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. IPR2026-00070
U.S. Patent No. 12,337,716

PETITION FOR *INTER PARTES* REVIEW

OF U.S. PATENT NO. 12,337,716

TABLE OF CONTENTS

TABLE OF AUTHORITIES iv

PETITIONER'S LIST OF EXHIBITS v

I. Preliminary Statement 1

II. Precise Relief Requested 3

III. The '716 Patent 4

A. Overview 4

B. Prosecution History 9

C. Priority Date 9

1. Legal Standard 9

2. Effective Filing Date No Earlier Than March 15, 2013 or December 24, 2012 10

IV. Level of Ordinary Skill 12

V. Claim Construction 12

VI. Claims 1-13 Are Unpatentable Over Prior Art 13

A. Ground 1: Claims 1-11 Are Unpatentable Over *Rector* in View of *Kleve* And *Xiao* 13

1. *Rector* 13

2. *Kleve* 16

3. Motivation to Combine *Rector* And *Kleve* 19

4. *Xiao* 22

5. Motivation to Further Combine *Rector* And *Kleve* With *Xiao* 25

6. Independent Claim 1 27

7. Claim 2 40

8. Claim 3 41

9. Claim 4 44

10. Claim 5 47

11. Claim 6 48

12. Independent Claim 7 50

13. Claim 8 53

14. Claim 9 53

15. Claim 10 53

16. Claim 11 53

B. Ground 2: Claims 12-13 Are Unpatentable Over *Rector*, *Kleve*, And *Xiao* (as Applied to Claim 11) And Further in View of *Patenaude* 56

1. *Patenaude* 56

2. Claim 12 59

3. Claim 13 62

C. Ground 3: Claims 5-6 Are Unpatentable Over *Rector*, *Kleve*, And *Xiao* (as Applied to Claim 1) And Further in View of *Hayashi* 66

1. *Hayashi* 66

2. Claim 5 70

3. Claim 6 72

VII. Grounds for Standing 73

VIII. Mandatory Notices 73

A. Real Party-in-Interest Under 37 C.F.R. § 42.8(b)(1) 73

B. Related Matters Under 37 C.F.R. § 42.8(b)(2) 73

C. Lead and Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3) 77

D. Service Information Under 37 C.F.R. § 42.8(b)(4).....78

IX. Conclusion 78

TABLE OF AUTHORITIES

Page(s)

Cases

Ariad Pharms., Inc. v. Eli Lilly & Co.,
598 F.3d 1336 (Fed. Cir. 2010) 10

D Three Enters., LLC v. SunModo Corp.,
890 F.3d 1042 (Fed. Cir. 2018) 9

Toyota Motor Corp. v. Emerging Automotive LLC,
IPR2024-00786, Paper 11 (PTAB Oct. 22, 2024).....*passim*

Toyota Motor Corp. v. Emerging Automotive LLC,
IPR2024-00814, Paper 11 (PTAB Nov. 22, 2024).....*passim*

Statutes

35 U.S.C. § 112.....11, 12

35 U.S.C. § 120.....9

Other Authorities

37 C.F.R. § 42.8(b)(1).....73

37 C.F.R. § 42.8(b)(2).....73

37 C.F.R. § 42.8(b)(3).....77

37 C.F.R. § 42.8(b)(4).....78

PETITIONER'S LIST OF EXHIBITS

Exhibit	Description
Ex. 1001	U.S. Patent No. 12,337,716 to Penilla et al. ("'716 Patent")
Ex. 1002	Prosecution File History for U.S. Patent No. 12,337,716 ("'716 Prosecution History")*
Ex. 1003	Curriculum Vitae of Dr. Kevin Almeroth
Ex. 1004	Declaration of Dr. Kevin Almeroth ("Almeroth Declaration")
Ex. 1005	U.S. Patent Application Pub. No. 2011/0137520 A1 to Jay Rector et al. ("*Rector*")
Ex. 1006	U.S. Patent Application Pub. No. 2014/0129053 A1 to Robert Bruce Kleve et al. ("*Kleve*")
Ex. 1007	U.S. Patent Application Pub. No. 2012/0164989 A1 to Hong Xiao et al. ("*Xiao*")
Ex. 1008	U.S. Provisional Application No. 61/478,436
Ex. 1009	U.S. Patent Application Pub. No. 2006/0136106 A1 to Russell Patenaude et al. ("*Patenaude*")
Ex. 1010	Decision Granting Institution of *Inter Partes* Review, Paper 11, November 22, 2024, IPR2024-00814 ("'244 Institution Decision")
Ex. 1011	Decision Granting Institution of *Inter Partes* Review, Paper 11, October 22, 2024, IPR2024-00786 ("'268 Institution Decision")
Ex. 1012	U.S. Provisional Application No. 61/745,729
Ex. 1013	Japanese Patent Application Pub. No. 2012-076627 A to Kunikatsu Hayashi et al. ("*Hayashi*")
Ex. 1014	As-filed specification of U.S. Application No. 13/452,881
Ex. 1015	As-filed specification of U.S. Application No. 13/842,158
Ex. 1016	U.S. Patent No. 11,396,244 B2 to Penilla et al. ("'244 Patent")

Exhibit	Description
Ex. 1017	U.S. Patent No. 9,171,268 B1 to Penilla et al. ("'268 Patent")

* Due to government shutdown delays at the USPTO, Petitioner has not yet received a certified copy of the '716 Prosecution History. Petitioner will supplement the record once received.

I. Preliminary Statement

Petitioner Toyota Motor Corporation ("Petitioner") requests *inter partes* review of claims 1-13 of U.S. Patent No. 12,337,716, purportedly assigned to Patent Owner Emerging Automotive LLC ("EA"). The patent generally relates to methods and systems for communicating with a server of a cloud services system to interface with vehicles. Ex. 1001 ("'716 Patent"), Abstract. The alleged invention is directed to a method including transferring settings to a vehicle for customization. *Id.*

The '716 Patent is a direct continuation of U.S. Patent No. 11,396,244 ("'244 Patent"). EA filed its continuation during ongoing litigation against Petitioner and only *after* Petitioner obtained IPR institution decisions on both the '244 Patent and another family member: U.S. Patent No. 9,171,268 ("the '268 Patent"). In the continuation, EA re-packaged the claims of the '244 Patent with minor, unpatentable differences. The claims of the '716 Patent disclose the same server/profile/settings flow claimed in the '244 Patent (which the Board already found disclosed in the prior art) and add "applicable/compatible settings" language that the Board likewise found sufficiently taught by *Xiao* in its institution decision for the '268 Patent. Ex. 1010, *Toyota Motor Corp. v. Emerging Automotive LLC*, IPR2024-00814, Paper 11 (PTAB Nov. 22, 2024) ("'244 Institution Decision"); Ex. 1011, *Toyota Motor Corp. v. Emerging Automotive LLC*, IPR2024-00786, Paper 11 (PTAB Oct. 22, 2024) ("'268 Institution Decision").

The Board has mapped virtually all '716 Patent claim elements to prior art in prior IPRs. In the '244 Institution Decision, the Board accepted Petitioner's showing that *Rector*'s architecture (smart vehicle → settings server 130/server logic 132/database 134) implements the server-stored profile backbone and that it would have been obvious to perform server-side verification as taught by *Kleve*. Ex. 1010, pp. 23-36, 41-42 (instituting on a combination of *Rector* and *Kleve*). The '716 Patent claims recite the same routine cloud workflow the Board already green-lit for institution against the '244 Patent: a server uses user information to verify access, retrieves user-preferred settings from server-accessible storage, and wirelessly transfers settings that the vehicle then applies. *Id.*, pp. 23-25 (server receives/uses user information), 29-33 (server-side verification via *Kleve*), 33-35 (server "transferring" instructs vehicle software/hardware), 35-36 (wireless).

The '716 Patent purportedly adds a "compatibility" concept that was already addressed in IPR2024-00786 against the '268 Patent. In the '268 IPR, the Board instituted review of claims reciting "applicable settings … compatible with settings that are settable in the selected vehicle," crediting *Xiao*'s server lookups of vehicle-specific commands and finding Petitioner's position the "better one;" the Board instituted on all challenged claims. Ex. 1011, pp. 19, 22-29, 49-51. A decision is expected on October 22, 2025 for the '268 IPR and on November 22, 2025 for the '244 IPR.

In the end, despite EA drafting the claims of the '716 Patent with knowledge of the Board's institution findings in the '244 IPR and '268 IPR, the '716 Patent merely combines elements the Board already considered in instituting those IPRs—*Rector* and *Kleve* (server/profile/settings/verification/transfer pathway), *Xiao* or *Hayashi* (vehicle-specific applicability for the "compatible settings" feature), *Xiao* (server updates based on user vehicle inputs), and *Patenaude* (pattern-based learning engine). The '716 Patent claims nothing beyond what the Board has already found reasonably likely unpatentable on closely-matched claim language.

The Board should institute IPR and cancel the challenged claims.

II. Precise Relief Requested

Petitioner respectfully requests IPR and cancellation of the challenged claims based on the following references and grounds:

Prior Art References
Rector (Ex. 1005), U.S. Patent App. Pub. 2011/0137520A1, filed Dec. 7, 2009, and published Jun. 9, 2011 (at least § 102(e) prior art).
Kleve (Ex. 1006), U.S. Patent App. Pub. 2014/0129053A1, filed Nov. 7, 2012, and published May 8, 2014 (at least § 102(e) prior art).
Xiao (Ex. 1007), 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)).
Patenaude (Ex. 1009), U.S. Patent App. Pub. 2006/0136106A1, filed Dec. 22, 2004, and published Jun. 22, 2006 (at least §§ 102(a), (b), (e) prior art).

Prior Art References
Hayashi (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	*Rector*, *Kleve* and *Xiao* render obvious claims 1-11 under § 103.
2	*Rector*, *Kleve*, *Xiao* and *Patenaude* render obvious claims 12-13 under § 103.
3	*Rector*, *Kleve*, *Xiao* and *Hayashi* render obvious claims 5-6 under § 103.

III. The ’716 Patent

A. Overview

The ’716 Patent claims methods of customizing vehicles based on server-stored user profile settings. It describes data-center-based systems and server-executed methods for transferring user profile settings to vehicles using cloud services. Ex. 1001, ’716 Patent, Title, Abstract. The patent attempts to exploit cloud system connectivity to provide “automatic settings and synchronization when the user enters the vehicle.” *Id.*, 13:10-11. It explains: vehicles “communicate wirelessly with Internet services,” providing access to “settings, configurations, applications, and other customization defined by the user.” *Id.*, 7:16-21. Cloud systems enable vehicle users to access the Internet to provide services “in a more effective manner.” *Id*., 9:4. The patent claims commonplace features such as transferring custom setting configurations between vehicles, alleging that its purported invention offers

"customization" that "will be facilitated via a website." *Id.*, 7:42-55.

The patent illustrates its allegedly inventive method in Fig. 1 (below). *Id.*, 16:3-21. "The user supplies login credentials to a vehicle login interface which are sent to the remote distributed or centralized user login authentication system or onboard vehicle authentication system," and if authenticated, the vehicle "has vehicle settings applied to it and the user is allowed to operate the vehicle." *Id.* Otherwise, "the user is presented with a failed access notification on the login interface." *Id.*

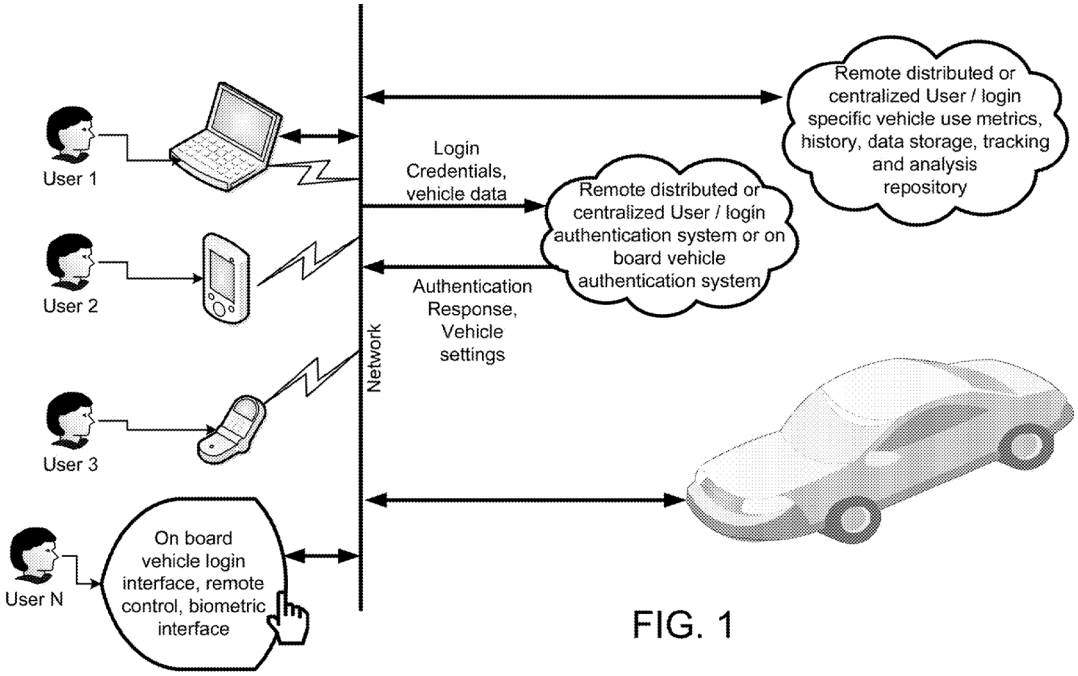


FIG. 1

Id., Fig. 1.

Internet connectivity allows vehicle functions to be monitored or restricted, which can be done for "safety considerations while driving." *Id.*, 10:3-19. Exemplary of "applying" settings restrictions, "if a particular application requires

entry of text, navigation of controls, or other activities that would distract the driver during operation of the vehicle, such [actions] … can be temporarily disabled." *Id.*, 12:5-12. Regarding Fig. 4, the patent explains that "location based settings allow[] an administrator to draw out a map of the area the user login CHILD is allowed to travel within while logged into the vehicle." *Id.*, 16:67-17:3, Fig. 4.

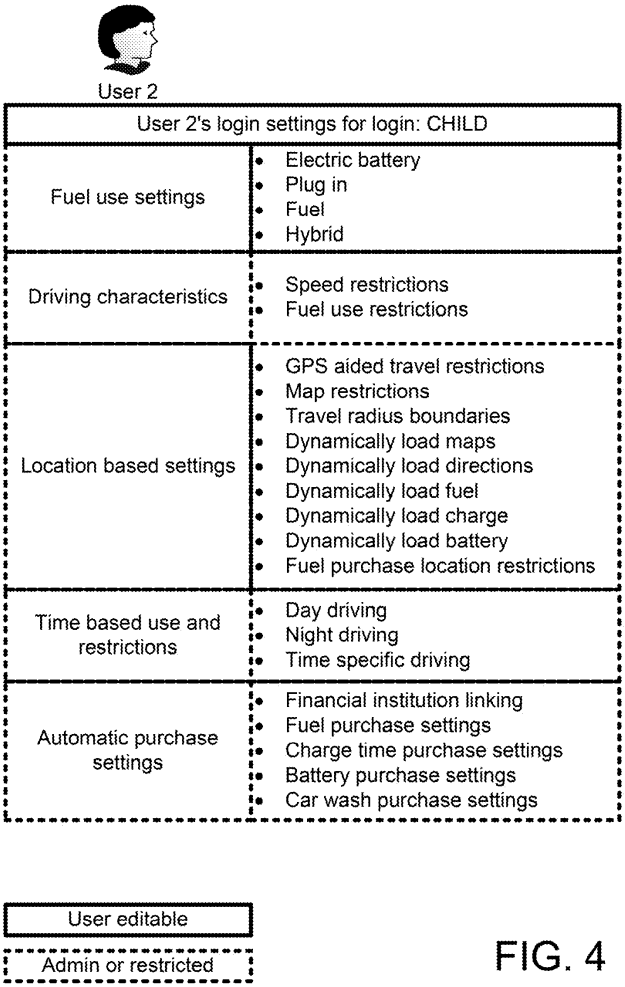


FIG. 4

Id., Fig. 4.

