

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORP.,
Petitioner,

v.

EMERGING AUTOMOTIVE LLC,
Patent Owner.

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

**DECLARATION OF KEVIN C. ALMEROOTH, PH.D.
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 9,171,268**

Table of Contents

I.	Introduction.....	4
II.	Qualifications and Background	5
III.	Materials Considered	18
IV.	Legal Standards	19
	A. Claim Construction.....	20
	B. Anticipation Under 35 U.S.C. § 102	20
	C. Obviousness Under 35 U.S.C. § 103.....	21
	D. Priority Under 35 U.S.C. § 120	24
V.	The '268 Patent.....	27
	A. Overview of the '268 Patent.....	27
	B. Priority Analysis of the '268 Patent	31
	C. Prosecution History of the '268 Patent	40
	D. Person of Ordinary Skill in the Art	40
VI.	Claim Construction of Terms of the '268 Patent	42
VII.	Summary of Opinions on Unpatentability.....	43
	A. Summary of <i>Xiao</i>	43
	B. Other Prior Art.....	49
VIII.	Ground 1: Anticipation of claims 10, 11, 13, and 15-19 by <i>Xiao</i>	50
	A. Independent Claim 10	50
	B. Claim 11	70
	C. Claim 13	73
	D. Claim 15	75
	E. Claim 16	79
	F. Claim 17	80
	G. Claim 18	82
	H. Claim 19	87
IX.	Ground 2: <i>Xiao</i> in combination with <i>Hayashi</i> renders claims 10, 11, 13, and 15-19 obvious.....	89

A.	A POSA would have combined the teachings of <i>Xiao</i> and <i>Hayashi</i>	90
B.	Claim 10	93
C.	Claims 11, 13, 15-19	97
X.	Ground 3a: <i>Xiao</i> in combination with <i>Patenaude</i> renders claim 12 obvious Ground 3b: <i>Xiao</i> in combination with <i>Hayashi</i> and <i>Patenaude</i> renders claim 12 obvious.....	97
A.	A POSA would have combined the teachings of <i>Xiao</i> and <i>Patenaude</i>	97
B.	Claim 12	101
XI.	Ground 4a: <i>Xiao</i> in combination with <i>Singh</i> renders claim 14 obvious Ground 4b: <i>Xiao</i> in combination with <i>Hayashi</i> and <i>Singh</i> renders claim 14 obvious.....	104
A.	A POSA would have combined the teachings of <i>Xiao</i> and <i>Singh</i>	104
B.	Claim 14	108
XII.	Ground 5: <i>Xiao</i> in combination with <i>Hayashi</i> and <i>Patenaude</i> renders claim 20 obvious.....	111
A.	Claim 20	111
B.	A POSA would have combined the teachings of <i>Xiao</i> and <i>Patenaude</i>	125
C.	A POSA would have combined the teachings of <i>Xiao</i> and <i>Hayashi</i>	125
XIII.	Secondary Considerations of Non-obviousness	126
XIV.	Conclusion	128

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 and Trademark Office. Although I am being compensated at my usual and customary rate of \$800 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. 9,171,268 (the “’268 patent”), and I have been asked to provide my opinions as to the patentability of the claims of the ’268 patent. I understand that the application for the ’268 patent was filed on October 9, 2013, and claims priority to a U.S. application having a filing date of March 15, 2013. I understand the ’268 patent also purports to be a continuation-in-part of a U.S. application filed April 22, 2012, and claims priority to two U.S. provisional applications, one filed December 24, 2012, and one filed April 22, 2011. I was also asked to evaluate Patent Owner’s priority claims for the ’268 patent. As discussed herein, it is my opinion that claims 10-20 are entitled to a priority date of no earlier than October 9, 2013.

4. I have been asked to consider the validity of certain claims of the ’268 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 '268 patent. Based on the prior art discussed in this declaration, it is my opinion that claims 10-20 of the '268 patent are unpatentable for the reasons provided below.

II. QUALIFICATIONS AND BACKGROUND

5. 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 1008.

6. 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.

7. 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.

8. 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.

9. In 1992, the initial focus of my research was on the provision of

interactive functions (e.g., VCR-style functions like pause, rewind, and fastforward) 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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 network spans the protocol stack from applications through to the encoding and exchange of data at the data link and physical layers.

17. 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.

18. 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.

19. 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.

20. 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.

21. 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.”

22. As an important component of my research program, I have been involved in the development of academic research into available technology in the market place. 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.

23. 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.

24. 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.

25. 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 curriculum vitae (CV) (Ex. 1008).

26. 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.

27. 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.

28. 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 have 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.

29. 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

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

Exhibit	Description
Ex. 1001	U.S. Patent No. 9,171,268 to Penilla et al.
Ex. 1002	Prosecution File History for U.S. Patent No. 9,171,268.
Ex. 1003	U.S. Provisional Application No. 61/745,729.
Ex. 1004	Originally-Filed Specification of U.S. Application No. 13/842,158.
Ex. 1005	U.S. Provisional Application No. 61/478,436.
Ex. 1006	Originally-Filed Specification of U.S. Application No. 13/452,882.
Ex. 1007	Comparison Result of Specifications of U.S. Application No. 14/050,314 to U.S. Application No. 13/842,158, with Annotations Showing Added “Compatibility” Disclosure.
Ex. 1010	U.S. Patent Application Pub. No. 2012/0164989 A1 to Hong Xiao et al.
Ex. 1011	U.S. Patent Application Pub. No. 2006/0136106 A1 to Russell A.

	Patenaude et al.
Ex. 1012	U.S. Patent Application Pub. No. 2007/0255464 A1 to Amita Singh et al.
Ex. 1013	Japanese Patent Application Pub. No. 2012-076627 A to Kunikatsu Hayashi et al.
Ex. 1015	Patent Owner's Infringement Contentions of the '268 Patent in E.D. Tex. Civil Action No. 2:23-cv-434

IV. LEGAL STANDARDS

31. In forming my opinions and considering the subject matter of the '268 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.

32. 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.

33. 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

34. 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.

35. 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.

36. 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

37. 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

38. 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 person of ordinary skill in the field who knew about all the prior art would have come up with the claimed invention. I understand that in an obviousness determination, the person of ordinary skill in the art is presumed to have knowledge of all material prior art. I understand that whether a claim is obvious is based upon the determination of several factual issues.

39. 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.

40. In considering obviousness, I understand that one must determine the scope and content of the prior art. I understand that, in order to be considered as

prior art to a patent being considered, a prior art reference must be reasonably related to the claimed invention of that patent. A reference is reasonably related if it is in the same field as the claimed invention or is from another field to which a person of ordinary skill in the art would look to solve a known problem.

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

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

43. I understand that whether a prior art reference renders a patent claim unpatentable as obvious is determined from the perspective of a person of ordinary skill in the art at the time of the alleged invention. I have been told that there is no

requirement that the prior art contain an express suggestion to combine known elements to achieve the claimed invention, but a suggestion to combine known elements to achieve the claimed invention may come from the prior art, as filtered through the knowledge of one skilled in the art. In addition, I have been told that the inferences and creative steps a person of ordinary skill in the art would employ are also relevant to the determination of obviousness.

44. 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.

45. I understand that one may consider, e.g., whether (1) the change was merely the predictable result of using prior art elements according to their known functions, or whether it was the result of true inventiveness; (2) there is some teaching or suggestion in the prior art to make the modification or combination of elements claimed in the patent; (3) the claimed innovation applies a known technique that had been used to improve a similar device or method in a similar

way; (4) the claimed invention would have been obvious to try, meaning that the claimed innovation was one of a relatively small number of possible approaches to the problem with a reasonable expectation of success by those skilled in the art; (5) the invention merely substituted one known element for another known element in order to obtain predictable results; (6) the invention merely applies a known technique to a known device, method, or product to yield predictable results; or (7) known work in the field may have prompted variations of use of the same inventions in the same or different fields due to market forces or design incentives that would have been predictable to a person of ordinary skill in the art.

46. 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

47. 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.

48. 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.

49. When determining whether a specification of a patent application contains 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.

50. 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.

51. 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.

52. 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.

53. 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 person of ordinary skill in the art 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.

V. THE '268 PATENT

A. Overview of the '268 Patent

54. The application that led to the '268 patent was filed on October 9, 2013. It is my opinion that this date is the earliest to which the challenged claims of the '268 patent can claim priority, as explained in further detail in the following section (Section V.B). The '268 patent, on its face, references a provisional application filed April 22, 2011, a provisional application filed December 24, 2012, a non-provisional application filed April 22, 2012, and a non-provisional application filed March 15, 2013. Even if the '268 patent could claim priority back to any of these dates (which it cannot), my ultimate conclusions as to the invalidity of the '268 patent would not change. For example, the prior art relied upon in this IPR is prior art regardless of the priority date. And further, the level of skill of a POSA would remain substantially the same regardless of the priority date.

55. The '268 patent relates to methods and systems for setting and transferring a user profile to a vehicle. Ex. 1001 at Title, Abstract. However, the problems identified in the '268 patent by Patent Owner, as well as their solutions, were already known prior to the effective filing date of the challenged claims. For example, in one of the provisional applications to which the '268 patent claims

priority (U.S. Provisional Application No. 61/745,729, which I understand is the only provisional application that could even partially support the subject matter claimed in the '268 patent), Patent Owner described an alleged problem that “[v]ehicles currently only allow users to program personalized vehicle settings manually in the vehicle,” which are stored in memory or a key fob, but “there is no way to identify the driver of the car to match the individual to his or her settings.” Ex. 1003 at ¶ [0089].

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

57. To address these alleged deficiencies, the '268 patent describes an embodiment in which “logins are user specific, not vehicle specific,” and “the user’s settings are seamlessly transferred to the vehicle the user chooses to drive.” *Id.* at 13:32-36; 21:42-43. As an example, the '268 patent states that “the user[']s profile is transferred to the vehicle. The transfer of the profile will allow the settings of the user to automatically be set in the vehicle. The settings can include,

¹ All emphasis added unless otherwise indicated.

for example, temperature, radio settings, seat settings, meter settings, air settings, etc.” *Id.* at 18:39-46.

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

In operation 454, the user may be identified and the user[']s profile can be automatically retrieved from cloud services and the user profile 160. The preferences settings for the user can be identified from the database in operation 456, and the settings can be applied in operation 458. The settings can be applied to the vehicle for the identified user. When the user terminates use of the vehicle, the settings can be deactivated, or returned to a neutral setting.

Id. at 20:6-13.

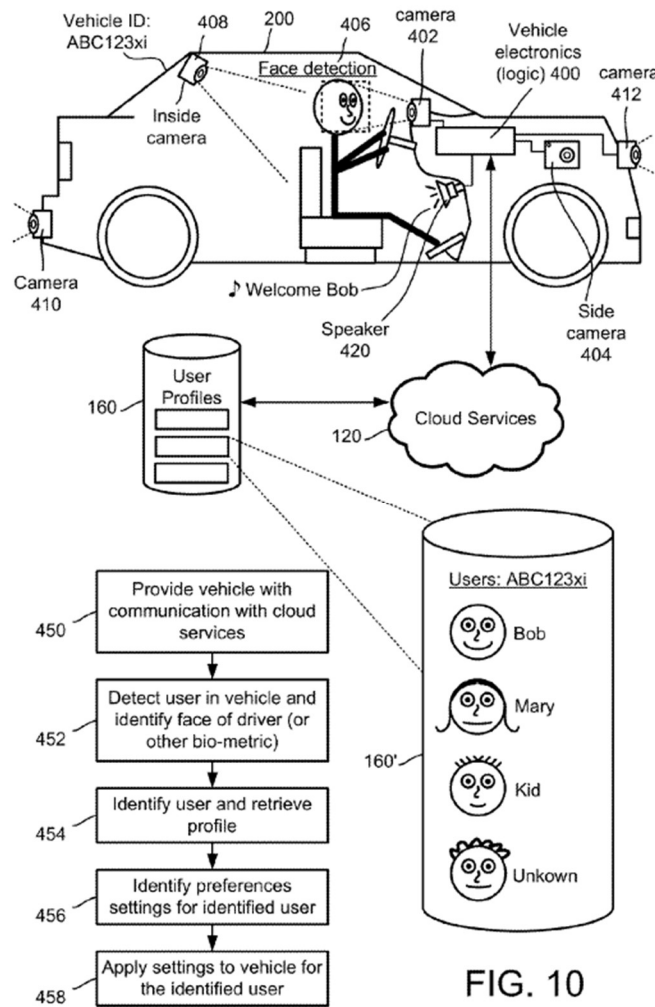
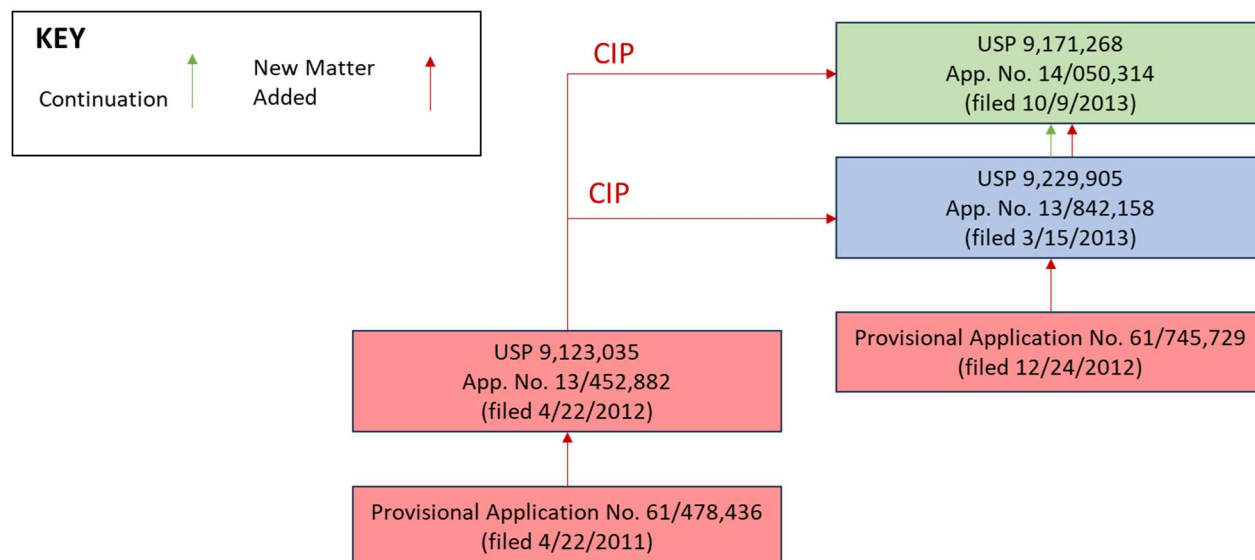


Fig. 10 of the '268 Patent

59. Claim 10 of the '268 patent recites a similar process to that described above, comprising: receiving information for a user profile, identifying a selected vehicle for applying the user profile, determining applicable settings, and sending the applicable settings to the selected vehicle. However, it was commonplace and well-known to a person of skill in the art prior to the '268 patent to perform such a process to personalize a vehicle using the operator's user profile.

