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

**DECLARATION OF KEVIN C. ALMEROTH, PH.D.
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 12,337,716**

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I. INTRODUCTION

1. I, Kevin C. Almeroth, Ph.D., submit this declaration to state my opinions on the matter described below.

2. I have been retained by Petitioner Toyota Motor Corp. ("Petitioner") as an independent expert in this proceeding before the United States Patent Trial and Appeal Board ("PTAB"). Although I am being compensated at my usual and customary rate of $900 per hour, no part of my compensation depends on the outcome of this proceeding, and I have no other interest in this proceeding.

3. I understand that this proceeding involves U.S. Patent No. 12,337,716 (the "'716 patent"), and I have been asked to provide my opinions as to the patentability of the claims of the '716 patent. The '716 patent is assigned to Emerging Automotive LLC ("Patent Owner").

4. I understand that the application for the '716 patent was filed on July 25, 2022, and claims priority to several U.S. patent applications as listed in fields (63) and (60) of the '716 patent. Ex. 1001, 1-2. The '716 patent purports to be a continuation of Application No. 16/788,253 filed February 11, 2020, which issued as U.S. Patent No. 11,396,244, which in turn purports to be a continuation of Application No. 16/285,706 filed February 26, 2019, which issued as U.S. Patent No. 10,652,312, which in turn purports to be a continuation of Application No. 14/987,755 filed January 4, 2016, which issued as U.S. Patent No. 10,218,771,

which in turn purports to be a continuation of Application No. 13/842,158 filed March 15, 2013, which issued as U.S. Patent No. 9,229,905. U.S. Patent No. 10,652,312, to which the '716 patent claims priority, also purports to be a continuation-in-part of Application No. 13/452,881 filed April 22, 2012, which issued as U.S. Patent No. 10,217,160. The '716 patent also claims priority to two U.S. provisional applications, one filed December 24, 2012 (Provisional Application No. 61/745,729), and one filed April 22, 2011 (Provisional Application No. 61/478,436). *Id.*

5. On April 25, 2024, I executed my declaration to support a petition for *inter partes* review of U.S. Patent No. 11,396,244 (the "'244 patent") in Case No. IPR2024-00814, which I understand has been instituted. *See* Ex. 1010, p. 3.

6. I was asked to analyze the priority claims of the '716 patent. My opinion, as detailed herein, is that the claims of the '716 patent are entitled to a priority date of no earlier than March 15, 2013 or December 24, 2012, depending on the claim. *Infra*, ¶¶ 67-77. Specifically, independent claims 1 and 7 are entitled to a priority date of no earlier than December 24, 2012. *Infra*, ¶¶ 70, 76-77. Dependent claim 11, reciting a feature of a server determining to update settings based on inputs made to systems of the vehicle during use while the vehicle is associated with the profile of the user account, is entitled to a priority date of no earlier than March 15, 2013. *Infra*, ¶¶ 71-72, 75-77. Claims 12-13, reciting a

"learning engine," among other things, are entitled to a priority date of no earlier than March 15, 2013. *Infra*, ¶¶ 73-77. The remaining dependent claims (2-6 and 8-10) are entitled to a priority date of no earlier than December 24, 2012. *Infra*, ¶ 77.

7. I have been asked to consider the validity of the challenged claims of the '716 patent based on certain prior art references. I have also been asked to consider the state of the art and prior art available as of the effective filing date of those claims of the '716 patent. Based on the prior art discussed in this declaration, it is my opinion that claims 1-13 of the '716 patent are unpatentable for the reasons provided below.

II. QUALIFICATIONS AND BACKGROUND

8. I believe that I am well qualified to serve as a technical expert in this matter based upon my educational and work experience, and specifically, in the field of vehicle electronics and computing devices. My curriculum vitae ("CV") is submitted as Exhibit 1003.

9. I am currently a Professor Emeritus in the Department of Computer Science at the University of California, Santa Barbara (UCSB). While active at UCSB, I held faculty appointments and was a founding member of the Computer Engineering (CE) Program, Media Arts and Technology (MAT) Program, and the Technology Management Program (TMP). I also served as the Associate Director of the Center for Information Technology and Society (CITS) from 1999 to 2012. I

have been a faculty member at UCSB since July 1997.

10. I hold three degrees from the Georgia Institute of Technology: (1) a Bachelor of Science degree in Information and Computer Science (with minors in Economics, Technical Communication, and American Literature) earned in June 1992; (2) a Master of Science degree in Computer Science (with specialization in Networking and Systems) earned in June 1994; and (3) a Doctor of Philosophy (Ph.D.) degree in Computer Science (Dissertation Title: Networking and System Support for the Efficient, Scalable Delivery of Services in Interactive Multimedia System, minor in Telecommunications Public Policy) earned in June 1997. During my education, I have taken a wide variety of courses as demonstrated by my minor. My undergraduate degree also included a number of courses more typical of a degree in electrical engineering including digital logic, signal processing, and telecommunications theory.

11. One of the major concentrations of my research over the past 30+ years has been the delivery of multimedia content and data between computing devices, including various network architectures. In my research, I have studied large-scale content delivery systems, and the use of servers located in a variety of geographic locations to provide scalable delivery to hundreds or thousands of users simultaneously. I have also studied smaller-scale content delivery systems in which content is exchanged between individual computers and portable devices. My work

has emphasized the exchange of content more efficiently across computer networks, including the scalable delivery of content to many users, mobile computing, satellite networking, delivering content to mobile devices, and network support for data delivery in wireless networks.

12. In 1992, the initial focus of my research was on the provision of interactive functions (*e.g.*, VCR-style functions like pause, rewind, and fast forward) for near video-on-demand systems in cable systems; in particular, how to aggregate requests for movies at a cable head-end and then how to satisfy a multitude of requests using one audio/video stream broadcast to multiple receivers simultaneously. This research has continually evolved and resulted in the development of techniques to scalably deliver on-demand content, including audio, video, web documents, and other types of data, through the Internet and over other types of networks, including over cable systems, broadband telephone lines, and satellite links.

13. An important component of my research has been investigating the challenges of communicating multimedia content, including video, between computers and across networks including the Internet. Although the early Internet was used mostly for text-based, non-real time applications, the interest in sharing multimedia content—such as video—quickly developed. Multimedia-based applications ranged from downloading content to a device to streaming multimedia

content to be instantly used. One of the challenges was that multimedia content is typically larger than text-only content, but there are also opportunities to use different delivery techniques since multimedia content is more resilient to errors. I have worked on a variety of research problems and used a number of systems that were developed to deliver multimedia content to users. One content delivery method I have researched is the one-to-many communication facility called "multicast," first deployed as the Multicast Backbone, a virtual overlay network supporting one-to-many communication. Multicast is one technique that can be used on the Internet to provide streaming media support for complex applications like video-on-demand, distance learning, distributed collaboration, distributed games, and large-scale wireless communication. The delivery of media through multicast often involves using Internet infrastructure, devices and protocols, including protocols for routing and TCP/IP.

14. Starting in 1997, I worked on a project to integrate the streaming media capabilities of the Internet together with the interactivity of the web. I developed a project called the Interactive Multimedia Jukebox (IMJ). Users would visit a web page and select content to view. The content would then be scheduled on one of a number of channels, including delivery to students in Georgia Tech dorms delivered via the campus cable plant. The content of each channel was delivered using multicast communication.

15. In the IMJ, the number of channels varied depending on the capabilities of the server including the available bandwidth of its connection to the Internet. If one of the channels was idle, the requesting user would be able to watch their selection immediately. If all channels were streaming previously selected content, the user's selection would be queued on the channel with the shortest wait time. In the meantime, the user would see what content was currently playing on other channels, and because of the use of multicast, would be able to join one of the existing channels and watch the content at the point it was currently being transmitted.

16. The IMJ service combined the interactivity of the web with the streaming capabilities of the Internet to create a jukebox-like service. It supported true Video-on-Demand when capacity allowed, but scaled to any number of users based on queuing requested programs. As part of the project, we obtained permission from Turner Broadcasting to transmit cartoons and other short-subject content. We also connected the IMJ into the Georgia Tech campus cable television network so that students in their dorms could use the web to request content and then view that content on one of the campus's public access channels.

17. More recently, I have also studied issues concerning how users choose content, especially when considering the price of that content. My research has examined how dynamic content pricing can be used to control system load. By

raising prices when systems start to become overloaded (*i.e.*, when all available resources are fully utilized) and reducing prices when system capacity is readily available, users' capacity to pay as well as their willingness can be used as factors in stabilizing the response time of a system. This capability is particularly useful in systems where content is downloaded or streamed on-demand to users.

18. As a parallel research theme, starting in 1997, I began researching issues related to wireless devices and sensors. In particular, I was interested in showing how to provide greater communication capability to "lightweight devices," *i.e.*, small form-factor, resource-constrained (*e.g.*, CPU, memory, networking, and power) devices. Starting in 1998, I published several papers on my work to develop a flexible, lightweight, battery-aware network protocol stack.

19. The lightweight protocols we envisioned were similar in nature to protocols like Bluetooth, Universal Plug and Play (UPnP) and Digital Living Network Alliance (DLNA). From this initial work, I have made wireless networking—including ad hoc, mesh networks and wireless devices—one of the major themes of my research. My work in wireless networks spans the protocol stack from applications through to the encoding and exchange of data at the data link and physical layers.

20. At the application layer, even before the large-scale "app stores" were available, my research looked at building, installing, and using apps for a variety of

purposes, from network monitoring to support for traditional computer-based applications (*e.g.*, content retrieval) to new applications enabled by ubiquitous, mobile devices. For example, my research has looked at developing applications for virally exchanging and tracking "coupons" through "opportunistic contact" (*i.e.*, communication with other devices coming into communication range with a user). In many of the courses I have taught there is a project component. Through these projects I have supervised numerous efforts to develop new "apps" for download and use across a variety of mobile platforms.

21. Toward the middle of the protocol stack, my research also looked to build wireless infrastructure support to enable communication among a set of mobile devices unaided by any other kind of network infrastructure. These kinds of networks are useful either in challenged network environments (*e.g.*, when a natural disaster has destroyed existing infrastructure) or when suitable support for network communication never existed. The deployment of such networks (or even the use of traditional network support) are critical to support services like disaster relief, catastrophic event coordination, and emergency services deployment.

22. Yet another theme is monitoring wireless networks, in particular different variants of IEEE 802.11 compliant networks, to (1) understand the operation of the various protocols used in real-world deployments, (2) use these measurements to characterize use of the networks and identify protocol limitations

and weaknesses, and (3) propose and evaluate solutions to these problems. I have successfully used monitoring techniques to study wireless data link layer protocol operation and to improve performance by enhancing the operation of such protocols. For wireless protocols, this research includes functions like network acquisition and channel bonding.

23. Protecting networks, including their operation and content, has been an underlying theme of my research almost since the beginning of my research career. Starting in 2000, I have been involved in several projects that specifically address security, network protection, and firewalls. After significant background work, a team on which I was a member successfully submitted a $4.3M grant proposal to the Army Research Office (ARO) at the Department of Defense to propose and develop a high-speed intrusion detection system. Key aspects of the system included associating streams of packets and analyzing them for viruses and other malware. Once the grant was awarded, we spent several years developing and meeting the milestones of the project. A number of my students worked on related projects and published papers on topics ranging from intrusion detection to developing advanced techniques to be incorporated into firewalls. I have also used firewalls, including their associated malware detection features, in developing techniques for the classroom to ensure that students are not distracted by online content.

24. Recent work ties some of the various threads of my past research together. I have investigated content delivery in online social networks and proposed reputation management systems in large-scale social networks and marketplaces. On the content delivery side, I have looked at issues of caching and cache placement, especially when content being shared and the cache has geographical relevance. We were able to show that effective caching strategies can greatly improve performance and reduce deployment costs. Our work on reputation systems showed that reputations have economic value, and as such, creates a motivation to manipulate reputations. In response, we developed a variety of solutions to protect the integrity of reputations in online social networks. The techniques we developed for content delivery and reputation management were particularly relevant in peer-to-peer communication and recommendations for downloadable "apps."

25. As an important component of my research program, I have been involved in the development of academic research into available technology in the marketplace. One aspect of this work is my involvement in the Internet Engineering Task Force (IETF). The IETF is a large and open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. I have been involved in various IETF groups, including many content

delivery-related working groups like the Audio Video Transport (AVT) group, the MBone Deployment (MBONED) group, Source Specific Multicast (SSM) group, the Inter-Domain Multicast Routing (IDMR) group, the Reliable Multicast Transport (RMT) group, the Protocol Independent Multicast (PIM) group, etc. I have also served as a member of the Multicast Directorate (MADDOGS), which oversaw the standardization of all things related to multicast in the IETF. Finally, I was the Chair of the Internet2 Multicast Working Group for seven years.

26. As another important component of my research, I have been involved in the development of academic research into available technology in mobile connections, networks, and protocols in dynamic environments, including moving vehicles. *See, e.g.*:

- K. Almeroth, K. Obraczka and D. De Lucia, "*A Lightweight Protocol for Interconnecting Heterogeneous Devices in Dynamic Environments*," IEEE International Conference on Multimedia Computing and Systems (ICMCS), Florence, ITALY, June 1999.
- K. Harras, K. Almeroth and E. Belding, *Delay Tolerant Mobile Networks (DTMNs): Controlled Flooding in Sparse Mobile Networks*," IFIP Networking Conference, Waterloo, Ontario, CANADA, May 2005.

- C. Holman, K. Harras, and K. Almeroth, "*A Proactive Data Bundling System for Intermittent Mobile Connections*," IEEE International Conference on Sensor and Ad Hoc Communications and Networks (SECON), Reston, Virginia, USA, September 2006.
- R. Chertov, D. Havey and K. Almeroth, "*MSET: A Mobility Satellite Emulation Testbed*," IEEE Infocom, San Diego, California, USA, March 2010.

27. My involvement in the research community extends to leadership positions for several academic journals and conferences. I am the co-chair of the Steering Committee for the ACM Network and System Support for Digital Audio and Video (NOSSDAV) workshop and on the Steering Committees for the International Conference on Network Protocols (ICNP), ACM Sigcomm Workshop on Challenged Networks (CHANTS), and IEEE Global Internet (GI) Symposium. I have served or am serving on the Editorial Boards of IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Network, ACM Computers in Entertainment, AACE Journal of Interactive Learning Research (JILR), and ACM Computer Communications Review. I have co-chaired a number of conferences and workshops, including the IEEE International Conference on Network Protocols (ICNP), IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), International

Conference on Communication Systems and Networks (COMSNETS), IFIP/IEEE International Conference on Management of Multimedia Networks and Services (MMNS), the International Workshop On Wireless Network Measurement (WiNMee), ACM Sigcomm Workshop on Challenged Networks (CHANTS), the Network Group Communication (NGC) workshop, and the Global Internet Symposium, and I have served on the program committees for numerous conferences.

28. Furthermore, in the courses I taught at UCSB, a significant portion of my curriculum covered aspects of the Internet and network communication, including the physical and data link layers of the Open System Interconnect (OSI) protocol stack, and standardized protocols for communicating across a variety of physical media such as cable systems, telephone lines, wireless, and high-speed Local Area Networks (LANs). The courses I have taught also cover most major topics in Internet communication, including data communication, multimedia encoding, and mobile application design. My research and courses have covered a range of physical infrastructures for delivering content over networks, including cable, Integrated Services Digital Network (ISDN), Ethernet, Asynchronous Transfer Mode (ATM), fiber, and Digital Subscriber Line (DSL). For a complete list of courses I have taught, see my CV (Ex. 1003).

29. In addition, I co-founded a technology company called Santa Barbara Labs that was working under a sub-contract from the U.S. Air Force to develop very accurate emulation systems for the military's next generation internetwork. Santa Barbara Labs' focus was in developing an emulation platform to test the performance characteristics of the network architecture in the variety of environments in which it was expected to operate, and, in particular, for network services including IPv6, multicast, Quality of Service (QoS), satellite-based communication, and security. Applications for this emulation program included communication of a variety of multimedia-based services, including video conferencing and video-on-demand.

30. In addition to having co-founded a technology company myself, I have worked for, consulted with, and collaborated with companies for nearly 30 years. These companies range from well-established companies to start-ups and include IBM, Hitachi Telecom, Turner Broadcasting System (TBS), Bell South, Digital Fountain, RealNetworks, Intel Research, Cisco Systems, and Lockheed Martin.

31. Through my graduate education, leadership with CITS, involvement in TMP, role in the development of the Internet infrastructure, and consulting with ISPs, I have gained a strong understanding in the role of the Internet in our society and the challenges of deploying large-scale production networking infrastructure.

CITS, since its inception, has looked at the role of the Internet in society, including how the evolution of technology has created communication opportunities and challenges, including, for example through disruptive technologies like P2P. TMP looks to focus on non-purely technical issues, including, for example, state-of-the-art business methods, strategies for successful technology commercialization, new venture creation, and best practices for fostering innovation. Through my industry collaborations and Internet work, I have developed significant experience in the challenges of deploying, monitoring, managing, and scaling communication infrastructure to support evolving Internet services like streaming media, conferencing, content exchange, social networking, and e-commerce.

32. I am a Member of the Association of Computing Machinery (ACM) and a Fellow of the Institute of Electrical and Electronics Engineers (IEEE).

III. MATERIALS CONSIDERED

33. In forming my opinions, I have reviewed the following documents:

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. 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*")

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

IV. LEGAL STANDARDS

34. In forming my opinions and considering the subject matter of the '716 patent and its claims in light of the prior art, I am relying on certain legal principles that counsel in this case explained to me. My understanding of these concepts is summarized below.

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

construed, the content of the prior art is compared to the construed claims.

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

A. Claim Construction

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

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

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

than the claims, specification, and prosecution history.

B. Anticipation Under 35 U.S.C. § 102

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

C. Obviousness Under 35 U.S.C. § 103

41. I understand that a patent claim is invalid as obvious if the claimed invention would have been obvious to a person of ordinary skill in the art ("POSA") at the time the claimed invention was made. This means that even if all of the elements of the claim cannot be found in a single prior art reference that would anticipate the claim, a POSA in the field who knew about all the prior art would have come up with the claimed invention. I understand that in an obviousness determination, a POSA is presumed to have knowledge of all material prior art. I understand that whether a claim is obvious is based upon the determination of several factual issues.

42. I understand that obviousness is a determination of law based on underlying determinations of fact. I understand that these factual determinations

include the scope and content of the prior art, the level of ordinary skill in the art, the differences between the claimed invention and the prior art, and secondary considerations of non-obviousness.

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

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

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

incentives may be what precipitated a change, rather than true inventiveness.

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

47. I understand that there is no rigid rule that a reference or combination of references must contain a "teaching, suggestion, or motivation" to combine references. But I also understand that the "teaching, suggestion, or motivation" test can be a useful guide in establishing a rationale for combining elements of the prior art. I have been told that this test poses the question as to whether there is an express or implied teaching, suggestion, or motivation to combine prior art elements in a way that realizes the claimed invention, and that it seeks to counter impermissible hindsight analysis.

48. I understand that one may consider, *e.g.*, whether (1) the change was merely the predictable result of using prior art elements according to their known

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

49. I understand that any assertion of secondary considerations of non-obviousness must be accompanied by a nexus between the merits of the invention and the evidence offered.

D. Priority Under 35 U.S.C. § 120

50. I understand that the "priority date" or "effective filing date" of a patent is the date on which it is filed, or the date on which an earlier-filed U.S. or international patent application was filed if the patentee claims the benefit of

priority to that earlier-filed application.

51. I understand that in the patent application process, the applicant may keep the originally filed claims, or change the claims between the time the patent application is first filed and the time a patent is issued. An applicant may amend the claims or add new claims. These changes may narrow or broaden the scope of the claims. I understand that a patent application is entitled to the benefit of the filing date of an earlier-filed application only if the disclosure of the earlier application provides support for the claims of the later application as required by the "written description" requirement of 35 U.S.C. § 112. I further understand that for a patent application to have an adequate written description of the invention, it must show the inventor was in possession of the invention at the time the patent application was filed.

52. When determining whether a specification of a patent application contains an adequate written description of the claimed invention, I understand that one must make an objective inquiry into the four corners of the specification from the perspective of a POSA. Further, I understand that the standard for written description is stricter than the standard for determining whether or not a patent claim would have been obvious based on the prior art.

53. In particular, the question for purposes of written description is not merely whether the claimed invention is an obvious variant of what the

specification discloses. Instead, the application itself must describe the invention, and do so in sufficient detail that a POSA can clearly conclude that the inventor invented the claimed invention as of the date when the application was filed.

54. Similarly, I understand the issue of written description is separate from the question of "enablement" (*i.e.*, whether a specification allows a POSA to practice the claimed invention without undue experimentation). A specification may adequately enable a claimed invention, yet fail to provide written description support.

55. Finally, I understand that the standard for whether or not a disclosure is sufficient to provide written description support for a claim is different from the standard for whether a disclosure anticipates a claim. To support a claim, the description must be sufficient to convey to a POSA that the inventors were in possession of the full scope of the claimed subject matter. By contrast, a description anticipates a claim if it discloses even a single species within the scope of the claim. Thus, in the case of "genus" claims covering two or more different species, I understand that there can be situations in which a given disclosure is sufficient to anticipate the claim even though that same disclosure is not adequate to support the claim and entitle the inventors to an earlier priority date.

56. I understand that in order to claim priority to an application through a chain of applications, every single application in the chain (going back to the

particular application on which the inventors want to rely) needs to support the claim as a matter of written description. In other words, each application in the chain must allow a POSA to discern that the inventors were in possession of the claimed invention at the time of the application. It is not sufficient under this standard for the disclosure in the specification to render the claimed invention obvious.

57. As detailed herein, I determined that certain priority dates apply for certain claims. However, it is my opinion that my ultimate conclusions of invalidity herein would not change even if all of the ’716 patent claims were found to be entitled to the claimed priority date of December 24, 2012 (corresponding to Provisional Application 61/745,729). For example, the prior art relied upon in this IPR is prior art regardless of whether the priority date is, for example, March 15, 2013 or December 24, 2012. And further, the level of skill of a POSA would remain substantially the same regardless of the priority date being, for example, March 15, 2013 or December 24, 2012.

V. THE ’716 PATENT

A. Overview of the ’716 Patent

58. The application that led to the ’716 patent was filed on July 25, 2022. The specification of the ’716 patent is similar to that of Application No. 13/842,158, which was filed March 15, 2013.

59. The ’716 patent attempts to claim methods of customizing vehicles based on user profiles. It describes methods for transferring settings associated with user profiles to vehicles using cloud services. Ex. 1001, Title, Abstract. The ’716 patent attempts to exploit the connectivity offered by cloud systems to provide “automatic settings and synchronization when the user enters the vehicle . . . .” *Id.*, 13:10-11. It explains that vehicles “communicate wirelessly with Internet services,” which provides access to “settings, configurations, applications, and other customization defined by the user.” *Id.*, 7:16-21. According to the patent, cloud systems enable vehicle users to access the Internet to provide services “in a more effective manner.” *Id.*, 8:63-9:4. The ’716 patent asserts ownership over such basic and commonplace features 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.

60. The ’716 patent illustrates an example of its allegedly inventive method of user interaction with a cloud-based vehicle login system in Fig. 1 (below). *Id.*, 16:3-21. The patent states, “[t]he 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.*, 16:9-19. If not, “the user is presented with a failed

access notification on the login interface." *Id.*, 16:19-21.