As shown in Fig. 5, other settings, like "comfort" settings, including "climate, seats positions, seat heater/cooler," or "entertainment" systems, may be "configurable by the user," but can also be administrator-restricted. *Id.*, 17:4-17,

14:12-33.

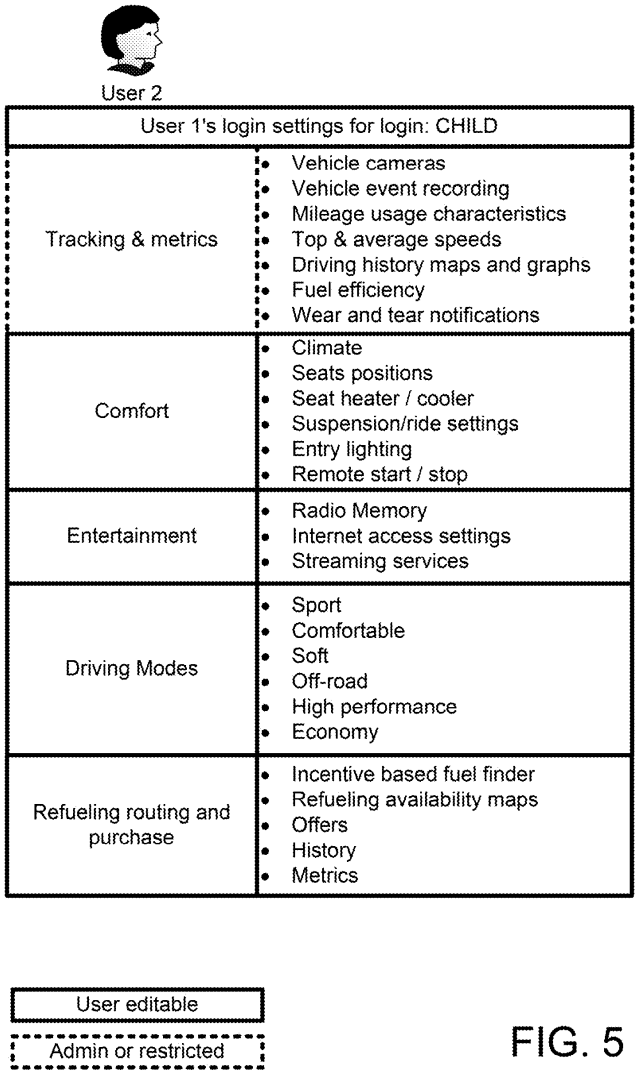


FIG. 5

Id., Fig. 5.

The patent claims that a "learning engine" learns the user's preferences and generates a "recommended setting." The specification does not describe a "learning engine," mentioning the term only once. *Id.*, 7:26-31. Regarding "learning" generally, the specification states: "Bob's profile can include specific settings, preferences, use history, and learned settings from earlier uses of one or more

vehicles." *Id.*, 17:31-33, Fig. 6.

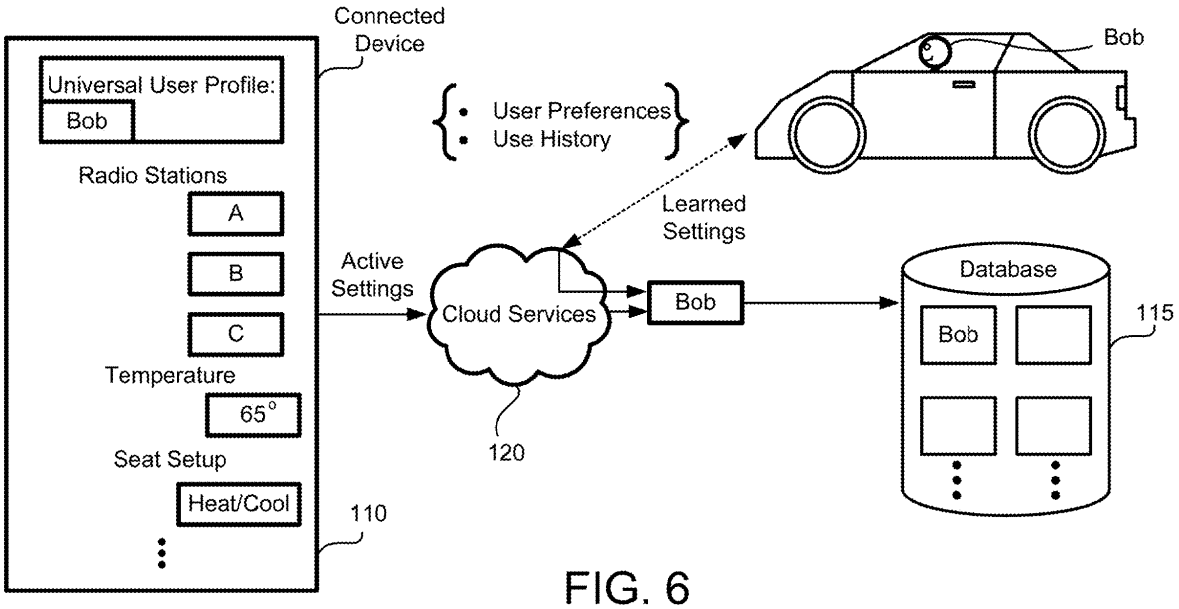


FIG. 6

Id., Fig. 6.

The '716 Patent's field of endeavor is systems and methods for managing user profiles for vehicles and exchanging information with cloud-based processing systems.[1] *Id.*, Abstract. The '716 Patent states that it provides "[m]ethods and systems for communicating with a server of a cloud services system used to interface with vehicles." *Id.* The '716 specification describes vehicles that "communicate wirelessly with Internet services" to provide user "settings, configurations, applications and other customization," including "automatic settings and synchronization when the user enters the vehicle." *Id.*, 7:16-21, 13:10-16.

[1] The Board described the '268 Patent's field of endeavor similarly. Ex. 1011, p. 3.

B. Prosecution History

During prosecution, originally filed claims 1-20 were subject to restriction; the Patentee canceled claims 1-16 and elected claims 17-20 for further prosecution. Ex. 1002, p. 2819. A first office action issued August 19, 2024, rejecting claims 17-20 under §§ 102 and 112, and for double-patenting over U.S. Patent No. 9,229,905. *Id.*, pp. 1924-26.

On November 21, 2024, the Patentee made minor claim amendments, submitted an information disclosure statement identifying over 380 prior art references (including *Rector*, *Kleve*, *Xiao*, *Patenaude* and *Hayashi*), and remarked that related proceedings IPR2024-00786 ('268 Patent) and IPR2024-00814 ('244 Patent) were "pending." *Id.*, pp. 1773-87.

Independent claim 17 was amended, new claims 20-29 were added, and a notice of allowance issued for claims 17-29 (issued as '716 Patent claims 1-13). *Id.*, pp. 1765-1774, 14-21.

C. Priority Date

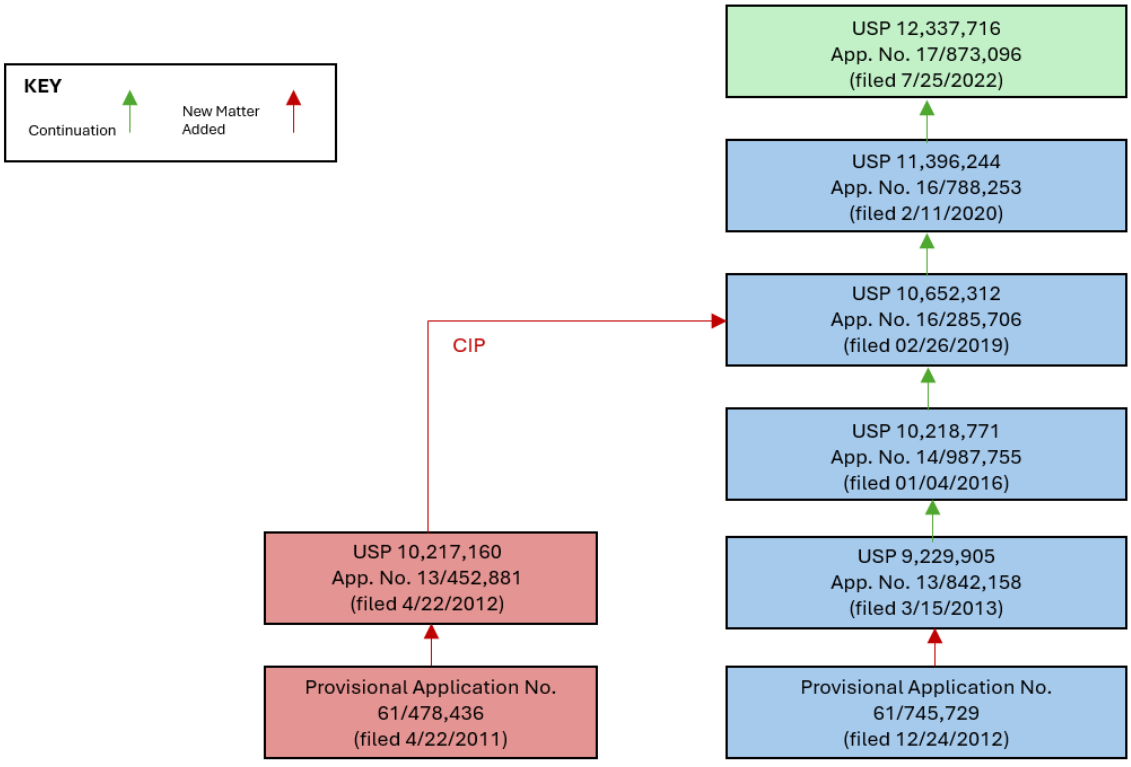
1. Legal Standard

A claim is only entitled to the benefit of an earlier filed U.S. application if the earlier filed application discloses the subject matter of the claims. 35 U.S.C. § 120; *see also D Three Enters., LLC v. SunModo Corp.*, 890 F.3d 1042, 1046-47 (Fed. Cir. 2018). To satisfy that requirement, the earlier filed application must "reasonably

convey[] to those skilled in the art that the inventor had possession of" the claimed subject matter. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010). Evaluation of adequate written description "requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art." *Id.* A description cannot "merely render[] the invention obvious." *Id.*, 1352.

2. Effective Filing Date No Earlier Than March 15, 2013 or December 24, 2012

The '716 Patent is part of a larger family of patents and applications:



Ex. 1004, ¶67.

The challenged claims are not entitled to the filing dates of Provisional Application 61/478,436 or Application 13/452,881 (in red above), because those do

not describe the subject matter of the claims as required by 35 U.S.C. § 112, ¶1; Ex. 1004, ¶¶67-77.

For example:

- Claims 1 and 7, reciting user "profiles" and vehicle "settings," including those associated with such user profiles, have a priority date of no earlier than December 24, 2012, because this subject matter first appeared in Application 61/745,729. Ex. 1004, ¶¶70, 76;
- Claims 12-13, reciting a "learning engine," have a priority date of no earlier than March 15, 2013, because "learning engine" subject matter first appeared in Application 13/842,158. Ex. 1004, ¶¶73-76; and
- Claim 11, reciting the server receiving inputs made to the systems of the vehicle during use and determining, based thereon, that the profile settings is to be updated, has a priority date of no earlier than March 15, 2013, because this subject matter first appeared in Application 13/842,158. Ex. 1004, ¶¶72, 75-76.

For this proceeding only,[2] claims 11-13 have a priority date of no earlier than March

[2] Petitioner (a) does not concede that the challenged claims are valid or meet all statutory requirements, and (b) reserves all rights to challenge validity of the claims in any other litigation/proceeding.

15, 2013, and the remaining challenged claims (claims 1-10) are entitled to a priority date of no earlier than the December 24, 2012 filing date of Provisional Application 61/745,729.[3] Ex. 1004, ¶77. Regardless of whether claims 11-13 are entitled to the earlier date of December 24, 2012, the prior art relied on in this Petition antedates the earliest possible date of December 24, 2012.

IV. Level of Ordinary Skill

A person of ordinary skill in the art (POSA) would have at least a bachelor's degree in electrical engineering, computer science, or closely-related field, with at least two-to-four years of experience in cloud services for setting(s) customization. Additional education (*e.g.*, master's degree in electrical engineering, computer science, or equivalent) could substitute for professional experience and vice versa. Ex. 1004, ¶¶80-83.

V. Claim Construction

No terms require construction for purposes of IPR because the '716 Patent

[3] *At least* claims 6 and 8 do not satisfy 35 U.S.C. § 112 and thus are not entitled to the priority date of December 24, 2012 because the claimed element of making an incompatible setting be compatible is not found in the specification or prior patent claims. However, for purposes of this proceeding *only*, Petitioner agrees that the critical date for those claims is as identified.

claims read on the prior art under any construction consistent with *Phillips*.

VI. Claims 1-13 Are Unpatentable Over Prior Art

A. Ground 1: Claims 1-11 Are Unpatentable Over *Rector* in View of *Kleve* And *Xiao*

1. *Rector*

Rector, entitled "Devices, Systems and Methods for Controlling Permitted Settings on a Vehicle," acknowledges the same safety concerns the '716 Patent identified years later: that certain vehicle settings may contribute to driver distractions. *Compare* Ex. 1005, Title, ¶[0005], *with* Ex. 1001, 12:1-21. Like the '716 Patent, *Rector* is directed to "alleviat[ing] some of [the] distractions" facing immature or inexperienced drivers. Ex. 1005, ¶[0006], *see also id.*, ¶[0004]-[0007]. It discloses ways to alter permitted vehicle settings according to driver identity. *Id.*, ¶[0008]. Like the '716 Patent, *Rector*'s administrator (*e.g.*, a parent) can restrict their child's vehicle use. *Compare id.*, ¶¶[0032]-[0033] *with* Ex. 1001, 11:35-45.

Rector describes systems involving both a smart vehicle and a server, and addresses how they interact. *Rector*'s "method of controlling a driver's settings on a smart vehicle" explicitly teaches comparing unique identifiers and determining a driver ID via the smart vehicle and "[a]lternatively, the unique identifier may be compared with a set of unique identifiers on a server on a network." Ex. 1005, ¶[0043]. *Rector* describes a smart vehicle capturing a unique identifier from a driver, which is used to determine settings in a database. Ex. 1005, ¶[0023]. Settings may

be set by a "controlling authority," such as "a parent." *Id.* Settings "may limit certain devices within the smart vehicle and/or the smart vehicle itself," such as "radio settings, wireless communication device settings, and various other settings … to limit distractions to the driver." *Id.*, ¶[0008]. Fig. 1 (below) illustrates smart vehicle 100 wirelessly communicating with settings server 130 via network 140. *Id.*, ¶[0030], Fig. 1.

