

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORP. AND KIA CORPORATION,
Petitioners,

v.

EMERGING AUTOMOTIVE LLC,
Patent Owner

IPR2026-00059
U.S. Patent No. 11,104,245

**DECLARATION OF DR. SAM MALEK IN SUPPORT OF PATENT
OWNER'S PRELIMINARY RESPONSE**

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I, Dr. Sam Malek, declare under penalty of perjury as follows:

I. INTRODUCTION AND BACKGROUND

1. I have been retained as an expert witness on behalf of Emerging Automotive LLC (“Emerging Auto”) to provide information and assistance regarding U.S. Patent No. 11,104,245 (“the ’245 patent”). Specifically, I have been asked to consider the Petition for *Inter Partes* Review numbered IPR2026-00059 (“the Petition”) regarding the ’245 patent, and specifically the Declaration of Dr. Almeroth (EX1004) that accompanies the Petition.

2. In this declaration I provide my independent analysis of the ’245 patent in light of the materials cited below and discussed herein and my knowledge and experience in this field during the relevant time frame. I have been asked to consider what one of ordinary skill in the art at the time of the invention of the ’245 patent (a “POSITA,” see Section V below) would have understood from the specification, including scientific and technical knowledge related to the patent. I have also been asked to consider certain references and opinions of Dr. Almeroth with respect to obviousness challenges in the Petition.

3. My findings, as explained below, are based on my study, experience, and background in the fields discussed below, informed by my education and my extensive experience in the field of cloud-based processing systems. I have also relied on my review and analysis of the references identified by Dr. Almeroth,

information provided to me, and information that I have independently reviewed. I have personal knowledge of the facts and opinions set forth in this declaration, and, if called upon to do so, I would testify competently thereto.

4. I am being compensated for my independent analysis as an expert with respect to this *inter partes* review proceeding. My compensation is not contingent in any way on the content of my analysis, the opinions that I offer, or the outcome of this proceeding. I have no financial interest in either Petitioner (Toyota or Kia) or Patent Owner (Emerging Auto) and I have no financial interest in the '245 patent.

II. QUALIFICATIONS

5. My qualifications for forming the opinions given in this declaration are summarized here and are addressed more fully in my curriculum vitae, which is submitted as EX2011. That exhibit also includes a list of my publications.

6. I have approximately 26 years of experience in the general area of computer and software technology in a variety of roles, including as a software engineer, software architect, and programmer at a variety of companies, as well as a researcher and professor at several universities.

7. I am currently a Full Professor of Software Engineering with tenure in the Informatics Department within the School of Information and Computer Sciences at the University of California, Irvine. I am also the Director of the

Software Engineering and Analysis Laboratory (“SEAL”). My general research interests are in the field of software engineering, and to date my focus has spanned the areas of software analysis and testing, mobile computing, architecture and design, and software dependability and security. The underlying theme of my research has been to devise techniques and tools that aid with the construction, analysis, and maintenance of largescale software systems.

8. I received my Ph.D. and M.S. degrees in Computer Science from the University of Southern California and my B.S. degree in Information and Computer Science from the University of California, Irvine. I have received numerous awards for my research contributions, including the Test of Time Award from the Association for Computing Machinery Special Interest Group on Software Engineering (2020), National Science Foundation CAREER award (2013), GMU Emerging Researcher/Scholar/Creator award (2013), and the GMU Computer Science Department Outstanding Faculty Research Award (2011).

9. I have authored over 140 peer-reviewed research publications. These publications have been highly cited (more than 12,000 times according to scholar.google.com). Many of my publications have dealt with the topics that are related to this proceeding, including distributed software systems, cloud computing, client-server architecture, and software settings and configuration. I provide a few examples here.

10. My Ph.D. dissertation resulted in novel algorithms for optimizing the deployment architecture of a distributed software system. The deployment architecture of a distributed software system is the allocation of its software components to its hardware devices. There are many deployments of a software system possible, but some may be superior to others with respect to certain quality of service objectives (e.g., latency, availability, security). One application of my dissertation work was in the context of cloud computing, because in most cloud-based software systems there are many geographically distributed nodes (servers) available for the deployment of software components.

11. I have also worked on techniques to leverage cloud computing for software testing. For instance, in an article titled “A Whitebox Approach for Automated Security Testing of Android Applications on the Cloud,” I showed how the resources in the cloud can be effectively harnessed to facilitate security testing at scale.

12. In another article titled “GLIDE: A Grid-based Lightweight Infrastructure for Data-intensive Environments,” I described the results of my work with colleagues from NASA in the development of a new distributed software system for sharing large amounts of data generated by NASA. This capability was the first of its kind in the realm of Grid Computing, which is a precursor to Cloud Computing.

13. A significant focus of my work has been on computer security, including electronic forms of access control and management of privileges in software systems. For instance, I led a team of researchers in a project sponsored by the Defense Advanced Research Project Agency (DARPA) to develop a novel approach for protecting Android applications from various form of access control attacks. The project resulted in the development of a tool called COVERT. I have published extensively on this work, including a highly cited manuscript that appeared in the IEEE Transactions on Software Engineering in 2015. In another project, I developed DelDroid, which at the time was the first approach for automated determination and enforcement of least privilege architecture in Android. This work was published in the Journal of Systems and Software in 2019.

14. I have received numerous research grants from a variety of organizations, including the National Science Foundation (NSF), Federal Bureau of Investigation (FBI), Air Force Office of Scientific Research, Department of Homeland Security (DHS), National Security Agency (NSA), Defense Advanced Research Projects Agency (DARPA), Office of the Director of National Intelligence, and Army Research Office among others. Software systems and results produced in my research lab have been adopted for use by various organizations in both private (e.g., Boeing, Bosch) and public (e.g., NASA, DHS, FBI) organizations. Many of the above-mentioned projects and software systems involved analysis and design of

client-server software systems deployed on the cloud. For instance, in a project called “RASS: Resilient Autonomic Software Systems” funded by Air Force Office of Scientific Research, I led a team of researchers to develop a new method of automatically adapting Air Force’s software systems to fluctuations in communication networks, thereby making them resilient to network interruptions.