B. Priority Analysis of the '268 Patent

60. The '268 patent is part of a larger family of patents and patent applications, as summarized below:



61. As indicated in the graphic above, the application for the '268 patent was filed on October 9, 2013, and 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.

62. The application for the '268 patent describes itself as a “continuation-in-part” of Application No. 13/452,882 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.

63. The application for the '268 patent also describes itself as a "continuation" of Application No. 13/842,158 filed March 15, 2013.² I understand that a "continuation" of a patent application typically discloses the same subject matter as the application that it "continues" from.

64. In reality, however, there are numerous differences between the application for the '268 patent (filed October 9, 2013) and the application filed on March 15, 2013. These differences are evident in a computerized comparison between the October 9, 2013 application and the March 15, 2013 application, as shown in Ex. 1007. For example, several new paragraphs were added that were entirely absent in the earlier application, including the paragraph describing a method in which "the user profile defines one or more settings that are preferred to be set in vehicles if the vehicles support the settings." Ex. 1007 at 5. I understand that Patent Owner relied on this new matter when it amended its claims to add the

² I understand that the '268 patent lists, on its face and in the "CLAIM OF PRIORITY" section, a typographical error and that "13/824,158," as listed in the patent, should be 13/842,158.

recitations, for example, “determining, by the server, applicable settings for the selected vehicle, the applicable settings being settings that are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle,” in claim 10, and “accessing the cloud processing system by the vehicle, the user profile having user settings for the vehicle, wherein certain of the user settings are determined to be compatible for use with the vehicle;” in claim 20. Ex. 1002 at 196, 200 (underlining in original). For example, Patent Owner cited to paragraphs [0007], [0018], and [0075] in its Amendment. *Id.* at 203 (“See ¶ 007, 0075, as examples of the check for compatibility of settings, for when user profiles are to be transferred to vehicles”; “See e.g., ¶018.”). Although Patent Owner claimed “[n]o new matter is introduced” when it amended the claims, *id.* at 202, I do not believe that to be the case.

65. In my opinion, the new matter in the '268 patent (introduced in the October 9, 2013 application itself, and not present in the March 15, 2013 application or earlier filings) is the only basis on which the specification for the '268 patent conveys to a POSA that the inventors had developed a system having “determination of vehicle settings that are determined compatible,” as alleged by Patent Owner to be its invention. *Id.* at 203.

66. It is my opinion that the challenged claims are not entitled to the claimed priority dates of March 15, 2013, December 24, 2012, April 22, 2012, or

April 22, 2011. None of the applications filed on these respective dates describe the subject matter of the challenged claims including “determining, by the server, applicable settings for the selected vehicle, the applicable settings being settings that are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle” (claim 10) or “accessing the cloud processing system by the vehicle, the user profile having user settings for the vehicle, wherein certain of the user settings are determined to be compatible for use with the vehicle” (claim 20). In my opinion, the earliest priority date to which the challenged claims could be entitled is October 9, 2013, the filing date of the application that ultimately issued as the '268 patent.

67. I understand that Patent Owner relied on paragraphs [0007], [0018], and [0075] of the application that led to the '268 patent (corresponding to 1:56-2:5, 2:59-3:5, and 10:42-55 of the '268 patent, respectively) during prosecution in amending the claims and attempting to distinguish the cited art. *See* Ex. 1002 at 190-204.

68. I have reviewed the paragraphs cited by Patent Owner during prosecution and I do not believe that paragraphs [0007] or [0075] describe the invention claimed in either claim 10 or claim 20 of the '268 patent. And paragraph [0018] was not part of the application until October 9, 2013.

69. For example, paragraph [0007] of the application for the '268 patent

describes the detection of “violations” of settings (also called “an incompatible setting”), which would trigger “automatically send[ing] a notification to a predetermined administrator of the profile.” Ex. 1001 at 1:56-2:5; Ex. 1002 at 37 (¶ [0007]). The application for the ’268 patent describes this feature in further detail in terms of “restrictions,” for example, a “child can be provided with restricted use of the vehicle” and “[w]hen the child exceeds or does not follow the restrictions of the vehicle, automatic notifications can be provided to the user that is the administrator of the vehicle.” Ex. 1001 at 10:25-41; Ex. 1002 at 54 (¶ [0074]). That is, if the child drives faster than some designated speed, the administrator is notified.

70. However, providing notifications for violations of a restriction is not the same as determining that applicable settings “are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle,” as recited in claim 10, or determining that “certain of the user settings . . . [are] compatible for use with the vehicle,” as recited in claim 20. “Compatibility” in the context of paragraph [0007], I understand, means compliance with restrictions placed on a user, and has nothing to do with whether the vehicle itself supports or is compatible with a preferred setting defined by a user profile. Moreover, it is evident that the ’268 patent’s disclosure regarding restrictions relates to things such as “vehicle speed, location of driving,” etc., and

not to, e.g., “one or more settings that are preferred to be set in vehicles if the vehicles support the settings” as defined by a user profile, as recited in claim 10. *See* Ex. 1001 at 10:18-41; Ex. 1002 at 54 (¶¶ [0073]-[0074]).

71. In describing the alleged features of the claims of the '268 patent, Patent Owner stated “[a]s described in the specification, the user profile may have many preferences for settings, and some of such settings are *usable* on certain vehicles, *depending on whether they support such setting*.” Ex. 1002 at 203. Patent Owner cited to paragraph [0018] of the specification in support of this statement. As noted above, paragraph [0018] was never included in the parent application from which the '268 patent claims to be a “continuation,” or any of the earlier applications. Nowhere outside of paragraph [0018] does the specification of the '268 patent mention vehicles having “support” for certain settings.

72. Conversely, Provisional Application No. 61/745,729 (filed December 24, 2012) explains that “[i]f the user’s login is recognized, the system will apply *all* settings and use privileges to the vehicle prescribed by the login,” without consideration as to whether the vehicle may support them, which is the *opposite* of the claimed “compatibility” feature. Ex. 1003 at 39-40 (¶ [0091]). For example, rather than have a server selectively determine “applicable settings” which are settings that are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle, Provisional

Application No. 61/745,729 describes applying all settings prescribed by a login.

The applications to which the '268 claims priority do not describe determining that *certain* user-preferred settings defined by a user profile are compatible with settings that are settable in the selected vehicle, or that *certain* of such settings are compatible for use with the vehicle.

73. Furthermore, paragraph [0075] of the originally filed application for the '268 patent (which is the same as paragraph [0095] of U.S. Application No. 13/842,158), although it mentions the word “compatible,” does not support the subject matter of claims 10 or 20. (Incidentally, Application No. 13/842,158 was not filed early enough to antedate any of the prior art relied on in the IPR.) Regardless, sufficient written description cannot be found based on Paragraph [0075] (or paragraph [0095] of Application No. 13/842,158), which only makes passing reference to “third-party applications” that “can be pre-identified by the site and displayed to the user if they are compatible with the particular vehicle selected.” *See* Ex. 1001 at 10:42-55; Ex. 1002 at 54-55 (§ [0075]). Aside from the superficial similarity in language, the application’s description of a third-party app being “compatible” with the selected vehicle is not the same as determining whether certain of the user-preferred settings defined by a user profile are supported by a vehicle or such settings being compatible with settings that are settable in the vehicle, and thus cannot support the claimed features. For one,

“Third party applications” are not “settings that are preferred to be set as identified from the user profile.” Also, “third-party applications” are conspicuously absent from the claims of the ’268 patent, some of which recite a laundry list of possible other alternatives for the “settable settings.” *See* Ex. 1001 at 33:44-60, 35:6-21. The ’268 patent further states that “[t]he user profile can include settings” as well as *other* things like “identification of applications purchased,” thus demonstrating that third party applications are distinct from settings that are settable in vehicles. *Id.* at 9:46-48.

74. As for the other chain of applications, Application No. 13/452,882 (filed April 22, 2012) and Provisional Application No. 61/478,436 (filed April 22, 2011) do not even mention the term “user profile” or “settings” for a vehicle. Instead, those application are directed to “electric vehicle range extending charge systems, distributed networks or charge kiosks, and charge locating mobile apps,” as their titles suggest. The applications make passing reference to providing dynamic information to a user of volt bars (charge units), such as “suggested travel speeds to conserve energy, maps for routing, better dynamic traffic information based on real-time information, and other settings.” Ex. 1005 at 46 (¶ [00161]); Ex. 1006 at 66 (¶ [00208]). However, the applications do not explain how such “settings” have any relation to settings defined by a user profile that are settable in a vehicle, much less how they are determined “compatible” with any vehicle.

75. A POSA studying the disclosures in the applications preceding the application for the '268 patent would not have understood the inventors to have invented a system or method comprising “receiving, at a server, information for a user profile of a user, the user profile defining one or more settings that are preferred to be set in vehicles if the vehicles support the settings; . . . determining, by the server, applicable settings for the selected vehicle, the applicable settings being settings that are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle,” as recited in claim 10, or “accessing the cloud processing system by the vehicle, the user profile having user settings for the vehicle, wherein certain of the user settings are determined to be compatible for use with the vehicle,” as recited in claim 20.

76. Rather, a POSA would have understood that, at best, the disclosures in the applications preceding the application for the '268 patent are directed to applying *all* of one's settings from a user profile in a vehicle, without consideration of whether the vehicle supports only certain of the user's preferred settings, or determining whether such settings are compatible with the vehicle.

77. In sum, a POSA reading each of the disclosures of the applications preceding the application for the '268 patent would not have understood that the inventors actually possessed the alleged invention of claims 10 or 20. Thus, it is my opinion that the applications preceding the application for the '268 patent do

not provide written description support for claims 10 or 20 of the '268 patent, and consequently all of the challenged claims.

C. Prosecution History of the '268 Patent

78. I have reviewed the prosecution history of the application that led to the '268 patent. Ex. 1002. I am not aware of anything in the prosecution history that changes my opinions expressed in this declaration. 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

79. I am informed that patentability must be analyzed from the perspective of “one of ordinary skill in the art” (POSA) in the same field as the '268 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 October 9, 2013. Moreover, I understand that whether or not a patent application provides “written description” support for patent claims must also be assessed from the perspective of a POSA.

80. 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.

81. The '268 patent claims the benefit of U.S. Provisional Application No. 61/478,436 filed April 22, 2011, U.S. Provisional Application No. 61/745,729 filed December 24, 2012, U.S. Application No. 13/452,882 filed April 22, 2012, and U.S. Application No. 13/842,158 filed March 15, 2013.³ However, as discussed herein, in my opinion, the challenged claims of the '268 patent are not entitled to a priority date any earlier than October 9, 2013.

82. Regardless of whether the priority date(s) for the challenged claims is October 9, 2013 or April 22, 2011 (or any date in between), in my opinion, a person of ordinary skill in the art pertinent to the '268 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.

83. Although I surpass this definition of one of ordinary skill in the art

³ As previously stated, I understand that the '268 patent lists, on its face and in the "CLAIM OF PRIORITY" section, a typographical error and that "13/824,158," as listed in the patent, should be 13/842,158.

now and at the effective filing date of the '268 patent, my analysis regarding the '268 patent has been based on the perspective of one ordinary skill in the art as of the effective filing date of the '268 patent.

84. I am also familiar with the knowledge of the person of ordinary skill in the art as of the effective filing date of the '268 patent. I am able to opine on how the person of ordinary skill in the art would have understood the disclosure and claims of the '268 patent, the disclosures of the prior art, the motivation to combine the prior art, and what combinations would have been obvious to one of ordinary skill in the art.

85. 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 '268 PATENT

86. As I discussed above, I have been informed that for purposes of *inter-partes* reviews, 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 person skilled in the art in light of the specification and the prosecution history. My

opinions herein would not change under any reasonable interpretation of the claim.

87. I understand that the first district court litigation involving the '268 patent was filed on September 20, 2023 in the Eastern District of Texas. To my knowledge, the '268 patent is not involved in any other litigation. I have been informed that no claim construction has taken place for the '268 patent. To the extent that Patent Owner offers a construction of any claim term beyond the scope of the plain and ordinary meaning, I reserve the right to respond.

VII. SUMMARY OF OPINIONS ON UNPATENTABILITY

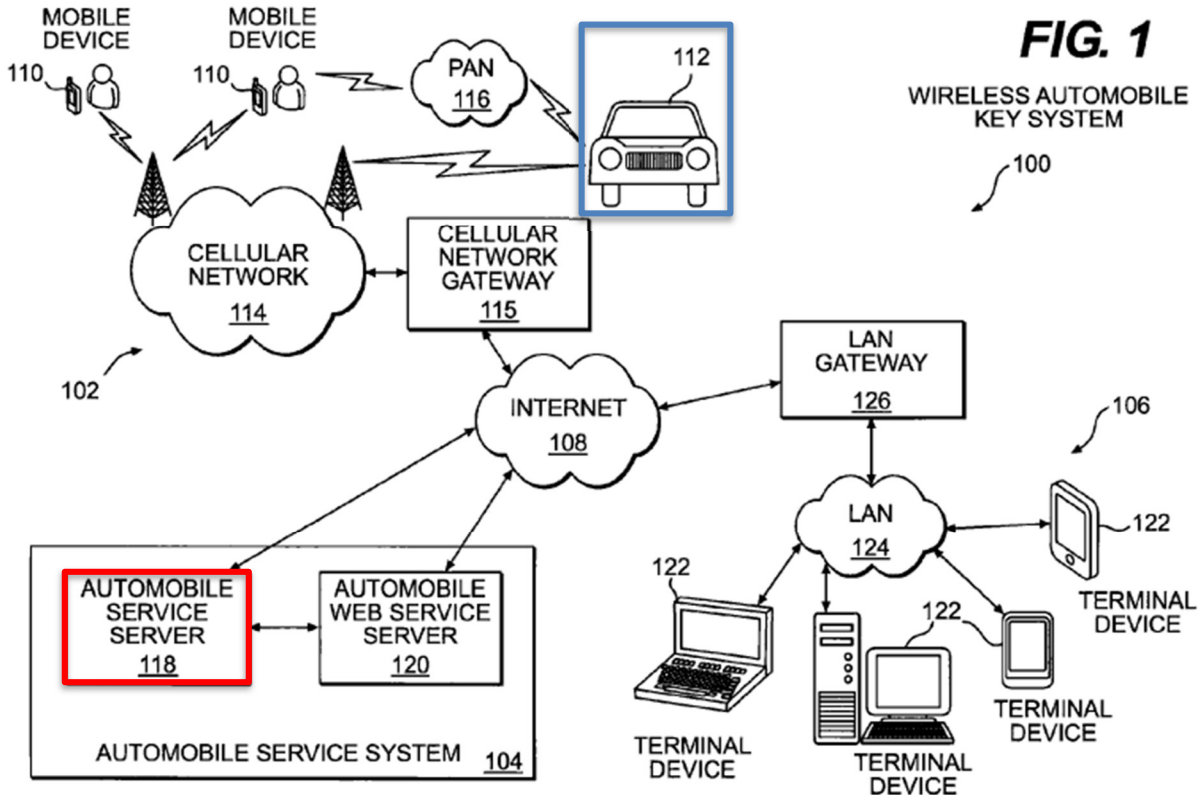
88. The '268 patent is generally directed to methods and systems for setting and transferring user profiles, which have user settings, to vehicles. The challenged claims are claims 10-20 of the '268 patent, which are generally directed to methods of determining and sending settings to a vehicle.

