

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,

Petitioner

v.

CHARGE FUSION TECHNOLOGIES, LLC,

Patent Owner

Case IPR2025-00032

Patent 11,563,338

DECLARATION OF DR. STEVEN GOLDBERG IN SUPPORT OF
PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

TABLE OF CONTENTS	2
I. Introduction	6
II. BACKGROUND AND Qualifications.....	6
III. MATERIALS USED.....	10
IV. LEGAL FRAMEWORK.....	11
A. Obviousness.....	11
B. Level of a Person of Ordinary Skill in the Art.....	13
C. Claim Construction.....	14
1. Construction of “amount of charge”	15
2. Construction of “vehicle charge indicator element”	21
V. Technology Background.....	23
A. Battery Charging Technology	23
B. EV Battery Charging.....	24
VI. Overview of CITED REFERENCES	25
A. Ferro (EX1004)	26
B. Oyobe (Ex. 1005)	29
C. Donnelly (Ex. 1006).....	32
D. Letendre (Ex. 1007).....	33
E. Zeigler (Ex. 1009)	34
F. Galvez-Ramos (Ex. 1008).....	35
G. Knockeart (Ex. 1010)	35
H. Sutardja (Ex. 1011).....	36
VII. GROUND 1: PETITIONER FAILED TO ESTABLISH THAT FERRO IN VIEW OF OYOBE, DONNELLY, LETENDRE, ZEIGLER, AND	

**GALVEZ-RAMOS RENDERS OBVIOUS CLAIMS 1-4, 6-7, 9-13, 15-16,
18-22, 24-25, AND 2736**

- A. Ground 1 Ferro in view of Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos fails to render obvious limitations 1[e], 10[b], or 19[e] of claims 1, 10, and 19, respectively.....37
1. One of ordinary skill in the art would not be motivated to combine Ferro with Oyobe.37
- B. Petitioner’s “modified” Ferro in combination with Donnelly and Letendre failed to teach or disclose element 1[h], 10[e], or 19[l] “wherein at least one of the one or more charging preferences is defined by user input received via a graphical user interface and adapted to display a vehicle charge indicator element comprising a first portion indicative of an amount of charge residing in a battery of the electric vehicle and a second portion indicative of an uncharged capacity of the battery of the electric vehicle and wherein the vehicle charge indicator element further comprises a slider by which an amount of charge may be specified” of claims 1, 10, and 19, respectively.....46
1. Mr. Andrews and Petitioner fail to establish a slider by which an amount of charge may be specified.47
2. Mr. Andrews does not show how Letendre’s slider would be combined with Ferro or Donnelly53
3. Ferro, Donnelly and Letendre, even when combined, do not meet the requirements of a “vehicle charge indicator element” as claimed.....57
- C. Grounds 1 and 2: Mr. Andrews and the Petition fail to establish the prior art meets the element of “send[ing] an alert to an operator of the electric

vehicle” as required by Challenged Claims 1-4, 6-7, 9-13, 15-16, 18-22, 24-25 and 27.....58

- D. No reference cited by Petitioner establishes an electric charging system or method that has a graphical user interface adapted to display a webpage as required in Claims 2, 11 and 20.....62

VIII. GROUND 2: PETITIONER FAILED TO ESTABLISH THAT CLAIMS 5, 8, 14, 17, 23, AND 26 ARE UNPATENTABLE AS OBVIOUS OVER FERRO IN VIEW OF OYOBE, DONNELLY, LETENDRE, ZEIGLER, GALVEZ- RAMOS, AND KNOCKEART63

- A. Ground 2 should be denied for similar reasons presented for Ground 1 above.....63
- B. Petitioner has not established a motivation to combine Knockeart with the other cited references for Ground 2.....63

IX. GROUND 3: PETITIONER FAILED TO ESTABLISH THAT CLAIMS 28 AND 29 ARE UNPATENTABLE AS OBVIOUS OVER FERRO IN VIEW OF DONNELLY, LETENDRE, AND SUTARDJA.....64

- A. Petitioner’s “modified” Ferro in combination with Donnelly and Letendre failed to teach or disclose element 28[e]64
- B. Petitioner has not established a motivation to combine the Sutardja with the other cited references of Ground 3.65

X. GROUND 1, 2, AND 3: PETITIONER HAS NOT ARTICULATED ANY MEANINGFUL MOTIVATION TO COMBINE OR A REASONABLE EXPECTATION OF SUCCESS65

- A. Petitioner Has Not Shown that a POSITA Would Have Been Motivated to Combine Ferro with the other cited references.....65

B. Petitioner Has Not Shown a Reasonable Expectation of Success in Reconfiguring Ferro in view of Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos69

XI. CONCLUSION.....70

I, Steven Goldberg, hereby declare the following:

I. INTRODUCTION

1. My name is Dr. Steven Goldberg. I have been retained by counsel for Patent Owner as a technical expert in the above-captioned Inter Partes Review (“IPR”) matter. Specifically, I have been asked to study and provide my opinions on the technology described and claimed by U.S. Patent Nos. 11,563,338 (the “’338 Patent”). I understand that the Challenged Claims are claims 1-29 from the ’388 Patent. My opinions in this Declaration are limited to those Challenged Claims.

2. My compensation in this matter is not based on the substance of my opinions or the outcome of this matter. I have no financial interest in the Patent Owner. I am being compensated at an hourly rate of \$500 for my analysis and testimony in this case.

II. BACKGROUND AND QUALIFICATIONS

3. I am currently a Partner at DYDX Capital (fka Finistere Ventures), an early-stage venture capital firm. Additionally, I am the sole proprietor of a consulting business, dba Air Access, where I provide engineering, technical and management services. In that role, I direct and advise a number of high-tech start-up companies and provide litigation technical consulting and support services. My current curriculum vitae (CV) is attached at Exhibit A and some highlights follow.

4. My forty-year career in the technology industry includes employment as an RF engineer, algorithm engineer, digital design engineer, engineering manager, business general manager, CEO, technology investor, and board member. The vast majority of these positions were at companies involved in wireless communications, telematics, radar technology, communications technology, automotive, and/or embedded systems (those that include hardware, software, and algorithms).

5. I received a B.S.E.E. degree and M.S.E.E. degree from Washington University, St. Louis, Missouri in 1975 and 1980, respectively. I also received a Ph.D. in Electrical Engineering from the University of California, Santa Barbara in 1988.

6. My graduate education focused on digital and analog communications and related algorithms. My Ph.D. doctoral thesis focused on direct sequence spread spectrum communications and wireless technology, which includes technology related to the Global Positioning System (GPS), a technology based on direct sequence spread spectrum technology.

7. I was twice employed at Trimble Navigation, Sunnyvale, CA, a global leader in GPS technology. In my first position at Trimble, from 1991 to 1995, I was an Engineering Manager with the Vehicle Tracking Division of the company and a Senior Engineer in the Differential Corrections Group in the Survey Division. My group within the Vehicle Tracking Division—which was composed of hardware,

software, and algorithm engineers—designed, developed, and manufactured tracking systems for cars, trucks, first responders, and public transportation systems. My second period of employment with Trimble Navigation was from September 2008 to September 2009. During this time, I was the Program Manager for the Trimble Military Division where I led approximately 20 hardware, software, algorithm, mechanical, and RF engineers in the design of the next generation M-Code GPS system for military aircraft.