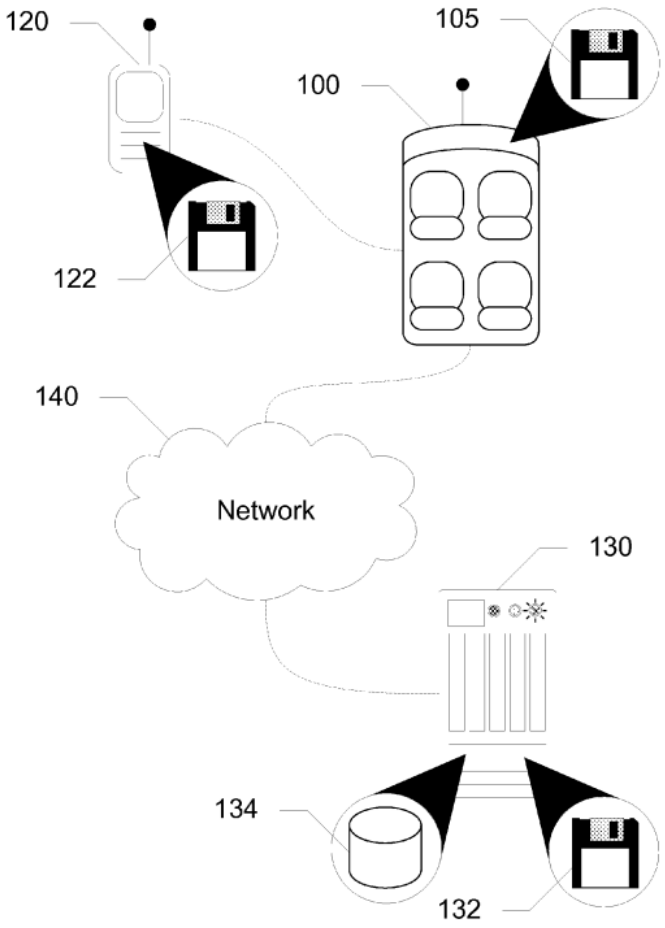


Figure 1

Id., Fig. 1.

In Fig. 3 (below), a driver is identified (S351), his/her settings are looked up (S352) and transmitted to the vehicle, and restrictions are applied to prevent the

driver from impermissibly adjusting vehicle features (S354 and S356). *Id.*, ¶[0043]. *Rector* explains that steps are performed with a server, including matching the unique identity to a driver, and gathering/sending permitted settings to the vehicle. *Id.*, ¶¶[0031], [0043], claim 1, [0009].

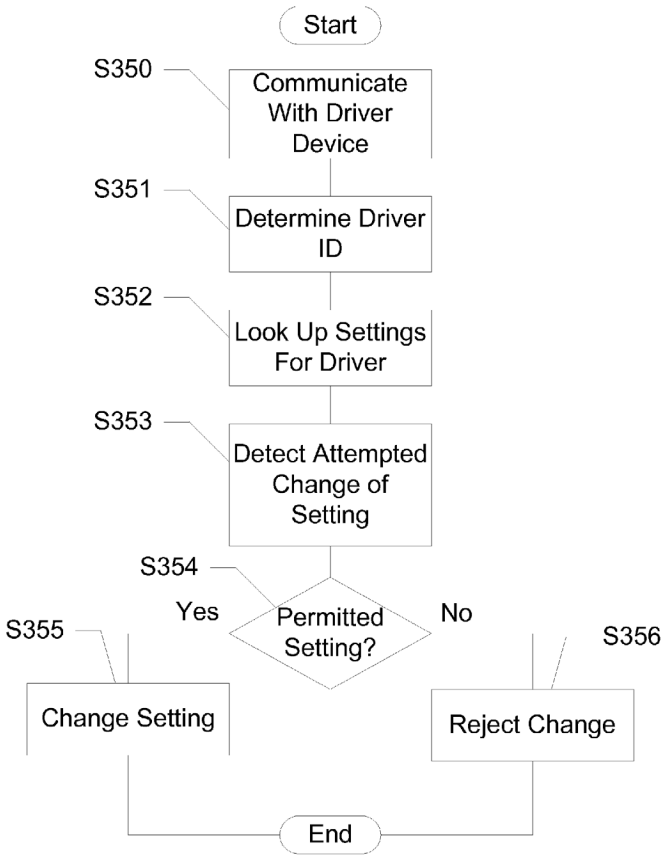


Figure 3

Id., Fig. 3.

Rector falls within the '716 Patent's field of endeavor. *Rector* discloses a network "settings server 130" with "database 134"; "client logic 105 transmits the unique identifier … to settings server 130," and "server logic 132 matches the

driver's identity with corresponding settings from database 134." *Id.*, ¶¶[0030]-[0031].

Rector addresses at least one problem disclosed in the '716 Patent. Specifically, after login/authentication, the vehicle needs "vehicle settings applied to it" (*e.g.*, server-mediated verification and application). Ex. 1001, 16:3-21. *Rector* solves this by having the server select and provide "permitted settings" for the identified user and instructing the vehicle to apply/limit functions accordingly (*e.g.*, seat/mirror/radio/climate controls). Ex. 1005, ¶¶[0031-0034], [0040-0043].

2. *Kleve*

Kleve, entitled "Credential Check and Authorization Solution for Personal Vehicle Rental," is directed to a rental car system using "cloud computing" where vehicle owners and temporary users create website rental accounts. Ex. 1006, Title, Abstract, ¶¶[0036-0037], [0056]. *Kleve* discloses that once the owner and temporary user reach agreement, including vehicle-usage restrictions, and the temporary user is authorized/verified, the server will transmit a "virtual key" to the temporary user's mobile device for unlocking the vehicle. *Id.*, ¶¶[0036]-[0049]. *Kleve* discloses the "Temporary User may have vehicle preset settings applied," such as "radio presets, seat and mirror position" and other "personalization." *Id.*, ¶[0050], Fig. 3B (below). The "Temporary User may set up a user profile" with details about the specific rental vehicle. *Id.*, ¶¶[0037], [0086].

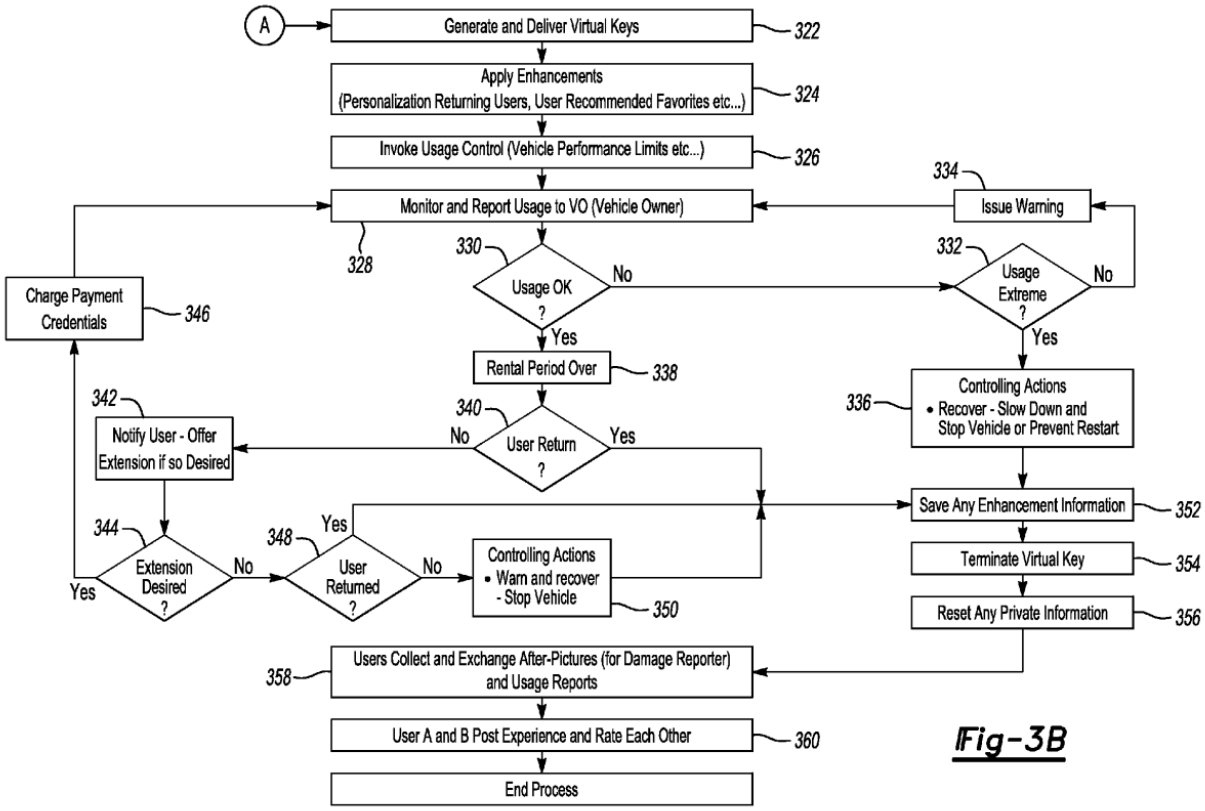


Fig-3B

Id., Fig. 3B.

These processes "may be executed by a computing system in communication with a vehicle computing system," including "a server." *Id.*, ¶[0035]. *Kleve* describes "remote credential verification," *id.*, ¶[0049], such as by "entering a credential verification password at the vehicle's touchscreen" and the "server … [will] compare and verify authorization." *Id.*; *see also id.*, ¶[0048] ("credential authorization may be processed by … a server….").

Fig. 6 (below) illustrates a rental system with renter verification by a server, which thereafter allows vehicle access and applies personal settings.

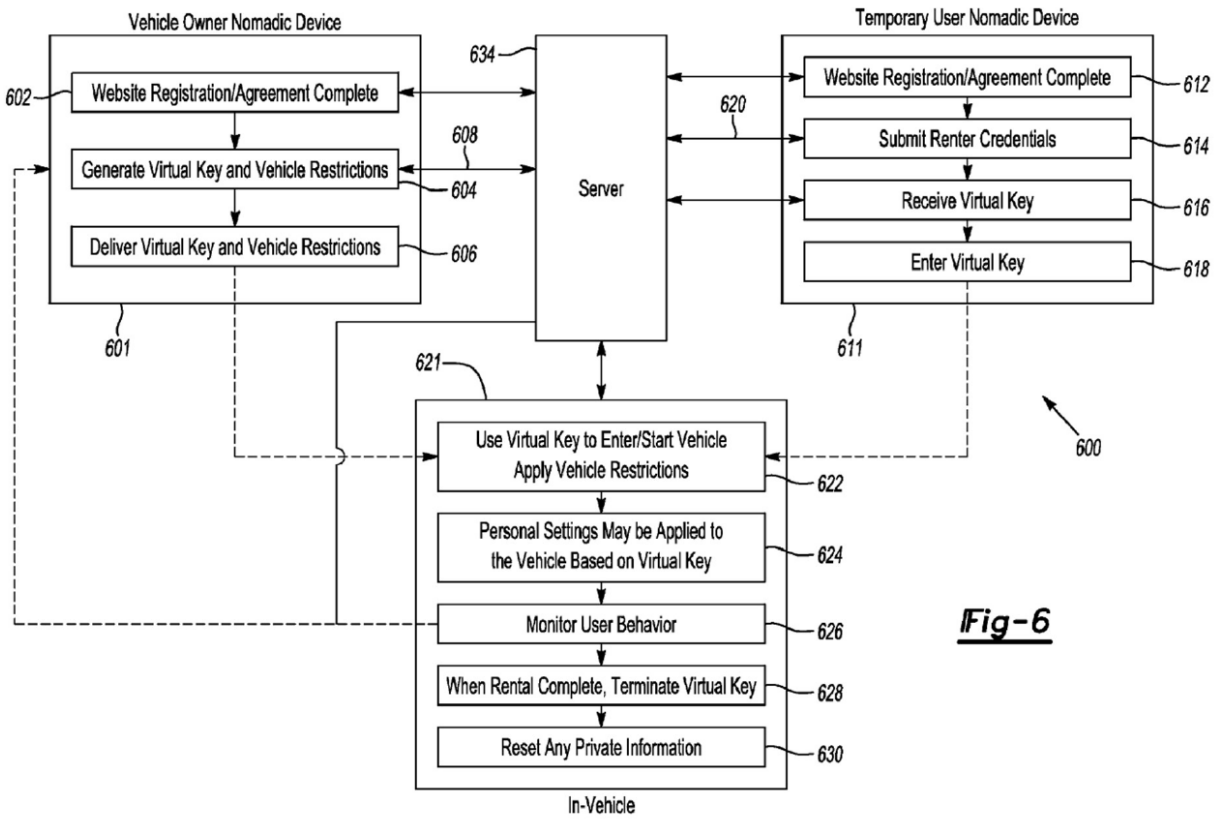


Fig-6

Id., Fig. 6.

Kleve falls within the '716 Patent's field of endeavor, describing a centralized server system 401 that relays messages "through … cloud computing … to a centralized system 401" and routes signals "to the appropriate remote vehicle"—a cloud/vehicle architecture for managing user access and behavior. *Id.*, ¶¶[0056]-[0057].

Kleve is pertinent to at least one problem disclosed in the '716 Patent. Specifically, vehicles "communicate wirelessly with Internet services" to provide "settings, configurations … and other customization defined by the user," emphasizing "automatic settings and synchronization when the user enters the

vehicle." Ex. 1001, 7:16-21, 13:10-12. *Kleve* addresses this by capturing a user's session and "sav[ing] any enhancements information based on the Temporary User's settings," then resetting/clearing at session end. Ex. 1006, ¶¶[0054]-[0055]. This mirrors the '716 Patent's server-side profile customization and session behavior.

3. Motivation to Combine *Rector* And *Kleve*

A POSA would have been motivated, and found it obvious, to combine *Rector*'s server-managed driver-profile architecture with *Kleve*'s credential/pairing and centralized server workflow to yield a single, cloud-based system that: (i) authenticates a user, and (ii) transfers that user's settings to the vehicle for application.

Rector teaches a smart vehicle whose client logic obtains a user/device identifier and sends it to a settings server, which matches the driver to settings in a database and supplies those settings for in-vehicle enforcement (*e.g.*, seat, radio, climate). Ex. 1005, ¶¶[0030]-[0034], Fig. 1; Ex. 1004, ¶108.

Kleve teaches a server system that routes device/vehicle communications "through … cloud computing … to a centralized system 401," and an authorization flow in which, after pairing/credentials, the system "may send personal settings to the vehicle including … radio station presets, navigation routes, [and] preferred climate control settings." Ex. 1006, ¶¶[0056]-[0057], [0072]; Ex. 1004, ¶109. *Kleve* states that its system "may be further extended to facilitate the virtual key with

additional security by requiring remote credential verification at the vehicle." Ex. 1006, ¶¶[0049], [0068]. *Rector* describes secondary sensors, such as biometrics identifiers, used "for security purposes." Ex. 1005, ¶[0049]. Thus, *Rector*'s vehicle-side verification is ready for improvement, and applying *Kleve*'s server-side verification would be a straightforward way to "extend" *Rector* with "additional security." Ex. 1004, ¶¶111-112. *Kleve* recognizes the importance of "safe … continued operation," and describes monitoring vehicle use and applying restrictions, if necessary. Ex. 1006, ¶¶[0040], [0053], [0079]. Both *Rector* and *Kleve* pertain to transmitting and applying user settings to a vehicle in more convenient/secure ways. Ex. 1005, ¶¶[0049], [0059]; Ex. 1006, ¶¶[0049], [0050], Fig. 3B. Both describe "settings" as including multimedia settings, such as preferred radio stations. Ex. 1005, ¶¶[0008], [0023]; Ex. 1006, ¶¶[0050], [0072]; Ex. 1004, ¶110.

