 8,793,034.
Ex. 1003	Curriculum Vitae of Mr. Scott Denning
Ex. 1004	Declaration of Mr. Scott Denning
Ex. 1005	Japanese Patent Pub. No. JP2008-017227 to <i>Yasui</i>
Ex. 1006	Reserved
Ex. 1007	European Patent App. No. EP 1 211 141 A2 to <i>Morehouse</i>
Ex. 1008	U.S. Patent Pub. No. 2008/0215209 to <i>Ikeda et al.</i>
Ex. 1009	Reserved
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Ex. 1016	Reserved
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Ex. 1018	Reserved
Ex. 1019	Reserved
Ex. 1020	U.S. Patent Pub. No. 2007/0208861 to <i>Zellner et al.</i>

Exhibit	Description
Ex. 1021	U.S. Patent Pub. No. 2011/0093159 to <i>Boling</i> et al.

I. Preliminary Statement

Petitioner requests IPR of claims 1 and 7-17 of U.S. Patent No. 8,793,034.

The '034 patent claims systems and methods related to detecting a user within a vehicle's zone, identifying the user, and configuring a vehicle's environment to match the user's settings. It describes a vehicle "separated into one or more zones" identified as the driver's seat, passenger seat, and rear seats. '034 patent, 11:12-34. It explains its system "can determine if a person is in a zone . . . by receiving data from one or more sensors." '034 patent, 24:49-52. The '034 patent's system "can identify the person" by "obtain[ing] characteristics for the user currently occupying the zone" and "compar[ing] those characteristics to" saved data. '034 patent, 24:55-60. After detecting and identifying the person, the system can "determine if there are settings associated with the identified person for that zone." '034 patent, 24:63-25:2. Finally, the system uses a user's settings "to change the configuration of the vehicle" in the identified zone, such as "how the position of the seats or mirrors are set" for a driver identified in the driver's seat zone. '034 patent, 25:5-12.

But such systems and methods were well-known before the earliest possible priority date for the '034 patent, November 16, 2011. For example, *Yasui* was published over three years earlier, on January 24, 2008. *Yasui* disclosed detecting a user in a vehicle zone, identifying the user, determining settings for the user, and

configuring the zone to match the user's settings. Accordingly, the Board should institute IPR and cancel the challenged claims.

II. Precise Relief Requested

Petitioner requests review and cancellation of the challenged claims based on the following prior art and grounds.

Prior Art References
<i>Yasui</i> (Ex. 1006), Japanese Patent Pub. No. JP2008-017227, filed July 6, 2006, published January 24, 2008 (pre-AIA §§ 102(a), (b)).
<i>Morehouse</i> (Ex. 1007), European Patent App. No. EP 1 211 141 A2, filed October 31, 2001, and published June 5, 2002 (§§ 102(a), (b)).
<i>Ikeda</i> (Ex. 1008), U.S. Patent Pub. No. 2008/0215209, filed February 28, 2008, and published September 4, 2008 (§§ 102(a), (b), (e)).
<i>Zellner</i> (Ex. 1020), U.S. Patent Pub. No. 2007/0208861, filed March 2, 2006, and published September 6, 2007 (§§ 102(a), (b), (e)).

Grounds of Unpatentability	
1a/b	<i>Yasui</i> anticipates claims 1 and 7-17 under Section 102 (Ground 1a) and/or renders obvious claims 7, 12, 13, and 17 under Section 103 (Ground 1b).
2	<i>Yasui</i> in view of <i>Morehouse</i> renders obvious claims 1 and 7-17.
3	<i>Ikeda</i> anticipates claims 1, 7-10, and 12-17.
4	<i>Ikeda</i> in view of <i>Morehouse</i> renders obvious claims 1, 7-10, and 12-13.
5a/b	<i>Ikeda</i> in view of <i>Yasui</i> renders claim 11 obvious under Section 103 (Ground 5a), and <i>Ikeda</i> in view of <i>Morehouse</i> and <i>Yasui</i> renders claim 11 obvious under Section 103 (Ground 5b).
6a/b	<i>Ikeda</i> in view of <i>Zellner</i> renders claims 7 and 17 obvious under section 103 (Ground 6a), and <i>Ikeda</i> in view of <i>Morehouse</i> and <i>Zellner</i> (Ground 6b) renders obvious claims 7 and 17 under section 103.

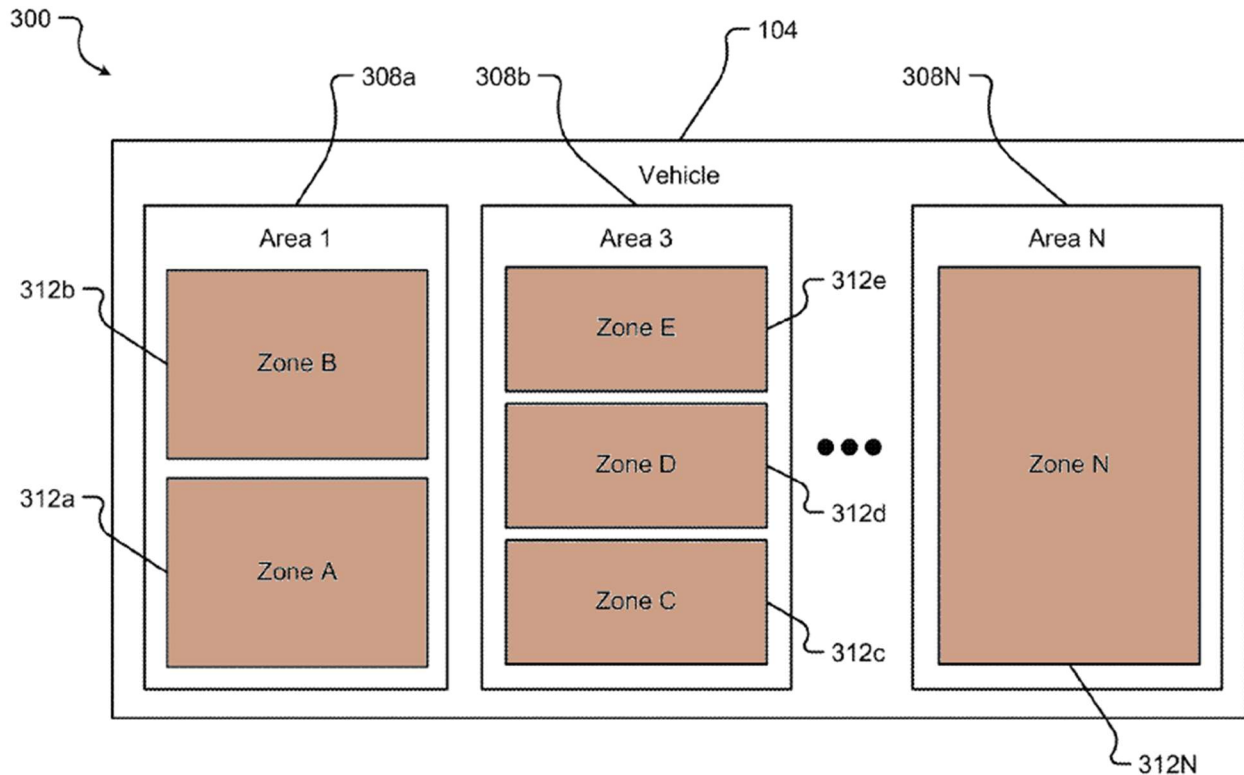
III. The '034 Patent

A. Disclosure

The '034 patent claims systems and methods related to detecting a user within a vehicle's zone, identifying the user, and configuring a vehicle's environment to match the user's settings.

The specification describes a system where a vehicle is conceptually

“separated into one or more zones.” ’034 patent, 11:12-21. Figure 3 illustrates a vehicle separated into one or more zones:



’034 patent, Fig. 3 (annotated). The ’034 patent specification identifies these zones, in some cases, as being associated with the seats in the vehicle. For example, Zone A is “associated with a driver,” Zone B is “associated with a front passenger,” and Zones C, D, and E are “associated with three passenger seats typically found in the rear passenger area of an automobile.” ’034 patent, 11:12-34. Zone N is associated with the vehicle’s trunk. ’034 patent, 11:27-30.

Figure 10 of the ’034 patent, as annotated below, illustrates the process of detecting a user, identifying the user, determining if the user has saved settings,

and configuring the vehicle to match those settings.

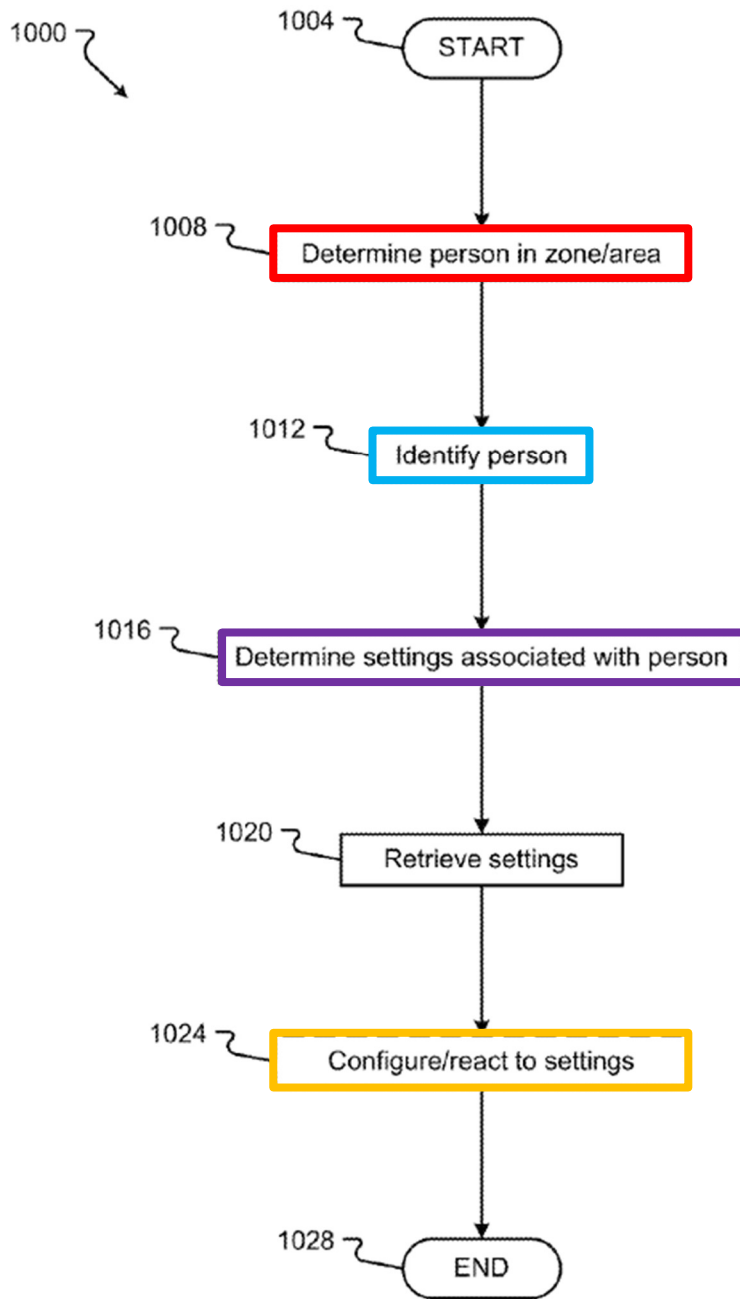


Fig. 10

'034 patent, Fig. 10 (annotated).

In step 1008 the '034 patent's system "can determine if a person is in a zone

. . . by receiving data from one or more sensors.” ’034 patent, 24:49-52. The specification further explains these can include “facial recognition, weight sensors, heat sensors, or other sensors to determine i[f] a person is occupying a certain zone.” ’034 patent, 24:52-54.

The specification further explains its system “**can identify the person**, in step 1012.” ’034 patent, 24:55-56. The system “can obtain characteristics for the user currently occupying the zone . . . and compare those characteristics to the identifying features in portion 812 of data structure 804.” ’034 patent, 24:56-60.

After **detecting** and **identifying** the person **in the zone**, in step 1016 the system will “**determine if there are settings associated with the identified person for that zone.**” ’034 patent, 24:63-25:2. Then, in step 1024 the system uses the settings “**to configure or react to the presence of the user.**” ’034 patent, 25:5-8. The system uses settings “to change the configuration of the vehicle,” such as “how the position of the seats or mirrors are set, how the dash, console, or heads up display is configured, how the heat or cooling is configured, how the radio is configured, or how other different configurations are made.” ’034 patent, 25:5-12.

The specification further discloses the above steps may be performed by “**a processor.**” ’034 patent, 31:39-51. The specification also mentions embodiments in which “sensor data” is “voice data from the person,” ’034 patent, 31:46-51, or in which settings are “stored in cloud storage.” ’034 patent, 24:29-35.

B. File History

During prosecution, the examiner rejected all pending claims for, among other things, obviousness over U.S. Patent Publication 2008/0051957 (*Breed*) in view of one or more of U.S. Patent Publications 2006/0047386 (*Kanevsky*), 2009/0319181 (*Khosravy*), and 2011/0234369 (*Cai*). Ex. 1002, 267-74. The examiner also rejected all pending claims for nonstatutory double patenting over copending Patent Application Nos. 13/679,441 and 13/679,234. Ex. 1002, 274-76.

In response, the applicant filed a terminal disclaimer to overcome the nonstatutory double patenting rejection. Ex. 1002, 353, 371. The applicant also amended the claims and argued the prior art did not contain the limitations “determining, by a processor, if said identified person has corresponding settings,” “configuring said zone of said vehicle based on said corresponding settings,” and “determine if the person has made a setting; and based on the determination, configure said zone of said vehicle to said setting.” Ex. 1002, 361-63, 365-66. The applicant further distinguished prior art requiring “gestures” to initiate a zone’s configuration, noting in the claimed invention “a person simply enters a zone of the vehicle, and the vehicle configures the zone of the vehicle to the person.” Ex. 1002, 368-69.

Subsequently, the examiner issued a Notice of Allowance. Ex. 1002, 382-388. The only noted reason for allowance was the terminal disclaimer. Ex. 1002, 387. The examiner did not have the prior art relied on in this petition.

IV. The Prior Art

A. Yasui

Yasui was filed in Japan on July 6, 2006, and published on January 24, 2008, and is, therefore, prior art to the '034 patent under 35 U.S.C. §§ 102(a) and (b).

Yasui was not considered during the '034 patent's prosecution.

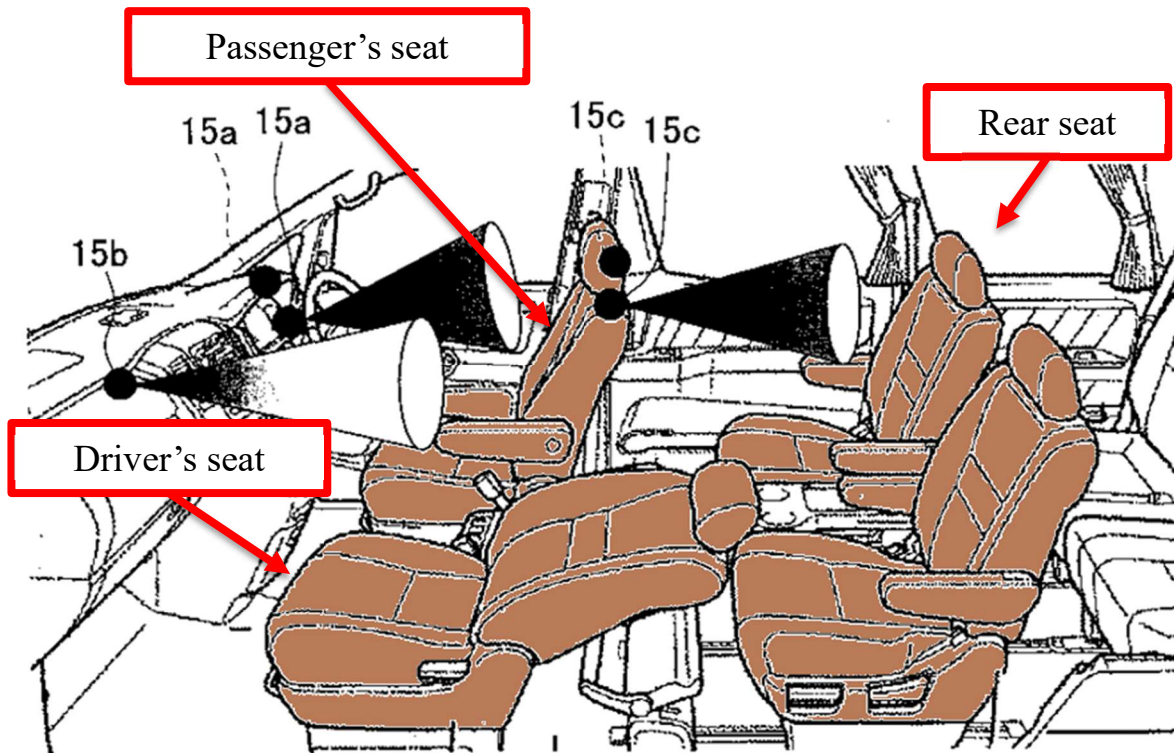
Yasui is from the same field of endeavor as the '034 patent—vehicle control systems. Denning, ¶49; '034 patent, Abstract, 2:66-3:7; *Yasui*, [0001], [0064].