8. My software and programming experience includes programming activity through undergraduate, graduate, Ph.D. programs in Fortran and Matlab (1971-1988). As a Systems Engineer at Applied Signal Technology (1988-1991), my job was to create algorithms to help the National Security Agency and the CIA to receive and decode wireless messages from entities of interest internationally (known as Signal Intelligence). I designed and tested my algorithms in MATLAB, a programming language used by systems engineers. From 1991-2009, I had hundreds of software engineers reporting to me in my roles as Engineering Manager, VP Engineering, and CEO, including over 250 software engineers as part of my role of VP of Engineering at Nokia. I regularly reviewed product software architectures and validated, at a system and algorithmic level, the functionality and the potential performance of a wide variety of products, from GPS receivers and wireless/microwave radios to Internet Security products.

9. Additionally, earlier in my career I was an engineer with California Microwave, Inc., Emerson Electric Co., and an engineer at the Hewlett Packard Company where I regularly had responsibility for radar component design and/or radar system measurements.

10. Notably, I was also a founder and engineering leader at DataRunway, a startup company focused on the design, manufacture, and sale of a system that would provide high-speed data to aircraft in flight.

11. Throughout my career, I was very close to “product” and “product development.” As an engineer, engineering manager, VP of engineering, General Manager, CEO, and corporate board member, I have been directly involved in product definition, market validation, product development, testing, manufacturing, pricing, sales, and support. My product management experience includes the creation and oversight of Market Requirements Documents (MRD; created by Marketing Dept), Product Requirements Documents (PRD; created by Product Managers), and System Specification Documents (SSD; created by engineering departments). These documents are tied to a detailed process that guides and enables the creation of a product by assessing and responding to the market and customer needs.

12. Additionally, at Trimble Navigation, Cylink, Applied Signal Technology, Nokia, DataRunway, and Vidient, I was involved with the generation

of intellectual property, specifically patents, related to the products planned for current and future development in the fields of GPS, RF and microwave communications, communications signal processing, receiver design, and RF and microwave components.

13. My professional experience also includes comparative analysis of competing products and features in a given marketplace as a mechanism for product valuation and unit pricing. This analysis typically involves leveraging a multidisciplinary evaluation of the product that requires an understanding of the hardware, software, algorithmic, user interface, and aesthetic design, and a valuation of the intellectual property associated with these aspects of the product.

14. Additionally, I worked for 11 years at Venrock, a Venture Capital firm, as a Partner where I evaluated and provided technical diligence for a wide range of technology companies, including electric vehicle manufacturers, electric utility grid generation and grid storage companies, electric vehicle charging companies and technology, and technology related to electric utility load balancing and supply.

15. My experience of nearly 40 years in academic, financial, and practical situations as well as my hands-on experience, has given me a detailed appreciation of the technology involved with the '338 Patent.

III. MATERIALS USED

16. In writing this Declaration, I have considered the following: my own knowledge and experience, including my work experience in the above fields; my experience in teaching those subjects; and my experience in working with others involved in those fields. I have also reviewed the exhibits filed with the Petition and Mr. Andrews' declaration itself. Among the references considered are the '338 Patent (EX1001), Ferro (EX1004), Oyobe (EX1005), Donnelly (EX1006), Letendre (EX1007), Galvez-Ramos (EX1008), Zeigler (EX1009), Knockeart (EX1010), and Sutardja (EX1011). I have also reviewed the Expert Declaration by Scott Andrews (EX1003), Monteiro (EX2004), as well as the Patent Owner Preliminary Response and Institution Decision in this matter.

IV. LEGAL FRAMEWORK

17. I have been informed by counsel for Patent Owner that the following legal principles apply to an analysis of patentability based on 35 U.S.C. § 103 for obviousness. I have also been informed that, in an inter partes review proceeding such as this proceeding, to render a patent claim unpatentable, Petitioner must show by a preponderance of the evidence that the claim would have been rendered obvious by one or more properly combined prior art patents or publications.

A. Obviousness

18. I understand that to find a patent invalid for obviousness, Mr. Andrews must prove that the differences between the claimed invention and the prior art taken

as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made.

19. I have been informed that to render a claim obvious, a combination of prior art references must disclose each claim element of that claim, and that obviousness is a question of law based on the underlying facts. I understand that the underlying factual inquiries are: (1) the scope and content of the prior art, (2) the differences between the prior art and the claims at issue, (3) the level of ordinary skill in the pertinent art, and (4) secondary considerations of non-obviousness.

20. I am also informed that the fact that all of the elements of a claimed invention can be found separately in more than one prior art reference is not sufficient to warrant a finding that a claimed invention is obvious. There must be a reason why it would have been obvious to modify or combine the prior art to arrive at the claimed invention. I understand that a helpful insight into this determination is whether there is a teaching, suggestion or motivation in the prior art that would lead one of ordinary skill in the art to combine the elements. When there is no suggestion for the proposed combination, or when the prior art suggests something other than the combination, a finding of obviousness is generally not warranted.

21. I understand that prior art must be considered in its entirety, including disclosures that teach away from the claimed invention. Furthermore, if a proposed modification to a prior art reference would render the prior art invention being

modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

22. I understand that the pertinent obviousness inquiry takes place at the time of the invention. Therefore, the use of hindsight in an obviousness analysis is impermissible.

23. I also understand that even if one can demonstrate a reason to combine references, a prima facie case of obviousness cannot be shown without a reasonable expectation of success, which is determined at the time the invention was made. I also understand that for a finding of obviousness, at least some degree of predictability is required when considering a combination of references.

B. Level of a Person of Ordinary Skill in the Art

24. I was asked to provide my opinion as to the level of skill of a person of ordinary skill in the art (“POSITA”) of the ’338 Patent at the priority date of the claimed invention, which counsel has told me to assume is July 11, 2008. In determining the characteristics of a hypothetical POSITA of the ’338 Patent, I considered several factors, including the type of problems encountered in the art, the solutions to those problems, the rapidity with which innovations are made in the field, the sophistication of the technology, and the education level of active workers in the field. I also placed myself back in the time frame of the claimed invention and considered the colleagues with whom I had worked at that time.

25. In my opinion and for purposes of this Petition, a POSITA at the time of the claimed invention of the '338 Patent would have had at least a Bachelor's Degree in an Engineering discipline such as Electrical or Mechanical Engineering (or equivalent field), and at least two years of relevant experience in the research, design, development and/or testing of automotive systems and related embedded systems, or the equivalent, with additional education substituting for experience and vice versa. Such a POSITA would have been capable of understanding the '338 Patent and the prior art references discussed herein. I apply this level of ordinary skill throughout this declaration.

26. Based on my education, training, and professional experience in the field of the claimed invention, including teaching the requisite skills necessary for a POSITA during the relevant time period, I am familiar with the level and abilities of a POSITA at the time of the claimed invention. Additionally, I met at least these minimum qualifications to be a POSITA as of the time of the claimed invention of the '338 Patent. Specifically, by July 11, 2008, I had already obtained a Ph.D. degree in electrical engineering and accumulated at least 20 years of experience in the design and/or testing of automotive technology, embedded systems, vehicle sensors, and related technologies.

C. Claim Construction

27. In my opinion, for purposes of this Petition, none of the terms in the Challenged Claims require additional construction beyond their plain and ordinary meaning as a POSITA would understand them at the time of the invention and in view of the specification of the '338 Patent.

1. Construction of “amount of charge”

28. I have reviewed the Petition (Paper 1), the Patent Owner Preliminary Response (Paper 6), Petitioner’s Reply to the Patent Owner’s Preliminary Response (Paper 7), and Patent Owner’s Preliminary Sur-Reply to Petitioner’s Preliminary Reply to Patent Owner’s Preliminary Response (Paper 8), the Institution Decision (Paper 9), all corresponding exhibits, and the Transcript of the Deposition of Mr. Andrews (EX2003). Petitioner states:

The '338 Patent discloses a user specifying the *amount of charge* by specifying a desired travel distance: “...the user may indicate a desired charging level (and/or a desired charging level may be automatically calculated) **based on a desired distance of travel**.” Petition, 38 (citing '338 Patent, 19:49-57).