15. I also have several years of experience as a software engineer, software architect, and programmer at a variety of companies, namely the Boeing Company, PricewaterhouseCoopers Consulting (later acquired by International Business Machines (“IBM”) Corporation), FieldCentrix, and Neural Computing Systems Lab. During my tenure in the industry, I gained professional experience in the design, development, and management of largescale software engineering efforts. Among the software systems that I designed and developed were commercial ecommerce and enterprise software systems. Many of the software systems developed in the context of my professional experience were built according to the general client-server architectural style and deployed on the cloud or cloud-like environments. In most of these systems, the server held the state of the distributed application, allowing for that state, such as the preferred user settings, to be transferred to client at runtime.

16. I have taught software engineering and computer science courses on a regular basis at the B.S., M.S., and Ph.D. levels at the universities where I have been

employed. I cover concepts related to cloud computing, distributed software, client-server architectural style, authentication, encryption techniques, access control mechanisms, and protocols for exchange of electronics credentials (e.g., electronic keys, passwords, and tokens) in many of the courses that I teach at the university. Notably, I have regularly taught distributed software engineering courses at UC Irvine and previously at George Mason University (GMU). In these courses, I cover concepts such as the client-server architectural style, cloud computing principles, and server-side storage of user-defined preferences.

17. I have been a frequent speaker at scientific conferences, symposia, workshops, and gatherings of software engineering academics and professionals. I have served as chair, committee member, and reviewer for numerous software engineering journals, magazines, and conferences. I have served on the editorial board of the ACM Transactions on Software Engineering and Methodology, IEEE Transactions on Software Engineering, the ACM Transactions on Autonomous and Adaptive Systems, the Springer Journal of Automated Software Engineering, and the Springer Journal of Computing. I am a member of the Association for Computing Machinery (ACM), ACM Special Interest Group on Software Engineering (SIGSOFT), and the Institute of Electrical and Electronics Engineers (IEEE). I have testified at trial and deposition as an expert witness in numerous cases in the past five years.

III. MATERIALS CONSIDERED

18. In preparing this declaration and forming my opinions, I have considered: the claims, specification, and prosecution history of the '245 patent; the Petition and declaration by Dr. Almeroth ("Almeroth Decl.") (including all materials cited in each); and all materials cited and discussed in this declaration. In addition, I have considered the relevant legal standards, as they have been explained to me by counsel and as I understand them. I have also considered the knowledge and understanding of a person of ordinary skill at the time of the invention of the '245 patent, of which I am familiar. As part of my analysis for this matter, I have also considered my own knowledge and experience, including my work and experience with cloud-based processing systems.

IV. LEGAL PRINCIPLES

19. In forming my opinions here, I have applied the following understanding of certain legal concepts related to obviousness, combinations of references, and knowledge of one of ordinary skill in the art. Counsel for Patent Owner has informed me of legal principles that apply in this proceeding.

20. It is my understanding that assessing the validity / patentability of a U.S. patent claim based on a prior art analysis requires two essential steps. First, one must analyze the terms of the patent claims to understand what meaning one of ordinary skill in the art would give the terms. Second, one may then assess validity by comparing a patent claim to the "prior art." I understand that the teaching of the

prior art is viewed through the eyes of a person of ordinary skill in the art at the time the invention was made. My opinion as to what constitutes a relevant person of ordinary skill in the art is set forth below.

21. I understand that a claim is invalid as obvious under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention to a person having ordinary skill in the art.

22. I understand that a person of ordinary skill in the art provides a reference point from which the prior art and the claimed invention should be viewed. This reference point prevents one from using his or her own insight or hindsight in deciding whether a claim is obvious.

23. I have been informed that the following factors are used to determine whether or not the claimed subject matter would have been obvious: (i) the scope and content of the prior art; (ii) the differences between the prior art and the claimed invention; (iii) the level of ordinary skill in the field of the invention; and (iv) any relevant objective considerations of non-obviousness, such as commercial success, long-felt but unresolved needs, failure of others, etc.

24. I also understand that in considering the scope and content of the prior art, references must be reasonably related (i.e., analogous) to the claimed invention of that patent. I understand that the test for determining whether a prior art reference constitutes analogous art to the claimed invention is (1) whether the reference is from

the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference is still reasonably pertinent to the particular problem the inventor is trying to solve.

25. I understand that a party asserting obviousness based on a combination of prior art references must demonstrate that one of ordinary skill in the art would have been motivated to combine the teachings of those references to achieve the claimed invention and that the skilled artisan would have had a reasonable expectation of success in doing so. It is my understanding that it is not enough to show that one skilled in the art could combine elements of multiple references, but instead there must be some reason that would have prompted a person of ordinary skill in the art to combine the elements in the way the claimed invention does. I understand that there must be some reasoned explanation as to why one of ordinary skill in the art would combine the references. The reason cannot come from hindsight.

26. I understand that in considering whether a claimed invention is obvious, one may but is not required to find obviousness if at the time of the claimed invention there was a reason that would have prompted a person having ordinary skill in the field of the invention to combine the known elements in a way the claimed invention does, taking into account such factors as: (1) whether the claimed invention was merely the predictable result of using prior art elements according to their known function(s); (2) whether the claimed invention provides an obvious solution to a

known problem in the relevant field; (3) whether the prior art teaches or suggests the desirability of combining elements claimed in the invention; (4) whether the prior art teaches away from combining elements in the claimed invention; (5) whether it would have been obvious to try the combinations of elements, such as when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions; and (6) whether the change resulted more from design incentives or other market forces. To find it rendered the invention obvious, the prior art must provide a reasonable expectation of success. Obvious to try is not sufficient in unpredictable technologies.

27. I understand that each claim must be evaluated separately for obviousness, and that it is improper to use hindsight. I understand that the disclosures in a patent or a prior art reference are viewed from the perspective of a person of ordinary skill in the art at the time of the invention. The obviousness analysis by a person of ordinary skill in the art must consider only what was known at the time of the invention.

28. It is my further understanding that obviousness cannot be based on a hindsight combination of components selected from one or more prior art references. I also understand that an invention would not have been obvious simply because all of the elements of the invention may have been known separately in the prior art.

