

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORP.,
Petitioner,

v.

EMERGING AUTOMOTIVE LLC,
Patent Owner.

Case No. IPR2024-00786
U.S. Patent No. 9,171,268

PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 9,171,268

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LIST OF EXHIBITS

Exhibit	Description
Ex. 1001	U.S. Patent No. 9,171,268 to Penilla et al. (“’268 patent”)
Ex. 1002	Prosecution File History for U.S. Patent No. 9,171,268.
Ex. 1003	U.S. Provisional Application No. 61/745,729.
Ex. 1004	Originally-Filed Specification of U.S. Application No. 13/842,158.
Ex. 1005	U.S. Provisional Application No. 61/478,436.
Ex. 1006	Originally-Filed Specification of U.S. Application No. 13/452,882.
Ex. 1007	Comparison Result of Specifications of U.S. Application No. 14/050,314 to U.S. Application No. 13/842,158, with Annotations Showing Added “Compatibility” Disclosure.
Ex. 1008	Curriculum Vitae of Dr. Kevin Almeroth.
Ex. 1009	Declaration of Dr. Kevin Almeroth.
Ex. 1010	U.S. Patent Application Pub. No. 2012/0164989 A1 to Hong Xiao et al. (“ <i>Xiao</i> ”)
Ex. 1011	U.S. Patent Application Pub. No. 2006/0136106 A1 to Russell A. Patenaude et al. (“ <i>Patenaude</i> ”)
Ex. 1012	U.S. Patent Application Pub. No. 2007/0255464 A1 to Amita Singh et al. (“ <i>Singh</i> ”)
Ex. 1013	Japanese Patent Application Pub. No. 2012-076627 A to Kunikatsu Hayashi et al. (“ <i>Hayashi</i> ”)
Ex. 1014	Docket Control Order in <i>Emerging Auto. LLC v. Kia Corp.</i> , No. 2:23-cv-437-JRG, Dkt. No. 40 (E.D. Tex. Feb. 6, 2024)
Ex. 1015	Patent Owner’s Infringement Contentions for the ’268 Patent in E.D. Tex. Civil Action No. 2:23-cv-434-JRG

I. Preliminary Statement

Petitioner Toyota Motor Corporation requests *inter partes* review of claims 10-20 of the '268 patent, purportedly assigned to Emerging Automotive LLC.

The '268 patent relates to setting and transferring a user profile to a vehicle. It identifies the purported deficiency of the then-current state of the art as being that settings are “vehicle specific.” Ex. 1001, 12:31-36. To address this, the patent describes an embodiment in which “logins are user specific, not vehicle specific,” and “the user’s settings are seamlessly transferred to the vehicle the user chooses to drive.” *Id.*, 13:32-36; 21:42-43. As an example, the patent states that upon approaching a vehicle with a mobile device, “the user[']s profile is transferred to the vehicle. The transfer of the profile will allow the settings of the user to automatically be set in the vehicle. The settings can include, for example, temperature, radio settings, seat settings, meter settings, air settings, etc.” *Id.*, 18:42-46. During prosecution, Patent Owner amended the claims to overcome prior art, adding that the claimed “applicable settings” are “settings that are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle.” Ex. 1002, 203. Patent Owner argued that, in contrast to the cited art, “the user profile may have many

preferences for settings, and some of such settings are usable on certain vehicles, depending on whether they support such setting.” *Id.*

But as the prior art demonstrates, it was well-known before October 9, 2013 (the earliest date to which the challenged claims can potentially claim priority) to implement such vehicle user profile systems and methods. For example, years earlier, *Xiao* disclosed the same concept of allowing a vehicle operator to “apply the settings of the operator’s profile to the systems of the automobile” Ex. 1010, ¶[0102]. Just like the ’268 patent, *Xiao* describes such settings as including climate, audio, seat position, and mirror position. *Id.* *Xiao* also recognized that the operator’s desired settings would be implemented as “applicable settings” that are compatible with the vehicle, as claimed, explaining that appropriate command codes are looked up for a particular vehicle to control onboard modules. *See id.*, ¶¶[0103]-[0104], Fig. 6.

Xiao, along with other prior art, renders unpatentable all challenged claims. Accordingly, the Board should institute IPR and cancel all challenged claims.

II. Precise Relief Requested

Petitioner respectfully requests IPR and cancellation of the challenged claims based on the following prior art references and grounds. As explained in Section III.C, the ’268 patent claims are entitled to an effective filing date of no earlier than October 9, 2013. Petitioner notes the prior art status of the references

under both AIA and pre-AIA law to account for the possibility of Patent Owner arguing for an earlier priority date.

Prior Art References	
	<i>Xiao</i> (Ex. 1010), U.S. Patent App. Pub. 2012/0164989A1, filed Dec. 22, 2010, and published Jun. 28, 2012 (pre-AIA §§ 102(a), (b), (e) or AIA §§ 102(a)(1), (a)(2)).
	<i>Patenaude</i> (Ex. 1011), U.S. Patent App. Pub. 2006/0136106A1, filed Dec. 22, 2004, and published Jun. 22, 2006 (pre-AIA §§ 102(a), (b), (e) or AIA §§ 102(a)(1), (a)(2)).
	<i>Singh</i> (Ex. 1012), U.S. Patent App. Pub. 2007/0255464A1, filed Apr. 26, 2006, and published Nov. 1, 2007 (pre-AIA §§ 102(a), (b), (e) or AIA §§ 102(a)(1), (a)(2)).
	<i>Hayashi</i> (Ex. 1013), Japanese Patent App. Pub. 2012-76627A, filed Oct. 1, 2010, and published Apr. 19, 2012 (pre-AIA §§ 102(a), (b) or AIA § 102(a)(1)).

Grounds of Unpatentability	
1	<i>Xiao</i> anticipates claims 10, 11, 13, 15-19 under §102.
2	<i>Xiao</i> and <i>Hayashi</i> render obvious claims 10, 11, 13, 15-19 under §103.
3a	<i>Xiao</i> and <i>Patenaude</i> render obvious claim 12 under §103.
3b	<i>Xiao</i> , <i>Hayashi</i> , and <i>Patenaude</i> render obvious claim 12 under §103.
4a	<i>Xiao</i> and <i>Singh</i> render obvious claim 14 under §103.
4b	<i>Xiao</i> , <i>Hayashi</i> , and <i>Singh</i> render obvious claim 14 under §103.
5	<i>Xiao</i> , <i>Hayashi</i> , and <i>Patenaude</i> render obvious claim 20 under §103.

III. The '268 Patent

A. Overview

The '268 patent relates to methods and systems for setting and transferring a user profile to a vehicle. Ex. 1001, Abstract. But the problems identified by Patent Owner, and their solutions, were already known before the effective filing date. For example, in one of the provisional applications to which the patent claims priority (61/745,729, the only provisional application that can even partially support the claimed subject matter), Patent Owner described an alleged problem that “[v]ehicles currently only allow users to program personalized vehicle settings manually in the vehicle,” but “there is no way to identify the driver of the car to match the individual to his or her settings.” Ex. 1003, ¶[0089].

The '268 patent also considers it a problem that “a user drives many cars, but wishes to keep his settings constant.” Ex. 1001, 21:43-45. It identifies the purported deficiency of the then-current state of the art as being that “settings are vehicle specific” rather than login-specific. *Id.*, 12:31-39. The patent aims to “allow each user to apply his or her settings to *any* vehicle” *Id.*¹

To address these alleged deficiencies, the patent describes that “logins are user specific, not vehicle specific,” and “the user’s settings are seamlessly

¹ All emphasis added unless otherwise indicated.

transferred to the vehicle the user chooses to drive.” *Id.*, 13:32-36; 21:42-43. The patent states that “the user[']s profile is transferred to the vehicle. The transfer of the profile will allow the settings of the user to automatically be set in the vehicle. The settings can include, for example, temperature, radio settings, seat settings, meter settings, air settings, etc.” *Id.*, 18:39-46.

Referring to Fig. 10 (below), the '268 patent discusses an exemplary process, stating:

In operation 454, the user may be identified and the user[']s profile can be automatically retrieved from cloud services and the user profile 160. The preferences settings for the user can be identified from the database in operation 456, and the settings can be applied in operation 458. The settings can be applied to the vehicle for the identified user.

Id., 20:6-13.

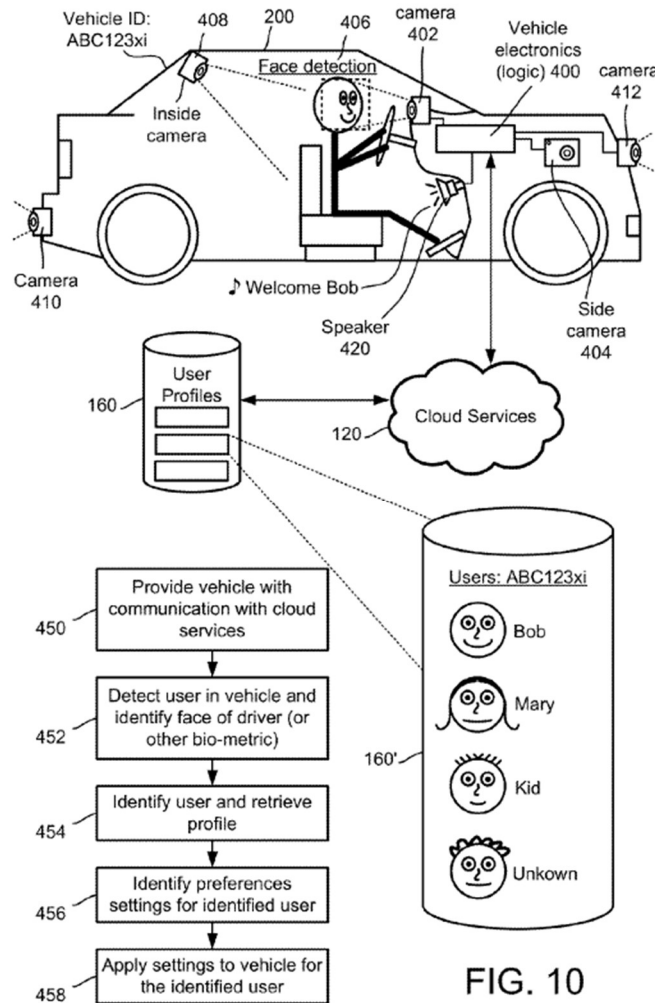


FIG. 10

However, as explained herein, it was commonplace and well-known to a person of skill in the art (“POSA”) prior to the ’268 patent to perform such a process to personalize a vehicle using the operator’s user profile.

B. File History

During prosecution, Applicant narrowed the claims to overcome prior art. For example, Applicant amended claim 10 such that “applicable settings” are “settings that are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle.” Ex. 1002, 196.

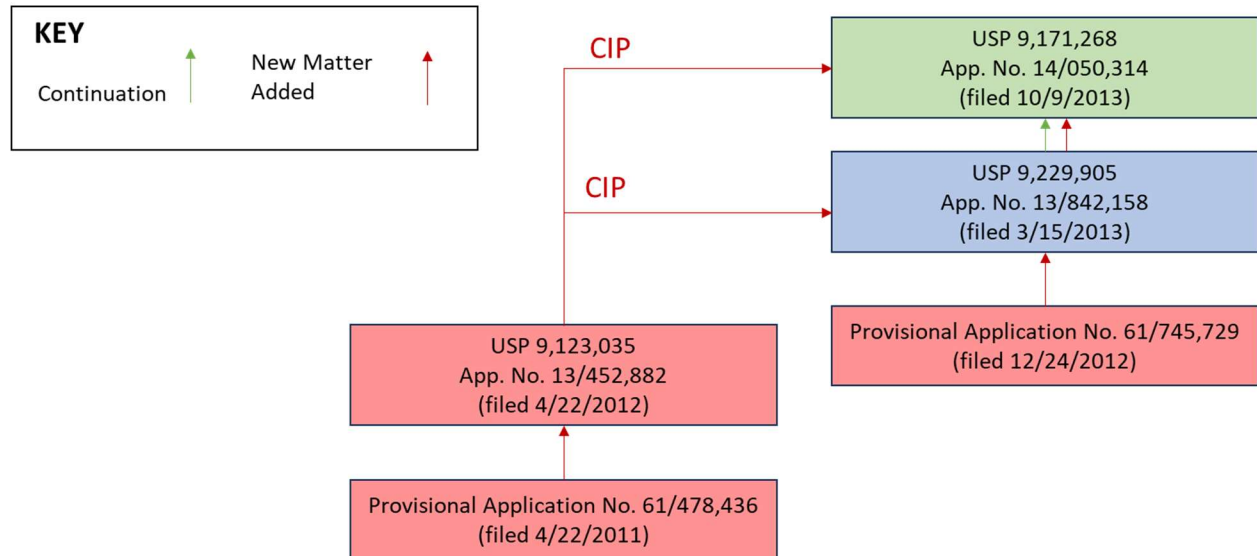
Applicant argued that, in contrast to the cited art, “the user profile may have many preferences for settings, and some of such settings are usable on certain vehicles, depending on whether they support such setting.” *Id.*, 203. Applicant cited to the specification stating “the user profile defines one or more settings that are preferred to be set in vehicles *if the vehicles support the settings.*” *Id.*, 39 (¶[0018]). The specification also states, “applicable settings being those settings that are preferred to be set as identified from the user profile and are settable in the selected vehicle.” *Id.* The specification does not define “settable” settings or “compatibility.” Nor does it describe how a server might determine some settings are supported/compatible with a particular vehicle.

After the claims were amended to include the “compatibility” feature described above, among others, the Examiner allowed the claims, noting that the art of record did not disclose all the elements of the independent claims, including **“transferring the user profile, and configur[ing] the vehicle to automatically set on the vehicle one or more of the available settings that are determined compatible** with settings identified in one or more of the user preferences of the user profile” *Id.*, 213 (emphasis in original) (cleaned up).

C. Effective Filing Date – No Earlier than October 9, 2013

Application 14/050,314, which led to the '268 patent, was filed October 9, 2013, and claims priority to Applications 13/452,882 (now USP 9,123,035),

13/824,158,² 61/478,436, and 61/745,729. Application 14/050,314 is a continuation-in-part, as illustrated below:



The challenged claims are not entitled to the filing date of the provisional applications or the parent applications because *none* of those applications fully describes the claimed subject matter as required by AIA 35 U.S.C. § 112(a) or pre-AIA 35 U.S.C. § 112, ¶ 1. Rather, the challenged claims are entitled to a filing date of no earlier than October 9, 2013. Ex. 1009, ¶¶ 60-77.

Under 35 U.S.C. § 120, a claim in a U.S. patent application is not entitled to the benefit of an earlier-filed U.S. application unless the subject matter of the claim is disclosed in the manner provided by § 112 in the earlier-filed application. *See D Three Enters., LLC v. SunModo Corp.*, 890 F.3d 1042, 1046-47 (Fed. Cir. 2018).

² Application 13/824,158 is clearly a typo and should refer to 13/842,158.

To comply with the written description requirement, an application must “reasonably convey[] to those skilled in the art that the inventor had possession of” and “actually invented” the claimed subject matter. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). “[T]he hallmark of written description is disclosure.” *Id.* The test for adequate written description support “requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art.” *Id.* “[T]he disclosure must describe the claimed invention with all its limitations.” *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158 (Fed. Cir. 1998).