29. Petitioner’s Reply to the Patent Owner’s Preliminary Response (Paper 7), 2. The Petitioner selectively cites from the disclosure from the '338 Patent’s specification discussing “desired charge level” without citing to the relevant portion of the specification which discusses “charge amount”. The '338 patent makes clear that **charge amount** (i.e., the claimed “amount of charge”) is *different* from **charge level** (which may include distance of travel). The '338 patent states:

An estimate of how far the vehicle can travel on *a given charge amount* (which may be a general average and/or may be computed based on a specific itinerary and/or past driving habits) can be determined, for example, and utilized to express *the desired charge level* in terms of distance capable of being traveled.

EX1001, 15:2-7; emphasis added.

30. It is my opinion that a POSITA would read “charge amount” is used in the same sentence as “desired charge level” and understand that “desired charged level” is not the same as “charge amount” (i.e., *amount of charge*). I disagree with Petitioner and Mr. Andrew’s apparent reliance on a sentence in the specification stating “the user may indicate a desired charging level (and/or a *desired charging level* may be automatically calculated) based on a desired distance of travel” is irrelevant to a POSITA’s understand of the term “amount of charge” because the specification distinguishes the term “desired charging level” from “charge amount” (i.e., *amount of charge*) elsewhere.

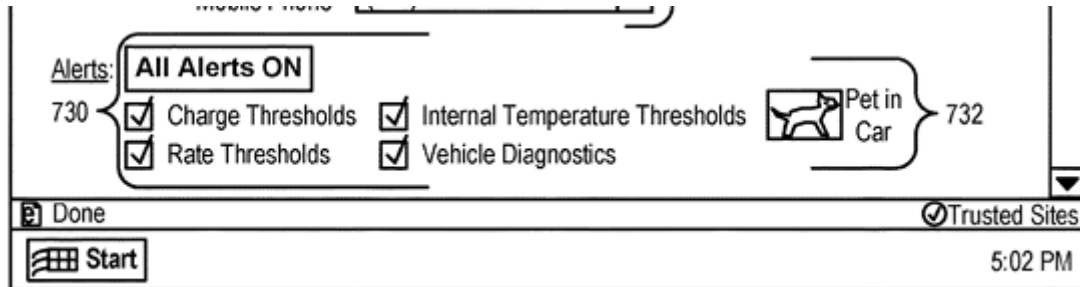
31. Further, it is my opinion that Fig. 7 supports only the construction that “amount of charge” must be a percentage of charge of the battery. Fig. 7 shows not only “desired charge level 720” but also “desired charge percent level 718.” EX1001, 14:62-67. As a result, the use of “charge ____ level” in the ’338 patent references either “charge percentage level 718” or “charge range level 720”. Since the claims don’t utilize “charge level,” I disagree with Mr. Andrews’ reliance on

charge range level 720 (and other references to “level”) to inform the construction of “amount of charge”. The relevant disclosure distinguishes charge amount (amount of charge) from charge level where “*charge amount* ... can be determined, for example, and utilized to express *the desired charge level in terms of distance capable of being traveled.*” EX1001, 15:2-7.

32. It is my opinion that “an amount of charge” should be construed according to its plain ordinary meaning in view of the specification such as a quantity (including in percentage) of electrical charge residing in the battery that is measurable by the electric vehicle – not as a user selected travel distance.

33. The claims themselves support this construction. Claims 1-27 of the ‘338 Patent include the term “amount of charge” multiple times. Claim 1 recites an “amount of charge” that may be specified by a user via a slider located on a vehicle charge indicator element within a graphical user interface. EX1001, Claim 1. Claim 1 further requires that the recited processor within electrical charging system is able to “determine the “amount of charge” residing in a battery of the electric vehicle has reached a predefined threshold” when the vehicle is in a *parked state*. EX1001, Claim 1. In my opinion, the purpose of determining the amount of charge for a predefined threshold is to alert the user of a low battery when their vehicle is parked and has a pet in the vehicle so that the user is aware that the vehicle can continue to

maintain a suitable internal temperature. This is shown in other patents sharing the same specification, such as U.S. Patent 10,819,135 as well as in the figures.



EX1001, Figure 7 (annotated).

34. The ‘338 patent discloses this scenario, stating that the operator be notified if the “charge level” falls below a certain threshold that allows the A/C to remain on for 15 minutes. EX1001, 13:45-67. The ‘338 Patent further discloses that the “pet in car” button allows users to set alerts and or charge parameters to levels conducive to maintaining the interior comfort for the safety of a pet left in a parked vehicle. It is my opinion that a POSITA would recognize that these charge parameters have no relation to distance or desired travel range. It is also my opinion that a POSITA would understand that alerting the user that the *range* of the vehicle has dropped to a predetermined level does not inform the operator that the car may not be able to maintain the desired or selected temperature.

35. While the ‘338 Patent does disclose an option for a user to “alternatively” change the desired charge range *level* and that an “estimate” of the distance a vehicle may travel can be provided from a given charge amount (EX1001,

15:1-10), there is nothing in the specification that allows a user to specify a predefined threshold of an amount of charge based on an estimated travel distance. I do not observe anything in the patent that allows the reverse inference – that travel distance may be input to define an “amount of charge.” A POSITA would not recognize the selection of a specific amount of charge to include travel distance in view of the claims of the ‘338 Patent. It is my opinion that a POSITA would understand that there would be additional input logic to make such a calculation based on driving conditions such as incline and outdoor climate as well as accessory usage such as air conditioning or other battery depleting factors.

36. It is my opinion that the claims themselves preclude an amount of charge be selected by desired travel distance. In addition to the charging schedule and GUI slider limitations, the charging system also refers to a mode of operation defined by a stored temperature where the interior temperature of the electrical vehicle is maintained while the vehicle remains “in a parked state.” EX1001, Claim 1. The claims require that the electrical charge system, while in this parked state, “determine that an *amount of charge* residing in a battery of the electric vehicle has reached a predefined threshold” and then, while the vehicle is parked, send an alert to an operator of the electrical vehicle that the charge residing in the battery has reached the predefined threshold. EX1001, Claim 1; Claim limitation 1[k]-1[n].

37. It is my opinion that, as a POSITA having read this claim, it is not reasonable to recognize or consider an amount of charge to include a selection of desired travel distance. The selection of a desired travel distance would have no bearing on the operation of the vehicle *in a parked state* and thus there would be no way to determine if the vehicle has reached a predefined threshold based upon an amount of charge. Alerting an operator who is away from the vehicle that the amount of charge may have reached a desired range would be of no relevance or use to the operator concerned (as claimed) with the temperature for a pet left inside the vehicle. For example, under Mr. Andrew's position, a user could select 50 miles of desired range as the "amount of charge," there could not be a determination of a predefined threshold as the battery of the claimed electric vehicle continues to drain while operating in a parked state as required by the claims. If the vehicle is in a parked state, there can be no "determination" based upon distance as the selected distance or travel range would not change. Instead, it is my opinion that the patent requires determination of a threshold, or electrical measurement of the battery itself, rather than a determination of distance.

38. The predefined threshold that is determined by the amount of charge is not defined as distance within the patent. Instead, in Figure 7, the charge thresholds are described as "e.g. minimum, maximum and or desired charge thresholds." EX1001, 15:52-55.