Further, *Yasui* is reasonably pertinent to the problem faced by the '034 patent's inventor—customizing a vehicle to match a recognized user's preferences.

Denning, ¶49; '034 patent, Abstract, 2:50-63; *Yasui*, [0001], [0064].

Yasui discloses a system for detecting and identifying a user in a vehicle's zone and configuring the vehicle's zone to match the user's settings.

Yasui discloses separate zones: “the driver's seat,” “the passenger seat,” and “the rear seat.” *Yasui*, ¶[0022]; Denning, ¶51.

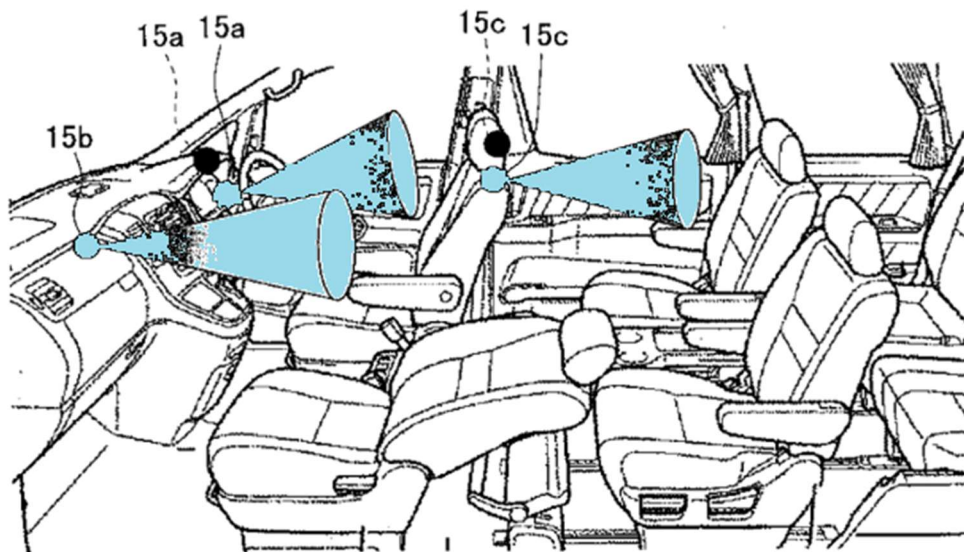


Yasui, Fig. 3A (annotated).

Yasui further discloses “a proximity sensor that detects imaging targets present within the imaging field of imaging devices 15.” *Yasui*, [0020]. The “imaging field of imaging devices 15” corresponds to the “zones.” For example, as illustrated in Figure 3A above and described in *Yasui*, imaging device 15a’s field is the driver’s seat, imaging device 15b’s field is the front passenger seat, and imaging device 15c’s field is the rear seat. *Yasui*, ¶[0021]-[0022].

After detecting an imaging target, *Yasui*’s system “recognizes users by comparing acquired facial feature information with facial feature information registered in face registration unit 17.” *Yasui*, [0025]. Again, Figure 3A illustrates the imaging devices:

[FIG. 3A]



Yasui, Fig. 3A (annotated). *Yasui* describes “a facial recognition device 10 . . . which recognizes users using captured facial images.” *Yasui*, [0017]; see *Yasui*, [0021].

Based on the outcome of its “face detection unit 10,” *Yasui*’s system then “decides what kind of hospitality operation to perform.” *Yasui*, [0064]. *Yasui* discloses settings associated with a particular user are stored as “hospitality operation information” in the “hospitality operation information storage unit.” *Yasui*, Claim 10, [0008], [0052].

After determining the “hospitality operation information” associated with the user identified by the “the face detection unit 10,” *Yasui*’s “[h]ospitality execution control unit 3 . . . causes the corresponding hospitality operation units . .

. to execute hospitality operations.” *Yasui*, [0064]. These “hospitality operation units” adjust parameters such as the “car stereo,” “power seats,” “mirror angles,” and “car navigation device.” *Yasui*, [0059].

B. Morehouse

Morehouse was filed as a European Patent Application on October 31, 2001, and published on June 5, 2002, and is, therefore, prior art under 35 U.S.C. §§ 102(a) and (b). *Morehouse* was not considered during the ’034 patent’s prosecution.

Morehouse is from the same field of endeavor as the ’034 patent—vehicle control systems. Denning, ¶57; ’034 patent, Abstract, 2:66-3:7; *Morehouse*, [0001]. Further, *Morehouse* is reasonably pertinent to the problem faced by the ’034 patent’s inventor—customizing a vehicle to match a recognized user’s preferences. Denning, ¶57; ’034 patent, Abstract, 2:50-63; *Morehouse*, Abstract (57), [0002], [0019].

Morehouse also discloses “*automatically configur[ing]*” a vehicle based on a user’s preferences. *Morehouse*, Abstract (57).

Morehouse discloses a vehicle having zones—such as seats—adjustable to match an identified user’s preferences for several different parameters. *Morehouse*, Abstract (57), [0002], [0019].

While like *Yasui* in many respects, *Morehouse* further contains substantial disclosure on determining whether settings exist for an identified user across an array of parameters and implementing those settings if they exist. *Morehouse*, [0021]. *Morehouse* discloses individually determining whether settings exist for individual parameters and, if so, sending the settings to configure the relevant parameter in the identified user's environment. *Morehouse*, [0021]. Annotated Figures 6 and 7 below illustrates *Morehouse*'s disclosure in relevant part:

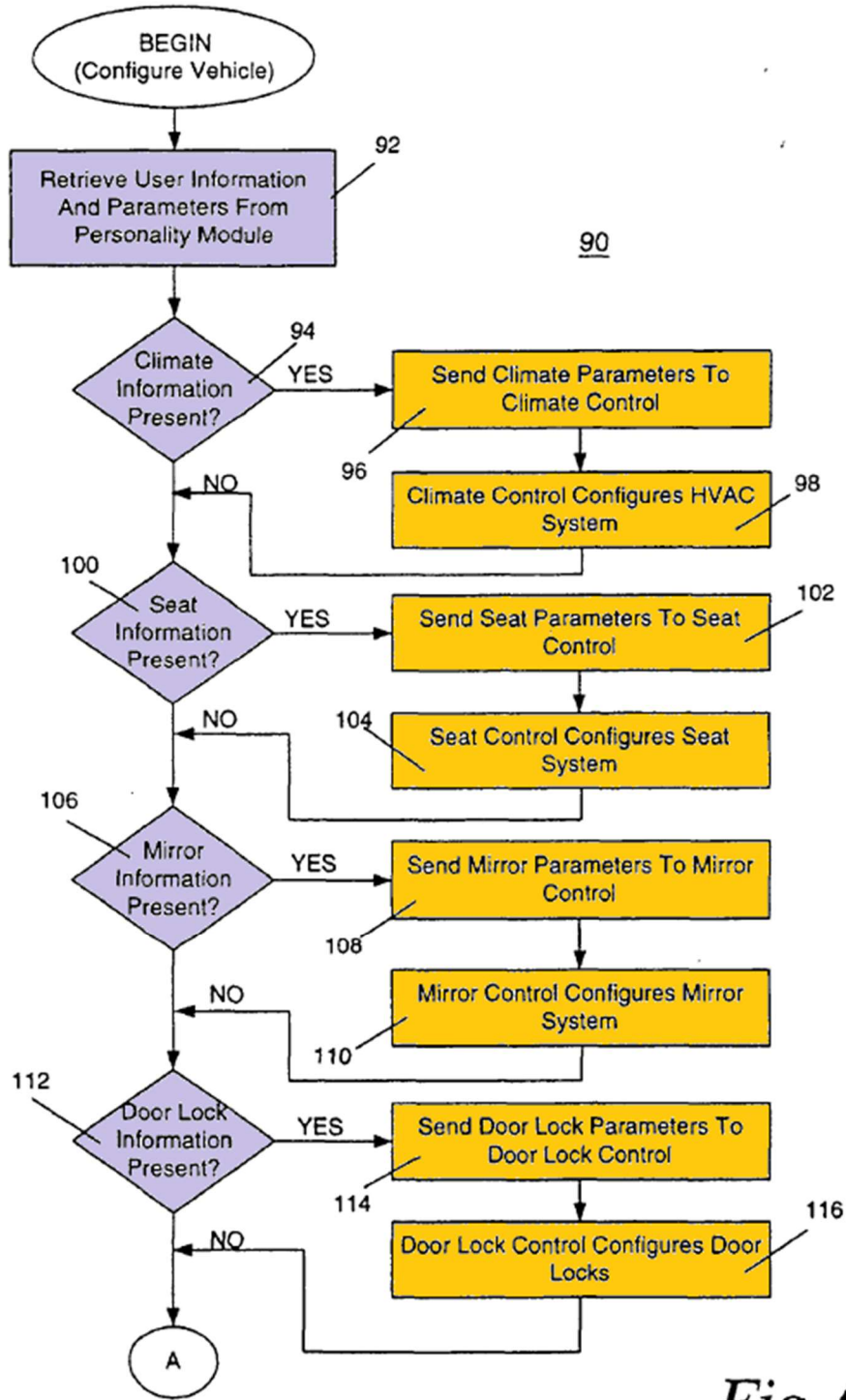


Fig. 4

Morehouse, Fig. 6 (annotated).

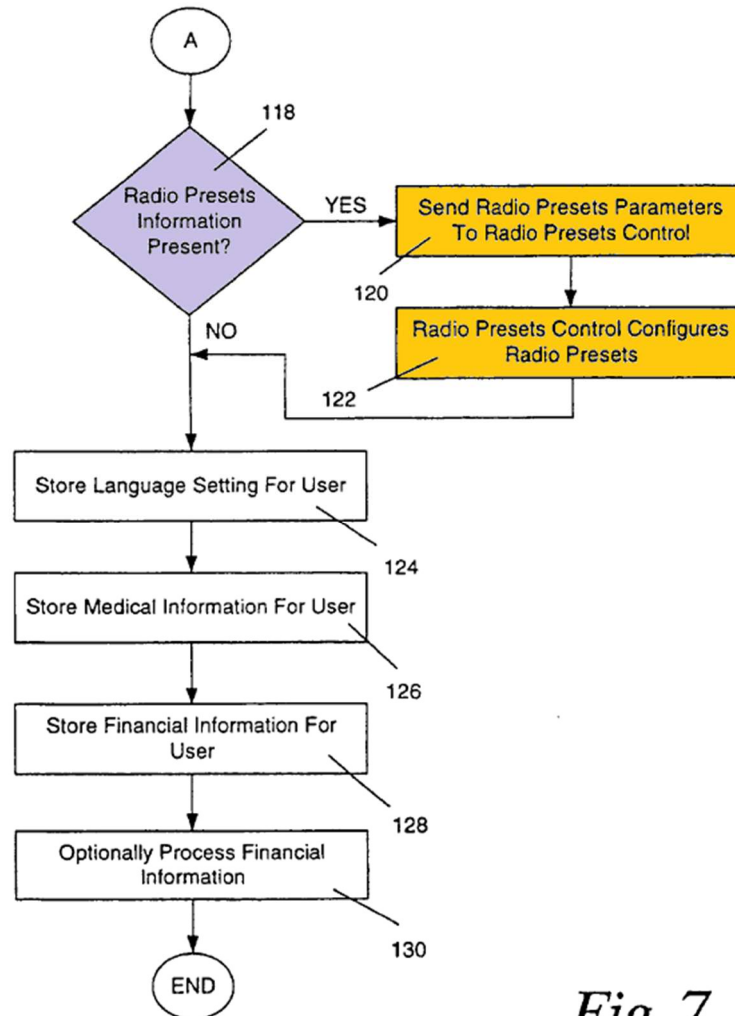


Fig. 7

Morehouse, Fig. 7 (annotated).

C. Ikeda

Ikeda was filed in the United States on February 28, 2008, and published September 4, 2008, and is, therefore, prior art under 35 U.S.C. §§ 102(a), (b), and (e). *Ikeda* was not considered during the '034 patent's prosecution.

Ikeda is from the same field of endeavor as the '034 patent—vehicle control systems. Denning, ¶61; '034 patent, Abstract, 2:66-3:7; *Ikeda*, [0003] (“The

present invention relate[s] to a driving-environment setup system which sets up a driving environment of a vehicle.”). Further, *Ikeda* is reasonably pertinent to the problem faced by the ’034 patent’s inventor—customizing a vehicle to match a recognized user’s preferences. Denning, ¶61; ’034 patent, Abstract, 2:50-63; *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[.]”).

Ikeda discloses “a driving-environment setup system” detecting a user’s presence, identifying the user, determining a user’s saved settings, and configuring an environment based on saved settings. *Ikeda*, [0079], [0091]-[0093], [0409], [0062], [0106].

Ikeda further discloses identifying a user using a user’s “voiceprint” as a feature “unique to the individual.” *Ikeda*, [0429].

D. Zellner

Zellner was filed in the United States on March 2, 2006, and published September 6, 2007, and is, therefore, prior art under §§ 102(a), (b), and (e). *Zellner* was not considered during the ’034 patent’s prosecution.

Zellner is from the same field of endeavor as the ’034 patent—vehicle control systems. Denning, ¶64; ’034 patent, Abstract, 2:66-3:7; *Zellner*, [0048] (“Still other embodiments include a system and/or method configured to receive

user preferences and interpret these preferences to provide a comfortable environment for the user.”), [0046] (“This disclosure includes embodiments of systems and methods that can store user preferences at a remote location for use in any of a plurality of environments. . . . “[T]he environment can communicate with a remote provisioning system or other remote component that is configured to identify the user and download the user's preferences to the environment.”).

Further, *Zellner* is reasonably pertinent to the problem faced by the '034 patent's inventor—customizing a vehicle to match a recognized user's preferences.

Denning, ¶64; '034 patent, Abstract, 2:66-3:7; *Zellner*, [0046] (“systems and methods that can store user preferences at a remote location”).

Zellner discloses “systems and methods that can store user preferences at a remote location.” *Zellner*, [0046]. These “user preferences” (*corresponding settings*) can include “radio stations,” “seat position,” “temperature for an automobile,” etc. *Zellner*, [0049]. *Zellner*'s “environment 102”—such as a car—“can send a preference request to remote network 210 to determine the desired preference data.” *Zellner*, [0059].

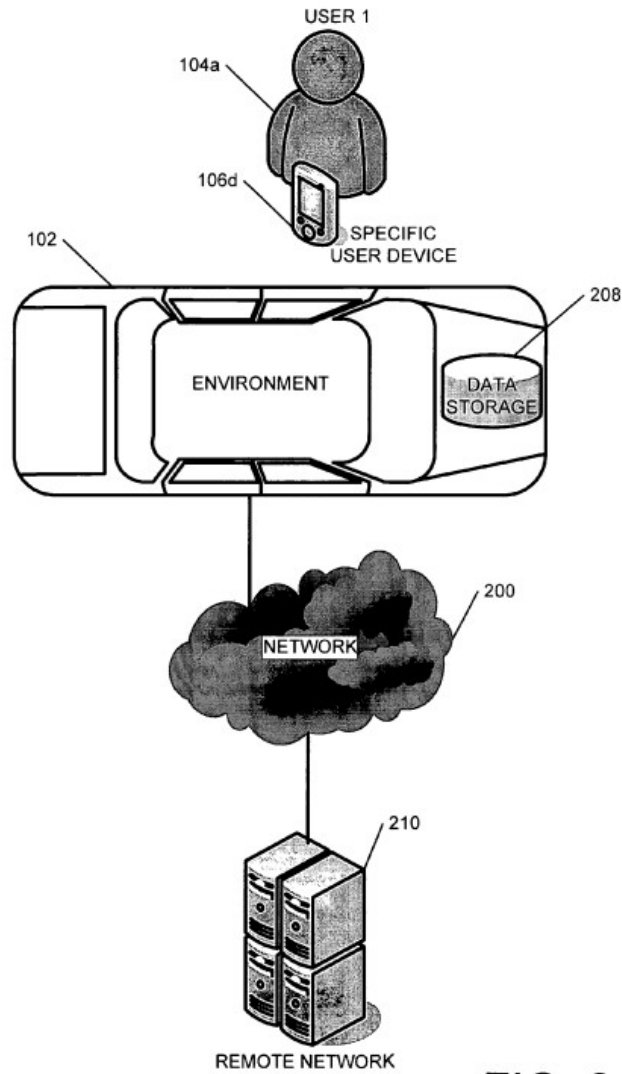


FIG. 2

Zellner, Fig. 2.

V. Level of Ordinary Skill

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. Denning, ¶68. More education can supplement practical experience and vice versa. Denning, ¶68. Petitioner’s expert exceeded this by 2011. Denning, ¶69.

VI. Claim Construction

Claims are construed only to the extent necessary to resolve a controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). Here, no terms need construction to resolve the controversy in this forum.