The first chain of Applications 13/452,882, 61/478,436, do not disclose determining applicable settings that are “preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle,” as recited in independent claim 10, or “compatible for use with the vehicle” as recited in independent claim 20. Indeed, they do not even mention the term “user profile” or “settings” for a vehicle.³

³ The applications make passing reference to providing dynamic information to users of volt bars (charge units), such as “suggested travel speeds to conserve energy, maps for routing, better dynamic traffic information based on real-time information, and other settings.” Ex. 1005, 46 (¶ [00161]); Ex. 1006, 66 (¶ [00208]). However, the

Not until October 9, 2013 did Applicant add subject matter concerning settings in the user profile being supported or “compatible” with vehicles.⁴ *See* Ex. 1007 (illustrating subject matter added in App. 14/050,314). Applicant relied on paragraphs [0007], [0018], and [0075] of Application 14/050,314 to introduce the “compatibility” feature. Ex. 1002, 203. But paragraphs [0007] and [0075] do not support this feature, and paragraph [0018] was only added October 9, 2013. Ex. 1009, ¶ 68.

In the second chain of applications, Application 61/745,729 explains “[i]f the user’s login is recognized, the system will apply *all* settings and use privileges to the vehicle prescribed by the login,” which is the *opposite* of the claimed “compatibility” feature. Ex. 1003, 39-40 (¶[0091]).

None of these applications describes determining that *certain* user-preferred *settings* are compatible with settings settable in the selected vehicle, or that *certain* of such settings are compatible for use with the vehicle. Nor do they even mention

applications do not explain how such “settings” have any relation to settings settable in a vehicle, much less how they are “compatible” with any vehicle.

⁴ To be clear, Petitioner does not concede that App. 14/050,314 provides adequate written description support for every claim of the ’268 patent. Rather, 14/050,314 is the *earliest* application that could possibly provide support for the challenged claims.

“compatibility” except in Application 13/842,158, which was not filed early enough to antedate any of the prior art in this petition. Regardless, sufficient written description cannot be found based on Application 13/842,158’s passing reference to “third-party applications” that “can be pre-identified by the site and displayed to the user if they are compatible with the particular vehicle selected.” *See* Ex. 1004, 24-25 (¶[0095]). Aside from the superficial similarity in language, the application’s description of a third-party application being “compatible” with the selected vehicle is not the same as determining whether certain user-preferred settings defined by a user profile are supported by a vehicle or such settings being compatible with settings that are settable in the vehicle, and thus cannot support the claimed features. Ex. 1009, ¶ 73. “Third-party applications” are not “settings that are preferred to be set as identified from the user profile,” and they are conspicuously absent from the claims of the ’268 patent, some of which recite a laundry list of possible alternatives for the “settable settings.” *See* Ex. 1001, 33:44-60, 35:6-21. Indeed, the patent states that “[t]he user profile can include settings” as well as *other* things like “identification of applications purchased,” thus demonstrating that third party applications are distinct from settable settings. *Id.*, 9:46-48.

Accordingly, Application 14/050,314, filed October 9, 2013, is the earliest-filed application possibly supporting setting “compatibility.” Thus, the ’268 patent is entitled to an effective filing date of no earlier than October 9, 2013.

IV. Level of Ordinary Skill

A POSA would have had at least a Bachelor’s degree in electrical engineering, computer science, or closely related field, with at least two-to-four-years-experience in cloud services for settings customization, or a Master’s degree in electrical engineering, computer science, or equivalent. Ex. 1009, ¶ 82.

V. Claim Construction

No terms of the ’268 patent need construction for the purposes of IPR because the claims read on the prior art identified below under any construction consistent with *Phillips*.

VI. Overview of Select Prior Art

A. Xiao

Xiao, entitled “Methods and Systems for Providing a Wireless Automobile Key Service,” “enables an operator of an automobile to use the operator’s mobile device, such as a cell phone, to lock/unlock the automobile, to power on/off the automobile, or to affect other automobile operations.” Ex. 1010, ¶[0023]. *Xiao*’s invention “may also communicate with the automobile, over a network, to *apply automobile system settings* based on preferences contained in an operator profile.” *Id.* *Xiao* demonstrates the concept of “compatibility” of certain settings by

disclosing “appropriate command codes” being sent to appropriate automobile modules to achieve desired settings. *Id.*, ¶¶[0103]-[0104].

Xiao describes wireless automobile key service information 600 stored in a storage device of an automobile service server 118 that includes operator profile information 614. *Id.*, ¶¶[0061], [0064]-[0066]. Operator profile information 614 “may be associated with each operator on the wireless automobile key service account” and “may contain information regarding preferences of the operator,” such as “climate control system preferences.” *Id.*, ¶[0069]. Just like the ’268 patent, *Xiao*’s preferences include climate, comfort, and audio settings. *Id.*, ¶¶[0069]-[0071].

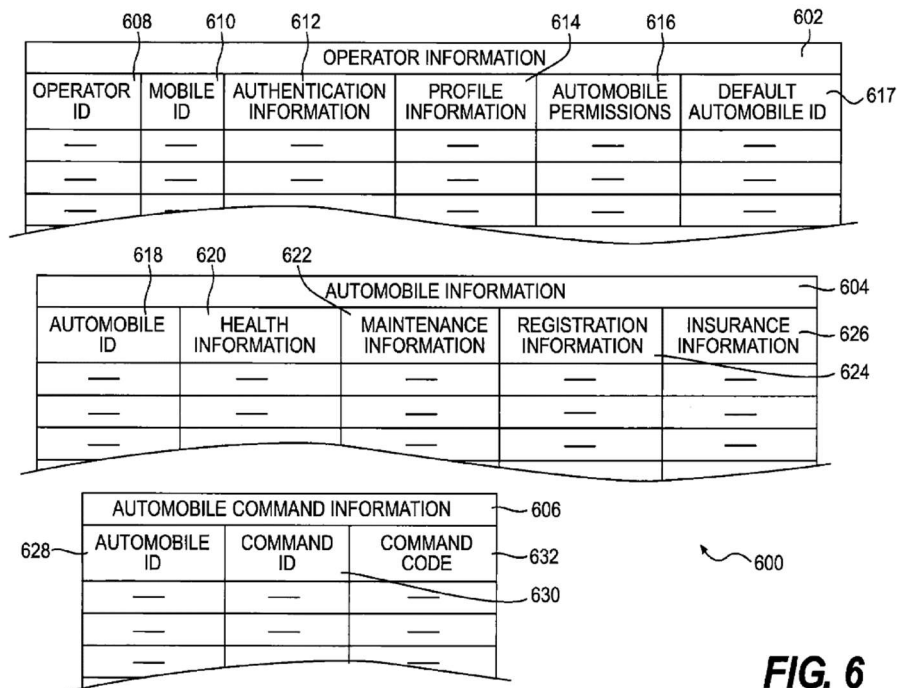


FIG. 6

Xiao also discloses a graphical user interface (“UI”) including page 900 that may be displayed to an automobile operator using a mobile device. *Id.*, ¶¶[0095]-[0097]. *Xiao* explains that the UI works with server 118 to retrieve corresponding profile information 614 identifying certain desired settings of vehicle systems including climate, audio, seat, and mirror positions. *Id.*, ¶[0102].

Xiao explains that its server generates or retrieves “appropriate command codes 632” corresponding to an operator’s desired settings and a particular vehicle. *Id.*, ¶[0103]. For example, Fig. 6 (shown above) includes a table of command code information 606 with entries for each of an automobile ID 628, a command ID 630 (which is “associated with the operator’s desired system settings 614”), and an appropriate command code 632. *Id.* Command codes 632 are “associated with each command that may be issued to the automobile 112.” *Id.*, ¶[0088]. By listing command IDs and codes in the table of information 606, *Xiao* shows that there are particular settings compatible with particular automobiles and particular desired settings. Thus, *Xiao* discloses the characteristic of certain settings (e.g., commands) being compatible with certain automobiles.

As an illustration, for an automobile having automobile ID 628, the operator’s desired setting (630) can be achieved using a command code (632) specific to *that* automobile. *Id.* *Xiao* explains that “command code 632 may be a specific code or instruction that may be broadcast on automobile network 420 and

executed by a module 402-418 aboard the automobile 112 to cause the module 402-418 to perform the desired function.” *Id.* “For example, command codes 632 may be CAN bus codes or other codes provided by the manufacturer of automobile 112 and/or the manufacturer of the automobile systems for controlling the systems to perform various functions.” *Id.*

B. Patenaude

Patenaude, entitled “Method of Determining and Predicting Entertainment Selections for Telematics Unit,” discloses providing entertainment in a vehicle, including monitoring entertainment selections at a telematics unit, determining a user entertainment selection profile based on that monitoring, and automatically activating entertainment units based on the profile. Ex. 1011, Abstract. *Patenaude* endeavors to “determine and predict entertainment selections” by learning a user’s preferences and developing an “entertainment selection profile.” *Id.*, ¶[0001].

Patenaude describes a telematics unit in a vehicle that “monitors entertainment selections” made by the user. *Id.*, ¶[0042]. The monitored selections are used to learn and develop a “user entertainment selection profile.” *Id.*, ¶[0049]. The profile may be based on the user’s selections and other factors such as number of passengers in the vehicle, vehicle location, and time-of-day. *Id.*, ¶¶[0044], [0054]. *Patenaude* explains an “algorithm searches the acquired data to determine if the FM radio is tuned to the same received FM frequency signal within a

specified time frame each weekday for the specific user.” *Id.*, ¶[0070]. For example, the method may determine that a certain “FM radio station is selected every weekday between 5:15 PM and 5:50 PM.” *Id.*, ¶[0057].

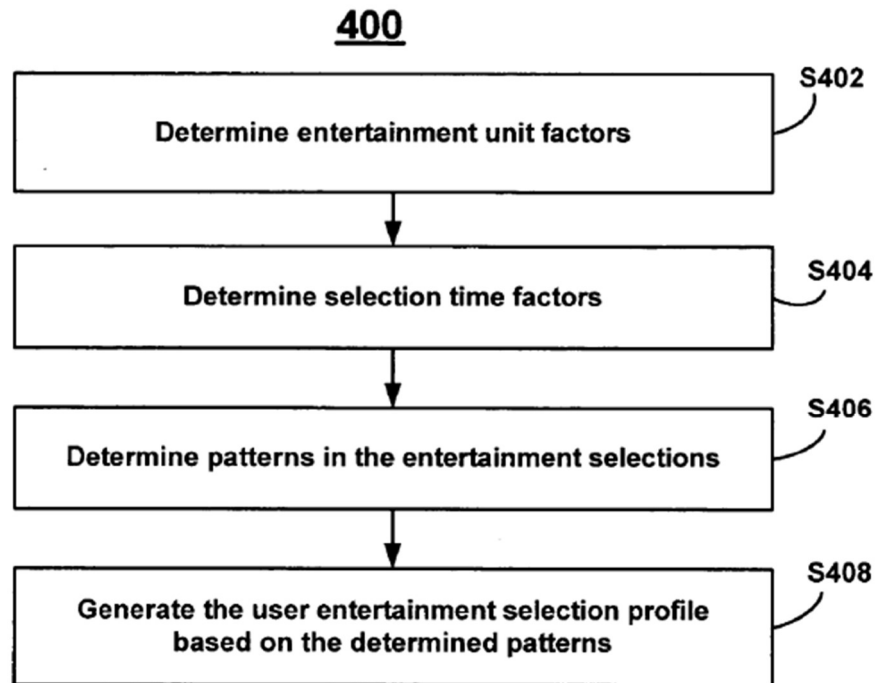


FIG. 4

Based on patterns learned from the selections, the method may automatically apply certain settings to the vehicle. *Id.*, ¶[0074].

C. Singh

Singh, entitled “Car Intelligence,” discloses a vehicle with an operating system that allows multiple drivers to use the vehicle by authenticating the user at the vehicle and loading the user’s “settings and other services customized by that particular driver.” Ex. 1012, ¶[0003]-[0004]. *Singh* explains that “[t]he

preferences used by one driver are not suitable to the other driver.” *Id.*, ¶[0002].

Singh recognized it would be beneficial if such settings and preferences, including “personal seating arrangements, mirror arrangements, temperature arrangements and other features,” could be applied by different users “without having to think about changing the settings of other drivers.” *Id.* *Singh* also recognized there are “major concerns about the security of the vehicle and use of a single vehicle by different drivers,” and, by using *Singh*’s method, “the security measures will considerably improve and different users will also be able to restore their settings and preferences when they use the vehicle.” *Id.*

To this end, *Singh* describes a controller unit of a vehicle that “set[s] the attributes or preferences of the driver who will be driving the vehicle.” *Id.*, ¶[0034]. Settings include seat, mirror, temperature, music or multimedia preferences. *See id.*, ¶¶[0033], [0041], [0064], Fig. 3. To protect a user’s privacy, *Singh* explains that “[w]hen the driver will reach his or her destination and will turn the vehicle off, the Controller Unit will also save the changes made by the driver and then unload the user profile of the current driver and will bring the vehicle attributes to default setting.” *Id.*, ¶[0034]. *Singh* explains that the controller unit will “make sure that no user of the vehicle is able to view information related to the other user unless specified otherwise.” *Id.*; *see also id.*, ¶[0002] (noting that

users' privacy will be maintained due to their preferences being "isolated from other users").

D. Hayashi

Hayashi, entitled "Driving Support Apparatus," discloses systems and methods for providing guidance to vehicle operators to implement various functions across different vehicles. Ex. 1013, Abstract, ¶¶[0001]-[0002]. *Hayashi* recognizes that vehicles may be equipped with systems to achieve certain functionality, but "the operating methods for these functions depends on the vehicle model, model year, etc., of the vehicle." *Id.*, ¶[0002]. *Hayashi* aims to address driver unfamiliarity with vehicle systems by providing compatible guidance to the driver for the vehicle he/she is driving. *Id.*, ¶¶[0004]-[0005].

For example, a driver may operate a vehicle she is not accustomed to driving. *See id.*, ¶[0137]. The driver may wish to adjust settings, such as the seat or mirror. *Id.*, ¶¶[0036], [0122]. However, if the driver is not familiar with the function of that particular vehicle, she may mis-operate the vehicle, risking an accident. *Id.*, ¶[0004]. *Hayashi* guides the driver by "graphically depict[ing] the positions of a shift lever, a parking brake, or the like on display portion 250 and guid[ing] the operating method thereof by voice." *Id.*, ¶[0123].

Hayashi describes database 134 that "stores operating methods for each function according to vehicle model." *Id.*, ¶[0029]. Fig. 6 depicts database 134 with

operating methods for various functions (function 1, 2, 3) that vary by vehicle model (vehicle model α , β , γ). For example, for vehicle model α and for vehicle model β , function 1 is achieved by performing operating method X. For vehicle model γ , function 1 is achieved by performing operating method Y. *Hayashi* demonstrates the concept of compatibility checking by explaining “[i]f a certain ‘vehicle model’ does not have a certain ‘function,’ ‘none’ may be stored . . . as the operating method” *Id.*; *see id.*, Fig. 6.

Operating Method by Vehicle Model				
	Model α	Model β	Model γ	...
Function 1	Op. Meth. X	Op. Meth. X	Op. Meth. Y	...
Function 2	Op. Meth. P	Op. Meth. Q	Op. Meth. R	...
Function 3	Op. Meth. S	Op. Meth. T	Op. Meth. T	...
...	...	...	...	...