29. I understand that a combination of disclosures or references would not

have been obvious if the alleged modification(s) to be made to the reference(s) would have been inconsistent with the reference's stated goals or would have rendered the combination inoperable for its intended purpose. I further understand that for something to have been obvious, the party asserting obviousness must explain why a POSITA would have selected components or features for combination in the manner claimed.

30. I have been informed that a prior art reference must be considered in its entirety, i.e. as a whole, including portions that would lead away from the claimed invention.

31. I understand that with respect to claim construction, the proper construction is considered in the context of, and must be consistent with, the specification and that the claim language should be read in light of the specification and file history as it would be interpreted by one of ordinary skill in the art.

V. PERSON OF ORDINARY SKILL IN THE ART ("POSITA")

32. Counsel for Patent Owner has informed me that a person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. In my opinion, the relevant field of art for the '245 patent is that of cloud-based processing systems.

33. For the purpose of this Declaration, and based on my opinions herein, the time of invention for the '245 patent is April 2011. However, I understand that Dr. Almeroth opines that the time of the invention is October 2013. Any invention

data from the early-to-mid 2010s would not alter my opinion regarding a person of ordinary skill in the art. Thus, my opinion regarding a POSITA applies to either a date of invention in April 2011, a date of invention in October 2013, or any date in between. October 25, 201. My opinions regarding a POSITA applies to a date of invention in October 2013.

34. I have been informed by counsel for Patent Owner that the person of ordinary skill is generally familiar with the type of problems encountered in the field and the prior art solutions to those problems and possesses an ordinary level of creativity.

35. I understand that Petitioners' expert, Dr. Almeroth, opined that a person of ordinary skill in the art would have "had a four-year undergraduate degree in electrical engineering, automotive engineering, or a closely related field and at least two years of experience in the field of access control systems, vehicle electronics, and/or cryptography. More education can supplement practical experience and vice versa.." EX1004, Almeroth Decl., ¶ 84.

36. For purposes of this declaration, I apply Dr. Almeroth's definition. However, I note that the opinions I set forth below are applicable under any reasonable definition of a POSITA. I also note that I qualify as a POSITA under Dr. Almeroth's proposed definition.

VI. BACKGROUND

A. Overview of the '245 Patent.

37. United States Patent Number 11,104,245 (the “'245 patent”) is titled “Vehicles and Cloud Systems for Sharing E-Keys to Access and Use Vehicles.” EX1001, Face Page. The '245 patent “relates to systems and methods for generating and sharing electronic keys (e-Keys) with users and cloud-based processing systems[.]” EX1001, 1:1-3, 1:59-62.

38. I note that independent claim 1 includes various features and functionality for the recited “unique access code.” EX1001, claim 1. For example, claim 1 recites “communications circuitry of the vehicle is configured to receive coded data from the mobile device for unlocking and use of the vehicle, the coded data from the mobile device including a unique access code received by the mobile device from the server[.]” EX1001, claim 1. Claim 1 also recites “the unique access code functioning for the e-key[.]” EX1001, claim 1. The specification of the '245 patent describes “[t]he unique generation of access codes enables each electronic key[] to be different for each user and each e-key can be canceled at any time from a device having access to the Internet.” EX1001, 43:49-53. “Each unique e-key, being unique, can be cancelled and eliminated without affecting other issued e-keys.” EX1001, 48:53-59.

39. Independent claim 1 of the '245 Patent recites:

“A vehicle, comprising,

an on-board computer of the vehicle;

a first system of the vehicle interfaced with the on-board computer of the vehicle for enabling unlocking of the vehicle;

a second system of the vehicle interfaced with the on-board computer of the vehicle for enabling starting of the vehicle for use of the vehicle;

and

communications circuitry of the vehicle interfaced with the on-board computer of the vehicle, the communications circuitry is configured to process program instructions to enable communication with a server and to enable communication with a mobile device;

wherein the communications circuitry of the vehicle is configured to receive coded data from the mobile device for unlocking and use of the vehicle, the coded data from the mobile device including a unique access code received by the mobile device from the server, wherein the unique access code is associated with privileges set via the server responsive to a restriction set by an administrator of the vehicle, the restriction is associated with a mode of allowed use of the vehicle, and privileges are for the unique access code, and a camera of the vehicle is used for capturing video of an area that includes the vehicle during a period of time in which the unique access code is to be active, such that actions taken by a user using an electronic key (e-key) is recorded;

wherein the unique access code functioning for the e-key that is managed via one or more graphical user interface inputs rendered on a screen of the mobile device.”

VII. CLAIM CONSTRUCTION

40. I understand that the district court issued a Markman Order on May 14, 2025 for each of U.S. Patent No. 10,407,026 (“the ’026 Patent”), U.S. Patent No. 11,738,659 (“the ’659 Patent”), and U.S. Patent No. 9,365,188 (“the ’188 Patent”) (collectively “related e-key patents”). EX1015. I understand that the district court construed the “electronic key” / “eKey” / “e-key” terms of those

related e-key patents as “electronic data that enables one or more functions of the vehicle”:

Term	Disputed Term	The Court’s Construction
1	“electronic key”/ “eKey”/ “e-key” (’026 patent, Claims 1, 2, 6, 13, 15; ’659 Patent, Claims 1, 3, 4, 12, 13, 20; ’188 Patent, Claims 1, 11, 16, 17; ’268 Patent, Claims 10, 18)	“electronic data that enables one or more functions of the vehicle”

EX1015, at 32.

41. I also understand that the district court ordered that the plain and ordinary meaning of various “privileges” / “conditions of use” terms (EX1015, at 12), as recited in the related e-key patents, specifically excludes “unfettered access”. See EX1015, at 12-13, excerpted below.

From Defendants’ perspective, the dispute centers on whether the “privileges” or “conditions of use” can allow what they call “unfettered access.” They say Plaintiff’s “non-construction of these terms invites the incorrect possibility that mere (unrestricted) access alone might be a privilege within the context of the . . . patents.” Dkt. No. 134 at 5. For support, they cite prosecution-history and IPR statements purportedly distinguishing cited references that allow such access.