89. In my opinion, prior art renders the challenged claims unpatentable. For example, *Xiao* (Ex. 1010), alone or in combination with other prior art, discloses or renders obvious all the limitations of the challenged claims. The other prior art includes *Patenaude* (Ex. 1011), *Singh* (Ex. 1012), and *Hayashi* (Ex. 1013).

A. Summary of *Xiao*

90. As an example of how the prior art renders the challenged claims unpatentable, as shown below in annotated Fig. 1, *Xiao* discloses a method

executed by a **server** (e.g., **server 118**) of a wireless automobile key system that causes settings to be activated on a **vehicle** (e.g., **automobile 112**). See Ex. 1010 at ¶¶ [0021], [0023].



Annotated Fig. 1 of *Xiao*

91. *Xiao* 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.” *Id.* at ¶ [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.*

92. *Xiao* discloses “customiz[ing] the settings of one or more systems of the automobile 112 based on an operator profile.” *Id.* at ¶ [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.* at ¶ [0124]; *see also id.* at ¶ [0126].

93. In *Xiao*, the server has a database with user profiles defining one or more settings for vehicles. An example of this is shown in the tables of Fig. 6, which include **user profiles** (e.g., **operator profile information 614**):

OPERATOR INFORMATION					
OPERATOR ID	MOBILE ID	AUTHENTICATION INFORMATION	PROFILE INFORMATION	AUTOMOBILE PERMISSIONS	DEFAULT AUTOMOBILE ID
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—

AUTOMOBILE INFORMATION				
AUTOMOBILE ID	HEALTH INFORMATION	MAINTENANCE INFORMATION	REGISTRATION INFORMATION	INSURANCE INFORMATION
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—

AUTOMOBILE COMMAND INFORMATION		
AUTOMOBILE ID	COMMAND ID	COMMAND CODE
—	—	—
—	—	—
—	—	—

FIG. 6

Annotated Fig. 6 of *Xiao*

94. *Xiao* describes wireless automobile key service information 600 stored in a storage device of an automobile service server 118 that includes **operator profile information 614**. *Id.* at ¶¶ [0061], [0064]-[0066]. Operator profile information 614 “may be associated with each operator on the wireless automobile key service account” and “may contain information regarding preferences of the operator” such as “climate control system preferences.” *Id.* at ¶ [0069]. Just like the ’268 patent, these preferences include “the operator’s desired heating or cooling temperature settings, desired air conditioning settings, desired vent settings, desired fan speed settings, desired window or mirror defroster settings, and/or other climate preferences for the automobile(s) 112.” *Id.* *Xiao* also describes the operator’s preferences as including audio system settings (e.g., “desired station presets”). *Compare id.* at ¶ [0049], with Ex. 1001 at 12:46-58 (“the list of radio stations they would like pre-programmed every time they log in . . .”).

95. As shown in annotated Fig. 9, below, *Xiao* also discloses a graphical user interface (“UI”) including page 900 that may be displayed to an automobile operator using a mobile or other device. Ex. 1010 at ¶¶ [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.* at ¶ [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.*

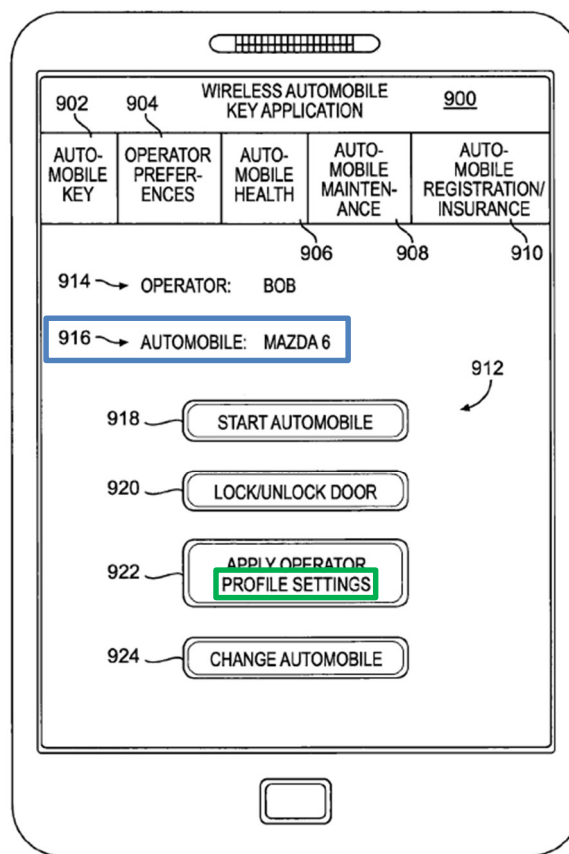


FIG. 9

Annotated Fig. 9 of *Xiao*

96. *Xiao* demonstrates the concept of “compatibility” of certain settings by disclosing “appropriate command codes” being sent to appropriate automobile

modules. *Id.* at ¶¶ [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.* at ¶ [0103]. For example, Fig. 6 (discussed above) includes a table of automobile 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.* at ¶ [0088]. 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. Thus, *Xiao* demonstrates the necessarily present characteristic that certain settings (e.g., commands) are compatible with certain automobiles.

97. As an illustration, for a certain automobile (having automobile ID 628), the operator’s desired setting (630) can be achieved using a command code (632) specific to *that* automobile. *Id.* *Xiao* goes on to explain that “command code 632 may be a specific code or instruction that may be broadcast on automobile network 420 and executed by a module 402-418 aboard the automobile 112 to cause the module 402-418 to perform the desired function.” *Id.* “For example, command codes 632 may be CAN bus codes or other codes provided by the manufacturer of automobile 112 and/or the manufacturer of the automobile

systems for controlling the systems to perform various functions.” *Id.*

B. Other Prior Art

98. The remaining cited references, *Patenaude* (Ex. 1011), *Singh* (Ex. 1012), and *Hayashi* (Ex. 1013), in my opinion, demonstrate other well-known elements of vehicle wireless communication systems present in the art, namely, determining learned settings (claims 12 and 20), returning a vehicle to a neutral setting (claim 14), and actively determining that certain settings are compatible or incompatible with a vehicle (claim 20).

99. In the analysis that follows, I identify the following combinations of prior art that, in my opinion, render obvious the challenged claims of the ’268 patent and explain the reasoning that supports the combinations:

Grounds of Unpatentability	
1	<i>Xiao</i> anticipates claims 10, 11, 13, and 15-19
2	<i>Xiao</i> in combination with <i>Hayashi</i> renders obvious claims 10, 11, 13, and 15-19
3a	<i>Xiao</i> in combination with <i>Patenaude</i> renders obvious claim 12
3b	<i>Xiao</i> in combination with <i>Hayashi</i> and <i>Patenaude</i> renders obvious claim 12
4a	<i>Xiao</i> in combination with <i>Singh</i> renders obvious claim 14
4b	<i>Xiao</i> in combination with <i>Hayashi</i> and <i>Singh</i> renders obvious claim 14

5	<i>Xiao</i> in combination with <i>Hayashi</i> and <i>Patenaude</i> renders obvious claim 20
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VIII. GROUND 1: ANTICIPATION OF CLAIMS 10, 11, 13, AND 15-19 BY XIAO

100. As detailed below, in my opinion, *Xiao* anticipates claims 10, 11, 13, and 15-19.

A. Independent Claim 10

10[preamble]: “A method, comprising,”

101. *Xiao* discloses claim 10’s preamble, to the extent it is limiting. As shown below in the flowchart of Figure 11, *Xiao* discloses a method (e.g., method 1100), which is for processing wireless automobile key commands. *See* Ex. 1010 at Title, Abstract, ¶ [0123].

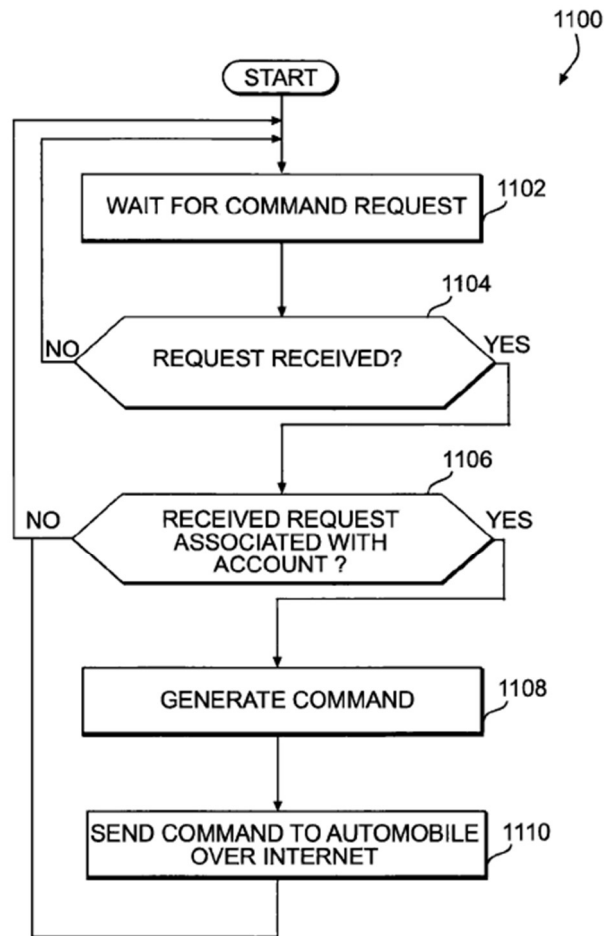


FIG. 11

Fig. 11 of *Xiao*

102. Accordingly, in my opinion, *Xiao* discloses claim 10's preamble.

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

103. *Xiao* discloses **receiving** (e.g., **step 1104: YES**), at a server (e.g., server 118), **information** (e.g., **a command request**) for a **user profile of a user** (e.g.,

operator profile information 614), the user profile defining one or more settings that are preferred to be set in vehicles if the vehicles support the settings.

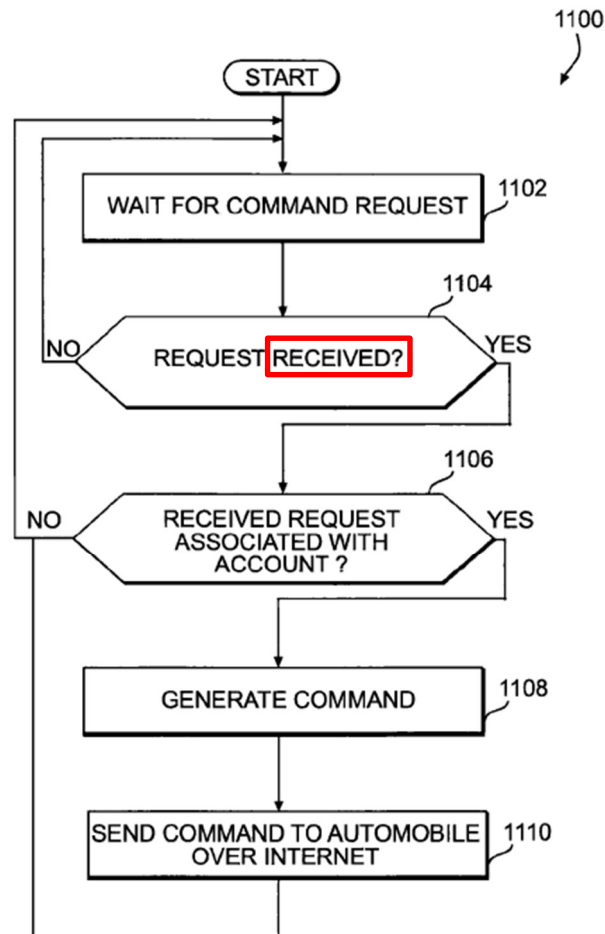


FIG. 11

Annotated Fig. 11 of *Xiao*

104. For example, in explaining the flowchart of Fig. 11 illustrating exemplary method 1100, *Xiao* states that in step 1102, server 118 waits for a

“**command request**,” monitoring for such “a **request** from a mobile device 110 or a terminal device 122 to 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**.” Ex. 1010 at ¶ [0124]. In further describing the “**command request**” and “command codes” that are used to implement settings from the **operator’s profile**, *Xiao* explains that “[s]erver 118 may receive the **apply operator profile command request** from the Internet 108. Using the operator ID 608 and/or the mobile ID 610 corresponding to mobile device 110, server 118 may retrieve from operator information 602 the corresponding **profile information 614** for the operator.” *Id.* at ¶ [0102].

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

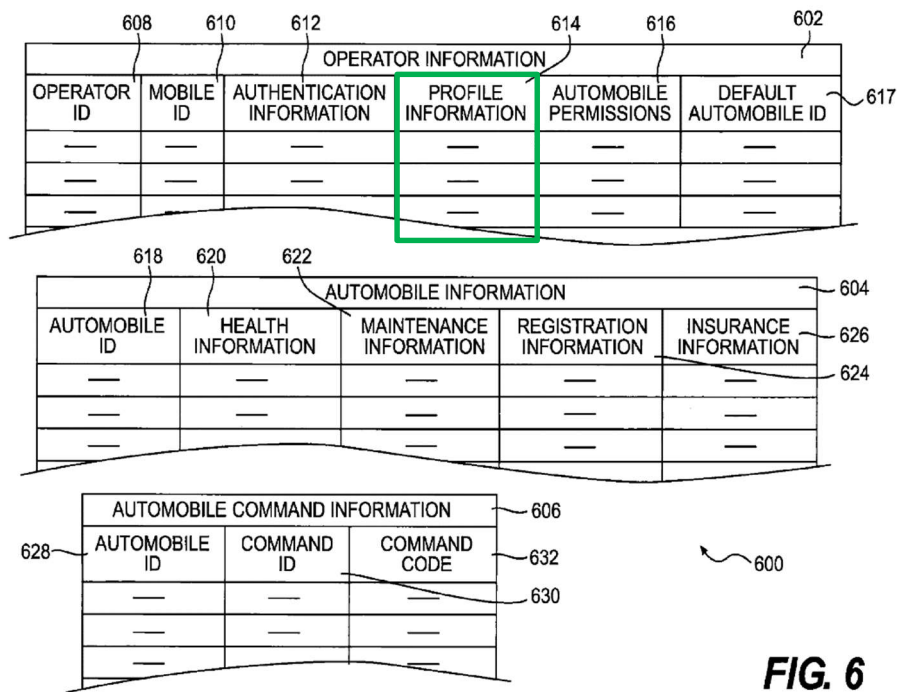


FIG. 6

Annotated Fig. 6 of Xiao

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

107. In explaining how exemplary methods of *Xiao* apply particular profile

settings to the particular automobile being operated, *Xiao*'s description of “command requests” and “command codes” demonstrate that “one or more settings are [] preferred to be set in vehicles if the vehicles support the settings,” as recited in claim 10. *Xiao* explains that command IDs 630 are “associated with the operator's desired system settings 614.” *Id.* at ¶ [0103]. The “server 118 may look up a particular command code 632 based on the automobile ID 628 and command ID 630 contained in a command request received from mobile device 110 and/or from a terminal device associated with local system 106.” *Id.* at ¶ [0088]. Command codes 632 are used to “control the automobile systems to achieve the operator's desired settings.” *Id.* at ¶ [0103]; *see also id.* at ¶ [0104] (“The appropriate onboard modules 406-418 may then execute the commands by controlling the onboard systems to achieve the operator's desired settings indicated by the profile information 614.”). That is, for a particular setting (e.g., desired radio station of 101.1 FM at volume 10), *Xiao* looks up, for a particular vehicle, “a command to control the audio system to play 101.1 FM at volume 10.” *Id.* at ¶ [0103]. This shows that settings such as “play 101.1 FM at volume 10” are supported by automobile 112.