134

Fig. 6 of *Hayashi*

VII. Claims 10-20 Are Unpatentable Over Prior Art

A. Ground 1: *Xiao* anticipates claims 10, 11, 13, 15-19

1. Independent Claim 10

10[preamble]: “A method, comprising,”

10[a]: “**receiving**, at a server, **information** for a **user profile of a user**, the user profile defining one or more settings that are preferred to be set in vehicles if the

vehicles support the settings;”

Xiao discloses a method comprising receiving (e.g., step 1104: YES), at a server (e.g., server 118), information (e.g., a command request) for a user profile of a user (e.g., operator profile information 614), the user profile defining one or more settings that are preferred to be set in vehicles if the vehicles support the settings.

Ex. 1009, ¶¶ 101-111.

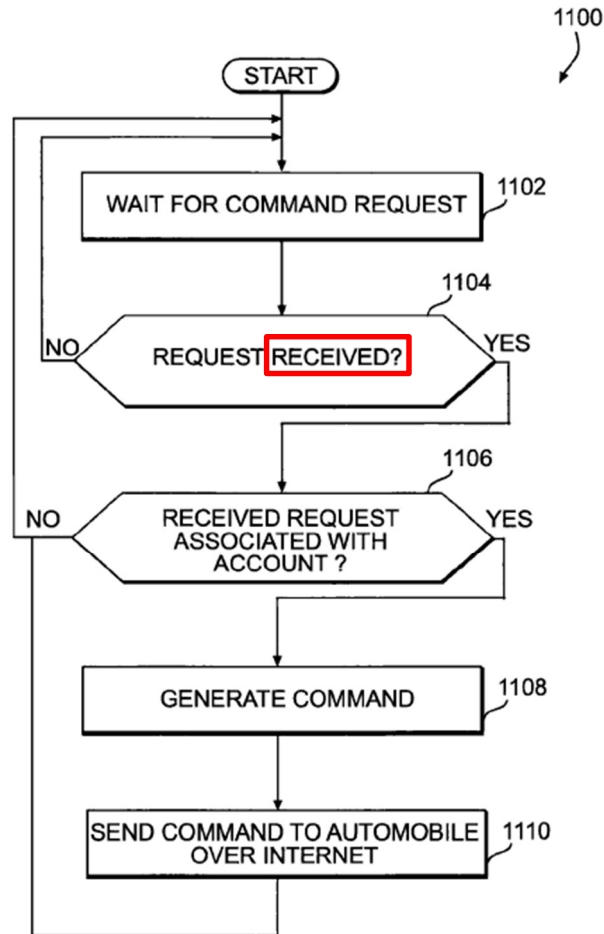


FIG. 11

For example, in explaining Fig. 11 illustrating exemplary method 1100, *Xiao* states that in step 1102, server 118 waits for a “**command request**,” monitoring for such “a **request** from a mobile device 110 or a terminal device 122 to . . . *customize the settings of one or more systems of an automobile 112* based on an **operator profile**.” Ex. 1010, ¶[0124]. In further describing the “**command request**” and “command codes” that are used to implement the **operator’s profile**, *Xiao* explains that “[s]erver 118 may receive the **apply operator profile command request** from the Internet 108. Using the operator ID 608 and/or the mobile ID 610 corresponding to mobile device 110, server 118 may retrieve from operator information 602 the corresponding **profile information 614** for the operator.” *Id.*, ¶[0102].

Xiao explains that the operator’s **profile information 614**, contained in wireless automobile key service information 600 stored in a storage device of server 118, contains information regarding the operator’s preferences. *Id.*, ¶¶[0061], [0064]-[0066], [0069].

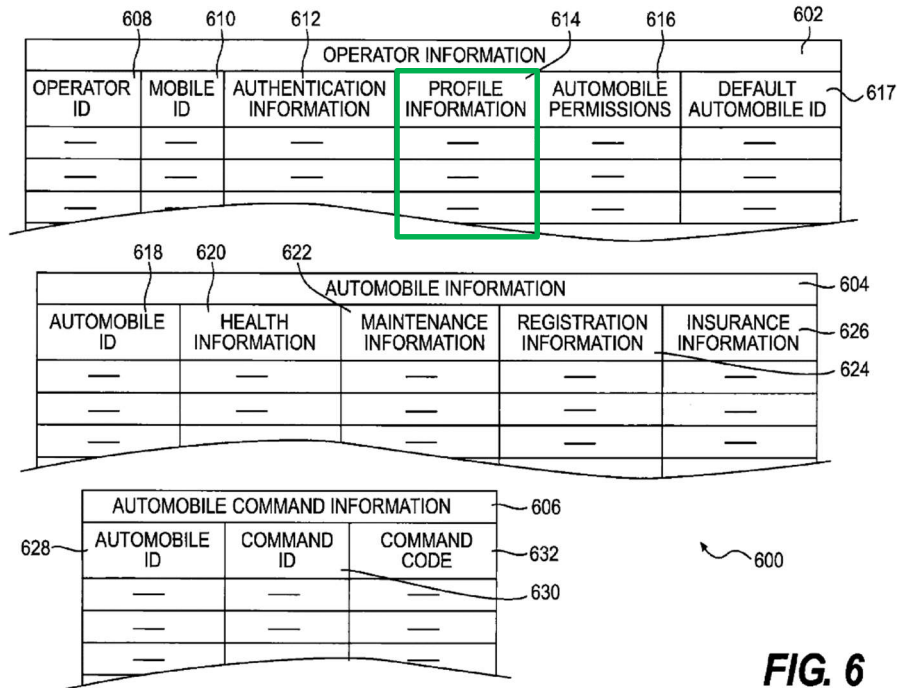


FIG. 6

Xiao discloses that the **user profile** (e.g., **profile information 614**) defines one or more settings that are preferred to be set in vehicles if the vehicles support the settings. For example, profile information 614 includes climate control system preferences (*id.*, ¶[0069], audio system preferences (*id.*, ¶[0070], comfort system preferences (*id.*, ¶[0071], and awareness system preferences (e.g., mirror positions) (*id.*, ¶[0072]. In some embodiments of *Xiao*, “the operator may set operator profile information 614 from automobile 112.” *Id.*, ¶[0079]. Thus, the one or more settings defined by *Xiao*’s operator profile information 614 are supported by vehicles.

Furthermore, in explaining how to apply particular profile settings to an automobile, *Xiao*’s description of “**command requests**” and “command codes” demonstrate that “one or more settings are [] preferred to be set in vehicles if the

vehicles support the settings,” as claimed. *Xiao* explains that command IDs 630 are “associated with the operator’s desired [i.e., preferred] system settings 614.” *Id.*, ¶[0103]. The “server 118 may look up a particular command code 632 based on the automobile ID 628 and command ID 630 contained in a command request received from mobile device 110 and/or from a terminal device associated with local system 106.” *Id.*, ¶[0088]. Command codes 632 are used to “control the automobile systems to achieve the operator’s desired settings.” *Id.*, ¶[0103]; *see also id.*, ¶[0104]. That is, for a particular setting (e.g., set radio to 101.1 FM at volume 10), *Xiao* looks up, for a particular vehicle, “a command to control the audio system to play 101.1 FM at volume 10.” *Id.*, ¶[0103]. A vehicle having appropriate equipment supports such a setting (e.g., an audio system control module to control an FM radio). Ex. 1009, ¶¶ 108-110.

10[b]: “identifying a selected vehicle for applying the user profile, the selected vehicle having a plurality of settable settings, the selected vehicle being one of a plurality of vehicles identified as available by the server;”

Xiao includes identifying a selected vehicle (e.g., automobile name display 916) for applying the user profile (e.g., profile 614), the selected vehicle having a plurality of settable settings (e.g., climate, audio, comfort, awareness), the selected vehicle being one of a plurality of vehicles identified as available (an operator’s account may have multiple) by the server (e.g., server 118). Ex. 1009, ¶¶ 112-116.

In describing page 900 in Fig. 9, *Xiao* states “[a]utomobile key menu 912 may also include an automobile name display 916” that “may indicate the name of the automobile 112 currently selected” (*Mazda 6*). Ex. 1010, ¶[0099]. The operator may use operator profile settings UI element 922 “to apply the settings of the operator’s profile to the systems of the automobile 112.” *Id.*, ¶[0102]. This initiates an “operator profile command request” that causes the operator’s profile information 614 to be retrieved. *Id.*

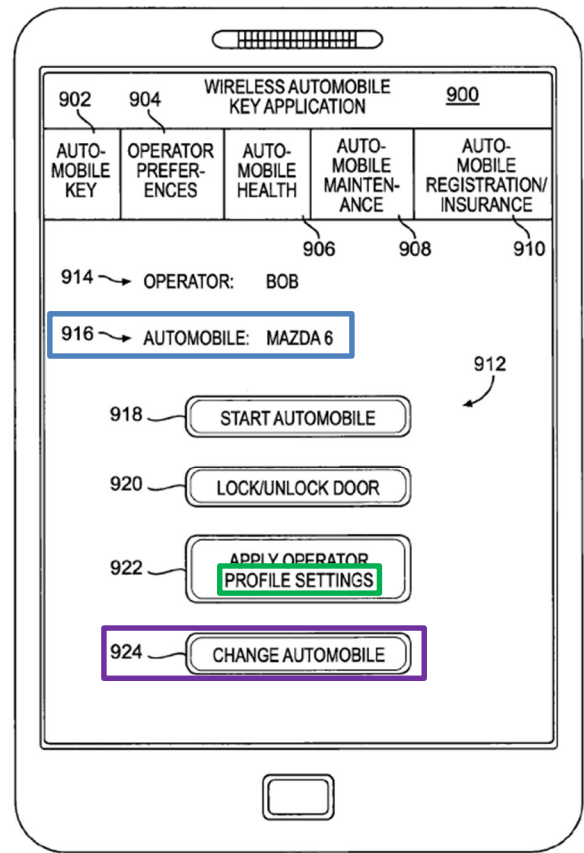


FIG. 9

Xiao discloses the selected vehicle has a plurality of settable settings, including climate, audio, comfort, and awareness system settings, e.g., 101.1 FM at volume 10, or 80°F cabin temperature, etc. *Id.*

Xiao also discloses that the operator can “select a different automobile.” *Id.*, ¶[0110]. “Server 118 may identify the other available automobiles 112” for the operator to operate. *Id.* Thus, the currently selected automobile (e.g., *Mazda 6*) is one of a plurality of vehicles identified as available by the server. Fig. 6 also

illustrates multiple automobile IDs 618 associated with “automobiles” identified by server 118, demonstrating that multiple vehicles are available. *Id.*, ¶[0111].

10[c]: “**determining**, by the server, **applicable settings** for the selected vehicle, the applicable settings being settings that are preferred to be set as identified from the **user profile** and are compatible with settings that are settable in the selected vehicle; and”

Xiao discloses **determining** (e.g., **step 1108**), by the server (e.g., server 118), **applicable settings** (e.g., **command codes 632**) for the selected vehicle, the applicable settings being settings that are preferred to be set as identified from the **user profile** (e.g., **profile 614**) and are compatible with settings that are settable in the selected vehicle. Ex. 1009, ¶¶ 117-126.

“Based on the desired automobile system settings indicated by the **operator profile information 614**, automobile service server 118 may retrieve **appropriate command codes 632**” Ex. 1010, ¶[0103]. “For example, automobile service server 118 may look up **appropriate command codes 632** based on the automobile ID 627 and on the command IDs 630 associated with the **operator’s desired system settings 614**.” *Id.*

Regarding Fig. 11, in **step 1108**, the “server may **generate a command** to . . . customize the settings [of] one

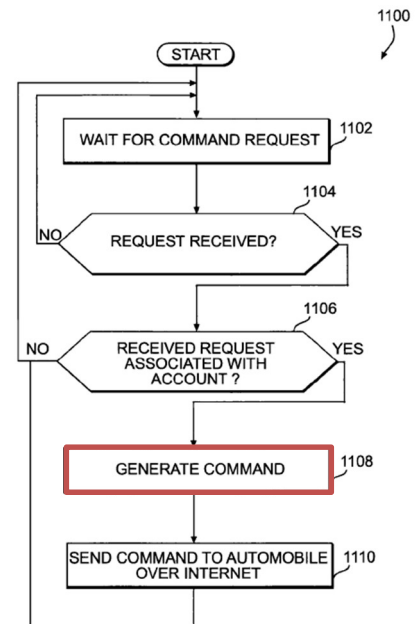


FIG. 11

or more systems onboard the automobile 112 based on a profile associated with the operator” *Id.*, ¶[0126].

Xiao explains the **applicable settings** are settings that are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle. Ex. 1009, ¶¶ 120-125. *Xiao* recognizes that there may be different “**commands** for a variety of types [of] automobiles.” Ex. 1010, ¶[0085]. In explaining how *Xiao* applies particular profile settings to a particular automobile, *Xiao*’s description of “command requests” and “**command codes**” demonstrate *Xiao*’s **applicable settings** are “compatible with settings that are settable in the selected vehicle.” For example, *Xiao* explains that command IDs 630 are “associated with the **operator’s desired system settings 614**.” Ex. 1010, ¶[0103]. The “server 118 may look up a particular **command code 632** based on the automobile ID 628 and command ID 630 contained in a command request received from mobile device 110 and/or from a terminal device associated with local system 106.” *Id.*, ¶[0088]. These **command codes 632** are used to “control the automobile systems to achieve the operator’s desired settings.” *Id.*, ¶[0103]; *see also id.*, ¶[0104] (“The appropriate onboard modules 406-418 may then execute the commands by controlling the onboard systems to achieve the operator’s desired settings indicated by the **profile information 614**.”). That is, for a particular setting (e.g., 101.1 FM at volume 10), *Xiao* looks up, for a particular vehicle, “a command

to control the audio system to play 101.1 FM at volume 10.” *Id.*, ¶[0103]. This setting is compatible with the selected vehicle because it is usable on the vehicle. *See* Ex. 1002, 203 (emphasizing importance of “compatibility” in distinguishing cited art, arguing “[a]s described in the specification, the user profile may have many preferences for settings, and some of such settings are *usable* on certain vehicles . . .”). Like Patent Owner’s own characterization of claim 10, *Xiao* discloses applicable settings are “compatible with settings that are settable in the selected vehicle.”

10[d]: “sending, by the server, the applicable settings for programming to the selected vehicle, wherein the applicable settings are programmed on the selected vehicle after receipt by the selected vehicle over a wireless connection,”

Xiao discloses sending (e.g., step 1110), by the server (e.g., server 118), the applicable settings (e.g., command codes 632) for programming (e.g., the command codes being executable by modules 406-418) to the selected vehicle (e.g., automobile 112). Ex. 1009, ¶¶ 127-130.

Xiao explains “[s]erver 118 may then transmit the generated command(s) to the automobile 112 over the Internet 108.” Ex. 1010, ¶[0104]. Once received, “appropriate onboard modules 406-418 may then execute the commands by controlling the onboard systems to achieve the operator’s desired settings indicated by the profile information 614.” *Id.* Regarding Fig. 11, *Xiao* states that in step 1110, “server 118 may send the command generated in step 1108 to the automobile 112 over the Internet 108.”

Id., ¶[0127].

Xiao also discloses the applicable settings (e.g., command codes) are programmed on the selected vehicle (e.g., automobile 112) after receipt by the selected vehicle over a wireless connection (e.g., Internet 108). *Xiao* explains “[c]ellular network communication module 404 of automobile 112 may receive the command code 632 from cellular network 114,” which in turn “receive[s] the command from the Internet 108.” *Id.*, ¶[0100]. Then, the command code is transmitted on automobile network 420, and appropriate onboard modules execute the command codes. *Id.*, ¶¶[0100], [0104].