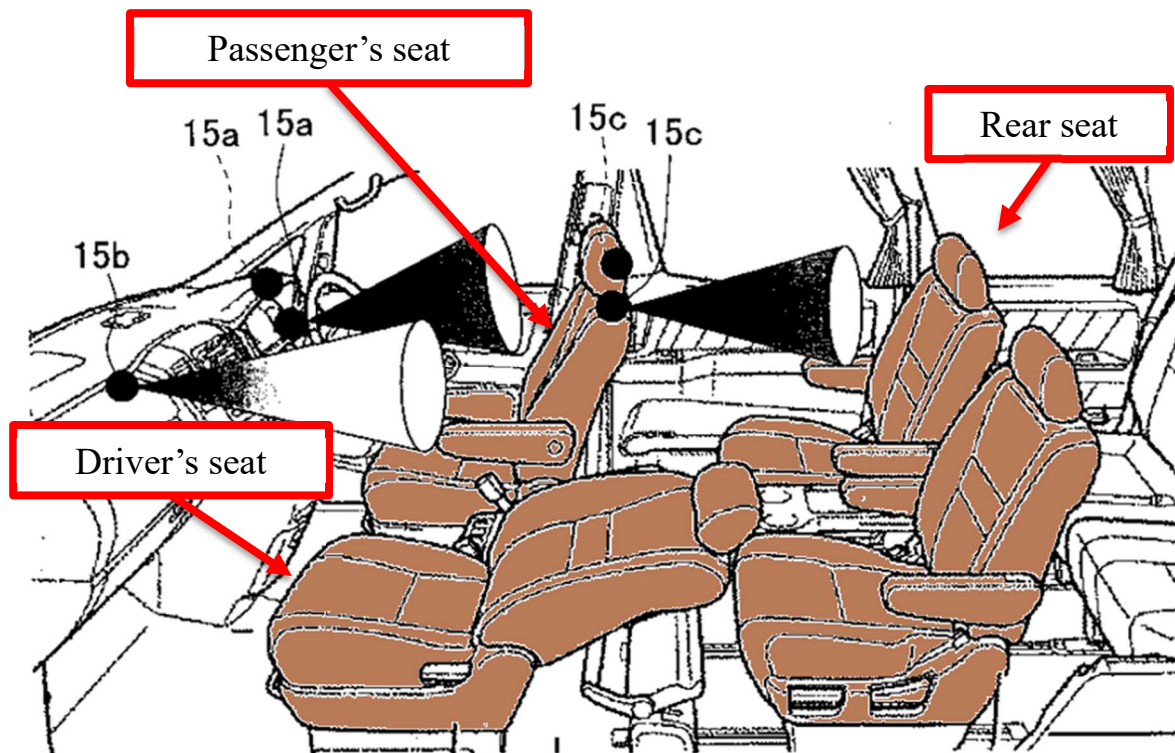
VII. Claims 1 and 7-17 Are Unpatentable Over the Prior Art

A. Ground 1a/b: *Yasui* anticipates claims 1 and 7-17 (Ground 1a) and/or renders obvious claims 7, 12, 13, and 17 (Ground 1b)

1. Independent Claim 1

1[a]: A method, comprising: separating a vehicle into one or more zones;

Yasui discloses *separating a vehicle into one or more zones*. Denning, ¶¶71-74. For example, *Yasui* discloses separate zones of “**the driver’s seat**,” “**the passenger seat**,” and “**the rear seat**.” *Yasui*, [0021]-[0022].



Yasui, Fig. 3A (annotated).

As explained above, the '034 patent describes a *zone* as being the space associated with a seat in the vehicle. '034 Patent, 10:62-11:34. The '034 patent describes five zones—labeled *312a*, *312b*, *312c*, *312d*, and *312e*—“associated with a particular portion of the interior occupied by a passenger.” '034 Patent, 11:12-34. Zones *312a* and *312b*, for example, are associated with “a driver” and “a front passenger,” respectively. '034 Patent, 11:12-21. Zones *312c*, *312d*, and *312e*, are “associated with three passenger seats typically found in the rear passenger area.” '034 Patent, 11:22-34.

Yasui similarly discloses a vehicle separated into *zones* or spaces associated with a particular seat in the vehicle such as “the driver’s seat,” “the passenger seat,” and “the rear seat.” *Yasui*, [0022].

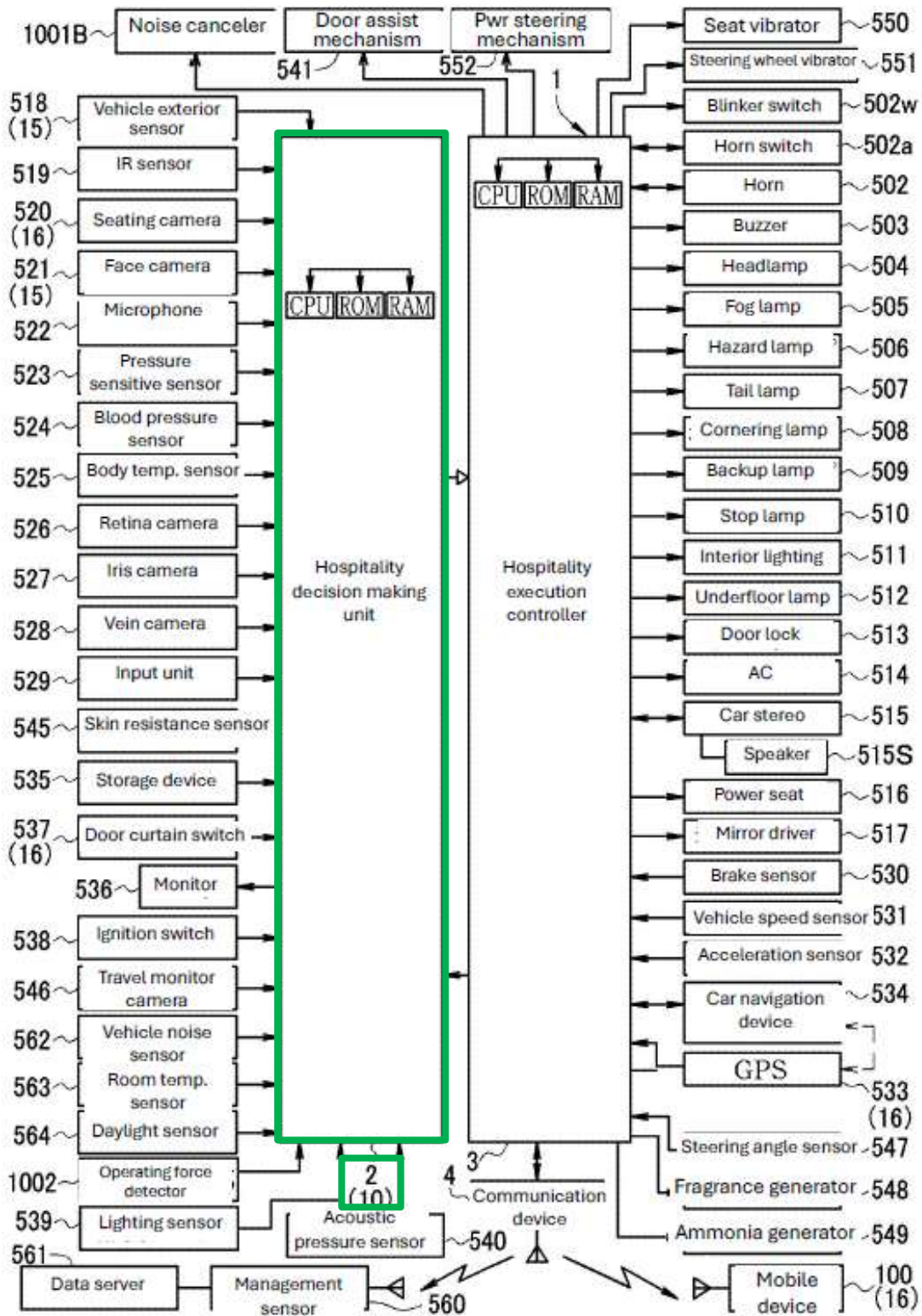
1[b]: automatically determining, by a processor, if a person is within a zone of said vehicle;

Yasui discloses *automatically determining, by a processor, if a person is within a zone of said vehicle*. Denning, ¶¶75-82. For example, *Yasui* discloses a “hospitality decision-making unit 2” that, with a “sensor/camera group,” “detects imaging targets present within the imaging field of imaging devices 15.” *Yasui*, [0020], [0047].

Yasui’s “hospitality decision-making unit 2” includes “a CPU”—a processor. *Yasui*, Fig. 11, [0046]. Using the processor, the “hospitality decision-making unit 2” performs “various functions . . . by executing control software stored in ROM.” *Yasui*, Fig. 11, [0046].

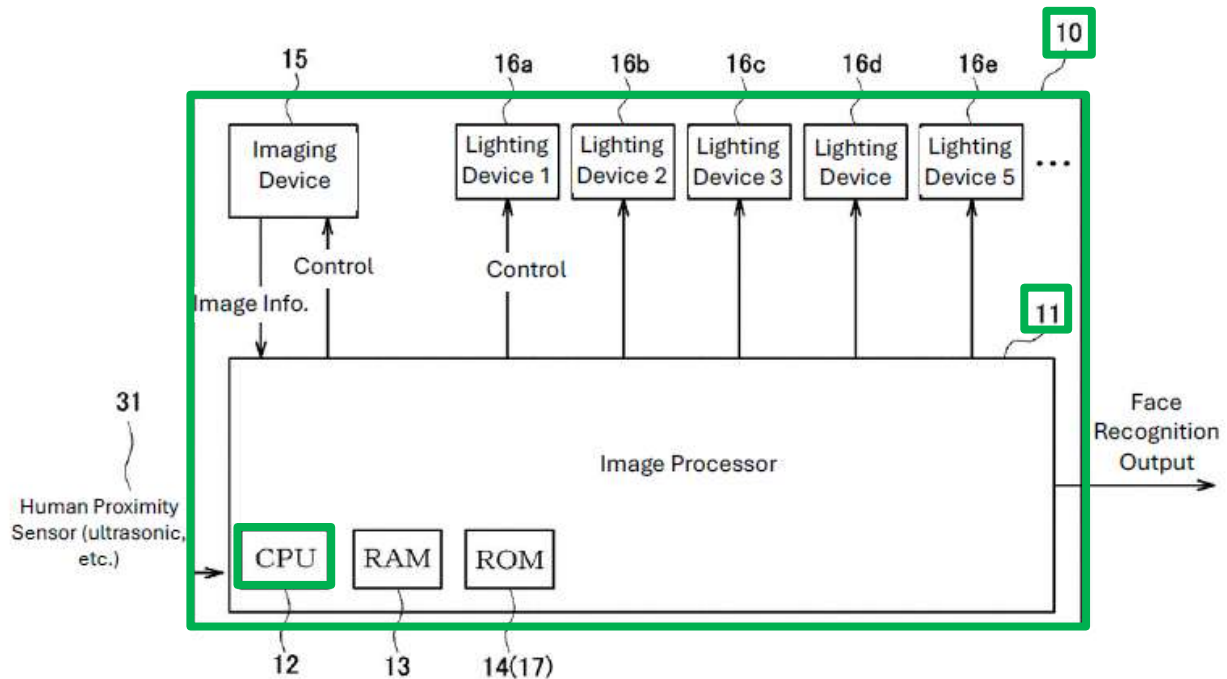
Figure 11 illustrates that the component referred to as the “hospitality decision-making unit 2” is incorporated with the “facial recognition device[/unit]10”:

FIG. 11



Yasui, Fig. 11 (annotated); see Yasui, [0047].

Figure 2 further illustrates that “facial recognition device[/*unit*] 10” (or “hospitality decision-making unit 2”) includes “control unit 11,” which further includes “CPU 12”—*the processor*:



Yasui, Fig. 2 (annotated); *see Yasui*, [0019].

Figure 2, above, also illustrates the “imaging target detection unit 31,” which “is a proximity sensor that detects imaging targets present within the imaging field of imaging devices 15.” *Yasui*, [0020]. A user’s presence is detected when the “control unit 11” executes the “user recognition program” that it has stored “in the ROM 14.” *Yasui*, [0025]. In the first step of this program—step S101—the “control unit 11” (which is incorporated in the “facial recognition device[/*unit*] 10” / “hospitality decision-making unit 2” and acts via CPU 12) causes “the imaging

target detection unit 31 [to] **determine[] whether an imaging target (person) was detected within the imaging device 15 field of view.**” *Yasui*, [0026]; Denning, ¶79.

The “imaging device 15 field of view” is a specific seat (*a zone of said vehicle*) Denning, ¶80. Imaging device 15a’s field is the **driver’s seat**, imaging device 15b’s field is the **front passenger seat**, and imaging device 15c’s field is the **rear seat**. *Yasui*, ¶[0021]-[0022].

Yasui’s “**hospitality decision-making unit 2**” operates *automatically*, without requiring user input. The “**hospitality decision-making unit 2**,” which acts via **CPU 12**, with the “imaging target detection unit 31,” detects “imaging targets **present within the imaging field of imaging devices 15, or imaging targets approaching that imaging field of view.**” *Yasui*, [0020], Denning, ¶81. The “imaging target detection unit 31” uses “a known [device] that **detects intrusion into a measurement area.**” *Yasui*, [0020].

1[c]: identifying said person within said zone of the vehicle;

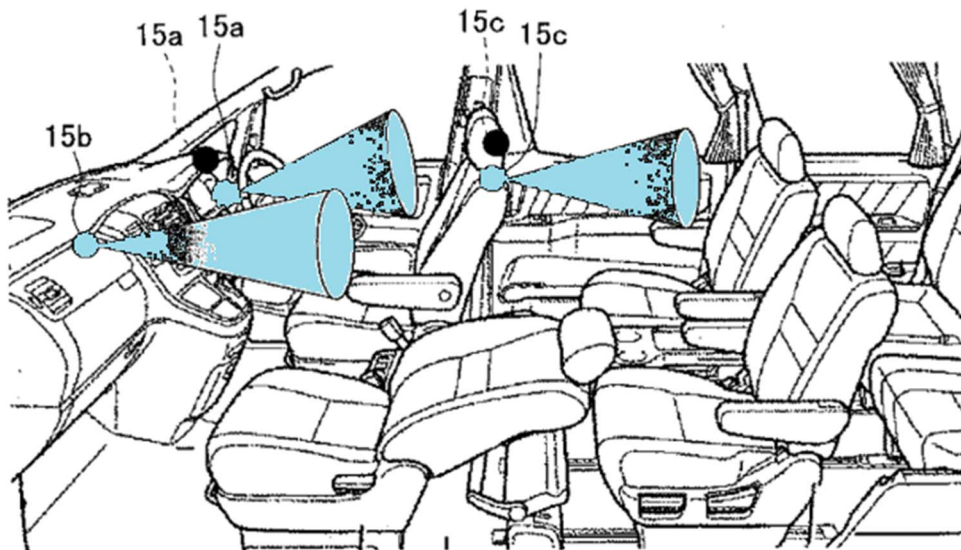
Yasui discloses *identifying said person within said zone of the vehicle*. For example, *Yasui* discloses performing “**user recognition processing**” “**based on the captured facial image.**” *Yasui*, [0028]; *see Yasui*, Figs. 8, 10; Denning, ¶¶83-88.

After detecting a person in step S101, the “control unit 11,” acting via CPU 12, (which is incorporated in the “facial recognition device[/unit] 10” / “hospitality decision-making unit 2”) advances the program until it eventually gets to step

S104, where “user recognition processing is performed based on the captured facial image.” Yasui, [0028].