Combining familiar elements (server-side identity→settings selection from *Rector*; cloud-based credential/pairing and personal-settings transfer from *Kleve*) to achieve predictable results—a unified server that verifies a user before providing that user's settings to any authorized vehicle—would have been obvious. For example, *Kleve*'s rental/fleet use motivates profile portability across vehicles (including coordinating verification and settings delivery via a centralized service), which meshes naturally with *Rector*'s server-stored settings. Similarly, fleet

heterogeneity and user portability (*Kleve*) create a design demand that is answered by *Rector*'s profile database and server selection; merging them yields the cloud-to-vehicle profile application that the claims describe. Ex. 1004, ¶¶113-114.

A POSA would reasonably expect the *Rector*/*Kleve* combination to work without undue experimentation because the subsystems are technologically complementary and use standardized interfaces, including:

- standardized networks that would have been routine to interface (*see* Ex. 1005, ¶[0031]; Ex. 1006, ¶¶[0056]-[0057]);
- user identification/credentialing that could occur at a vehicle and/or server (*see* Ex. 1005, ¶¶[0030-0031]; Ex. 1006, ¶¶[0071-0072]); and
- overlapping classes of settings using server-to-vehicle messaging, with low integration risk and predictable results (*see* Ex. 1005, ¶¶[0031]-[0034]; Ex. 1006, ¶[0072]; Ex. 1004, ¶¶114-117).

The Board found this combination credible. In the related case, the Board found a reasonable likelihood that *Rector* in combination with *Kleve* renders virtually the same independent and dependent claims obvious. Ex. 1010, pp. 24, 33, 35-37. The Board's determination underscores what a POSA would have expected at the time: combining *Rector*'s server-stored profile selection with *Kleve*'s cloud-mediated credential/pairing and settings transfer would work for the reasons *KSR*

emphasizes—resulting in a predictable use of known techniques to improve similar devices in the same way.

4. *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, … or to affect other automobile operations." Ex. 1007, ¶[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 "the operator's desired settings." *Id.*, ¶¶[0103]-[0104]. *Xiao* describes wireless automobile key service information 600, including operator profile information 614, stored in a storage device of an automobile service server 118. *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 the preferences of the operator," such as "climate control," "audio," or "comfort" system preferences. *Id.*, ¶¶[0069]-[0071].

Xiao discloses a user interface ("UI") including page 900 that may be displayed on a driver's mobile device. *Id.*, ¶¶[0095]-[0097]. *Xiao* explains that the

UI works with server 118 to retrieve (based on operator/mobile ID) corresponding profile information 614, identifying desired vehicle settings including climate, audio, seat, and mirror positions. *Id.*, ¶[0102]. *Xiao*'s server generates or retrieves "appropriate command codes 632" corresponding to an operator's desired settings and vehicle type. *Id.*, ¶¶[0102]-[0104].

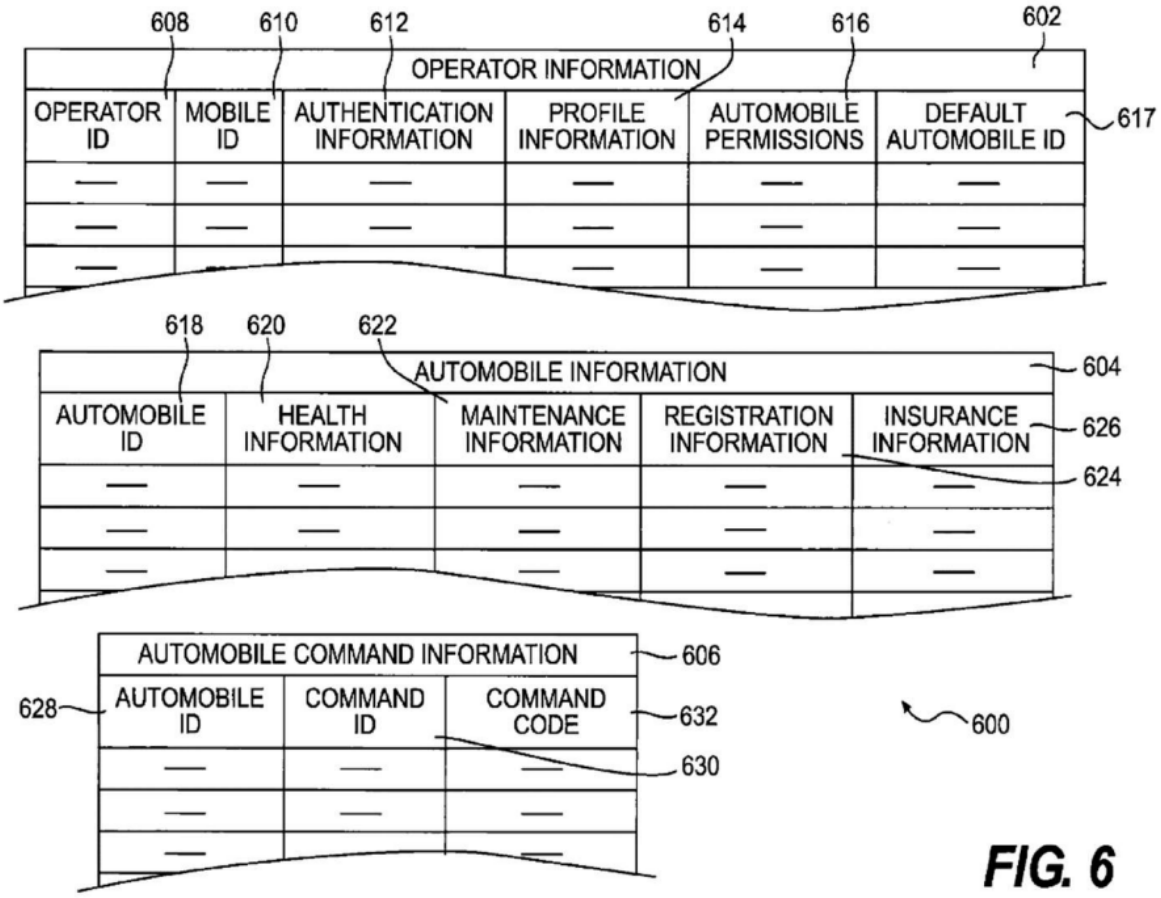


FIG. 6

Id., Fig. 6.

Fig. 6 includes a table of command code information 606 with entries for automobile ID 628, command ID 630 (which is "associated with the operator's desired system settings 614"), and an appropriate command code 632. *Id.*, Fig. 6,

¶[0103]. Command codes 632 are "associated with each command that may be issued to the automobile 112." *Id.*, ¶[0088].

Xiao discloses the characteristics of certain settings/commands being compatible with certain automobiles. For a given automobile ID 628, the operator's desired setting is achieved using a command code 632 specific to that automobile. *Id.*, ¶¶[0088], [0100], [0103]-[0104]. *Xiao* explains that "command code 632 may be a specific code or instruction that may be broadcast on automobile network 420 and executed … aboard the automobile 112 … to perform the desired function." *Id.*, ¶[0088].

Xiao falls within the '716 Patent's field of endeavor. *Xiao*'s server 118 uses operator profile information to "retrieve appropriate command codes … based on the automobile ID," then "generate … commands … to control the automobile systems," transmitting them over the Internet—*e.g.*, cloud/server selection and programming of vehicle settings. *Id.*, ¶¶[0101]-[0104].

Xiao is pertinent to a problem described in the '716 Patent, specifically, cloud-side determination of settings that are incompatible or available/settable for particular vehicle types before transfer, and applying those settings wirelessly from data-center servers. Ex. 1001, 2:10-12, 2:50-55, 5:27-30. *Xiao* addresses that problem by performing a vehicle-specific command lookup keyed by model/year ("automobile ID") and generating only commands the target vehicle can execute,

then transmitting those settings/commands to the vehicle for application. Ex. 1007, ¶¶[0086]-[0088], [0102]-[0104].

5. Motivation to Further Combine *Rector* And *Kleve* With *Xiao*

It would have been obvious to incorporate *Xiao*'s teaching of determining applicable or compatible settings based on vehicle identity into this combined system. Ex. 1004, ¶118; Ex. 1007, ¶¶[0086]-[0089], [0103]-[0104], Fig. 6.

Rector teaches that the "vehicle can be any car, truck, boat, or aircraft." Ex. 1005, ¶[0039], *see also id*., ¶[0028] ("A 'vehicle,' as used herein …, includes cars, trucks, and buses, as well as aircrafts and watercrafts."). A POSA would have understood that such different vehicle types necessarily support different functions. Ex. 1004, ¶119. To the extent a server is already verifying and retrieving settings, it would have been straightforward to confirm that only those settings compatible with the identified vehicle type are delivered. *Id. Xiao* provides that teaching: its server retrieves "appropriate" command codes by referencing the operator's desired settings and the automobile ID, ensuring that only compatible codes are transmitted. Ex. 1007, ¶[0103].

Incorporating *Xiao*'s compatibility gate into the *Rector*/*Kleve* system would have provided predictable benefits: (i) safety, by preventing transmission of unsupported commands; (ii) reliability, by ensuring application of only vehicle-

executable settings; and (iii) usability, by simplifying the user experience through automatic compatibility filtering. Ex. 1004, ¶120.

A POSA would have expected success because the subsystems already interoperate over conventional WAN/cloud links: *Rector*'s vehicle sends a unique identifier and the server "matches the driver's identity with corresponding settings" in DB 134 (Ex. 1005, ¶¶[0030]-[0031]); *Kleve* performs "remote credential verification … using a server" and then applies personal presets (Ex. 1006, ¶¶[0049], [0072]); and *Xiao*'s server retrieves "appropriate command codes … based on the automobile ID" and transmits them for execution by onboard modules (Ex. 1007, ¶¶[0102]-[0104]). Because each reference implements the same client/server process/path, integrating *Xiao*'s compatibility lookup between verification and transfer would have been routine and achievable without undue experimentation. Ex. 1005, ¶¶[0030]-[0031], [0043]; Ex. 1006, ¶¶[0056]-[0057], [0069]-[0072]; Ex. 1007, ¶¶[0024], [0061], [0103]-[0104]; Ex. 1004, ¶121.

Adding *Xiao*'s compatibility determination to the established *Rector*/*Kleve* combination would have been the predictable use of known methods to improve the combined system in the way the prior art teaches—ensuring that profile settings delivered from the cloud are compatible with the selected vehicle type. *Id*.

6. Independent Claim 1

Independent claim 1 of the '716 Patent tracks the core claim elements of claims 1 and 17 of the '244 Patent[4]—for which the Board already determined there is a reasonable likelihood that the *Rector*/*Kleve* combination rendered obvious. Ex. 1010, pp. 35-36. The only potential substantive difference (if any) between '716 independent claim 1 and '244 claim 17 result from minor amendments made to claim 1 during prosecution (addressed below where applicable). *Supra*, § III.B; Ex. 1002, pp. 1765-87.

> **1[preamble]: "A cloud-based system including one or more data centers, and each data center of the cloud-based system includes one or more servers, wherein some of said one or more servers have program instructions for enabling connections with vehicles and providing services to vehicles, wherein one service includes enabling access to settings associated with profiles of user accounts of the cloud-based system, comprising:"**

Even to the extent the preamble is limiting, *Rector* discloses it. Ex. 1004, ¶¶122-124. *Rector* teaches a backend "settings server 130" with "database 134" that

[4] '716 Patent claim 1 and '244 Patent claim 17 have identical preambles and virtually identical elements, whereby '244 Patent claim 17 is expressed in terms of "receiving," "processing," and "transferring" "by one of the servers," while '716 Patent claim 1 is expressed in terms of "a server" for "receiving," "processing," and "transferring." Ex. 1004, ¶125.

provides profile services to vehicles over a network—conventional data-center server components of a cloud service. Ex. 1005, ¶¶[0030]-[0031]. *Rector* discloses a cloud-based system including one or more data centers, and each data center of the cloud-based system includes one or more servers. *Id.*, ¶[0027].

Rector states there may be a "complex of servers" to exploit the functionality of connected devices, and recognizes the concept of distributed computing. *Id.*, ¶¶[0006], [0025]. Thus, *Rector* discloses "data centers." *Compare* Ex. 1001, 9:1-4 *with* Ex. 1005, ¶[0027].

Rector's servers have program instructions for connecting with and providing services to vehicles (*e.g.*, "logic" in servers may "hav[e] the form of instruction signals and/or data that may be applied to direct the operation of a processor"), including enabling access to user profile settings (*e.g.*, "the settings server including a user account ... including permitted settings for the user"). Ex. 1005, Title, Abstract, ¶¶[0009]-[0010], [0025], [0027], [0030]-[0033], [0043], [0059] ("limiting services offered by the network during the course of driving the smart vehicle"), Fig. 1. The preamble's purpose—providing access to user profiles/settings for application in the vehicle—is directly taught. Ex. 1004, ¶123.

The '244 Institution Decision confirmed these teachings of *Rector* and relied

on the explanation above in finding a reasonable likelihood that *Rector*[5] discloses or teaches the preamble.[6]

1[a]: "a server for receiving a request from a vehicle to access a profile for a user account, the request identifies user information related to a user;"

Claim element 1[a] is virtually identical to element 17[a] of the '244 Patent.[7] The only difference in 17[a] is that it is performed by "a server" instead of "by one of the servers"—an immaterial difference. *Rector* discloses these limitations. Ex. 1004, ¶¶130-135.

Rector discloses a request originating from a vehicle (*e.g.*, smart vehicle 100), and which is received by one of the servers (*e.g.*, settings server 130, which may be one server among the "complex"). Ex. 1005, ¶¶[0008], [0023], [0025], [0030]. This request is to access the user account's profile (*e.g.*, settings for the driver), and it identifies user information (*e.g.*, a unique identifier) related to a user. *Id. Rector*

[5] Alternatively, *Rector* in combination with *Kleve* discloses the preamble. Ex. 1004, ¶¶126-128.

[6] *See* n.4, *supra*.

[7] Element 1[a] is also virtually identical to '244 Patent element 1[a], for which the Board determined a reasonable likelihood of disclosure by *Rector*. Ex. 1010, pp. 23-24; *see also* Ex. 1004, ¶134.

states: "[s]mart vehicle 100 is in communication with wireless communication device 120 and with settings server 130 over network 140." *Id.*, ¶[0030], Fig. 1. Communication between *Rector*'s smart vehicle and other devices "may occur as the driver enters the smart vehicle, as the driver starts the smart vehicle, etc." *Id.*, ¶[0043]. Client logic 105 (of the vehicle) "transmits the unique identifier ... to settings server 130 via network 140." *Id.*, ¶[0031]. *Rector* also describes unique identifiers for a driver (*e.g.*, his/her device, smart card) detected by the smart vehicle and then transmitted to a server. *Id.*, ¶¶[0031], [0055], [0057] ("[T]his information [including the driver's unique identifier] can be transmitted to a settings server to implement settings for the driver."); Ex. 1004, ¶¶130-131.

Rector discloses "servers ... placed at several logical points on a network," and a "complex of servers" to exploit the functionality of connected devices. Ex. 1005, ¶¶[0006], [0025], [0027]. *Rector*'s explanation of distributed computing (*e.g.*, using assets of "several network elements" in "modern packet-based" for processing) clarifies that some steps may be performed by one server among a complex. *Id.*; Ex. 1004, ¶122.

Rector's claims disclose a server receiving a request from vehicle electronics, including a unique identifier related to a user. Ex. 1005, claim 1. In *Rector*, the vehicle's electronics initiate a profile-access exchange with a server: in Fig. 1, client logic 105 on the vehicle obtains a user/device identifier and then "transmit[s] the

unique identifier to settings server 130," after which "server logic 132 matches the driver's identity with corresponding settings ... from database 134." *Id.*, ¶¶[0030]-[0031], [0043], Fig. 1; Ex. 1004, ¶¶127, 131-132. Accordingly, *Rector* (or *Rector* in combination with *Kleve*), *see* Ex. 1004, ¶¶136-137, discloses or teaches this element.