108. Settings that are preferred to be set in vehicles may be supported by vehicles if the vehicles have appropriate equipment or modules. For example, a vehicle having an audio system control module to control an FM radio supports

setting the FM radio. *Xiao* discloses vehicles supporting such settings. *Xiao* states, for example:

Audio system control module 408 may be configured to control an audio system of automobile 112. For example, audio system control module 408 may be configured to control a radio, a CD player, a DVD player, an amplifier, a receiver, or any other audio device of automobile 112. Consistent with the disclosed embodiments, audio system control module 408 may control the audio system in response to commands received from PAN communication module 402 and/or from cellular network communication module 404.

...

Exemplary audio system control commands include a command to set desired station presets (e.g., AM, FM, or satellite station presets), to set a desired input source (e.g., AM radio, FM radio, satellite radio, CD player, or auxiliary input), to set a desired volume, to set a desired radio station or track, to set desired audio equalizer settings (e.g., bass, midrange, treble), to set a desired audio profile (e.g., surround sound, concert, live, rock, jazz, etc.), or to set any other parameter associated with the audio system of automobile 112. In one embodiment, the audio system setting commands may be based on an operator profile.

Id. at ¶ [0049].

109. *Xiao* also recognizes the concept of a vehicle having “support” for certain settings by explaining “a controller onboard the automobile is able to

discern and execute a requested command.” *Id.* at ¶ [0002]. A vehicle that is not able to discern and execute a requested command to implement a setting (e.g., because it does not have an applicable module) would not “support” that setting.

110. Additionally, *Xiao* describes an embodiment where the operator can set his settings for his profile *from* the vehicle. *Id.* at ¶ [0079] (“In 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.”). One would understand that it would only be possible to set supported settings from the vehicle. If a setting is not supported by the vehicle, it follows that an operator would not be able to set such a setting from the vehicle.

111. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 10.

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

112. The method of *Xiao* includes identifying a selected vehicle (e.g., automobile name display 916 showing the currently selected vehicle) for applying the user profile (e.g., profile 614), the selected vehicle having a plurality of settable

settings (e.g., climate, audio, comfort, awareness), the selected vehicle being one of a plurality of vehicles identified as available (an operator's account may have multiple available automobiles identified) by the server (e.g., server 118).

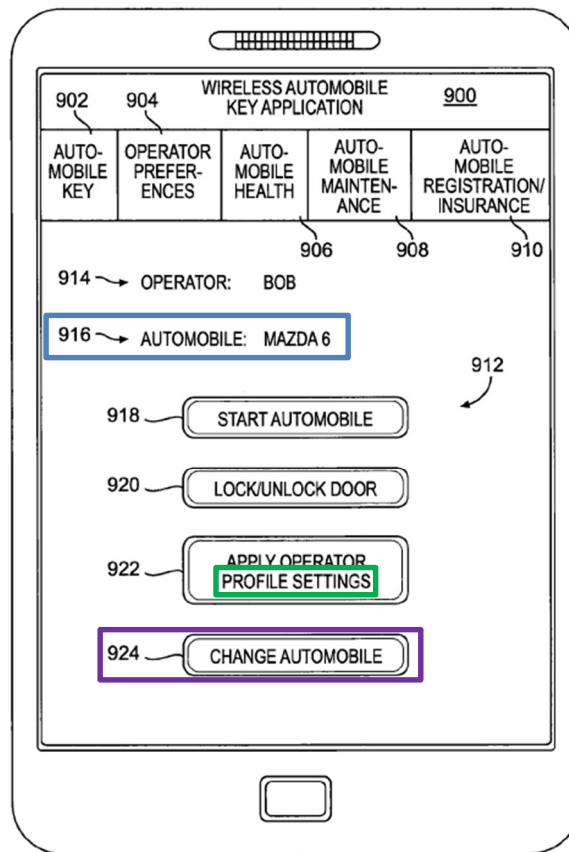


FIG. 9

Annotated Fig. 9 of *Xiao*

113. For example, in describing page 900 (illustrated above), which an operator may use to apply his settings, *Xiao* states “[a]utomobile key menu 912 may also include an automobile name display 916” that “may indicate the name of the automobile 112 currently selected” (identifying a Mazda 6). *Id.* at ¶ [0099]. The

operator may use operator profile settings UI element 922 “to apply the settings of the **operator’s profile** to the systems of the automobile 112.” *Id.* at ¶ [0102]. This initiates an “operator profile command request,” which is one example of a “request” in *Xiao* to cause the operator’s **profile information 614** to be retrieved. *Id.*

114. *Xiao* discloses the selected vehicle has **a plurality of settable settings**, including **climate, audio, comfort, and awareness system settings**, e.g., 80°F cabin temperature and high fan speed, 101.1 FM at volume 10, and certain station presets 1-5), certain seat position and seat warmer settings, and certain rearview and side mirror positions. *Id.* *Xiao* describes various settable settings, such as automobile climate, audio system settings, seat positioning, mirror and/or camera positioning, etc. *Id.* at ¶ [0085].

115. *Xiao* also discloses that the operator can “select a different automobile” in addition to the one currently selected. *Id.* at ¶ [0110]. “Server 118 may identify the **other available automobiles 112**” for the operator to operate. *Id.* Thus, the **currently selected automobile** (e.g., a **Mazda 6**) is one of a **plurality of vehicles identified as available by the server**. Fig. 6 also illustrates **multiple automobile IDs 618** associated with “**automobiles**” identified by server 118, demonstrating that multiple vehicles are available. *Id.* at ¶ [0111].

116. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 10.

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

117. *Xiao* discloses **determining** (e.g., **step 1108**), by the server (e.g., server 118), **applicable settings** (e.g., **command codes 632**) for the selected vehicle, the applicable settings being settings that are preferred to be set as identified from the **user profile** (e.g., **profile 614**) and are compatible with settings that are settable in the selected vehicle (e.g., the currently selected automobile 112).

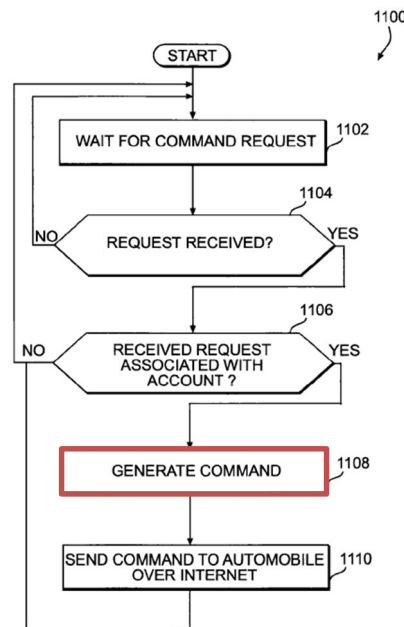


FIG. 11

Annotated Fig. 11 of *Xiao*

118. As explained above in connection to element 10[a], *Xiao* discloses

that “[b]ased on the desired automobile system settings indicated by the operator profile information 614, automobile service server 118 may retrieve appropriate command codes 632” *Id.* at ¶ [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.*

119. As shown and described with respect to Fig. 11 (reproduced and annotated above), in step 1108, the “server may generate a command to . . . customize the settings [of] one or more systems onboard the automobile 112 based on a profile associated with the operator” *Id.* at ¶ [0126]. Thus, *Xiao* discloses the single “determining” step recited in claim 10. Claim 10 does not recite actively determining that the applicable settings are compatible with settings that are settable in the selected vehicle.

120. *Xiao* also explains that the applicable settings are settings that are preferred to be set as identified from the user profile and are compatible with settings that are settable in the selected vehicle.

121. *Xiao* recognizes that there may be different “commands for a variety of types [of] automobiles.” *Id.* at ¶ [0085]. In explaining how exemplary methods of *Xiao* apply particular profile settings to the particular automobile that the operator operates, *Xiao*’s description of “command requests” and “command

codes” demonstrate that *Xiao*’s applicable settings are “compatible with settings that are settable in the selected vehicle,” as recited in claim 10.

122. *Xiao* explains that command IDs 630 are “associated with the operator’s desired system settings 614.” *Id.* at ¶ [0103]. The “server 118 may look up a particular command code 632 based on the automobile ID 628 and command ID 630 contained in a command request received from mobile device 110 and/or from a terminal device associated with local system 106.” *Id.* at ¶ [0088]. These command codes 632 are used to “control the automobile systems to achieve the operator’s desired settings.” *Id.* at ¶ [0103]; *see also id.* at ¶ [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.”).

123. That is, for a particular setting (e.g., desired radio station of 101.1 FM at volume 10), *Xiao* looks up, for a particular vehicle, “a command to control the audio system to play 101.1 FM at volume 10.” *Id.* at ¶ [0103].

124. Such a setting is compatible with the selected vehicle (e.g., the currently selected automobile 112) because it is usable on the vehicle. *See* Ex. 1002 at 203 (Patent Owner emphasizing the importance of the “compatibility” feature in distinguishing over the art cited in prosecution, arguing that “[a]s described in the specification, the user profile may have many preferences for

settings, and some of such settings are *usable* on certain vehicles”).

125. Like Patent Owner’s own characterization of claim 10, *Xiao* discloses applicable settings are “compatible with settings that are settable in the selected vehicle.” By virtue of, for example, listing a command code 632 for a particular automobile ID 628 in the table of Fig. 6, *Xiao* demonstrates that the vehicle (corresponding to automobile ID 628 in that cell) is compatible with a preferred setting (command IDs 630 being “associated with the operator’s desired system settings 614”). *See* Ex. 1010 at ¶ [0103].

126. Thus, it is my opinion that *Xiao* discloses this element of claim 10.

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

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

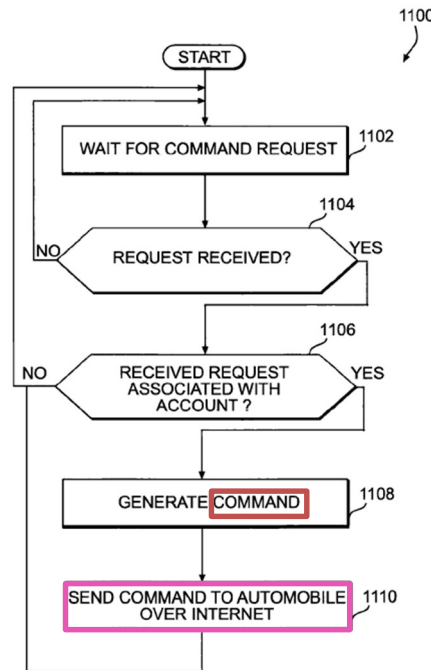


FIG. 11

Annotated Fig. 11 of *Xiao*

128. *Xiao* explains that “[s]erver 118 may then transmit the generated command(s) to the automobile 112 over the Internet 108.” *Id.* at ¶ [0104]. Once received, “[t]he 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.* With reference to Fig. 11 (reproduced and annotated above), *Xiao* states that in step 1110, “server 118 may send the command generated in step 1108 to the automobile 112 over the Internet 108.” *Id.* at ¶ [0127].

129. *Xiao* also discloses that the applicable settings (e.g., command codes)

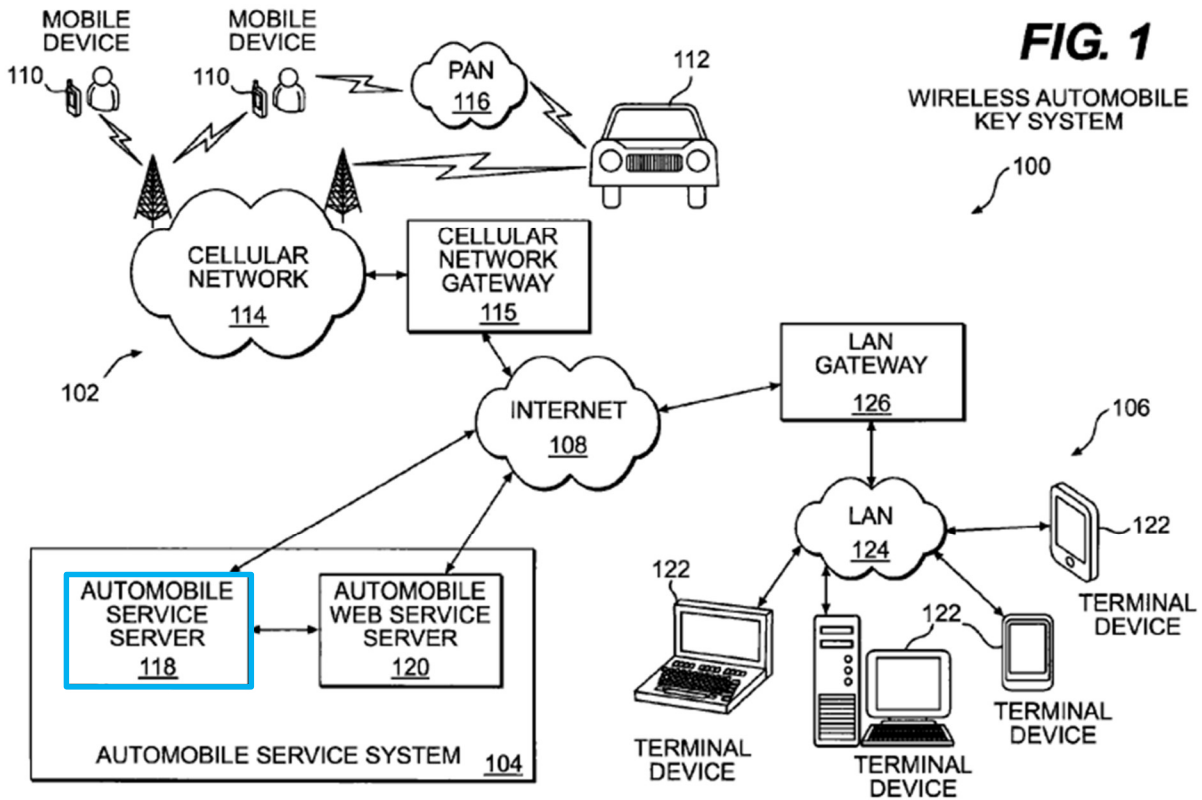
are programmed on the selected vehicle (e.g., automobile 112) after receipt by the selected vehicle over a wireless connection (e.g., Internet 108). In further detail, *Xiao* explains that “[c]ellular network communication module 404 of automobile 112 may receive the command code 632 from cellular network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

130. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 10.