39. Mr. Andrews, in his deposition, testified that “amount of charge” is equivalent to “state of charge.” EX2003, 59:8-10. I agree that this is how a POSITA would understand “amount of charge.” In EX1066, introduced by Mr. Andrews at paragraph 231 of Mr. Andrews’ declaration, “state of charge” is defined as “An expression of the present battery capacity as a percentage of maximum capacity.” EX1066, 1; EX1003, 231. It is my opinion that the Mr. Andrews and evidence introduced by him, supports Patent Owner’s position. As discussed in further detail below, Letendre does not provide a mechanism to express or display battery capacity as a percentage or fraction of maximum capacity – as admitted by Mr. Andrews. EX2003, 74:14-75:19.

40. For at least these reasons, it is my opinion that “amount of charge” should be construed according to its plain ordinary meaning such as a quantity (including in percentage) of electrical charge residing in the battery that is measurable by the electric vehicle – not as a user selected travel distance.

2. Construction of “vehicle charge indicator element”

41. Mr. Andrews, and the Petition, ignores the term “element” in addressing limitation 1[h], and alleges:

Ferro’s collective display 214 and input/output unit 212 is modified to be a touchscreen presenting a graphical user interface (“GUI”) having the claimed vehicle charge indicator with first and second portions, per Donnelly; and

(2) the Ferro-Oyobe-Donnelly GUI is modified to include a slider for inputting desired charge, per Letendre.

Pet., 30; EX1003, 215-250.

42. In my opinion, it would not be enough to have the claimed “first portion”, “second portion” and “slider” be merely displayed separately on a graphical user interface. Instead, the “first portion”, “second portion” and “slider” must be a component of a “vehicle charge indicator *element*.” In Graphical User Interface technology, as known to those of ordinary skill in the art at the time of invention, the term “element” has an understood meaning:

GUIs are composed of various graphical elements ... When developing GUIs, both the presentation and behavior aspects of those elements are to be considered... each GUI element is mapped to a component and presentation or behavior aspects are defined by its properties, methods and events.

EX2004, 21. When a GUI element displayed in a GUI, the components of the GUI element are presented according to its code-defined attributes.

43. It is my opinion that the specification is consistent with this understood meaning of the term “element.” The specification shows “vehicle charge indicator 714” having components “current charge level 716”, “desired charge percent level 718”, and “desired charge range level 720” all in the same location of the interface 700. A POSITA would understand that vehicle charge indicator 714 is a GUI element having sub-components 716/718/720 integrated together when the vehicle

charge indicator 714 is displayed on interface 700. The specification separately teaches other disparate “elements” of the GUI 700 in Fig. 7, such as “charge definition field 722”, “charge setting field 724”, “factor of safety 726”, “contact information 728”, “button 732” as components of “main menu item” but not components of “vehicle charge indicator 714”.

44. For at least these reasons, it is my opinion that the “vehicle charge indicator element” should be construed according to its plain ordinary meaning such as a GUI interface element comprising at least components of a “first portion”, “second portion” and “slider” as claimed – not separate GUI components that are separately displayable on a GUI. I disagree with Mr. Andrews’ interpretation.

V. TECHNOLOGY BACKGROUND

A. Battery Charging Technology

45. The ‘338 Patent generally teaches techniques regarding the charge and use of energy storage devices for electric-powered vehicles (EV’s), specifically batteries. The vast majority of today’s commercial and consumer EV’s use variations of lithium-ion batteries.¹ They have a high power-to-weight ratio, high energy efficiency, good high temperature performance, and low self-discharge.² EV

¹ Although hydrogen-powered Fuel Cell Electric Vehicles (FCEV) are technically EV’s, they do not need to be electrically recharged and, therefore, are not the focus of the ‘338 Patent.

² See https://afdc.energy.gov/vehicles/electric_batteries.html

batteries undergo cycles of “discharge” that occur when driving and “charge” when the vehicle is plugged-in at a charging station.

46. Battery energy storage capacity is one of the key determinants of the driving range of a vehicle between charges. There are a number of factors that impact the life of an EV lithium-ion battery including chronological age, number of accumulated charging cycles, the depth of charge, amount of recharging, the rate of charging and recharging, and ambient operating temperature.

47. For most commercial and consumer vehicles, the main operational goals include maintaining the specified performance of the vehicle and minimizing the cost and inconvenience of (re)charging, while extending the life of the battery as long as possible.

B. EV Battery Charging

48. One significant challenge for both commercial and consumer EV owners is managing the EV battery charging. Factors such as driving style, vehicle weight, vehicle aerodynamics, and miles driven will impact timing as to when a recharge is necessary. Other factors including ambient and operating temperature, future travel plans, availability and access to electric charging facilities, and battery energy capacity will impact how long and far an EV can be driven before recharging.

49. At the priority date of the ‘338 Patent, EV charging infrastructure was (and still is) quite immature. There are a range of standards for charging

infrastructure that can impact the need for charging and setting a schedule for charging. Higher battery charging voltage can decrease the required charging time. Typical 110 VAC, 15 ampere, residential service, may only charge an EV at a few miles per hour. 220 VAC, 30-40 ampere service, may increase charging efficiency to tens of miles per hour. However, commercially available charging networks, before the priority date of the '338 Patent, were contemplated to operate at, at least 480 VAC, at 100+ amperes, and have the ability to fully charge a typical consumer vehicle, providing hundreds of miles of driving range, in minutes rather than hours.³

50. Given that many consumer and commercial electric vehicles are not always near their “home” location, during a typical 24-hour period when charging is needed, it may be necessary to charge the vehicle at a “different” charging station (than is used at a home location). Given that the industry has not yet standardized on a number of factors, including voltage and connector type, the compatibility of the closest “charging station” is not a foregone conclusion. This complicates the process of knowing how, when, where, and for how long to recharge.^{4 5 6}

VI. OVERVIEW OF CITED REFERENCES

³ Dhameja, Sandeep. *Electric Vehicle Battery Charging*, Woburn, MA. Butterworth -Heinemann, 2002; Page 88.

⁴ *Id.*, Page 90.

⁵ As recently as 2021, the global automotive industry had not yet 100% standardized on charging standards.

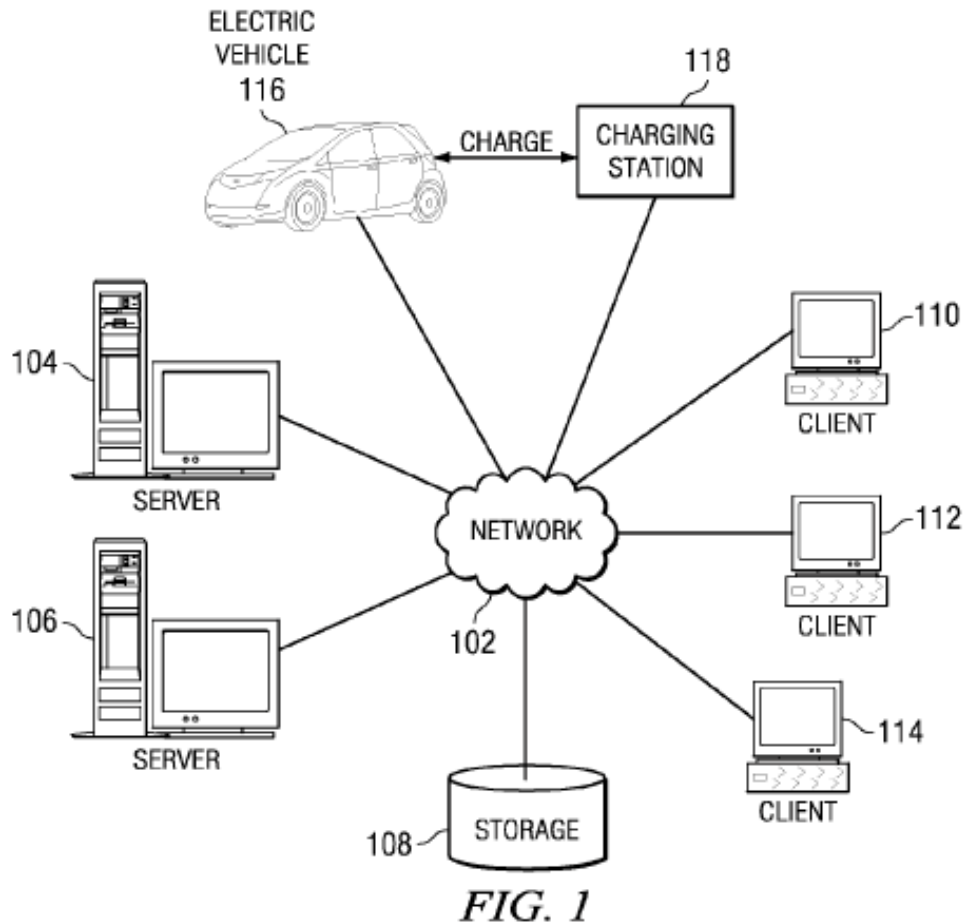
⁶ Arcos-Vargas, Angel. *The Role of the Electric Vehicle in the Energy Transition*, Cham, Switzerland, 2021. Pages 48-49.