The Court agrees with Defendants. The patents use “privileges” and “conditions” similarly, and there appears to be no dispute about what “conditions” are. For example, the specification explains various drivers can each have their own user account, “which provides specific privileges (use capabilities, restrictions, limits, parameters, etc.)” ’026 Patent at 36:46–50. Elsewhere, the patents explain conditions of use “define[] one or more privileges associated to use of the e-key.” *Id.* at 4:65–66; *see also id.* at 6:60–63 (describing “use of the vehicle in accordance with conditions defined in the privilege settings”).

EX1015, at 12. *See also* EX1015, at 13:

Id. (internal citations omitted). Plaintiff then emphasized its prosecution remarks that Zaid did not disclose “a unique access code that includes privilege settings set for additionally limiting types of use of the vehicle.” *Id.* at 17. In other words, Plaintiff equated “unfettered access” with the absence, not presence, of “privileges.” Given that, the Court agrees with Defendants that “privileges for use of the vehicle” cannot simply be “unfettered access” to the vehicle, which is the “plain and ordinary meaning” of these phrases on this record.

42. I am informed that 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 apply the district court’s constructions for these terms, as set forth by the district court in the Markman Order above, in my analysis herein.

VIII. OPINIONS

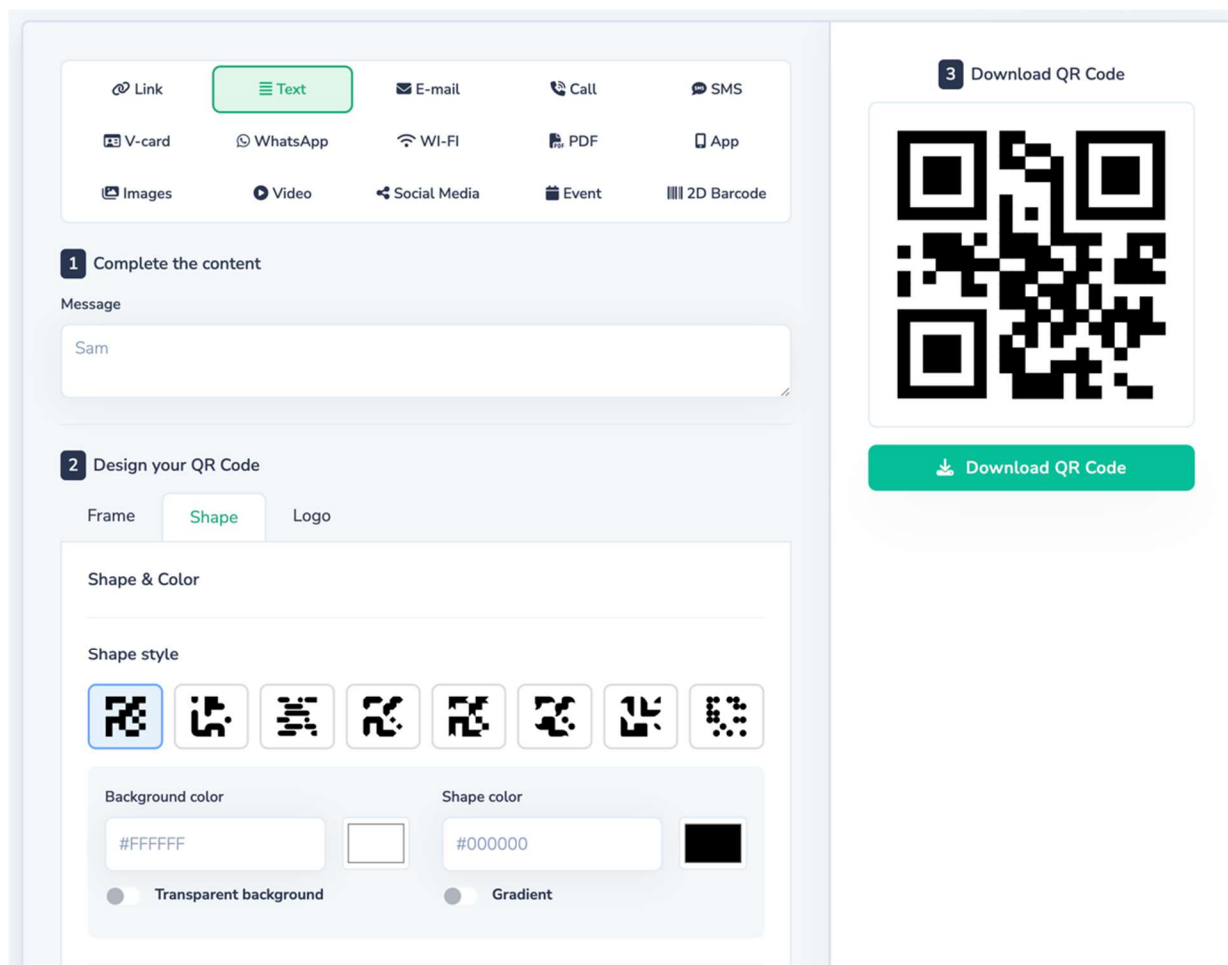
A. Kleve’s matrix barcode does not teach or suggest the “unique access code” of independent claim 1.