10[e]: “wherein the method is executed by the server, the server including a processor;”

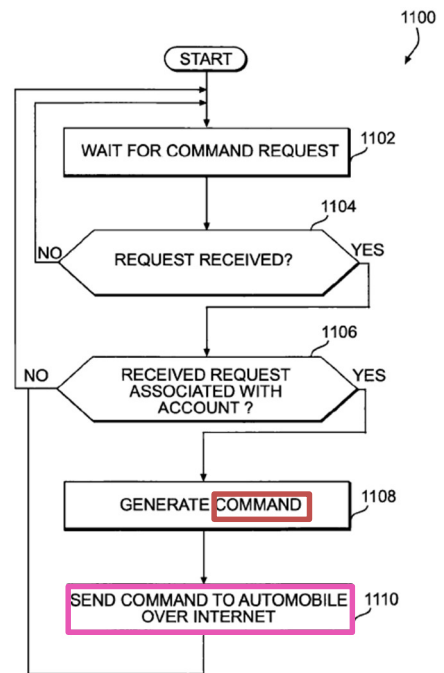
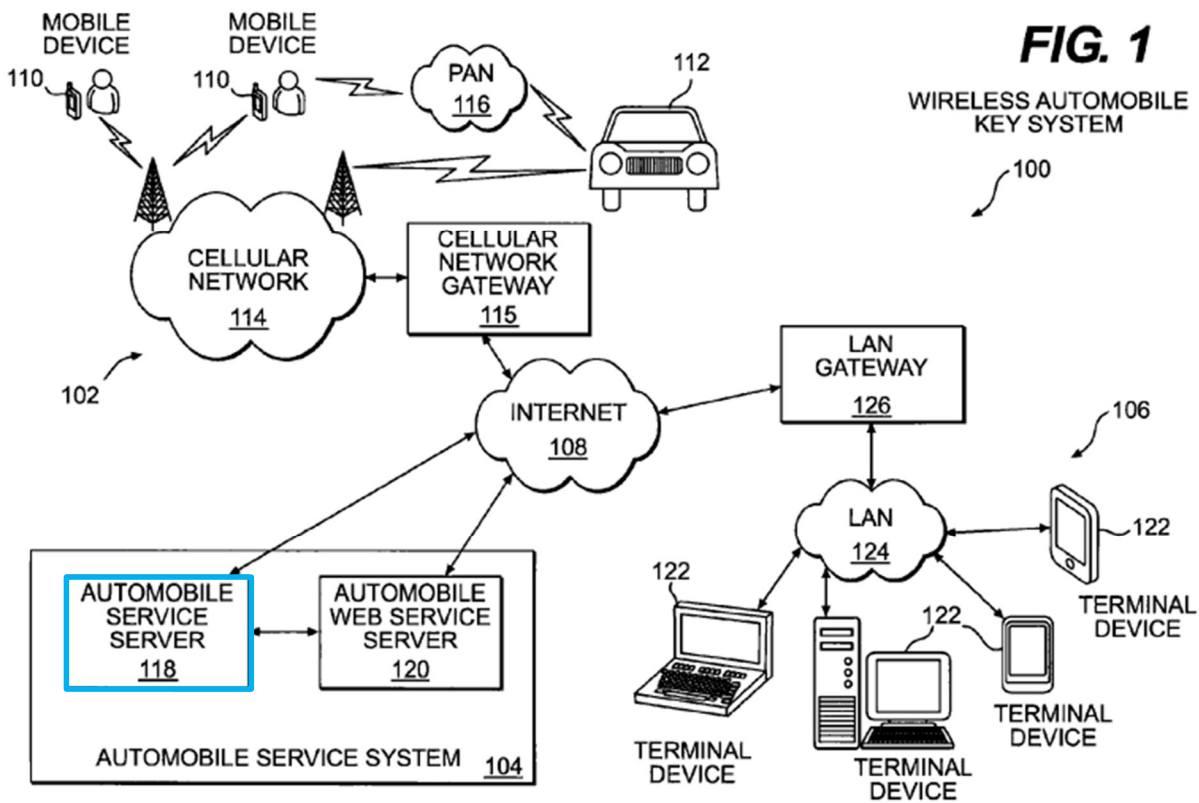


FIG. 11

Xiao's method is executed by the server (e.g., server 118), the server including a processor (e.g., processor 500). Ex. 1009, ¶¶ 131-133.

As above, *Xiao* discloses the steps performed by a server. *Supra*, VII.A.1.10[a]-[d]. *Xiao*'s "[a]utomobile service system 104 . . . may include an automobile service server 118." Ex. 1010, ¶[0059]. Server 118 may include "a processor 500." *Id.*, ¶¶[0061]-[0062].



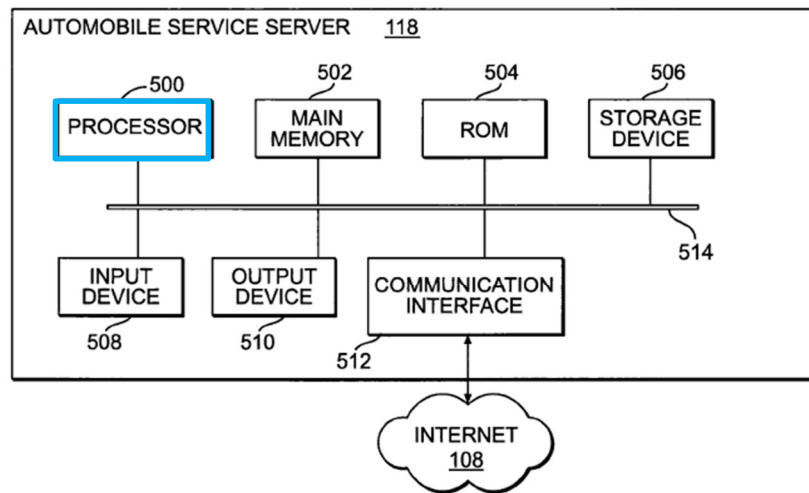


FIG. 5

10[f]: “wherein the **selected vehicle** includes **vehicle electronics** for **applying the programming** to cause the **applicable settings** to be activated on the selected vehicle and **communication circuitry** for communicating via the **wireless connection**.”

Xiao discloses the **selected vehicle** (e.g., **automobile 112**) includes **vehicle electronics** (e.g., **modules**, including **modules 406-418**) for **applying the programming** (e.g., **executing** commands) to cause the **applicable settings** (e.g., **command codes 632**) to be activated on the selected vehicle and **communication circuitry** (e.g., **cellular network communication module 404**) for communicating via the **wireless connection** (e.g., **Internet 108**). Ex. 1009, ¶¶ 134-138.

Xiao discloses various modules, including **modules 406-418**, which may “embody one or more **computers** onboard **automobile 112** and [are] configured to perform or control various automotive functions.” Ex. 1010, ¶[0039]. Such **modules** include climate, radio, seat, and mirror control modules. *Id.*, ¶¶[0038],

[0050]-[0051]. These modules apply programming to cause the applicable settings to be activated. In particular, *Xiao* explains that “command code 632 may be a specific code or instruction that may be broadcast on automobile network 420 and executed by a module 402-418 aboard the automobile 112 to cause the module 402-418 to perform the desired function In one embodiment, server 118 may look up a particular command code 632 based on the automobile ID 628 and command ID 630 contained in a command request received from mobile device 110 and/or from a terminal device associated with local system 106.” *Id.*, ¶[0088].

Automobile 112 also includes communication circuitry (e.g., cellular network communication module 404) for communicating with the server via the wireless connection (e.g., Internet 108 which may include or work together with cellular network 114). *Xiao* illustrates this in Fig. 4:

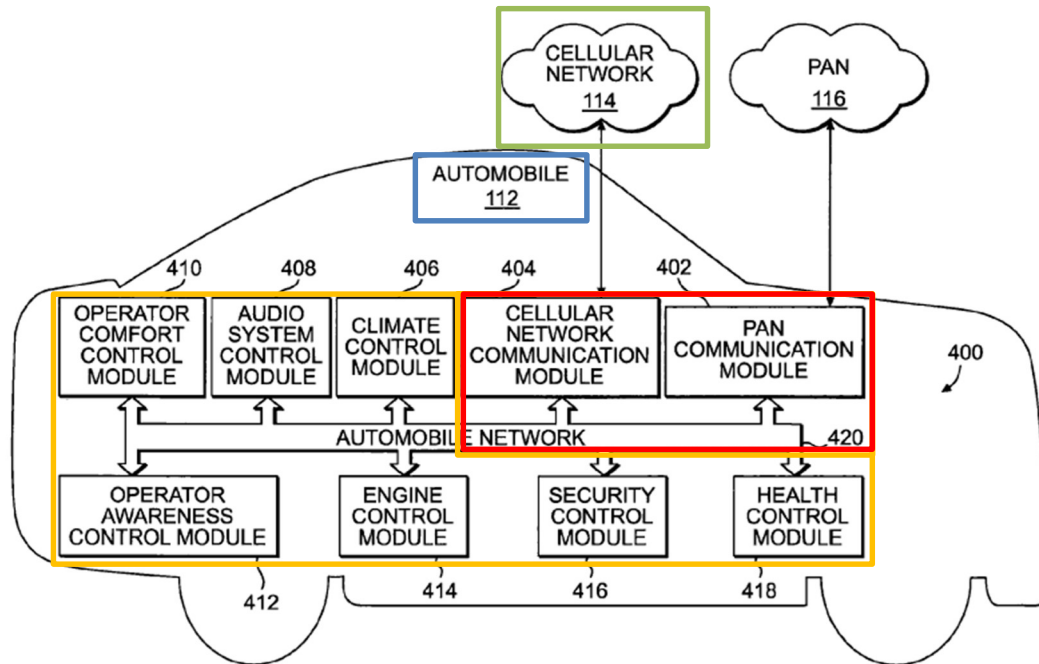


FIG. 4

Xiao discloses that **cellular network communication module 404** “may include a radio antenna and/or transceiver for communicating data over [cellular networks].” *Id.*, ¶[0044].

2. Claim 11

11: “The method of claim 10, wherein **sending the applicable settings to the vehicle includes, sending the applicable settings directly to the **vehicle electronics** of the selected vehicle, or sending the applicable settings to a **computing device for subsequent transfer to the selected vehicle.**”**

Xiao discloses that its **sending** includes one or both of sending the applicable settings directly to the **vehicle electronics** (e.g., **modules 402-418**) of the selected vehicle, or sending the applicable settings to a **computing device for subsequent**

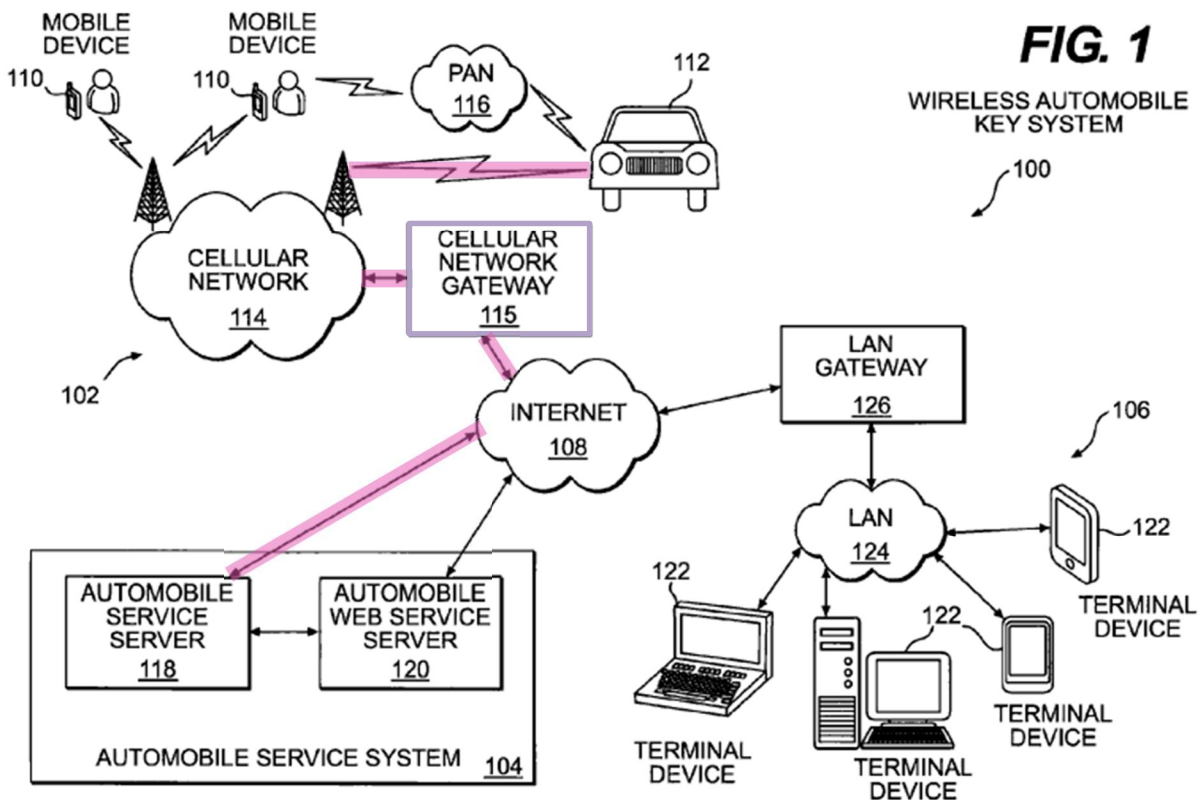
transfer to the selected vehicle (e.g., via cellular network gateway 115 or other intermediary components). Ex. 1009, ¶¶ 140-144.

Xiao describes modules 402-418 that “may embody one or more computers onboard automobile 112” including “electronic control units (ECU) . . . or other types of computer processing devices” Ex. 1010, ¶[0039]. *Xiao* also states that “modules 402-418 may be software modules of a computer program executing on an automobile computer.” *Id.*

Such modules may include communication devices, such as those using “a radio antenna and/or transceiver” for communicating via Bluetooth, low-energy short-wavelength radio waves, cellular, or “any other type of mobile wireless communication network.” *Id.*, ¶¶[0036]-[0044]. *Xiao* explains, for example, that module 404 “may be configured to receive automobile commands from automobile service system 104.” *Id.*, ¶[0045].

Xiao also discloses that applicable settings (e.g., command codes) are sent to a computing device for subsequent transfer to the selected vehicle (e.g., automobile 112). For example, *Xiao* explains that server 118 retrieves command code 632, and then “may transmit the retrieved command code 632 to the automobile 112 over the Internet 108.” *Id.*, ¶[0100]. An intermediary computing device, such as “[c]ellular network gateway 115 may receive the command from the Internet 108 and communicate the command onto cellular network 114. Cellular network

communication module 404 of automobile 112 may receive the command code 632 from cellular network 114,” and may then apply the operator’s desired system settings. *Id.*, ¶¶[0057], [0100], [0103]. In some embodiments, commands may be “broadcast . . . on automobile network 420 for execution by one or more of modules 406-418.” *Id.*, ¶[0045]. Thus, *Xiao* shows that there may be direct or indirect communication from server 118 to automobile 112.



3. Claim 13

13[a]: “The method of claim 10, wherein the plurality of settable settings of the selected vehicle are predefined for specific types of vehicles associated with automobile makers or automobile models;”

Xiao discloses that the plurality of settable settings (e.g., climate, audio, comfort, awareness) are predefined for specific types of vehicles associated with automobile makers or automobile models (e.g., different commands for a variety of types of automobiles). Ex. 1009, ¶¶ 145-147.