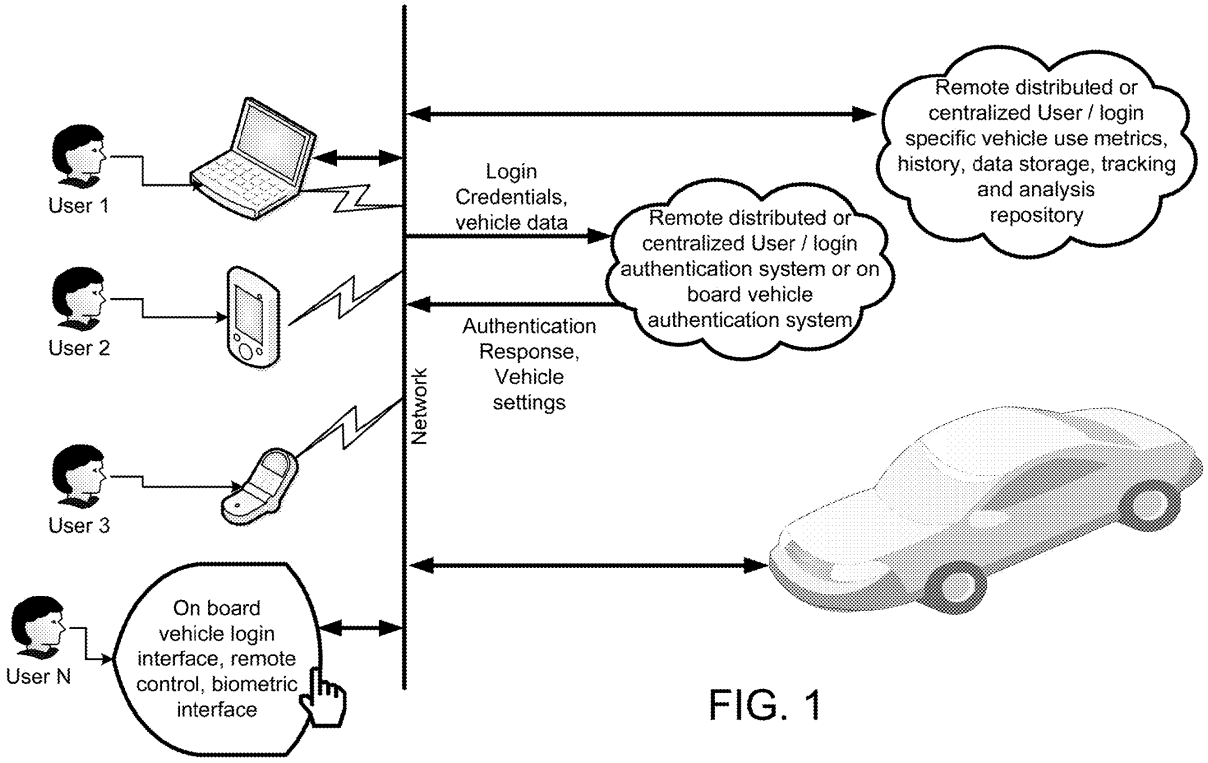


Fig. 1 of the '716 Patent

61. One of the consequences of Internet connectivity observed by the patent is that specific functions of vehicles can be monitored or restricted, which can be done for "safety considerations while driving." *Id.*, 10:3-19. To this end, the '716 patent claims that at least some of the settings associated with a user profile are "restricted" for use on the vehicle. *Id.*, 10:4-6. As an example 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.*, 12:9-13.

62. Also, in describing Fig. 4, the '716 patent explains that "location based settings allows an administrator to draw out a map of the area the user login CHILD is allowed to travel within while logged into the vehicle." Ex. 1001, 16:67-17:3. Other types of restricted settings include "fuel use," "speed restrictions," "time specific driving," and "purchase settings." *Id.*, Fig. 4 (below).

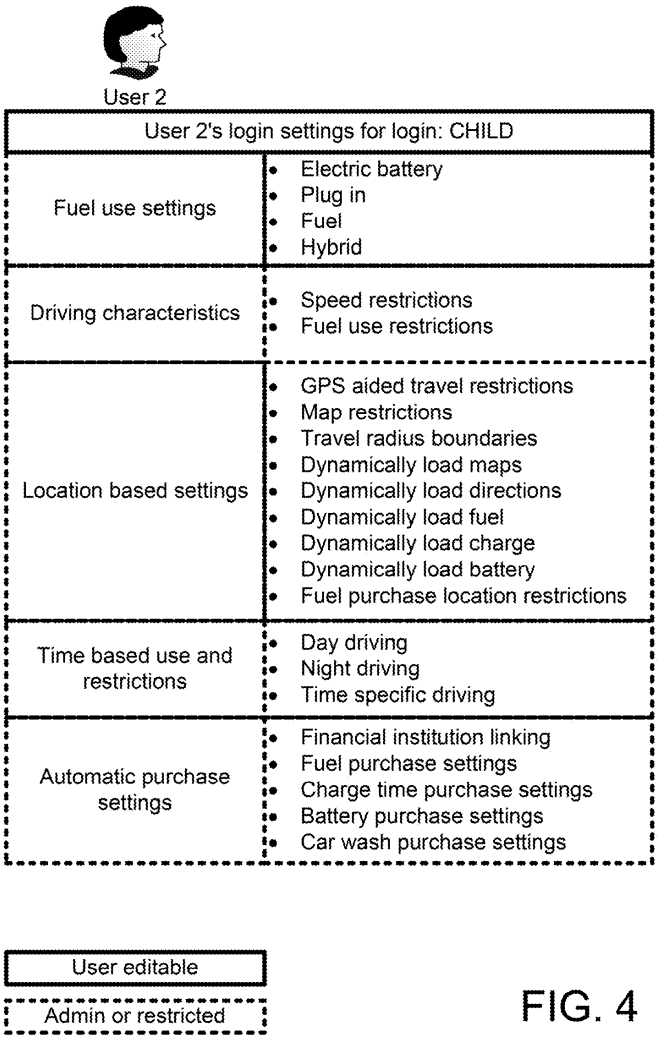


Fig. 4 of the '716 Patent

63. On the other hand, as shown in Fig. 5 (below), other settings, like

"comfort" settings including "climate, seat positions, seat heater/cooler," may be "configurable by the user." *Id.*, 17:4-17. Still, these types of settings can also be restricted by an administrator. *Id.*, 14:12-33 ("Login settings that can be set and remotely administered include . . . entertainment system settings (radio memory settings, internet access or restriction, streaming services settings) . . . .").

Fig. 5 of the '716 Patent

64. The patent also claims that a "learning engine" learns the user's preferences and generates a "recommended setting." *Id.*, 7:25-27; Claim 13. The specification does not describe a "learning engine," and indeed mentions the term only once. *Id.*, 7:26-31; *see also id.*, 31:54-58 (admitting "well known process operations have not been described in detail…"). Regarding "learning," the specification states that "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 (below).

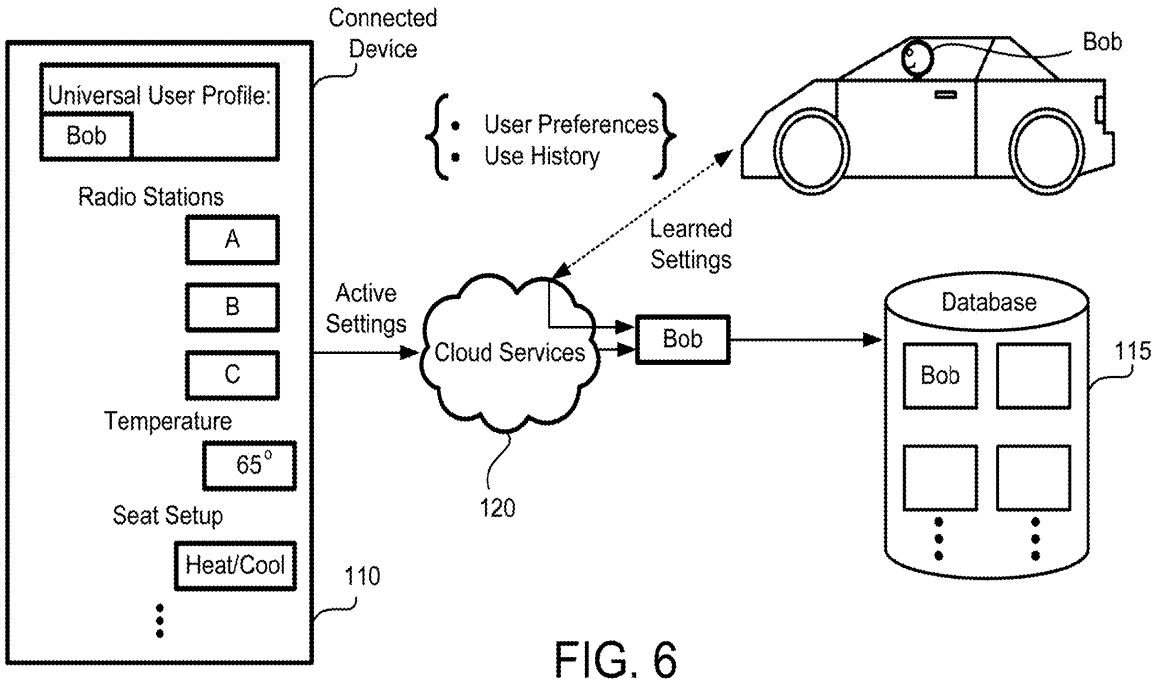


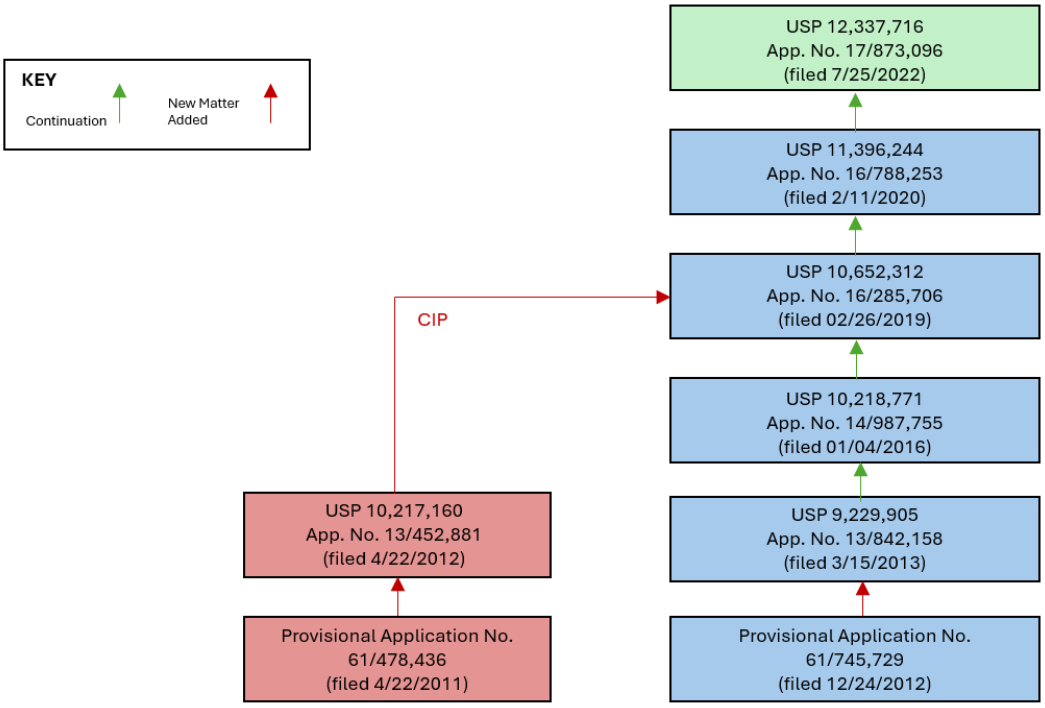
Fig. 6 of the '716 Patent

65. But prior art discloses the same claimed user settings and learning engine. As explained herein, it was commonplace and well-known to a POSA before the '716 patent to perform such claimed processes of saving and controlling particular settings using a server and using a learning engine to generate recommended settings, among other claimed features.

66. One field of endeavor of the '716 patent is systems and methods for managing user profiles for vehicles and exchange of information with cloud-based processing systems. *See, e.g.*, Ex. 1001, Abstract. Specifically, 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 [a] vehicle[.]" *Id.* The '716 specification likewise 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.

B. Priority Analysis of the '716 Patent

67. The '716 patent is part of a larger family of patents and patent applications, as summarized below:



68. As indicated in the graphic above, the application for the '716 patent was filed on July 25, 2022, which references two chains of applications—one dating back to U.S. Provisional Application No. 61/478,436 filed April 22, 2011, and one dating back to U.S. Provisional Application No. 61/745,729 filed December 24, 2012. I will refer to Applications 61/478,436 and 13/452,881 as the "first chain" of applications, depicted in red above.

69. The application for the '716 patent describes itself as a "continuation" of Application No. 16/788,253 filed February 11, 2020, which in turn is a

"continuation" of Application No. 16/285,706 filed February 26, 2019, which in turn is a "continuation-in-part" of Application No. 13/452,881 filed April 22, 2012. I understand that a continuation-in-part application typically repeats all or a substantial part of a prior application's disclosure and adds new subject matter not disclosed in the parent application. Only claims that are adequately disclosed in the parent application receive the benefit of the parent application's filing date, while any claim that recites a feature first introduced in the continuation-in-part application and that was not adequately disclosed in the parent application is not entitled to the filing date of the parent application. I understand that a "continuation" of a patent application typically discloses the same subject matter as the application that it "continues" from.

70. In reality, however, there are numerous differences between the application for the '716 patent (filed July 25, 2022) and the first chain of applications (Application No. 13/452,881 filed April 22, 2012, and Provisional Application No. 61/478,436 filed April 22, 2011). As can be plainly seen from an inspection of these applications, there is simply no disclosure of user "profiles" or vehicle "settings," including those associated with such user profiles. *See* Ex. 1008 (Provisional Application No. 61/478,436) and Ex. 1014 (Application No. 13/452,881). Instead, those applications are directed to "electric vehicle (EV) range extending charge systems, distributed networks or charge kiosks, and charge

locating mobile apps," and "processing charge availability and route paths for obtaining charge for electric vehicles," as their titles suggest. *Id.* The applications make passing reference to providing dynamic information to a user of "volt bars" (which the applications explain are just another word for "batteries," Ex. 1008 ¶ [0006]; Ex. 1014 ¶ [0008]), such as "suggested travel speeds to conserve energy, maps for routing, better dynamic traffic information based on real-time information, and other *settings*."[1] Ex. 1008 ¶ [00161]; Ex. 1014 ¶ [00209]. However, the applications do not explain how such "settings" have any relation to settings of a profile associated with a user account and that are used to customize the vehicle for the user. Thus, the subject matter of the challenged claims of the '716 patent (claims 1-13) is not supported by the first chain of applications.

71. The applications of the first chain also lack disclosure of certain other features claimed in the '716 patent, including a server receiving inputs made to systems of the vehicle during use while the vehicle is associated with the profile of the user account and determining 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 (claim 11); and a "learning engine" (claims 12-13).

[1] All emphasis added unless otherwise indicated.

72. Claim 11 of the ’716 patent depends from claim 7 and recites “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; 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.” Ex. 1001, 35:9-16.

73. Claim 12 of the ’716 patent depends from claim 11 and additionally recites “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.” *Id.*, 35:17-21.

74. Claim 13 of the ’716 patent depends from claim 12 and additionally recites “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.” *Id.*, 35:22-29.

75. In my opinion, the subject matter of these claims (11-13) is not supported by the first chain of applications. For example, Provisional Application 61/478,436’s disclosure of “history” relates to “history information of my purchases” and does not support the “learning engine” subject matter recited in

claims 12-13, or the updating of profiles based on inputs made to systems of the vehicle recited in claim 11. Ex. 1008, ¶¶ [0059], [00158]-[00163], Fig. 36. The claimed "learning engine" features relate to "find[ing] patterns in use of the systems of the vehicle while the profile was used with the vehicle," based on "inputs." *See, e.g.*, Ex. 1001, 35:17-21 (claim 12 of the '716 patent). The claimed updating of the profile in claim 11 is also based on "inputs made to systems of the vehicle during use of the vehicle while the vehicle is associated with the profile of the user account." *Id.*, 35:9-16 (claim 11 of the '716 patent). Application 61/478,436 does not and cannot explain how "history information of my purchases" is related to such inputs made to systems of the vehicle in the manner recited in claim 11, or how any "learning" could be done based upon them in the manner recited in claims 12-13. *See* Ex. 1008, ¶ [00159]. The same goes for the corresponding disclosure in Application 13/452,881. *See* Ex. 1014, ¶ [00206].

76. Thus, a POSA studying the disclosures in the first chain of applications would not have understood the inventors to have invented a system or method comprising "processing at least part of the user information to verify the access [of a profile for a user account], 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," as recited in claim 1, or "process[ing] data related to the identifier [for a

user] 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" as recited in claim 7. Also, a POSA studying the disclosures in the first chain of applications would not have understood the inventors to have invented a system or method 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; 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," as recited in claim 11, or the "learning engine" subject matter recited in claims 12-13.

77. Furthermore, some of the challenged claims are entitled to, at best, priority to Provisional Application 61/745,729 filed December 24, 2012 (Ex. 1012), while some of the challenged claims are only entitled to priority to Application 13/842,158 filed March 15, 2013. For example, claims 12-13 reciting a "learning engine," among other things, are entitled to a priority date of no earlier than March 15, 2013, because the "learning engine" subject matter first appeared in Application 13/842,158. *See generally*, Ex. 1015. Provisional Application 61/745,729's disclosure of "history" relates to "history of rout[e]s taken," Ex.

1012, ¶ [0026], or battery "charge history," *id.*, ¶ [0059], and does not support the "learning engine" subject matter. Claim 11, reciting a server determining settings to update based on inputs made to systems of the vehicle during use, while the vehicle is associated with the profile of the user account, is entitled to a priority date of no earlier than March 15, 2013, the date this subject matter first appeared (also in Application 13/842,158). The remaining challenged claims are entitled to a priority date of no earlier than December 24, 2012. Regardless, Provisional Application 61/745,729 was not filed early enough to antedate any of the prior art in the petition for IPR of the '716 patent.

C. Prosecution History of the '716 Patent

78. I have reviewed the prosecution history of the application that led to the '716 patent (Ex. 1002). I am not aware of anything in the prosecution history that changes my opinions expressed in this declaration.

79. To the extent Patent Owner relies on the prosecution history for some point relevant to my opinions, I reserve the right to respond in a future declaration.

D. Person of Ordinary Skill in the Art ("POSA")

80. I am informed that patentability must be analyzed from the perspective of a POSA in the same field as the '716 patent at the time of the invention. As previously discussed, the relevant time of invention is the patent's priority date, which is no earlier than March 15, 2013 for some claims and

December 24, 2012 for some claims.

81. I am also informed that several factors are considered in assessing the level of ordinary skill in the art, including: (1) the types of problems encountered in the art; (2) the prior art solutions to those problems; (3) the rapidity with which innovations are made; (4) the sophistication of the technology; and (5) the education level of active workers in the field.

82. The ’716 patent claims the benefit of U.S. Provisional Application No. 61/478,436 filed April 22, 2011, and U.S. Provisional Application No. 61/745,729 filed December 24, 2012.

83. Regardless of whether the priority date(s) for the ’716 claims are March 15, 2013, December 24, 2012, or April 22, 2011 (or any date in between), in my opinion, a POSA pertinent to the ’716 patent would have had at least a four-year undergraduate degree in electrical engineering, computer science, or a closely-related field, with at least two to four years of experience in the field of cloud services for settings customization. Additional education (such as a master’s degree in electrical engineering, computer science, or equivalent) could substitute for professional experience and vice versa. A POSA would also be able to understand and apply the prior art discussed herein.

84. Although I surpass this definition of one of ordinary skill in the art now and at the effective filing date of the ’716 patent, my analysis regarding the

’716 patent has been based on the perspective of a POSA as of the effective filing date of the ’716 patent.

85. I am also familiar with the knowledge of a POSA as of the effective filing date of the ’716 patent. I am able to opine on how a POSA would have understood the disclosure and claims of the ’716 patent, the disclosures of the prior art, the motivation to combine the prior art, and what combinations would have been obvious to a POSA.

86. My conclusions as to the profile of a POSA and all my conclusions in this declaration, including those relating to priority and unpatentability, would be the same regardless of the priority date. Moreover, I had or surpassed the level of skill of a POSA at all potentially relevant times, including as far back as April 22, 2011 (*i.e.*, the earliest priority date asserted by Patent Owner).

VI. CLAIM CONSTRUCTION OF TERMS OF THE ’716 PATENT

87. As I discussed above, I have been informed that for purposes of *inter partes* review, the standard for claim construction of terms within the claims of the patent is the same as that applied in federal district court litigation. I have been asked to assume that the claim terms have their plain and ordinary meaning to a POSA in light of the specification and the prosecution history. My opinions herein would not change under any reasonable interpretation of the claim.

88. I understand that the first district court litigation involving the ’716 patent was filed on August 12, 2025 in the Eastern District of Texas. To my knowledge, the ’716 patent is not involved in any other litigation. I have been informed that no claim construction has taken place for the ’716 patent. To the extent that Patent Owner offers a construction of any claim term, I reserve the right to respond.

VII. SUMMARY OF OPINIONS ON UNPATENTABILITY

89. The ’716 patent is generally directed to methods for transferring settings based on user profiles to vehicles. The challenged claims are claims 1-13 of the ’716 patent. Claims 1-13 are generally directed to cloud-based systems having one or more data centers, where servers have program instructions for transferring settings associated with user profiles to vehicles. Claims 7-13, although apparently directed to “systems,” additionally recite the systems “comprising:…” and list several *method* steps, including receiving a request, processing user information, and wirelessly exchanging settings data.

90. In my opinion, prior art renders the challenged claims unpatentable. For example, *Rector* (Ex. 1005), in combination with other prior art, renders obvious all the limitations of the challenged claims. The other prior art includes *Kleve* (Ex. 1006), *Xiao* (Ex. 1007), *Patenaude* (Ex. 1009), and *Hayashi* (Ex. 1013).

A. Summary of *Rector*

91. As an example of how the prior art renders the challenged claims unpatentable, *Rector*, entitled "Devices, Systems and Methods for Controlling Permitted Settings on a Vehicle," discloses methods of receiving a request, processing user information, and transferring settings, some of which are restricted for use on the vehicle.

92. *Rector* acknowledges the same safety concerns that the '716 patent purports to have recognized years later, namely, that certain controllable features and settings of vehicles may contribute to driver distractions. *Compare* Ex. 1005, ¶ [0004], *with* Ex. 1001, 12:3-21. Just like the '716 patent purports to address, *Rector* is directed to technologies that "can alleviate some of the[] distractions" facing immature or inexperienced drivers. Ex. 1005, ¶ [006], *see also id.*, ¶¶ [0004]-[0007]. It discloses systems and methods that can alter the permitted settings of a vehicle according to a driver's identity. *Id.*, ¶ [0008]. And just like the '716 patent, *Rector* discloses that an administrator (*e.g.*, a parent) can impose restrictions on their child's use of the vehicle. *Compare id.*, ¶¶ [0032]-[0033] ("The parent may prohibit these stations [and other settings] in the settings for the child."), *with* Ex. 1001, 11:35-37 ("[T]he child can be provided with restricted use of the vehicle.").