43. I understand that Dr. Almeroth opines that the “matrix barcode” disclosed in Kleve (EX1005) “encodes a unique access code within the two-dimensional matrix. See Fig.5. It is well known that these ‘two-dimensional matrix’ codes, or QR codes, essentially encode a unique value that appears to a human as a jumbled two-dimensional matrix barcode.” EX1004, Almeroth Decl., ¶ 122. Dr. Almeroth further contends that “the matrix barcode contains or encodes unique information (i.e., a unique access code)[.]” EX1004, Almeroth Decl., ¶ 122. Dr. Almeroth further opines that Kleve discloses this limitation of claim 1

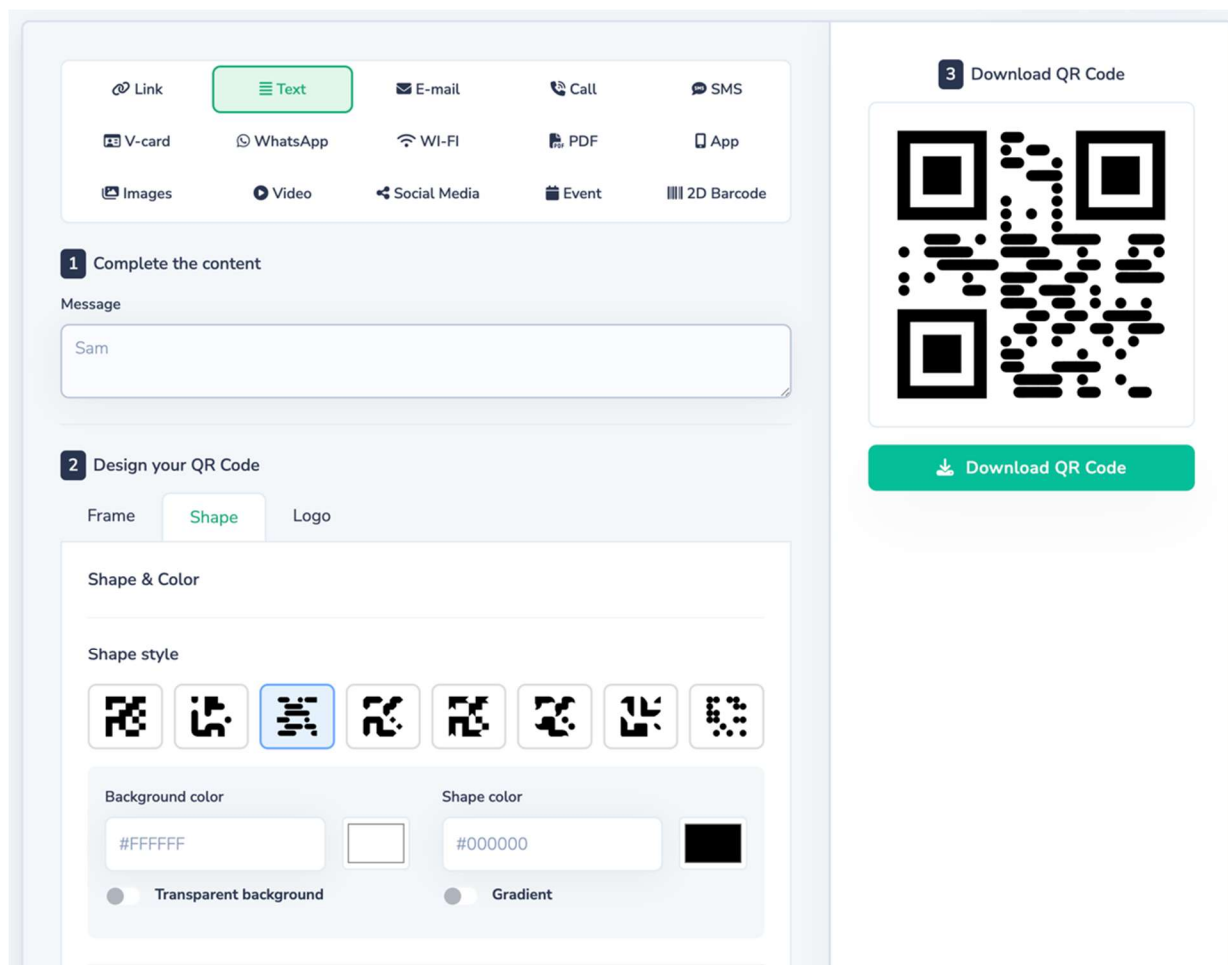
(limitation 1[f]). EX1004, Almeroth Decl., ¶ 122. I disagree with these opinions.

44. A QR (Quick Response) code, also referred to as a matrix barcode, is a two-dimensional barcode that stores information in a grid of typically black and white squares and can be read by imaging devices such as smartphone cameras. EX2012, “How are QR codes generated?”, QRcodeKit, *available at* <https://qrcodekit.com/guides/how-are-qr-codes-generated/>. Importantly, a QR code is not inherently unique; rather, “a QR code becomes unique only when the data encoded within it is unique.” EX2012. A QR code may be generated for arbitrary data, regardless of whether that data is unique.

45. Consistent with this understanding, publicly available online services—such as qr.io—allow users to generate QR codes for arbitrary input without any requirement of uniqueness. By way of example, I used the qr.io website to generate a QR code encoding the text “Sam,” which is clearly not a unique name. This demonstrates that QR codes do not, by their nature, encode unique values; any uniqueness derives solely from the semantics of the underlying data and the system in which it is used.



46. Moreover, a QR code is not a unique representation of a given piece of information. For example, using the qr.io service, I altered the visual styling parameters of the QR code (e.g., shape style) and generated a different QR code that nonetheless encodes the same underlying data—namely, my first name. As illustrated here, multiple distinct QR code symbols can encode identical information, further demonstrating that a QR code itself is not inherently unique, even with respect to a specific data value.



47. Dr. Almeroth states “Kleve describes the matrix barcode as a type of ‘unique Temporary User identification’ because, like a fingerprint or photo ID, the matrix barcode contains or encodes unique information (i.e., a unique access code) that is used by the vehicle to ensure that the intended TU is being given access to the vehicle. Kleve, [0069].” EX1004, Almeroth Decl., ¶ 122. However, Kleve at paragraph 69 does not “describe[] the matrix barcode as a type of ‘unique Temporary User identification.’” EX1005, ¶ 69.

48. As shown in paragraph 69 of Kleve, illustrated below, the reference describes a first embodiment in which “the vehicle Owner may generate a virtual

key.” EX1005, ¶ 69. I have highlighted this disclosure in **yellow** below. Specifically, the reference discloses: “At step 604, the vehicle Owner may then generate a virtual key based on a password generated by the vehicle Owner that may include a matrix barcode or a code word that the Temporary User may enter/send to the vehicle when ready to begin the rental term.” EX1005, ¶ 69.