Yasui discloses capturing the image used in step S104 with “vehicle interior imaging devices 15a, 15b, and 15c for imaging the face of a user” in the driver’s seat, passenger seat, and rear seat, respectively (i.e., *within said zone of the vehicle*). Yasui, [0021]-[0022]. Figure 3A illustrates these imaging devices as described:

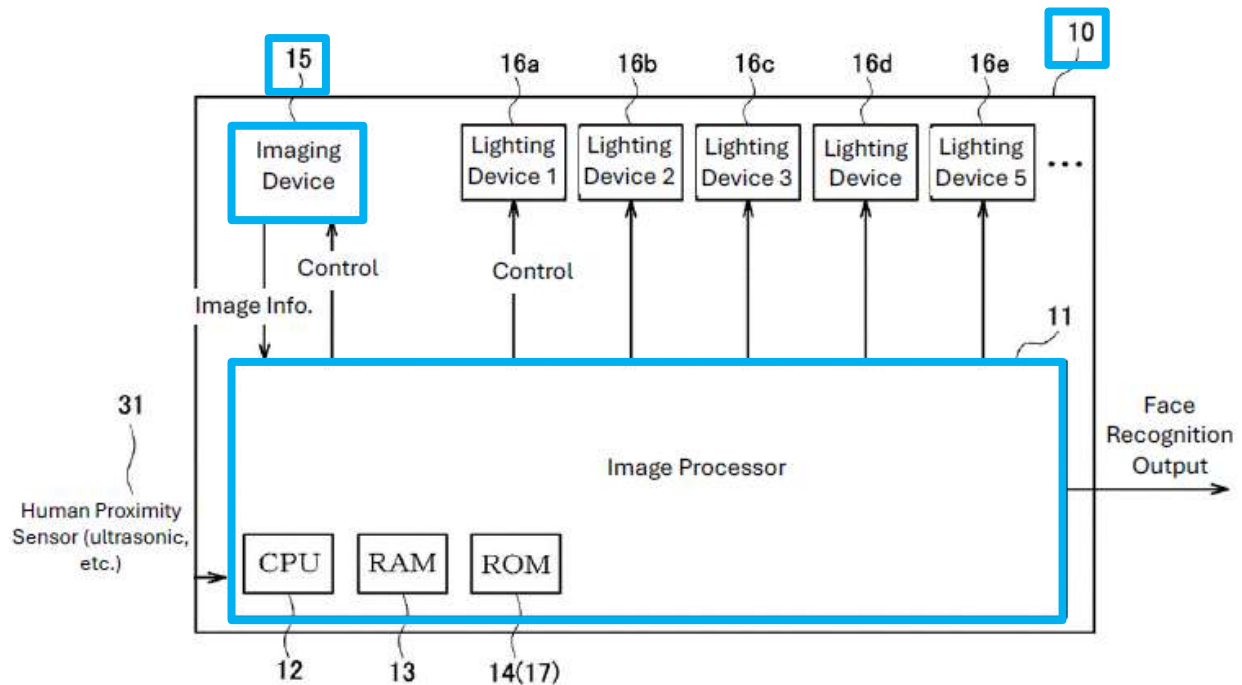
[FIG. 3A]



Yasui, Fig. 3A (annotated).

Yasui discloses that the “control unit 11,” acting via CPU 12, “acquires facial feature information from facial images taken by the imaging device 15” and then “performs user recognition processing by comparing the acquired facial

feature information with facial feature information registered in the face registration unit 17.” *Yasui*, [0019]; [0047]; see also *Yasui*, [0029]; [0064] (“[T]he hospitality decision making unit 2 face detection unit 10 outputs user identifying information[.]”)



Yasui, Fig. 2 (annotated).

The information registered in “face registration unit 17” is the “facial feature information of a person registered as a vehicle user.” *Yasui*, [0019]. Thus, the outcome of this “user recognition process” is that a specific registered user is identified. Denning, ¶87.

1[d]: determining, by a processor, if said identified person has corresponding settings; and

Yasui discloses *determining, by a processor, if said identified person has corresponding settings*. Denning, ¶¶89-94. For example, *Yasui* discloses that “*hospitality decision-making unit 2 . . . decides what kind of hospitality operation to perform.*” *Yasui*, [0064].

Yasui discloses *corresponding settings*. Denning, ¶91. For example, *Yasui* discloses “*hospitality operation information corresponding to a registered user.*” *Yasui*, [0008] The “*hospitality operation information*” “define[s] the operational content of the hospitality operation unique to each said registered user,” including defining settings for “interior lighting,” “car stereo,” “power seats,” “mirror angles,” and “car navigation device.” *Yasui*, [0008], [0059].

Yasui discloses *determining if said identified person has corresponding settings*. Denning, ¶92. For example, the “*hospitality decision making unit 2*” acting via *CPU 12* “*decides what kind of hospitality operation to perform.*” *Yasui*, [0064]. As explained above, *Yasui*’s “face detection unit 10” “performs user recognition processing” and “outputs user identifying information.” *Yasui*, [0019], [0064]; *see Yasui*, [0047]. Using the “user identifying information,” the “*hospitality decision-making unit 2*” acting via *CPU 12* identifies the “*setting conditions*” corresponding to the “identified” user. *Yasui*, [0067]; *see also Yasui*, [0044].

Thus, based on the “user identifying information,” the “**hospitality decision making unit 2**,” acting via **CPU 12**, “**decides what kind of hospitality operation to perform.**” *Yasui*, [0064]. By disclosing that its “hospitality decision making unit 2” must “decide what kind of hospitality operation to perform,” *Yasui* acknowledges that it will not always perform the same “kind” of hospitality operations from one user to the next. Denning, ¶93. For example, a user may not have settings corresponding to each “hospitality operation unit.” Denning, ¶93. A user, for example, may have settings for the position of the driver’s seat but not for preset radio stations. Denning, ¶93; *see Yasui*, [0045] (noting that *Yasui*’s system can “control a music playback device . . . in response to a user recognized by a facial image”), [0073]-[0079] (disclosing “a car audio system that functions as a hospitality operation”). And this is, indeed, the reason that *Yasui*’s “hospitality decision making unit 2” must “decide[] what kind of hospitality operation to perform.” Denning, ¶93. Because after making this decision, *Yasui*’s “hospitality decision making unit 2,” acting via **CPU 12**, issues a “command[]” that “causes corresponding hospitality operation units 502-517, 534, 541, 548, 549, 550, 551, 552, and 1001B to execute hospitality operations.” *Yasui*, [0064]. Notably, the “hospitality decision making unit 2” only “commands” the “corresponding hospitality operation units . . . to execute hospitality operations.” *Yasui*, [0064] (emphasis added). These are the units “corresponding” to the “hospitality decision

making unit 2's" decision regarding "what kind of hospitality operation to perform." Denning, ¶93. Thus, *Yasui* discloses *determining, by a processor, if said identified person has corresponding settings.*

1[e]: configuring said zone of said vehicle based on said corresponding settings.

Yasui discloses *configuring said zone of said vehicle based on said corresponding settings.* For example, *Yasui* discloses "controlling the operation of the hospitality operation unit according to said hospitality operation information." *Yasui*, Claim 10, [0008]; Denning, ¶¶95-100.

Yasui discloses "hospitality operation information corresponding to registered users." *Yasui*, Claim 10, [0008]. As explained above, the service operation information is *corresponding settings.* Denning, ¶96. *Yasui* then discloses "perform[ing] operation control of a hospitality operation unit according to said hospitality operation information." *Yasui*, Claim 10, [0008]. When the operation controls are *performed*, the zone of the vehicle is being *configured . . . based on said corresponding settings.*

As specific examples, *Yasui* describes "hospitality operation units" that provide parameters to be configured by the "hospitality execution control unit." Exemplary parameters include "interior lighting," "car stereo," "power seats," "mirror angles," and "car navigation device." *Yasui*, [0064]; *see also* [0059], Fig.

Yasui discloses that the “hospitality decision making unit 2 face detection unit 10 . . . decides what kind of hospitality operation to perform according to that content, then commands this to **hospitality execution control unit 3.**” *Yasui*, [0064]. Then, based on the command from the “hospitality decision-making unit 2” (acting via CPU 12), the “[h]ospitality execution control unit 3 . . . **causes corresponding hospitality operation units . . . to execute hospitality operations.**” *Yasui*, [0064].

Ultimately, “**hospitality decision making unit 2 and hospitality execution control unit 3 cooperate with one another to realize a function that changes the operational content of hospitality operation units.**” *Yasui*, [0064]; Denning, ¶99.

2. Claim 7: The method of claim 1, wherein said corresponding settings is stored in cloud storage.

Yasui further discloses or renders obvious *wherein said corresponding settings is stored in cloud storage*. Denning, ¶¶101-07. For example, *Yasui* discloses storing “hospitality operation information” “on a data server outside the vehicle.” *Yasui*, [0052], [0103].

The '034 patent describes “cloud storage” as “a server . . . that may be located in a facility that is not within physical proximity to the vehicle.” '034 patent, 10:21-24. The '034 patent notes that using “a cloud computing system or cloud storage . . . allows the vehicle control system [] to either gain access to further computing capabilities or to storage in a location outside of the vehicle.” '034 patent, 10:21-39.

Yasui discloses that its “hospitality operation information” (*corresponding settings*) is stored on a “storage device 535” and that “data in storage unit 535 used by hospitality decision making unit 2 for hospitality decision-making”—including the “hospitality operation information”—“may be stored on a data server outside the vehicle and downloaded to the vehicle by wireless communication” (*stored in cloud storage*). *Yasui*, [0052], [0103].

If the Board finds *Yasui* does not disclose *wherein said corresponding settings is stored in cloud storage*, it would have been obvious to modify *Yasui* based on its own teachings and a POSITA’s knowledge. Denning, ¶104. A POSITA would have known the many advantages of storing corresponding settings in cloud storage. Denning, ¶104. For example, a POSITA would have been motivated to store corresponding settings in cloud storage so that a user could access and implement these settings in more than one vehicle. Denning, ¶104. Additionally, a POSITA would have been motivated to store corresponding settings in cloud storage so that the limited local memory on the vehicle could be used for storing other data. Further, a POSITA would have recognized cloud storage as a solution readily available to accomplish the above-mentioned motivations. *See, e.g., Zellner*, Figs, 2 and 19, [0065] (disclosing storing a user’s “identity and/or preference data” at a “remote network”); *Boling*, [0018] (disclosing a database containing information on vehicle diagnostics that

“comprises multiple server computers distributed anywhere within the network [] (i.e., cloud computing)”).

There are many reasons why modifying *Yasui*'s disclosure to store corresponding settings in cloud storage would have been obvious to a POSITA. Denning, ¶105. A POSITA would have considered such changes to *Yasui* because they involved (A) combining prior-art elements according to known methods to yield predictable results (e.g., storing *Yasui*'s corresponding settings in cloud storage); (B) use of a known technique (e.g., storing data in cloud storage) to improve similar devices in the same way (e.g., *Yasui*'s vehicle control system); (C) applying a known technique (e.g., storing data in cloud storage) to a known device (e.g., *Yasui*'s vehicle control system) ready for improvement to yield predictable results. Denning, ¶105.

A POSITA would have had a reasonable expectation of success in modifying *Yasui*'s disclosure to store corresponding settings in cloud storage because doing so would require nothing more than the simple modification of computer code, a task well within the ability of a POSITA at the time of the alleged invention. Denning, ¶106; *see Boling*, [0018]; *see, e.g.*, '034 patent, 16:25-44.

3. **Claim 8: The method of claim 1, wherein the said corresponding setting is one of a position of a seat, a position of a mirror, a heat or cold setting, a configuration**

of a console, a configuration of a dash, a configuration of a heads up display, or a setting for a radio.

Yasui further discloses *wherein the said corresponding settings is one of a position of a seat, a position of a mirror, a heat or cold setting, a configuration of a console, a configuration of a dash, a configuration of a heads up display, or a setting for a radio.* Denning, ¶¶108-09. For example, *Yasui* discloses that its system “performs operation control of a hospitality operation unit according to said hospitality operation information” where the “hospitality operation units” include “power seats” (i.e., a *position of a seat*), a “drive unit[]” for adjusting “mirror angles” (i.e., a *position of a mirror*), “an air conditioner” (i.e., a *heat or cold setting*), and a “car audio system (car stereo)” (i.e., a *setting for a radio*). *Yasui*, [0008], [0059], Fig. 11. As explained above, the “hospitality operation information” is the *corresponding setting*, so performing operation control of these service operation units according to the service operation information demonstrates that the corresponding setting is one of the claimed settings. Denning, ¶108.

4. Claim 9

9[a]: A vehicle system, comprising: one or more sensors;

Yasui discloses *a vehicle system, comprising one or more sensors.* Denning, ¶¶110-112. For example, *Yasui* discloses “**various sensor/camera groups.**” *Yasui*, [0046].

Yasui discloses that its “hospitality decision-making unit 2” is a “computer to which various sensor/camera groups 518-528 are connected,” including “a sensor/camera group for user recognition” and a “sensor/camera group for detecting a captured object within the imaging area of imaging device 15.” *Yasui*, [0046]-[0048].

9[b]: a vehicle control system comprising: a processor[and] a memory;

Yasui discloses a vehicle control system comprising a processor. Denning, ¶¶113-15. For example, *Yasui* discloses the “hospitality decision-making unit 2” which contains “a CPU, ROM, and RAM.” *Yasui*, [0046]; Denning, ¶113.

Yasui’s “hospitality decision making unit 2” is a computer that includes “a CPU, ROM, and RAM, and various functions described below are realized by executing control software stored in ROM.” *Yasui*, [0046].

9[c1]: wherein the processor is operable to: receive sensor data from the one or more sensors;

Yasui discloses that *the processor is operable to receive sensor data from the one or more sensors*. Denning, ¶¶116-20. For example, *Yasui* discloses that the “hospitality decision-making unit 2,” acting via its CPU, receives data from at least “imaging device 15.” *Yasui*, [0026], [0047].

Yasui discloses that the “hospitality decision-making unit 2” is incorporated with the “facial recognition device[unit] 10,” containing “control unit 11,” which

is, in turn, “constituted by a CPU 12.” *Yasui*, [0019], [0047], Figs. 2 and 11. *Yasui* further discloses that “a hospitality decision-making unit 2 including a facial recognition unit 10” is “connected to” a “sensor/camera group for user recognition,” including the “[f]ace camera 521 (corresponding to vehicle-interior imaging device 15[]).” *Yasui*, [0047]. *Yasui* further discloses that, in addition to user recognition, “hospitality decision-making unit 2 including a facial recognition unit 10” is “connected to” a “sensor/camera group for detecting a captured object present within the imaging area of imaging device 15, or an imaging target approaching into said imaging area.” *Yasui*, [0048].

As to identifying a user, the “control unit 11” (which is incorporated in the “facial recognition device[/unit] 10” / “hospitality decision-making unit 2”) “acquires facial feature information from facial images taken by the imaging device 15” and then “performs user recognition processing by comparing the acquired facial feature information with facial feature information registered in the face registration unit 17.” *Yasui*, [0019]; [0047]. Thus, the “control unit 11,” using “CPU 12,” receives data from a sensor to identify a user. Denning, ¶118.

As to detecting the user’s presence, the “facial recognition device[/unit] 10” includes “an imaging target detection unit 31,” which uses a “known [device] that detects intrusion into a measurement area.” *Yasui*, [0019]. Thus, the “facial

recognition device[/unit] 10” receives data from a sensor to detect a user’s presence. Denning, ¶119.

9[c2]: based on the received sensor data, automatically determine if a person is within a zone of a vehicle;

Yasui discloses that the processor is operable to, *based on the received sensor data, automatically determine if a person is within a zone of a vehicle.*

Denning, ¶¶121-23; *supra* § VII.A.1 (element 1[b]). For example, *Yasui* discloses a “facial recognition device[/unit] 10” (incorporated with the “hospitality decision-making unit 2” that includes “a CPU”) that includes “an imaging target detection unit 31,” which uses a “known [device] that detects intrusion into a measurement area.” *Yasui*, [0020].

Yasui discloses using received sensor data to determine a person’s presence in a zone *automatically*, without requiring user input. For example, in one embodiment, the “imaging target detection unit 31,” detects “imaging targets present within the imaging field of imaging devices 15 or imaging targets approaching that imaging field of view” by using a “known [device] that detects intrusion into a measurement area.” *Yasui*, [0020].

9[c3]: based on the received sensor data, automatically identify the person;

Yasui discloses that the processor is operable to, *based on the received sensor data, automatically identify the person.* Denning, ¶¶124-25; *supra* §

VII.A.1 (element 1[c]). For example, *Yasui* discloses performing “**user recognition processing**” “**based on the captured facial image.**” *Yasui*, [0028]; *see Yasui*, Figs. 8, 10, [0047].

9[c4]: determine if the person has made a setting; and

Yasui discloses that the processor is operable to *determine if the person has made a setting*. Denning, ¶¶126-27; *supra* § VII.A.1 (element 1[d]). For example, *Yasui* discloses that the “hospitality decision-making unit,” acting via CPU 12, “**decides what kind of hospitality operation to perform.**” *Yasui*, [0064]; *see Yasui*, Fig. 11, [0046]-[0047].

9[c5]: based on the determination, configure said zone of said vehicle to said setting.

Yasui discloses *the processor is operable, based on the determination, configure said zone of said vehicle to said setting*. Denning, ¶¶128-29; *supra* § VII.A.1 (element 1[e]). For example, *Yasui* discloses causing “**corresponding hospitality operation units . . . to execute hospitality operations**” based on a “command[]” from the “hospitality decision making unit 2,” acting via CPU 12, to the “hospitality execution control unit 3.” *Yasui*, [0064]; Denning, ¶128.

5. Claim 10: The device of claim 9, wherein the sensor data is an image of the person.

Yasui further discloses *wherein the sensor data is an image of a person.*

Denning, ¶¶130-32. For example, *Yasui* discloses “user recognition processing . . . based on the captured facial image.” *Yasui*, [0028].

Yasui discloses that the “[f]ace camera 521” (a *sensor*) “[c]aptures facial expressions of a seated user” (*an image of the person*). *Yasui*, [0047]. *Yasui* further discloses that the “hospitality decision-making unit 2 including a facial recognition unit 10,” is “connected to” the “[f]ace camera 521.” *Yasui*, [0047].

6. Claim 11: The device of claim 10, wherein in automatically identifying the person the processor is operable to match the image to a stored image in a data structure.