A. Ferro (EX1004)

51. Ferro discloses “[a] computer implemented method, apparatus, and computer program product for generating a dynamic energy transaction plan to manage an electric vehicle charging transaction.” EX1004, Abstract.

52. The dynamic energy transaction plan “comprises an identification of the electric vehicle, an identification of a principal in the set of principles to pay for the charging transaction, an identification of at least one utility associated with the charging transaction, an owner of the charging station, and a first set of terms of the charging transaction.” Id., [0008]. The “process for generating dynamic energy transaction plan 424 begins when electric vehicle 400 arrives at charging station 403 and indicates an intention to charge, de-charge, or store electric energy on electric vehicle 400.” Id., [0109]. An “initial portion of the charging transaction is controlled in accordance with the first set of terms of the dynamic energy transaction plan.” Id. If updated charging information is received “during execution of the charging transaction,” the “dynamic energy transaction plan” is updated based on the updated charging information “to form an updated dynamic energy transaction plan.” Id. “A second portion of the charging transaction is implemented in accordance with the second set of terms in the updated dynamic energy transaction plan.” Id.

53. Figure 1 “depicts a pictorial representation of a network of data processing system in which illustrative embodiments may be implemented”:



54. Id., Fig. 1, [0032]. The electric vehicle 116 and charging station 118 send and receive data associated with the charging of electric vehicle, including “the capabilities of electric vehicle, the capabilities of charging station 118, the current charge stored in electric vehicle, the rate of charging electric vehicle, the price of electricity received from a power grid, identity of the owner and/or operator of electric vehicle 116 and/or any other data relevant to charging or de-charging electric vehicle 116 over network 102.” Id., [0037].

55. Figure 4 is a block diagram of a dynamic energy transaction planner on-board an electric vehicle 400, “an electric vehicle that relies in whole or in part on electricity to drive the vehicle, such as, without limitation, electric vehicle 116 in FIG. 1”:

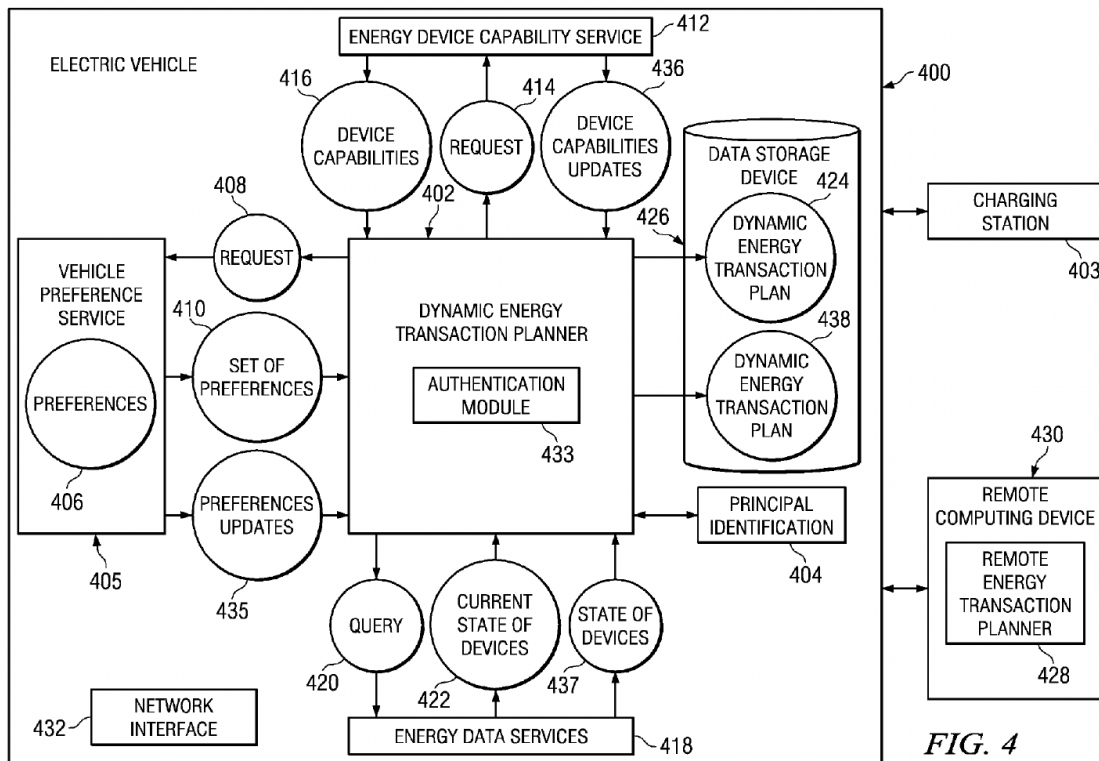


FIG. 4

Id., Fig. 4, [0076]. Dynamic energy transaction planner 402 “is a software component that creates a transaction plan for controlling a charging transaction for electric vehicle 400 coupled to charging station 403, such as dynamic energy transaction planner 310 in FIG. 3.” Id., [0076].

56. Vehicle preference service 405 “is a software component for creating, managing, storing, requesting, updating, and/or retrieving preferences 406 for

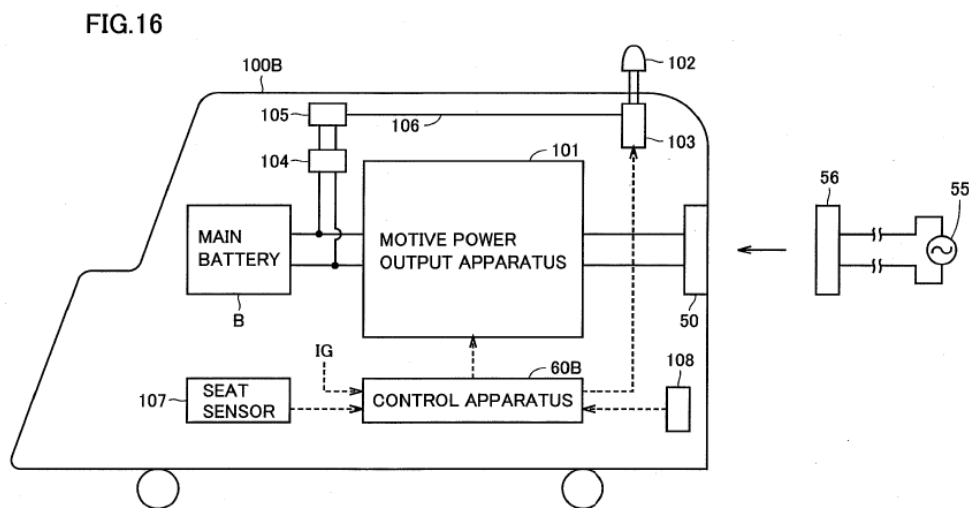
electric vehicle 400” that “is included within or bolted on electric vehicle 400.” Id., [0082]. Principals may also “utilize an energy preference service that is located on a computing device that is remote from electric vehicle 400 to create and/or manage preferences for the given principal.” Id., [0083]. When the energy preference service is located remotely, a set of preferences may be sent to dynamic energy transaction planner 402 by the remote energy preference service using a wired or wireless network connection. Id., [0091]. Ferro discloses that the dynamic energy transaction planner requests preferences from an energy preference service, which it uses to generate terms for a dynamic energy transaction plan. Id., [0143].