93. *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]. In an embodiment, *Rector* states that a smart vehicle captures a unique identifier from a driver, which is used to reference a database to determine settings for the driver. *Id.*, ¶ [0023]. These settings may be set by a "controlling authority," which may be, *e.g.*, "a parent or employer of the driver." *Id.* The 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]. An example of a system for controlling a driver's settings is shown in Fig. 1 (below), which illustrates a smart vehicle 100 wirelessly communicating with a settings server 130 via a network 140. *Id.*, ¶ [0030].

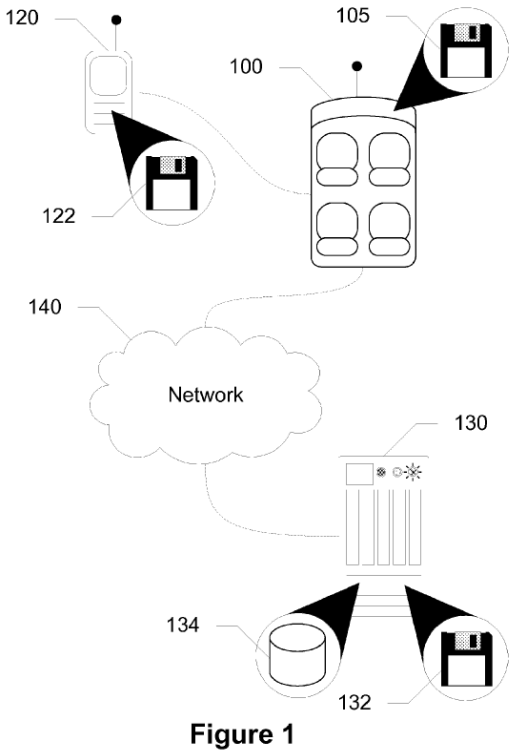


Fig. 1 of *Rector*

94. *Rector* describes an exemplary method with reference to Fig. 3 (below) in which a driver is identified (S351), his/her settings are looked up and transmitted to the vehicle (S352), and then, restrictions are applied to prevent the driver from adjusting vehicle features in an impermissible manner (S354 and S356). *Id.*, ¶ [0043]. *Rector* explains that steps are performed with a server, *e.g.*, "transmit[ting] the unique identifier . . . to settings server 130" and "compar[ing] with a set of unique identifiers on a server," "server logic 132 match[ing] the driver's identity with corresponding settings from database 134 on settings server 130," and "transmit[ting] the permitted settings to the client logic." *Id.*, ¶¶ [0031],

[0043], claim 1.

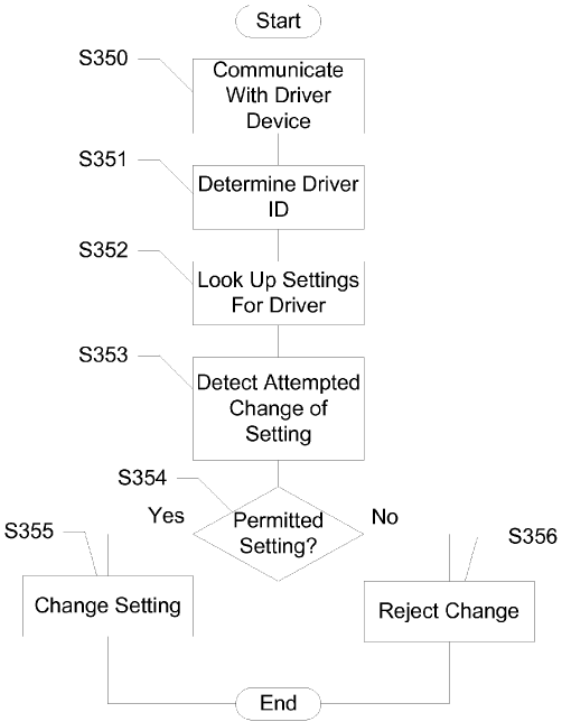


Figure 3

Fig. 3 of *Rector*

95. In one example, if the driver attempts to raise the radio volume above a permitted level, such change is rejected. *Id.*, ¶ [0043]. Similarly, if the driver attempts to change the radio station to a restricted channel, such change is blocked. *Id.*, ¶¶ [0043], [0059], Fig. 11 (below).

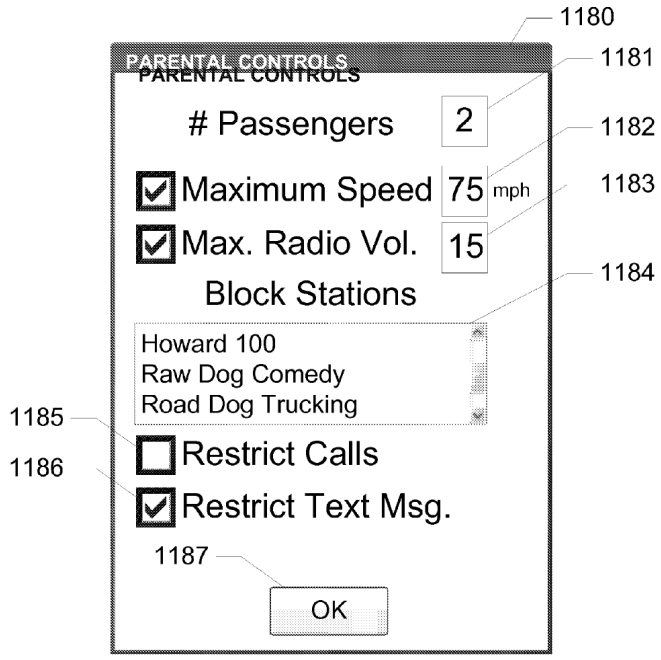


Fig. 11 of *Rector*

B. Summary of *Kleve*

96. *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 can create website accounts for the offer and acceptance of short-term vehicle rentals. Ex. 1006, Title, Abstract, ¶¶ [0036], [0056]. *Kleve* discloses that once the owner and temporary user come to an agreement, which includes having various restrictions made on usage of the vehicle, and when the temporary user is authorized/verified, the server will transmit a "virtual key" to the temporary user's mobile device which can be used to unlock and drive the rental vehicle. *Id.*, ¶¶ [0036]-[0049]. *Kleve* also discloses that the "Temporary User may have vehicle preset settings applied," such as "radio

presets, seat and mirror position" and other "personalization" when renting the vehicle. *Id.*, ¶ [0050], Fig. 3B (below). Also, the "Temporary User may set up a user profile," which may include details about the vehicle he/she intends to rent. *Id.*, ¶¶ [0037], [0086]. And further, certain restrictions can be made on use of the vehicle. *Id.*, ¶¶ [0038], [0042], [0053] (*e.g.*, involving taking remedial action if it is determined that the user is abusing the vehicle, like playing the stereo too loud).

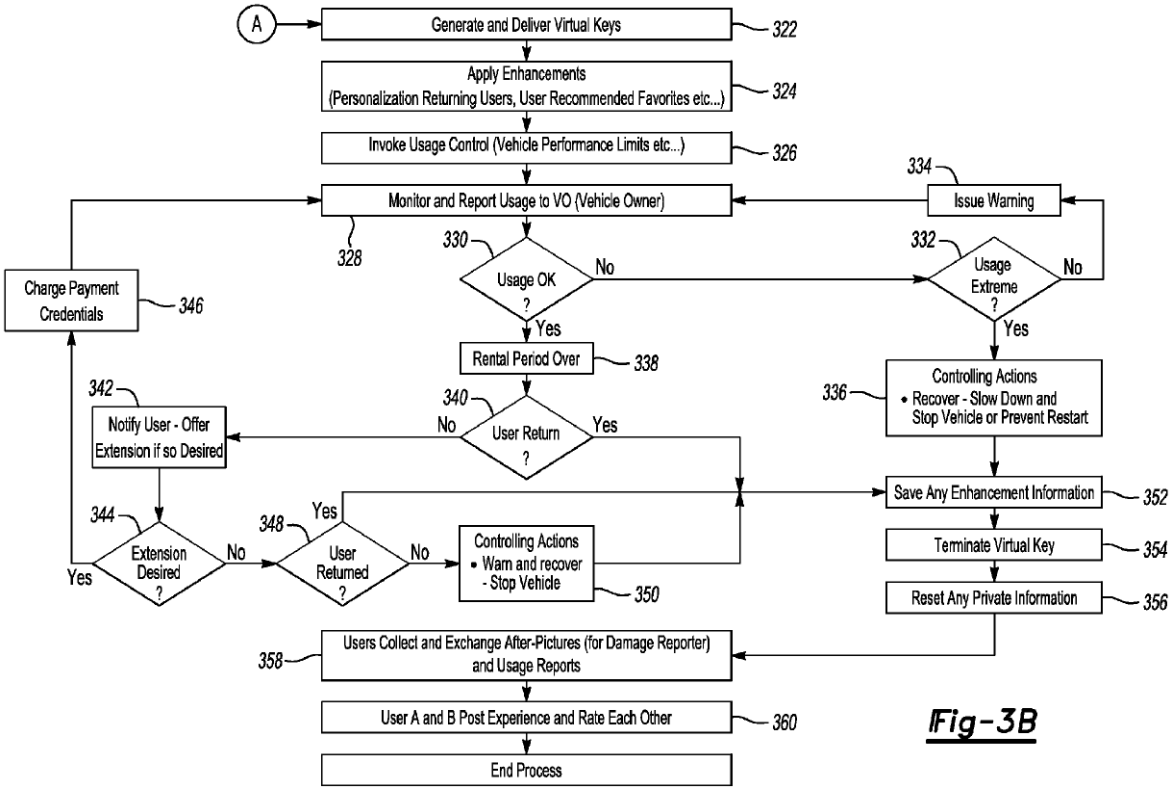


Fig. 3B of *Kleve*

97. *Kleve* explains that its processes "may be executed by a computing system in communication with a vehicle computing system" which may include "a

server.") *Id.*, ¶ [0035]. For example, *Kleve* describes "remote credential verification" that "us[es] a server." *Id.*, ¶ [0049]. In particular, the temporary user "enter[s] 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 . . . .").

98. Fig. 6 illustrates a rental micro-business system that includes verification of renter credentials by a server, and thereafter allowing access to the vehicle and applying personal settings.

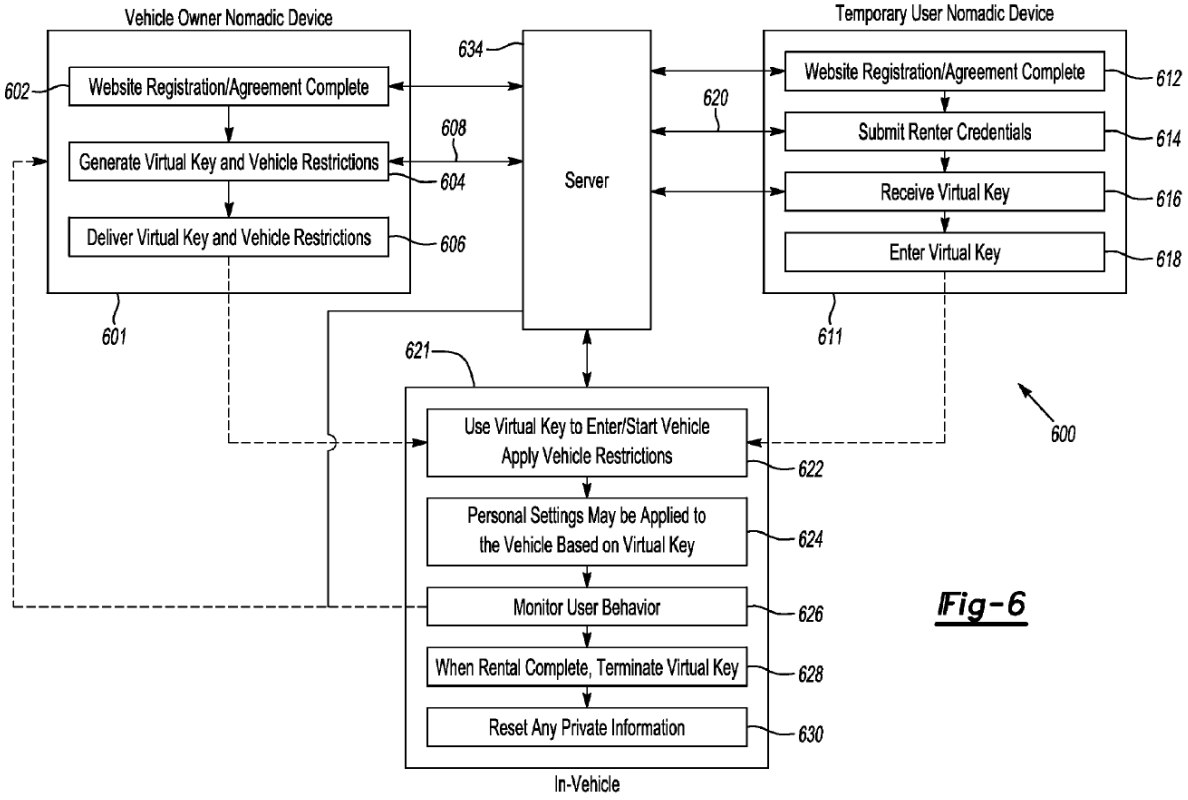


Fig-6

C. Summary of *Xiao*

99. *Xiao*, entitled "Methods and Systems for Providing a Wireless Automobile Key Service," discloses a system and method that "enables an operator of an automobile to use the operator's mobile device, such as a cell phone, to lock/unlock the automobile, to power on/off the automobile, or to affect other automobile operations." Ex. 1007, ¶ [0023]. *Xiao* further explains that its 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* describes compatibility of certain settings by disclosing "appropriate command codes" being sent to appropriate automobile modules to achieve desired settings. *Id.*, ¶¶ [0103]-[0104].

100. *Xiao* further describes wireless automobile key service information 600 stored in a storage device of an automobile service server 118 that includes operator profile information 614. *Id.*, ¶¶ [0061], [0064]-[0066]. As described in *Xiao*, such "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 system preferences." *Id.*, ¶ [0069]. *Xiao* discloses preferences including climate, comfort, and audio settings, among others. *Id.*, ¶¶ [0069]-[0071]. *Xiao* discloses "customiz[ing] the settings of one or more systems of the automobile 112 based on

the operator's profile." *Id.*, ¶ [0119]. "For example, server 118 may monitor the Internet 108 via communication interface 512 for a request from a mobile device 110 or a terminal device 122 to unlock the door of an automobile 112, to start the engine of an automobile 112, and/or to *customize the settings of one or more systems of an automobile 112 based on an operator profile*." *Id.*, ¶ [0124]; *see also id.*, ¶ [0126].

101. *Xiao* also discloses a graphical user interface ("UI"), including page 900 that may be displayed to an automobile operator using a mobile device. *Id.*, ¶¶ [0095]-[0097]. *Xiao* explains that the UI works with server 118 to retrieve corresponding profile information 614 that identifies certain desired settings of vehicle systems. *Id.*, ¶ [0102]. For example, "the operator profile information 614 may indicate the operator's desired climate system settings (e.g., 80° F. cabin temperature and high fan speed), desired audio system settings (e.g., 101.1 FM, volume 10, and certain station presets 1-5), desired operator comfort settings (e.g., a certain set position and set seat warmer setting), and desired operator awareness settings (e.g., a certain rearview mirror position and certain side mirror positions)." *Id.*

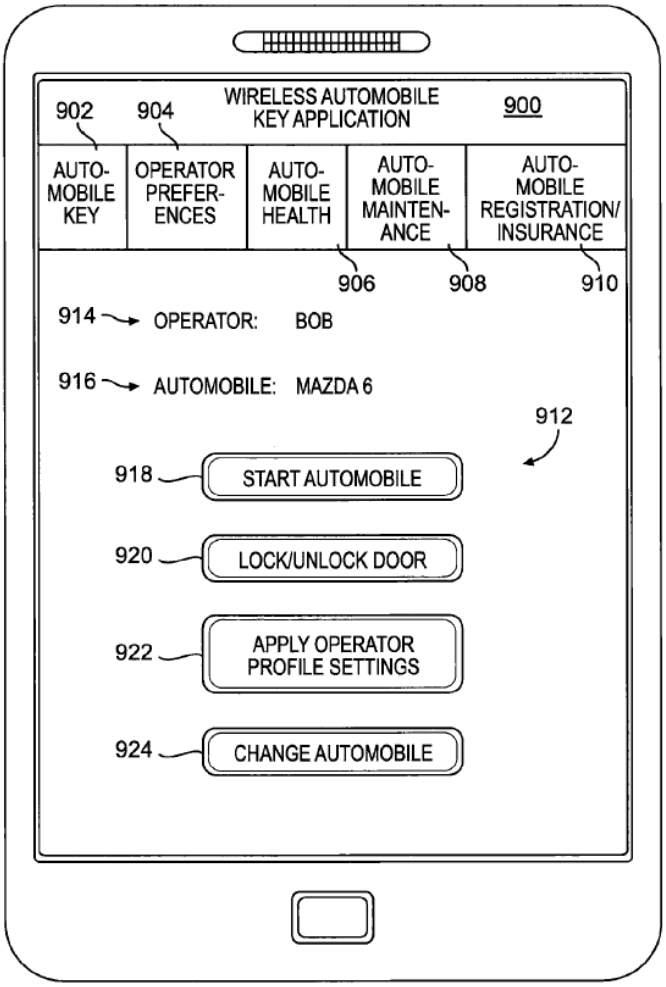


FIG. 9

Fig. 9 of *Xiao*

102. *Xiao* demonstrates the concept of compatibility of certain settings by disclosing "appropriate command codes" being sent to appropriate automobile modules. *Id.*, ¶¶ [0103]-[0104]. *Xiao* explains its server generates or retrieves "appropriate command codes 632" corresponding to an operator's desired settings and a particular vehicle. *Id.*, ¶ [0103]. For example, Fig. 6 (shown below) includes a table of command code information 606 with entries for each of an automobile

ID 628, a command ID 630 (which is "associated with the operator's desired system settings 614"), and an appropriate command code 632. *Id.* These command codes 632 are "associated with each command that may be issued to the automobile 112." *Id.*, ¶¶ [0088], [0103]. By listing them in the table of automobile command code information 606, *Xiao* shows that there are particular settings compatible with particular automobiles and particular desired settings.

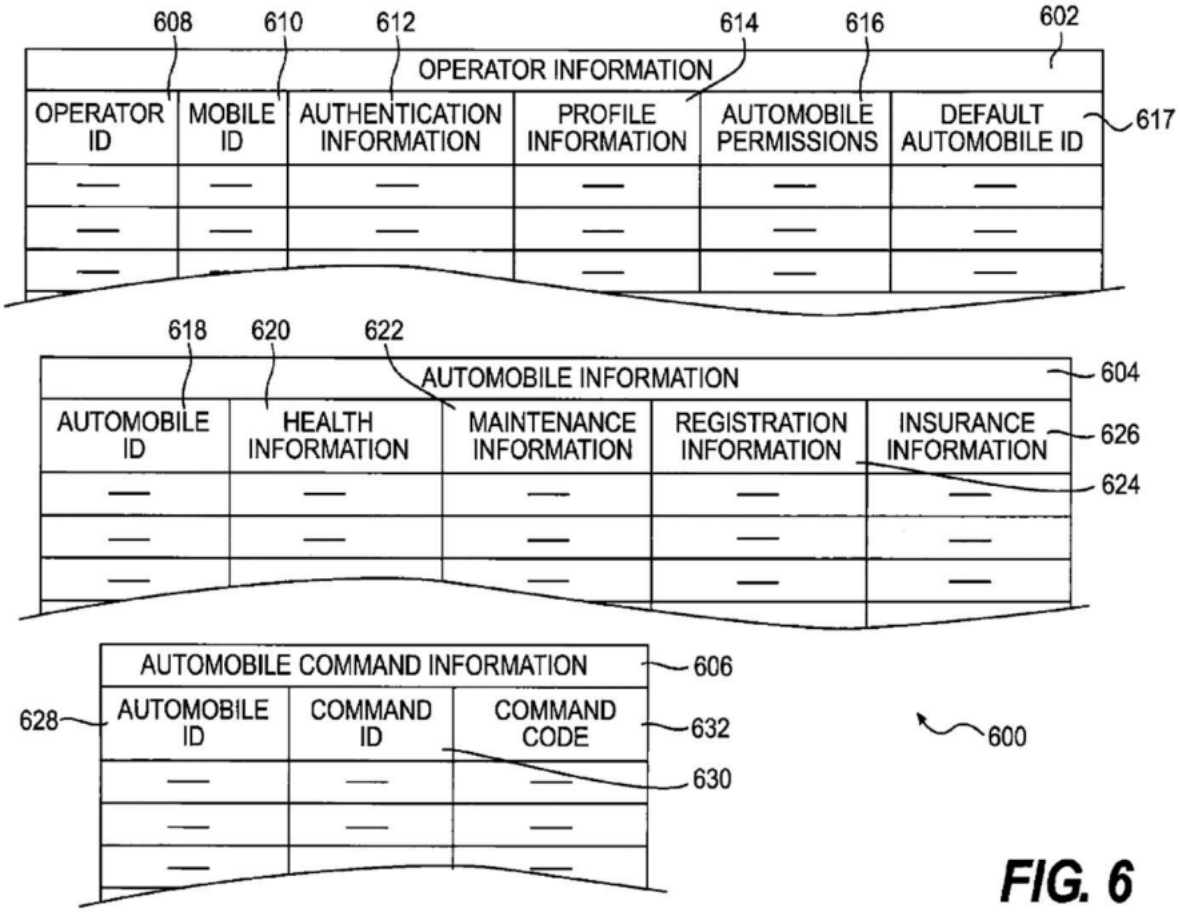


FIG. 6

Fig. 6 of *Xiao*

103. Thus, *Xiao* demonstrates the necessarily present characteristics that

certain settings (*e.g.*, commands) are compatible (or incompatible) with certain automobiles.

104. As an illustration, for an automobile having automobile ID 628, the operator's desired setting can be achieved using a command code (632) specific to that automobile. *Id. Xiao* explains that "command code 632 may be a specific code or instruction that may be broadcast on automobile network 420 and executed by a module 402-418 aboard the automobile 112 to cause the module 402-418 to perform the desired function." *Id.*, ¶ [0088]. "For example, command codes 632 may be CAN bus codes or other codes provided by the manufacturer of automobile 112 and/or the manufacturer of the automobile systems for controlling the systems to perform various functions." *Id.*

D. Other Prior Art

105. The secondary references, *Patenaude* (Ex. 1009), and *Hayashi* (Ex. 1013), in my opinion, demonstrate other well-known elements of vehicle wireless communication systems present in the art, namely, determining and applying learned settings (claims 12 and 13), and determining compatibility of settings to vehicles and transmitting and applying only compatible settings instructions (claims 5 and 6).

106. In the analysis that follows, I identify the following prior art that, in my opinion, discloses or renders obvious the challenged claims of the '716 patent

and explain the supporting reasoning:

Grounds of Unpatentability	
1	*Rector* in combination with *Kleve* and *Xiao* renders obvious claims 1-11
2	*Rector* in combination with *Kleve*, *Xiao*, and *Patenaude* renders obvious claims 12-13
3	*Rector* in combination with *Kleve*, *Xiao*, and *Hayashi* renders obvious claims 5-6

VIII. GROUND 1: OBVIOUSNESS OF CLAIMS 1-11 IN VIEW OF *RECTOR*, *KLEVE*, AND *XIAO*

107. As detailed below, in my opinion, *Rector* in view of *Kleve* and *Xiao* renders claims 1-11 obvious.

A. A POSA would have combined *Rector* and *Kleve*

108. A POSA would have found it obvious to combine the system and architecture for server-managed driver profiles in *Rector* with the *Kleve* system for credentialing and pairing using a centralized server workflow, in order to create a cloud-based system capable of authenticating a user and transferring the user's settings to the vehicle for use. For example, *Rector* discloses a smart vehicle that collects a "unique identifier" for a user or device such as a "MSISDN, IMSI, MAC address, etc.," and "transmit[] the unique identifier and location to [a] settings server" over a network, such as "via WiFi, GPRS, or other protocols capable of communicating such information across a wide-area network such as the Internet."