Yasui further discloses *wherein in automatically identifying the person the processor is operable to match the image to a stored image in a data structure.*

Denning, ¶¶133-38. For example, *Yasui* discloses “cutting out the facial image portion from that captured image and comparing various facial expressions to previously captured and prepared master images.” *Yasui*, [0047].

Yasui further discloses storing the “master facial image” in the “user registration unit 17”—e.g., “a ROM . . . in hospitality decision-making unit 2.” *Yasui*, [0054]-[0055]; Denning, ¶135. *Yasui* further discloses that “each user name . . . and [] facial image . . . are registered in this user registration unit 17 in a

mutually associated form” (*stored in a data structure*). *Yasui*, [0054]; *see Yasui*, [0006]. Figure 12 illustrates a conceptual diagram showing this *data structure*.

FIG. 12

17

User 1	Facial image 1	Age 1	Gender 1	Characteristic 1
User 2	Facial image 2	Age 2	Gender 2	Characteristic 2
User 3	Facial image 3	Age 3	Gender 3	Characteristic 3
⋮	⋮	⋮	⋮	⋮

Yasui, Fig. 12.

7. Claim 12: The device of claim 9, wherein the sensor data is voice data from the person.

Yasui further discloses or renders obvious *wherein the sensor data is voice data from the person*. Denning, ¶¶139-43. For example, *Yasui* discloses “the voice recognition unit 130.” *Yasui*, [0100]; Denning, ¶139.

A POSITA would have recognized that a “voice recognition unit 130,” “using known speech recognition technology” could be used to either automatically determine if a person is within a vehicle’s zone or automatically identify the person, as recited in claim 9. *Yasui*, [0100]; Denning, ¶140.

If the Board finds *Yasui* does not disclose this functionality, it would have been obvious for a POSITA to incorporate “known speech recognition technology”

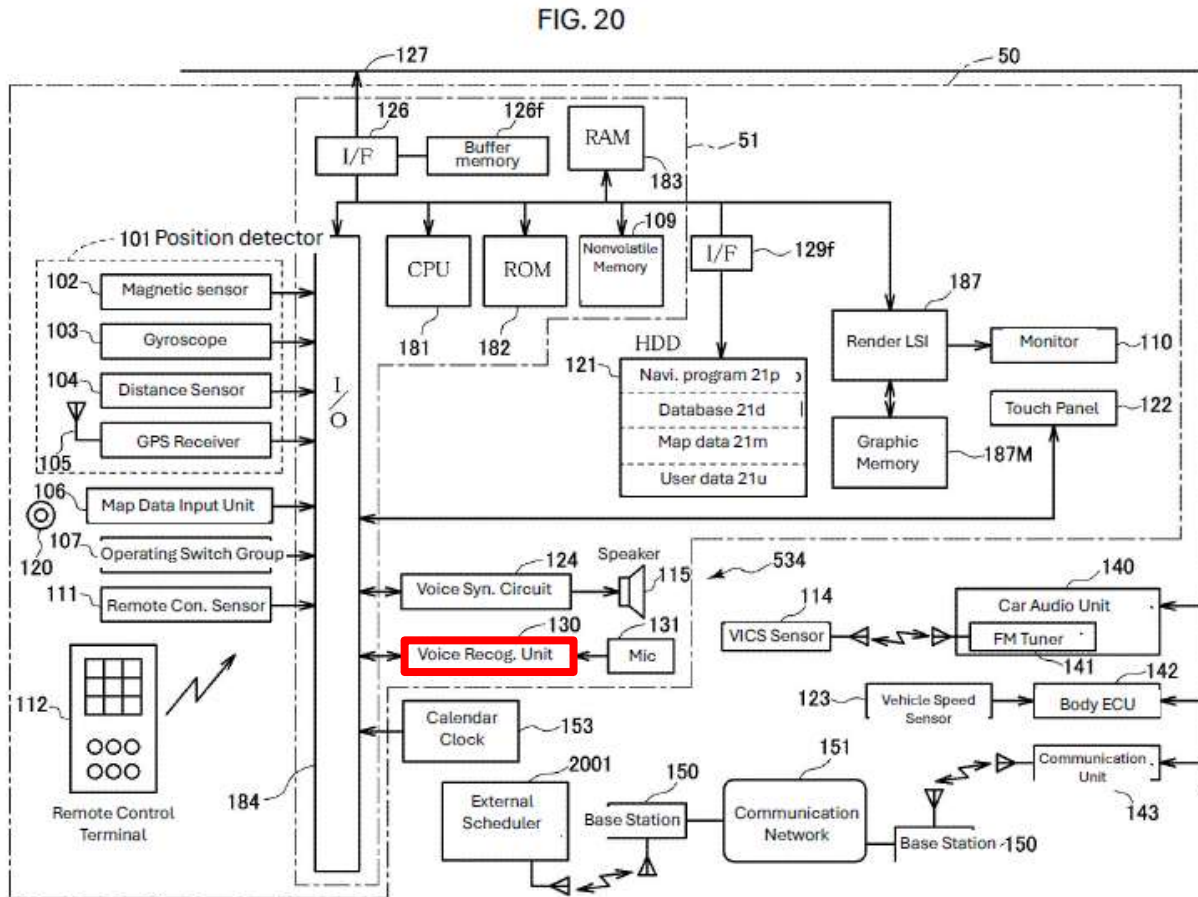
with the “voice recognition unit 130” to either determine if a person is within a vehicle’s zone or automatically identify a person. Denning, ¶141. A POSITA would have been motivated to do this as it would allow the vehicle system to determine the presence of or identify a user without regard to lighting conditions, a problem with image-based sensors recognized in *Yasui*. Denning, ¶141; *see, e.g., Yasui*, Claim 1, [0005]. A POSITA would have recognized using voice data as a solution readily available to accomplish the above-mentioned motivations. *See, e.g., Ikeda*, [0429] (disclosing “authentication of the driver” using a “user’s physical feature” such as “a voiceprint”).

Further, a POSITA would have had a reasonable expectation of success in making this modification, as *Yasui* itself discloses the necessary hardware and recognizes that the technology needed to implement the hardware is “known” in *Yasui*’s field. Denning, ¶142. Further, a POSITA would have understood that implementing this modification would require nothing more than the modification of computer code to utilize the hardware to achieve the claimed feature, a task well within the skill of a POSITA at the time of the alleged invention. Denning, ¶142.

8. Claim 13: The device of claim 12, wherein in automatically identifying the person the processor is operable to match the voice data to stored voice data in a data structure.

Yasui further discloses or renders obvious *wherein in automatically identifying the person the processor is operable to match the voice data to stored*

voice data in a data structure. Denning, ¶¶144-49. For example, Yasui discloses “the speech recognition unit 130.” Yasui, [0100]; Denning, ¶144. Figure 20 illustrates “the speech recognition unit 130.”



Yasui, Fig. 20 (annotated).

A POSITA would have known that “known speech recognition technology” and a “voice recognition unit” at the time would work by matching received voice data with voice data stored in a data structure. Denning, ¶145. Yasui discloses storing data associated with a user in a data structure. See *supra* § VII.A.6 (claim 11). Thus, Yasui’s disclosure of a “voice recognition unit 130” and “known speech

recognition technology” discloses matching received voice data with stored voice data in a data structure. Denning, ¶145.

If the Board finds *Yasui* does not disclose this functionality, it would have been obvious for a POSITA to use *Yasui*’s processor, its “voice recognition unit 130,” and its existing data structure in “hospitality operation information storage unit” to store voice data in a data structure and then match received voice data with the stored data to perform user recognition. *See supra* § VII.A.6 (claim 11).

Denning, ¶146.

Again, *Yasui* recognizes that voice recognition technology was “known,” and *Yasui* discloses the necessary hardware and processing capabilities to implement this solution. Denning, ¶146. As explained above, *Yasui* discloses storing the “master facial image” in the “user registration unit 17”—e.g., “a ROM . . . in hospitality decision-making unit 2.” *Yasui*, [0054]-[0055]; Denning, ¶146. *Yasui* further discloses that “each user name . . . and [] facial image . . . are registered in this user registration unit 17 in a mutually associated form.” *Yasui*, [0054]. Figure 12 illustrates a conceptual diagram showing this *data structure*.

FIG. 12

17

User 1	Facial image 1	Age 1	Gender 1	Characteristic 1
User 2	Facial image 2	Age 2	Gender 2	Characteristic 2
User 3	Facial image 3	Age 3	Gender 3	Characteristic 3
⋮	⋮	⋮	⋮	⋮

Yasui, Fig. 12. It would have been obvious to a POSITA to use this same data structure to store user information in association with voice data. Denning, ¶147.

Further, a POSITA would have been motivated to do this as it would allow the vehicle system to determine the presence of or identify a user without regard to lighting conditions, a problem with image-based sensors recognized in *Yasui*. Denning, ¶147; *see, e.g., Yasui*, Claim 1, [0005]. Again, a POSITA would have recognized using voice data as a solution readily available to accomplish the above-mentioned motivations. *See, e.g., Ikeda*, [0429] (disclosing “authentication of the driver” using a “user’s physical feature” such as “a voiceprint”).

Further, a POSITA would have had a reasonable expectation of success in making this modification, as *Yasui* itself discloses the necessary hardware and recognizes that the technology needed to implement the hardware is “known” in *Yasui*’s field. Denning, ¶148.

9. Claim 14

14[a]: A non-transitory computer readable medium having stored thereon computer-executable instructions, the computer executable instructions causing a processor to execute a method for providing a unified desktop, the computer-executable instructions comprising:

Yasui discloses a non-transitory computer readable medium having stored thereon computer-executable instructions, the computer executable instructions causing a processor to execute a method for providing a unified desktop. Denning, ¶¶150-55. For example, *Yasui* discloses that by using the “hospitality decision making unit 2,” “various functions described below are realized by executing control software stored in ROM.” *Yasui*, [0046].

Yasui discloses a processor to execute a method for providing a unified desktop. As explained above, *Yasui*’s “hospitality decision-making unit 2” includes “a CPU”—a processor. *Yasui*, Fig. 11, [0046]. Further *Yasui* discloses that the “hospitality decision-making unit 2” is incorporated with the “facial recognition device/[unit] 10,” containing “control unit 11.” *Yasui*, [0047], Figs. 2 and 11. *Yasui*’s “control unit 11,” like the “hospitality decision-making unit 2” of which it is a part, is described as having a “ROM 14 for storing various programs.” *Yasui*, [0019].

As to a unified desktop, *Yasui* discloses a “monitor 536” with “a touch panel overlaid on monitor 536.” *Yasui*, [0057]; see ’034 patent, 5:52-59 (“The term

‘desktop,’ as used herein, refers to a metaphor used to portray systems.”). Figure 11 illustrates the “[h]ospitality decision making unit”—into which the “facial recognition device[/*unit*] 10,” the “control unit 11,” and the “CPU 12” are all incorporated—connected to the “monitor 536.” *Yasui*, [0019], [0047], Figs. 2, 11. A POSITA would have understood this to disclose that the “control unit 11,” acting via its “CPU 12,” provides processing for the “monitor 536” (and the overlaid “touch panel”). Denning, ¶153.

Yasui discloses *instructions*. Denning, ¶154. For example, *Yasui* discloses that “various functions described below are realized by executing **control software stored in ROM.**” *Yasui*, [0046]; *see also Yasui*, [0019].

14[b]: instructions to receive sensor data from one or more sensors;

Yasui discloses *instructions to receive sensor data from one or more sensors*. Denning, ¶¶156-162. *Yasui* discloses *instructions (supra § VII.A.9 (element 14[a]) to receive sensor data from one or more sensors. Supra § VII.A.4 (element 9[c1])*.

14[c]: based on the received sensor data, instructions to automatically determine if a person is within a zone of a vehicle;

Yasui discloses, *based on the received sensor data, instructions to automatically determine if a person is within a zone of a vehicle*. Denning, ¶¶163-71. *Yasui* discloses *instructions (supra § VII.A.9 (element 14[a]) to automatically*

determine if a person is within a zone of a vehicle. Supra § VII.A.4 (element 9[c2]).

14[d]: based on the received sensor data, instructions to automatically identify the person;

Yasui discloses, based on the received sensor data, instructions to automatically identify the person. Denning, ¶¶172-77. Yasui discloses instructions (supra § VII.A.9 (element 14[a]), based on the received sensor data, to automatically identifying a person. Supra § VII.A.4 (element 9[c3]).

14[e]: instructions to retrieve one or more settings associated with the identified person; and

Yasui discloses instructions to retrieve one or more settings associated with the identified person. Denning, ¶¶178-85. Yasui discloses instructions (supra § VII.A.9 (element 14[a]) to retrieve one or more settings associated with the identified person. Supra § VII.A.4 (element 9[c4]).

14[f]: instructions to automatically configure the vehicle according to the retrieved settings.

Yasui discloses instructions to automatically configure the vehicle according to the retrieved settings. Denning, ¶¶186-91. Yasui discloses instructions (supra § VII.A.9 (element 14[a]) to automatically configure the vehicle according to the retrieved settings. Supra § VII.A.4 (element 9[c5]).

10. Claim 15: The computer readable medium of claim 14, wherein the settings retrieved are associated with the determined area or zone.

Yasui further discloses *wherein the settings retrieved are associated with the determined area or zone*. Denning, ¶¶192-95. For example, *Yasui* discloses its “hospitality operation units” include “drive units [] for adjusting” “power seats” and “side and rearview mirror angles” and “the GPS [] (also used in car navigation device[]).” *Yasui*, [0008], [0059].

Yasui’s “hospitality operation units” are associated with a particular zone. Denning, ¶192. For example, the “power seats” operation unit adjusts a seat associated with a particular seat or zone (driver’s, passenger, or rear seat). *Yasui*, [0059]; Denning, ¶194. Further, the “drive unit [] for adjusting . . . side and rearview mirror angles” and the “GPS” are associated with the driver’s seat, as the person occupying the driver’s seat uses the mirrors and GPS. *Yasui*, [0059], [0106]; Denning, ¶194.

11. Claim 16: The computer readable medium of claim 15, wherein the settings are retrieved from a data structure.

Yasui further discloses *wherein the settings are retrieved from a data structure*. Denning, ¶¶196-202. For example, *Yasui* discloses that the “hospitality operation information” (*settings*) is stored in “a hospitality operation information storage unit” (*a data structure*). *Yasui*, Claim 10, [0008]; *see also* [0052], [0103], Fig. 11.

Yasui discloses *retrieving settings*. Denning, ¶201. For example, *Yasui* discloses that “the hospitality decision making unit 2 face detection unit 10 outputs user identifying information and decides what kind of hospitality operation to perform according to that content, then commands this to hospitality execution control unit 3.” *Yasui*, [0064]. When *Yasui* discloses that the “hospitality decision-making unit 2,” through its “face detection unit 10” and based on “user identifying information,” “decides what kind of hospitality operation to perform according to that content,” it discloses *retrieving settings*. *Yasui*, [0064]; Denning, ¶201.

Yasui further discloses that *the settings are retrieved from a data structure*. For example, *Yasui* discloses that its “hospitality operation information storage unit” is “for storing registered user and hospitality operating information defining the operational content of the hospitality operation unique to each said registered user in a mutually associated manner.” *Yasui*, [0008]. Thus *Yasui* discloses user information and “hospitality operating information” (*settings*) are stored in a “mutually associated” manner, which is a *data structure*. Denning, ¶200.

12. Claim 17: The computer readable medium of claim 16, wherein the data structure is stored in cloud storage.

Yasui discloses or renders obvious, *wherein the data structure is stored in cloud storage*. Denning, ¶¶203-08.

Yasui discloses storing *corresponding settings* in a *data structure*. *Supra* §§ VII.A.2 (claim 7) and VII.A.11 (claim 16). *Yasui* further discloses that data in

storage unit 535, which can be used to store the settings in “hospitality operation information storage unit,” “may be stored on a data server outside the vehicle.” *Yasui*, [0103]; Denning, ¶204. A POSITA would have thus understood *Yasui* to disclose its “hospitality operation information storage unit” data structure could be stored in cloud storage, or would have at least found this obvious for the reasons discussed in claim 7. Denning, ¶204.

If the Board finds *Yasui* does not disclose *wherein the data structure is stored in cloud storage*, it would have been obvious to modify *Yasui* based on its own teachings and a POSITA’s knowledge. Denning, ¶205. A POSITA would have known the many advantages of storing the data structure in cloud storage. Denning, ¶205. For example, a POSITA would have been motivated to store the data structure in cloud storage so that a user could access and implement these settings in more than one vehicle. Denning, ¶205. Additionally, a POSITA would have been motivated to store the data structure in cloud storage so that the limited local memory on the vehicle could be used for storing other data. Further, a POSITA would have recognized cloud storage as a solution readily available to accomplish the above-mentioned motivations. *See supra* § VII.A.2 (claim 7).