B. Oyobe (Ex. 1005)

57. Oyobe is directed to “an electric-powered vehicle that can effectively inform a user about lowering of the SOC of a battery.” EX1005, [0006]⁷. To inform the user about lowering of the SOC of a battery, as shown in Figure 16, reproduced below, Oyobe’s vehicle 100 includes “informing apparatus 102 ... provided at the exterior of the vehicle for informing the vehicle user outside the vehicle about the necessity of charging main battery.” Id., [0040]. By placing the informing apparatus 102 outside of the vehicle, Oyobe addresses a specific issue – “the vehicle user can more surely be prevented from forgetting to charge the electric power storage

⁷ SOC refers to “state of charge”

apparatus despite the lowered SOC of the electric power storage apparatus.” Id.,
[0012].



58. As shown in Oyobe's Figures 2 and 3, reproduced to the right, Oyobe's informing apparatus 102 may mechanically change positions "so as to attract the vehicle user's attention" when the battery power is low. Id., [0047]. This mechanical change includes altering "projection amount" (Id.); "the angle of informing apparatus 102 relative to the external surface of the vehicle" (Id., [0047]); by changing the "tilt amount" (Id., [0048]); by changing an information pattern, such as vibrating the informing apparatus 102 (Id., [0128]); or by using "a light emitting apparatus" or "sound source". Id., [0152].

FIG.2

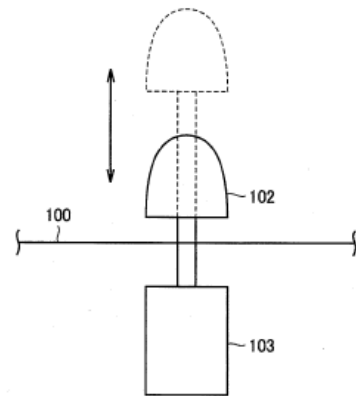
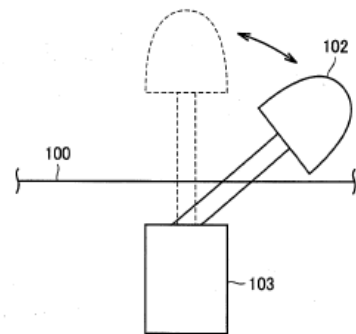


FIG.3



59. Trigger conditions for actuating the informing apparatus 102 include:

1. determining "whether or not the ignition key has been turned to the OFF position" Id., Figs. 1-12, [0051], [0122];
2. "whether or not the SOC of main battery B is smaller than a reference value." Id., Figs. 1-12, [0046], [0124];
3. determining "whether or not the driver is seated in the driver's seat" thereby indicating "the driver has exited from the vehicle" using a seat sensor 107. Id., Fig. 14, [0132]-[0133];
4. detection of "whether or not hybrid vehicle 100B is parked at the location where charging equipment is installed" Id., Fig. 16, [0141]-[0145].

60. Condition 3 is present in all embodiments of Oyobe, where the purpose of Oyobe is reminding the user when the user is outside of the vehicle. Regarding trigger condition 4, above, Oyobe only detects proximity to a given charging equipment based on “a car navigation apparatus” or “based on the communication with a radio apparatus (not shown) provided at the location where the charging equipment is installed.” *Id.*, [0142]. Oyobe never discusses whether or not the vehicle is located at a specific location capable of performing the act of charging the vehicle, but instead just discusses general and unspecified “location” based on “a car navigation apparatus” or “based on the communication with a radio apparatus (not shown) provided at the location where the charging equipment is installed.” *Id.* Oyobe uses these trigger conditions such that “unnecessary power consumption can be prevented” by not activating informing apparatus 102 in situations where the driver doesn’t need indication to charge the vehicle battery. *Id.*, [0020], [0022], [0030], [0145].

C. Donnelly (Ex. 1006)

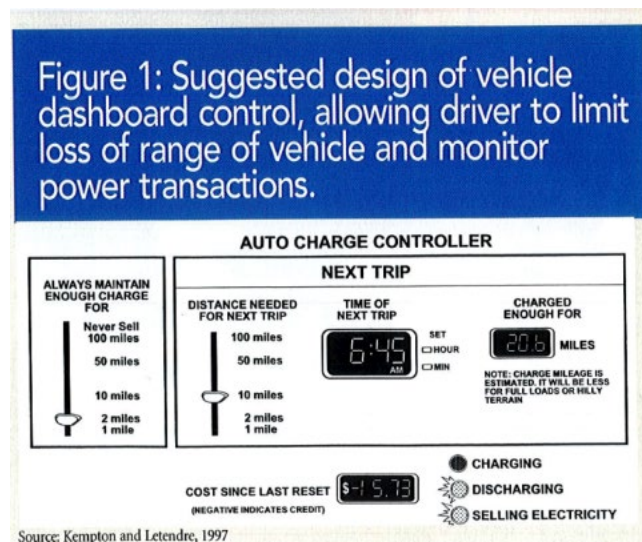
61. Donnelly is directed to railroad, or train locomotives and the use of energy storage batteries and a method for monitoring, controlling and optimizing electrically powered locomotives. EX1006, 1:24-35; 2:1-6. Specifically, Donnelly teaches a controller unit and system of sensors to monitor, synchronize and optimize

the operation of the locomotive drive train as well as the individual axles during acceleration and braking. Id. at 3:42-50.

62. In my opinion, Donnelly is not directed at electric cars. Although it does appear to disclose a touch screen (Id. at 21:47-58), the screen is not directed at the GUI slider element as presented in the challenged claims, nor relates to any ability for a user to select an amount of charge for the railroad locomotive disclosed.

D. Letendre (Ex. 1007)

63. Letendre is directed towards electric vehicles and the concept of vehicle to grid power or “V2G.” EX1007 at 7. Petitioner cites Letender for its GUI element, reproduced below:



EX1007 at 8. However, nothing within Letendre discloses the GUI slider element that allows a user to select an amount of charge that is percentage of charge of the battery. Kempton, describing the same controller as Letendre, clarifies that only

allowing the distance needed for the next trip is “intended to minimize driver concern by using controls that accommodate user needs.” EX1073, 162. Figure 1 in Letendre does not appear to disclose a GUI slider but instead appears to disclose a physical slider. There is no disclosure in Letendre that teaches or suggests a three-part GUI slider directed to selecting the amount of charge related to the capacity of the battery within the electric vehicle nor is the scale of distance needed for next trip the same as a scale of Donnelly’s battery charge graph.