Ex. 1005, ¶¶ [0030]-[0031]. *Rector* further discloses that the "settings server 130 includes settings for the driver that is associated with the unique identifier." *Id.*, ¶ [0031], Fig. 1. Logic in the server "matches the driver's identity with corresponding settings from database 134 on settings server 130." *Id. Rector* discloses that the in-vehicle settings "may include seat and mirror positions, programmed radio stations, temperature controls," maximum allowed speed, or wireless device controls. *Id.*, ¶¶ [0031]-[0034].

109. *Kleve* discloses a "centralized system 401" that is a "server system that includes processing capability … designated to interact with a remote vehicle." Ex. 1006, ¶¶ [0056]-[0057], Fig. 4. The specification further describes routing device or vehicle communications "through a network 406 (e.g., without limitation, cloud computing, the internet,) to a centralized system 401." *Id.*, ¶ [0056]. *Kleve* further discloses a "pair[ing]" or authorization process, after which the system "may send personal settings to the vehicle including, but not limited to, radio station presets, navigation routes, and/or preferred climate control settings." *Id.*, ¶ [0072].

110. As described above, both *Rector* and *Kleve* describe transmitting user or driver settings to a vehicle and then applying those settings to the vehicle in new and improved ways, such as by adding convenience, safety, or security. *See, e.g.*, Ex. 1005, ¶¶ [0049], [0059]; Ex. 1006, ¶¶ [0040], [0049], [0050], [0053], [0079],

Fig. 3B. Further, the user or driver settings described in both *Rector* and *Kleve* include multimedia settings such as preferred radio stations. *See, e.g.*, Ex. 1005, ¶¶ [0008], [0023]; Ex. 1006, ¶¶ [0050], [0072].

111. *Kleve* teaches that "[t]he system may be further extended to facilitate the virtual key with additional security by requiring remote credential verification at the vehicle." Ex. 1006, ¶ [0049]. *Rector* similarly describes using "secondary sensors," such as "a biometric identifier 514, for instance, a fingerprint scanner," for "security purposes." Ex. 1005, ¶ [0049].

112. A POSA, when working with the system disclosed in *Rector*, would have recognized that there were additional ways to improve the vehicle-side verification/security found in *Rector*. A POSA would have identified that security in *Rector*'s system could be improved on the server side of the system. The POSA would have had reason to look to the server-side verification taught in *Kleve* as a natural and straightforward improvement of adding "additional security." Ex. 1006, ¶ [0049].

113. This combination would have been further motivated by *Kleve*'s proposed market use in rental or fleet vehicle programs, which would motivate a POSA to have user profile portability across vehicles and have centralized verification coordination and settings delivery consistent with the server-stored settings described in *Rector*. The demand in *Kleve* for user profile portability

within a heterogenous vehicle fleet is answered by the user profile database and server-based selection, and the combination results in a cloud-to-vehicle user profile system described in the challenged claims.

114. As another example, both *Rector* and *Kleve* identify or verify a device or driver. *Rector* teaches using a "unique identifier" for a device or driver that the server matches to a stored user profile. Ex. 1005, ¶¶ [0030]-[0031]. *Kleve* recites credentialing or pairing mechanisms such as fingerprint or other biometric sensing or virtual key that can be used to trigger authorization and application of settings. *See, e.g.*, Ex. 1006, ¶¶ [0059], [0076]. Supplementing or replacing the unique identifier verification in *Rector* with the server-side credentialing in *Kleve* would be straightforward. It would further meet the same goal of verifying the user before applying that user's settings. *See infra*, ¶¶ 138-141, 148-149, 194.

115. Further, both *Rector* and *Kleve* communicate and utilize the same types of user settings in vehicles. For example, the server in *Rector* selects user settings from a database, such as "seat and mirror positions, programmed radio stations, [and] temperature controls," which the vehicle applies accordingly. Ex. 1005, ¶¶ [0031]-[0034]. *Kleve* teaches that many of those same types of user profile settings ("including, but not limited to, radio station presets, navigation routes, and/or preferred climate control settings") are transmitted and applied to the vehicle after pairing. Ex. 1006, ¶ [0072]. Because both *Kleve* and *Rector*

manipulate and transmit the same classes of user settings in server-to-vehicle messaging, minimal experimentation would be necessary to integrate the above identified aspects of the two references and the result of such integration would be predictable to a POSA.

116. A POSA would reasonably expect a combination of *Rector* and *Kleve* to work without undue experimentation. As described in each reference, the identified subsystems utilize standardized interfaces and complementary technologies. For example, both references described communication of settings occurring over wide-area networks such as the Internet. *Rector* states that transmissions of the unique identifier and location to settings server 130 "may occur via WiFi, GPRS, or other protocols capable of communicating such information across a wide-area network such as the Internet." Ex. 1005, ¶ [0031]. Similarly, *Kleve* routes messages in its centralized system to a remote vehicle "through a network 411 (e.g., without limitation, the cellular network, the internet, etc.)." Ex. 1006, ¶¶ [0056]-[0057]. Interfacing such standardized network communications would have been routine for a POSA at the time of the alleged invention.

117. For at least the above reasons, a POSA would have been motivated, and found it obvious, to combine the teachings of *Rector* and *Kleve*.

B. A POSA would have combined *Rector* and *Kleve* with *Xiao*

118. A POSA would have found it obvious to further combine the combined system above with *Xiao*'s teaching regarding determining settings that are applicable to, or compatible with, given vehicle identity. *See, e.g.*, Ex. 1007, ¶¶ [0086]-[0089], [0103]-[0104], Fig. 6. In attempting to further improve on *Rector*/*Kleve*, it would have been natural to look toward one of the known techniques in the prior art.

119. For example, *Rector* discloses that the "vehicle" as used therein "includes cars, trucks, and buses, as well as aircrafts and watercrafts." Ex. 1005, ¶ [0028]; *see also id.*, ¶ [0039] ("The vehicle can be any car, truck, boat, or aircraft."). A POSA would have understood that such a wide variety of vehicle types would necessarily include different functions. For example, settings for a car, truck, or bus would not be appropriate for (and likely not compatible with) an aircraft or watercraft. It would have been logical and straightforward for a POSA to implement instructions in a server that is verifying and retrieving settings from a vehicle to also confirm that only settings compatible with the specific recipient vehicle type are delivered. One such system is taught by *Xiao*. *Xiao* discloses that the "automobile service server 118 may retrieve appropriate command codes 632 for these systems from automobile command code information 606." Ex. 1007, ¶ [0103]. "For example, automobile service server 118 may look up appropriate command codes 632 based on the automobile ID 627 and on the command IDs 630 associated with

the operator's desired system settings 614." *Id*. *Xiao* further describes that the server "may generate one or more commands based on the retrieved command codes 632 to control the automobile systems to achieve the operator's desired settings," and "then transmit the generated command(s) to the automobile 112 over the Internet 108." *Id.*, ¶¶ [0103]-[0104].

120. The incorporation of *Xiao*'s described compatibility functions with the system described by *Rector* and *Kleve* would have provided predictable benefits. For example, by preventing incompatible commands from being erroneously transmitted and misinterpreted by a vehicle, the combination improves safety. *See infra*, ¶¶ 258, 166-68. Similarly, because the vehicle receives only settings the vehicle can execute (and execute correctly), the combination increases reliability. Further, by filtering out incompatible settings and only communicating compatible, usable settings, the combination simplifies the user experience.

121. A POSA would have expected to be successful in combining *Xiao* with *Rector* and *Kleve*. The subsystems described in each of the references communicate over traditional and conventional wide area network or cloud-based communication pathways. For example, *Rector* teaches that the vehicle sends a unique identifier to the server, which the server uses to "match[] the driver's identity with corresponding settings from database 134." Ex. 1005, ¶¶ [0030]-[0031]. *Kleve* describes a system that performs "remote credential verification … using a server," and then applies

personal settings or presets. Ex. 1006, ¶¶ [0049], [0072]. The server in *Xiao* "retrieve[s] appropriate command codes 632" "based on the automobile ID" and then transmits those appropriate codes to the vehicle for execution by onboard systems. Ex. 1007, ¶¶ [0102]-[0104]. Furthermore, each reference has the same general telematics information flow to and from the server, from a vehicle or device to a server for verification or profile purposes, and then from the server to a vehicle for programming. *See, e.g.*, Ex. 1005, ¶¶ [0030]-[0031], [0043]; Ex. 1006, ¶¶ [0056]-[0057], [0069]-[0072]; Ex. 1007, ¶¶ [0024], [0061], [0103]-[0104]. Therefore, integrating *Xiao*'s compatibility check between verification and transfer would have been routine and could have been achieved without undue experimentation. Adding *Xiao* to the combination of *Rector* and *Kleve* would have been the predictable use of known methods to improve the combined system in a way taught by the prior art, namely ensuring that profile settings to be sent to a vehicle from the cloud are compatible with vehicle type.

C. Independent Claim 1

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:"

122. Assuming the preamble is limiting, it is my opinion that *Rector* discloses this limitation. For example, *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 (*e.g.*, "servers . . . placed at several logical points on [a] network"). Ex. 1005, ¶ [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]. *Rector* also explains that "[a] particular logic unit is not limited to a single logical location on the network." *Id.*, ¶ [0025]. *Rector* further explains that one "server" can include others. *Id.*, ¶ [0027] ("A settings server can include several network elements, *including other servers* . . . ."). Thus, *Rector* discloses "data centers" in at least the same level of detail as the '716 patent. *See* Ex. 1001, 9:5-8 ("data centers that include multiple computing systems . . .").

123. *Rector* also discloses its servers have program instructions for enabling connections with vehicles and providing services to vehicles (*e.g.*, "logic" included in servers may "hav[e] the form of instruction signals and/or data that may be applied to direct the operation of a processor"), *see* Ex. 1005, ¶ [0025], wherein one service includes enabling access to settings associated with profiles of user accounts (*e.g.*, "the settings server including a user account . . . the user account including permitted settings for the user"). *See* Ex. 1005, Title, Abstract, ¶¶ [0009]-[0010], [0025], [0027], [0030]-[0034], [0043], [0059] ("limiting services offered by the network during the course of driving the smart vehicle"), Fig. 1.

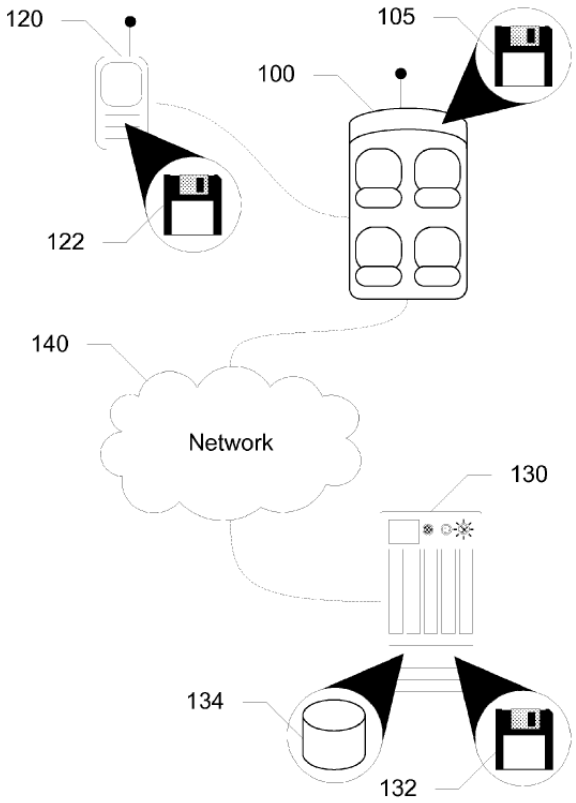


Figure 1

Fig. 1 of *Rector*

124. Therefore, it is my opinion that *Rector* discloses this preamble.

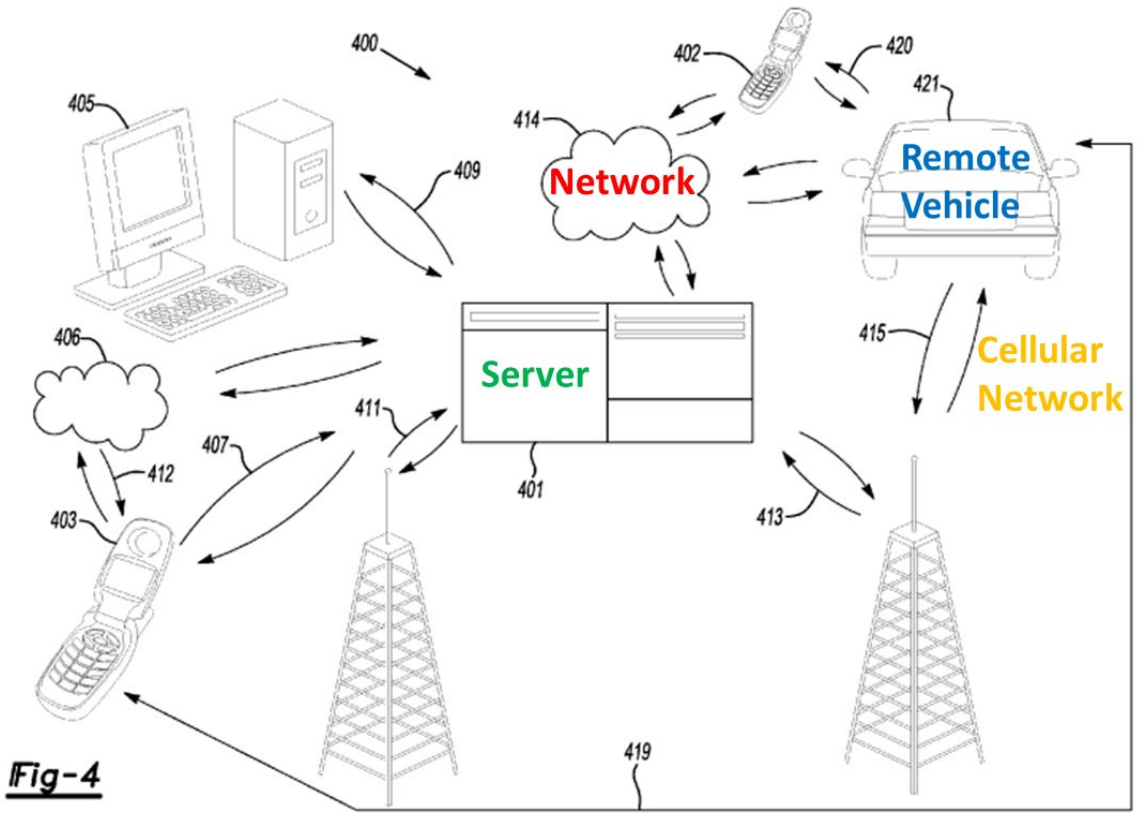
125. In addition, this claim preamble is identical to the claim 17 preamble of the '244 patent, as shown below:

'716 1[preamble]	**'244 17[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:	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:

Ex. 1016, 34:66-35:6.

126. In addition to *Rector*'s disclosure of this element, it is also made obvious by a combination of *Rector* and *Kleve*. *Kleve* discloses a cloud services system hosted in a data center with one or more backend servers handling vehicle messaging. *Kleve*'s centralized system communicates to the remote vehicle over Internet/Wi-Fi/Bluetooth links. Ex. 1006, ¶¶ [0056]-[0061]. For example, *Kleve*

describes a centralized backend that routes messages "through a network 406 (e.g., without limitation, cloud computing, the internet,) to a centralized system 401." *Id.*, ¶ [0056]. The centralized system "route[s] an incoming signal … to the appropriate remote vehicle." *Id.*, ¶ [0057]. *Kleve*'s centralized workflow executes authorization/routing logic such that, after pairing/credentials, the system "may send personal settings to the vehicle including … radio station presets, navigation routes, [and] preferred climate control settings." *Id.*, ¶ [0072].



Id., Fig. 4.

127. Both *Rector* and *Kleve* teach program instructions as driving the relevant functionality. As described above, in *Rector*, the "server logic 132

matches the driver's identity with corresponding settings," *see* Ex. 1005, ¶ [0031], and "transmit[s] the permitted settings to the client logic." *Id.*, ¶ [0009]; *see also id*., ¶¶ [0030]-[0034], Fig. 1. *Rector* further describes "client logic 105" that implements those settings in the vehicle. *Id*., ¶ [0030]-[0031]. In *Kleve*, as described above, the centralized workflow executes authorization/routing logic for communicating user settings to the vehicle.

128. *Rector* and *Kleve* also disclose providing access to user profiles or settings for application in the vehicle. The server in *Rector* determines the permitted settings for the user and transmits them to the client logic for in-vehicle application of user preferences such as seat, radio, and climate. Ex. 1005, ¶¶ [0030]-[0034], Fig. 1. In *Kleve*, after authorization, the cloud "may send personal settings to the vehicle including … radio station presets, navigation routes, [and] preferred climate control settings." Ex. 1006, ¶ [0072]. Therefore, the combination of the server-stored profile selection, server/client program logic, and profile application of *Rector* with the cloud/data-center servers, wireless cloud to vehicle routing, credentialling/pairing, and personal settings transmission results in the claimed preamble cloud services system with a data center having one or more servers, program instructions, wireless communication with vehicles, and profile/settings access and application.

129. Accordingly, in my opinion, *Rector* and *Kleve* disclose this limitation.

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;"

130. It is my opinion that *Rector* discloses this limitation. *Rector* discloses a request originating from a vehicle (*e.g.*, smart vehicle 100), and which is received by a server (*e.g.*, settings server 130). Ex. 1005, ¶¶ [0008], [0009], [0023], [0030]-[0031], Fig. 1. Such a request is to access a profile for a user account (*e.g.*, settings for the driver), and it identifies user information (*e.g.*, a unique identifier) for a user to use the vehicle. *Id.* In *Rector*, the user/driver is associated with a "user account," which "includes several attributes for a particular user, including a unique identifier . . . [and] driver settings, and other information." *Id.*, ¶¶ [0009], [0027].

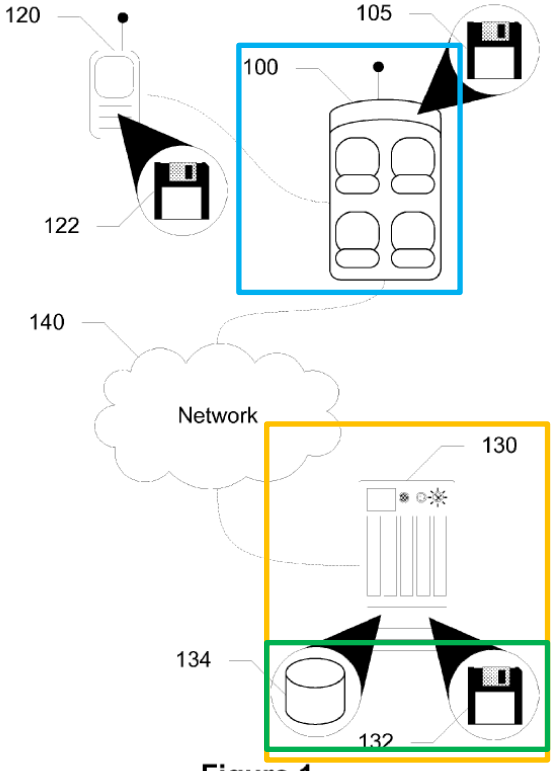


Figure 1

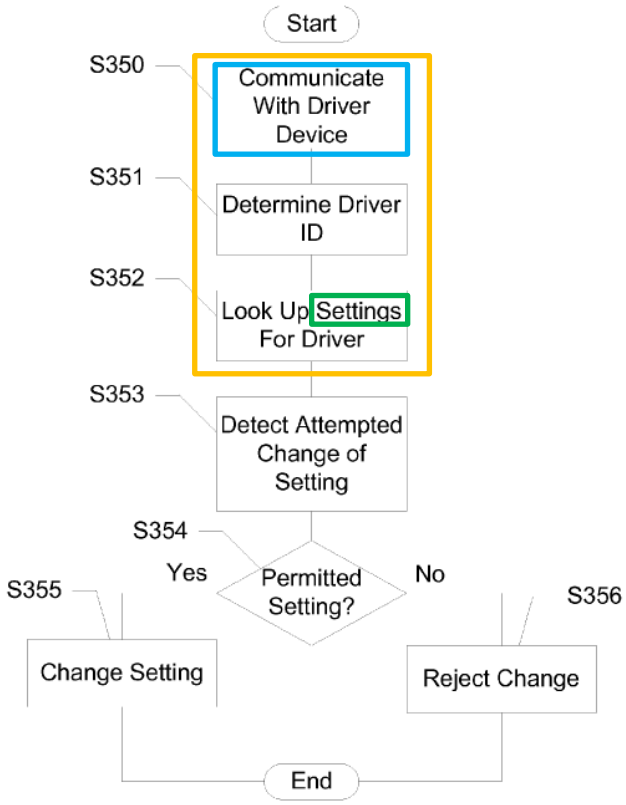


Figure 3

Annotated Figs. 1 and 3 of *Rector*

131. Specifically, *Rector* 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. Smart vehicle 100 contains client logic 105, which "may be formed from combinations of software and hardware." *Id.*, ¶¶ [0025], [0030]. With reference to the method of Fig. 3, *Rector* explains that communication between the 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 associated with a driver (*e.g.*, his/her device, smart card) detected by electronics (*e.g.*, transceiver, smart card reader) of 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.").

132. *Rector* discloses various examples of a server receiving a request from electronics of a vehicle, as reflected in *Rector*'s claims for "a settings server on the network, the settings server including a user account for a user of the wireless communication device, the user account including permitted settings for the user; a client logic on the smart vehicle to retrieve a unique identifier from the wireless communication device and *transmit* the unique identifier *to the settings server*; and 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 . . . ." *Id.* ¶¶ [0030]-[0031], [0043], [0055], [0057], claims 1, 11 ("requesting a unique identifier from a wireless communication device in communication with a smart vehicle").

133. Therefore, it is my opinion that *Rector* discloses this limitation.

134. In addition, this claim element includes the same substance as claim elements 1[a] and 17[a] of the '244 patent, as shown below:

’716 1[a]	’244 1[a]	’244 17[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;	receiving, by the server, a request from electronics of a vehicle to access a profile for a user account, the request identifies user information for a user to use the vehicle;	receiving, by one of the servers, a request from a vehicle to access a profile for a user account associated with a user, the request identifies user information related to a user;

Ex. 1010, pp. 6-7; Ex. 1016, 33:12-15, 35:7-10.

135. Further supporting my opinions, in IPR2024-00814, the Board determined in its initial decision granting institution of IPR that there was sufficient explanation and evidence that *Rector* discloses this claim element. Ex. 1010, p. 24 (“. . . Petitioner has provided sufficient explanation and supporting evidence that Rector discloses these limitations for the purposes of institution.”); *id.*, p. 36 (“. . . Petitioner has provided sufficient explanation and supporting evidence that Rector in combination with Kleve renders independent claim 17 obvious.”).