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

131. *Xiao*’s method is executed by the server (e.g., server 118), the server including a processor (e.g., processor 500).

132. As explained in detail for each element above, *Xiao* discloses respective steps performed by a server. *See supra* at VIII.A.10[a]-[d]. *Xiao* also discloses that “[a]utomobile service system 104 . . . may include an automobile service server 118.” Ex. 1010 at ¶ [0059]. Server 118 may include “a processor 500.” *Id.* at ¶¶ [0061]-[0062].



Annotated Fig. 1 of *Xiao*

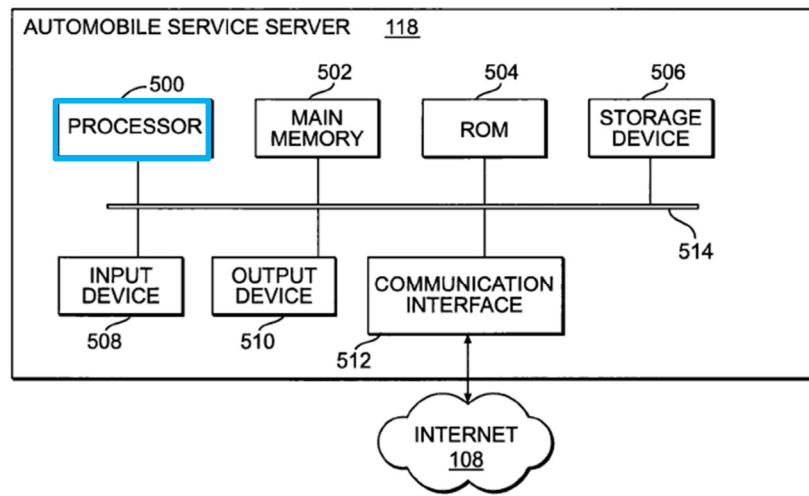


FIG. 5

Annotated Fig. 5 of *Xiao*

133. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 10.

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

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

135. *Xiao* discloses various modules, including **modules 406-418**, which

may “embody one or more computers onboard automobile 112 and [are] configured to perform or control various automotive functions.” *Id.* at ¶ [0039]. Such modules include “a climate system control module 406, a radio system control module 408, an operator comfort system control module 410, an operator awareness system control module 412” and others. *Id.* at ¶ [0038], [0050]-0051]. These modules apply programming to cause the applicable settings to be activated. In particular, *Xiao* explains that “command code 632 may be a specific code or instruction that may be broadcast on automobile network 420 and executed by a module 402-418 aboard the automobile 112 to cause the module 402-418 to perform the desired function. 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. In one embodiment, server 118 may look up a particular command code 632 based on the automobile ID 628 and command ID 630 contained in a command request received from mobile device 110 and/or from a terminal device associated with local system 106.” *Id.* at ¶ [0088].

136. Automobile 112 also includes communication circuitry (e.g., cellular network communication module 404) for communicating with the server via the wireless connection (e.g., Internet 108 which may include or work together with cellular network 114). For example, *Xiao* explains as follows:

Server 118 may then transmit the **generated command(s)** to the **automobile 112** over the **Internet 108**. Cellular network gateway 115 may communicate the command(s) onto cellular network 114. **Cellular network communication module 404** of **automobile 112** may receive the **commands** from cellular network 114, and may broadcast corresponding command signals on automobile network 420. 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. at ¶ [0104]. *Xiao* illustrates this in Fig. 4:

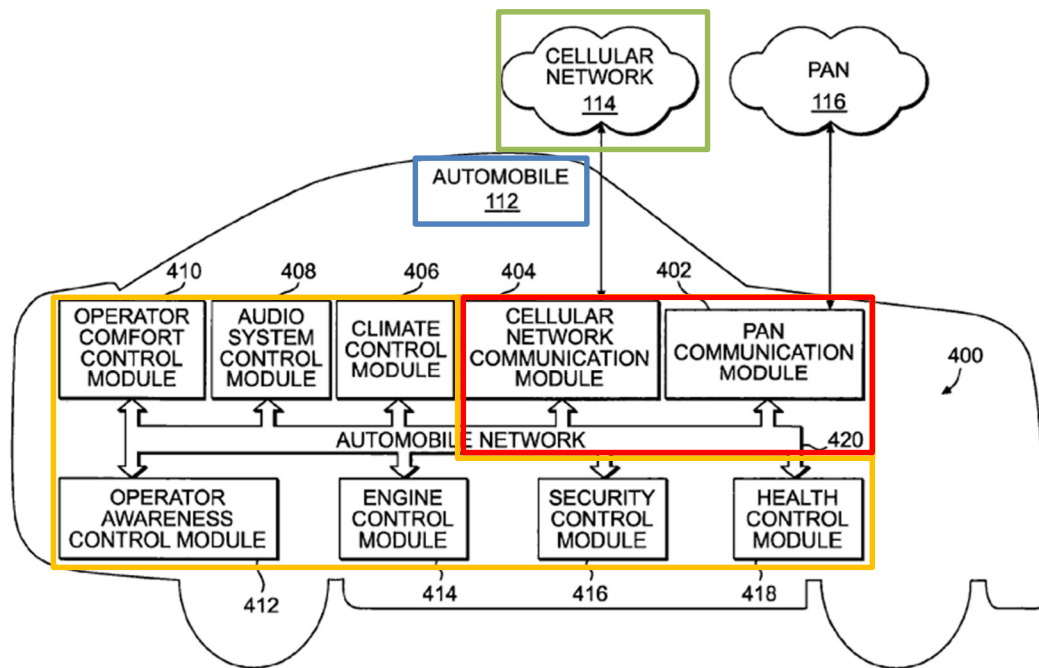


FIG. 4

Annotated Fig. 4 of *Xiao*

137. *Xiao* discloses that **cellular network communication module 404** “may

include a radio antenna and/or transceiver for communicating data over a 2nd Generation (2G) cellular communication network, a 3rd Generation (3G) cellular communication network, a 3rd Generation Long Term Evolution (LTE) network, a 4th Generation (4G) cellular communication network, or any other type of cellular communication network 114 known in the art.” *Id.* at ¶ [0044].

138. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 10.

139. In all, it is my opinion that every element of claim 10 is disclosed by *Xiao*.

B. Claim 11

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

140. As explained above, and further to element 10[d], *Xiao* discloses that its *sending* includes one or both of sending the applicable settings directly to the *vehicle electronics* (e.g., *modules 402-418*) of the selected vehicle, or sending the applicable settings to a *computing device for subsequent transfer* to the selected vehicle (e.g., *via cellular network gateway 115* or other intermediary components). *See supra* at VIII.A.10[d]. In my opinion, *Xiao* discloses both.

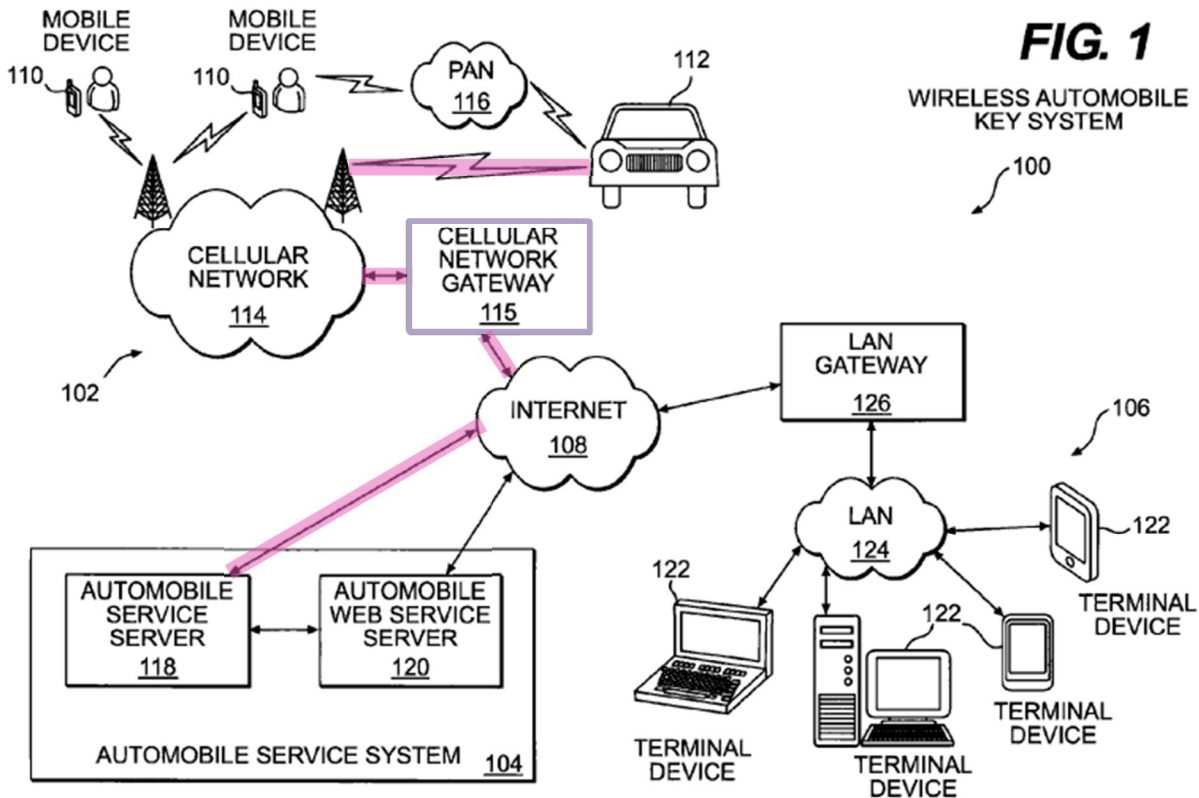
141. *Xiao* describes *modules 402-418* that “may embody one or more

computers onboard automobile 112” such computers including “electronic control units (ECU), such as application-specific integrated circuits (ASIC), field-programmable gate arrays (FPGA), or other types of computer processing devices” Ex. 1010 at ¶ [0039]. *Xiao* also states that “modules 402-418 may be software modules of a computer program executing on an automobile computer.” *Id.*

142. Such modules or automobile computer may include or be encompassed by communication devices, such as those using “a radio antenna and/or transceiver” for communicating via Bluetooth, low-energy short-wavelength radio waves, 2nd Generation (2G) cellular communications, 3rd Generation (3G) cellular communications, Long Term Evolution (LTE), 4th Generation (4G) cellular communications, or “any other type of mobile wireless communication network.” *Id.* at ¶¶ [0036]-[0044]. *Xiao* explains, for example, that module 404 “may be configured to receive automobile commands from automobile service system 104.” *Id.* at ¶ [0045].

143. It is my opinion that *Xiao* shows the sending of applicable settings directly to vehicle electronics, for example by way of commands being transmitted to one of “modules 402-418.” It is my opinion that *Xiao* also discloses that applicable settings (e.g., command codes) are sent to a computing device for subsequent transfer to the selected vehicle (e.g., automobile 112). For example,

Xiao explains that server 118 retrieves **command code 632**, and then “may transmit the retrieved **command code 632** to the **automobile 112** over the Internet 108.” *Id.* at ¶ [0100]. An intermediary computing device, such as “[c]ellular network gateway 115 may receive the command from the Internet 108 and communicate the command onto cellular network 114. Cellular network communication module 404 of **automobile 112** may receive the **command code 632** from cellular network 114,” and may then apply the operator’s desired system settings. *Id.* at ¶¶ [0057], [0100], [0103]. In some embodiments, commands may be “broadcast . . . on automobile network 420 for execution by one or more of modules 406-418.” *Id.* at ¶ [0045]. Thus, *Xiao* also shows that there may be indirect communication from server 118 to automobile 112.



Annotated Fig. 1 of *Xiao*

144. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 11.

C. Claim 13

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

145. As explained above, and further to element 10[b], *Xiao* discloses that the **plurality of settable settings** (e.g., **climate, audio, comfort, awareness**) are **predefined for specific types of vehicles** associated with automobile makers or

automobile models (e.g., [different commands for a variety of types of automobiles](#)). *See supra* at VIII.A.10[b].

146. Just as the '268 patent describes a “translation metric” with “mapping tables that allow for settings to be transferred between functions of one vehicle to other vehicles,” Ex. 1001 at 22:16-22, Fig. 7, *Xiao* explains that its automobile command information 606 “may be a library of commands that may be issued to automobiles 112,” and this library may include [various commands](#) “for a [variety of types \[of\] automobiles 112 made by different manufacturers](#),” Ex. 1010 at ¶ [0085]. In one example, *Xiao* explains that “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.* at ¶ [0088].

147. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 13.

13[b]: “wherein the [settable settings](#) include one or more of [radio settings](#), or user interface settings, or temperature settings for particular times of day, or [temperature settings](#), or [air settings](#), or display settings, or speed settings, or internet settings, or pairing settings, or remote access settings, or home control settings, or [audio settings](#), or entertainment settings, or mapping settings, or [heating settings](#), or payment settings, or sub-user settings, or key fob settings, or user ID settings, or biometric settings, or fingerprint settings, or eye scan settings, or role settings, or administrator settings, or login settings, or calendar settings, or location based settings, or tracking settings, or vehicle mode settings, or operational settings, or

combinations of two or more settings, or learned settings from user historical use, or *seat settings*, or automatic payment settings, or combinations of two or more thereof.”

148. *Xiao* discloses that the *settable settings* (e.g., *climate, audio, comfort, awareness*) include one or more of the above-listed elements. For example, *Xiao* describes such settings as including “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*).” Ex. 1010 at ¶ [0102].

149. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 13.

D. Claim 15

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

150. As explained above, and further to element 10[b], *Xiao* discloses that the *applicable settings* (e.g., *command codes*) for the selected vehicle are *saved or stored* in association to the user profile (e.g., *profile information 614* stored in a storage device). *See supra* at VIII.A.10[b]. *Xiao* explains that “wireless automobile key service information 600,” which includes operator information 602 and automobile command information 606, which in turn includes *command codes*

632, is “stored in storage device 506.” Ex. 1010 at ¶¶ [0065], [0088], Fig. 6.

Further, *Xiao* discloses “[a]utomobile command information 606 may store information regarding such commands for access and retrieval by server 118.” *Id.* at ¶ [0085]. *Xiao* also states that command IDs 630 (and thus also command codes 632) are “associated with” operator profile information 614. *Id.* at ¶ [0103].