Just as the '268 patent describes a “translation metric” with “mapping tables that allow for settings to be transferred between functions of one vehicle to other vehicles,” Ex. 1001, 22:16-22, Fig. 7, *Xiao* explains that its automobile command information 606 “may be a library of commands that may be issued to automobiles 112,” and this library may include commands “for a variety of types [of] automobiles 112 made by different manufacturers,” Ex. 1010, ¶[0085]. *Xiao* explains that “command codes 632 may be CAN bus codes or other codes provided by the manufacturer of automobile 112 . . . for controlling the systems to perform various functions.” *Id.*, ¶[0088].

13[b]: “wherein the settable settings include one or more of radio settings, . . . or temperature settings, or air settings, . . . or audio settings, . . . or heating settings, . . . or seat settings, . . . or combinations of two or more thereof.”

Xiao discloses that the settable settings (e.g., climate, audio, comfort, awareness) include one or more of the claimed list. Ex. 1009, ¶¶ 148-149. For example, *Xiao* describes settings including climate, audio, seat position, and mirror position. Ex. 1010, ¶[0102].

4. Claim 15

15[a]: “The method of claim 10, wherein the **applicable settings** for the selected vehicle are **saved or stored** in association to the **user profile**,”

Xiao discloses that the **applicable settings** (e.g., **command codes**) for the selected vehicle are **saved or stored** in association to the user profile (e.g., **profile information 614** stored in a storage device). Ex. 1009, ¶¶ 150-151. *Xiao* explains that “wireless automobile key service information 600,” which includes operator information 602 and automobile command information 606, which in turn includes **command codes 632**, is “**stored in storage device 506**.” Ex. 1010, ¶¶ [0065], [0088], Fig. 6. Further, *Xiao* discloses “[a]utomobile command information 606 may store information regarding such commands for access and retrieval by server 118.” *Id.*, ¶ [0085]. *Xiao* also states

that command IDs 630 (and thus also command codes 632) are “associated with” operator profile information 614. *Id.*,

¶ [0103]; Ex. 1009, ¶ 150.

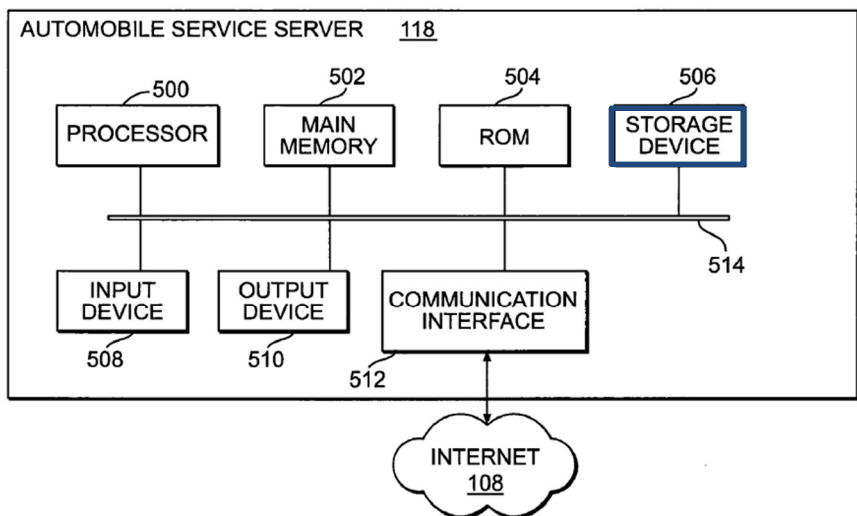


FIG. 5

15[b]: “the method further includes determining applicable settings for one or more other selected vehicles and saving said applicable settings to the user profile, such that the user profile can identify settings for two or more vehicles.”

Xiao discloses determining applicable settings (e.g., command codes) for one or more other selected vehicles and saving said applicable settings to the user profile (e.g., profile information 614), such that the user profile can identify settings for two or more vehicles. Ex. 1009, ¶¶ 152-157.

As discussed above for claim 10, *Xiao* discloses “determining applicable settings.” *Supra*, VII.A.1.10[c] (discussing “determining, by the server, applicable settings for the selected vehicle”).

Further, *Xiao* is not limited to a single vehicle. *Xiao* explains that an operator can “select an automobile 112 other than the default automobile 112” Ex. 1010, ¶[0110]. *Xiao* describes a graphical UI including page 900 for the operator to access settings for multiple automobiles, providing element 924 that allows the operator to “request from server 118 information regarding any other automobiles 112 on the account that the operator is permitted to operate.” *Id.*

Xiao shows that wireless automobile key service information 600 (stored at server 118) includes command codes 632 for various vehicles (which may be represented by different automobile IDs 628, i.e., other vehicles).

AUTOMOBILE COMMAND INFORMATION			606	
628	AUTOMOBILE ID	COMMAND ID	COMMAND CODE	632
	—	—	—	630
	—	—	—	
	—	—	—	

Excerpt of Fig. 6 of *Xiao*

Xiao's automobile command information 606 "may be a library of commands that may be issued to automobiles 112," and this library may save/store various "commands for a variety of types [of] automobiles 112 made by different manufacturers." *Id.*, ¶[0085]; *see also supra*, VII.A.3. *Xiao* explains that such saved command codes, which are associated with the user profile (*id.*, ¶[0103], are applicable for one vehicle and may be applicable to another vehicle. *Id.*, ¶[0076] ("permission to operate every automobile 112"). Also, when a user changes settings in one automobile, *Xiao*'s server 118 "may update the stored operator profile information 614." *Id.*, ¶[0079]. Patent Owner's infringement contentions are consistent with this understanding. Ex. 1015, 104-109 (alleging Toyota meets claim 15 by "saving said applicable settings for two or more vehicles").

5. Claim 16

16: "The method of claim 10, further comprising, verifying the user as associated with the user profile using one or more biometric evaluation systems,

which include one or more of image detection, or face detection, or voice detection, or finger print detection, or password detection, or combinations thereof.”

Xiao discloses verifying (e.g., authenticating) the user as associated with the user profile using one or more biometric evaluation systems (e.g., an authentication system using biometric data), which include one or more of the listed alternatives, such as voice detection. Ex. 1009, ¶¶ 158-161.

Xiao explains “[a]uthentication information 612 may be associated with each operator on the wireless automobile key service account. Authentication information 612 may include an account password, biometric data, or other information that can be used to authenticate the operator to the wireless automobile key service account.” Ex. 1010, ¶[0068].

Also, *Xiao* discloses several of the alternatives listed in the claim, specifically, “a voice recognition device, a biometric recognition device, a still camera, a video camera, [etc.]” Ex. 1010, ¶[0034]. A POSA would understand *Xiao*’s disclosure of “a biometric recognition device” could encompass a fingerprint reader, for example. Ex. 1009, ¶ 160.

6. Claim 17

17: “The method of claim 10, further comprising, associating one or more sub-user accounts to the user profile, the sub-user accounts having predefined privileges for the selected vehicle to enable or restrict settings or function of the selected vehicle.”

Xiao discloses associating one or more sub-user accounts (e.g., child accounts) to the user profile, the sub-user accounts having predefined privileges for the selected vehicle to enable or restrict settings or function of the selected vehicle. *Id.*, ¶¶ 162-165.

Xiao explains that “[o]perator information 602 may contain information about each automobile operator on the wireless automobile key service account. For example, operator information 602 may contain an operator ID 608, a mobile ID 610, operator authentication information 612, operator profile information 614, automobile permissions information 616, and a default automobile ID 617.” Ex. 1010, ¶[0066].

Xiao further explains “[o]perator information 602 may further include automobile permissions 616 associated with each operator on the account. In one embodiment, automobile permissions 616 may identify the automobile(s) 112 the operator is permitted to operate in connection with the disclosed wireless automobile key service. For example, in a family account, the father and mother may have permission to operate every automobile 112 on the account. Whereas a child may only have permission to operate the child’s automobile 112 or the family automobile 112.” *Id.*, ¶[0076]. A POSA would understand from this disclosure in *Xiao* that a sub-user, such as a child, would have “predefined privileges for the

selected vehicle to enable or restrict settings or function of the selected vehicle,” as claimed. Ex. 1009, ¶ 164.

7. Claim 18

18[a]: “The method of claim 10, wherein the selected vehicle is a private vehicle or a shared vehicle associated with a car sharing system,”

Xiao discloses the selected vehicle is a private vehicle (e.g., the operator’s own automobile) or shared vehicle. *Id.*, ¶¶ 166-168.

Xiao’s “automobile owner or operator means any person or other entity having a property interest, ownership interest,” etc., in an automobile. Ex. 1010, ¶[0017]. Also, automobiles may be shared between individuals. *Id.*, ¶[0076].

18[b]: “if the vehicle is associated with a car sharing system, the settable settings of the selected vehicle can be enabled or disabled using an administrator account of the car sharing system, or

if the vehicle is a private vehicle, the settable settings of the selected vehicle can be enabled or disabled using an administrator account that can define one or more sub-user accounts with the same or varying privileges for use of the selected vehicle,”

Xiao discloses one or both of the contingent options quoted above. Ex. 1009, ¶¶ 169-175. For example, an owner/operator “must have an account . . . [b]ut other arrangements are contemplated.” Ex. 1010, ¶[0022]. One arrangement may be for an administrator (e.g., account creator) to control other operators sharing an automobile. Ex. 1009, ¶ 170. Also, an operator may “create an account for one or

more mobile devices 110, automobile operators, and/or automobiles 112.”

Ex. 1010, ¶[0031]. A POSA would understand that operators on the same account may have the same or varying privileges as the user who created the account.

Ex. 1009, ¶ 170. *Xiao* further discloses accounts where sub-users may have the same or varying privileges, and settings can be enabled or disabled. Specifically, “[o]perator information 602 may further include automobile permissions 616 associated with each operator on the account For example, in a family account, the father and mother may have permission to operate every automobile 112 on the account. Whereas a child may only have permission to operate the child’s automobile 112 or the family automobile 112.” Ex. 1010, ¶[0076]. Thus, some sub-users (father/mother) have the same privileges, and some sub-users (child) have varying privileges where settings may be disabled.

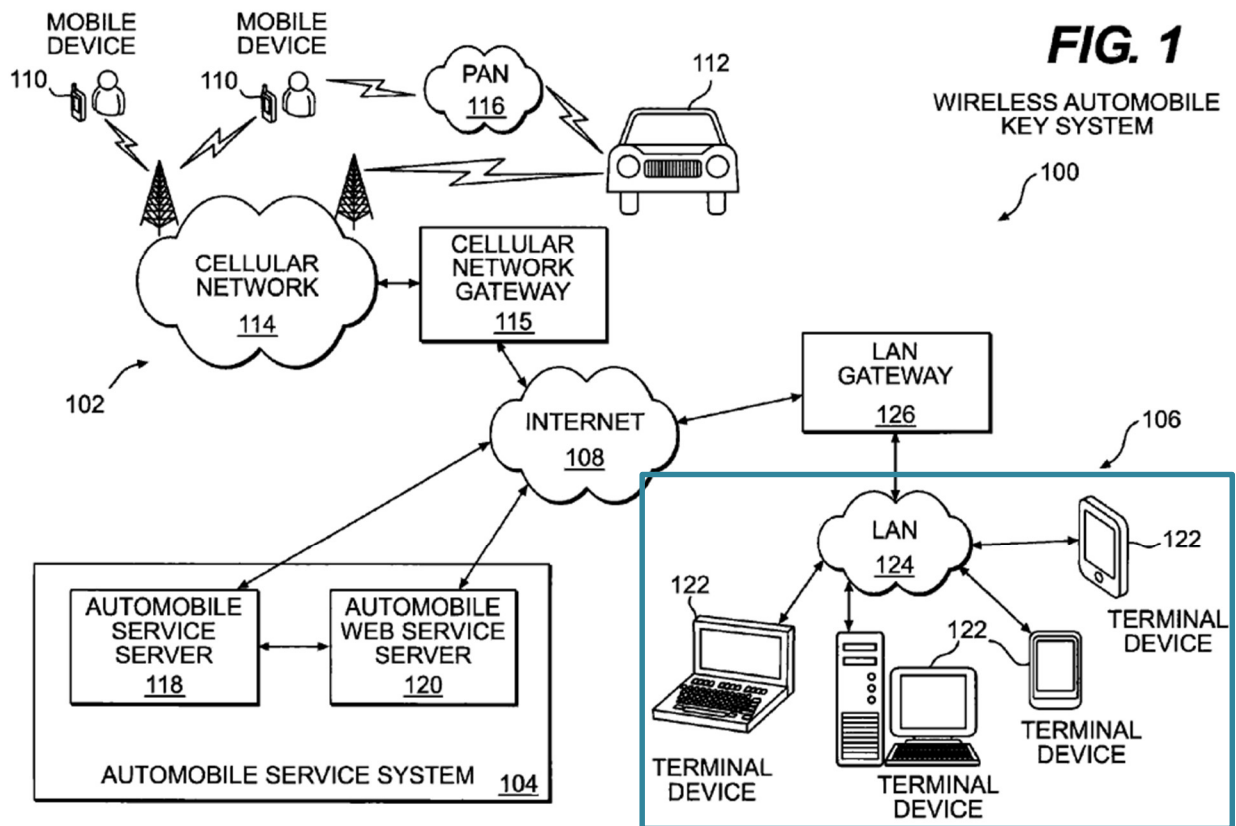
18[c]: “the user profile being accessible via a computer having Internet access to the server.”

Xiao discloses the user profile (e.g., profile information 614) is accessible via a computer having Internet access to the server (e.g., terminal device 122).

Ex. 1009, ¶¶ 177-180.

Xiao discloses terminal devices 122 that “may include a desktop computer, a laptop computer, a tablet PC, a personal digital assistant (PDA), an iPad®, or any other computing device that may connect to LAN 124 to access the Internet 108.”

Ex. 1010, ¶[0093].



Xiao further explains that page 900, where a user can access profile information 614, may be accessed through a web browser of terminal device 122. *Id.*, ¶[0096].

8. Claim 19

19[a]: “The method of claim 18, wherein particular sub-user accounts enable access to specific information concerning the selected vehicle, the information including one or more of vehicle sensors, vehicle electronics, vehicle mechanics, engine control, vehicle diagnostics, or combinations thereof,”

Xiao discloses claim 18, and further discloses that particular sub-user accounts (e.g., accounts of an owner of the automobile, or other operators having

elevated privileges) enable access to at least one of the listed alternatives of specific information (e.g., vehicle health information). Ex. 1009, ¶¶ 181-184.

Xiao discloses an embodiment that only allows the “operator or owner to view health information associated with the vehicle, to view or change operator profile information for the automobile, or to perform other related functions.” Ex. 1010, ¶[0023]. *Xiao* also discloses some sub-users (e.g., father and mother) having elevated privileges, and some sub-users (e.g., children) having less. *Id.*, ¶[0076].

19[b]: “wherein said particular sub-user accounts are accessible over the Internet for viewing or control using a password.”

Xiao discloses that particular sub-user accounts (e.g., accounts of the owner, or other operators having elevated privileges) are accessible over the Internet for viewing or control using a password. Ex. 1009, ¶¶ 185-186. *Xiao* states that “page 900 may be part of automobile security monitoring application 302 and displayed to an automobile operator using mobile device 110. The operator may log in to page 900 by inputting the operator’s username, password, biometric data, and/or other authentication information to mobile device 110.” Ex. 1010, ¶[0095]. *Xiao* discloses that page 900 is accessible over the Internet 108. *Id.*, ¶[0096].