136. In addition to disclosure by *Rector*, the combination of *Rector* and *Kleve* further discloses this limitation. *Kleve* describes a centralized backend that routes communications “through … cloud computing … to a centralized system 401” and controls authorization such that, upon pairing/credentials, the system proceeds to access and deliver the user’s personalized information to the vehicle. Ex. 1006, ¶¶ [0056]-[0057], [0069]-[0072]. It is my opinion that a POSA would

combine *Kleve*'s server-side credential/pairing workflow and cloud routing with *Rector*'s vehicle-client initiation so that, when the vehicle electronics detect the user (or pairing/credentials), they send a request to the cloud server to access the corresponding user account/profile using the identified user information.

137. Accordingly, in my opinion, *Rector* and *Kleve* render this limitation obvious.

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 for the profile being stored on storage accessible to said one or more servers; and"

138. As described above, a POSA working with the system of *Rector* would have been motivated and found it obvious to enhance *Rector* with the teachings of *Kleve*, and would have done so for multiple reasons. *See* § VIII.A, *supra*, ¶¶ 148, 194, *infra*.

139. For example, one would have considered the teachings of *Kleve* for improving the security of *Rector*, and would have had a reasonable expectation of success in doing so. *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]. *Rector* states that secondary sensors, such as biometrics identifiers, may be used "for security purposes."

Ex. 1005, ¶ [0049]. Thus, *Rector*, which discusses vehicle-side verification, is ready for improvement of its verification method, and applying *Kleve*'s server-side verification would be a natural, straightforward way that its system could be "extended" with "additional security," as taught by *Kleve*.

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

141. For example, *Rector* illustrates the importance of automobile safety, pointing out the risks of driver distractions, and aspiring to reduce such distractions by "plac[ing] restrictions or otherwise creat[ing] settings for the driver." Ex. 1005, ¶ [0007]; *see also id.*, ¶¶ [0004]-[0006]. *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]. *Kleve* also recognizes the importance of ensuring "safe … continued operation," and describes methods of monitoring the temporary user's use of the vehicle and applying restrictions, if necessary (*e.g.*, when operating the vehicle under excessive/extreme conditions). Ex. 1006, ¶¶ [0040], [0053], [0079]. *Kleve* describes 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]. Both *Rector* and *Kleve* pertain to transmitting and applying user settings to a vehicle in improved (*e.g.*, more convenient/secure) ways. Ex. 1005, ¶¶ [0049], [0059]; Ex. 1006, ¶¶ [0049]-[0050], Fig. 3B. Furthermore, both *Rector* and *Kleve* describe "settings" as including multimedia settings, such as preferred radio stations. Ex. 1005, ¶¶ [0008], [0023]; Ex. 1006, ¶¶ [0050], [0072].

142. Turning to the disclosures of the references, *Rector* describes, referencing Fig. 3, that step S351 includes determining the identity of the driver, which may be performed by comparing the unique identifier "with a set of unique identifiers on a server on a network." Ex. 1005, ¶ [0043].

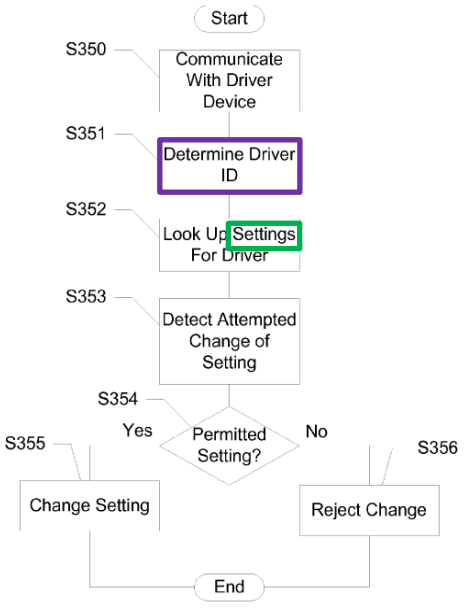


Figure 3

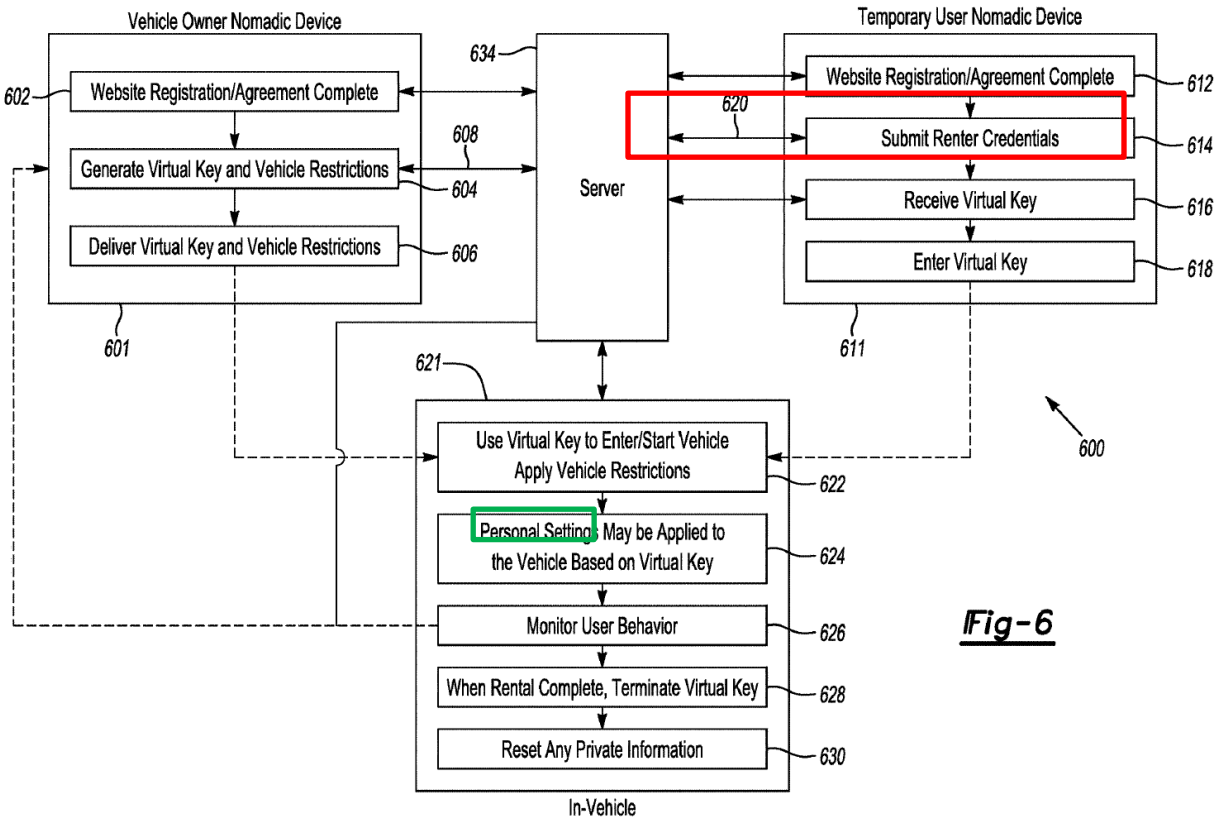
143. *Rector* states it is the *server* that "associate[s] the unique identifier with the user account, [and then] determine[s] the permitted settings for the user." *Id.*, ¶ [0009], claim 1. *Rector*'s method comprises "look[ing] up settings for the driver." *Id.*, ¶ [0043]. And such settings include "driver created settings as well as controlling authority settings, such as parental controls, based upon the driver's identity . . . ." *Id.*, ¶ [0031].

144. *Rector* discloses several means of 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." *Id.*, ¶ [0047]. Such means include using "a 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]. One of ordinary skill would understand that comparing an acquired fingerprint to a database of stored fingerprints is an example of "verifying."

145. Next, *Rector* further 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). *Id.*, ¶ [0031] ("settings *from* database 134 on settings server 130"). Additionally, *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.*

146. To the extent that element 1[b] is interpreted to require the *server* to verify the user for accessing the profile associated with the user account, it would have been obvious to enhance *Rector* such that verification is performed by the server, as in *Kleve*. This would be an example of a system being "further extended . . . with additional security," as taught by *Kleve*. Ex. 1006, ¶ [0049].

147. *Kleve* teaches processing, by the server, (*e.g.*, server 401, 506, or 634) at least part of the user information (*e.g.*, credentials) to verify the user (*e.g.*, performing remote credential verification) for accessing the profile associated with the user account, the profile having a plurality of settings (*e.g.*, personal settings/radio presets) of the user for the vehicle. For example, *Kleve* shows steps 614/620 of submitting renter credentials (*e.g.*, login ID and password, fingerprint/facial recognition) to server 634. *Id.*, ¶ [0069], Fig. 6 (below). *Kleve* also explains its process of remote credential verification includes "the Temporary User entering a credential verification password . . . while having the . . . server . . . compare and verify authorization." *Id.*, ¶ [0049]. *Kleve* explains that this process provides access for the renter/temporary user to use the vehicle and apply enhancements/personal settings to the vehicle, including "radio presets." *Id.*, ¶¶ [0049]-[0050], [0072]. Additionally, *Kleve* describes the temporary user having a user account/user profile that can be set up and managed via a website. *Id.*, ¶ [0037].



Annotated Fig. 6 of *Kleve*

148. It would have been obvious to enhance *Rector*'s method of controlling driver settings to include server-side verification, as in *Kleve*, for additional security. Ex. 1006, ¶ [0049]. For example, before "implementing settings based upon the driver" in *Rector* (Ex. 1005, ¶ [0051]), one would have been motivated and found it obvious to verify the driver's credentials using the server, as in *Kleve*. Ex. 1006, ¶ [0049]. As *Kleve* explains, performing verification remotely provides a further layer of security such that a remote component (*e.g.*, a "server") will "compare and verify authorization." *Id.*, ¶ [0049]. In contrast to local verification, a

server may be kept more up-to-date and may be better protected from security attacks. For example, there may be a situation where a vehicle is in a location where it is unable to communicate with a centralized authority (like a server or data center that administers a settings-applying system). *See supra*, § VIII.A, *infra*, ¶¶ 138-141, 194. While it is out of contact, the vehicle would be unable to receive updates, such as changes to credentials, changes to who is authorized, or a user's level of access. A user might have realized that his/her password is compromised and attempt to change it via other devices connected to the server. However, if the vehicle is out of contact with the server it would not be able to update its registry of credentials, and if it uses only local verification, it would be vulnerable to login attempts using compromised credentials. The server-side verification may be done above and beyond any verification that takes place locally. The server-side verification could also be done as a check on local verification. A POSA would have understood how to make an appropriate system with a desired level of security. A POSA would have had a reasonable expectation of success combining *Rector* and *Kleve* because, as explained in both, systems using servers and connected devices (*e.g.*, vehicles) can have various processes executed using processing capabilities of the server; that is, implementing *Kleve*'s server verification would have been within the capability of *Rector*'s server. *See* Ex. 1006, ¶ [0035] ("In addition to having exemplary processes executed by a vehicle

computing system located in a vehicle, in certain embodiments, the exemplary processes may be executed by a computing system in communication with a vehicle computing system. Such a system may include . . . a server . . . .”), *id*., ¶ [0057] (“In this illustrative embodiment, the centralized system is a server system that includes processing capability for incoming nomadic device signals designated to interact with a remote vehicle 421.”); Ex. 1005, ¶ [0006] (remarking that the functionality of connected devices with processors in then-current technology was not being exploited to its full level), *see also id*., ¶ [0027] (“A settings server can include several network elements, including other servers . . . .”).

149. *Rector*’s user profile includes a plurality of user-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). *Kleve* corroborates the same kinds of personal settings that are applied after authorization (*e.g.*, “radio station presets, navigation routes, and/or preferred climate control”). Ex. 1006, ¶ [0072]. *Kleve* expressly teaches that vehicles have a “vehicle type” that users can request, *see* 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].

150. Accordingly, in my opinion, *Rector* and *Kleve* teach or suggest this limitation.

151. In addition, this claim element includes the same substance as claim elements 1[b] and 17[b] of the '244 patent, as shown below (highlighting indicates language not found in either '244 claim):

'716 1[b]	**'244 1[b]**	**'244 17[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	processing, by the server, at least part of the user information to verify the user for accessing the profile associated with the user account, the profile having a plurality of settings of the user for the vehicle, at least part of the plurality of settings for the profile being stored on storage accessible to the cloud services system; and	processing, by one of the servers, at least part of the user information to verify the access for the user, the profile having a plurality of settings of the user for the vehicle, at least part of the plurality of settings of the profile being stored on storage accessible to said one or more servers; and

Ex. 1010, pp. 6-7; Ex. 1016, 33:16-22, 35:11-16.

152. Further supporting my opinions, in IPR2024-00814, the Board determined in its initial decision granting institution of IPR that there was sufficient explanation and evidence that the combination of *Rector* and *Kleve* discloses this claim element. Ex. 1010, p. 33 (". . . Petitioner has provided sufficient explanation and supporting evidence that the combination of Rector and Kleve discloses these limitations for the purposes of institution."); *id.*, p. 36 (". . .

Petitioner has provided sufficient explanation and supporting evidence that Rector in combination with Kleve renders independent claim 17 obvious.").

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."

153. It is my opinion that A POSA would have found this element obvious over the combination of *Rector* and *Kleve*, and further in view of *Xiao*. As described below, the *Rector*/*Kleve* combination discloses this limitation in its entirety.

154. In addition, this claim element includes the same substance as claim elements 1[c]-[d] and 17[c]-[d] of the '244 patent, as shown below (highlighting indicates language not found in either '244 claim):

'716 1[c]	'244 1[c]-[d]	'244 17[c]-[d]
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	transferring, by the server, upon verifying the user information, one or more settings of the plurality of settings to the vehicle, the transferring is configured to instruct software and/or hardware associated with said	transferring, by one of the servers, upon verification of the user information, one or more settings of the plurality of settings to the vehicle, the transferring is configured to instruct software and hardware

’716 1[c]	’244 1[c]-[d]	’244 17[c]-[d]
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.	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,	associated the vehicle to enable said one or more settings for use on the vehicle to customize said vehicle for the user, the request and the transferring being via wireless communication of said vehicle.

Ex. 1010, pp. 6-7; Ex. 1016, 33:23-29, 35:17-24.

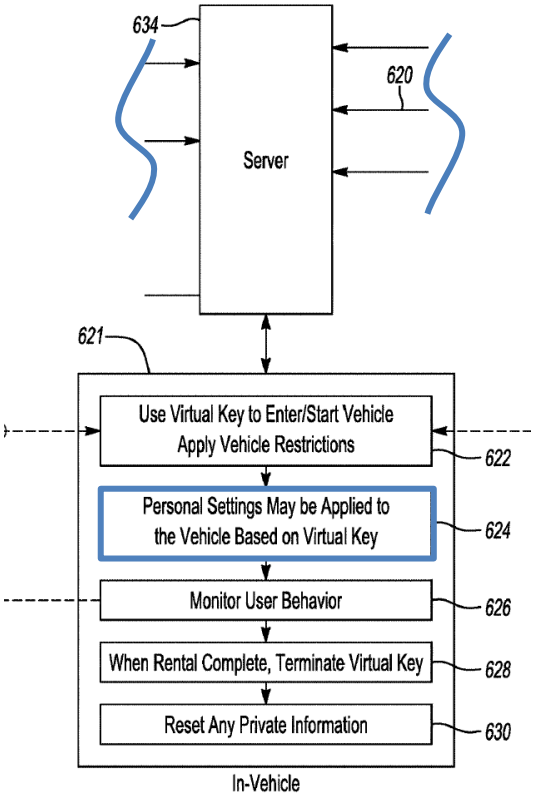
155. Further supporting my opinions, in IPR2024-00814, the Board determined in its initial decision granting institution of IPR that there was sufficient explanation and evidence that the combination of *Rector* and *Kleve* discloses this claim element. Ex. 1010, ’244 Institution Decision, p. 35 (“. . . Petitioner has provided sufficient explanation and supporting evidence that the combination of Rector and Kleve discloses these limitations for purposes of institution.”); *id.*, p. 36 (“. . . Petitioner has provided sufficient explanation and supporting evidence that Rector in combination with Kleve renders independent claim 17 obvious.”).

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"

156. *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. As shown in Fig. 3, such transmission occurs upon verifying the user information (*e.g.*, after step S351 of determining the driver ID). *Rector* discloses implementing the settings only upon determining the driver's identity. *Id.*, ¶¶ [0010], [0043], [0057].

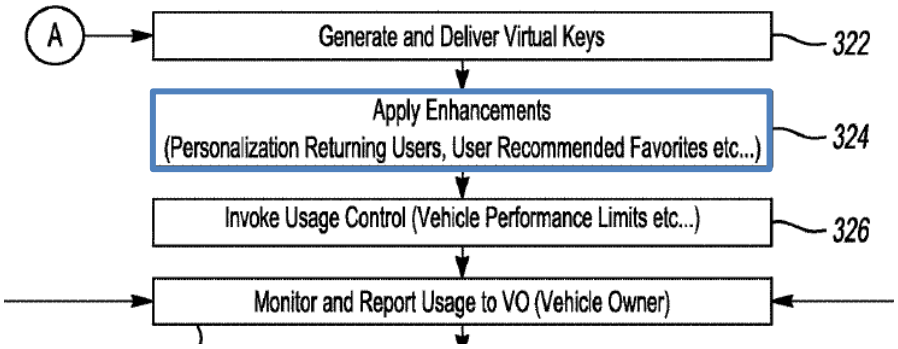
157. These disclosures are reflected in the claims of *Rector*, as well, which recite "a server logic on the settings server to associate the unique identifier with the user account, determine the permitted settings for the user, and transmit the permitted settings to the client logic." *Id.*, claim 1. In addition to the disclosure of this element by *Rector*, the disclosure of the server verifying the user information, upon which step the server then transfers one or more settings of the plurality of settings, is also disclosed by a combination of *Rector* and *Kleve*. In combining *Rector* with *Kleve*, as discussed above, it follows that settings would be transferred upon verification, occurring at the server. *See supra*, § VIII.A.

158. For example, *Kleve* shows personal settings being applied after the user is verified. Ex. 1006, Fig. 6 (excerpted below).



Annotated Excerpt of Fig. 6 of *Kleve*

159. *Kleve* also shows enhancements, including personalization, such as radio presets and seat and mirror positions, being applied (*e.g.*, step 324) after remote credential verification (*e.g.*, step 304). *Id.*, ¶¶ [0049]-[0050], Fig. 3B (excerpted below).



Annotated Excerpt of Fig. 3B of *Kleve*

160. It would have been obvious to enhance *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*.

161. Accordingly, in my opinion, *Rector* and *Kleve* disclose this limitation.

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,"

162. As discussed above, *Rector* discloses its server "transmit[s] the permitted settings to the client logic [of the smart vehicle.]" 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.").

163. *Rector* also discloses that the client "logic" which implements the setting instructions can be "software" or "hardware," or both. *Id.*, ¶ [0025] ("Logic may be formed from combinations of software and hardware."). Further, *Rector* explains that its client logic can take the form of "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.

164. Claim element 1[c][ii] recites that the "transferring is configured to instruct software and hardware . . . to enable said one or more settings." The earlier recited "transferring" is a step executed by the server. *See supra*, § VIII.C.1[c].[i]. To the extent this recitation of 1[c][ii] has any limiting effect on the claimed "transferring" step, *Rector* discloses it. For example, *Rector* states that "[t]he settings may limit certain devices within the smart vehicle and/or the smart vehicle itself." Ex. 1005, ¶ [0023]. *Rector* discloses numerous examples of the ways that software or hardware of the smart vehicle is instructed to apply the settings for customizing the vehicle. *See, e.g.*, *id.*, ¶¶ [0031]-[0034], [0038], [0043], [0057], [0059]. For example, *Rector* explains that "driver created settings may include ... programmed radio stations," while the controlling authority may enable "allowed radio stations, prohibited radio stations, ... etc."). *Id.*, ¶¶[0031]-[0033]. *Rector*'s server makes a transmission to the vehicle (or storage thereof), and hardware/software of the vehicle (*e.g.*, client logic) simply follows instructions to

"implement" settings for the driver. *Id.*, ¶ [0009], *id.* at claim 1 ("[A] server logic on the settings server to . . . transmit the permitted settings to the client logic, wherein the client logic [of the vehicle] limits functions of the smart vehicle based upon the permitted settings."). *Rector* is thus capable of satisfying, and does satisfy, this element of claim 1.

165. Accordingly, in my opinion, *Rector* discloses this limitation.

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

166. To the extent claim element 1[c] requires that the server determine compatible/applicable settings for the selected vehicle type, *Xiao* provides exactly that 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 the target vehicle can execute. Ex. 1007, ¶ [0103]-[0104] (looking up codes by automobile ID 628 and command ID 630), *see also id.*, ¶ [0102]. The Board has 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. It is therefore my opinion that 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."

167. *Xiao* falls within the '716 patent's field of endeavor (*i.e.*, applying settings to vehicles based on user profiles). *Xiao*'s server 118 uses operator profile information to "retrieve appropriate command codes … based on the automobile ID" and then "generate … commands … to control the automobile systems," transmitting them over the Internet—*e.g.*, cloud/server selection and programming of vehicle settings. Ex. 1007, ¶¶ [0101]-[0104].

168. *Xiao* is also reasonably pertinent to at least one problem faced by the inventors of the '716 patent. The '716 patent identifies the problem of cloud-side determination of settings that are "compatible … for [a] vehicle type" before transfer, and of applying those settings wirelessly from data-center servers. Ex. 1001, 7:16-21; 13:10-11; 35:42-43. *Xiao* addresses that same problem by performing a vehicle-specific command lookup keyed by model/year ("automobile ID") and generating only the commands the target vehicle can execute, then transmitting those settings/commands to the vehicle for application. Ex. 1007, ¶¶ [0086]-[0088], [0103]-[0104].

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

169. *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 (below, left). One example of *Rector*'s network includes a broadband network. *Id.*, ¶ [0026]. One would understand that network 140 is wireless. Smart vehicle 100, which should operate in various "situations" across "the United States," *id.*, ¶ [0004], would not be tethered with wires. This is true also for the other types of vehicles described by *Rector*, including "cars, trucks, and buses, as well as aircrafts and watercrafts." *Id.*, ¶ [0028].

170. *Rector* explains "[t]ransceiver 206 allows smart vehicle 200 to wirelessly communicate with other devices on a network . . . ." *Id.*, ¶ [0039]. Such communication includes the client logic (of the vehicle) sending/receiving the unique identifier. *Id.*, ¶ [0040] ("Client logic 205 retrieves the unique identifier from the driver's wireless communication device and associates the identifier with a plurality of driver settings. These driver settings may be contained on memory 204, may be contained on an external server, may be contained on the driver's wireless communication device, etc."), *see also id.*, ¶ [0057] ("Upon a

determination of the driver's identity, this information can be transmitted to a settings server to implement settings for the driver."). Such communication also includes the server transmitting the settings to the vehicle, *id.*, ¶ [0009], as discussed above with respect to element 1.[c].ii. *See supra*, § VIII.C.1.[c].ii; Ex. 1005, ¶ [0040], Fig. 2 (below, right, illustrating transceiver 206 ("Trans") of the smart vehicle for exchanging data).