> **1[b]: "a server for processing at least part of the user information to verify the access, the profile having a plurality of settings of the user preferred for the vehicle having a vehicle type, at least part of the plurality of settings of the profile being stored on storage accessible to said one or more servers; and"**

With the exception of the claim language "preferred" and "having a vehicle type," claim element 1[b] is virtually identical to claim element 17[b] of the '244 Patent.[8] These limitations are obvious over the combination of *Rector* and *Kleve*. A POSA would have been motivated, and found it obvious, to combine the teachings of *Rector* and *Kleve*. *Supra*, § VI.A.3; Ex. 1004, ¶¶138-141.

Both *Rector* and *Kleve* are analogous art to the claimed invention of the '716 Patent because they are: (1) from the same field of endeavor (*i.e.*, applying settings to vehicles based on user preferences); and/or (2) reasonably pertinent to the problem faced by the inventors (*i.e.*, improving application of settings to vehicles).

[8] The Board previously determined a reasonable likelihood of obviousness of similar '244 Patent element 1[b] in light of *Rector* and *Kleve*. Ex. 1010, pp. 24-32; *see also* Ex. 1004, ¶¶151-152.

Rector emphasizes safety, pointing out risks of driver distractions and aspiring to reduce distractions by "plac[ing] restrictions or otherwise creat[ing] settings for the driver." Ex. 1005, ¶¶[0004]-[0007]. *Kleve* recognizes the importance of "safe ... continued operation," and describes monitoring the use of the vehicle and applying restrictions, if necessary. Ex. 1006, ¶¶[0040], [0053], [0079]. Both *Rector* and *Kleve* pertain to transmitting and applying user settings to a vehicle in improved ways. Ex. 1005, ¶¶[0049], [0059]; Ex. 1006, ¶¶[0049], [0050], Fig. 3B. Both also describe "settings" as including multimedia settings, such as preferred radio stations. Ex. 1005, ¶¶[0008], [0023]; Ex. 1006, ¶¶[0050], [0072]; Ex. 1004, ¶¶140-141.

Turning to the references, *Rector*'s step S351 determines the driver identity, which may be performed by comparing the unique identifier "with a set of unique identifiers on a server on a network." Ex. 1005, ¶[0043]. *Rector* states that its server "associate[s] the unique identifier with the user account, [and then] determine[s] the permitted settings for the user." *Id.*, ¶[0009], claim 1. *Rector*'s method comprises "look[ing] up settings for the driver." *Id.*, ¶[0043]. Such settings include "driver created settings as well as controlling authority settings, such as parental controls, based on the driver's identity...." *Id.*, ¶[0031]; Ex. 1004, ¶¶142-143.

Rector discloses driver association or verification, including "allowing the settings control system to verify that the correct party is determined to be the driver and appropriate settings are enforced." Ex. 1005, ¶[0047]. This includes using

"biometric identifier 514, for instance, a fingerprint scanner ... to associate the driver with a user account" and ensure "the appropriate settings [are] put in place." *Id.*, ¶[0049]; Ex. 1004, ¶144.

Next, *Rector* discloses that at least part of the plurality of settings for the profile is stored on storage accessible to the cloud services system (*e.g.*, database 134 on settings server 130). Ex. 1005, ¶[0031] ("settings *from* database 134 on settings server 130"). *Rector* discloses "the settings may be stored on ... the memory of the smart vehicle." *Id.*, ¶[0038]. The smart vehicle's storage is also accessible to the cloud services system. *Id.*; Ex. 1004, ¶145.

It would have been obvious to modify *Rector*'s method of controlling driver settings to include *Kleve*'s server-side verification for additional security. Ex. 1005, ¶[0049]. Before "implementing settings based upon the driver" in *Rector* (Ex. 1005, ¶51), one would have been motivated and found it obvious to verify the driver's credentials using the server, as in *Kleve*. Ex. 1006, ¶[0049]. A POSA would have a reasonable expectation of success combining *Rector* and *Kleve* because both explain that processing capabilities of servers can be used for various processes of connected systems; implementing *Kleve*'s server verification would have been within the capability of *Rector*'s server. Ex. 1004, ¶¶146-150.

The Board already determined there is a reasonable likelihood that *Rector*/*Kleve* disclose or teach all limitations of claim element 1[b], with the

exception of the newly added claim terms "preferred" and "having a vehicle type."[9] As explained below, *Rector* and *Kleve* each also disclose (1) preferred settings, and (2) the vehicle having a vehicle type.

Rector's user profile includes a plurality of preferred settings associated to the identified user (*e.g.*, seat/mirror positions, temperature, radio/navigation presets) that are delivered to/configure the vehicle for that user. Ex. 1005, ¶[0031], Fig. 1 (130/134). Similarly, *Kleve* corroborates the same kinds of preferred settings that are applied after authorization (*e.g.*, "radio station presets, navigation routes, and/or preferred climate control"). Ex. 1006, ¶[0072]; Ex. 1004, ¶149.

Kleve expressly teaches that vehicles have a "vehicle type" that users can request, Ex. 1006, ¶[0087], and *Rector* likewise expressly treats "vehicle" as a class with different types (cars, trucks, buses, aircraft, watercraft), satisfying "vehicle having a vehicle type." Ex. 1005, ¶¶[0028], [0039]; Ex. 1004, ¶149.

[9] *See* n.8, *supra*.

1[c]: "a server for transferring, upon verification of the user information and based on determining settings that are compatible, by said server, for said vehicle type, one or more settings of the plurality of settings to the vehicle, the transferring is configured to instruct software and hardware associated the vehicle to enable said one or more settings on the vehicle for customizing said vehicle for the user, the request and the transferring being via wireless communication of said vehicle."

With the exception of the claim language "and based on determining settings that are compatible" and "for said vehicle type" added during prosecution, this claim element 1[c] is virtually identical to elements 17[c][d] of the '244 Patent.[10] This element is obvious over the *Rector/Kleve* combination and further in view of *Xiao*.

i. "a server for transferring, upon verification of the user information [...], by said server [...], one or more settings of the plurality of settings to the vehicle"

Rector discloses its server "transmit[s] the permitted settings to the client logic [on the smart vehicle], wherein the client logic limits functions of the smart vehicle based upon the permitted settings." Ex. 1005, ¶[0009]. *Rector*'s "permitted settings" can include "prohibition[s]," such as "a prohibition of the use of a function of the wireless communication device." *Id.*, claim 7. *Rector* discloses implementing

[10] '716 Patent element 1[c] is also virtually identical to elements 1[c][d] of the '244 Patent, for which the Board determined a reasonable likelihood of obviousness in light of *Rector* and *Kleve*. Ex. 1010, pp. 35-36; Ex. 1004, ¶¶154-155.

the settings only upon determining driver identity. *Id.*, ¶¶[0010], [0043], [0057]; Ex. 1004, ¶156. These disclosures are reflected in *Rector*'s claims as well, which recite "a server logic on the settings server to associate the unique identifier with the user account, determine the permitted settings for the user, and transmit the permitted settings to the client logic." Ex. 1005, claim 1; Ex. 1004, ¶157.

To the extent Patent Owner argues *Rector* does not explicitly disclose the *server* verifying the user information, upon which step the server then transfers one or more settings of the plurality of settings, it would have been obvious to modify *Rector* such that verification occurs using the server, as in *Kleve*. *Supra*, § VI.A.3. In combining *Rector* with *Kleve*, it follows that settings would be transferred upon server-side verification. For example, *Kleve* shows personal settings being applied after the user is verified. Ex. 1006, Fig. 6 (element 624); ¶¶[0070]-[0071]. *Kleve* also shows enhancements, including personalization (radio presets, seat and mirror positions) in step 324, being applied after remote credential verification in step 304. *Id.*, ¶¶[0049]-[0050], Fig. 3B. It would have been obvious to modify *Rector*'s method of controlling driver settings to transmit settings upon verifying user information by the server, as in *Kleve*, as it would be a natural consequence of adding security by including the server-side verification of *Kleve*. Ex. 1004, ¶¶157-160.

ii. "the transferring is configured to instruct software and hardware associated the vehicle to enable said one or more settings on the vehicle for customizing said vehicle for the user"

As discussed above, *Rector* discloses its server "transmit[s] the permitted settings to the client logic [of the smart vehicle,] wherein the client logic [of the vehicle] limits functions of the smart vehicle based upon the permitted settings." Ex. 1005, ¶[0009], claim 1. These transmitted settings cause the client logic to implement them. *Id.* ("[T]he client logic limits functions of the smart vehicle based upon the permitted settings."); Ex. 1004, ¶162. *Rector* explains that the client "logic" implementing the setting instructions can be "software" and/or "hardware." Ex. 1005, ¶[0025] ("Logic may be formed from combinations of software and hardware."). *Rector* discloses numerous ways the vehicle software or hardware is instructed to apply settings for vehicle customization. *Id.*, ¶¶[0031]-[0034], [0038], [0043], [0057], [0059]. *Rector* also explains that its client logic can be "instruction signals and/or data that may be applied to direct the operation of a processor." *Id.* Thus, *Rector*'s server instructs the client logic to apply the settings. Ex. 1004, ¶¶163-164.

This claim element recites that "the transferring is configured to instruct software and hardware ... to enable said one or more settings ... for customizing said vehicle for the user." *Rector* discloses enabling one or more of the plurality of settings for use on the vehicle to customize the vehicle. Ex. 1005, ¶¶[0031]-[0033]

(explaining that "driver created settings may include ... programmed radio stations," while the controlling authority may enable "allowed radio stations, prohibited radio stations, ... etc."); Ex. 1004, ¶164. *Rector* explains that once the server has selected the user's settings (matched to the identifier), the vehicle's client logic limits/controls vehicle functions accordingly (*e.g.*, seat/mirror, radio, climate, speed)—*i.e.*, the transfer from the server is configured to instruct vehicle software/hardware to enable/apply the settings. Ex. 1005, ¶¶[0031]-[0034], [0043]; Ex. 1004, ¶164.

iii. "transferring, [...] based on determining settings that are compatible, by said server, for said vehicle type"

To the extent claim element 1[c] requires that the server determine compatible/applicable settings for the selected vehicle type, analogous art *Xiao* provides that exact refinement in a cloud pipeline: the server retrieves "appropriate command codes" for the operator's desired settings based on the automobile ID, then generates and sends only those commands that the target vehicle can execute. Ex. 1007, ¶¶[0103]-[0104] (looking up codes by automobile ID 628 and command ID 630), ¶[0102]. The Board already read *Xiao*'s "appropriate" command codes as teaching "determining … applicable settings … compatible with settings that are settable in the selected vehicle." Ex. 1011, pp. 22-29. Utilizing *Xiao*'s compatibility lookup between *Kleve*'s verification and *Rector*'s transfer/application yields the

claimed "based on determining settings that are compatible … for said vehicle type." Ex. 1004, ¶¶166-168; *see also supra*, § VI.A.5.

iv. "the request and the transferring being via wireless communication of said vehicle."

Rector discloses this claim limitation.[11] *Rector* describes "[w]ireless communication devices communicate with each other and with other elements via a network…." Ex. 1005, ¶[0026]. For example, "[s]mart vehicle 100 is in communication with wireless communication device 120 and with settings server 130 over network 140." *Id.*, ¶[0030], Fig. 1. One example of *Rector*'s network includes a broadband network. *Id.*, ¶[0026]. *Rector* explains "[t]ransceiver 206 allows smart vehicle 200 to wirelessly communicate with other devices on a network…." *Id.*, ¶[0039]. Such communication includes client logic (of the vehicle) sending/receiving the unique identifier, *id.*, ¶¶[0040], [0057], and the server transmitting the settings to the vehicle. *Id.*, ¶[0009]; Ex. 1004, ¶¶169-171.

A POSA would implement a cloud/server pipeline wirelessly using *Kleve*'s verification, *Xiao*'s compatibility/applicability determination, and *Rector*'s server transfer to the vehicle. *Supra*, § VI.A.5; Ex. 1004, ¶172.

[11] *Kleve* also discloses this claim limitation. Ex. 1006, ¶¶[0056]-[0061].

7. Claim 2

2: "The cloud-based system of claim 1, wherein the profile is transferrable to one or more other vehicles."

Claim 2 adds a limitation that is obvious over *Rector* in view of *Kleve* and *Xiao*. *Rector* and *Kleve* together teach that the user's profile is associated with the user (via pairing or credentials) and applied by the vehicle during authentication—*i.e.*, the same user profile is usable on any vehicle to which that user is authenticated, making it transferable to "one or more other vehicles." Ex. 1004, ¶¶173-174.

In *Rector*, upon pairing/association with the driver's device, the vehicle automatically requests the driver's identifier and applies the driver's settings—an identity-driven (not vehicle-locked) personalization. Ex. 1005, ¶[0043]; Ex. 1004, ¶174.

In *Kleve*, the user supplies credentials at the vehicle, the server verifies access, and the system applies the user's preferences (radio, climate, seat/mirror) for that authorized session. Ex. 1006, ¶¶[0049]-[0050]. A POSA would understand that the user's profile/settings are transferrable to any vehicle to which the user is granted access, thereby being "transferrable to one or more other vehicles." Ex. 1004, ¶175.

This reading is confirmed by *Xiao*'s server-managed operator profile information 614 being applied to whichever selected vehicle is active for the session, with the system generating appropriate commands based on the selected automobile's ID. Ex. 1007, ¶¶[0099], [0102]-[0104]; Figs. 4, 6; *see also* Ex. 1011,

pp. 19-25. A POSA would have been motivated to incorporate *Xiao* into *Rector*/*Kleve* with a reasonable expectation of success. *Supra*, § VI.A.5; Ex. 1007, ¶¶[0099], [0102]-[0104]; Ex. 1011, pp. 19-25; Ex. 1004, ¶¶176-177.

8. Claim 3

3: "The cloud-based system of claim 1, wherein the vehicle is configured to use the one or more settings for the vehicle while the profile is active in the vehicle, and said one or more settings are removed when the profile is no longer active in the vehicle, and wherein the request is processed automatically by the vehicle upon a pairing of a user device or input by the user of credentials."

Claim 3 recites claim elements that are the same as those in '244 Patent claim 19. The Board already determined there is a reasonable likelihood that the *Rector/Kleve* combination renders claim 19 of the '244 Patent obvious. Ex. 1010, p. 37. Accordingly, these limitations are obvious over *Rector/Kleve*. Ex. 1004, ¶¶178-180.

3[a]: "The cloud-based system of claim 1, wherein the vehicle is configured to use the one or more settings for the vehicle while the profile is active in the vehicle"

Rector explains that the profile is activated after identifying the driver. Ex. 1005, Fig. 3, ¶¶[0031], [0043] ("*With the identity of the driver determined*, the smart vehicle looks up settings for the driver S352.") (emphasis added). *Rector*'s process of restricting certain setting changes occurs while such settings are activated.

Id., ¶¶[0043], [0059] ("With this setting in place, the driver is not able to play the radio at a volume in excess of the set limit."). In *Kleve*, the user provides credentials at the vehicle and authorization is verified by the vehicle computing system (VCS), a server, or the owner; once authorized, the system applies the user's preferred settings while the profile is active. Ex. 1006, ¶¶[0049]-[0055]; Ex. 1004, ¶¶181-185.