B. Ground 2: *Xiao* in combination with *Hayashi* renders claims 10,

11, 13, 15-19 obvious

As explained above with respect to ground 1, *Xiao* discloses the limitations of claim 10. To the extent, however, element 10[c] is interpreted to require determining that applicable settings are “compatible with settings that are settable in the selected vehicle,” it would have been obvious to implement this feature based on *Hayashi*. Ex. 1009, ¶¶ 189-192. The resulting combination would have met all elements of claims 10, 11, 13, 15-19. *Id.*, ¶¶ 193-198.

As an initial matter, both *Xiao* and *Hayashi* are analogous art to the '268 patent because the references are from the same field of endeavor (i.e., applying settings to automobiles based on user preferences); and/or (2) the references are reasonably pertinent to the problem faced by the inventor (i.e., improving convenience in applying settings to automobiles). *See* Ex. 1001, 12:31-45, 21:31-62; Ex. 1009, ¶ 192.

Turning to the disclosures of the references, *Xiao* recognizes there may be different “commands for a variety of types [of] automobiles.” Ex. 1010, ¶[0085]. *Xiao* describes applying particular profile settings to particular automobiles via such commands. *Supra*, VII.A.1. A POSA, reading *Xiao*, would have immediately appreciated the concept of determining compatibility, and would have found it obvious to implement with *Xiao*’s system of automobile commands. Ex. 1009, ¶ 192. For example, to account for the heterogeneity of vehicles that may be

operated in a practical setting, a POSA would have known how to include information regarding compatibility of commands in *Xiao*'s information 600 because *Xiao* recognizes that various types of information can be included. Ex. 1010, ¶[0087] (noting "other information that may be used to identify a particular automobile command"). With such information, server 118 would determine applicable settings that are compatible with settings that are settable in the selected vehicle but would avoid determining applicable settings that are incompatible with settings that are settable in the selected vehicle, ensuring that server 118 does not attempt to command vehicles to do things they cannot do, potentially resulting in unexpected and/or undesired vehicle configurations or errors. Ex. 1009, ¶ 190.

One would have looked to *Hayashi* as an example of how a server may determine compatibility. *Id.*, ¶ 196. *Hayashi* discloses database 134, which "stores operating methods for each function of each vehicle model." Ex. 1013, ¶[0029]. These functions may include user settings for the vehicle, such as "shift lever, parking brake, seat adjustment function, or mirror adjustment function." *Id.*, ¶[0120]. Recognizing the heterogeneity of vehicles, *Hayashi* explains operating methods for such functions may be the same or different, from vehicle to vehicle. *Id.*, ¶¶[0002], [0005], [0007], [0009], [0029], Fig. 6. For example, for vehicle model α and for vehicle model β , function 1 is achieved by performing operating

method X. For vehicle model γ , function 1 is achieved by performing operating method Y. *Hayashi* actively determines certain functions or operating methods are compatible with certain vehicle models by specifying, e.g., method X, Y, Z, etc., for implementing such functions.

Operating Method by Vehicle Model				
	Model α	Model β	Model γ	...
Function 1	Op. Meth. X	Op. Meth. X	Op. Meth. Y	...
Function 2	Op. Meth. P	Op. Meth. Q	Op. Meth. R	...
Function 3	Op. Meth. S	Op. Meth. T	Op. Meth. T	...
...	...	...	...	...

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Fig. 6 of *Hayashi*

Hayashi also demonstrates the concept of **compatibility** determination by explaining that “[i]f a certain ‘vehicle model’ does not have a certain ‘**function**,’ ‘none’ may be stored . . . as the operating method” *Id.*, ¶[0029], Fig. 6. This can be visualized as follows:

Operating Method by Vehicle Model				
	Model α	Model β	Model γ	Model δ
Function 1	Op. Meth. X	Op. Meth. X	Op. Meth. Y	Op. Meth. X
Function 2	Op. Meth. P	Op. Meth. Q	Op. Meth. R	None
Function 3	Op. Meth. S	Op. Meth. T	Op. Meth. T	Op. Meth. T
Function 4	Op. Meth. Z	Op. Meth. W	None	Op. Meth. Z

Annotated Fig. 6 of *Hayashi* (annotations in blue)

As shown, “function 4” is incompatible with vehicle model γ , and thus, “none” is listed as the operating method. Likewise, “function 2” is incompatible with vehicle model δ , and thus, “none” is listed as the operating method.

Thus, there may be a variety of vehicles, which may have operating methods the same or different from one another for certain functions, demonstrating their compatibility. Or, some vehicles may simply be incompatible with certain functions. A POSA would have considered it useful to have a database indicating which vehicles are compatible/incompatible with respective functions/operating methods, as in *Hayashi*. Ex. 1009, ¶ 195.

A POSA would have been motivated to apply such teachings of *Hayashi* to *Xiao*. *Id.*, ¶ 196. As an example, in the table of automobile command information 606, as shown in Fig. 6 of *Xiao*, it would have been obvious to indicate certain commands are compatible/incompatible with certain automobiles.

AUTOMOBILE COMMAND INFORMATION			606
AUTOMOBILE ID	COMMAND ID	COMMAND CODE	632
—	—	—	630
—	—	—	
—	—	—	
1234	Abcd	None	

Annotated Excerpt of Fig. 6 of *Xiao*

For example, there may be an automobile having an automobile ID 628 for which a certain command ID 630 has no corresponding command code 632. It would have been an obvious and straightforward modification of *Xiao* to use an indicator such as “none,” for example, for commands having no corresponding command code on a vehicle, based on *Hayashi*

For several reasons, a POSA would have been motivated to add to *Xiao*’s method of managing user profiles *Hayashi*’s known method of determining compatibility, and a POSA would have had a reasonable expectation of success in doing so. Ex. 1009, ¶¶ 189-192.

For example, recognizing the heterogeneity of vehicles, one would have been motivated to determine applicable settings (e.g., command codes) that are compatible with settings that are settable in the selected vehicle but would avoid determining applicable settings that are incompatible with settings that are settable in the selected vehicle, ensuring that *Xiao*’s server 118 does not attempt to command vehicles to do things they cannot do, potentially resulting in unexpected and/or undesired vehicle configurations or errors. *Id.*, ¶ 190. Avoiding such undesirable effects would be a predictable result of implementing *Hayashi*’s known method of determining compatibility. *Id.*

There are a limited number of options available for providing a listing of appropriate command codes, as in *Xiao*. *Id.*, ¶ 191. For example, for any given

vehicle, a command either has a corresponding command code, or it does not.

Modifying *Xiao* would be as straightforward as providing an indication such as “none” in the tables of Fig. 6 of *Xiao* rather than, for example, an empty cell where there is no corresponding command code. *Xiao* states that its tables are “an exemplary representation of wireless automobile key service information 600 stored in storage device 506.” Ex. 1010, ¶[0065]. This includes command information 606, which contains “a command code 632 associated with each command that may be issued to the automobile 112.” *Id.*, ¶[0088]. A POSA would have looked to *Hayashi*’s method of determining settings as compatible/incompatible and providing an indication of the same, as an example of how to provide a listing of appropriate command codes. Ex. 1009, ¶ 191.

Accordingly, *Xiao* in view of *Hayashi* renders claims 10, 11, 13, and 15-19 obvious. *Id.*, ¶¶ 189-198.

C. Ground 3a: *Xiao* in combination with *Patenaude* renders claim 12 obvious

Ground 3b: *Xiao* in combination with *Hayashi* and *Patenaude* renders claim 12 obvious

Xiao does not disclose certain limitations of claim 12 concerning “learned settings,” however it would have been obvious to a POSA to combine *Xiao* with *Patenaude*. Ex. 1009, ¶¶ 199-206. The resulting combination would have met all elements of claim 12.

1. Claim 12

12[preamble]: “The method of claim 10, further comprising,”

12[a]: “examining setting modifications over a period of time that defines a *history use*,”

12[b]: “generating *learned settings* by analyzing the history of use; and”

Patenaude discloses examining setting modifications over a period of time that defines a *history of use* (e.g., after a certain *minimum number of user inputs* is received, applying an algorithm on *stored selection factors*). *Patenaude* also discloses generating *learned settings* (e.g., *user-specific profile based on learned patterns*) by analyzing the *history of use* (e.g., the *stored factors*). *Id.*, ¶¶ 208-210.

Patenaude discloses a method of determining a user’s entertainment selection profile in a vehicle. Ex. 1011, ¶[0051]. As shown and described with reference to Fig. 4 (and other embodiments), a telematics unit “determines patterns in the *entertainment selections*” of a user. *Id.*, ¶[0055]. These are based on setting modifications by the user. *See id.*, ¶[0056]. “After a minimum number of *entertainment unit factors* and *selection time factors* are stored in the in-vehicle

memory 128 for the specific user, the processor 122 applies an algorithm on the stored **entertainment unit factors** and **selection time factors**.” *Id.*, ¶[0069].

Patenaude explains entertainment unit factors are user inputs including one or more of “a satellite radio unit code, an AM

radio unit code, an FM radio unit code, . . .” and so on. *Id.*, ¶[0052]. Selection time factors further describe the setting modifications and include “time of day of the entertainment selection, a day of week of the entertainment selection, a week of month of the entertainment selection, and a date of the entertainment selection.” *Id.*, ¶[0054].

12[c]: “**sending the learned settings to the user profile for use or transfer to the selected vehicle.**”

Patenaude discloses **sending** (e.g., **via retrieval**) the **learned settings** to the user profile for use or transfer to the selected vehicle. Ex. 1009, ¶¶ 211-213.

Patenaude discloses an embodiment where the telematics unit “**retrieves the user-specific entertainment selection profile** stored in the in-vehicle memory 128,” and “determines which entertainment selection is linked to the time frame in the

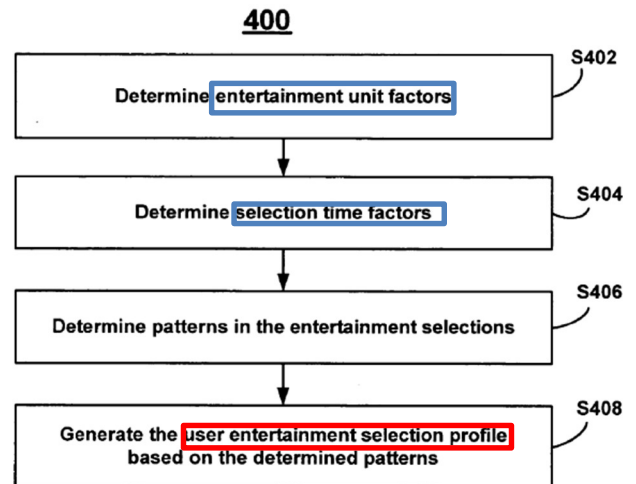


FIG. 4

user-specific entertainment selection profile” to automatically configure the user’s desired entertainment settings. Ex. 1011, ¶[0073]. Specifically, “during stage S612, the telematics unit 120 powers-up at least one entertainment unit 135, 136, or 137 based on the retrieved user-specific entertainment selection profile.” *Id.*, ¶[0074].

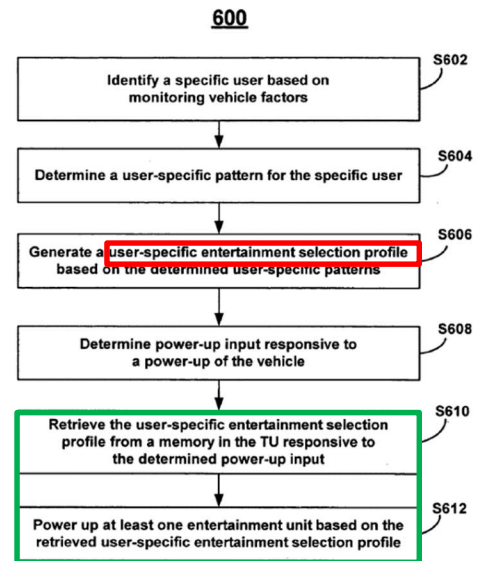


FIG. 6

2. A POSA would have combined the teachings of *Xiao* and *Patenaude*

A POSA would have found it obvious to modify *Xiao*’s method of applying user preferences with *Patenaude*’s method of predicting user preferences, and a POSA would have been motivated to do so for several reasons. Ex. 1009, ¶¶ 199-206.

For example, one would look to *Patenaude* to improve the user experience of *Xiao*, and would have had a reasonable expectation of success in doing so. Initially, *Xiao* itself aims to improve the user experience of automobile operators, explaining that it seeks to overcome the drawbacks of conventional keyless entry systems. Ex. 1010, ¶¶ [0001]-[0004]. *Xiao* endeavors to increase the usefulness of keyless entry systems and make them more convenient. *Id.*, ¶ [0003]. *Xiao* demonstrates that the automobile operator’s experience can be improved using a

system having wireless communication able to cause “apply[ing] automobile system settings based on preferences contained in an operator profile.” *Id.*, ¶ [0023]. Such automobile system settings include audio and other multimedia settings. *See id.*, ¶¶ [0042], [0049], [0070].

In attempting to further improve on *Xiao*, it would have been natural to look toward one of the known techniques in the prior art. *Patenaude*, for example, demonstrates one such way of extending the usability and convenience of a system that automatically sets automobile system settings, such as audio and other multimedia settings. *See* Ex. 1011, ¶¶[0001]-[0005].

In the state of the art existing at the time of the alleged invention of the '268 patent, performing data analytics to better understand user behavior was a well-recognized technique. As exemplified by *Patenaude*, making predictions of a user's selections based on their past behavior was one such known technique. *Id.* Creating a customized user experience based on learned information and behaviors was commonplace by this timeframe. Ex. 1009, ¶ 202. Extending such functionality to *Xiao* would have been obvious.

Xiao discusses activating various functionalities of an automobile before actually entering the automobile, which is desirable for enhancing convenience. Ex. 1010, ¶¶[0001]-[0004]. It was well-known in the art for a computerized system to learn a vehicle user's preferences and apply them before using the vehicle, as

demonstrated by *Patenaude*. Ex. 1009, ¶ 203. *Patenaude*'s pattern recognition system would also have been an obvious improvement to *Xiao*'s system of server-stored user profiles because it could improve the settings stored in the user profile and thereby improve the user experience. Ex. 1011, ¶¶[0001]-[0005]. For example, one could use *Patenaude*'s teachings for predicting setting selections to cause *Xiao*'s system to add settings to a user's profile that the user is predicted to make, or to update settings in light of patterns learned from the user's selections.

Furthermore, implementing the automatic learning and loading of settings in *Patenaude* in the method of *Xiao* would require no more than obtaining the predictable result of enhancing convenience as taught by *Patenaude*. *Id.* One would have naturally recognized that implementing a known learning engine (or "pattern recognition" system, as it was commonly called) would have enhanced convenience by automatically determining settings based on a user's behavior. Moreover, it is obvious to automate a manual activity, such as applying setting adjustments, to obtain the same result. Ex. 1009, ¶ 204.

For example, *Patenaude* recognized and identified a problem with the then-current (as of 2004) state of the art that it was unable to "determine and predict a user's entertainment selections, such as a radio station on an FM radio or a compact disc track of a CD in a CD player," and described solutions to "determin[e] at least one user entertainment selection profile based on the

monitoring and activating entertainment units based on the profile.” Ex. 1011, ¶¶[0001]-[0006]. It would have been obvious to apply this reasoning and improve the system of *Xiao*. Ex. 1009, ¶ 205.