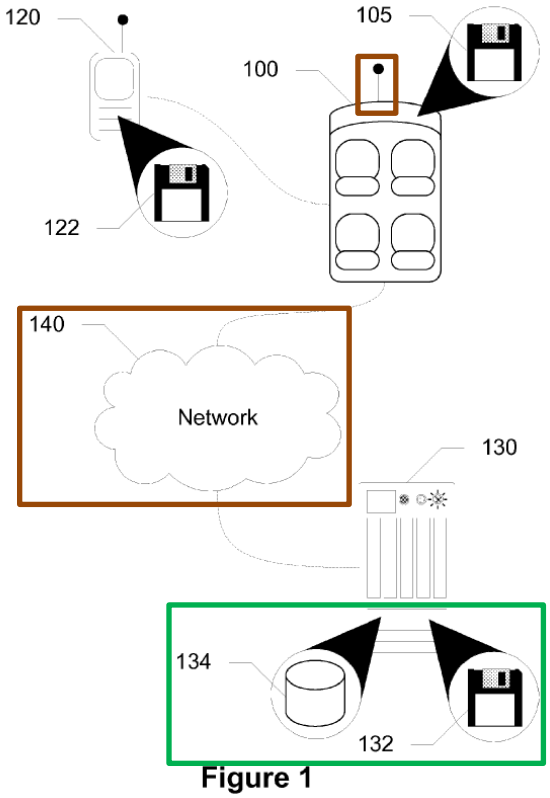


Figure 1

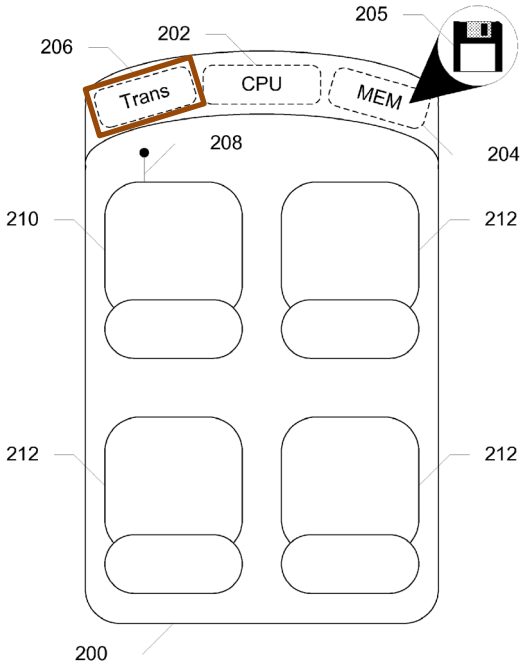


Figure 2

Annotated Figs. 1 and 2 of *Rector*

171. Accordingly, in my opinion, *Rector* discloses this limitation.

172. In sum, *Rector*/*Kleve* in combination with *Xiao* disclose every limitation of claim 1, and 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. *See supra*, §§ VIII.A-B, ¶¶ 138-141, 148, 166-168.

D. Claim 2

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

173. In my opinion, the combination of *Rector* in view of *Kleve* and *Xiao* discloses this limitation.

174. *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 that authentication session—*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." 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 workflow. Ex. 1005, ¶ [0043] ("With the identity of the driver determined, the smart vehicle looks up settings for the driver S352. These settings may include driver created settings, controlling authority settings, etc. The settings are determined by comparing the driver's identity with a database of identities with corresponding settings. This database may be on the network….").

175. In *Kleve*, the user supplies credentials (*e.g.*, a passcode at the vehicle), the server verifies access, and the system applies the user's personalized presets (radio, climate, seat/mirror) for that authorized session—again, an identity-driven model. Ex. 1006, ¶¶ [0049]-[0050]. After the user has returned the vehicle, "the system [] reset[s] any private information stored on the vehicle-based computing system." *Id.*, ¶ [0049]. A POSA would understand that the user's profile/settings are transferrable to any vehicle to which the user is granted access (*e.g.*, household, fleet, rental)—thereby being "transferrable to one or more other vehicles."

176. This reading is confirmed by *Xiao*, which expressly describes server-managed operator profile information 614 being applied to whichever selected vehicle is active for the session, with the system generating the appropriate command set based on the selected automobile's ID. Ex. 1007, ¶ [0099] ("In one embodiment, automobile name display 916 may initially display the name of the automobile 112 assigned to the operator,…"), *see also id.*, ¶ [0102] ("Apply operator profile settings UI element 922 may allow the operator to apply the settings of the operator's profile to the systems of the automobile 112, over the Internet 108."); *see id.*, ¶ [0102] ("Using the operator ID 608 and/or the mobile ID 610 corresponding to mobile device 110, server 118 may retrieve from operator information 602 the corresponding profile information 614 for the operator"). As discussed above, the operator profile information 614 may identify certain desired settings of the systems

of automobile 112."); *see id.*, ¶ [0103] ("Then, automobile service server 118 may generate one or more commands based on the retrieved command codes 632 to control the automobile systems to achieve the operator's desired settings."); *see id.*, ¶ [0104] ("server 118 may then transmit the generated command(s) to the automobile 112 over the Internet 108."); *see id.*, ¶ [0104] ("The appropriate onboard modules 406-418 may then execute the commands by controlling the onboard systems to achieve the operator's desired settings indicated by the profile information 614."); Figs. 4, 6. The Board recognized that *Xiao* identifies a selected vehicle from a plurality available at the server and then applies the operator profile to that vehicle. Ex. 1011, pp. 19-25. In addition to disclosure of this element by the *Rector*/*Kleve* combination, the element is further disclosed by further combination with *Xiao*'s selected-vehicle mechanism to enable seamless portability of user preferences across a plurality vehicles (*e.g.*, family/fleet/rental) and reduce setup friction, with a reasonable expectation of success given the routine, predictable server-side mapping of profile parameters to vehicle-specific commands. Ex. 1007, ¶¶ [0099], [0102]-[0104]; Ex. 1011, pp. 19-25.

177. Accordingly, it is my opinion that *Rector* in combination with *Kleve* discloses the limitations of claim 2. In addition to the disclosure in *Rector*/*Kleve*, *Xiao* teaches the same transferability and would have been straightforward to incorporate with a reasonable expectation of success.

E. 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."

178. It is my opinion that the combination of *Rector* and *Kleve* discloses this limitation. As described below, the *Rector/Kleve* combination discloses all elements of claim 3.

179. Further, claim 3 includes the same substance as claim 19 of the '244 patent, as shown below:

'716 Claim 3	'244 Claim 19
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.	The cloud-based system of claim 17, 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.

180. In IPR2024-00814, the Board determined in its initial decision granting institution of IPR that there was sufficient explanation and evidence that the combination of *Rector* and *Kleve* discloses this claim element. Ex. 1010, p. 37 ("Furthermore, in the Petition, Petitioner has provided arguments and supporting evidence sufficient to establish a reasonable likelihood that Petitioner would prevail in showing that Rector in combination with Kleve renders claims 19 and 20 obvious.").

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,"

181. *Rector* alone, or together with *Kleve*, discloses, teaches, or suggests this limitation.

182. *Rector* explains that the profile (*e.g.*, the driver's settings) is activated after identifying the driver. Ex. 1005, Fig. 3 (below), ¶ [0043] ("*With the identity of the driver determined*, the smart vehicle looks up settings for the driver S352."); *see also id.*, ¶ [0031] ("Server logic 132 matches the driver's identity with corresponding settings . . . ."). Indeed, it is while such settings are activated that *Rector*'s process of restricting certain setting changes takes place. *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 . . . .").

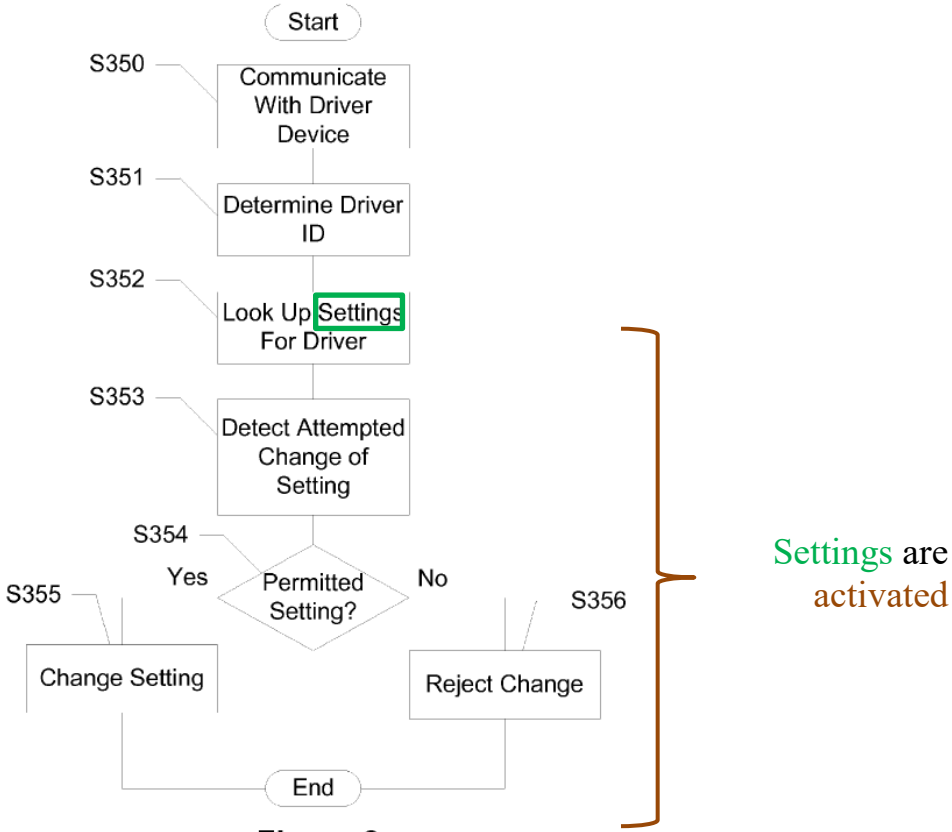


Figure 3

Annotated Fig. 3 of *Rector*

183. As discussed above, it would have been obvious to apply the settings of *Rector* upon server-side verification, which may include activation or verification of user information. *See supra*, § VIII.A, ¶¶ 138-141, 148.

184. Additionally, *Kleve* teaches that "once the schedule rental is complete the virtual key may be terminated, allowing the vehicle to be secured for either the Owners entry or the next temporary user scheduled to use the vehicle." Ex. 1006, ¶ [0074]; *see also id.*, ¶¶ [0049], [0055]. A POSA would understand from this that the user's profile is only activated on the vehicle when the user information is

activated or verified. *Kleve* further states, for example, "[a]ny personal settings or private information entered onto or within the VCS [vehicle-based computing system] by the Temporary User may be reset after the schedule rental period has been complete[d] at step 630." *Id.*, ¶ [0074].

185. Accordingly, in my opinion, *Rector* in combination with *Kleve* discloses this limitation.

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

186. It is my opinion that the combination of *Rector* and *Kleve* discloses this limitation. As described above, a POSA would have been motivated and found it obvious to remove *Rector*'s settings after use has concluded to improve security, as taught by *Kleve*. *See supra*, § VIII.A, ¶¶ 138-141, 148. *Kleve* teaches that "[a]ny personal settings or private information entered onto or within the VCS [vehicle-based computing system] by the Temporary User may be reset after the schedule rental period has been complete[d] at step 630." Ex. 1006, ¶ [0074]. *Kleve* also teaches "[o]nce the Temporary User has completed the rental period and returned the vehicle to the appropriate drop off, the virtual key may terminate allowing the system to reset any private information stored on the vehicle-based computing system." *Id.*, ¶ [0049]; *see also id.*, ¶¶ [0055], [0068]. A POSA would understand that users may have concerns about leaving sensitive information (*e.g.*,

personalized settings, entertainment selections, email or text messages, etc.) behind in a vehicle that other users may use, and it would be desirable to have such information be cleared from the vehicle when they are done using it. Furthermore, it would have been an obvious and standard business practice of a vehicle rental system to remove personalization and return the state of the vehicle to default settings upon completion, for example, so that the next user is not confronted with settings that may be undesirable (*e.g.*, loud radio) or not appropriate for them (*e.g.*, seat and steering wheel too close together such that a larger individual finds it uncomfortable to enter the vehicle).

187. Combining *Rector* and *Kleve* amounts to combining familiar elements according to known methods in a predictable way with a reasonable expectation of success, as demonstrated by *Kleve*.

188. Accordingly, in my opinion, *Rector* in combination with *Kleve* discloses this limitation.

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

189. *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 cellular telephone, smart card, or other device). Ex. 1005,

¶¶ [0026], [0039], [0043].

190. *Rector* discloses that the driver can use a wireless communication device 120 that may be "a cellular telephone or a contactless smart card," which communicates with smart vehicle 100 to identify the driver. *Id.*, ¶ [0030]. *Rector* describes an embodiment in which a unique identifier is associated with a driver's device (*e.g.*, cellular telephone or smart card) that is detected by electronics (*e.g.*, a transceiver or smart card reader) of the smart vehicle. *Id.*, ¶¶ [0030], [0040], [0055], [0057]. Information identifying the driver (*e.g.*, the unique identifier) can then be transmitted to other components in the system. For example, *Rector* states that the process of receiving the request (*e.g.*, unique identifier) is initiated "*with* the smart vehicle communicating with a driver's device" (*i.e.*, automatically) and includes then "compar[ing] with a set of unique identifiers on a server on a network." *Id.*, ¶ [0043]. *Rector* describes, for example, a passive RF system that causes a unique identifier to be transmitted when communication between electronics of the smart vehicle and the user's device is established (*i.e.*, automatically). *Id.*, ¶¶ [0056]-[0057]. "Upon a determination of the driver's identity, this information can be transmitted to a settings server to implement settings for the driver." *Id.*, ¶ [0057]. The "information" includes the unique identifier, upon which the driver's identity is determined. *Id.*, ¶¶ [0010], [0056]-[0057].

191. Communication between components in the system of *Rector* may be by radio, short range, or other wireless networks, including WiFi, Bluetooth, NFC, Zigbee, infrared, RFID, etc. *Id.*, ¶¶ [0026], [0039], [0043]. These components include the smart vehicle and user device. *Id. Rector*'s method (including processing the request) may be initiated upon the "smart vehicle communicating with [the] driver's device S350." *Id.*, ¶ [0043]. This "communication may occur as the driver enters the smart vehicle, as the driver starts the smart vehicle, etc." *Id.* And this communication may be via "BLUETOOTH." *Id.* Thus, *Rector* discloses automatically generating the request (*e.g.*, unique identifier) upon detecting a pairing (*e.g.*, pairing via Bluetooth) with the driver's device (*e.g.*, his/her "cellular telephone, a contactless smart card, etc."). *Id.*

192. Accordingly, in my opinion, *Rector* discloses this limitation.

193. Additionally (or alternatively), *Kleve* teaches automatically generating a request by electronics of the vehicle upon input of credentials of the user for the user account. For example, *Kleve* describes an example of using a "matrix barcode (ex. two-dimensional code)" with a smart phone. Ex. 1006, ¶ [0044]. A POSA would understand a QR code to be one such matrix barcode. In *Kleve*, the matrix barcode can be "used as the virtual key being recognized by the VCS [vehicle-based computing system]." *Id.* A "smart phone may be used to communicate the matrix barcode information to the vehicle rental micro-business system directly.

The system may be able to communicate information from the smart phone to the vehicle notifying the VCS of a virtual key. Once the Temporary User has the matrix barcode scanned by the vehicle, the smart phone may be able to connect with the VCS and be used to enter and enable the vehicle drive away event." *Id.* A POSA would understand a virtual key in the form of a matrix barcode to be an example of a temporary user's credentials. Also, *Kleve* describes "remote credential verification," as discussed above, *see supra* ¶¶ 97, 111, 121, 139, 147, 159, which involves the temporary user "entering a credential verification password at the vehicle's touchscreen visual display." Ex. 1006, ¶ [0049]. Upon gaining access to the vehicle, *e.g.*, by providing the virtual key to the vehicle, and/or by logging in at the vehicle using the temporary user's password, the temporary user may have his settings ("enhancements" or other personalization) applied. Thus, upon input of credentials of the temporary user at the vehicle, a process is started by the vehicle to apply the temporary user's settings. A POSA would understand this to involve a request being generated by electronics of the vehicle, such as the vehicle sending data to the server to retrieve the temporary user's enhancements/personalization and apply them.

194. In combining *Rector* and *Kleve*, *see supra*, § VIII.A, ¶¶ 138-141, 148, it would have been obvious to have a request that identifies user information (*e.g.*, *Kleve*'s "enhancements" or other personalization that is tied to the user) be

automatically generated upon input of credentials (*e.g.*, *Kleve*'s temporary user entering a credential verification password at the vehicle's touchscreen, or providing a matrix barcode to be scanned at the vehicle). Ex. 1006, ¶¶ [0044], [0049]-[0050]. *Kleve* explains, for example, after input (*e.g.*, entering) of the user's credentials, "[a]t 324, the Temporary User may have vehicle preset settings applied . . . ." *Id.*, ¶ [0050]; *see also id.*, ¶ [0072] (After having input credentials, "[a]t step 624, the Temporary User's nomadic device may be paired with the VCS and may send personal settings to the vehicle including, but not limited to, radio station presets, navigation routes, and/or preferred climate control settings."). A POSA would have been motivated to combine and had a reasonable expectation of success in combining *Rector* and *Kleve* in this manner because, as *Rector* and *Kleve* both demonstrate, the predictable result of pairing a device or entering credentials at a vehicle is that the vehicle may generate a request to prepare the vehicle for the user's use by using the vehicle's onboard processor, which is capable of a wide variety of processing. *See, e.g.*, Ex. 1005, ¶¶ [0043]-[0047] (describing "backup means for driver and passenger identification" executed by the vehicle, which may be based on communication with the driver/passenger devices, and which "introduce a redundancy to the present invention, allowing the settings control system to verify that the correct party is determined to be the driver and appropriate settings are enforced"), *see also id*., ¶¶ [0025], [0030]-[0031], [0038]-

[0045] (*Rector* describing the "client logic" of the smart vehicle accomplishing various processes); Ex. 1006, ¶ [0022] ("the processor allows onboard processing of commands and routines"), *see also id*., ¶ [0035] ("exemplary processes executed by a vehicle computing system located in a vehicle").

195. Thus, it would have been obvious to enhance *Rector* such that the request is automatically generated upon entering credentials, as in *Kleve*. In combining *Rector* with *Kleve*, as discussed above, it follows that a request that identifies user information would be automatically generated upon input of credentials of the user for the user account.

196. Accordingly, in my opinion, *Rector* and *Kleve* disclose the limitations of claim 3.

F. Claim 4

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,"

197. It is my opinion that *Rector* discloses this limitation.

198. For example, *Rector* discloses that "[t]he settings may limit certain devices within the smart vehicle and/or the smart vehicle itself." Ex. 1005, ¶¶ [0008], [0023]. Such systems (*e.g.*, certain devices) include a radio, wireless communication device, or any other component for which limitation may reduce

"distractions to the driver." *Id.*, ¶ [0008]. A POSA would understand that such systems are configured to receive input or cause one or more actions or functions. For example, *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].

199. Further, *Rector* in view of *Kleve* makes this limitation obvious. *Rector* and *Kleve* teach settings associated with vehicle systems that both receive input and cause vehicle functions. *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, *i.e.*, the settings are tied to concrete vehicle systems that perform actions and respond to driver inputs. Ex. 1005, ¶¶ [0031], [0008], [0043]. *Kleve* likewise has the vehicle computing system accept user inputs (*e.g.*, credential password at a touchscreen; fingerprint scan; camera/microphone capture) and then enable functions such as keyless drive-away and application of personal presets (radio, navigation routes, climate) during the authorized session. Ex. 1006, ¶¶ [0049], [0071]-[0072]. A POSA would recognize these as typical "vehicle systems" receiving inputs (touchscreen, biometrics, device pairing) and causing actions/functions (unlock, start, adjust seats/climate), thereby satisfying 4[a]. *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. 1011, pp. 12-15 (summarizing *Xiao*).

200. Further, claim 4[a] includes the same substance as the preambles of claims 13 and 20 of the '244 patent, as shown below:

'716 Claim 4[a]	**'244 Claim 13[preamble]**	**'244 Claim 20[preamble]**
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,	The method 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,	The cloud-based system of claim 17, 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,

Ex. 1016, 34:25-28, 36:4-7.

201. Further supporting my opinions, in IPR2024-00814, the Board determined in its initial decision granting institution of IPR that there was sufficient explanation and evidence that the combination of *Rector* and *Kleve* discloses this claim element. Ex. 1010, p. 37 ("Petitioner has provided arguments and supporting evidence sufficient to establish a reasonable likelihood that Petitioner would prevail in showing that Rector in combination with Kleve renders claims 9 and 11–16 obvious."); *id.* ("Furthermore, in the Petition, Petitioner has

provided arguments and supporting evidence sufficient to establish a reasonable likelihood that Petitioner would prevail in showing that Rector in combination with Kleve renders claims 19 and 20 obvious.").

> **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."**

202. It is my opinion that *Rector* and *Kleve* disclose this limitation. The language of this element is disjunctive, such that disclosure of any one of the identified components or systems is sufficient. *Rector* and *Kleve* disclose one or more of the above-quoted alternatives.

203. *Rector* describes its settings as including "driver created settings *as*

well as controlling authority settings" such as comfort settings ("seat and mirror positions, … temperature controls"), entertainment settings ("radio stations, … radio controls, wireless communication device controls"), and driving mode settings ("maximum speed"). Ex. 1005, ¶¶ [0031]-[0032], Fig. 11. *Rector* also discloses tracking settings (*e.g.*, notifying the "controlling authority should the driver attempt to bypass or override the settings"). *Id.*, ¶ [0037]. Similarly, *Kleve* discloses heating/cooling and comfort systems, Ex. 1006, ¶ [0072], audio/speaker, touchscreen display, microphone, USB and GPS inputs, BLUETOOTH input, and user-interface elements. *Id*., ¶¶ [0021]-[0025].

204. Accordingly, in my opinion, *Rector*/*Kleve* in combination with *Xiao* disclose the limitations of claim 4.

205. Further, claim 4[b] includes the same substance as claims 13 and 20 of the '244 patent. *See* Ex. 1016, 34:29-50, 36:8-29. Further supporting my opinions, in IPR2024-00814, the Board determined in its initial decision granting institution of IPR that there was sufficient explanation and evidence that the combination of *Rector* and *Kleve* discloses this claim element. Ex. 1010, p. 37 ("Petitioner has provided arguments and supporting evidence sufficient to establish a reasonable likelihood that Petitioner would prevail in showing that Rector in combination with Kleve renders claims 9 and 11–16 obvious."); *id.* ("Furthermore, in the Petition, Petitioner has provided arguments and supporting evidence

sufficient to establish a reasonable likelihood that Petitioner would prevail in showing that Rector in combination with Kleve renders claims 19 and 20 obvious.").

G. 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."**

206. It is my opinion that these limitations are obvious over *Rector* in view of *Kleve* and *Xiao*.

207. *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]. Where 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. Notably, the Board already read *Xiao* as teaching 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.

208. Accordingly, in my opinion, *Rector*/*Kleve* in combination with *Xiao* disclose the limitations of claim 5.

H. 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."**

209. It is my opinion that 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*, § VIII.G; Ex. 1007, ¶¶ [0086]-[0088], [0102]-[0104], Figs. 4, 6.