E. Zeigler (Ex. 1009)

64. Zeigler, which is titled “Vehicle Air Conditioning and Heating System Providing Engine On and Off Operation” is directed to a heating, ventilation and air conditioning (“HVAC”) system for on road or off-road vehicles that allows the air conditioning unit to be functional irrespective of the operational condition of the engine. Ex.1009, Abstract. Zeigler’s HVAC system is designed to be operational independent of the state of the engine within the vehicle. Ex.1009, 2:24-29. The vehicle in Zeigler is not electric, but the vehicle may contain a separate battery to operate the HVAC system. Ex.1009, 3:11-26. Zeigler’s HVAC system contains a controller, which operates the HVAC system based upon the available source of power. Ex.1009, 2:53-56. The HVAC system will automatically turn off in order to preserve battery to be able to start the vehicle disclosed within Zeigler. Ex.1009,

2:53-65. Zeigler notably does not contemplate maintaining a temperature suitable for a pet or the ability to control the temperature of a vehicle from a remote location.

F. Galvez-Ramos (Ex. 1008)

65. Galvez-Ramos is directed to “a string of dedicated batteries, that will be provide the energy for a fan blower, which can be used during the summer time to blow the cooler outside air inside the vehicle, or during winter time to run the fan blower plus a heater resistor filament that will heat up the air inside the vehicle.” EX1009, Fig. 1, [0010]; see also [0014] – [0015]. Galvez-Ramos’ system is expressly described as separate and distinct from “the standard A/C system or the automobile forced air ventilation system.” *Id.*, [0039], [0046]. Galvez-Ramos expressly teaches away from using the “automobile’s air conditioner or heater, which would require the presence of the driver, to start the vehicle and for the car to be located in an open area to avoid the fumes which can cause harm.” *Id.*, [0009].

66. Galvez-Ramos requires a manual button “that the driver before exiting the car pushes” as one of three conditions required in order to activate the Galvez-Ramos system. *Id.*, [0039].

G. Knockart (Ex. 1010)

67. Knockart is directed to “a driver information system [that] provides route planning and guidance (“navigation”) services to the operators of multiple vehicles 100.” EX1010, 4:19-21. Knockart’s “[i]n-vehicle system 105 is

configured to use a removable personal device 160 to provide certain functionality of the in-vehicle System”. Id., 4:32-34.

68. The Petition alleges that Knockeart’s phone “provide[s] a vehicle’s GUI.” Pet., 8. In my opinion, this overextends the actual disclosure of Knockeart. Knockeart is focused on using the removable portable device 160 to expand the capabilities of the guidance services of the in-vehicle driver information system, not a full vehicle GUI. Knockeart describes: “removable personal device 160 includes a graphical display and that display is used to provide visual information to the operator of the vehicle during the route planning and guidance phases of navigation.” EX1010, 4:54-57.

H. Sutardja (Ex. 1011)

69. Sutardja is directed to “systems and methods for charging batteries in vehicles.” EX1011, [0002]. Sutardja charges based on “charging parameters”. Id. [0235].

VII. GROUND 1: PETITIONER FAILED TO ESTABLISH THAT FERRO IN VIEW OF OYOBE, DONNELLY, LETENDRE, ZEIGLER, AND GALVEZ-RAMOS RENDERS OBVIOUS CLAIMS 1-4, 6-7, 9-13, 15-16, 18-22, 24-25, AND 27

70. It is my opinion that Petitioner has failed to show that Ferro in view of Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos renders obvious independent Claims 1, 10, and 19 (and dependent claims 2-4, 5-7, 9, 11-13, 15-16, 18, 20-22, 24-

25 and 27) and has not articulated any meaningful motivation to combine or a reasonable expectation of success.

A. Ground 1 Ferro in view of Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos fails to render obvious limitations 1[e], 10[b], or 19[e] of claims 1, 10, and 19, respectively.

71. Claims 1, 19 and respective dependent claims require a “vehicle sensor” and “receive, from the vehicle sensor, information indicative of a presence of an electric vehicle in a parking space.” In limitations 1[a] and 1[e] and limitations 19[a] and 19[e]; and claim 10[a] and respective dependent claims requires “a vehicle sensor ... receiving, from a vehicle sensor, information indicative of a presence of an electric vehicle in a parking space” (hereinafter collectively referred to as the “vehicle sensor limitations”).

1. One of ordinary skill in the art would not be motivated to combine Ferro with Oyobe.

72. It is my opinion that one of skill in the art would not combine Ferro with Oyobe to render obvious the vehicle sensor limitations, which require “a vehicle sensor” and “receive, from the vehicle sensor, information indicative of a presence of an electric vehicle in a parking space”, respectively.

i. Reliance on hindsight is evidenced because the alleged features incorporated into Ferro from Oyobe are redundant to Ferro’s system.

73. I have been instructed that where the primary reference already includes the function of the secondary reference, an allegation to incorporate that function

into the primary reference is improper hindsight and an inference of no motivation to combine exists.

74. Mr. Andrews improperly alleges “a POSITA would have been motivated to apply Oyobe’s wireless interrogation via apparatus 108 to detect when the vehicle is parked at the charging station to advantageously allow a user to charge without having to exit the vehicle and without having to manually interact with the external charging station.” *Dec.*, 151-152; *see also* Petition, 12. However, Mr. Andrews acknowledges “Ferro discloses employing “wireless” charging to charge the vehicle 116/400. *Ferro*, [0036].” EX1003, 151. He further opines “[i]n wireless charging, the charging station provides energy to the vehicle wirelessly, ***without a user having to get out of the vehicle.***” *Id.*; emphasis added. Therefore, the alleged motivation of including Oyobe’s vehicle sensor 108 in Ferro’s system – to allow charging “without exiting the vehicle” – is redundant to the Ferro system. Mr. Andrews has argued to resolve a problem that Ferro does not have.

75. It is my opinion that hindsight is further evidenced by the functionality relied on from Oyobe in the alleged combination. The function cited in Oyobe’s device is “communicating with a ‘radio apparatus’ located at the charging equipment”. Pet., 11. The ability to communicate between a vehicle and a charging station, however, is also already found in Ferro – another indication of Mr. Andrews arguing for a shortcoming/need in the Ferro reference by using the ’338 patent as

guidance. Mr. Andrews acknowledges: “Ferro ... already discloses communication of information between the charging station and vehicle.” EX1003, 150. He acknowledges Ferro’s “network interface 432 allows vehicle 116/400 to access/communicate with station 118/403 via network 102. *Ferro*, [0037], [0106].” *Id.*, 153. Mr. Andrews, in his deposition, responded to the question “Does Ferro teach an ability for completing electric vehicle to communicate with the electrical charging station? with “Let me go back to Ferro again. He does provide a mechanism for that communication.” EX2003, 53:16-54:7. It is my opinion that one of ordinary skill in the art would not be motivated to incorporate Oyobe’s additional sensor (providing capability of communicating between a vehicle and a charging station) with Ferro. The “communication” functionality within Ferro is redundant to the functionality allegedly needed for motivation to combine Oyobe with Ferro. Oyobe’s teaching is not the same as the ’338 patent’s wireless interrogation vehicle sensor example.