There are many reasons why modifying *Yasui*’s disclosure to store the data structure in cloud storage would have been obvious to a POSITA. Denning, ¶206. A POSITA would have considered such changes to *Yasui* because they involved

(A) combining prior-art elements according to known methods to yield predictable results (e.g., storing *Yasui*'s data structure in cloud storage); (B) use of a known technique (e.g., storing a data structure in cloud storage) to improve similar devices in the same way (e.g., *Yasui*'s vehicle control system); (C) applying a known technique (e.g., storing a data structure in cloud storage) to a known device (e.g., *Yasui*'s vehicle control system) ready for improvement to yield predictable results. Denning, ¶206.

A POSITA would have had a reasonable expectation of success in modifying *Yasui*'s disclosure to store a data structure in cloud storage because doing so would require nothing more than the simple modification of computer code, a task well within the ability of a POSITA at the time of the alleged invention. Denning, ¶207 *see Boling*, [0018]; *see, e.g.*, '034 patent, 16:25-44.

B. Ground 2: *Yasui* in view of *Morehouse* renders obvious claims 1 and 7-17.

Yasui discloses or renders obvious claims 1 and 7-17. *Supra* § VII.A. But if the Board finds *Yasui* does not disclose elements 1[d] (*determining, by a processor, if said identified person has corresponding settings*) or 9[c4] (*determine if the person has made a setting*), they would have been obvious in view of *Morehouse*.

1. Independent Claim 1

1[d]: determining, by a processor, if said identified person has corresponding settings; and

If the Board finds *Yasui* does not disclose *determining, by a processor, if said identified person has corresponding settings*, it would have been obvious in view of *Morehouse*.

It would have been obvious to a POSITA to modify *Yasui* to include *Morehouse*'s teaching of querying whether an identified person has settings. Denning, ¶¶210-16. *Morehouse* discloses querying to determine *if* settings exist for a user, including “climate information” and “seat information.” *Morehouse*, [0021]. The diamond shaped boxes in the figures below represent queries to determine if a person identified in block 92 has corresponding settings for climate (94), seat (100), mirror (106), door locks (112), or radio presets (118).

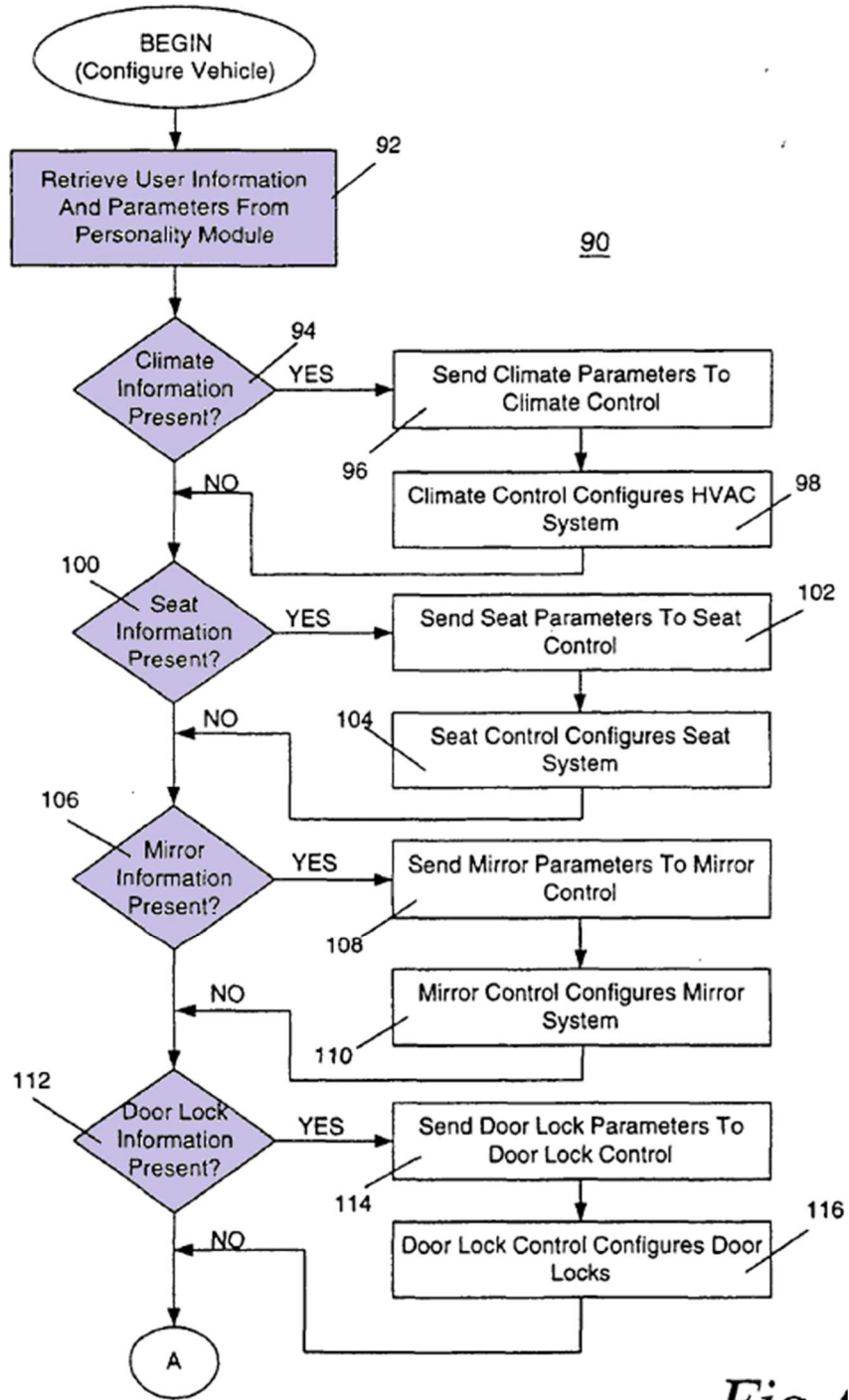


Fig. 1

Morehouse, Fig. 6 (annotated).

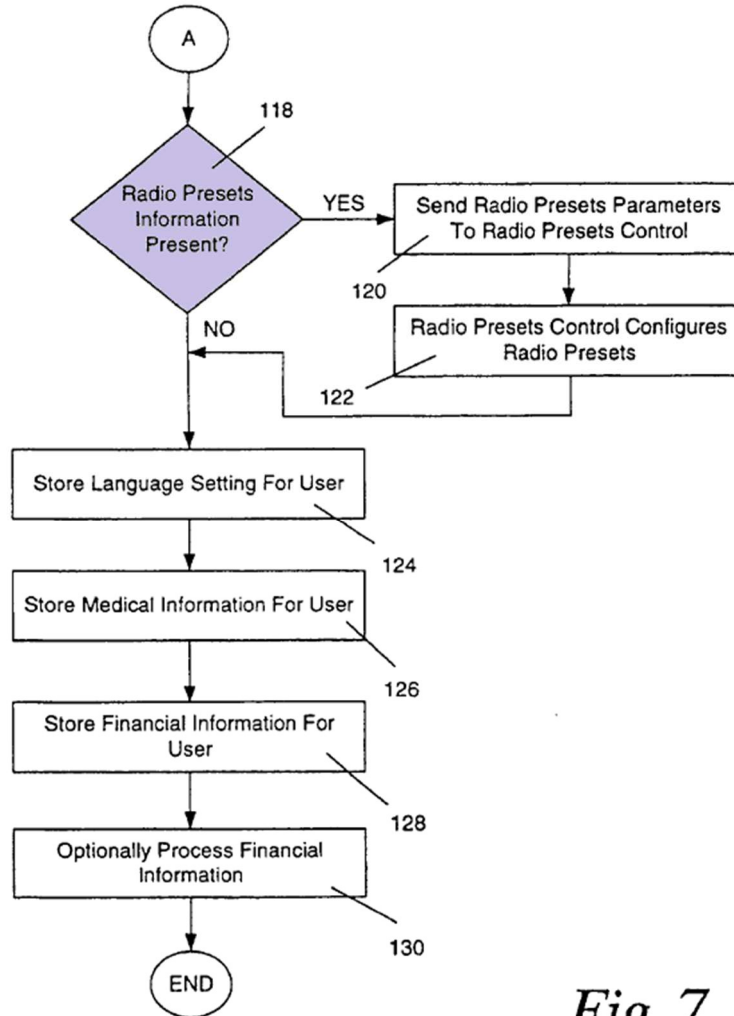


Fig. 7

Morehouse, Fig. 6 (annotated).

A POSITA would have been motivated to combine *Morehouse*'s disclosure of querying whether an identified person has settings with *Yasui*'s vehicle control system. Denning, ¶213. A POSITA would have recognized that *Yasui*, as explained above, discloses storing a user's preferred settings in association with a user's identifying information. Denning, ¶213. A POSITA would further have recognized that *Yasui*, as also explained above, discloses a processor—CPU 12 of “hospitality

decision making unit 2”—deciding which “hospitality operation units” to “command[]” (“decide[] what kind of hospitality operation to perform”). Denning, ¶213. A POSITA would have been motivated to design an efficient system that only “commands” the “hospitality operation units” for which settings exist. Denning, ¶213. A POSITA would have recognized that it would be an inefficient use of processing power to send commands to electronic control units (i.e., “hospitality operation units”) for which no settings exist for a given user. Denning, ¶213. A POSITA would have recognized that *Morehouse*’s disclosure of queries to determine whether settings exist would have provided a straightforward means by which the POSITA could determine which “hospitality operation units” to command. Denning, ¶213.

There are many reasons why applying *Morehouse*’s disclosure of queries to determine whether settings exist would have been obvious to a POSITA. Denning, ¶214. A POSITA would have considered such changes to *Yasui* because they involved (A) combining prior-art elements according to known methods to yield predictable results (e.g., applying *Morehouse*’s queries to *Yasui*’s vehicle control system); (B) use of a known technique (e.g., *Morehouse*’s queries) to improve similar devices in the same way (e.g., *Yasui*’s vehicle control system); (C) applying a known technique (e.g., *Morehouse*’s queries) to a known device (e.g., *Yasui*’s

vehicle control system) ready for improvement to yield predictable results.

Denning, ¶214.

A POSITA would have had a reasonable expectation of success in combining *Morehouse*'s teaching of queries with *Yasui*'s disclosure of a vehicle user recognition and settings adjustment system. Denning, ¶215. *Yasui* discloses that its "various functions" "are realized by executing control software stored in ROM." *Yasui*, [0046]. A POSITA would have known how to adjust *Yasui*'s software to implement *Morehouse*'s series of settings queries, which would have resulted in *determining, by a processor* (e.g., CPU 12 of "hospitality decision-making unit 2"), *if said identified person has corresponding settings*. Denning, ¶215.

2. Independent Claim 9

9[c4]: determine if the person has made a setting; and

If the Board finds *Yasui* does not disclose that *the processor is operable to determine if the person has made a setting*, it would have been obvious in view of *Yasui*'s teachings and a POSITA's knowledge or in view of *Morehouse*. Denning, ¶¶217-18. Again, *Yasui* and *Morehouse* are analogous art with each other and with the '034 patent. *See supra* § VII.A.1 (element 1[d]). For the same reasons explained above, a POSITA would have been motivated to combine *Morehouse*'s

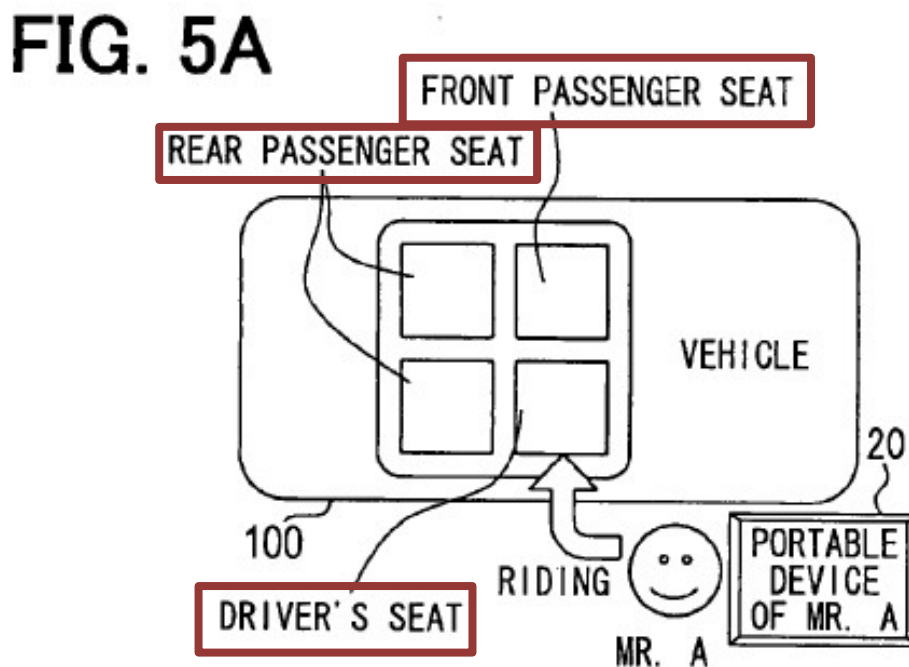
disclosure with *Yasui's* to determine if the person has made a setting and would have had a reasonable expectation in doing so. See *supra* § VII.A.1 (element 1[d]).

C. Ground 3: Ikeda anticipates claims 1, 7-10, and 12-17.

1. Independent Claim 1

Element 1[a]

Ikeda discloses separating a vehicle into one or more zones. Denning, ¶¶219-20. For example, *Ikeda* discloses the separate zones of “driver’s seat,” “front passenger seat,” and “rear passenger seat.” *Ikeda*, Fig. 5A; see *supra* VII.A.1 (element 1[a]) (describing ’034 patent’s description of a zone).



Ikeda, Fig. 5A (annotated).

Element 1[b]

Ikeda discloses *automatically determining, by a processor, if a person is within a zone of said vehicle*. Denning, ¶¶221-24. For example, “[d]etection of the driver to ride in the vehicle” (*automatically determining if a person is within a zone of said vehicle*) is the first step of the “vehicle environment setup processing” “performed by the control unit 11 of the in vehicle device 10” (*by a processor*). *Ikeda*, [0079]; [0409].

Ikeda discloses *a processor*. Denning, ¶222. Its “in-vehicle device 10” contains “control unit 11” which “includes as a main element a microcomputer having a CPU, a ROM, a RAM, and executes various processing.” *Ikeda*, [0061].

Ikeda further discloses detecting a user’s presence *automatically*—without requiring any user input. Denning, ¶223. . 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].

Element 1[c]

Ikeda discloses *identifying said person within said zone of the vehicle*. Denning, ¶¶225-27. For example, *Ikeda* discloses it performs “driver determination processing.” *Ikeda*, [0087], [0224]; Denning, ¶225.

Ikeda discloses the “in-vehicle device 10 transmits [] facial feature information items . . . to the personal identification device 41” to initiate “driver determination processing.” *Ikeda*, [0087]. The first step of “driver determination processing” occurs when “the personal identification device 41 directs the camera 42 to start capturing an image of the driver.” *Ikeda*, [0096]. After this, “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.” *Ikeda*, [0097]; see *Ikeda* [0225].

Element 1[d]

Ikeda discloses *determining, by a processor, if said identified person has corresponding settings*. Denning, ¶¶228-33. The “in-vehicle device 10” determines if an identified person has corresponding settings by sending a “setup information-sending request.” *Ikeda*, [0091]; see *Ikeda*, [0246].

Initially, *Ikeda* discloses *corresponding settings*. Denning, ¶229. For example, *Ikeda* discloses its “environment setup information item” includes a user’s preferred settings for individual “control units.” *Ikeda*, [0064]. Specifically, *Ikeda* describes the “environment setup information item” as “indicative of a driving environment of the associated user.” *Ikeda*, [0013].

Ikeda discloses “control units 51-59” “operable to set or change the driving environment.” *Ikeda*, [0064]. These “control units” control aspects of the vehicle such as “seat position,” “steering wheel position,” “mirror attitude,” “air-conditioning,” “audio,” “navigation,” and “information display.” *Ikeda*, [0063]. As one example of a *corresponding setting*, “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 “the driving environment can be reproduced correctly, without performing fine tuning by the external operation” (i.e., manually). *Ikeda*, [0064].

Ikeda further discloses *determining, by a processor, if said identified person has corresponding settings*. Denning, ¶231. *Ikeda* discloses its “in-vehicle device 10” contains “control unit 11,” which “includes as a main element a microcomputer having a CPU, a ROM, a RAM, and executes various processing.” *Ikeda*, [0061]. The “in-vehicle device 10,” acting via its CPU, determines if an identified person has corresponding settings by sending a “setup information-sending request.” *Ikeda*, [0091]; *see Ikeda*, [0246]. In response to this request, “the environment setup information item indicative of the driving environment for the driver is transmitted . . . to the in-vehicle device 10.” *Ikeda*, [0091]-[0092]; *see Ikeda* [0247].