210. *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. For example, as shown in Fig. 6, the automobile command information 606 "may include an automobile ID 628 associated with the automobile 112." *Id.*, ¶ [0086]. The command information 606 "may further include a command code 632 associated with each command that may be issued to the automobile 112." *Id.*, ¶ [0088]. This "may be a specific code or instruction that may be broadcast on automobile network 420 and executed by a module 402-418 aboard the automobile 112 to cause the module 402-418 to perform the desired function." *Id*. Command codes 632 may be "codes provided by the manufacturer of automobile 112 and/or the manufacturer of the automobile systems for controlling the systems to perform various functions." *Id. Xiao* teaches that "server 118 may look up a particular command code 632 based on the automobile ID 628 and command ID 630 contained in a command request received." *Id.*

211. As further example, *Xiao* teaches that "[s]erver 118 may receive the apply operator profile command request from the Internet 108." *Id.*, ¶ [0102]. Then, the "server 118 may retrieve … the corresponding profile information 614

for the operator," which "may identify certain desired settings of the systems of automobile 112," such as climate settings, seat positions, or mirror positions. *Id.* "Based on the desired automobile systems settings indicated by the operator profile information 614, automobile service server 118 may retrieve appropriate command codes 632 for these systems from automobile command code information 606." *Id.*, ¶ [0103]. "For example, automobile service server 118 may look up appropriate command codes 632 based on the automobile ID 627 and on the command IDs 630 associated with the operator's desired system settings 614. Then, automobile service server 118 may generate one or more commands based on the retrieved command codes 632 to control the automobile systems to achieve the operator's desired settings." *Id.* "Server 118 may then transmit the generated command(s) to the automobile 112 over the Internet 108." *Id.*, ¶ [0104]. "The appropriate onboard modules 406-418 may then execute the commands by controlling the onboard systems to achieve the operator's desired settings indicated by the profile information 614." *Id.*

212. Accordingly, in my opinion, *Rector*/*Kleve* in combination with *Xiao* disclose the limitations of claim 6.

I. Independent Claim 7

213. Independent Claim 7 of the ’716 patent essentially tracks the core claim elements of claim 17 of the ’244 patent[2]—for which the Board has already determined there is a reasonable likelihood that *Rector* in combination with *Kleve* renders claim 17 obvious.[3] These two claims are shown below:

’716 Claim 7	’244 Claim 17
A cloud services system including a server for interfacing with one or more vehicles, comprising: 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; the server processes data related to the identifier to verify the user for accessing the profile associated with the user account, the	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-

[2] These two claims also have virtually identical main body elements whereby 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.”

[3] *See* Ex. 1010, p. 36 (“After review of the arguments and evidence currently of record, we determine that Petitioner has established a reasonable likelihood that it would prevail in showing that Rector in combination with Kleve renders independent Claim 17 [of the ’244 patent] obvious.”).

’716 Claim 7	’244 Claim 17
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 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, 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; 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; 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.	based system, comprising: receiving, by one of the servers, a request from a vehicle to access a profile for a user account associated with a user, the request identifies user information related to a user; processing, by one of the servers, at least part of the user information to verify the access for the user, the profile having a plurality of settings of the user for the vehicle, at least part of the plurality of settings of the profile being stored on storage accessible to said one or more servers; and transferring, by one of the servers, upon verification of the user information, 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 for use on the vehicle to customize said vehicle for the user, the request and the transferring being via wireless communication of said vehicle.

214. There appear to be three potential 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 claim 5, *supra*, §§ VIII.C.1[preamble], VIII.C.1[c].iii, VIII.G), while the additional claim limitation **(2)** is recited in claim 3 of the '716 patent (analyzed above in claim element 3[iii], *supra*, §§ VIII.E.3.iii).

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

215. For the same reasons set out for **claim 1 [preamble]**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim 1 [preamble] here by reference. *See supra*, § VIII.C.1[preamble]. A color-coded comparison of the claim elements is below:

'716 Claim 7[preamble]	'716 Claim 1[preamble]
A cloud services system including a server for interfacing with one or more vehicles,	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

'716 Claim 7[preamble]	'716 Claim 1[preamble]
	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:

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;"

216. For the same reasons set out for **claim 1[a]**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim 1[a] here by reference. *See supra*, § VIII.C.1[a]. A color-coded comparison of the claim elements is below:

'716 Claim 7[a]	'716 Claim 1[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;	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;

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"

217. For the same reasons set out for **claim 1[b]**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim

1[b] here by reference. *See supra*, § VIII.C.1[b]. A color-coded comparison of the claim elements is below:

'716 Claim 7[b]	**'716 Claim 1[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	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

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,"

218. For the same reasons set out for **claim 1[c]**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim 1[c] here by reference. *See supra*, § VIII.C.1[c]. A color-coded comparison of the claim elements is below:

'716 Claim 7[c]	**'716 Claim 1[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,	a server for transferring, upon verification of the user information and based on determining settings that are compatible, by said server, for

’716 Claim 7[c]	’716 Claim 1[c]
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	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.

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;”

219. For the same reasons set out for **claim 1[c]**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim 1[c] here by reference. *See supra*, § VIII.C.1[c]. A color-coded comparison of the claim elements is below:

’716 Claim 7[d]	’716 Claim 1[c]
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;	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.

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;"

220. For the same reasons set out for **claim 3**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim 3 here by reference. *Supra*, § VIII.E. A color-coded comparison of the claim elements is below:

'716 Claim 7[e]	**'716 Claim 3**
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;	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.

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."

221. For the same reasons set out for **claim 1[preamble]**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim 1[preamble] here by reference. *See supra*, § VIII.C.1[preamble]. A color-coded comparison of the claim elements is below:

’716 Claim 7[f]	’716 Claim 1[preamble]
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.	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:

J. 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.”

222. For the same reasons set out for **claims 2 and 6**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claims 2 and 6 here by reference. *See supra*, §§ VIII.D, VIII.H. A color-coded comparison of the claim elements is below:

’716 Claim 8	’716 Claims 2 and 6
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.	2. The cloud-based system of claim 1, wherein the profile is transferrable to one or more other vehicles. 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

’716 Claim 8	’716 Claims 2 and 6
	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.

K. 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.”

223. For the same reasons set out for **claim 2**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim 2 here by reference. *See supra*, § VIII.D. A color-coded comparison of the claim elements is below:

’716 Claim 9	’716 Claim 2
The system of claim 7, wherein the profile of the user is transferrable to one or more other vehicles from the cloud services system.	2. The cloud-based system of claim 1, wherein the profile is transferrable to one or more other vehicles.

L. 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."

224. For the same reasons set out for **claim 3**, these limitations are satisfied by *Rector* in view of *Kleve* and *Xiao*. I incorporate my analysis of claim 3 here by reference. *See supra*, § VIII.E. A color-coded comparison of the claim elements is below:

'716 Claim 10	**'716 Claim 3**
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.	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.

M. Claim 11

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;"

225. Claim 11 depends from claim 7, which as discussed above is rendered obvious by *Rector* in view of *Kleve* and *Xiao*. A POSA would understand that *Rector* recognizes that drivers would make changes to settings by making inputs to systems of the vehicle during use while profiles are in place. For example, *Rector* discloses that after the system determines the driver's settings from the driver's database profile, "the smart vehicle detects an attempted change of a setting S353." Ex. 1005, ¶ [0043]. "This may be the driver speeding up, the radio volume changing, the driver's wireless communication device receiving an incoming call or text, etc." *Id.*; *see also id.* ("For instance, the radio volume increases, the radio station changes,…."). Other types of inputs to systems of the vehicle identified in *Rector* include "adjusting the seat back/position/mirrors based on the identified driver." *Id.*, ¶ [0049]. *Rector* further describes that the system may allow or block various changes to inputs "when the settings are in place." *Id.*, ¶ [0059].

226. A POSA would have been motivated to further reduce driver distractions to meet the stated goals of *Rector*. *Id.*, ¶¶ [0004]-[0007]. Specifically, 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. One example of this is disclosed in *Xiao*, and combining *Xiao* with the system of *Rector*/*Kleve* 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 the next time the driver uses either the same vehicle or a different vehicle, based on the stored profile settings).

227. One would have a reasonable expectation of success in combining *Rector* with the updated profile server in *Xiao*, 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 that 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).

228. A POSA would also 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. Updating inputs to the vehicle settings that are saved

on the server to reflect changed driver preferences would be a logical and natural fix to this problem. *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].

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."

229. *Xiao* discloses this claim element. *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]. As discussed above in reference to element 11[a], a POSA would have been motivated and found it obvious to combine the teachings of *Rector* and *Xiao*, and would have done so for multiple reasons. Such a combination would have also led to predictable results.

230. Accordingly, in my opinion, *Rector*/*Kleve* in combination with *Xiao* disclose the limitations of claim 11.

IX. GROUND 2: OBVIOUSNESS OF CLAIMS 12-13 IN VIEW OF *RECTOR*, *KLEVE*, AND *XIAO* (AS APPLIED TO CLAIM 11) AND FURTHER IN VIEW OF *PATENAUDE*

231. The features of claims 12-13 were well-known in the art, as evidenced, for example, by the *Rector*/*Kleve*/*Xiao* combination.

232. As explained above with respect to ground 1, *Rector*/*Kleve*/*Xiao* renders obvious the limitations of claims 1-11. To further reinforce the notion that claims of the ’716 patent are unpatentable in view of the prior art, it is my opinion that it would have been obvious to combine the *Rector*/*Kleve*/*Xiao* combination and *Patenaude*, and doing so would consequently yield the features of the profile being updated based on the user’s settings patterns. Additionally, one would have been motivated and found it obvious to combine *Patenaude* with the *Rector*/*Kleve*/*Xiao* combination for the reason stated in *Patenaude*—to “predict” a user’s settings and “overcome[] the limitations [of prior systems] … by providing a method to monitor entertainment selections to determine a user entertainment selection profile.” Ex. 1009, ¶¶ [0004]-[0005].

A. Overview of *Patenaude*

233. *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* identifies limitations of the then-current art, which could not "predict a user's entertainment selections, such as a radio station on an FM radio or a compact disc track of a CD in a CD player." *Id.*, ¶ [0004]. To this end, *Patenaude* endeavors to "determine and predict entertainment selections" by learning a user's preferences and developing an "entertainment selection profile" for that user. *Id.*, ¶ [0001]. *Patenaude* discloses an "algorithm" to determine patterns in user entertainment selections. *Id.*, ¶¶ [0055]-[0058]. Thus, *Patenaude* discloses a "learning engine."

234. *Patenaude* describes embodiments in which 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], [0076]. The method may determine that a certain "FM radio station is selected every weekday between 5:15 PM and 5:50 PM." *Id.*, ¶ [0057].

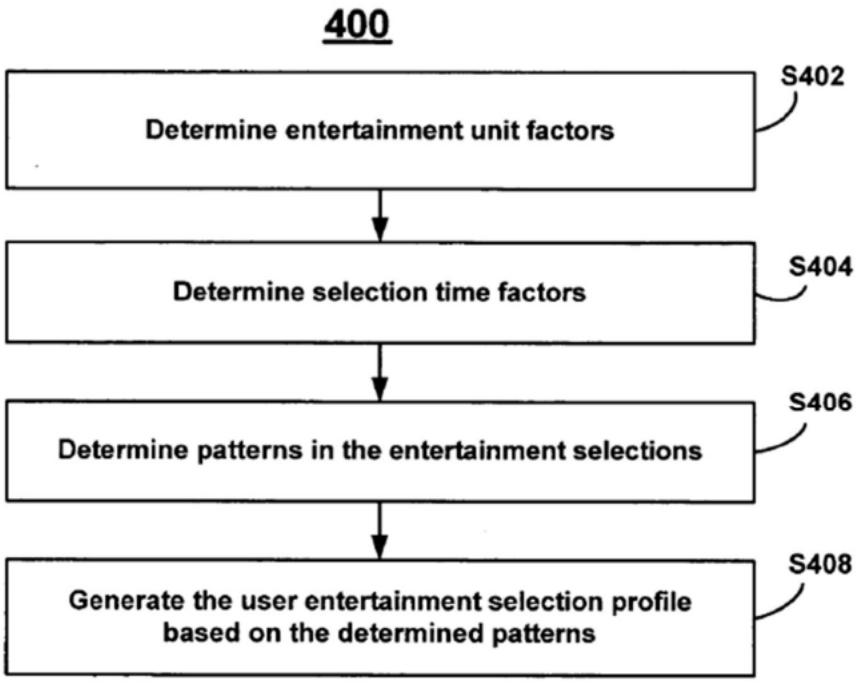


FIG. 4

Id., Fig. 4.

235. 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. Patenaude* explains it is desirable to predict and automatically apply personalized settings via such a system. *Id.*, ¶¶ [0002]-[0005].

236. *Patenaude* falls within the '716 patent's field of endeavor. *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].

237. *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].

B. A POSA would have combined the teachings of *Rector*, *Kleve*, *Xiao*, and *Patenaude*

238. A POSA would have found it obvious to enhance *Rector*/*Kleve*/*Xiao*'s method of managing profiles and vehicle settings with *Patenaude*'s method of

predicting user preferences, and a POSA would have been motivated to do so for several reasons.

239. *Rector* aims to improve the user experience of vehicle drivers, explaining that it seeks to address the need for providing means to automatically identify a driver and apply settings for the driver. Ex. 1005, ¶¶ [0001]-[0007]. *Rector* endeavors to reduce distractions and lower the risks of car crashes (which may be caused by a driver's inexperience in operating the vehicle). *Id.*, ¶¶ [0004]-[0005]. *Rector* remarks that present-day technology (at the time, 2009) has the potential to alleviate distractions because the connectivity and ubiquity of microelectronic devices could be further exploited. *Id.*, ¶ [0006]. *Rector* explains that its invention addresses these issues by automatically applying customized settings to vehicles. *Id.*, ¶ [0008]. Such settings include audio, radio, other multimedia, and entertainment settings. *See id.*, ¶¶ [0023], [0031], [0033]-[0035], [0042], [0043], [0045], [0046], [0059].

240. A POSA, in utilizing the system of *Rector*/*Kleve*/*Xiao*, would have understood that there were a variety of known/developed techniques for further improving on the user experience as motivated by the teachings of *Rector*. One such enhancement would be the ability of the system to identify user behaviors and predict a user's preferences or settings based on past behavior or selections. *Patenaude*, for example, demonstrates one such way of extending the usability and convenience of

a system that automatically sets automobile system settings, such as audio and other multimedia settings. *See* Ex. 1009, ¶¶ [0001]-[0005].

241. As another example, one would look to *Patenaude* to improve the user experience of *Xiao*, and would have had a reasonable expectation of success in doing so. Initially, *Xiao* itself aims to improve the user experience of automobile operators, explaining that it seeks to overcome the drawbacks of conventional keyless entry systems. Ex. 1007, ¶¶ [0001]-[0004]. *Xiao* endeavors to increase the usefulness of keyless entry systems and make them more convenient. *Id.*, ¶ [0003]. *Xiao* demonstrates that the automobile operator's experience can be improved using a system having wireless communication able to cause "apply[ing] automobile system settings based on preferences contained in an operator profile." *Id.*, ¶ [0023]. Such automobile system settings include audio and other multimedia settings. *See id.*, ¶¶ [0042], [0049], [0070].

242. In attempting to further improve on *Xiao*, it would have been natural to look toward one of the known techniques in the prior art. *Patenaude*, for example, demonstrates one such way of extending the usability and convenience of a system that automatically sets automobile system settings, such as audio and other multimedia settings. *See* Ex. 1009, ¶¶ [0001]-[0005].

243. In the state of the art existing at the time of the alleged invention of the '716 patent, performing data analytics to better understand user behavior was a well-

recognized technique. As exemplified by *Patenaude*, making predictions of a user's selections based on their past behavior was one such known technique. *Id.* By the date of the alleged invention of the '716 patent, "know your customer," for example, was a common mantra. Creating a customized user experience based on learned information and behaviors was commonplace by this timeframe. Extending such functionality to *Rector* and/or *Xiao* would have been obvious.

244. *Xiao* discusses activating various functionalities of an automobile before actually entering the automobile, which is desirable for enhancing convenience. Ex. 1007, ¶¶ [0001]-[0004]. It was well-known in the art for a computerized system to learn a vehicle user's preferences and apply them before using the vehicle, as demonstrated by *Patenaude*. *Patenaude*'s pattern recognition system would also have been an obvious improvement to *Xiao*'s system of server-stored user profiles because it could improve the settings stored in the user profile and thereby improve the user experience. *Id.*, ¶¶ [0001]-[0005]. For example, one could use *Patenaude*'s teachings for predicting setting selections to cause *Xiao*'s system to add settings to a user's profile that the user is predicted to make, or to update settings in light of patterns learned from the user's selections.

245. Furthermore, implementing the automatic learning and loading of settings in *Patenaude* in the method of *Xiao* would require no more than obtaining the predictable result of enhancing convenience as taught by *Patenaude*. *Id.* One

would have naturally recognized that implementing a known learning engine (or "pattern recognition" system, as it was commonly called) would have enhanced convenience by automatically determining settings based on a user's behavior. Moreover, it is obvious to automate a manual activity, such as applying setting adjustments, to obtain the same result.

246. For example, *Patenaude* recognized and identified a problem with the then-current (as of 2004) state of the art that it was unable to "determine and predict a user's entertainment selections, such as a radio station on an FM radio or a compact disc track of a CD in a CD player," *see* Ex. 1009, ¶ [0004], and described solutions to "determine[e] at least one user entertainment selection profile based on the monitoring and activating entertainment units based on the profile." *Id*., ¶ [0006]; *see also id.*, ¶¶ [0001]-[0005]. It would have been obvious to apply this reasoning and improve the system of *Xiao*.

247. Furthermore, *Patenaude* is analogous art to the claimed invention of the '716 patent. For example, it is from the same field of endeavor as the claimed invention (*i.e.*, applying settings to automobiles based on user preferences). Also, *Patenaude* is reasonably pertinent to the problem faced by the inventors (*i.e.*, improving convenience in applying settings to automobiles). *See supra*, ¶ 237. This is shown by way of, for example, *Xiao*'s description of problems in existing automobile keyless entry systems and *Xiao*'s disclosure of a system to apply, over

a network, "automobile system settings based on preferences contained in an operator profile." Ex. 1007, ¶¶ [0001]-[0003], [0023]. Also, *Patenaude* describes efforts to overcome limitations in prior systems that did not automatically apply user settings to vehicle entertainment units. Ex. 1009, ¶¶ [0002]-[0005]. *Rector* and *Patenaude* (and *Kleve* and *Xiao*) recognize the benefit of improved convenience by automatically applying a user's desired settings, which include multimedia settings. Ex. 1005, ¶¶ [0023], [0031], [0033]-[0035], [0042], [0043], [0045], [0046], [0059]; Ex. 1009, ¶¶ [0001]-[0005].

C. Claim 12

> **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."**

248. It would have been obvious to add a "learning engine" to the method made obvious by the *Rector*/*Kleve*/*Xiao* combination. *Rector* discusses automatically applying settings for a vehicle, which is desirable for enhancing convenience and reducing preventable distractions. Ex. 1005, ¶¶ [0001]-[0008]. A POSA utilizing the combination of *Rector*/*Kleve*/*Xiao* would have understood that in the art there were a variety of known/developed techniques for further improving the user experience as motivated by the teachings of *Rector*. *Supra*, § IX.B.

249. One such enhancement would be the ability of the system to determine user input patterns of vehicle system settings. *Patenaude* discloses such a method of determining a user's entertainment selection profile in a vehicle. Ex. 1009, ¶ [0051]. As shown and described with reference to Fig. 4 (and other embodiments), a telematics unit "determines patterns in the entertainment selections" of a user, and "generates a user entertainment selection profile based on the determined patterns." *Id.*, ¶¶ [0055], [0058], Fig. 4.

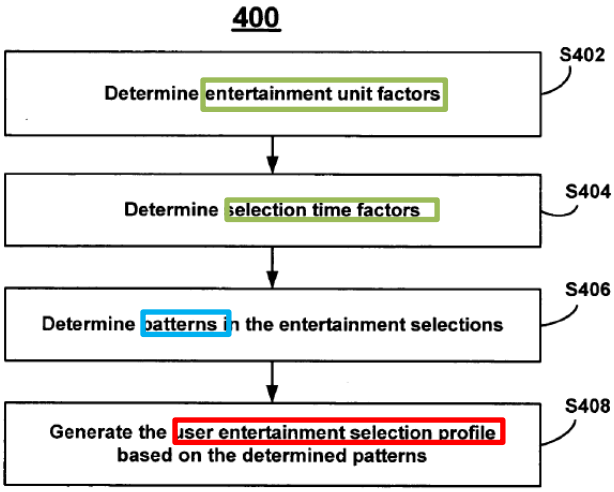


FIG. 4

Annotated Fig. 4 of *Patenaude*

250. "[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]. These are based on user input (*e.g.*, setting modifications). *Id.*, ¶ [0056]. "After a minimum

number of entertainment unit factors and selection time factors are stored in the in-vehicle memory 128 for the specific user, the processor 122 applies an algorithm on the stored entertainment unit factors and selection time factors." *Id.*, ¶ [0069]. *Patenaude* explains that entertainment unit factors are user inputs that include one or more of "a satellite radio unit code, an AM radio unit code, an FM radio unit code, …" and so on. *Id.*, ¶ [0052]. Selection time factors further describe the setting modifications and include "time of day of the entertainment selection, a day of week of the entertainment selection, a week of month of the entertainment selection, and a date of the entertainment selection." *Id.*, ¶ [0054].

251. It was well-known in the art for a computerized system to learn a vehicle user's preferences (by determining/finding patterns) and apply them before using the vehicle (*e.g.*, upon "power-up"), as demonstrated by *Patenaude*. Ex. 1009, ¶¶ [0001]-[0005], [0043]-[0046], [0053], [0060]-[0078]. Furthermore, implementing the learning engine of *Patenaude* in the method of *Rector* would require little more than combining prior art elements in known ways to further enhance convenience as taught by *Patenaude*. *Id.* Such combination would also naturally result in the elements of claims 12-13 being met in the method made obvious by *Rector*, *Kleve*, *Xiao*, and *Patenaude*.

252. Furthermore, it would have been obvious to have *Patenaude*'s processing to determine patterns on a server because it would 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].

253. Also, in the method made obvious by *Rector*, *Kleve*, and *Xiao*, as discussed above with reference to claims 1 and 11, inputs (*e.g.*, changes) made to systems of the vehicle are communicated to the server, and thus it follows that the claimed "processing by the learning engine" (as recited in claim 12) would also occur at the server, and a POSA would have a reasonable expectation of success effectuating this for at least the same reasons discussed above with respect to claims 1 and 11. *See supra*, §§ VIII.C, VIII.M. With the changes having been communicated to the server, it makes logical sense that a learning engine (like in *Patenaude*) would process them there.

254. Further, claim 12 includes the same substance as claim 5 of the '244 patent, as shown below (*see* Ex. 1016, 33:49-53):

'716 Claim 12	**'244 Claim 5**
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.	The method of claim 4, 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.

255. Accordingly, in my opinion, *Rector*/*Kleve*/*Xiao* in combination with *Patenaude* disclose the limitations of claim 12.

D. Claim 13

> **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."**

256. Further to claim 12, *Patenaude* discloses the above quoted limitation. In combining *Patenaude* with *Rector*/*Kleve*/*Xiao* as discussed above with respect to claim 12, implementing *Patenaude*'s learning engine would have naturally entailed sending (separate from the "at least one of said plurality of settings" that is restricted, as recited in claim 1) a recommended setting (*e.g.*, a setting determined from learned patterns) to a user account (*e.g.*, to a "user account," as discussed in *Rector*) so that such recommended setting would be applied to the vehicle when next used with the profile (*e.g.*, when the user uses the vehicle and his/her profile is loaded). As explained above, the "inputs made to systems of the vehicle" (*e.g.*, user changes to vehicle settings) would be communicated to the server, where they would be processed by the "learning engine." *See supra*, §§ IX.B-C.