49. The reference goes on to disclose a second embodiment, i.e., “[a]nother exemplary embodiment of generating a virtual key[.]” EX1005, ¶ 69. I have highlighted the description of this second embodiment in **light blue**. There, the reference discloses: “Another exemplary embodiment of generating a virtual key may be done by using Temporary User’s credentials including fingerprint recognition, photos of credit cards, photo of forms of ID, facial recognition, voice print recognition, phrase for speech recognition, temporary mobile web login IDs and password, or other type of unique Temporary User identification at step 614.” EX1005, ¶ 69. I note that in this second embodiment, which describes “unique Temporary User identification,” there is no mention of a “matrix barcode.” EX1005, ¶ 69.

[0069] FIG. 6 is an exemplary embodiment of the vehicle rental micro-business distributing and controlling virtual keys using a nomadic device with a vehicle. The vehicle rental micro-business administrative system may consist of a computer system configured to host one or more websites for interaction with a vehicle Owner and Temporary User. In the illustration 600, a server 634 is used to communicate between a vehicle Owner nomadic device 601, a Temporary User nomadic device 611, and a vehicle computing system 621. Using a nomadic device, for example a smart phone, a Temporary User and vehicle Owner may set up user profiles, enter into an agreement and make a payment to initiate the vehicle rental process between the two parties at step 602 and 612. At step 604, the vehicle Owner may then generate a virtual key based on a password generated by the vehicle Owner that may include a matrix barcode or a code word that the Temporary User may enter/send to the vehicle when ready to begin the rental term. Another exemplary embodiment of generating a virtual key may be done by using Temporary User's credentials including fingerprint recognition, photos of credit cards, photo of forms of ID, facial recognition, voice print recognition, phrase for speech recognition, temporary mobile web login IDs and password, or other type of unique Temporary User identification at step 614. At step 616, the virtual key is generated and sent to the Temporary User. The Owner may deliver a virtual key to the vehicle for recognizing the Temporary User having authorization to enable a keyless drive-away at step 606.

50. As illustrated above, Kleve, at paragraph 69, does not “describe[] the matrix barcode as a type of ‘unique Temporary User identification’ ... like a fingerprint or photo ID[,]” as Dr. Almeroth opines. EX1005, ¶ 69. The embodiment describing “fingerprint recognition, photo of forms of ID, ... or other type of unique Temporary User identification” excludes any mention of a matrix barcode. EX1005, ¶ 69.

51. It is my opinion Kleve's matrix barcode does not teach or suggest a “unique access code.” It is further my opinion that Dr. Almeroth is incorrect in stating that “it is well known that these ‘two-dimensional matrix’ codes, or QR

codes, essentially encode a unique value.” It is also my opinion that Dr. Almeroth is incorrect in concluding that Kleve’s matrix barcode encodes a “unique access code,” and that Dr. Almeroth is incorrect in stating that Kleve, at paragraph 69 describes “the matrix barcode as a type of ‘unique Temporary User identification’ ... like a fingerprint or photo ID.”

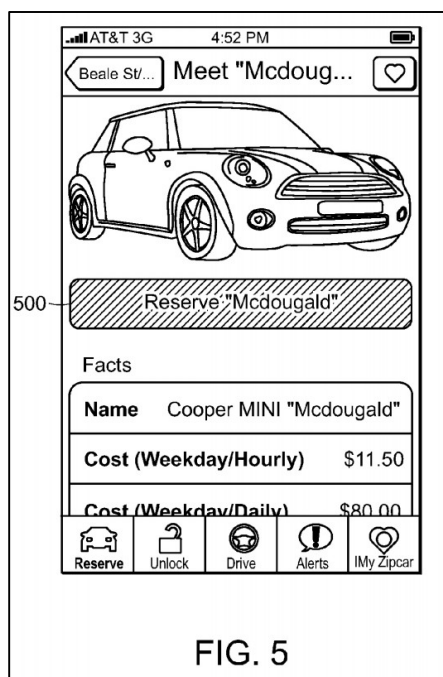
B. A POSITA would not have been motivated to combine or modify Kleve in view of Mottla, as proposed, or have a reasonable expectation of success in doing so.

52. I understand that Dr. Almeroth proposes modifications to Kleve (EX1005) in view of Mottla (EX1006), and Dr. Almeroth further contends that this combination renders obvious the limitations recited by claim 1[i] (EX1004, ¶¶ 129-133), which recites “wherein the unique access code functioning for the e-key that is managed via one or more graphical user interface inputs rendered on a screen of the mobile device.” EX1001, claim 1. However, as I discuss the section above, Dr. Almeroth’s opinion that Kleve discloses a “unique access code” is incorrect. Dr. Almeroth does not opine that Mottla’s disclosures disclose a “unique access code.” (EX1004, ¶¶ 129-133). In my opinion the combination of references therefore fails to render obvious the limitations of claim 1[i], which require “the unique access code functioning for the e-key ...” EX1001, claim 1.

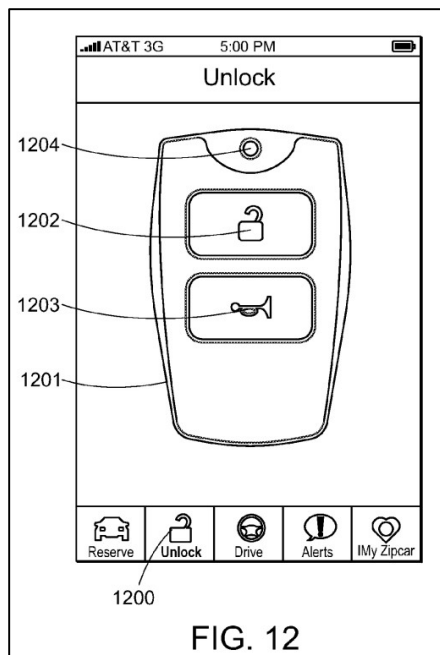
53. I also disagree with Dr. Almeroth’s proposed combination of elements from Kleve and Mottla. Specifically, Dr. Almeroth proposes to combine Kleve’s “user interface” (EX1005, Figure 9) with Mottla’s Figure 5 (EX1006, Figure 5),

which “illustrates a portion of the user interface for displaying information regarding a selected vehicle” (EX1006, ¶ 15) and Mottla’s Figure 12 (EX1006, Figure 12), which “illustrates a portion of the user interface for displaying an icon for unlocking a vehicle or for making a vehicle sound its horn” (EX1006, ¶ 22).