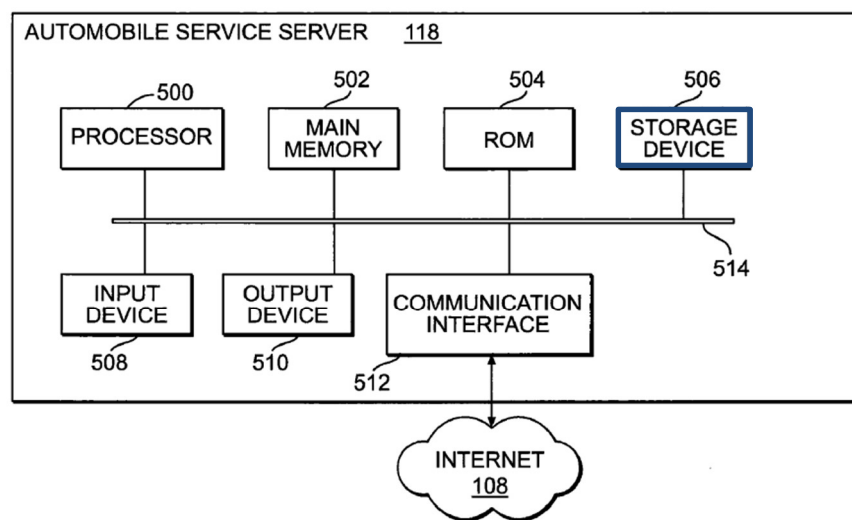


FIG. 5

Annotated Fig. 5 of *Xiao*

151. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 15.

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

152. *Xiao* discloses the method including determining applicable settings (e.g., command codes) for one or more other selected vehicles and saving said applicable settings to the user profile (e.g., profile information 614), such that the

user profile can identify settings for two or more vehicles.

153. As discussed above with respect to claim 10, *Xiao* discloses “determining applicable settings.” *See supra* at VIII.A.10[c] (discussing “determining, by the server, applicable settings for the selected vehicle”).

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

155. *Xiao* shows that wireless automobile key service information 600 (stored at server 118) includes command codes 632 for various vehicles (which may be represented by different automobile IDs 628, i.e., other vehicles). *Id.* at ¶ [0088]. This information is saved (e.g., “stored”) at the server 118. *Id.* at ¶¶ [0060], [0064].

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

Excerpt of Fig. 6 of *Xiao*

156. Similar to element 13[a], *Xiao* explains that its automobile command information 606 “may be a library of commands that may be issued to automobiles 112,” and this library may include various “commands for a variety of types [of] automobiles 112 made by different manufacturers.” *Id.* at ¶ [0085]; *see also supra* at VIII.C.13[a] (discussing the limitation of settings being “predefined for specific types of vehicles associated with automobile makers or automobile models”). In one example, *Xiao* explains that “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.” Ex. 1010 at ¶ [0088]. Also, *Xiao* explains that such saved command codes, which are associated with the user profile (*id.* at ¶ [0103]), are applicable for one vehicle and may be applicable to another vehicle. *Id.* at ¶ [0076] (describing “permission to operate every automobile 112 on the account”). Also,

when a user changes settings in one automobile, *Xiao*'s server 118 "may update the stored operator profile information 614." *Id.* at ¶ [0079]. This shows that there may be saved settings in *Xiao*'s database for multiple vehicles. I understand that Patent Owner's infringement contentions are consistent with this understanding. Ex. 1015 at 104-109 (alleging that Toyota meets claim 15 by "saving said applicable settings for two or more vehicles").

157. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 15.

E. Claim 16

16: "The method of claim 10, further comprising, *verifying* the user as associated with the user profile using one or more *biometric evaluation systems*, which include one or more of image detection, or face detection, or *voice detection*, or finger print detection, or password detection, or combinations thereof."

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

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

key service account.” Ex. 1010 at ¶ [0068]. Just as the specification of the ’268 patent describes, “logins are user specific, not vehicle specific” *Compare* Ex. 1001 at 13:32-36, *with* Ex. 1010 at ¶ [0068] (“Authentication information 612 may be associated with each operator”).

160. Also, *Xiao* discloses one or more of the alternatives listed in the claim, specifically, “input device 210 may include a keyboard, a touch screen, a touch pad, a mouse, a pen, a **voice recognition device**, a biometric recognition device, a still camera, a video camera, an accelerometer, a microphone, or any other type of device for enabling user input to a computing device.” Ex. 1010 at ¶ [0034]. A POSA would understand *Xiao*’s disclosure of “a biometric recognition device” could encompass a fingerprint reader, for example, or any other device configured to recognize unique physical characteristics of individuals, similar to the listed “**voice recognition device**,” among others. Also, *Xiao* discloses image detection (e.g., using a still or video camera). *Id.* at ¶¶ [0034], [0089].

161. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 16.

F. Claim 17

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

162. *Xiao* discloses **associating one or more sub-user accounts** (e.g., **child**

accounts) to the user profile, the sub-user accounts having predefined privileges for the selected vehicle to enable or restrict settings or function of the selected vehicle.

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

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

the account) are enabled; whereas the child has lower privileges, such that settings or function are enabled only on “the child’s automobile 112 or the family automobile 112” and restricted on other vehicles. *See id.*

165. Accordingly, in my opinion, *Xiao* discloses claim 17.

G. Claim 18

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

166. *Xiao* discloses that the selected vehicle (e.g., automobile 112) is a private vehicle (e.g., the operator’s own automobile) or a shared vehicle (e.g., an automobile that is shared among multiple operators).

167. *Xiao* states that the term “automobile owner or operator,” as used in the disclosure, “means any person or other entity having a property interest, ownership interest,” etc. in an automobile. *Id.* at ¶ [0017]. One would understand that one’s own vehicle, which he or she has a property interest in, is a private vehicle. Also, *Xiao* discloses embodiments where automobiles are shared between different individuals. *Id.* at ¶ [0076]. One would understand such a shared vehicle could be an example of “a shared vehicle associated with a car sharing system,” as recited in the claim.

168. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 18.

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

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

169. *Xiao* discloses at least one of the two options: (i) “if the vehicle is associated with a car sharing system, the settable settings of the selected vehicle can be enabled or disabled using an administrator account of the car sharing system,” or (ii) “if the vehicle is a private vehicle, the settable settings of the selected vehicle can be enabled or disabled using an administrator account that can define one or more sub-user accounts with the same or varying privileges for use of the selected vehicle.” In my opinion, *Xiao* discloses both.

170. *Xiao* states that “[i]n one embodiment, the owner or operator must have an account with system 100 to take advantage of the disclosed wireless automobile key security service. But other arrangements are contemplated.” *Id.* at ¶ [0022]. A POSA would readily understand that one such arrangement may be for an account creator (or “administrator”) to have control over other users that use (or “share”) the same automobile. For example, “an operator of automobile 112 may register for the disclosed wireless automobile key service with automobile service

system 104 and create an account for one or more mobile devices 110, automobile operators, and/or automobiles 112.” *Id.* at ¶ [0031]. “[S]ystem 100 may enable an operator of the automobile at a remote terminal, such as a desktop or laptop computer, to lock/unlock the automobile, to power on/off the automobile, or to perform other operations associated with the automobile over a network.” *Id.* at ¶ [0023]. Thus, *Xiao* discloses multiple operators associated with one account. The operators may share a common vehicle. The creator of such account would be considered the administrator of the account. A POSA would understand that operators on the same account may have the same or varying privileges as the user who created the account (i.e., the administrator). *Xiao* explains, for example, that “permission information 612” may be “associated with the operator’s ID 608.” *Id.* at ¶¶ [0066], [0076], [0110]. One would understand that such permission information would be set by the administrator. It follows, then, that the administrator could enable or disable settable settings of the selected vehicle.

171. Also, for example, like claim 17, *Xiao* discloses a family account where sub-users may have the same or varying privileges, and settings can be enabled or disabled. Specifically, “[o]perator information 602 may further include automobile permissions 616 associated with each operator on the account. In one embodiment, automobile permissions 616 may identify the automobile(s) 112 the operator is permitted to operate in connection with the disclosed wireless

automobile key service. For example, in a family account, the father and mother may have permission to operate every automobile 112 on the account. Whereas a child may only have permission to operate the child's automobile 112 or the family automobile 112." *Id.* at ¶ [0076]. Thus, some sub-users (e.g., a father and mother) have the same privileges, and some sub-users (e.g., children) have varying privileges where settings may be disabled.

172. *Xiao* also discloses an embodiment that only allows the "operator or owner to view health information associated with the vehicle, to view or change operator profile information for the automobile, or to perform other related functions." *Id.* at ¶ [0023]. That is, only the "operator or owner" has access to certain functionality, such as viewing health information and viewing or changing operator profile information. Other users (i.e., some "sub-user accounts") would not have access to these functions.

173. I understand that when claiming in the alternative, the prior art need only disclose one of the recited alternatives to establish invalidity. Here, claim 18 uses conditional language and recites two possible paths: (i) the vehicle is associated with a car sharing system; and (ii) the vehicle is a private vehicle. I understand that only one of those paths need be shown for the prior art to meet the claim. Thus, although *Xiao* discloses both paths (i) and (ii) as described above, *Xiao* could also only disclose one path and still meet the claim.

174. I understand that Patent Owner has accused Toyota of infringing this claim based only on one alternative, that is, path (ii). *See* Ex. 1015 at 122 (accusing “Toyota’s User Profile functionality restricts privileges for the sub-users . . . ,” and mentioning nowhere the alleged “administrator account of the car sharing system”).

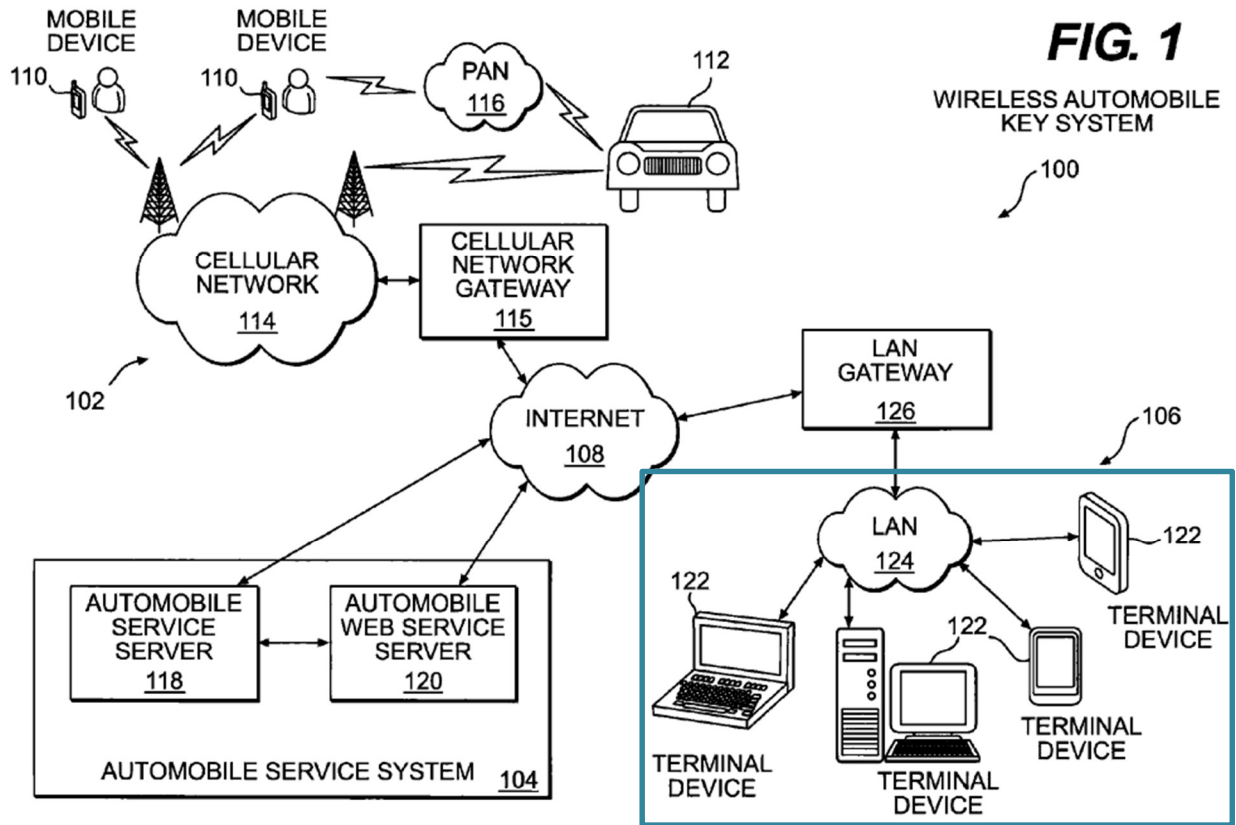
175. In my opinion, *Xiao* discloses both paths (i) and (ii), as described above, but at the very least, *Xiao* discloses at least one of the two paths claimed in claim 18. For example, *Xiao* discloses path (ii) where “the vehicle is a private vehicle.”

176. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 18.

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

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

178. *Xiao* discloses terminal devices 122 that “may include a desktop computer, a laptop computer, a tablet PC, a personal digital assistant (PDA), an iPad®, or any other computing device that may connect to LAN 124 to access the Internet 108.” Ex. 1010 at ¶ [0093].



Annotated Fig. 1 of *Xiao*

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

180. Accordingly, in my opinion, *Xiao* discloses this and all limitations of claim 18.

H. Claim 19

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

mechanics, engine control, vehicle diagnostics, or combinations thereof,”

181. As discussed above, *Xiao* discloses claim 18, and further discloses that particular sub-user accounts (e.g., accounts of an owner of the automobile, or other operators having elevated privileges) enable access to at least one of the listed alternatives of specific information (e.g., vehicle health information).

182. Also as discussed above, I understand that only one of the recited alternatives needs to be shown to meet the claim, consistent with Patent Owner’s infringement positions. For example, I understand that Patent Owner cited a Toyota instructional video explaining that only a particular sub-user, namely, a primary driver, can receive “vehicle health reports, manage services, and more” as allegedly meeting this element. Ex. 1015 at 53, 112, 119, 124.

183. *Xiao* discloses an embodiment that only allows the “operator or owner to view health information associated with the vehicle, to view or change operator profile information for the automobile, or to perform other related functions.” Ex. 1010 at ¶ [0023]. *Xiao* also discloses some sub-users (e.g., father and mother) having elevated privileges, and some sub-users (e.g., children) having fewer or lower privileges. *Id.* at ¶ [0076]. It is clear that in such embodiments, only some users (i.e., particular sub-user accounts) have access to view health information associated with the selected automobile.

184. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 19.