257. Having done that, a POSA would have been motivated to produce a recommended setting from the user-specific patterns found/determined by the learning engine. Then, the recommended setting would be sent to the user account (*e.g.*, sent to the "user account" associated with the driver, which could be accessed/viewed/managed at a variety of locations) so that the recommended setting could be applied at the vehicle. *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]. Also, settings for a driver may be managed via a "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, such as by the means described by *Rector*, just like the '716 patent describes. *See, e.g.*, Ex. 1001, 13:27-32 ("In one embodiment, the profile can be managed at a user account saved to a central or cloud distributed system, to manage access. Any vehicle can be abstracted so that any user can log into any vehicle if they have an account that allows access to that vehicle."), *see also id*., 29:54-58 ("In one embodiment, at a remote location, a user is able to access a user interface for an application, which provides users access to user accounts. A user account can be for a user and the user can add one or more vehicles, objects, data or appliances for remote reporting, viewing and control."). Like the '716 patent, one would understand that the "user account" of *Rector* could receive settings

(including recommended settings) and could be accessed to view/manage/accept/reject or otherwise apply them, including, *e.g.*, in the vehicle. *See, e.g.*, Ex. 1005, ¶ [0059] (discussing managing settings "on a wireless communications device in communication with a network, on a personal computer in communication with the network through a web portal, *on a screen in a vehicle*, etc."); Ex. 1006, ¶ [0037] ("the Owner and Temporary User may set up a user profile using a website or nomadic device communicating with the site that is stored in a database.").

258. One would also have been motivated to send such recommended setting to the user account so that it could be applied in the vehicle without (or with less) user intervention, 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]; *see also supra*, ¶ 120. It was 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, as disclosed by *Rector*, *Kleve*, and *Xiao*. *See, e.g.*, Ex. 1005, ¶¶ [0025], [0027], [0030]-[0032], [0039]-[0040], [0048]-[0049], [0053], Figs. 1-2; Ex. 1006, ¶¶ [0021-0023], [0035], [0048]-[0049], [0057]-[0060], Figs. 1, 4-5; Ex. 1007, ¶¶ [0026]-[0028], [0061]-[0063], Figs. 1, 4, 7. 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. *Supra*, § VIII.C.1[b]. A POSA would have a reasonable expectation of success enhancing the references to have the recommended setting sent to the user account because, as the references demonstrate, the user account can receive various information to enable personalized driving. Ex. 1005, ¶ [0027] ("The 'user account' includes several attributes for a particular user"), *see also id*., ¶ [0031] ("The settings, at least in part, are set by a controlling authority, such as a parent or superior of the driver. The settings may be set by the controlling authority through a web browser. . . ."); Ex. 1006, ¶ [0064] ("The Temporary User may also use their nomadic device to exchange or collect information for the enablement of a keyless drive-away system"), *see also id*., ¶ [0086] ("The website may be formatted to allow the Temporary User to input profile information using a personal computer, smart phone or other nomadic device."). A POSA would also 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]. And a POSA would have a reasonable expectation of success moving such processing to the server because a server is capable of various processing tasks. 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").

259. Specifically, regarding the recommended setting, *Patenaude* discloses a method 600 (shown in Fig. 6 below) 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 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 that a recommended setting (*e.g.*, a setting determined from the user-specific pattern) is automatically applied when a telematics unit is powered up and the user has been identified. *Id.*, ¶ [0074] ("During stage S612, the telematics unit 120 powers-up at least one entertainment unit 135, 136, or 137 based on the retrieved user-specific entertainment selection profile."). *Patenaude* also teaches its "user entertainment selection profile" may be stored within the vehicle or externally (*e.g.*, call center 170). Ex. 1009, ¶ [0058].

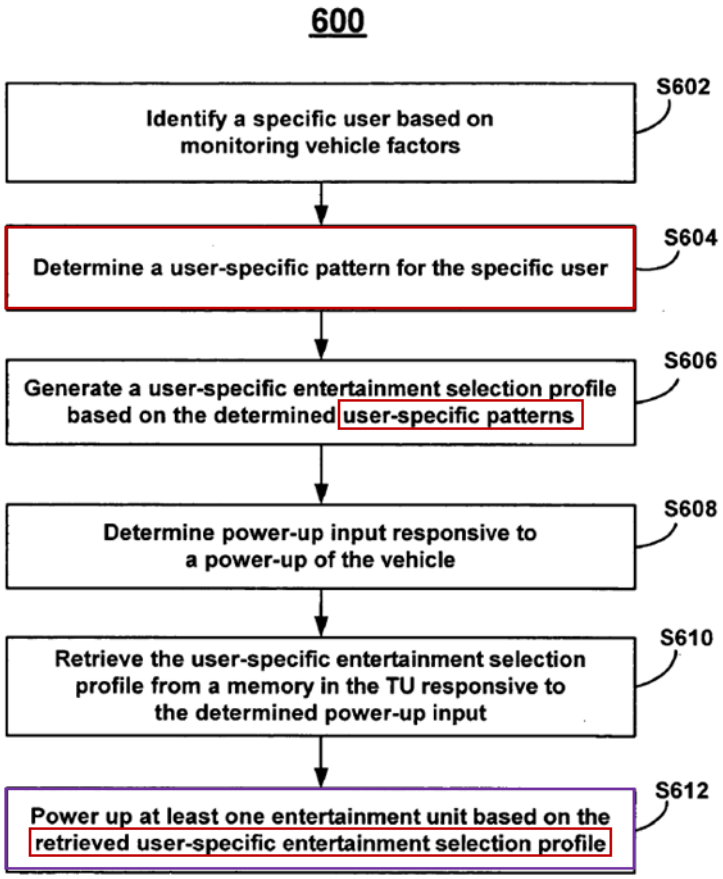


FIG. 6

Annotated Fig. 6 of *Patenaude*

260. Thus, it would have been obvious, based on *Patenaude*, to enhance *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 (*e.g.*, 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).

261. Further, claim 13 includes the same substance as claim 6 of the '244 patent, as shown below:

'716 Claim 13	**'244 Claim 6**
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.	The method of claim 5, further comprising, sending, by the server, 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.

Ex. 1016, 33:54-61.

262. Accordingly, in my opinion, *Rector*/*Kleve*/*Xiao* in combination with *Patenaude* disclose the limitations of claim 13.

X. GROUND 3: OBVIOUSNESS OF CLAIMS 5-6 IN VIEW OF *RECTOR*, *KLEVE*, AND *XIAO* (AS APPLIED TO CLAIM 1) AND FURTHER IN VIEW OF *HAYASHI*

263. The features of claims 5 and 6 were well-known in the art, as evidenced, for example, by *Xiao* and *Hayashi*.

264. As explained above with respect to ground 1, *Xiao* discloses or renders obvious the "determining settings that are compatible . . . for said vehicle type" limitations of claim 1, as well as the limitations of claims 5 and 6. To further reinforce that claims 5 and 6 are unpatentable in view of the prior art, it is my opinion that it would also have been obvious to combine *Hayashi* with the *Rector*/*Kleve*/*Xiao* combination, and doing so would consequently yield the features of claims 5 and 6 (*i.e.*, Claim 5: "determining settings compatib[ility]" 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"; and Claim 6: "processing by a mapping engine, a translation metric to adjust a function of a specific setting . . . such that incompatibility of the specific setting is made compatible . . .").

A. Overview of *Hayashi*

265. *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 he/she is driving. *Id.*, ¶¶ [0004]-[0005].

266. For example, a driver may operate a vehicle that the driver is not accustomed to driving. *Id.*, ¶ [0137]. The driver may wish to adjust settings, such as the seat or mirror. *Id.*, ¶ [0122]. However, if the driver is not familiar with the function of that particular vehicle, she may mis-operate the vehicle, risking an accident. *Id.*, ¶ [0004]. *Hayashi* guides the driver by "graphically depict[ing] the positions of a shift lever, a parking brake, or the like on display portion 250 and guid[ing] the operating method thereof by voice." *Id.*, ¶ [0123]; *see also id.*, ¶ [0111]. *Hayashi* describes database 134 that "stores operating methods for each function according to vehicle model." *Id.*, ¶ [0029]. These functions may include user settings for the vehicle, such as "shift lever, parking brake, seat adjustment function, or mirror adjustment function." *Id.*, ¶ [0120]. Recognizing the assortment of vehicles, *Hayashi* explains operating methods for such functions may be the same or different, from vehicle to vehicle. *Id.*, ¶¶ [0002], [0005], [0007], [0009], [0029], Fig. 6.

267. Fig. 6 depicts database 134 with operating methods for various functions (function 1, 2, 3) that vary by vehicle model (vehicle model α, β, γ). For example, for vehicle model α and for vehicle model β, function 1 is achieved by performing operating method X. For vehicle model γ, function 1 is achieved by performing operating method Y. *Hayashi* demonstrates the concept of compatibility checking by explaining "[i]f a certain 'vehicle model' does not have a certain 'function,' 'none' may be stored … as the operating method." *Id.*, ¶ [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	...
...	...	...	...	...

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Id., Fig. 6.

268. *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).

269. *Hayashi* is also pertinent to at least one 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 data-center servers. Ex. 1001, 2:10-12, 2:50-55, 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].

B. A POSA would have combined the teachings of *Rector/Kleve/Xiao* and *Hayashi*

270. A POSA, when working with the system of *Rector*/*Kleve*/*Xiao* would have had reason to look to *Hayashi* for purposes of overcoming shortcomings. Specifically, a POSA would have recognized that the system of *Rector*/*Kleve*/*Xiao* could be improved by adding cross-referencing between vehicle models for purposes of compatibility. *Hayashi*'s method of organizing functions by vehicle model and determining compatibility/incompatibility is one such method, and a POSA would have been motivated to combine *Hayashi* with *Rector*/*Kleve*/*Xiao* for

several reasons. Furthermore, a POSA would have had a reasonable expectation of success in doing so, given that it would merely require software adjustment.

271. *Xiao* recognizes there may be different "commands for a variety of types [of] automobiles." Ex. 1007, ¶ [0085]. *Xiao* describes applying particular profile settings to particular automobiles via such commands. *Supra*, § VIII.C. A POSA, reading *Xiao*, would have immediately appreciated the concept of determining compatibility, and would have found it obvious to implement with *Xiao*'s system of automobile commands. For example, to account for the heterogeneity of vehicles that may be operated in a practical setting, a POSA would have known how to include information regarding compatibility of commands in *Xiao*'s information 600 because *Xiao* recognizes that various types of information can be included. *Id.*, ¶ [0087] (noting "other information that may be used to identify a particular automobile command"). With such information, server 118 would determine applicable settings that are compatible with settings that are settable in the selected vehicle but would avoid determining applicable settings that are incompatible with settings that are settable in the selected vehicle, ensuring that server 118 does not attempt to command vehicles to do things they cannot do, potentially resulting in unexpected and/or undesired vehicle configurations or errors. For example, recognizing the heterogeneity of vehicles, one would have been motivated to determine applicable settings (*e.g.*, command codes) that are

compatible with settings in the selected vehicle but would avoid determining applicable settings that are incompatible with settings in the selected vehicle, ensuring that *Xiao*'s server 118 does not attempt to command vehicles to do things they cannot do, potentially resulting in unexpected and/or undesired vehicle configurations or errors. Avoiding such undesirable effects would be a predictable result of implementing *Hayashi*'s known method of determining compatibility and incompatibility.

272. There are a limited number of options available for providing a listing of appropriate command codes, as in *Xiao*. For example, for any given vehicle, a command either has a corresponding command code, or it does not. Enhancing *Xiao* would be as straightforward as providing an indication such as "none" in the tables of Fig. 6 of *Xiao* rather than, for example, an empty cell where there is no corresponding command code. *Xiao* states that its tables are "an exemplary representation of wireless automobile key service information 600 stored in storage device 506." Ex. 1007, ¶ [0065]. This includes command information 606, which contains "a command code 632 associated with each command that may be issued to the automobile 112." *Id.*, ¶ [0088]. A POSA would have looked to *Hayashi*'s method of determining settings as compatible/incompatible and providing an indication of the same, as an example of how to provide a listing of appropriate command codes.

273. Additionally, both *Xiao* and *Hayashi* are analogous art to the '716 patent because the references (1) are from the same field of endeavor (*i.e.*, applying settings to automobiles based on user preferences); and/or (2) the references are reasonably pertinent to the problem faced by the inventor (*i.e.*, improving convenience for users to apply settings to automobiles). *See, e.g.*, Ex. 1001, 13:42-50 ("The purpose of abstracting vehicle operators from the vehicle itself is a shift from the current state of the art in which settings are vehicle specific . . . . The embodiments defined herein allow each user to apply his or her settings to any vehicle . . . ."); *see also id*., 22:61-23:25 (". . . regardless of the vehicle that the user chooses to drive. This is in contrast to current models that customize settings for one vehicle owner . . . . This is especially useful for cases where a user drives many cars, but wishes to keep his settings constant."). For example, *Xiao* states that there may be multiple "automobile**s**" that an operator can use, and that setting-applying commands can be issued to "a variety of types [of] automobiles 112 made by different manufacturers." Ex. 1007, ¶¶ [0022], [0024], [0085]. *Hayashi* explains that vehicles may be equipped with various systems to achieve certain functionality, but "the operating methods for these functions depends on the vehicle model, model year, etc. of the vehicle." Ex. 1013, ¶ [0002].

274. Specifically, *Hayashi* discloses processing "[p]ortion 113 for extracting function differences according to vehicle model" performing a process

wherein the system "extracts 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*., ¶¶ [0091]-[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.*

275. The vehicle model information acquisition processing portion 211 is capable of "extract[ing] information about functions which are the same [but] have different operating methods between vehicle model[s] frequently used by the user (or vehicle models owned by the user) and the reserved vehicle model and stores in in operating method difference information DB231." *Id.* ¶ [0105]. 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* aims to address a driver's unfamiliarity with the systems of particular vehicles by providing guidance to enable the driver to achieve certain desired functions that are compatible with the vehicle he or she is driving. *Id.*, ¶ [0004]. Thus, both *Xiao* and *Hayashi* are pertinent to the issue of improving convenience by reducing distractions for users to apply their preferred settings to the same or different automobiles (*i.e.*, vehicle type).

C. Claims 5 and 6

276. In the following analysis, I assume these specific elements of claims 5 and 6 are not explicitly disclosed by *Xiao*, which may be because, for example, the extent these elements are interpreted to expressly require determining settings that are "incompatible" vs. "compatible," and it could possibly be found that *Xiao* does not explicitly disclose the determination of incompatibility. However, it would have been obvious to combine *Xiao* and *Hayashi*, which would result in the elements of claims 5 and 6 being met.

> **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."**

277. A POSA would have found it obvious to enhance the server system of *Rector*/*Kleve*/*Xiao*, which determines settings that are compatible with a given

vehicle type, to include the mapping function of *Hayashi* for determining incompatibility of profile settings for the vehicle type.

278. *Hayashi* discloses database 134 as shown in Fig. 6, which "stores operating methods for each function of each vehicle model." Ex. 1013, ¶ [0029]. These functions may include user settings for the vehicle, such as "shift lever, parking brake, seat adjustment function, or mirror adjustment function." *Id.*, ¶ [0120]. *Hayashi*'s server system further performs "extracting function differences according to vehicle model" by server processing portion 113 "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.*, ¶¶ [0091]-[0092]; Fig. 2. Recognizing the heterogeneity of vehicles, *Hayashi* explains operating methods for such functions may be the same or different, from vehicle to vehicle. *Id.*, ¶¶ [0002], [0005], [0007], [0009], [0029], Fig. 6. For example, for vehicle model α and for vehicle model β, function 1 is achieved by performing operating method X. For vehicle model γ, function 1 is achieved by performing operating method Y. *Id.*, ¶ [0029], Fig. 6. *Hayashi* actively determines certain functions or operating methods are compatible with certain vehicle models by specifying, *e.g.*, method X, Y, Z, etc., for implementing such functions. For example, although vehicle model α and vehicle model β are different, *Hayashi*

determines that function 1 and operating method X are compatible with those vehicle models. Also, *Hayashi* determines that, for a different vehicle model γ, function 1 and operating Y are compatible with that vehicle.

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

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Fig. 6 of *Hayashi*

279. As shown in Fig. 6 above, *Hayashi* demonstrates the incompatibility of various operating methods for different models. For example, operating method X is compatible with vehicle models α and β, but is incompatible with vehicle model γ, for which only operating method Y is identified as compatible. Similarly, while operating method R is compatible with vehicle model γ, it is incompatible with vehicle models α and β.

280. *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 . . . ." *Id.*, ¶ [0029], Fig. 6. This

can be visualized as follows:

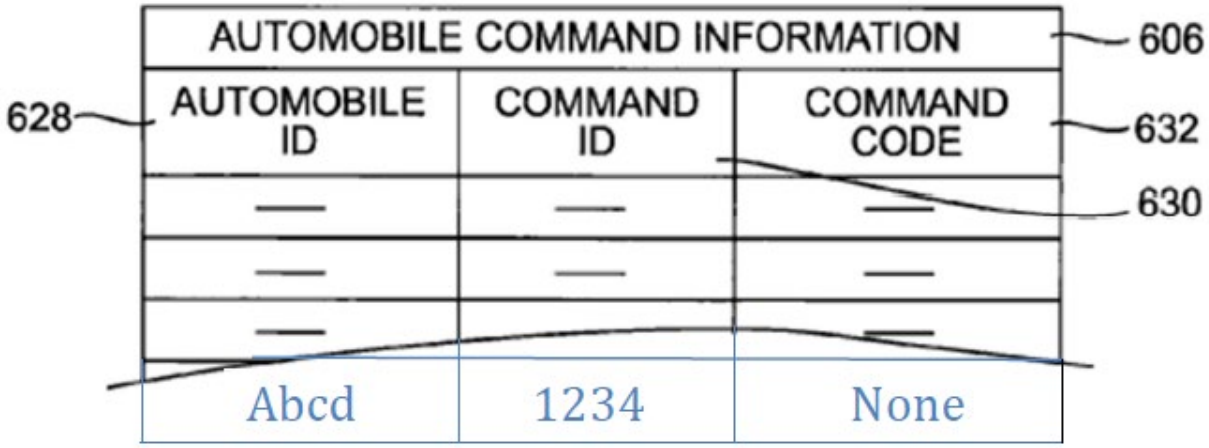
Operating Method by Vehicle Model				
	Model α	Model β	Model γ	Model δ
Function 1	Op. Meth. X	Op. Meth. X	Op. Meth. Y	Op. Meth. X
Function 2	Op. Meth. P	Op. Meth. Q	Op. Meth. R	None
Function 3	Op. Meth. S	Op. Meth. T	Op. Meth. T	Op. Meth. T
Function 4	Op. Meth. Z	Op. Meth. W	None	Op. Meth. Z

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

281. As shown, "function 4" is incompatible with vehicle model γ, and thus, "none" is listed as the operating method. Likewise, "function 2" is incompatible with vehicle model δ, and thus, "none" is listed as the operating method. Thus, there may be a variety of vehicles which may have operating methods the same or different from one another for certain functions, demonstrating their compatibility, or some vehicles may simply be incompatible with certain functions. A POSA would have considered it useful to have a database indicating which vehicles are compatible/incompatible with respective functions/operating methods, as in *Hayashi*.

282. A POSA would have been motivated to apply such teachings of *Hayashi* to *Rector*/*Kleve*/*Xiao*, as explained above (*see supra*, § X.B). As an example, in the table of automobile command information 606, as shown in Fig. 6

of *Xiao*, it would have been obvious to indicate certain commands are compatible/ incompatible with certain automobiles.



Annotated Fig. 6 of *Xiao*

283. For example, there may be an automobile having an automobile ID 628 for which a certain command ID 630 has no corresponding command code 632. It would have been an obvious and straightforward enhancement of *Xiao* to use an indicator such as "none," for example, for commands having no corresponding command code on a vehicle, based on *Hayashi*. Thus, one would have looked to *Hayashi* and found an example of how a server may determine both compatibility and incompatibility, yielding a combination that would meet claim 5.

284. Accordingly, in my opinion, *Rector*/*Kleve*/*Xiao* in combination with *Hayashi* disclose the limitations of claim 5.

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."

285. A POSA working with the server system of *Rector*/*Kleve*/*Xiao* would have recognized that there were a variety of known/developed techniques for further improving on the user experience. One such improvement would be the ability to adjust functions or instructions so that they are compatible with the specific vehicle type selected. *Hayashi* teaches one way to make such an improvement, by comparing selected functions to a database of functions compatible and incompatible with different vehicles for specific settings, then matching and selecting the compatible function for the given vehicle. For example, the system in *Hayashi* "extract[s] function differences according to vehicle model" by a process wherein the system "extracts 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." Ex. 1013, ¶ [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.*, ¶ [0103], Figs. 16 (S220), 17 (S303). By identifying 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 own vehicle are incompatible with the rental vehicle. The server then "transmits extracted information to vehicle 20." *Id.*, ¶ [0103]; *see also id.* Fig. 17 (S303). The "vehicle model information acquisition processing portion 211" in the vehicle of *Hayashi* "extracts information about functions which are the same [but] have different operating methods between vehicle model[s] frequently used by the user (or vehicle models owned by the user) and the reserved vehicle model and stores it in operating method difference information DB 231." *Id.*, ¶ [0105]. For a given function, the vehicle's "scene determination portion 212 extracts appropriate functions" (specifically, the operating method for the selected vehicle that is different from the operating method of the driver's own vehicle), and "output[s] to display portion 240 and audio output portion 250, guiding the user." *Id.*, ¶ [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.").

286. Accordingly, in my opinion, *Rector*/*Kleve*/*Xiao* in combination with *Hayashi* disclose the limitations of claim 6.

XI. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

287. I am not aware of any secondary considerations, or so-called "objective indicia of non-obviousness" for the challenged claims. Secondary considerations could include things like commercial success of a product due to the merits of the claimed invention; a long felt need for the solution provided by the claimed invention; unsuccessful attempts by others to find the solution provided by the claimed invention; copying of the claimed invention by others; unexpected and superior results from the claimed invention; acceptance by others of the claimed invention as shown by praise from others in the field or from the licensing of the claimed invention; teaching away from the conventional wisdom in the art at the time of the invention; independent invention of the claimed invention by others before or at about the same time as the named inventor thought of it; and other evidence tending to show obviousness.

288. Further, Patent Owner has not identified any such secondary considerations. For example, Patent Owner has no commercial products embodying the '716 patent that I am aware of. Additionally, as discussed throughout this declaration, the claimed features reflect predictable results of combining known elements according to their known functions, and thus, there are no unexpected and superior results from the claimed invention. Also, there are no licenses to the '716 patent of which I am aware.

289. Further, even if Patent Owner were to assert that secondary considerations exist, given the strong reasons that the challenged claims are obvious in light of the state of the art and the prior art cited herein, including the motivations to combine the references set forth above, I do not believe any such secondary considerations would rise to the level of overcoming the invalidity opinions I have expressed.

290. I understand that Patent Owner may address the issue of secondary considerations more fully in the future. I reserve the right to respond to any specific bases for such secondary considerations that Patent Owner may identify.

XII. CONCLUSION

291. For the reasons set forth above, I believe claims 1-13 of the ’716 patent are unpatentable in view of the prior art. In signing this declaration, I understand that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in this case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

292. I declare that all statements made herein of my knowledge are true, that all statements made on information and belief are believed to be true, and that

these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: October 21, 2025 By: Kevin C. Almeroth
Kevin C. Almeroth, Ph.D.