54. I note that Mottla permits its “member” user to browse reservable vehicles using a user interface, allows its “member” user to reserve a vehicle via a user interface, and allows the member to select buttons on a user interface which acts like a “key-fob” and allows the member to unlock and lock the vehicle. EX1006, Figures 5, 12, ¶ 33. Figures 5 and 12 are shown below:

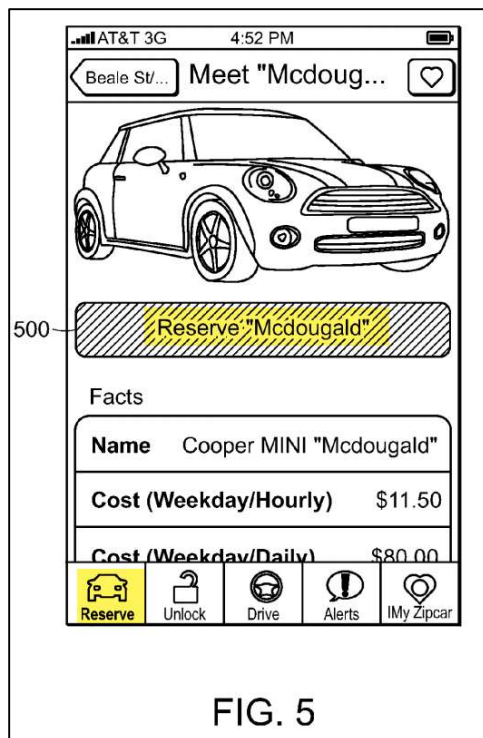


EX1006, Figure 5.



EX1006, Figure 12.

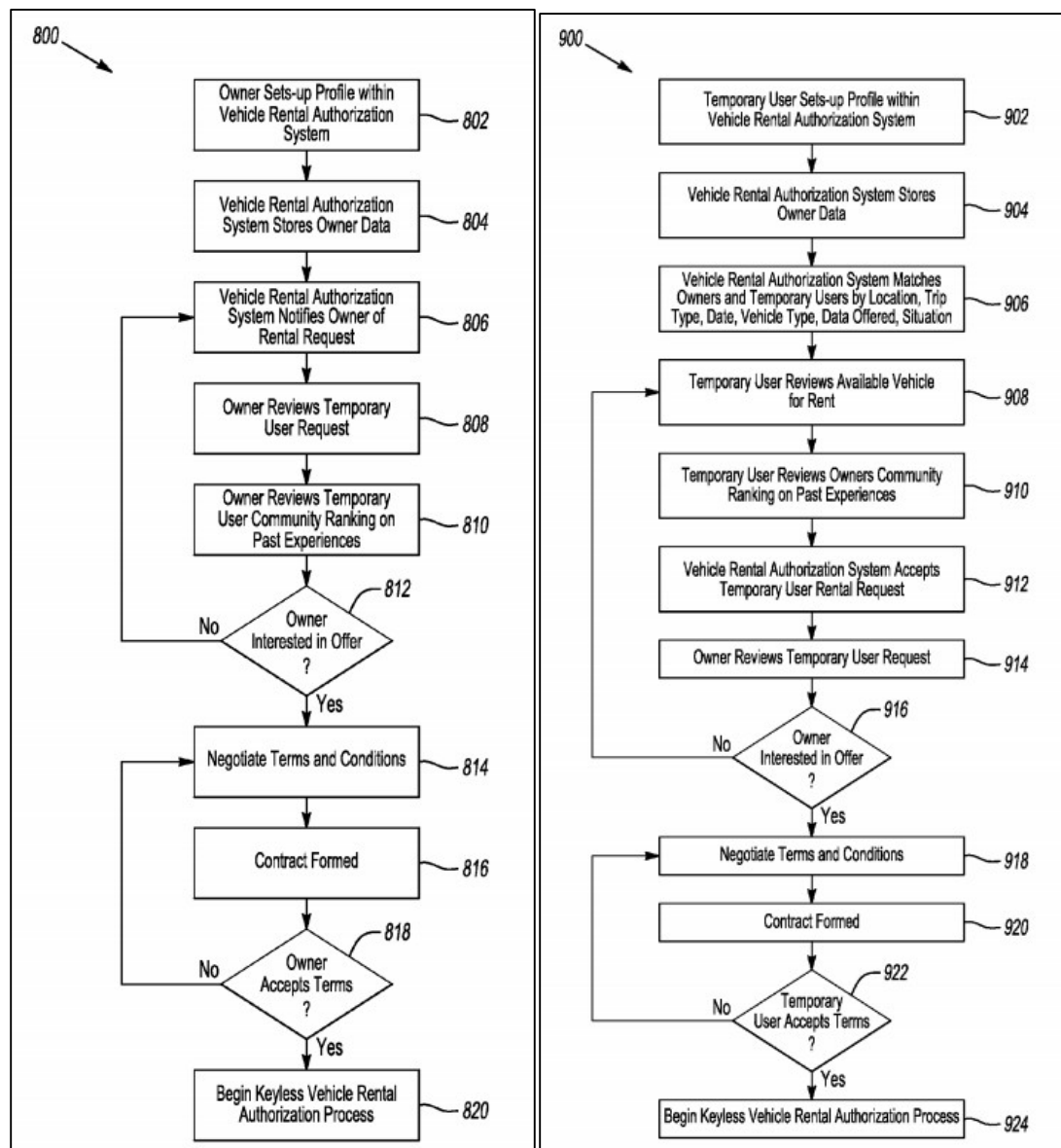
55. Kleve, however, discourages the modifications proposed by Dr. Almeroth. I note that Kleve’s system requires the Temporary User to submit a “request” to rent a vehicle, and both the system and the vehicle owner must approve the Temporary User’s request to rent the vehicle. EX1005, Figures 8, 9, ¶¶ 83-84, 89. Kleve does not permit its Temporary User the type of direct action taught by Mottla, i.e., to “reserve” a vehicle. EX1006, Figure 5, ¶ 27. Specifically, Mottla teaches the use of graphical user interface inputs which allow a member to “select one or more of the reservable assets” and then to directly reserve that vehicle by selecting the “reserve” button 500 (EX1006, Figure 5, ¶ 27), depicted below:



EX1006, Figure 5.