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

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

186. Accordingly, in my opinion, *Xiao* discloses this limitation of claim 19.

IX. GROUND 2: XIAO IN COMBINATION WITH HAYASHI RENDERS CLAIMS 10, 11, 13, AND 15-19 OBVIOUS

187. The features of claim 10 were notoriously well-known in the art, as evidenced by, e.g., *Xiao* and *Hayashi*.

188. As explained above with respect to ground 1, *Xiao* discloses the limitations of claims 10, 11, 13, and 15-19. To further reinforce the notion that claim 10 is unpatentable in view of the prior art, it is my opinion that it would have been obvious to combine *Xiao* and *Hayashi*, and doing so would consequently

yield the feature of “the applicable settings being settings that are preferred to be set as identified from the *user profile* and are *compatible* with settings that are settable in the selected vehicle.”

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

189. A POSA would have found it obvious to combine *Xiao*’s method of managing user profiles and *Hayashi*’s method of organizing functions by vehicle model and determining compatibility, and a POSA would have been motivated to do so 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.

190. *Xiao* recognizes there may be different “commands for a variety of types [of] automobiles.” Ex. 1010 at ¶ [0085]. *Xiao* describes applying particular profile settings to particular automobiles via such commands. *Supra*, VII.A.1. A POSA, reading *Xiao*, would have immediately appreciated the concept of determining compatibility, and would have found it obvious to implement with *Xiao*’s system of automobile commands. 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.* at ¶ [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 that are settable in the selected vehicle but would avoid determining applicable settings that are incompatible with settings that are settable in the selected vehicle, ensuring that *Xiao*’s server 118 does not attempt to command vehicles to do things they cannot do, potentially resulting in unexpected and/or undesired vehicle configurations or errors. Avoiding such undesirable effects would be a predictable result of implementing *Hayashi*’s known method of determining compatibility.

191. 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. Modifying *Xiao* would be as straightforward as providing an indication such as “none” in the tables of Fig. 6 of *Xiao* rather than, for example, an empty cell where there is no

corresponding command code. *Xiao* states that its tables are “an exemplary representation of wireless automobile key service information 600 stored in storage device 506.” *Id.* at ¶ [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.* at ¶ [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.

192. Additionally, both *Xiao* and *Hayashi* are analogous art to the ’268 patent because the references are from the same field of endeavor (i.e., applying settings to automobiles based on user preferences); and/or (2) the references are reasonably pertinent to the problem faced by the inventor (i.e., improving convenience for users to apply settings to automobiles). *See, e.g.*, Ex. 1001 at 12:31-45 (“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”); 21:31-62 (“ . . . 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 “automobiles” 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. 1010 at ¶¶ [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 at ¶ [0002]. *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.* at ¶ [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.

B. Claim 10

193. As explained above with respect to ground 1, *Xiao* discloses or renders obvious the limitations of claim 10. In the following analysis, I assume that the element 10[c] is not explicitly disclosed by *Xiao*, which may be because, for example, to the extent element 10[c] of claim 10 is interpreted to require determining that applicable settings are “compatible with settings that are settable in the selected vehicle,” it could be found that *Xiao* does not explicitly disclose the determination of such compatibility. However, it would have been obvious to

combine *Xiao* and *Hayashi*, which would result in the following element being met.

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

194. *Hayashi* discloses database 134, which “stores operating methods for each function of each vehicle model.” Ex. 1013 at ¶ [0029]. These functions may include user settings for the vehicle, such as “shift lever, parking brake, seat adjustment function, or mirror adjustment function.” *Id.* at ¶ [0120]. Recognizing the heterogeneity of vehicles, *Hayashi* explains operating methods for such functions may be the same or different, from vehicle to vehicle. *Id.* at ¶¶ [0002], [0005], [0007], [0009], [0029], Fig. 6. For example, for vehicle model α and for vehicle model β , function 1 is achieved by performing operating method X. For vehicle model γ , function 1 is achieved by performing operating method Y.

Hayashi actively determines certain functions or operating methods are compatible with certain vehicle models by specifying, e.g., method X, Y, Z, etc., for implementing such functions. 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	...
...	...	...	...	...

134

Fig. 6 of *Hayashi*

195. *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.* at ¶ [0029], Fig. 6. This can be visualized as follows:

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

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

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

196. A POSA would have been motivated to apply such teachings of *Hayashi* to *Xiao*, as explained above (*supra* at ¶¶ 189-192). As an example, in the table of automobile command information 606, as shown in Fig. 6 of *Xiao*, it would have been obvious to indicate certain commands are compatible/incompatible with certain automobiles.

AUTOMOBILE COMMAND INFORMATION		
AUTOMOBILE ID	COMMAND ID	COMMAND CODE
—	—	—
—	—	—
—	—	—
Abcd	1234	None

Annotated Excerpt of Fig. 6 of *Xiao*

For example, there may be an automobile having an automobile ID 628 for which a certain command ID 630 has no corresponding command code 632. It would have been an obvious and straightforward modification of *Xiao* to use an indicator such as “none,” for example, for commands having no corresponding command code on a vehicle, based on *Hayashi*. Thus, one would have looked to *Hayashi* and found an example of how a server may determine compatibility, yielding a combination that would meet claim 10.

197. In my opinion, it would have been obvious to combine *Xiao* and *Hayashi* as described above, and such combination would render obvious all elements of claim 10.

C. Claims 11, 13, 15-19

198. As explained above, *Xiao* discloses the limitations of claims 11, 13, 15-19. *Supra* at VIII.B-H. Thus, in my opinion, the combination of *Xiao* and *Hayashi* also renders obvious these claims.

X. GROUND 3A: *XIAO* IN COMBINATION WITH *PATENAUDE* RENDERS CLAIM 12 OBVIOUS
GROUND 3B: *XIAO* IN COMBINATION WITH *HAYASHI* AND *PATENAUDE* RENDERS CLAIM 12 OBVIOUS

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

199. A POSA would have found it obvious to modify *Xiao*’s method of

applying user preferences with *Patenaude*'s method of predicting user preferences, and a POSA would have been motivated to do so for several reasons.

200. For example, one would look to *Patenaude* to improve the user experience of *Xiao*, and would have had a reasonable expectation of success in doing so. Initially, *Xiao* itself aims to improve the user experience of automobile operators, explaining that it seeks to overcome the drawbacks of conventional keyless entry systems. Ex. 1010 at ¶¶ [0001]-[0004]. *Xiao* endeavors to increase the usefulness of keyless entry systems and make them more convenient. *Id.* at ¶ [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.* at ¶ [0023]. Such automobile system settings include audio and other multimedia settings. *See id.* at ¶ [0042], [0049], [0070].

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

202. In the state of the art existing at the time of the alleged invention of the '268 patent, performing data analytics to better understand user behavior was a

well-recognized technique. As exemplified by *Patenaude*, making predictions of a user's selections based on their past behavior was one such known technique. *Id.* By the date of the alleged invention of the '268 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 *Xiao* would have been obvious.

203. *Xiao* discusses activating various functionalities of an automobile before actually entering the automobile, which is desirable for enhancing convenience. Ex. 1010 at ¶¶ [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. Ex. 1011 at ¶¶ [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.

204. 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.

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

206. Furthermore, both *Xiao* and *Patenaude* are analogous art to the claimed invention of the ’268 patent. For example, the references are from the same field of endeavor as the claimed invention (i.e., applying settings to automobiles based on user preferences). Also, the references are reasonably pertinent to the problem faced by the inventor (i.e., improving convenience in applying settings to automobiles). *Supra* at ¶ 192. This is shown by way of, for example, *Xiao*’s description of problems in existing automobile keyless entry

systems and *Xiao*'s disclosure of a system to apply, over a network, "automobile system settings based on preferences contained in an operator profile." Ex. 1010 at ¶¶ [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. 1011 at ¶¶ [0002]-[0005]. Both *Xiao* and *Patenaude* recognize the benefit of enhanced convenience by automatically applying a user's desired settings, which include multimedia settings.

B. Claim 12

207. It would have been obvious to a POSA to combine *Xiao* with *Patenaude* and consequently reach the subject matter of claim 12, as explained below.

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

12[a]: "examining setting modifications over a period of time that defines a *history use*;"

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

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

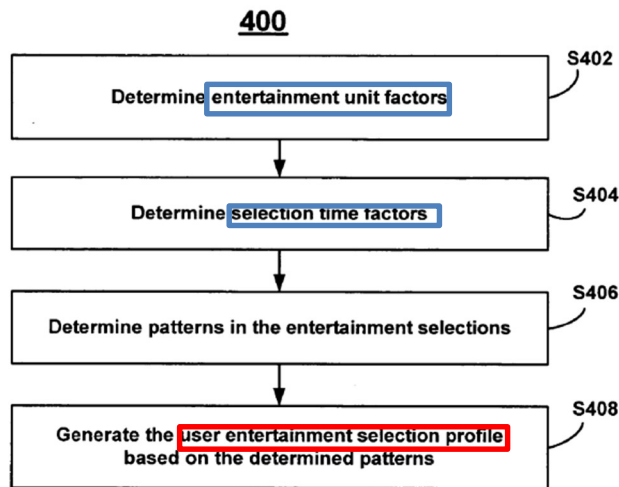


FIG. 4

Annotated Fig. 4 of *Patenaude*

209. *Patenaude* discloses a method of determining a user’s entertainment selection profile in a vehicle. *Id.* at ¶ [0051]. As shown and described with reference to Fig. 4 (and other embodiments), a telematics unit “determines patterns in the entertainment selections” of a user. *Id.* at ¶ [0055]. These are based on setting modifications by the user. *See id.* at ¶ [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.* at ¶ [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.* at ¶ [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.* at ¶ [0054].

210. Accordingly, in my opinion, *Patenaude* teaches or suggests these limitations of claim 12.

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

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

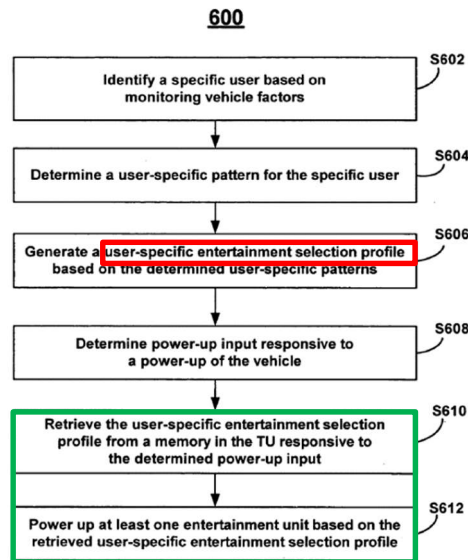


FIG. 6

Annotated Fig. 6 of *Patenaude*

212. *Patenaude* discloses an embodiment where the telematics unit “retrieves the user-specific entertainment selection profile stored in the in-vehicle

memory 128,” and “determines which entertainment selection is linked to the time frame in the user-specific entertainment selection profile” to automatically configure the user’s desired entertainment settings. *Id.* at ¶ [0073]. Specifically, “during stage S612, the telematics unit 120 powers-up at least one entertainment unit 135, 136, or 137 based on the retrieved user-specific entertainment selection profile.” *Id.* at ¶ [0074].

213. Accordingly, in my opinion, *Patenaude* teaches or suggests this limitation of claim 12.

214. Accordingly, in my opinion, the combination of *Xiao* and *Patenaude* renders obvious all the limitations of claim 12.

215. Also, in my opinion, the combination of *Xiao*, *Hayashi*, and *Patenaude* renders obvious all the limitations of claim 12.

XI. GROUND 4A: XIAO IN COMBINATION WITH SINGH RENDERS CLAIM 14 OBVIOUS

GROUND 4B: XIAO IN COMBINATION WITH HAYASHI AND SINGH RENDERS CLAIM 14 OBVIOUS

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

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

217. For example, one would look to apply known methods, such as those

of *Singh*, to improve the user experience of *Xiao*, and would have had a reasonable expectation of success in doing so. *Xiao* discloses loading user settings to customize a vehicle. *See supra* at VIII.A.10[d]. Upon loading personalized settings, it is only natural that such settings would eventually be unloaded. *Xiao* is thus ready for improvement to apply a complementary process of unloading such settings, as taught by *Singh*. It would have been obvious to apply the known methods of *Singh* and doing so would yield the predictable result of removing personalization for security or for the convenience of the next driver. *See, e.g.*, Ex. 1012 at ¶ [0034] (“When the driver will reach his or her destination and will turn the vehicle off, the Controller Unit will also save the changes made by the driver and then unload the user profile of the current driver and will bring the vehicle attributes to default settings.”).

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

system disclosed in *Xiao*.

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

220. Furthermore, both *Xiao* and *Singh* are analogous art to the claimed invention of the '268 patent. For example, the references are from the same field of endeavor as the claimed invention (i.e., applying settings to automobiles based on user preferences). Also, the references are reasonably pertinent to the problem faced by the inventor (i.e., improving convenience in applying settings to automobiles). *Supra* at ¶ 192. This is particularly so when considering that multiple users may use an automobile, highlighting the importance of security and other aspects in applying settings to automobiles.

221. In further detail, *Xiao* states that there may be multiple “operators” able to use an automobile, and, in some embodiments, there may be permissions

associated with “*each* operator on the account.” Ex. 1010 at ¶¶ [0031], [0076].

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

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

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

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

B. Claim 14

225. *Xiao* discloses performing a mapping between settings associated with the user profile and settings obtained from an automobile database, as described below regarding limitation 14[a]. As described below regarding limitations 14[b] and 14[c], it would have been obvious to combine *Xiao* with *Singh* which discloses that settings are returned to a neutral setting after use of the vehicle by the operator, as explained below.

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

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

226. Further to element 10[c] (discussed in section VIII.A. above), *Xiao* discloses that the determining of the applicable settings for the selected vehicle includes performing a mapping (e.g., look-up) between settings associated with the user profile (e.g., command code 630 associated with the operator’s desired system settings 614) and settings obtained from an automobile database (e.g., particular command codes 632).

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

systems for controlling the systems to perform various functions.” *Id.*

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

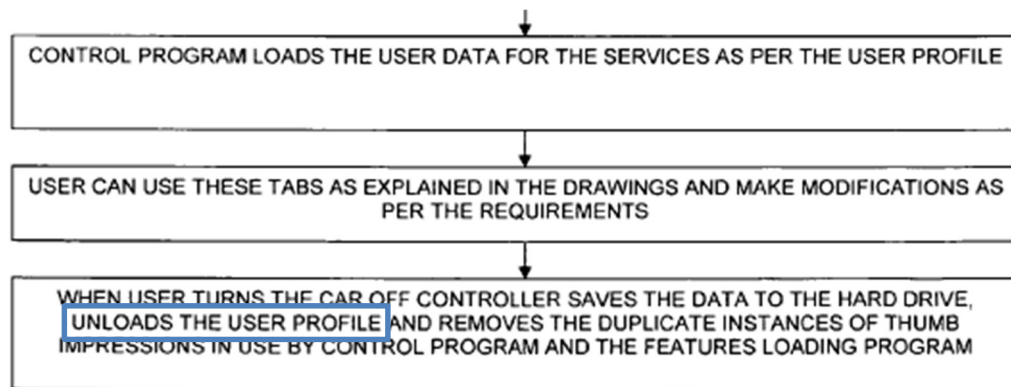
229. Accordingly, in my opinion, *Xiao* teaches or suggests this limitation of claim 14.