Upon receipt of “the environment setup information item,” the “in-vehicle device 10,” acting via its CPU, determines if an identified person has corresponding settings as to each individual control unit by determining which settings are saved in the received “environment setup information item.” Denning, ¶232. 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.” *Ikeda*, [0092]-[0093]; *see Ikeda*, [0251]. *Ikeda*’s disclosure that its “in-vehicle device 10,” acting via its CPU, commands “various” (i.e., one or more) control units means that it will not necessarily command *all* the control units. *Ikeda*, [0092]-[0093]; Denning, ¶232. The “in-vehicle device 10” determines which control units to command based on the control units for which settings are saved in the “environment setup information item.” Denning, ¶232.

Element 1[e]

Ikeda discloses *configuring said zone of said vehicle based on said corresponding settings*. Denning, ¶¶234-37. For example, *Ikeda* discloses that its “control units” operate “**to reproduce the driving environment indicated by the environment setup item.**” *Ikeda*, [0064].

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. *Ikeda* discloses that its “environment setup information item” contains any saved settings for individual “control units.” *Ikeda*, [0064]. *Ikeda* discloses “control units 51-59” that “are operable to set or change the driving environment.” *Ikeda*, [0064]. These “control units” control aspects of the vehicle such as “seat position,” “steering wheel position,” “mirror attitude,” “air-conditioning,” “audio,” “navigation,” and “information display.” *Ikeda*, [0063]. As one example of a *corresponding setting*, “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].

Ikeda further discloses that “the environment setup information item . . . is transmitted to various control units 51-59” and thereby “the driving environment of the vehicle [] is set as the driving environment for the driver.” *Ikeda*, [0093].

2. Claim 7

Ikeda discloses *wherein said corresponding settings is stored in cloud storage*. Denning, ¶¶238-40. For example, *Ikeda* discloses that, in at least one embodiment, “the in-vehicle device 10 is operable to perform data communication with the management device 30, in a communications area covered by a mobile

phone base station arranged in various places (it is markedly wider than the communications area with the portable device 20).” *Ikeda*, [0136].

Ikeda further discloses that this “management device 30 includes . . . a storage unit 32.” *Ikeda*, [0141]. And this “storage unit 32 is operable to store a variety of information,” including “the environment setup information item indicative of the driving environment for each of the users.” *Ikeda*, [0143].

3. Claim 8

Ikeda further discloses *wherein the said corresponding settings is one of a position of a seat, a position of a mirror, a heat or cold setting, a configuration of a console, a configuration of a dash, a configuration of a heads up display, or a setting for a radio.* Denning, ¶¶241-42. For example, *Ikeda* discloses that its “environment setup information item” contains any saved settings for “control units 51-59” that control aspects of the vehicle such as “seat position” (*a position of a seat*), “mirror attitude” (*a position of a mirror*), “air-conditioning” (*a heat or cold setting*), “audio” (*a setting for a radio*), “navigation” (*a configuration of a heads up display*), or “information display” (*configuration of a console; configuration of a dash; configuration of a heads up display*). *Ikeda*, [0063].

4. Claim 9

Element 9[a]

Ikeda discloses a vehicle system, comprising one or more sensors. Denning, ¶¶243-44. For example, *Ikeda* discloses “detecting a user’s seating with a sitting sensor provided in the driver’s seat” and additionally using a “camera 42” to “captur[e] an image of the driver.” *Ikeda*, [0079], [0096].

Element 9[b]

Ikeda discloses a vehicle control system comprising a processor. Denning, ¶¶245-46. *Ikeda*’s discloses an “in-vehicle device 10” containing “control unit 11” which “includes as a main element a microcomputer having a CPU, a ROM, a RAM, and executes various processing.” *Ikeda*, [0061].

Element 9[c1]

Ikeda discloses that the processor is operable to receive sensor data from the one or more sensors. Denning, ¶¶247-50. For example, *Ikeda* discloses that the “in-vehicle device 10 possesses or includes a control unit 11” and acts through its CPU to receive data from at least “a sitting sensor” and from “camera 42.” *Ikeda*, [0079], [0088], [0096]-[0098].

Ikeda 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* [0088] (disclosing that the “in-vehicle device 10” can process signals from “camera 42”).

Additionally, *Ikeda* discloses that “the in-vehicle device 10” “identifie[s] or select[s] the facial feature information item that corresponds to the detected facial feature point detected by the camera 42[.]” *Ikeda*, [0088].

Element 9[c2]

Ikeda discloses that the processor is operable to, *based on the received sensor data, automatically determine if a person is within a zone of a vehicle.* Denning, ¶¶251-52; *supra* § VII.C.1 (element 1[b]). For example, “[d]etection of the driver to ride in the vehicle” (*automatically determining if a person is within a zone of said vehicle*) is the first step of the “vehicle environment setup processing” “performed by the control unit 11 of the in vehicle device 10,” acting via its CPU (*by a processor*). *Ikeda*, [0079]; [0409].

Element 9[c3]

Ikeda discloses that the processor is operable to, *based on the received sensor data, automatically identify the person.* Denning, ¶¶253-55; *supra* § VII.C.1 (element 1[c]). For example, *Ikeda* discloses that the “in-vehicle device 10

possesses or includes a control unit 11” and acts through its CPU to use “driver determination processing” to “identif[y] or select[] the facial feature information item that corresponds to the detected facial feature point detected by the camera 42[.]” *Ikeda*, [0088].

Element 9[c4]

Ikeda discloses that the processor is operable to *determine if the person has made a setting*. Denning, ¶¶256-59; *supra* § VII.C.1 (element 1[d]). For example, *Ikeda* discloses, as part of the vehicle environment setup processing as performed by the “the control unit 11 of the in-vehicle device 10,” acting via its CPU, obtaining “the environment setup information item indicative of the driving environment for the driver” by sending a “setup information-sending request requests the portable device 20 of the driver to send the environment setup information item.” *Ikeda*, [0091].

Element 9[c5]

Ikeda discloses *the processor is operable, based on the determination, configure said zone of said vehicle to said setting*, as fully explained above regarding element 1[e]. See *supra* § VII.C.1 (element 1[e]); Denning, ¶¶260-61. Specifically, this configuration is part of the vehicle environment setup processing as performed by the “the control unit 11 of the in-vehicle device 10,” acting via its CPU. *Ikeda*, [0093].

5. Claim 10

Ikeda further discloses that as part of “driver determination processing” “the personal identification device 41 directs the camera 42 to start capturing an image of the driver.” *Ikeda*, [0096]; Denning ¶¶262-64.

The “in-vehicle device 10 transmits the facial feature information items . . . to the personal identification device 41 such that the personal identification device is directed to perform the driver determination processing.” *Ikeda*, [0087]. And during “driver determination processing,” “the personal identification device 41 directs the camera 42 to start capturing an image of the driver.” *Ikeda*, [0096].

6. Claim 12

Ikeda discloses *wherein the sensor data is voice data from the person.* Denning, ¶¶265-66. For example, *Ikeda* discloses performing “authentication of the driver” by “detecting” a “user’s physical feature,” including “a voiceprint.” *Ikeda*, [0429].

7. Claim 13

Ikeda discloses *wherein in automatically identifying the person the processor is operable to match the voice data to stored voice data in a data structure.* Denning, ¶¶267-71. For example, *Ikeda* discloses performing “authentication of the driver” by “detecting” a “user’s physical feature,” including “a voiceprint.” *Ikeda*, [0429].

Ikeda further discloses that the “personal identification device 41” *matches* the received sensor data (in the case of a “voiceprint,” *voice data*) *to stored data in a data structure*. For example, *Ikeda* discloses that during “driver determination processing,” “the personal identification device 41” identifies data that matches a driver “by template matching” the received sensor data with data “received from the in-vehicle device 10.” *Ikeda*, [0097]. *Ikeda* discloses that the “in-vehicle device 10” directs the “driver determination processing,” using the “personal identification device 41.” *Supra* § VII.C.1 (element 1[c]).

That data “received from the in-vehicle device 10” is *stored data in a data structure* because it is “stored in the portable device 20” before being “transmitted to the in-vehicle device 10.” *Ikeda*, [0085]. The “portable device 20” contains “storage unit 22” in which both “user identification information, which is identification information unique to a user” and the “environment setup information, which is indicative of the driving environment for the user” is stored. *Ikeda*, [0073]. A user’s “physical feature”—including “a voiceprint”—is a type of “user identification information.” *Ikeda*, [0429], [0072].

A POSITA would have understood this disclosure to mean that the “storage unit 22” contains a *data structure* that stores the “environment setup information” for a particular user in association with the “user identification information” unique to that user. Denning, ¶270. And, in fact, *Ikeda* describes “storage unit 32” (a

complementary storage unit in another embodiment) as storing “the environment setup information item for each user in association with user identification information.” *Ikeda*, [0143]; *see, e.g., Ikeda*, [0144], [0159], [0190]. A POSITA would thus have understood that *Ikeda* discloses a *data structure* in which “user identification information” is stored “in association with” the corresponding “environment setup information” (*settings*) Denning, ¶269.

8. Claim 14

Element 14[a]

Ikeda discloses a *non-transitory computer readable medium having stored thereon computer-executable instructions, the computer executable instructions causing a processor to execute a method for providing a unified desktop*. Denning, ¶¶272-75. *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].

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]; *see also Ikeda*, [0015]-[0018].

As to a *unified desktop*, *Ikeda* discloses “a display device 43” that is used by control unit 11 and thus its CPU for communications. *Ikeda*, [0204], [0206]; *see* ’034 patent, 5:52-59 (“The term ‘desktop,’ as used herein, refers to a metaphor used to portray systems.”).

Element 14[b]

Ikeda discloses *instructions to receive sensor data from one or more sensors*. Denning, ¶¶276-77. *Ikeda* discloses *instructions (supra § VII.C.9 (element 14[a])) to receive sensor data from one or more sensors*. *Supra* § VII.C.4 (element 9[c1]).

Element 14[c]

Ikeda discloses *based on the received sensor data, instructions to automatically determine if a person is within a zone of a vehicle*. Denning, ¶¶278-79. *Ikeda* discloses *instructions (supra § VII.C.9 (element 14[a])) to automatically determine if a person is within a zone of a vehicle*. *Supra* § VII.C.4 (element 9[c2]).

Element 14[d]

Ikeda discloses *based on the received sensor data, instructions to automatically identify the person*. Denning, ¶¶280-81. *Ikeda* discloses *instructions (supra § VII.C.9 (element 14[a]), based on the received sensor data, to automatically identify the person*. *Supra* § VII.A.4 (element 9[c3]).

Element 14[e]

Ikeda discloses instructions to retrieve one or more settings associated with the identified person. Denning, ¶¶282-83. *Ikeda* discloses instructions (*supra* § VII.C.9 (element 14[a])) to retrieve one or more settings associated with the identified person. *Supra* § VII.A.4 (element 9[c4]).

Element 14[f]

Ikeda discloses instructions to automatically configure the vehicle according to the retrieved settings. Denning, ¶¶284-85. *Ikeda* discloses instructions (*supra* § VII.C.9 (element 14[a])) to automatically configure the vehicle according to the retrieved settings. *Supra* § VII.A.4 (element 9[c5]).

9. Claim 15

Ikeda further discloses wherein the settings retrieved are associated with the determined area or zone. Denning, ¶¶286-87. For example, *Ikeda* discloses that the “environment setup information item” is “indicative of the driving environment for the driver” (*settings*). *Ikeda*, [0091], [0064]. *Ikeda* further discloses that the “environment setup information item” (*settings*) contains settings for the “seat position controller 51” which “adjusts the position of the driver’s electric seat,” and is, thus, *associated with* the driver’s seat (*determined area or zone*). *Ikeda*, [0064].

10. Claim 16

Ikeda further discloses *wherein the settings are retrieved from a data structure*. Denning, ¶¶288-92. For example, *Ikeda* discloses obtaining “the environment setup information item indicative of the driving environment for the driver” (*settings*) by sending a “setup information-sending request [that] requests the portable device 20 of the driver to send the environment setup information item” (whereby *settings are retrieved*). *Ikeda*, [0091]. *Ikeda* further discloses “portable device 20”—to which the “setup information-sending request” is sent—stores the “environment setup information item” in the “storage unit 22” (*a data structure*). *Ikeda*, [0070]-[0072].

Ikeda discloses that its “storage unit 22” is used to store both “user identification information, which is identification information unique to a user” and the “environment setup information, which is indicative of the driving environment for the user” (*settings*). *Ikeda*, [0073]. A POSITA would have understood this disclosure to mean that the “storage unit 22” contains a *data structure* that stores the “environment setup information” for a particular user in association with the “user identification information” unique to that user. Denning, ¶290. And, in fact, *Ikeda* describes “storage unit 32” (a complementary storage unit in another embodiment) as storing “the environment setup information item for each user in association with user identification information.” *Ikeda*, [0143]; *see*,

e.g., Ikeda, [0144], [0159], [0190]. A POSITA would thus have understood that *Ikeda* discloses a *data structure* in which “user identification information” is stored “in association with” the corresponding “environment setup information” (*settings*) Denning, ¶291.

11. Claim 17

Ikeda discloses *wherein said the data structure is stored in cloud storage*. Denning, ¶¶293-95.

Ikeda discloses storing *corresponding settings* in a *data structure*. *Supra* §§ VII.C.2 (claim 7) and VII.C.10 (claim 16).

Ikeda also discloses that, in at least one embodiment, “the in-vehicle device 10 is operable to perform data communication with the management device 30, in a communications area covered by a mobile phone base station arranged in various places (it is markedly wider than the communications area with the portable device 20).” *Ikeda*, [0136]. *Ikeda* further discloses that this “management device 30 includes . . . a storage unit 32.” *Ikeda*, [0141]. And this “storage unit 32 is operable to store a variety of information,” including “the environment setup information item indicative of the driving environment for each of the users.” *Ikeda*, [0143].

D. Ground 4: *Ikeda* in view of *Morehouse* renders obvious claims 1, 7-10, and 12-13.

Ikeda discloses claims 1, 7-10, and 12-13. *Supra* § VII.C. But if the Board finds *Ikeda* does not disclose elements 1[d] (*determining, by a processor, if said*

identified person has corresponding settings) or 9[c4] (determine if the person has made a setting), they would have been obvious in view of Morehouse.

1. Independent Claim 1

Element 1[d]

It would have been obvious to a POSITA to modify *Ikeda* to include *Morehouse*'s teaching of querying whether an identified person has settings. Denning, ¶¶297-302. *Morehouse* discloses using a series of queries to determine if certain settings exist for a particular user, including "climate information" and "seat information." *Morehouse*, [0021]. The diamond shaped boxes in the figure below represent queries in *Morehouse* to determine if a person identified in block 92 has corresponding settings for climate (94), seat (100), mirror (106), door locks (112), or radio presents (118).