Furthermore, both *Xiao* and *Patenaude* are analogous art to the claimed invention of the '268 patent. For example, the references are from the same field of endeavor as the claimed invention (i.e., applying settings to automobiles based on user preferences). Also, the references are reasonably pertinent to the problem faced by the inventor (i.e., improving convenience in applying settings to automobiles). *See* Ex. 1001, 12:31-45, 21:31-62; Ex. 1009, ¶ 192. This is shown by way of, for example, *Xiao*'s description of problems in existing automobile keyless entry systems and *Xiao*'s disclosure of a system to apply, over a network, “automobile system settings based on preferences contained in an operator profile.” Ex. 1010, ¶¶[0001]-[0003], [0023]. *Patenaude* also describes efforts to overcome limitations in prior systems that did not automatically apply user settings to vehicle entertainment units. Ex. 1011, ¶¶[0002]-[0005]. Both *Xiao* and *Patenaude* recognize the benefit of enhanced convenience by automatically applying a user's desired settings, which include multimedia settings.

Accordingly, it would have been obvious to modify the system disclosed in *Xiao* to predict user settings, as taught or suggested by *Patenaude*. Thus, *Xiao* in combination with *Patenaude* renders claim 12 obvious. Ex. 1009, ¶ 214.

Alternatively, *Xiao* in combination with *Hayashi* and *Patenaude* renders claim 12 obvious. *Id.*, ¶ 215.

D. Ground 4a: *Xiao* in combination with *Singh* renders claim 14 obvious

Ground 4b: *Xiao* in combination with *Hayashi* and *Singh* render claim 14 obvious

Xiao discloses performing a mapping between settings associated with the user profile and settings obtained from an automobile database, as described below regarding limitation 14[a]. *Xiao* does not explicitly disclose that settings are returned to a neutral setting after use of the vehicle by the operator. However, it would have been obvious to a POSA to combine *Xiao* with *Singh*. *Id.*, ¶¶ 216-224. The resulting combination would have met all elements of claim 14.

1. Claim 14

14[preamble]: “The method of claim 10,”

14[a]: “wherein the determining of the applicable settings for the selected vehicle includes performing a mapping between settings associated with the user profile and settings obtained from an automobile database,”

Xiao discloses that the determining of the applicable settings for the selected vehicle includes performing a mapping (e.g., look-up) between settings associated with the user profile (e.g., command code 630 associated with the operator’s desired system settings 614) and settings obtained from an automobile database (e.g., particular command codes 632). Ex. 1009, ¶¶ 226-229.

Xiao explains that “[c]ommand information 606 may further include a **command code 632** associated with *each* command that may be issued to the automobile 112.” Ex. 1010, ¶[0088]. **Command codes 632** may be “provided by the manufacturer of automobile 112 and/or the manufacturer of the automobile systems for controlling the systems to perform various functions.” *Id.*

Xiao discloses that “server 118 may **look up** a **particular command code 632** based on the automobile ID 628 and **command ID 630** contained in a command request” *Id.* “For example, automobile service server 118 may **look up** **appropriate command codes 632** based on the automobile ID 627 and on the **command IDs 630 associated with the operator’s desired system settings 614.**” *Id.*, ¶[0103].

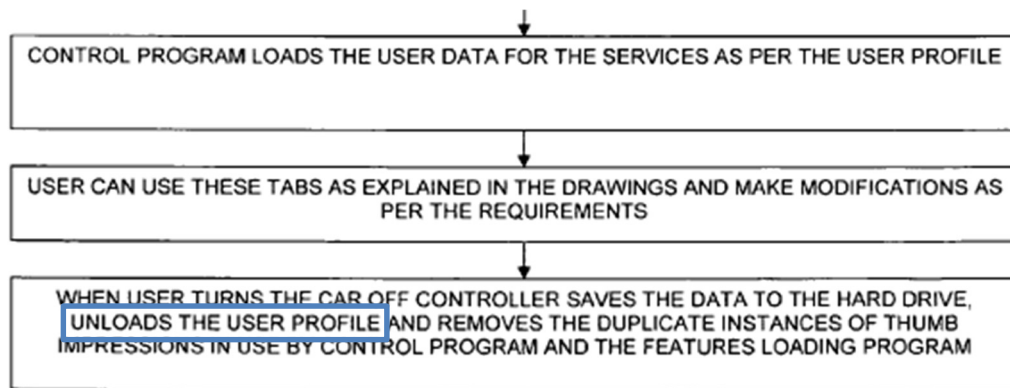
14[b]: “wherein the user profile is **deactivated on the selected vehicle when use of the vehicle is discontinued or when the user profile is switched to a new user profile or when the user profile is turned off or removed from the vehicle, and”**

14[c]: “wherein upon deactivating settings of the selected vehicle are **returned to a neutral setting.”**

Singh discloses that the user profile is **deactivated** (e.g., **unloaded**) on the selected vehicle when use of the vehicle is discontinued (e.g., the vehicle is turned off) or when the user profile is switched to a new user profile or when the user profile is turned off or removed from the vehicle. *Singh* also discloses that upon

deactivating, the settings of the selected vehicle are [returned to a neutral setting](#) (e.g., [default setting](#)). Ex. 1009, ¶¶ 230-232.

Singh discloses “[w]hen the driver will reach his or her destination and will turn the vehicle off, the Controller Unit will also save the changes made by the driver and then [unload the user profile](#) of the current driver and will bring the vehicle attributes to [default setting](#).” Ex. 1012, ¶[0034]. As shown in Fig. 3, *Singh* discloses that “[w]hen the user turns the car off,” the “controller saves the data to the hard drive [and] unloads the user profile.”



Excerpt of Fig. 3 of *Singh*

Thus, *Singh* teaches or suggests these elements of claim 14.

2. A POSA would have combined the teachings of *Xiao* and *Singh*

A POSA would have found it obvious to add to *Xiao*’s method of applying user preferences *Singh*’s method of unloading the user preferences, and a POSA would have been motivated to do so for several reasons. Ex. 1009, ¶¶ 216-224.

For example, one would look to apply known methods, such as those of *Singh*, to improve the user experience of *Xiao*, and would have had a reasonable expectation of success in doing so. *Xiao* discloses loading user settings to customize a vehicle. *See supra*, VII.A.1.10[d]. Upon loading personalized settings, it is only natural that such settings would eventually be unloaded. *Xiao* is thus ready for improvement to apply a complementary process of unloading such settings, as taught by *Singh*. Ex. 1009, ¶ 217. It would have been obvious to apply the known methods of *Singh*, and doing so would yield the predictable result of removing personalization for security or for the convenience of the next driver. *See, e.g.*, Ex. 1012, ¶ [0034] (“When the driver will reach his or her destination and will turn the vehicle off, the Controller Unit will also save the changes made by the driver and then unload the user profile of the current driver and will bring the vehicle attributes to default setting.”).

Xiao discloses that its system “enables an operator of an automobile to use the operator’s mobile device, such as a cell phone, to **lock**/unlock the automobile, to power on/**off** the automobile, or to affect other automobile operations.” Ex. 1010, ¶ [0023]. Adding *Singh*’s step of “unload[ing] the user profile” when the user turns the car off would have required nothing more than obtaining the predictable result of returning the car to its default settings after it has been temporarily customized using a particular user profile. Ex. 1009, ¶ 218. The

“deactivation” and “return to neutral” functionality of *Singh* would be a minor improvement to the system disclosed in *Xiao*.

Additionally, a POSA would have been motivated and found it obvious to implement the features of *Singh* for the explicit rationales taught by *Singh*. *Id.*, ¶ 219. For example, it would have been obvious to unload the user profile and return the vehicle attributes to a default setting, as taught by *Singh*, in *Xiao* because “the preferences used by one driver are not suitable to the other driver.” Ex. 1012, ¶[0002]. Removing the settings of one operator when that operator is finished using the vehicle also enhances security. *See id.* (“[T]heir privacy and other preferences will also be maintained as their data will be isolated from other users.”).

Furthermore, both *Xiao* and *Singh* are analogous art to the claimed invention of the ’268 patent. For example, the references are from the same field of endeavor as the claimed invention (i.e., applying settings to automobiles based on user preferences). Also, the references are reasonably pertinent to the problem faced by the inventor (i.e., improving convenience in applying settings to automobiles). *See* Ex. 1001, 12:31-45, 21:31-62.

In further detail, *Xiao* states that there may be multiple “operators” able to use an automobile, and, in some embodiments, there may be permissions associated with “each operator on the account.” Ex. 1010, ¶¶[0031], [0076]. *Xiao*

also describes that an aspect of its wireless automobile key system is an automobile security monitoring system, which may be provided “as a feature of a particular automobile model, such as an upgraded security package.” *Id.*, ¶[0022].

Singh describes the issue of “preferences used by one driver are not suitable to the other driver.” Ex. 1012, ¶[0002]. In *Singh*’s system, a control unit “set[s] the attributes or preferences of the driver who will be driving the vehicle.” *Id.*, ¶[0034]. Recognizing that there are “major concerns about the security of the vehicle and the use of a single vehicle by different drivers,” to protect a user’s privacy, *Singh* explains that “[w]hen the driver will reach his or her destination and will turn the vehicle off, the Controller Unit will also save the changes made by the driver and then unload the user profile of the current driver and will bring the vehicle attributes to default setting.” *Id.*, ¶¶[0002], [0034].

Thus, both *Xiao* and *Singh* recognize the benefit of enhanced convenience by automatically applying a user’s desired settings in a vehicle while maintaining security.

Accordingly, it would have been obvious to modify the system disclosed in *Xiao* to unload the user profile as taught or suggested by *Singh*.

Thus, *Xiao* in combination with *Singh* renders claim 14 obvious. Ex. 1009, ¶ 233. Alternatively, *Xiao* in combination with *Hayashi* and *Singh* renders claim 14 obvious. *Id.*, ¶ 234.

E. Ground 5: *Xiao* in combination with *Hayashi* and *Patenaude* renders claim 20 obvious

As described above, it would have been obvious to combine *Xiao* with *Hayashi* and *Patenaude*. See *supra*, VII.B, VII.C.2; Ex. 1009, ¶ 236. Consequently, a POSA would have reached all the limitations of claim 20.

1. Claim 20

20[preamble]: “A method for managing a **user profile of a vehicle via a **cloud processing system** being accessible over the Internet and wherein the vehicle is provided with **wireless communication logic** for connecting to the Internet for accessing the cloud processing system, comprising”**

Xiao discloses a method for managing a **user profile** (e.g., **profile information 614**) of a vehicle (e.g., automobile 112) via a **cloud processing system** (e.g., **wireless automobile key system 100**) being accessible over the Internet (e.g., Internet 108) and wherein the vehicle (e.g., automobile 112) is provided with **wireless communication logic** (e.g., **cellular network communication module 404**) for connecting to the Internet for accessing the cloud system. Ex. 1009, ¶¶ 237-240.

Xiao discloses **wireless automobile key system 100** that “may be associated with an Internet service provider . . .” Ex. 1010, ¶[0021]. *Xiao* explains that **system 100** may “communicate with the automobile, over a network, to apply automobile system settings based on preferences contained in an **operator profile**.” *Id.*, ¶[0023]. As *Xiao* further explains, the operator’s **profile information 614**,

contained in wireless automobile key service information 600 stored in a storage device of an automobile service server 118, contains information regarding the operator's preferences. *Id.*, ¶¶[0061], [0064]-[0066], [0069], Fig. 6.

Xiao also discloses automobile 112 comprises modules 402-418, including cellular network communication module 404. *Id.*, ¶¶[0020], [0038]. Cellular network communication module 404 is “configured to receive automobile commands from automobile service system 104,” such as audio, seat, mirror or camera setting commands. *Id.*, ¶[0045].

20[a]: “accessing the cloud processing system by the vehicle, the user profile having user settings for the vehicle, wherein certain of the user settings are determined to be compatible for use with the vehicle;”

Xiao discloses accessing the cloud processing system (e.g., wireless automobile key system 100) by the vehicle (e.g., automobile 112), the user profile having user settings (e.g., profile information 614) for the vehicle, wherein certain of the user settings are determined to be compatible for use with the vehicle.

Ex. 1009, ¶¶ 241-254.

Xiao discloses that automobile 112 accesses wireless automobile key system 100 by way of automobile service system 104, cellular network 114, cellular network gateway 115, and the Internet 108. Ex. 1010, ¶[0024]. For example, *Xiao* illustrates automobile 112 in communication with cellular network 114 as a part of

system 100. Furthermore, *Xiao* discloses an embodiment where “the operator may set **operator profile information 614** from automobile 112.” *Id.*, ¶[0079].

Xiao discloses that **profile information 614** includes vehicle settings such as climate (*id.*, ¶[0069]), audio (*id.*, ¶[0070]), comfort (*id.*, ¶[0071]), and mirror (*id.*, ¶[0072]). In some embodiments of *Xiao*, “the operator may set **operator profile information 614** from automobile 112.” *Id.*, ¶[0079]. Thus, *Xiao*’s **operator profile information 614** has **user settings** for the vehicle.

Xiao’s description of “command requests” and “command codes” demonstrate that certain of the **user settings** are “**compatible** for use with the vehicle,” as claimed. *Xiao* explains that command IDs 630 are “associated with the **operator’s desired system settings 614**.” *Id.*, ¶[0103]. The “server 118 may look up a particular command code 632 based on the automobile ID 628 and command ID 630 contained in a command request received from mobile device 110 and/or from a terminal device associated with local system 106.” *Id.*, ¶[0088]. These command codes 632 “control the automobile systems to achieve the **operator’s desired settings**.” *Id.*, ¶[0103]; *see also id.*, ¶[0104] (“The appropriate onboard modules 406-418 may then execute the commands by controlling the onboard systems to achieve the **operator’s desired settings** indicated by the **profile information 614**.”). That is, for a particular **setting** (e.g., desired radio station of 101.1 FM at volume 10), *Xiao* looks up, for a particular vehicle, “a command to control the audio

system to play 101.1 FM at volume 10.” *Id.*, ¶[0103]. If a **setting** is not **compatible** (e.g., because the vehicle does not have an FM radio), it follows that no command code to operate the FM radio would be generated or would have no effect.

To the extent it may be found that *Xiao* does not explicitly disclose actively determining certain **user settings** are **compatible** for use with the vehicle, it would have been obvious to implement this feature based on *Hayashi*. Ex. 1009, ¶¶ 245-254. As explained earlier, it would have been obvious to substitute/add to *Xiao*’s determination of appropriate command codes *Hayashi*’s method of determining compatibility, with a reasonable expectation of success, to yield the predictable result of ensuring only compatible commands are processed. *Supra*, VII.B.

Hayashi discloses an operating method-by-vehicle database 134 that “stores operating methods for each **function** according to vehicle model.” Ex. 1013, ¶[0029]. As in Fig. 6 (below), database 134 includes operating methods for various **functions** (**function 1, 2, 3**) that vary by vehicle model (vehicle model α , β , γ). These **functions** may include **user settings** for the vehicle. *Id.*, ¶[0120]. For example, for vehicle model α and β , **function 1** is achieved by performing operating method X. For vehicle model γ , **function 1** is achieved by performing operating method Y. *Hayashi* also demonstrates the concept of **compatibility** determination by explaining that “[i]f a certain ‘vehicle model’ does not have a

certain ‘function,’ ‘none’ may be stored” *Id.*, ¶[0029]. Furthermore, *Hayashi* actively determines certain functions are compatible with certain vehicle models by specifying, e.g., method X, Y, Z, etc., for implementing such functions.