3[b]: "and said one or more settings are removed when the profile is no longer active in the vehicle"

Rector does not explicitly disclose removal of settings when the profile is no longer active in the vehicle. However, one would have been motivated and found it obvious to remove *Rector*'s settings to improve security, as taught by *Kleve*. *Kleve* teaches "[a]ny personal settings ... may be reset after the schedule rental period has been complete[d]." Ex. 1006, ¶[0074]. *Kleve* further teaches that when the session ends, the virtual key may terminate, allowing the system to reset any private information stored on the vehicle-based computing system, which a POSA would understand includes removing the profile-applied settings when the profile is no longer active. *Id*. Combining *Rector* and *Kleve* in this way combines familiar elements according to known methods in a predictable way with a reasonable expectation of success, as demonstrated by *Kleve*. Ex. 1004, ¶¶186-188.

3[c]: "and wherein the request is processed automatically by the vehicle upon a pairing of a user device or input by the user of credentials."

Rector discloses that the request (*e.g.*, unique identifier) is automatically generated by the electronics of the vehicle upon detecting a pairing with a user device of the user (*e.g.*, pairing via Bluetooth, RFID, or other protocol with the driver's device). Ex. 1005, ¶¶[0026], [0039], [0043]. *Rector* discloses that the driver can use a wireless communication device 120 such as "a cellular telephone or a contactless smart card," which communicates with smart vehicle 100 to identify the driver. *Id.*, ¶[0030]. *Rector* describes a unique identifier (*i.e.*, user information) being associated with a driver's device (*e.g.*, cellphone or smart card) that is detected by vehicle electronics (transceiver or smart card reader). *Id.*, ¶¶[0030], [0040], [0055]-[0057]. *Rector* discloses that the request step "begins with the smart vehicle communicating with a driver's device" (without user action or input, *i.e.*, automatically) to obtain a unique identifier which is sent to a server, and includes then "compar[ing] with a set of unique identifiers on a server on a network." *Id.*, ¶¶[0043]; [0031] ("Client logic [] transmits the unique identifier … to settings server 130"); Ex. 1004, ¶¶189-192.

Additionally, *Kleve* teaches automatically generating a request by electronics of the vehicle upon input of credentials of the user for the user account. Ex. 1006,

¶¶[0044], [0049]-[0050] (disclosing a temporary user entering a password in the vehicle touchscreen or a barcode for vehicle scanning); Ex. 1004, ¶193.

In combining *Rector* and *Kleve*, it would have been obvious to have a request that identifies user information be automatically generated upon input of credentials. *Kleve* explains that after credential input, "[a]t 324, the Temporary User may have vehicle preset settings applied." Ex. 1006, ¶[0050]. A POSA would have been motivated to combine, and had a reasonable expectation of success in combining, *Rector* and *Kleve* in this manner because the predictable result of pairing a device or entering credentials at a vehicle is that the vehicle may use the onboard processor to generate a request to prepare the vehicle for the user. Ex. 1004, ¶¶194-195. Accordingly, claim 3 is obvious at least over the combination of *Rector* and *Kleve*.

9. Claim 4

The claim elements in claim 4 are substantively the same as those in claims 13 and 20 of the '244 Patent. The Board already determined there is a reasonable likelihood that the *Rector*/*Kleve* combination renders claims 13 and 20 of the '244 Patent obvious. Ex. 1010, p. 37. Accordingly, claim 4 is obvious over *Rector* in view of *Kleve*. Ex. 1004, ¶¶200-201, 205.

4[a]: "The cloud-based system of claim 1, wherein one or more of the settings are associated with systems of the vehicle, and the systems of the vehicle are configured to receive input or cause one or more actions or functions,"

Rector discloses "[t]he settings may limit certain devices within the smart vehicle and/or the smart vehicle itself." Ex. 1005, ¶¶[0008], [0023]. Such systems include a radio, wireless communication device, or any other component for which limitation may reduce "distractions to the driver." *Id.* A POSA knows such systems are configured to receive input or cause one or more actions or functions. *Rector* discusses "disabling text messages" limiting the driver from changing the radio volume or changing the radio station, or otherwise "limiting services offered by the network during the course of driving the smart vehicle." *Id*., ¶¶[0034], [0043], [0059]; Ex. 1004, ¶198.

Rector and *Kleve* both teach settings associated with vehicle systems that both receive input and cause vehicle functions. For example, *Rector*'s server selects user settings (including "seat and mirror positions, programmed radio stations, [and] temperature controls") and the vehicle client logic then limits/controls functions accordingly. Ex. 1005, ¶¶[0031], [0008], [0043]. *Kleve* discloses that the vehicle computing system accepts user inputs (*e.g.*, password at a touchscreen; fingerprint scan; camera/microphone capture) and then enables functions such as keyless drive-away and application of personal presets during the authorized session. Ex. 1006,

¶¶[0049], [0071]-[0072]. A POSA would recognize these as typical "vehicle systems" receiving inputs and causing actions/functions, satisfying 4[a]. Ex. 1004, ¶199. *Xiao* confirms this understanding, explaining that the system enables an operator to lock/unlock, power on/off the automobile, and apply profile-based system settings over the network. Ex. 1007, ¶[0023]; Ex. 1004, ¶199; Ex. 1011, pp. 12-15 (summarizing *Xiao*).

> **4[b]: "wherein the systems include one or more of a door lock, a heating and cooling system, a speaker, an engine start/shut switch, a user interface, a button, a lever, a key, a graphical user interface (GUI), an electronic component of the vehicle, a telecommunications system, a remote face-to-face conferencing system, a mapping function system, a GPS system, a fingerprint scanner, a touch screen, a navigation system, a wireless communication system, a data encryption system, WiFi logic, Bluetooth logic, NFC logic, a microprocessor, a memory system, a camera, application programming interfaces (APIs) for vehicle systems, kernel level systems, function invoking systems, temperature detection systems, HVAC APIs, display screens, data network logic, mechanical systems, electrical systems, physical mechanical and electrical systems, seat mechanical systems, mirror systems, alarm systems, battery systems, battery, lighting systems, an application shared by mobile a device present and paired with the vehicle for providing at least one interface in a display screen of the vehicle, or vehicle electronics system."**

Rector and *Kleve* expressly disclose many systems recited in claim 4. Because the "one or more of" language is disjunctive, teaching any of these systems suffices to meet this limitation. Ex. 1004, ¶202. *Rector* describes its controlled settings as

including at least comfort settings, entertainment settings, and driving mode settings. Ex. 1005, ¶¶[0031]-[0032], Fig. 11. Similarly, *Kleve* discloses, *inter alia*, heating/cooling and comfort systems, audio/speaker, touchscreen display, microphone, USB and GPS inputs, Bluetooth input, and user-interface elements. Ex. 1006, ¶¶[0021]-[0025], [0072]; Ex. 1004, ¶¶203-204. Accordingly, claim 4 is obvious at least over *Rector* and *Kleve*.

10. Claim 5

> **5: "The cloud-based system of claim 1, wherein said server determining settings compatible for said vehicle type includes processing by a mapping engine to determine information associated with the vehicle type to identify settings from said profile that are incompatible with the vehicle type."**

Claim 5's limitations are obvious over *Rector* in view of *Kleve* and *Xiao*. *Xiao* teaches server-side compatibility mappings keyed to the vehicle identifier: its server check retrieves "appropriate command codes" for the operator's preferences/settings based on the automobile ID and the command IDs for those settings, then generates only commands the target vehicle can execute. Ex. 1007, ¶¶[0102]-[0104]. To the extent the table yields no appropriate command code for a desired setting under a given automobile ID, a POSA would understand the server to "identify" that setting as incompatible for that vehicle type and exclude it from the generated programming. Ex. 1004, ¶207. Indeed, the Board already found that *Xiao* teaches server determination of "applicable" settings that are "compatible with settings that

are settable in the selected vehicle." Ex. 1011, pp. 27-29. It would have been obvious to incorporate *Xiao*'s table-driven lookup into the *Rector*/*Kleve* combination to ensure only supported features are applied across different vehicle types and models, with a reasonable expectation of success because all three references use the same server→vehicle telematics pattern, and *Xiao*'s mapping is a routine, predictable database lookup. Ex. 1004, ¶207.

Accordingly, claim 5 is obvious at least over *Rector* and *Kleve* in view of *Xiao*: the combined system's server uses a mapping engine keyed to vehicle-type information to determine which profile settings are compatible and to identify incompatible ones before transfer, implementing the very processing recited in the claim.

11. Claim 6

> **6: "The cloud-based system of claim 1, further comprising, processing by a mapping engine, a translation metric to adjust a function of a specific setting associated with the profile of the user, such that incompatibility of the specific setting is made compatible for said vehicle type, and said specific setting is one that is transferred and enabled on the vehicle."**

These limitations are obvious over *Rector* in view of *Kleve* and *Xiao*. A POSA would incorporate *Xiao*'s server-side command mapping and determination of compatibility/incompatibility of settings into *Rector*/*Kleve*. *See* claim 5 analysis,

supra, § VI.A.10; Ex. 1004, ¶209; Ex. 1007, ¶¶[0086]-[0088], [0102]-[0104], Figs. 4, 6.

Xiao's server 118 looks up "appropriate command codes 632" based on the automobile ID 627 and on the command IDs 630, then generates the one or more commands the target vehicle's modules can execute. Ex. 1007, ¶[0103]. This lookup-and-generation path is a "mapping engine;" the per-vehicle command resolution is the "translation metric" that adjusts the functional expression of a user's desired setting so it is compatible with the selected vehicle type, after which the specific setting is transferred and enabled by the onboard modules. Ex. 1004, ¶¶210-211 (citing Ex. 1007, ¶¶[0086]-[0088], [0102]-[0104]).

Accordingly, claim 6 is obvious at least over *Rector* and *Kleve* in view of *Xiao*: *Rector*/*Kleve* supply the authenticated profile application and enabling on the vehicle; *Xiao* supplies the compatibility mapping engine and translation metric that adjust the functional form of a specific setting to make it compatible for the identified vehicle type before transfer and enablement.

12. Independent Claim 7

Independent claim 7 of the ’716 Patent tracks the core elements of claim 17 of the ’244 Patent.[12] The Board already determined there is a reasonable likelihood that the *Rector*/*Kleve* combination renders claim 17 obvious. Ex. 1010, p. 36; Ex. 1004, ¶213.

Petitioner submits that there may be three substantive differences between independent claim 7 of the ’716 Patent and claim 17 of the ’244 Patent—claim 7 further includes claim limitations directed to: **(1)** determining incompatibility/compatibility of setting(s); **(2)** a request that is automatically generated upon pairing a user device with the vehicle; and **(3)** the server being one or more servers in a cloud system part of one or more data centers. The additional claim limitations **(1)** and **(3)** are recited in claim 1 of the ’716 Patent (analyzed above in claim elements 1[c.iii], 1[preamble], and 5, *supra*, §§ VI.A.6, VI.A.10), while the additional claim limitation **(2)** is recited in claim 3 of the ’716 Patent (analyzed above in claim element 3[c], *supra*, § VI.A.8); Ex. 1004, ¶214.

[12] Although these claims contain factually similar elements, claim 17 of the ’244 Patent is expressed in terms of “receiving,” “processing,” and “transferring” “by one of the servers,” while claim 7 is expressed in terms of “the server” “receives,” “processes,” and “transfers.”

7[Preamble]: "A cloud services system including a server for interfacing with one or more vehicles, comprising:"

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 1[preamble]**, incorporated herein. Ex. 1004, ¶215.

7[a]: "the server receives a request from electronics of a vehicle to access a profile for a user account, the request includes an identifier for a user to use the vehicle;"

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 1[a]**, incorporated herein. *Id*., ¶216.

7[b]: "the server processes data related to the identifier to verify the user for accessing the profile associated with the user account, the profile having a plurality of settings of the user desired for the vehicle, wherein at least part of the plurality of settings for the profile being stored on storage accessible to the cloud services system; and"

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 1[b]**, incorporated herein. *Id*., ¶217.

> **7[c]: "the server performs processing to determine incompatibility of one or more of the plurality of settings of the user based on a type of the vehicle, and the server transfers one or more settings of the plurality of settings to storage of the vehicle, the transferring is configured to instruct software and/or hardware associated with said electronics of the vehicle to apply said one or more settings to the vehicle for customizing said vehicle to use said one or more settings associated with the profile,"**

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 1[c] (*see also* claim 5)**, incorporated herein. *Id*., ¶¶207, 218.

> **7[d]: "wherein the vehicle uses wireless communication for exchanging data with the cloud services system and for receiving said one or more settings associated with the profile;"**

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 1[c]**, incorporated herein. *Id*., ¶219.

> **7[e]: "wherein the request is automatically generated by the electronics of the vehicle upon pairing a user device of the user with the electronics of the vehicle;"**

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 3**, incorporated herein. *Id*., ¶220.

> **7[f]: "wherein the server is one or more servers of the cloud services system, the cloud services system is part of one or more data centers used for receiving and sending data to from and to said one more vehicles."**

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 1[preamble]**, incorporated herein. *Id*., ¶221.

13. Claim 8

> **8: "The system of claim 7, wherein the processing by the server includes use of a translation metric to transfer settings between functions of one vehicle to another vehicle, such that an incompatible setting is made compatible for said vehicle type."**

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claims 2 and 6**, incorporated herein. *Id*., ¶222.

14. Claim 9

> **9: "The system of claim 7, wherein the profile of the user is transferrable to one or more other vehicles from the cloud services system."**

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 2**, incorporated herein. *Id*., ¶223.

15. Claim 10

> **10: "The system of claim 7, wherein the vehicle is configured to use the one or more settings for the vehicle while the profile is active in the vehicle, and either said one or more settings are removed when the user is no longer using the vehicle or remain active in the vehicle until deactivated."**

These limitations are satisfied by *Rector* in view of *Kleve* and *Xiao* for the same reasons as **claim 3**, incorporated herein. *Id*., ¶224.

16. Claim 11

As shown above, independent claim 7 (from which claim 11 depends) is rendered obvious by the *Rector/Kleve/Xiao* combination. *Supra*, § VI.A.12. *Xiao*

discloses this claim element and, therefore, the *Rector/Kleve/Xiao* combination also renders Claim 11 obvious.

> **11[a]: "The system of claim 7, further comprising, receiving, by the server, communication from the vehicle regarding inputs made to systems of the vehicle during use of the vehicle while the vehicle is associated with the profile of the user account;"**

While *Rector* may not explicitly disclose the above-quoted limitation, *Rector* recognizes that drivers would make changes to settings by making inputs to systems of the vehicle during use while profiles are in place. Ex. 1005, ¶[0043] (change radio station or volume), ¶[0049] (adjust seat back/position/mirrors), ¶[0059] ("when the settings are in place" adjustments may be allowed or blocked); Ex. 1004, ¶225.

A POSA would have been motivated to further reduce driver distractions, as discussed by *Rector*. Ex. 1005, ¶¶[0004]-[0007]. A POSA would have sought to improve convenience and safety of *Rector* by capturing user changes to settings made during use and communicating them to a server, as in *Xiao*, which would have the predictable result of carrying forward the driver's changed settings and further reducing driver distractions (*i.e.*, preventing the need for the driver to readjust settings each time he/she uses the same/different vehicle based on the stored profile settings). Ex. 1004, ¶226. One would have a reasonable expectation of success in doing so because *Xiao* expressly teaches "[i]n some embodiments, the operator may set operator profile information 614 from automobile 112. For example, the operator

may set the automobile climate, audio system settings, seat positioning, mirror and/or camera positioning, etc. Automobile 112 may communicate the settings over cellular network 114 to server 118, which may update the stored operator profile information 614 for the operator." Ex. 1007, ¶[0079]. Therefore, *Xiao* teaches the operator makes changes to vehicle settings (*i.e.*, inputs made to the vehicle systems during use) and those changes/settings are transmitted from the vehicle to the server (*i.e.*, the server receiving communication from the vehicle regarding the changes/settings). Ex. 1004, ¶227.