56. Kleve does not allow its “Temporary User” to take this direct reservation action that Mottla’s graphical user interface permits. Instead, Kleve teaches that the Temporary User must “request” to rent the owner’s vehicle, and if Kleve’s system “accepts the request,” then the system will “notify the owner of a rental request.” EX1005, Figures 8, 9, ¶¶ 83-84, 89. At this point, Kleve teaches that the owner is given the opportunity to review the Temporary User’s request, i.e., the nature of the request (“review the requested rental based on what the Temporary User is looking to use the vehicle for,” “when the requested use will be taking place, and where”), as well as review the “Temporary User Community Ranking.” EX1005, Figures 8, 9, ¶¶ 83-84, 89. Kleve teaches that, after this opportunity for the owner to review the request and ranking, it is at step 812 (in Figure 9 shown as

“yes”/”no” to step 916) that the owner must take action to either “decline and wait for the vehicle rental authorization system to notify of any other offers” or “accept the offer.” EX1005, ¶¶ 83-84, 89, Figures 8, 9.



57. Kleve teaches that the Temporary User may submit a “request,” but it is the owner that will either accept or decline that request. EX1005, ¶¶ 83-84,

89, Figures 8, 9. Kleve does not permit the type of direct “reserve” action taught by Mottla.

58. In my opinion, Kleve discourages the type of direct “reserve” action taught by Mottla’s user interface shown in Figure 5. Specifically, Kleve discourages the “reserve” action enabled by the graphical user interface inputs of Mottla’s Figure 5. EX1006, ¶ 27, Figure 5. For at least these reasons, a POSITA would not have been motivated to combine these elements from Kleve and Mottla.

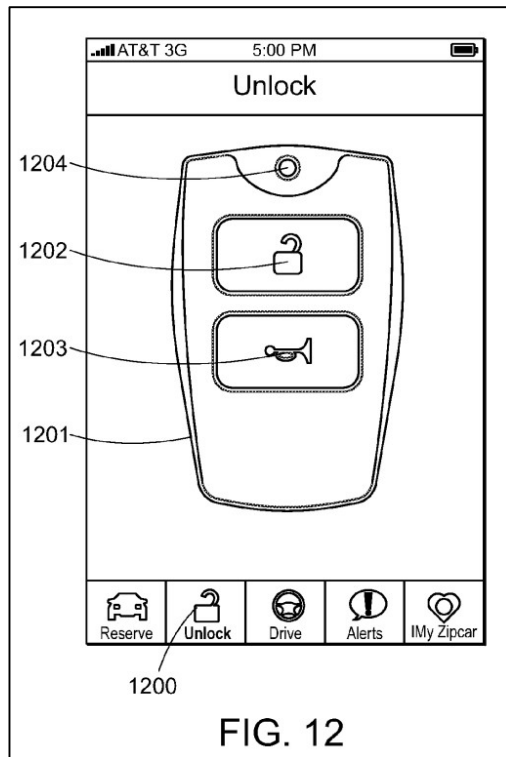
59. I also disagree with Dr. Almeroth’s opinion that a POSITA would have been motivated to modify Kleve’s matrix barcode in view of Mottla’s graphical user interface inputs, shown in Mottla’s Figure 12.

60. I note that Kleve teaches that a “matrix barcode” which itself is passively “used as the virtual key.” EX1005, ¶ 44. Kleve teaches “[o]nce the Temporary User has the matrix barcode scanned by the vehicle, the smart phone may be able to connect with the VCS and be used to enter and enable the vehicle drive away event.”):

[0044] Another exemplary example of the vehicle rental micro-business system may include other enhancements including, but not limited to, matrix barcode (ex. two-dimensional code) used as the virtual key being recognized by the VCS. The smart phone may be used to communicate the matrix barcode information to the vehicle rental micro-business system directly. The system may be able to communicate information from the smart phone to the vehicle notifying the VCS of a virtual key. Once the Temporary User has the matrix barcode scanned by the vehicle, the smart phone may be able to connect with the VCS and be used to enter and enable the vehicle drive away event.

EX1005, ¶ 44.

61. Mottla teaches that a member selects certain buttons on a graphical user interface in order to display a key-fob user interface, then the member selects buttons for unlocking or locking the vehicle on that user interface in order to unlock or lock the vehicle. Mottla teaches, for example, “a member selects a lock icon 1200 that causes the mobile device application to display a user interface with another icon 1201 that has a button 1203 for causing a vehicle 104 to sound its horn, or button or buttons 1202 to lock or unlock the vehicle doors.” EX1006, ¶ 33, Fig. 12:



EX1006, Figure 12.

62. Dr. Almeroth does not explain how the matrix barcode of Kleve would be combined with Mottla or how the two in combination would be expected to function. I note that Kleve's matrix barcode is a passive mode of communication, without any buttons to select. As I discuss above, Kleve teaches that the barcode is scanned at the vehicle and that this scanned barcode is used to enter and enable the vehicle drive away event. Mottla, by contrast, teaches that a member must actively select buttons to unlock a door, sound a horn, etc. Dr. Almeroth does not explain how to combine Kleve's matrix barcode with Mottla's graphical user interface inputs, such that the barcode is being managed by some graphical user interface inputs. EX1004, ¶¶ 129-133.

63. It is my opinion that a POSITA would not have been motivated to modify or combine Kleve's matrix barcode in view of Mottla's teachings, as proposed by Dr. Almeroth, and it is further my opinion that a POSITA would not have had a reasonable expectation of success in doing so.

IX. CONCLUSION

64. This declaration reflects my opinions as currently held. However, my analysis may continue such that I may consider additional information that may result in additional observations.

65. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further 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.

Executed this 23rd day of January, 2026, at Irvine, California



Dr. Sam Malek