Operating Method by Vehicle Model				
	Model α	Model β	Model γ	Model δ
Function 1	Op. Meth. X	Op. Meth. X	Op. Meth. Y	Op. Meth. X
Function 2	Op. Meth. P	Op. Meth. Q	Op. Meth. R	None
Function 3	Op. Meth. S	Op. Meth. T	Op. Meth. T	Op. Meth. T
Function 4	Op. Meth. Z	Op. Meth. W	None	Op. Meth. Z

Annotated Fig. 6 of *Hayashi* (annotations in blue)

It would be a minor modification to apply such teachings to *Xiao*. Ex. 1009, ¶¶ 252-253. As an example, in the table of automobile command information 606, it would have been obvious to indicate that certain commands are compatible/incompatible with certain automobiles. *Id.*

AUTOMOBILE COMMAND INFORMATION			606
AUTOMOBILE ID	COMMAND ID	COMMAND CODE	632
—	—	—	630
—	—	—	
—	—	—	
1234	Abcd	None	

Annotated Excerpt of Fig. 6 of *Xiao*

Thus, *Xiao* and *Hayashi* render obvious this limitation.

20[b]: “communicating to the **cloud processing system** by the vehicle, changes to **user settings**, the **cloud processing system** processing the changes and other changes to the **user settings** to **learn behavior** associated with the changes to the **user settings**; and”

Xiao discloses communicating to the **cloud processing system** (e.g., **wireless automobile key system 100**) by the vehicle (e.g., automobile 112) changes to **user settings** (e.g., **profile information 614**). *Id.*, ¶¶ 255-261. *Xiao* states that “[o]perator preferences menu UI element 904 may allow the operator to view and/or change the **operator’s profile information 614**.” Ex. 1010, ¶¶ [0105]-[0106].

Although *Xiao* discusses providing recommendations to the user automatically, e.g., for keeping up-to-date with vehicle maintenance (*id.*, ¶[0082]), *Xiao* does not explicitly disclose that changes to **user settings** are processed to **learn behavior** associated with the changes.

However, it would have been obvious to combine *Xiao* and *Hayashi* with *Patenaude* to further improve the user experience by providing predictions of user selections, and one would have had a reasonable expectation of success in doing so. *Supra*, VII.B, VII.C.2.

Patenaude discloses communicating changes to **user settings** (e.g., **selections on entertainment units**), the **cloud processing system** (e.g., **system 100**) processing the changes, and other changes to the **user settings** to **learn behavior** (e.g., **patterns**) associated with the changes to the **user settings**. Ex. 1009, ¶¶ 257-260. *Patenaude*

states, “[t]he processor 122 in the telematics unit 120 checks for **changes in the patterns** every time additional data is received for the specific subset profile.”

Ex. 1011, ¶[0078].

Specifically, *Patenaude* discloses a method of determining a **user’s entertainment selection profile** in a vehicle. *Id.*, ¶[0051]. As in Fig. 4, a telematics unit “determines **patterns** in the entertainment selections.” *Id.*, ¶[0055]. These are based on setting selections. *See id.*, ¶[0056].

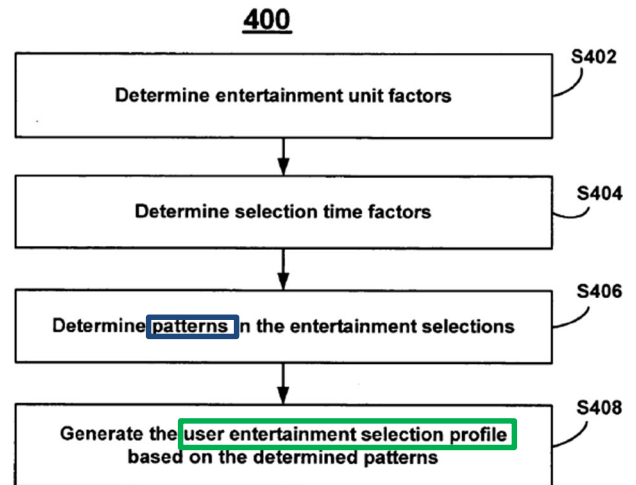


FIG. 4

Eventually, “the processor 122 applies an algorithm on the stored entertainment unit factors and selection time factors.” *Id.*, ¶[0069]. *Patenaude* explains that entertainment unit factors are user inputs that include one or more of “a satellite radio unit code, an AM radio unit code, an FM radio unit code, . . .” and so on. *Id.*, ¶[0052]. Selection time factors further describe the setting modifications and include “time of day of the entertainment selection, a day of week of the entertainment selection, a week of month of the entertainment selection, and a date of the entertainment selection.” *Id.*, ¶[0054].

Patenaude additionally discloses “[u]ser-preference data from client-side software is transmitted to server-side software of web-hosting portal 160.” *Id.*, ¶[0027].

20[c]: “receiving by the vehicle, from time to time, **automatic changes** to the **user settings** of the vehicle, wherein a repeat pattern of the **changes** is qualified as **learned behavior** before the **automatic changes** are sent to the vehicle for programming on the vehicle, wherein the **user profile** is configured to be updated to account for the **automatic changes** made to the **user settings** of the vehicle,”

Patenaude discloses receiving by the vehicle, from time to time, **automatic changes** (e.g., **in patterns**) to the **user settings** (e.g., the **user’s entertainment selection profile**) of the vehicle, wherein a repeat pattern of the **changes** is qualified as **learned behavior** before the **automatic changes** are sent to the vehicle for programming on the vehicle, wherein the **user profile** is configured to be updated to account for the **automatic changes** made to the **user settings** of the vehicle. Ex. 1009, ¶¶ 262-264.

Patenaude states, “[t]he processor 122 in the telematics unit 120 checks for **changes in the patterns** every time additional data is received for the specific subset profile.” Ex. 1011, ¶[0078]. As an example, *Patenaude* explains “if the algorithm determines that a first FM radio station and a second FM radio station are selected *every* weekday between 7:25 AM and 7:45 AM the algorithm narrows the time frame” *Id.*, ¶[0057]. “This type of **entertainment selection patterns** a driver

who listens to a local traffic report that is announced *every weekday at about*

7:40” *Id.* *Patenaude* further states that “telematics unit 120 can determine that a third FM radio station is selected *every* weekday between 5:15 PM and 5:50 PM.”

Id. In *Patenaude*, the user’s entertainment selection profile is determined based on repeated monitoring. *Id.*, ¶¶[0038], [0049], [0064], claim 7. That is, based on such repeat patterns of changes, the system of *Patenaude* learns the driver’s behavior and updates the user profile (e.g., the user’s entertainment selection profile).

20[d]: “wherein electronics of the vehicle enable connection of the vehicle to the Internet for enabling the accessing of the user profile, the communicating of changes and the receiving of the automatic changes, to and from, the cloud processing system, wherein the cloud processing system is accessible by vehicles having predefined access credentials, the method being executable by a processor;”

Xiao discloses electronics (e.g., modules 402-418) of the vehicle (e.g., automobile 112) enable connection of the vehicle to the Internet for enabling the accessing of the user profile (e.g., profile information 614), the communicating of changes and the receiving of the automatic changes, to and from, the cloud processing system (e.g., system 100), wherein the cloud processing system is accessible by vehicles having predefined access credentials, the method being executable by a processor (e.g., processor 500). Ex. 1009, ¶¶ 265-268.

Xiao discloses certain users, such as a mother and father, having permissions. Furthermore, *Xiao* discloses an embodiment where only the owner can view diagnostics of the vehicle. *See supra*, VII.A.8.19[a].

As illustrated in Figs. 1 and 5, *Xiao* shows that processor 500 is part of system 100. *See supra*, VII.A.1.10[e].

20[e]: “wherein user settings for the user profile include one or more of radio settings, . . . or combinations of two or more thereof.”

Xiao discloses user settings for the user profile (e.g., profile information 614) including at least one of the alternatives quoted above. Ex. 1009, ¶¶ 269-271.

For example, *Xiao* discloses temperature/air/radio/audio/operational/seat settings. Ex. 1010, ¶¶ [0102]-[0103].

VIII. The Board Should Not Exercise Discretion to Deny Institution

A. The *Fintiv* Factors Favor Institution

Patent Owner has asserted the '268 patent against Petitioner in the Eastern District of Texas (“the related litigation”). *Infra*, X.B. The most relevant *Fintiv* factors demonstrate that the Board should not deny institution. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential).

Regarding Factor 1, a stay has been neither requested nor granted. Thus, Factor 1 is neutral.

Regarding Factor 2, trial is set for July 21, 2025, before the final written decision. In light of the Board’s holistic analysis, however, the litigation trial date is not determinative. *See, e.g., Netnut Ltd. v. Bright Data Ltd.*, IPR2021-01492, Paper 12 at 9-16 (PTAB Mar. 21, 2022) (instituting review with related litigation trial date six months before FWD; no stipulation regarding district court arguments made); *CoolIT Sys., Inc. v. Asetek Danmark A/S*, IPR2021-01195, Paper 10 at 11-14 (PTAB Dec. 28, 2021) (same by five months; *Sand II* stipulation); *Align Tech., Inc. v. 3Shape A/S*, IPR2021-01313, Paper 11 at 16-19 (PTAB Feb. 10, 2022) (same by four months; *Sand II* stipulation). Thus, in view of the other factors, Factor 2 does not warrant denial.

Under Factor 3, the Board considers Petitioner’s timing. *Fintiv*, Paper 11 at 11. Petitioner moved with speed and diligence in bringing this challenge—within three months after infringement contentions—mitigating against the parties’ investment. *CoolIT*, Paper 10 at 11-12 (finding petitioner acted diligently where it filed petition five months after patent owner identified asserted claims); *Fintiv*, Paper 11 at 11. The Board also considers, under Factor 3, “the amount and type of work already completed in the parallel litigation[.]” *Fintiv*, Paper 11 at 9. Here, by institution, the district court’s investment regarding the ’268 patent will be minimal. The Markman hearing is expected after institution, as is the completion of fact discovery, expert discovery, and dispositive motions. Ex. 1014; *see also*

Protect Animals with Satellites LLC, v. OnPoint Sys., LLC, IPR2021-01483, Paper 11 at 14-15 (PTAB Mar. 4, 2022); *Fintiv*, Paper 11 at 9-10; *Netnut*, Paper 12 at 11. Thus, Factor 3 favors institution.

Regarding Factor 4, Petitioner stipulates that if this IPR is instituted, it will not pursue in the related litigation the grounds raised in this Petition. *Sand Revolution II, LLC, v. Cont'l Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24 at 12 (PTAB Jun. 16, 2020) (informative). This stipulation mitigates concerns of duplicative efforts between the district court and the Board. *See, e.g., CoolIT*, Paper 10 at 3, 11-13 (instituting review with related litigation trial date five months before final written decision and *Sand II* stipulation); *Align Tech.*, Paper 11 at 2, 15-18 (same by four months with *Sand II* stipulation); *STMicroelectronics, Inc. v. Ocean Semiconductor LLC*, IPR2021-01349, Paper 13 at 2, 10, 12 (PTAB Mar. 4, 2022) (same, by three months and non-assertion of specific petition grounds in related litigation). Thus, this Factor weighs in favor of Board not exercising discretionary denial.

Factor 5 looks to “whether the petitioner and the defendant in the parallel proceeding are the same party.” *Fintiv*, Paper 11 at 13. Petitioner is a defendant in the related litigation, and, to Petitioner’s knowledge, Patent Owner has not asserted the ’268 patent against any other party. Thus, this factor is neutral. *Snap, Inc. v.*

SRK Tech. LLC, IPR2020-00820, Paper 15 at 16 (PTAB Oct. 21, 2020)

(informative).

Factor 6 favors institution because the merits of this Petition are strong. The Petition relies upon materially different and non-cumulative references not applied during prosecution, which teach the very features Applicant argued during prosecution to be lacking from the prior art. *See supra*, VII.

Accordingly, the *Fintiv* factors favor instituting this IPR.

B. The *Becton, Dickinson* Factors Do Not Warrant Denial

The factors in *Becton, Dickinson & Co. v. B. Braun Melsungen AG* also do not warrant denial. IPR2017-01586, Paper 8 at 17-18 (PTAB Dec. 15, 2017); *see also Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020) (precedential).

None of the references relied on in the grounds of this Petition were applied during prosecution of the '268 patent or any '268 patent family member.

Moreover, Petitioner's references and combination rationales are not cumulative to those used during prosecution. Indeed, Patent Owner attempted to distinguish the prior art cited in the prosecution by arguing that the prior art lacked certain features found in the present references.

Accordingly, the *Becton, Dickinson* factors do not warrant denial.

IX. Grounds for Standing

Petitioner certifies that the '268 patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR challenging the patent claims on the grounds identified herein.

X. Mandatory Notices

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

The real parties-in-interest are Toyota Motor Corp., Toyota Motor 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 '268 patent is, or has been, involved in the following district court litigations and Board proceedings. The case below has been consolidated for pretrial issues with *Emerging Automotive LLC v. Kia Corp.*, No. 2:23-cv-00437-JRG (E.D. Tex.).

Name	Number	Court	Filed
<i>Emerging Automotive LLC v. Toyota Motor Corp. et al.</i>	2:23-cv-00434	EDTX	Sept. 20, 2023

To Petitioner's knowledge, the '268 patent is related to the following U.S. applications that had been pending as of the issuance of the '268 patent, and their corresponding issued patents (if applicable):

Application No.	Patent No.
61/745,729	(n/a)
61/478,436	(n/a)
13/452,882	9,123,035

Inter Partes Review
U.S. Patent No. 9,171,268

13/842,158	9,229,905
13/797,974	9,180,783
13/906,335	9,104,537
13/934,215	9,581,997
13/937,202	9,346,365
14/222,670	9,348,492
14/499,039	9,536,197
14/640,004	9,423,937
14/246,145	9,229,623
14/880,970	9,579,987
14,173,818	9,697,733
14/303,442	9,365,188
14/672,038	10,286,919
14/145,693	9,372,607
14/790,409	9,215,274
14/063,638	9,189,900
14/176,138	9,697,503
14/338,636	9,648,107
14/602,256	9,129,272
13/784,823	9,285,944
13/842,158	9,229,905
13/911,072	9,809,196
14/063,837	9,139,091
14/595,186	9,177,305
14/599,541	9,177,306
13/797,982	(Abandoned)
14/316,559	9,371,007
14/251,537	9,230,440
14/872,404	9,335,179
14/801,803	9,193,277
14/275,569	9,467,515
14/281,892	9,545,853
14/677,341	9,778,831
14/275,569	9,467,515
14/338,636	9,648,107
14/288,356	(Abandoned)

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

Lead Counsel	Back-Up Counsel
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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.

XI. Conclusion

Petitioner requests that the Board institute *inter partes* review and cancel all challenged claims.

Respectfully submitted,

Dated: April 15, 2024

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), Petitioner hereby certifies that the foregoing Petition contains 13,983 words, excluding parts of this Petition exempted under § 42.24(a), as measured by the word-processing system used to prepare this paper.

Dated: April 15, 2024

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 1001-1015 were served on April 15, 2024, on counsel of record for the subject patent by FedEx Priority Overnight at the addresses below.

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