Moreover, a POSA would have recognized that when a driver makes changes to settings, it would be inconvenient and distracting to readjust the vehicle to reproduce them each time. *Xiao* teaches that its "system 100 may also communicate with the automobile, over a network, to apply automobile system settings based on preferences contained in an operator profile." Ex. 1007, ¶[0023]. Implementing the saving of changed/updated settings, as in *Xiao*, in the method already made obvious by *Rector/Kleve/Xiao* would be combining prior art elements in known ways to obtain the predictable result of reducing distractions and enhancing reliability and safety as taught by *Rector*. Ex. 1005, ¶¶[0004]-[0007]; Ex. 1004, ¶228.

11[b]: "determining, by the server, based on the inputs made to systems of the vehicle that at least one of the plurality of settings of the profile is to be updated."

Xiao explicitly teaches that "the operator may set the automobile climate, audio system settings, seat positioning, mirror and/or camera positioning, etc.," (*i.e.*, inputs made to the vehicle systems), and the "[a]utomobile 112 may communicate the settings … to server 118, which may update the stored operator profile information 614 for the operator." Ex. 1007, ¶[0079]; Ex. 1004, ¶229.

Accordingly, claim 11 is obvious at least over *Rector* and *Kleve* in view of *Xiao*.

B. Ground 2: Claims 12-13 Are Unpatentable Over *Rector*, *Kleve*, And *Xiao* (as Applied to Claim 11) And Further in View of *Patenaude*

1. *Patenaude*

Patenaude, entitled "Method of Determining and Predicting Entertainment Selections for Telematics Units," discloses providing entertainment in a vehicle, including monitoring entertainment selections (inputs) at a telematics unit, determining a user entertainment selection profile based on that monitoring, and automatically activating entertainment units based on the profile. Ex. 1009, Title, Abstract. *Patenaude* endeavors to "determine and predict entertainment selections" by learning a user's preferences and developing an "entertainment selection profile." *Id.*, ¶[0001].

A telematics unit in a vehicle "monitors entertainment selections" made by the user and "vehicle factors." *Id.*, ¶¶[0042], [0044]. "Vehicle factors" may include, for example, "the rear view mirror position, and the driver seat position." *Id.*, ¶[0044]. The monitored selections and vehicle factors are used to determine a "user entertainment selection profile." *Id.*, ¶[0049]. The profile may be based on factors such as the user's selections, number of vehicle passengers, 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]. The method may determine that a certain "FM radio station is selected every weekday between 5:15 PM and 5:50 PM." *Id.*, ¶[0057].

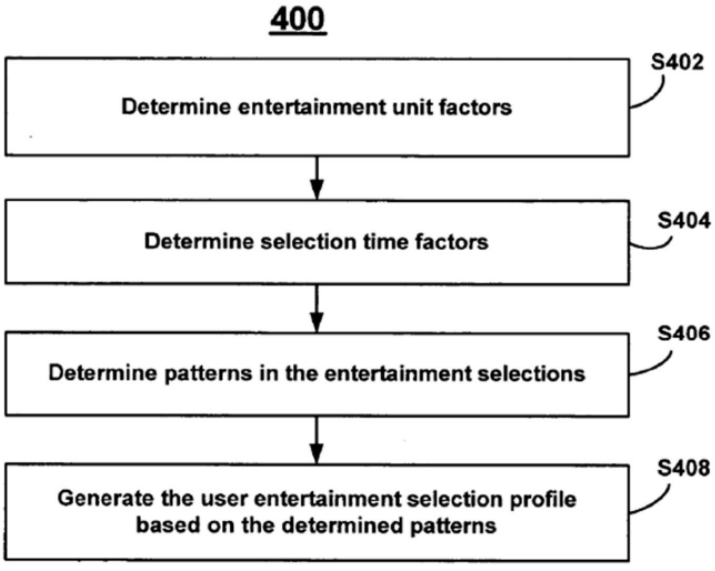


FIG. 4

Id., Fig. 4.

Based on patterns learned from the selections, the method may automatically apply certain settings to the vehicle. *Id.*, ¶[0074]. Upon starting up and identifying a user, it retrieves a "user-specific entertainment selection profile" and controls entertainment units to operate accordingly. *Id.*, ¶[0074]. *Patenaude* explains it is desirable to predict and automatically apply personalized settings via such a system. *Id.*, ¶¶[0002]-[0005].

Patenaude falls within the '716 Patent's field of endeavor, including systems designed to track and adjust vehicle systems to user preferences. *Patenaude* teaches a vehicle telematics system that "monitor[s] … selections" and uses an "algorithm [that] searches the acquired data … for the specific user" to detect repeated-use patterns—*i.e.*, processing vehicle/user interactions to build a user profile used for in-vehicle behavior. *Id.*, ¶¶[0070], [0076].

Patenaude is pertinent to at least one problem faced by the inventors of the '716 Patent. The '716 Patent explains that user profiles may include "specific settings, preferences, use history, and learned settings from earlier uses" and emphasizes cloud-based customization/synchronization across sessions. Ex. 1001, 17:31-33, 7:16-21, 13:10-12. *Patenaude* addresses that learning/problem space by deriving patterns from in-vehicle inputs (learned behavior) to feed profile updates and recommendations in the same cloud/vehicle ecosystem. Ex. 1009, ¶[0070].

2. Claim 12

Dependent claim 11 (from which claim 12 depends) is rendered obvious by the *Rector/Kleve/Xiao* combination. *Supra*, § VI.A.16. The limitations in claim 12 of the '716 Patent are the same as those in claim 5 of the '244 Patent. Ex. 1004, ¶254. The Board already addressed these limitations with respect to *Patenaude* and approved combining the teachings of *Patenaude* with *Rector/Kleve*. Ex. 1010, p. 38. The same/similar analysis applies here, such that the teachings of *Patenaude* may be combined with the *Rector/Kleve/Xiao* combination, rendering Claim 12 obvious.

> **12: "The system of claim 11, further comprising, processing by a learning engine that uses the inputs made to the systems of the vehicle to find patterns in use of the systems of the vehicle while the profile was used with the vehicle."**

Patenaude discloses determining a user's entertainment selection profile in a vehicle. Ex. 1009, ¶[0051]. A telematics unit "determines patterns in the entertainment selections" of a user, and "generates a user entertainment selection profile based on the determined patterns." *Id.*, ¶¶[0055], [0058], Fig. 4. These are based on user input (*e.g.*, setting modifications). *Id.*, ¶[0056]; Ex. 1004, ¶¶248-249.

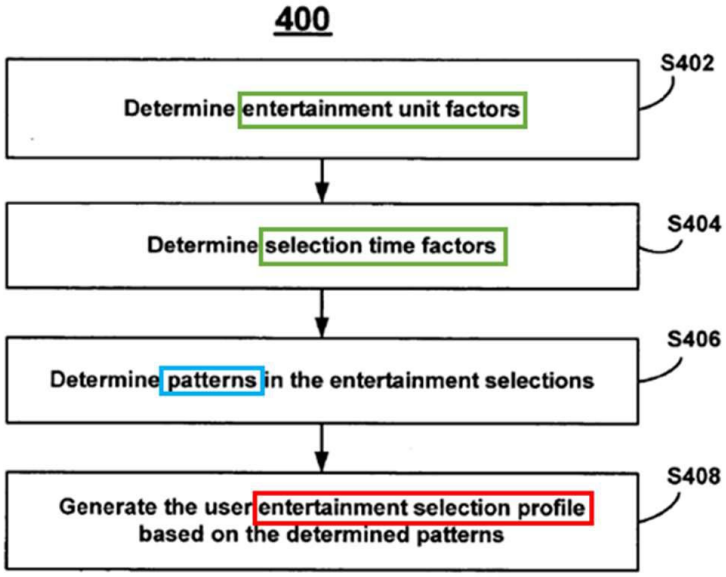


FIG. 4

Ex. 1009, Fig. 4.

"[T]he processor 122 applies an algorithm to the stored entertainment unit factors and selection time factors. The algorithm is operable to search for one or more patterns in the entertainment selections." *Id.*, ¶¶[0055], [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," etc. *Id.*, ¶[0052]. Selection time factors 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], *see also id.*, ¶¶[0055]-[0057]; Ex. 1004, ¶250.

A POSA would have been motivated to further improve *Rector* (as modified by *Kleve/Xiao*), which aims to reduce preventable distractions and improve

convenience, by implementing the learning engine of *Patenaude*, which provides the improvement of being able to automatically predict and apply user settings from determined patterns. Ex. 1005, ¶¶[0001]-[0008]; Ex. 1009, ¶¶[0001]-[0005]. There would be a reasonable expectation of success because such modification would entail a relatively minor software adjustment. For example, it was 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, ¶¶[0001]-[0005]. A POSA would have also been guided by *Rector*, which aims to reduce driver distractions, to look to *Patenaude* for providing another opportunity to reduce distractions by automatically applying learned settings patterns. *Id.*, ¶¶[0055]-[0062]; Ex. 1004, ¶¶239-241, 248, 251-253. Claim 12's "processing by the learning engine" element does require the processing to occur at the server, and thus, *Patenaude* discloses this claim element.[13]

[13] In the event claim 12 requires the processing to occur at the server, a POSA would have been motivated to communicate the inputs (*e.g.*, changes) made to systems of the vehicle to the server, as taught and shown in *Xiao*. A POSA would have a reasonable expectation of success in doing so for at least the same reasons. Ex. 1004, ¶¶242-248, 253. *Xiao* teaches that "operator information 602," including "operator profile information 614" may be stored in "storage device 506," within

3. Claim 13

Dependent claim 12 (from which claim 13 depends) is obvious in light of the *Rector/Kleve/Xiao/Patenaude* combination. *Supra*, § VI.B.2. The limitations in claim 13 of the '716 Patent are the same as those recited in claim 6 of the '244 Patent. Ex. 1004, ¶261. The Board already addressed these limitations with respect to *Patenaude* and approved combining the teachings of *Patenaude* with *Rector/Kleve*. Ex. 1010, p. 38. The same/similar analysis applies, such that the teachings of *Patenaude* may be combined with the *Rector/Kleve/Xiao* combination, rendering claim 13 obvious.

> **13: "The system of claim 12, further comprising, the server sends a recommended setting to the user account, the recommended setting is based on processing by the learning engine and said recommended setting is applied to the vehicle when the vehicle is used with the profile or is applied to the vehicle upon receiving acceptance of the recommended setting via the user account."**

Regarding the recommended setting, *Patenaude* discloses a method 600 in which "telematics unit 120 determines a user-specific pattern for the specific user identified." Ex. 1009, ¶[0067]. "After a minimum number of entertainment unit

---

"automobile service server 118." Ex. 1007, ¶¶[0060]-[0061], [0065]-[0066]. *Patenaude* also teaches the "user entertainment selection profile" may be stored within the vehicle or externally (*e.g.*, at the call center 170). Ex. 1009, ¶[0058].

factors and selection time factors are stored in the in-vehicle memory 128 for the specific user, the processor 122 applies an algorithm," which "is operable to search for one or more patterns in the time frame in which an entertainment unit is selected by the specific user." *Id.*, ¶[0069]. *Patenaude* discloses a recommended setting (*e.g.*, determined from the user-specific pattern) is automatically applied when a telematics unit is powered up and the user has been identified. *Id.*, ¶[0074], Fig. 6.

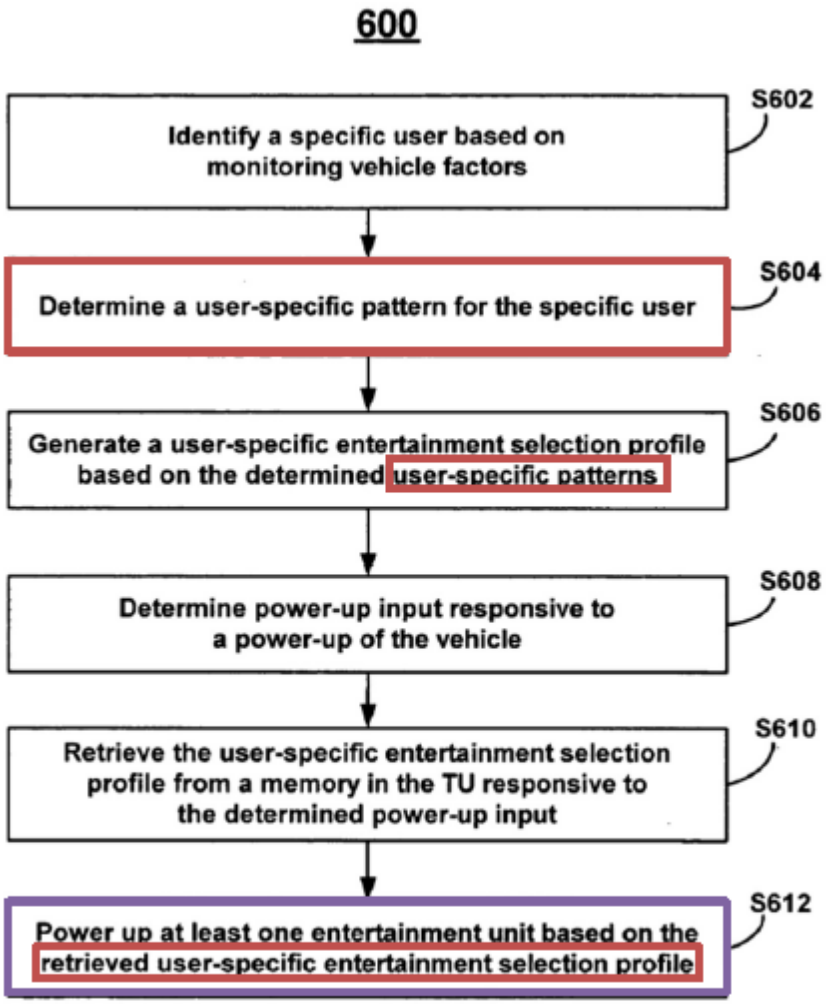


FIG. 6

Id., Fig. 6; Ex. 1004, ¶259.

It would have been obvious, based on *Patenaude*, to modify the method made obvious by *Rector*/*Kleve*/*Xiao* to send, by the server (*e.g.*, *Rector*'s setting server), a recommended setting (*e.g.*, a setting determined from a user-specific pattern) to the user account (as in *Rector*), the recommended setting being based on processing by the learning engine (*e.g.*, having applied an algorithm) and said recommended setting being applied to the vehicle when the vehicle is used with the profile (*e.g.*, while the user has his/her profile loaded and is using the vehicle). Ex. 1004, ¶260.

In combining this teaching of *Patenaude* with *Rector*, *Kleve*, and *Xiao*, implementing *Patenaude*'s learning engine would have entailed *Rector*'s server performing *Patenaude*'s learning engine processing and applying it to the user's settings profile in the user account (as in *Rector*), so that such recommended setting would be applied to the vehicle when next used with the profile. *Id.*, ¶256; *supra*, § VI.B.2. *Rector* states that a database "host[s] an account for a user" and such "user account" is associated with a driver. Ex. 1005, ¶¶[0027], [0049]. Driver settings may be managed via "web portal, on a screen in a vehicle, etc." or "by text message, by a dedicated application ... etc." *Id.*, ¶¶[0031], [0059]. A POSA would understand that a user could manage their user account remotely, via the means described by *Rector*, just like the '716 Patent describes. Ex. 1004, ¶257; Ex. 1001, 13:27-37, 29:54-60.