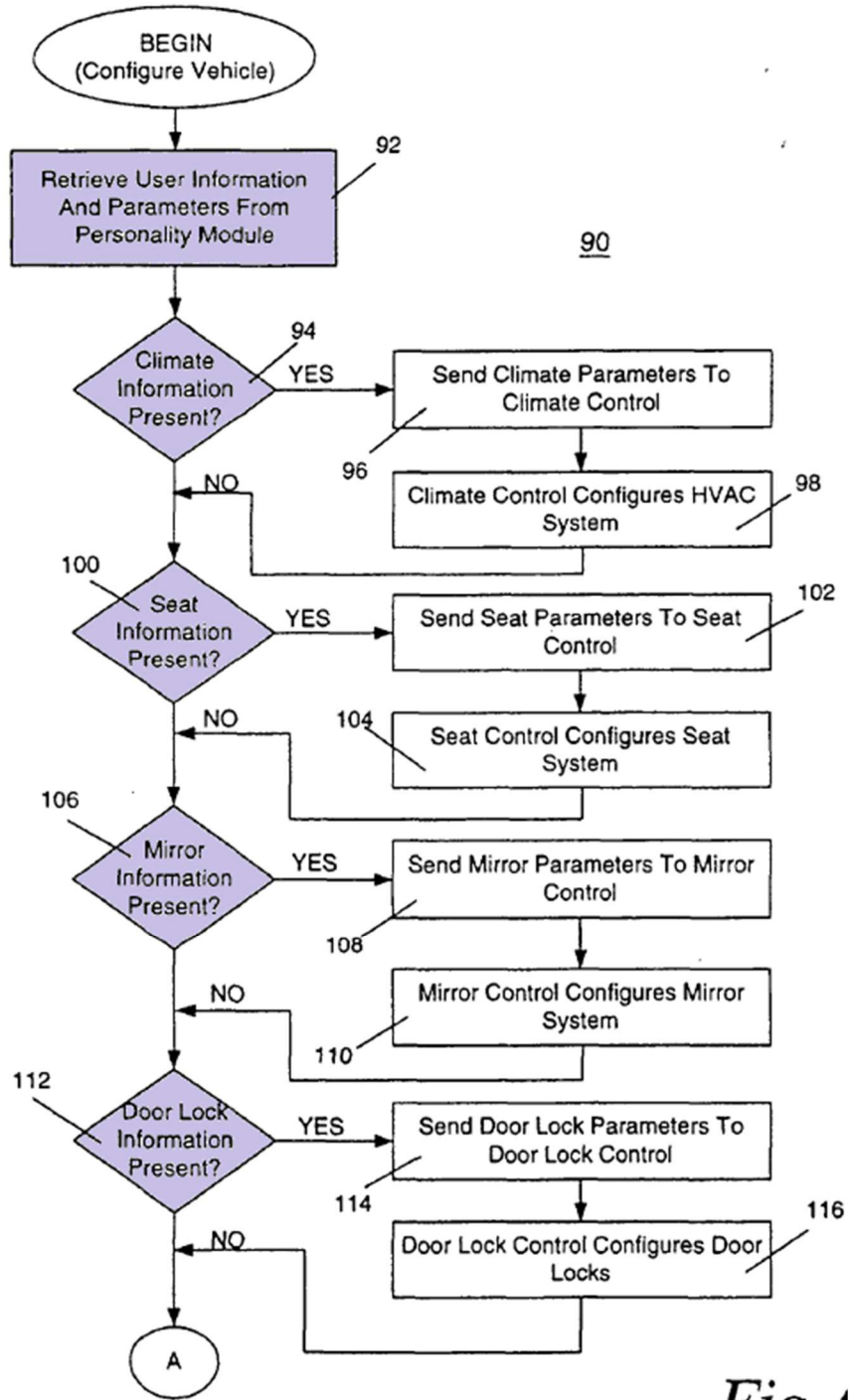
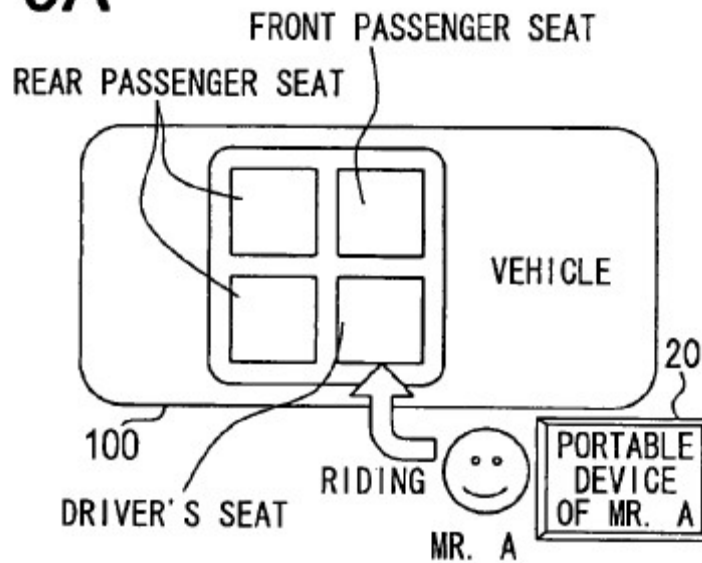


Fig. 1

Morehouse, Fig. 6 (annotated).

FIG. 5A



Morehouse, Fig. 6 (annotated).

A POSITA would have been motivated to combine *Morehouse*'s disclosure of querying whether an identified person has settings with *Ikeda*'s vehicle control system. Denning, ¶299. A POSITA would have been motivated to design an efficient system that only transmits data to the "control units" for which settings exist in the "environment setup information time." Denning, ¶299. A POSITA would have recognized that it would be an inefficient use of processing power to send commands to electronic control units (i.e., "control units") for which no settings exist for a given user. Denning, ¶299. A POSITA would have recognized that *Morehouse*'s disclosure of queries to determine whether settings exist would have provided a straightforward means by which the POSITA could determine which "control units" to transmit data to. Denning, ¶299.

There are many reasons why applying *Morehouse*'s disclosure of queries to determine whether settings exist would have been obvious to a POSITA. Denning, ¶300. A POSITA would have considered such changes to *Ikeda* because they involved (A) combining prior-art elements according to known methods to yield predictable results (e.g., applying *Morehouse*'s queries to *Ikeda*'s vehicle control system); (B) use of a known technique (e.g., *Morehouse*'s queries) to improve similar devices in the same way (e.g., *Ikeda*'s vehicle control system); (C) applying a known technique (e.g., *Morehouse*'s queries) to a known device (e.g., *Ikeda*'s vehicle control system) ready for improvement to yield predictable results. Denning, ¶300.

A POSITA would have had a reasonable expectation of success in combining *Morehouse*'s teaching of queries with *Ikeda*'s disclosure of a vehicle user recognition and settings adjustment system. Denning, ¶301. *Ikeda* discloses that its "control unit 11" uses "a ROM" to "execute[] various processing." *Ikeda*, [0061]. A POSITA would have known how to adjust *Ikeda*'s processing software to implement *Morehouse*'s series of settings queries. Denning, ¶301.

2. Independent Claim 9

Element 9[c4]

If the Board finds *Ikeda* does not disclose that *the processor is operable to determine if the person has made a setting*, it would have been obvious in view of

Ikeda's teachings and *Morehouse*. Denning, ¶¶303-04. Again, *Ikeda* and *Morehouse* are analogous art with each other and with the '034 patent. See *supra* § VII.C.1 (element 1[d]). For the same reasons explained above, a POSITA would have been motivated to combine *Morehouse's* disclosure with *Ikeda's* to *determine if the person has made a setting* and would have had a reasonable expectation in doing so. See *supra* § VII.C.1 (element 1[d]).

E. Grounds 5a/b: *Ikeda* in view of *Yasui* (Ground 5a) and *Ikeda* in view of *Morehouse* and *Yasui* (Ground 5b) renders obvious claim 11.

Ikeda discloses or, in view of *Morehouse*, renders obvious claims 9 and 10, from which claim 11 depends. *Supra* §§ VII.C.4-5 and VII.D.

1. Claim 11

Ikeda in view of *Yasui* or *Ikeda* in view of *Morehouse* in further view of *Yasui* renders obvious *wherein in automatically identifying the person the processor is operable to match the image to a stored image in a data structure*.

Denning, ¶¶306-18.

Yasui discloses “cutting out the facial image portion from that captured image and comparing various facial expressions to previously captured and prepared master images.” *Yasui*, [0047]. *Yasui* further discloses storing the “master facial image” in the “user registration unit,” which is, for example, “a ROM . . . in

hospitality decision-making unit 2” (*stored in a data structure*). *Yasui*, [0054]-[0055]; Denning, ¶307.

Yasui further discloses a *data structure* in which images are stored. *Supra* § VII.A.6 (claim 11).

It would have been obvious to combine *Ikeda*’s “driver determination processing” system with *Yasui*’s disclosure of a processor operable to match an image to a stored image in a data structure. Denning, ¶309; *see supra* § VII.C.1 (element 1[c]). During *Ikeda*’s “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.” *Ikeda*, [0097]; *see Ikeda* [0225]. A POSITA would have been motivated to make this combination so that *Ikeda*’s system, instead of having to rely on “facial feature information items,” would be able to perform additional real-time processing on a stored image to help identify a driver in a situation where the “in-vehicle device 10” has received two pieces of facial data that both appear to belong to the driver. Denning, ¶310; *Ikeda*, [0238]-[0273].

There are many reasons why modifying *Ikeda*’s disclosure to match an image to a stored image in a data structure would have been obvious to a POSITA.

Denning, ¶316. A POSITA would have considered such changes to *Ikeda* because they involved (A) combining prior-art elements according to known methods to yield predictable results (e.g., storing *Yasui*'s technique for matching an image to a stored image in a data structure); (B) use of a known technique (e.g., *Yasui*'s technique for matching an image to a stored image in a data structure) to improve similar devices in the same way (e.g., *Ikeda*'s vehicle control system); (C) applying a known technique (e.g., *Yasui*'s technique for matching an image to a stored image in a data structure) to a known device (e.g., *Ikeda*'s vehicle control system) ready for improvement to yield predictable results. Denning, ¶316.

A POSITA would have had a reasonable expectation of success in combining *Ikeda*'s disclosure with *Yasui*'s to match an image to a stored image in a data structure. Denning, ¶317.

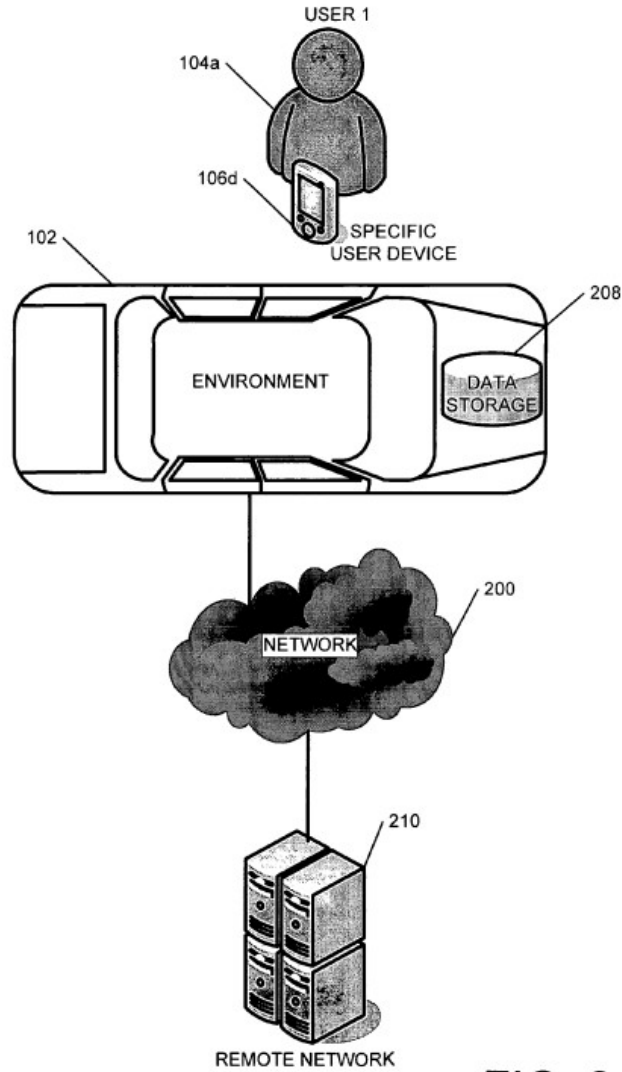
F. Grounds 6a/b: *Ikeda* in view of *Zellner* (Ground 6a) and *Ikeda* in view of *Morehouse* and *Zellner* (Ground 6b) renders obvious claims 7 and 17.

Ikeda discloses or, alone or in view of *Morehouse*, renders obvious claims 1 and 14, from which claims 7 and 17 depend. *Supra* §§ VII.C and VII.D.

1. Claim 7

Ikeda in view of *Zellner* or *Ikeda* in view of *Morehouse* in further view of *Zellner* renders obvious claim 7, including *wherein said corresponding settings is stored in cloud storage*. Denning, ¶¶320-25.

Zellner discloses “systems and methods that can store user preferences at a remote location.” *Zellner*, [0046]. These “user preferences” (*corresponding settings*) can include “radio stations,” “seat position,” “temperature for an automobile,” etc. *Zellner*, [0049]. *Zellner*’s “environment 102”—such as a car—“can send a preference request to remote network 210 to determine the desired preference data.” *Zellner*, [0059].



Zellner, Fig. 2.

It would have been obvious to combine *Ikeda*'s vehicle control system with *Zellner*'s cloud storage of corresponding settings and corresponding ability to query that cloud storage. Denning, ¶322. A POSITA would have been motivated to make this combination to ensure a user's settings are applied wherever possible, because storing corresponding settings in cloud storage allows "any environment"

(e.g., any vehicle) “communicatively coupled to the remote network” to “receive the stored user preferences, and configure at least one setting according to those preferences.” *Zellner*, [0068]; *compare* ’034 patent, 10:36-39 (“The stored data [], being stored in a cloud or in a distant facility, may be exchanged among vehicles”); Denning, ¶322. Additionally, a POSITA would have been motivated to store corresponding settings in cloud storage so that the limited local memory on the vehicle could be used for storing other data. Denning, ¶322.

There are many reasons why modifying *Ikeda*’s disclosure to store corresponding settings in cloud storage and send queries to the cloud storage would have been obvious to a POSITA. Denning, ¶323. A POSITA would have considered such changes to *Ikeda* because they involved (A) combining prior-art elements according to known methods to yield predictable results (e.g., storing *Ikeda*’s corresponding settings in cloud storage for retrieval); (B) use of a known technique (e.g., storing data in cloud storage) to improve similar devices in the same way (e.g., *Ikeda*’s vehicle control system); (C) applying a known technique (e.g., storing data in cloud storage) to a known device (e.g., *Ikeda*’s vehicle control system) ready for improvement to yield predictable results. Denning, ¶323.

A POSITA would have had a reasonable expectation of success in combining *Ikeda*’s disclosure with *Zellner*’s to store corresponding settings in cloud storage because doing so would require nothing more than the simple

modification of computer code, a task well within the ability of a POSITA at the time of the alleged invention. Denning, ¶324; *see Boling*, [0018] (disclosing a database containing information on vehicle diagnostics that “comprises multiple server computers distributed anywhere within the network [] (i.e., cloud computing)”); *see, e.g., '034 patent*, 16:25-44; *Zellner*, [0075]-[0076].

2. Claim 17

Ikeda in view of *Zellner* or *Ikeda* in view of *Morehouse* in further view of *Zellner* renders obvious claim 17, including *wherein the data structure is stored in cloud storage*. Denning, ¶¶326-33.

Ikeda discloses storing *corresponding settings* in a *data structure*. *Supra* §§ VII.C.2 (claim 7) and VII.C.10 (claim 16). *Ikeda* also discloses *wherein the data structure is stored in cloud storage*. *Supra* § VII.C.11 (claim 17).

Zellner further discloses “utilizing the user identifier to access a database to retrieve preference data related to that user,” via a “remote network.” *Zellner*, [0110]. Thus, *Zellner* also discloses storing a *data structure* (“database”) in *cloud storage* (“remote network”). Denning, ¶329.

A POSITA would have known the many advantages of storing the data structure in cloud storage. Denning, ¶330. For example, a POSITA would have been motivated to store the data structure in cloud storage so that a user could access and implement these settings in more than one vehicle. Denning, ¶330.

Additionally, a POSITA would have been motivated to store the data structure in cloud storage so that the limited local memory on the vehicle could be used for storing other data. Further, a POSITA would have recognized cloud storage as a solution readily available to accomplish the above-mentioned motivations. *See supra* § VII.F.1 (claim 7).

There are many reasons why combining *Ikeda*'s disclosure with *Zellner*'s would have been obvious to a POSITA. Denning, ¶331. A POSITA would have considered such changes to *Ikeda* because they involved (A) combining prior-art elements according to known methods to yield predictable results (e.g., storing *Ikeda*'s data structure in cloud storage); (B) use of a known technique (e.g., storing a data structure in cloud storage) to improve similar devices in the same way (e.g., *Ikeda*'s vehicle control system); (C) applying a known technique (e.g., storing a data structure in cloud storage) to a known device (e.g., *Ikeda*'s vehicle control system) ready for improvement to yield predictable results. Denning, ¶331.

A POSITA would have had a reasonable expectation of success in combining *Ikeda*'s disclosure with *Zellner*'s disclosure of a *data structure* (“database”) stored in *cloud storage* (“remote network”) because doing so would require nothing more than the simple modification of computer code, a task well within the ability of a POSITA at the time of the alleged invention. Denning, ¶332; *see Boling*, [0018]; *see, e.g.*, '034 patent, 16:25-44; *Zellner*, [0075]-[0076].

VIII. Grounds for Standing

Petitioner certifies that the '034 patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR challenging the patent claims on the grounds herein.

IX. Mandatory Notices

A. Real Party-in-Interest Under 37 C.F.R. § 42.8(b)(1)

The real parties-in-interest are Toyota Motor Corporation, Toyota Motor North America, Inc., Toyota Motor Engineering & Manufacturing North America, Inc., and Toyota Motor Sales, U.S.A., Inc.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

To the best of Petitioner's knowledge, the '034 patent is, or has been, involved in the following proceeding(s).

Name	Number	Court	Filed
<i>AutoConnect Holdings LLC v. Toyota Motor Corp. et al.</i>	2:24-cv-00802	EDTX	Oct. 3, 2024

C. Lead and Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

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D. Service Information Under 37 C.F.R. § 42.8(b)(4)

Please address all correspondence to counsel at the addresses above. Petitioner consents to service by email at the above addresses.

X. Conclusion

Petitioner requests that the Board institute *inter partes* review and cancel each challenged claim.

Respectfully submitted,

Dated: April 30, 2025

By: /Joshua L. Goldberg/
Joshua L. Goldberg, Reg. No. 59,369

CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Pursuant to 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the foregoing Petition contains 13,978 words, excluding parts of this Petition exempted under § 42.24(a), as measured by the word-processing system used to prepare this paper.

Respectfully submitted,

Dated: April 30, 2025

By: /Joshua L. Goldberg/
Joshua L. Goldberg, Reg. No. 59,369

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing Petition for *Inter Partes* Review, the associated Power of Attorney, and Exhibits 1001-1005, 1007-1008, and 1020-1021 were served on April 30, 2025, on counsel of record for the subject patent by FedEx Priority Overnight at the addresses below.

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