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

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

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

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



Annotated Excerpt of Fig. 3 of *Singh*

232. Accordingly, in my opinion, *Singh* teaches or suggests this limitation of claim 14.

233. Accordingly, in my opinion, *Xiao* and *Singh* render obvious all the limitations of claim 14.

234. Also, in my opinion, the combination of *Xiao*, *Hayashi*, and *Singh* renders obvious all the limitations of claim 14.

**XII. GROUND 5: XIAO IN COMBINATION WITH HAYASHI AND PATENAUDE
RENDERS CLAIM 20 OBVIOUS**

A. Claim 20

235. The features of claim 20 were notoriously well-known in the art, as evidenced by, e.g., *Xiao*, *Hayashi*, and *Patenaude*.

236. As described herein, it would have been obvious to combine *Xiao* with *Hayashi* and *Patenaude*. In making this combination, consequently, a POSA would reach all the limitations of claim 20.

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

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

238. *Xiao* discloses **wireless automobile key system 100** that “may be associated with an Internet service provider, a wireless service provider, a telecommunications service provider, a content service provider, or another entity

that provides the disclosed wireless key service.” Ex. 1010 at ¶ [0021]. *Xiao* explains that **system 100** may “communicate with the automobile, over a network, to apply automobile system settings based on preferences contained in an **operator profile**.” *Id.* at ¶ [0023]. As *Xiao* further explains, the operator’s **profile information 614**, contained in wireless automobile key service information 600 stored in a storage device of an automobile service server 118, contains information regarding the operator’s preferences. *Id.* at ¶¶ [0061], [0064]-[0066], [0069], Fig. 6. *Xiao* discloses that “[s]ystem 100 may also enable the operator or owner to . . . view or change **operator profile information** for the automobile, or to perform other related functions.” *Id.* at ¶ [0023].

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

240. Accordingly, in my opinion, *Xiao* discloses or renders obvious this limitation of claim 20.

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

for use with the vehicle;”

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

242. *Xiao* discloses that automobile 112 accesses **wireless automobile key system 100** by way of automobile service system 104, cellular network 114, cellular network gateway 115, and the Internet 108. *See id.* at ¶ [0024]. For example, *Xiao* illustrates automobile 112 in communication with cellular network 114 as a part of **system 100**. Furthermore, *Xiao* discloses an embodiment where “the operator may set **operator profile information 614** from automobile 112.” *Id.* at ¶ [0079].

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

244. Furthermore, in explaining how the method of *Xiao* applies particular

settings to the particular automobile that the operator operates, *Xiao*'s description of "command requests" and "command codes" demonstrate that "certain of the **user settings** are **compatible** for use with the vehicle," as recited in the claim. *Xiao* explains that command IDs 630 are "associated with the **operator's desired system settings 614**." *Id.* at ¶ [0103]. The "server 118 may look up a particular command code 632 based on the automobile ID 628 and command ID 630 contained in a command request received from mobile device 110 and/or from a terminal device associated with local system 106." *Id.* at ¶ [0088]. *Xiao* recognizes there may be different "commands for a variety of types [of] automobiles." Ex. 1010 at ¶ [0085]. These command codes 632 are used to "control the automobile systems to achieve the **operator's desired settings**." *Id.* at ¶ [0103]; *see also id.* at ¶ [0104] ("The appropriate onboard modules 406-418 may then execute the commands by controlling the onboard systems to achieve the **operator's desired settings** indicated by the **profile information 614**."). That is, for a particular **setting** (e.g., desired radio station of 101.1 FM at volume 10), *Xiao* looks up, for a particular vehicle, "a command to control the audio system to play 101.1 FM at volume 10." *Id.* at ¶ [0103]. If a **setting** is not **compatible** with settings that are settable in the selected vehicle (e.g., because the vehicle does not have an FM radio), it follows that no command code to operate the FM radio would be generated, or would have no effect.

245. Further reinforcing the notion that claim 20 would have been obvious in view of the prior art, it is my opinion that to the extent it could be found that *Xiao* does not disclose actively determining certain **user settings** are **compatible** for use with the vehicle, it would have been obvious to implement this feature based on *Hayashi*.

246. It would have been obvious to substitute or add to *Xiao*'s determination of appropriate command codes a known method of determining compatibility, such as that disclosed in *Hayashi*, with a reasonable expectation of success. This would have the predictable result of ensuring that only compatible commands are processed. It would also have the predictable result of providing an indication that some of the commands may be compatible with certain vehicles, and some may not. *Hayashi* also demonstrates that checking for compatibility was a known and familiar element, and it was known to yield the predictable result of indicating whether or not a particular function/setting/operating method is usable on a certain vehicle.

247. *Hayashi* discloses a database 134 of operating methods according to vehicle model that “stores operating methods for each **function** according to vehicle model.” Ex. 1013 at ¶ [0029]. These **functions** may include **user settings** for the vehicle, such as “shift lever, parking brake, seat adjustment function, or mirror adjustment function.” *Id.* at ¶ [0120]. Recognizing the heterogeneity of vehicles,

Hayashi explains operating methods for such functions may be the same or different, from vehicle to vehicle. *Id.* at ¶¶ [0002], [0005], [0007], [0009], [0029], Fig. 6. For example, for vehicle model α and for vehicle model β , **function 1** is achieved by performing **operating method X**. For vehicle model γ , **function 1** is achieved by performing **operating method Y**. *Hayashi* actively determines certain functions or operating methods are **compatible** with certain vehicle models by specifying, e.g., **method X, Y, Z**, etc., for implementing such **functions**. 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	...
...	...	...	...	...

134

Fig. 6 of *Hayashi*

248. *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.* at ¶ [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)

249. For example, as shown in the annotated figure above, there may be a function which vehicle model γ is not compatible with. As I have annotated, “function 4” may be incompatible with vehicle model γ, and thus, “none” is listed as the operating method.

250. Similarly, for example, there may be a vehicle model which is incompatible with function 2. As I have annotated, “vehicle model δ” is not compatible with function 2, and thus, “none” is listed as the operating method.

251. Thus, there may be a variety of vehicles, which may have operating methods that are the same or different from one another for certain functions, demonstrating their compatibility. Or, some vehicles may simply be incompatible with certain functions. One of skill in the art would have considered it useful to

have a database indicating which vehicles are compatible or incompatible with respective functions or operating methods, as shown in *Hayashi*.

252. A POSA would have been motivated to apply such teachings of *Hayashi* to *Xiao*, as explained above. Also, it would be a minor modification to apply such teachings to *Xiao*. 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 that certain commands are compatible/incompatible with certain automobiles.

AUTOMOBILE COMMAND INFORMATION		
AUTOMOBILE ID	COMMAND ID	COMMAND CODE
—	—	—
—	—	—
—	—	—
Abcd	1234	None

Annotated Excerpt of Fig. 6 of *Xiao*

253. As I have annotated above, there may, for example, be an automobile having an automobile ID 628 for which a certain command ID 630 has no corresponding command code 632. It would have been an obvious and straightforward modification of *Xiao* to use an indicator such as “none,” for example, for commands that have 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 compatibility, yielding a combination that would meet this limitation of claim 20.

254. Accordingly, in my opinion, *Xiao* and *Hayashi* render obvious this limitation of claim 20.

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

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

For example, the page may include a UI element allowing the operator to change the operator’s climate control system preferences (e.g., cabin temperature), to change the audio system preferences (e.g., station presets), to change the comfort preferences (e.g., seat position), and/or to change the awareness preferences (e.g., mirror and rear camera positions). If any operator preferences are changed, mobile device 110 (or terminal device 112) may send a message to server 118

to update the operator's profile information 614 with the changed preferences.

Id. at ¶ [0106].

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

257. However, *Patenaude* discloses communicating changes to user settings (e.g., selections on entertainment units), the cloud processing system (e.g., system 100) processing the changes and other changes to the user settings to learn behavior (e.g., patterns) associated with the changes to the user settings. *Patenaude* states, “[t]he processor 122 in the telematics unit 120 checks for changes in the patterns every time additional data is received for the specific subset profile.” Ex. 1011 at ¶ [0078].

258. Specifically, *Patenaude* discloses a method of determining a user's entertainment selection profile in a vehicle. *Id.* at ¶ [0051]. As shown and described with reference to Fig. 4 (and other embodiments), a telematics unit “determines patterns in the entertainment selections” of a user. *Id.* at ¶ [0055].

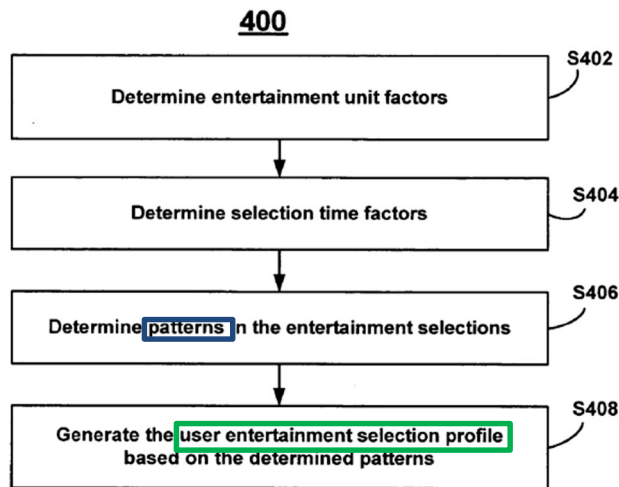


FIG. 4

Annotated Fig. 4 of *Patenaude*

259. These are based on setting modifications by the user. *See id.* at ¶ [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.* at ¶ [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.* at ¶ [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.* at ¶ [0054].

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

261. Accordingly, in my opinion, *Patenaude* discloses or renders obvious this limitation of claim 20.

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

262. Further to element 20[b] (discussed above), *Patenaude* discloses receiving by the vehicle, from time to time, automatic changes (e.g., changes in the patterns) to the user settings (e.g., the user’s entertainment selection profile) of the vehicle, wherein a repeat pattern of the changes is qualified as learned behavior before the automatic changes are sent to the vehicle for programming on the vehicle, wherein the user profile is configured to be updated to account for the automatic changes made to the user settings of the vehicle.

263. *Patenaude* states, “[t]he processor 122 in the telematics unit 120 checks for changes in the patterns every time additional data is received for the specific subset profile.” Ex. 1011 at ¶ [0078]. As an example of a repeat pattern of changes that qualifies as learned behavior, *Patenaude* explains “if the algorithm

determines that a first FM radio station and a second radio station are selected *every* weekday between 7:25 AM and 7:45 AM the algorithm narrows the time frame” *Id.* at ¶ [0057]. “This type of **entertainment selection patterns** a driver who listens to a local traffic report that is announced *every weekday at about 7:40*” *Id.* *Patenaude* further states that “telematics unit 120 can determine that a third FM radio station is selected *every* weekday between 5:15 PM and 5:50 PM.” *Id.* As discussed throughout *Patenaude*, the user’s entertainment selection profile is determined based on repeated monitoring. *Id.* at ¶¶ [0038], [0049], [0064], claim 7. That is, based on such **repeat patterns of changes** (such as listening to a particular radio station at a particular time), the system of *Patenaude* **learns** the driver’s behavior and updates the user profile (e.g., the **user’s entertainment selection profile**).

264. Accordingly, in my opinion, *Patenaude* discloses or renders obvious this limitation of claim 20.

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

265. *Xiao* discloses **electronics** (e.g., **modules 402-418**) of the vehicle (e.g., automobile 112) enable connection of the vehicle to the Internet for enabling the

accessing of the **user profile** (e.g., **profile information 614**), the communicating of changes and the receiving of the **automatic changes**, to and from, the cloud **processing system** (e.g., **system 100**), wherein the **cloud processing system** is accessible by vehicles having predefined access credentials, the method being executable by a **processor** (e.g., **processor 500**).

266. *Xiao* discloses certain users, such as a mother and father, having permissions. Furthermore, *Xiao* discloses an embodiment where only the owner can view diagnostics of the vehicle. *See supra* at VIII.H.19[a].

267. As illustrated in Figs. 1 and 5, *Xiao* shows that **processor 500** is part of **system 100**. *See supra* at VIII.A.10[e].

268. Accordingly, in my opinion, *Xiao* discloses or renders obvious this limitation of claim 20.

20[e]: “wherein **user settings for the **user profile** include one or more of radio settings, or user interface settings, or temperature settings, or air settings, or display settings, or speed settings, or internet settings, or pairing settings, or remote access settings, or home control settings, or audio settings, or entertainment settings, or map data settings, or heating settings, or payment settings, or sub-user settings, or key fob settings, or user ID settings, or biometric settings, or fingerprint settings, or eye scan settings, or role settings, or administrator settings, or login settings, or location based settings, or tracking settings, or calendar settings, or vehicle mode settings, or operational settings, or combinations of two or more settings, or learned settings from user said learned behavior, or seat settings, or automatic payment settings, or combinations of two or more thereof.”**

269. *Xiao* discloses **user settings** for the **user profile** (e.g., **profile information 614**) include at least one of the laundry list of alternatives quoted above.

270. For example, *Xiao* discloses **temperature/air/radio/audio/operational/seat settings**. Ex. 1010 at ¶¶ [0102]-[0103] (“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**).”)

271. Accordingly, in my opinion, *Xiao* discloses or renders obvious this limitation of claim 20.

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

272. A POSA would have found it obvious to modify *Xiao*’s method of applying user preferences with *Patenaude*’s method of predicting user preferences. *See supra* at X.A.

C. A POSA would have combined the teachings of *Xiao* and *Hayashi*

273. A POSA would have found it obvious to combine *Xiao*’s method of

managing user profiles and *Hayashi*'s method of organizing functions by vehicle model and determining compatibility, and a POSA would have been motivated to do so for several reasons, as discussed above. *See supra* at IX.A.

274. A POSA would have had a reasonable expectation of success in combining the teachings of *Xiao* with both *Patenaude* and *Hayashi*, and these combinations would have worked together. Furthermore, using the method of *Hayashi* would not have impacted the method of *Patenaude* or *Xiao*, and vice versa. For example, each of the references concern complementary or compatible aspects of applying vehicle settings. Accordingly, in my opinion, *Xiao*, *Patenaude*, and *Hayashi* render obvious claim 20.

XIII. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

275. 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. However, Patent Owner has not identified any such secondary considerations, and I am not independently aware of any. For example, Patent Owner has no commercial products embodying the '268 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 of the '268 patent of which I am aware.

276. 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 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.

277. 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.

XIV. CONCLUSION

278. For the reasons set forth above, I believe claims 10-20 of the '268 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.

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

Dated: April 12, 2024

By: Kevin C. Almeroth
Kevin C. Almeroth, Ph.D.