A POSA would have been motivated to send a recommended setting to the user account so that it could be applied in the vehicle, as taught by *Xiao*, to reduce

distractions, as taught by *Rector*, and to improve upon the existing art that did not automatically apply settings, as taught by *Patenaude*. Ex. 1007, ¶¶[0020], [0023]; Ex. 1005, ¶¶[0002]-[0007]; Ex. 1009, ¶¶[0001]-[0006]. A POSA would have known the desirability of an automated system to "determine and predict a user's entertainment selections, such as a radio station" or other vehicle settings. Ex. 1009, ¶[0004]. Such a POSA would have a reasonable expectation of success modifying the references to send the recommended setting to the user account because the user account can receive various information to enable personalized driving. Ex. 1004, ¶258.

Patenaude's learning engine, processing and generation of a recommended setting occur at the telematics unit in the vehicle. However, Petitioner submits that it is well-known at the time that processing operations in a cloud-based system may occur at one of several devices within the system as a matter of design choice and/or based on the application. Ex. 1004, ¶¶259-260. Thus, Petitioner submits that *Patenaude*'s broader teaching of determining patterns in selections/settings of vehicle systems—regardless of where this determination takes place—may readily be performed external to the vehicle. For example, changes (inputs) to vehicle settings/systems may be sent to a server for updating a user's stored settings profile (as taught by *Xiao*) and this information may be used to determine pattern(s) and generate/update a user profile (*e.g.*, "user entertainment selection profile") as taught

by *Patenaude*). *Patenaude* also teaches its "user entertainment selection profile" may be stored within the vehicle or externally (*e.g.*, call center 170). Ex. 1009, ¶[0058]; Ex. 1004, ¶259.

It would have been obvious to perform "learning" taught by *Patenaude* on the server-side because remote processing saves resources for vehicle-side computing systems, among other reasons. Ex. 1004, ¶258; *supra*, § VI.A.6.1[b]. A POSA would have a reasonable expectation of success moving such processing to the server because a server is capable of various processing tasks. *Supra*, §VI.A.6.1[b]; Ex. 1006, ¶[0035] (explaining that certain processes "may be executed by a computing system in communication with a vehicle computing system" such as "a server").

C. Ground 3: Claims 5-6 Are Unpatentable Over *Rector*, *Kleve*, And *Xiao* (as Applied to Claim 1) And Further in View of *Hayashi*

If the Board determines that *Xiao* does not disclose/teach all or some of the limitations in claims 5 and 6, *see supra*, § VI.A.10-11, *Hayashi* discloses/teaches those missing limitations. Therefore, the *Rector/Kleve/Xiao* combination in further view of *Hayashi* renders claims 5 and 6 obvious.

1. *Hayashi*

Hayashi, entitled "Driving Support Apparatus," discloses systems and methods for providing guidance to vehicle operators to implement 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 being driven. *Id.*, ¶¶[0004]-[0005].

For example, a driver may operate a vehicle that the driver is not accustomed to. *Id.*, ¶[0137]. The driver may wish to adjust vehicle settings. *Id.*, ¶[0122]. However, if the driver is not familiar with that particular vehicle, the driver 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]; *see also id.*, ¶[0111]. *Hayashi* describes database 134 that "stores operating methods for each function according to vehicle model." *Id.*, ¶[0029]. These may include user settings, such as "shift lever, parking brake, seat adjustment function, or mirror adjustment function." *Id.*, ¶[0120]. Recognizing variety in 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.

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, function 1 is achieved by performing operating method X for vehicle models α and

β, but method Y for model γ. *Hayashi* demonstrates 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.*, ¶[0029], Fig. 6 (below).

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

Id., Fig. 6.

Hayashi teaches "extracting function differences according to vehicle model" by "extract[ing] functions of the user's car model and operating methods thereof, and functions of the car model reserved by the user and operating methods thereof, from the [database] of operating methods according to vehicle model 134." *Id.*, ¶[0092]. *Hayashi* then "extracts the same functions with differing operating methods between the user's own vehicle model and the user's reserved vehicle model." *Id.*; *see also id.*, Fig. 16 (S220). When the user is driving the selected vehicle, the server in *Hayashi* "extracts the functions and operation methods for the same functions with different operating methods between vehicle models frequently used by a user reserving vehicle 20 and the subject vehicle 20,"

then the server "transmits extracted information to vehicle 20." *Id.*, ¶[0103]; *see also id.*, Fig. 17 (S303). The vehicle "receives information transmitted by management server 10" and "stores information received" from the server. *Id.* For a given function, the vehicle "extracts appropriate functions" and "output[s] to display portion 240 and audio output portion 250, guiding the user." *Id.*, ¶[0106]. "The operating method for the guided function is an operating method for a vehicle 20 function." *Id.*

Hayashi falls within the '716 Patent's field of endeavor. *Hayashi* teaches server-side, vehicle model-aware databases—"DB of operating methods according to vehicle model … stor[ing] operating methods for each function," with "none" recorded where a model lacks a function—and management-server logic that "extracts … operating methods for functions" by vehicle model. *Id.*, ¶¶[0029]-[0033], [0035], [0108]-[0112] (management server extracts/model differences).

Hayashi is also pertinent to a problem faced by the inventors of the '716 Patent. The '716 Patent describes cloud-based customization in which the server must determine which user settings are incompatible or available/settable for particular vehicle types before transfer, and of applying those settings wirelessly from servers. Ex. 1001, 2:10-12, 50-55, 5:27-30. *Hayashi* is pertinent because it determines compatibility/incompatibility by vehicle model (method X/method Y/"none") from a server-resident database, addressing compatibility issues the '716

Patent identifies for cloud-delivered settings. Ex. 1013, ¶¶[0029]-[0033], [0104]-[0108].

2. Claim 5

> **5: "The cloud-based system of claim 1, wherein said server determining settings compatible for said vehicle type includes processing by a mapping engine to determine information associated with the vehicle type to identify settings from said profile that are incompatible with the vehicle type."**

Hayashi's database 134 shown in Fig. 6 "stores operating methods for each function of each vehicle model," including user settings, and processing portion 113 extracts functions according to database 134 (vehicle model). Ex. 1013, ¶¶[0029], [0091]-[0092], [0120]. In Fig. 6, *Hayashi* demonstrates the incompatibility[14] of various operating methods for different models (*e.g.*, method X is compatible with models α and β, but incompatible with model γ, which is only compatible with

[14] The Board acknowledged *Hayashi* discusses determining both compatibility and incompatibility. Ex. 1011, p. 38 ("Hayashi teaches how a server may determine compatibility by using a database…. *See* Pet. 47 ('[Hayashi] actively determines certain functions or operating methods are compatible [or incompatible] with certain vehicle models by specifying, e.g., method X, Y, Z, etc., for implementing such functions.')."); *see also id.*, pp. 37-41.

method Y). *Hayashi* also demonstrates the concept of compatibility determination by remarking that "[i]f a certain 'vehicle model' does not have a certain 'function,' 'none' may be stored . . . as the operating method," as shown below. *Id.*, ¶[0029], Fig. 6; Ex. 1004, ¶¶277-279.

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 above, "Function 4" lists "none" for vehicle model γ because it is incompatible. Ex. 1004, ¶¶280-281. A POSA using *Rector*/*Kleve*/*Xiao* would have considered it useful to have a database indicating which vehicles are compatible/incompatible with respective functions/operating methods, as in *Hayashi*. Ex. 1004, ¶¶282-283; *see also id.*, ¶¶270-275.

Accordingly, *Rector*/*Kleve*/*Xiao*/*Hayashi* discloses claim 5.

3. Claim 6

> **6: "The cloud-based system of claim 1, further comprising, processing by a mapping engine, a translation metric to adjust a function of a specific setting associated with the profile of the user, such that incompatibility of the specific setting is made compatible for said vehicle type, and said specific setting is one that is transferred and enabled on the vehicle."**

As set forth above as to claim 5, *Hayashi* refers to determining settings that are compatible/incompatible. By identifying and comparing the "same functions with differing operating methods" between the user's own vehicle and the chosen rental vehicle model, *Hayashi* identifies which operating methods used in the driver's vehicle are incompatible with the rental vehicle. When the user is driving the selected vehicle, the server in *Hayashi* "extracts the functions and operation methods for the same functions with different operating methods between vehicle models frequently used by a user reserving vehicle 20 and the subject vehicle 20," then the server "transmits extracted information to vehicle 20." Ex. 1013, ¶[0103]; *see also id.*, Fig. 17 (S303). The vehicle's processing portion 211 extracts information about same functions but different operating methods, and the portion 212 "extracts appropriate functions" (specifically, the operating method for the selected vehicle that is different from the user's own vehicle), and outputs user guidance. *Id.*, ¶¶[0105]-[0106]. This displayed operating method is one that has been translated from the incompatible method used in the driver's own vehicle to a

method that is compatible for the vehicle in operation. *Id.* ("The operating method for the guided function is an operating method for a vehicle 20 function."). A POSA using *Rector*/*Kleve*/*Xiao* would have considered it useful to have a database that could adjust incompatible functions or instructions so that they are compatible with the specific vehicle type selected, as in *Hayashi*. Ex. 1004, ¶¶285-286.

Accordingly, *Rector*/*Kleve*/*Xiao*/*Hayashi* discloses claim 6.

VII. Grounds for Standing

Petitioner certifies that the '716 Patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR on the grounds identified herein.

VIII. 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., Toyota Motor Sales, U.S.A., Inc., and Toyota Connected North America, Inc.

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

To Petitioner's knowledge, the '716 Patent is, or has been, involved in the following district court litigations and Board proceedings:

Name	Number	Court	Filed
Emerging Automotive LLC v. Toyota Motor North America, Inc. et al.	2:25-cv-00782	EDTX	Aug. 12, 2025

To the best of Petitioner's knowledge, patents within the '716 Patent's family are, or have been, involved in the following district court litigations and Board proceedings:

Name	Number	Court	Filed
Emerging Automotive LLC v. Kia Corp. et al.	2:25-cv-00799	EDTX	August 15, 2025
Emerging Automotive LLC v. Toyota Motor Corp. et al.	2:23-cv-00434	EDTX	September 20, 2023
Emerging Automotive LLC v. Kia Corp. et al.	2:23-cv-00437	EDTX	September 22, 2023
Toyota Motor Corp. v. Emerging Automotive LLC	IPR2024-00786	PTAB	April 15, 2024
Toyota Motor Corp. v. Emerging Automotive LLC	IPR2024-00814	PTAB	April 25, 2024
Toyota Motor Corp. and Kia Corporation v. Emerging Automotive LLC	IPR2024-00785	PTAB	April 23, 2025
Toyota Motor Corp. and Kia Corporation v. Emerging Automotive LLC	IPR2024-00981	PTAB	May 29, 2024
Toyota Motor Corp. and Kia Corporation v. Emerging Automotive LLC	IPR2024-01167	PTAB	July 15, 2024

To the best of Petitioner's knowledge, the '716 Patent is related to the following U.S. applications that had been pending as of the issuance of the '716 Patent, and their corresponding issued patents (if applicable):

Application No.	Patent No.
61/745,729	(n/a)
61/478,436	(n/a)
13/452,881	10,217,160
13/452,882	9,123,035

Application No.	Patent No.
13/784,823	9,285,944
13/797,974	9,180,783
13/797,982	(Abandoned)
13/842,158	9,229,905
13/906,335	9,104,537
13/911,072	9,809,196
13/934,215	9,581,997
13/937,202	9,346,365
14/050,314	9,171,268
14/063,638	9,189,900
14/063,837	9,139,091
14/145,693	9,372,607
14/173,818	9,697,733
14/176,138	9,697,503
14/222,670	9,348,492
14/246,145	9,229,623
14/251,537	9,230,440
14/275,569	9,467,515
14/281,892	9,545,853
14/288,356	(Abandoned)
14/303,442	9,365,188
14/316,559	9,371,007
14/338,636	9,648,107
14/499,039	9,536,197
14/595,186	9,177,305
14/599,541	9,177,306
14/602,256	9,129,272
14/640,004	9,423,937
14/672,038	10,286,919
14/677,341	9,778,831
14/790,409	9,215,274
14/801,803	9,193,277
14/872,404	9,335,179
14/880,970	9,579,987
14/949,883	9,493,130
14/952,911	9,288,270
14/987,755	10,218,771
14/989,100	10,839,451

Application No.	Patent No.
14/997,429	(Abandoned)
15/071,120	9,426,225
15/085,094	10,286,842
15/161,373	9,434,270
15/180,306	9,499,129
15/188,971	9,815,382
15/191,506	9,597,973
15/243,933	10,286,798
15/243,948	10,225,350
15/257,016	9,718,370
15/290,430	10,223,134
15/344,566	9,663,067
15/351,422	9,672,823
15/384,314	10,411,487
15/387,651	10,181,099
15/404,574	10,274,948
15/420,098	10,424,296
15/444,892	10,396,576
15/444,328	10,308,244
15/463,287	9,738,168
15/469,517	9,855,947
15/469,520	9,963,145
15/470,881	10,535,341
15/607,418	10,407,026
15/615,812	9,818,088
15/657,112	9,802,500
15/683,286	9,925,882
15/696,618	9,928,488
15/714,113	10,821,845
15/723,790	9,916,071
15/786,578	10,210,487
15/787,295	10,071,643
15/787,414	10,286,875
15/787,677	10,453,453
15/787,691	10,821,850
16/285,706	10,652,312
16/788,253	11,396,244

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

Lead Counsel	Back-Up Counsel
Robert D. McCutcheon (Reg. No. 38,717) rmccutcheon@munckwilson.com MUNCK WILSON MANDALA, LLP 1900 Texas Capital Center 2000 McKinney Avenue Dallas, Texas 75201 972-628-3600 972-628-3616 Fax	Michael C. Wilson Texas Bar No. 21704590 mwilson@munckwilson.com (to be admitted *pro hac vice*) MUNCK WILSON MANDALA, LLP 1900 Texas Capital Center 2000 McKinney Avenue Dallas, Texas 75201 972-628-3600 972-628-3616 Fax Jared M. Hoggan Texas Bar No. 24065435 jhoggan@munckwilson.com (to be admitted *pro hac vice*) MUNCK WILSON MANDALA, LLP 1900 Texas Capital Center 2000 McKinney Avenue Dallas, Texas 75201 972-628-3600 972-628-3616 Fax Joshua L. Goldberg (Reg. No. 59,369) joshua.goldberg@finnegan.com James R. Barney (Reg. No. 46,539) james.barney@finnegan.com Aidan Skoyles (Reg. No. 61,119) aidan.skoyles@finnegan.com Nicholas Eitsert (Reg. No. 78,843) nicholas.eitsert@finnegan.com

Lead Counsel	Back-Up Counsel
	FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP 901 New York Ave NW Washington, DC 20001 Tel: 202-408-4000 Fax: 202-408-4400

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 email service.

IX. Conclusion

Petitioner requests the Board institute IPR and cancel all challenged claims.

Respectfully submitted,

Dated: October 21, 2025 By: /Robert D. McCutcheon/
Robert D. McCutcheon, Reg. No. 38,717

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 13,953 words, excluding parts of this Petition exempted under § 42.24(a), as measured by the word-processing system used to prepare this paper.

Dated: October 21, 2025 By: /Robert D. McCutcheon/
Robert D. McCutcheon, Reg. No. 38,717

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing Petition for *Inter Partes* Review, the associated Powers of Attorney, and Exhibits 1001-1017 were served on October 21, 2025, on counsel of record for the subject patent by FedEx Priority Overnight at the addresses below.

Correspondence Address of Record	Litigation Counsel
Albert Penilla PENILLA IP, APC – PATENT LAW 5619 Scotts Valley Drive SUITE 280 Scotts Valley, CA 95066	Marc Belloli BUNSOW DE MORY LLP 701 El Camino Real, Redwood City, CA 94063

/Robert D. McCutcheon/
Robert D. McCutcheon, Reg. No. 38,717
MUNCK WILSON MANDALA LLP