76. It is my opinion that Mr. Andrews, and the Institution Decision, also highlight a fundamental mischaracterization of the prior art and the ’338 patent. They state that Oyobe’s teaching is “is like the ’338 Patent’s example of a vehicle sensor being a “communication device” that utilizes “wireless interrogation” to “detect an arrival, proximity, and/or presence of the vehicle.” ’338 Patent, 9:58-61, 9:67-10:4.” EX1003, 149; Petition, 11; Institution Decision, 18-19. The claimed

vehicle sensor, as described in the “wireless interrogation vehicle sensor example” of the ‘338 Patent, enables “detect[ion of] an arrival, proximity, and/or presence of the vehicle 460... the vehicle sensor 454 may comprise a communication device such as a Bluetooth® and/or passive-inductive device.” EX1001, 9:60-10:3. The sensor in the ’338 patent is described in more detail than the Oyobe vehicle position detecting apparatus 108 because the ’338 patent sensor example is described as determining “whether the vehicle is properly positioned, oriented, and/or outfitted for charging services”. EX1001, 16:45-51. Mere communication between a first communication device and second communication device (such as (i) Ferro’s network interface 432 that “allows vehicle 116/400 to access/communicate with station 118/403 via network 102” (*EX1003*, 153) or (ii) Oyobe’s vehicle sensor 108 that communicates “with a radio apparatus (not shown) provided at the location where the charging equipment is installed” (*EX1005*, [0142])), is not the same as the ’338 Patent’s wireless interrogation vehicle sensor example but instead is an identification that the vehicle is generally located near a charging station without being able to identify ability to initiate charging.

77. A POSITA, particularly for wireless charging, would understand that varying a separation with respect to each component of the wireless charger (e.g., a primary vs secondary coil of a wireless charger) causes an air gap between the coils to change which can greatly impact charging performance, if not completely

negating charging ability. As an example, Matsuo, which is cited by Mr. Andrews, establishes leakage inductance, which causes reduced transferring power in wireless charging devices, increases 10X at just 50mm shift in horizontal alignment between two cores of a wireless transfer device. EX1052, 3526-3527, Fig. 5. Thus, a POSITA, would understand that each side of a wireless charging device must be appropriately aligned for adequate power transfer. *Id.* A POSITA would understand that a device may wirelessly communicate with a charging station even if not within the specific location needed to wirelessly charge because wireless communication range is larger than wireless charging range.

78. In my opinion, Oyobe's vehicle sensor 108 may detect that it is at the general location where a charging station is installed, but nothing on Oyobe establishes that Oyobe's vehicle sensor 108 provides information that the vehicle is in position to charge, which is required by the functionality of indicating an "intention to charge" as alleged by Petitioner. *Institution decision*, 19; Pet., 11-12.

ii. *Oyobe's vehicle position detection sensor does not provide information that enables identifying an intention to charge.*

79. It is my opinion that Petitioner's and Mr. Andrew's proposed motivation to add Oyobe to Ferro to "detect a vehicle parked at the charging station" overstates Oyobe's capabilities. See EX1003, 141-152. Oyobe is directed towards alerting the user when the battery is low. It does not disclose whether or not the vehicle is in a

position ready to charge. See EX1005 at [0047]. It would make no sense for Oyobe to solve the non-existent problem of reminding a user to charge his or her vehicle once the driver has pulled in and parked the EV into a spot specifically designated for EV charging. This allegation is analogous to illuminating the low on fuel indicator in a standard gasoline powered vehicle only when the driver has pulled into a filling station and parked next to a gas pump, which does not make sense. There would be no motivation to add Oyobe's vehicle sensor to Ferro as it does not detect a vehicle at a specific location where the vehicle is in a position to charge.

80. Looking instead at Ferro and Oyobe as a whole, and the nature of the problem each reference is solving, a POSITA reading Ferro would not be motivated to combine it with Oyobe. Ferro discloses “[a] computer implemented method, apparatus, and computer program product for generating a dynamic energy transaction plan to manage an electric vehicle charging transaction.” EX1004, Abstract. Mr. Andrews paraphrases, *incorrectly*, a key portion of the Ferro reference by alleging Ferro combined with Oyobe “combines prior art elements (wireless interrogation, EV charging stations) according to known methods to yield predictable results of enabling ‘an intention to charge without an operator leaving the vehicle.’” EX1003, 150. This paraphrase highlights the flaw in Mr. Andrews's analysis. Reading Ferro, the POSITA would understand that the nature of the problem solved by Ferro is creating a dynamic energy transaction plane that is

initiated when (i) the vehicle is actually at a charging station 403 in a position to charge, and (ii) the operator has “an intention to charge, de-charge, or store electric energy on electric vehicle 400.” EX1004, [0109].

81. Oyobe’s disclosure to prevent a driver from forgetting to charge, is informative to the capability of Oyobe’s “vehicle position detecting apparatus 108” and to the fact that the data generated by Oyobe’s device is not useable by Ferro’s system. Oyobe’s device is not capable of identifying whether the vehicle is in a position to charge. Oyobe reminds the driver of potential desire to charge the vehicle by triggering “an operation command of informing apparatus 102 to actuator 103”. EX1005, [0144]. The informing apparatus 102 signals to the driver that a charge is needed, *not that a charge is capable of being provided at the currently parked location*. Were the Oyobe vehicle in the parking space next to a charging station, the Oyobe operator would need no reminder because that parking space is dedicated to a vehicle using the charging station and the driver is likely intentionally pulling into said parking space to charge the vehicle. Oyobe’s desire to “not unnecessarily operate” (*see* EX1005, [0020], [0022], [0030], [0145]) indicates that Oyobe would not desire to inform the driver of need to charge (and thus output a signal from detecting apparatus 108 to operate informing apparatus 102) when the Oyobe “vehicle is parked at a charging station” as incorrectly stated by Mr. Andrews and Petitioner (*Pet.*, 11).

82. The Institution Decision alleges “regardless of the reason that Oyobe provides for including its vehicle position detecting apparatus, Oyobe undeniably describes a vehicle sensor that can provide “information indicative of a presence of an electric vehicle in a parking space” *near a charging station.*” Institution Decision, 21; emphasis added. However, Petitioner and Mr. Andrews’ entire premise of combining Oyobe with Ferro is “enabling ‘an intention to charge’ without the operator leaving the vehicle.” Pet. at 12. A POSITA would understand that being *near a charging station* is not enough to allow for *charging* the vehicle (e.g., a vehicle is near a charging station even if behind or to the side of the charging station). Even with using wireless charging, the vehicle must be in a specific location with respect to the charging station to enable actual charging of the vehicle, thereby satisfying Ferro’s need indicate an intention to charge. Mr. Andrews agreed, in his deposition, that “there would need to be a charging station in that parking place.” (see, e.g., Matsuo EX1052; See also EX2003; 11:24-12:16). Oyobe’s vehicle position detecting apparatus 108 is not described as providing data that indicates the vehicle *is in position to start charging*.

83. Because Oyobe’s detecting apparatus 108 is not relevant to detecting whether a vehicle is parked at a position where it can initiate charge with a charging station, the signal output from Oyobe’s detecting apparatus 108 *is unusable in Ferro’s system in the manner required to support Mr. Andrews’s alleged*

motivation to combine. It is my opinion that the output from Oyobe cannot satisfy the necessary information needed by Ferro – namely an express indication of “an intention to charge, de-charge, or store electric energy on electric vehicle 400” so that the generation of the Ferro dynamic energy transaction plan can be initiated. EX1004, [0109]. It is my opinion that a POSITA would not be led, after reading Oyobe and Ferro, to include the output of Oyobe’s detecting apparatus, or any other portion of Oyobe, to Ferro’s system.

iii. *The purpose of Oyobe contradicts the alleged reason to combine Oyobe with Ferro*

84. The the paraphrasing of Mr. Andrews and Petitioner alleges that the Ferro-Oyobe combination would “yield predictable results of enabling ‘an intention to charge’ *without an operator leaving a vehicle.*” *Pet.*, 12. However, nothing in Ferro discusses “without an operator leaving a vehicle.” This is not a problem in Ferro and appears to be a hypothetical problem created by Mr. Andrews and Petitioner. The only use of Oyobe’s detecting apparatus is as “disposed at a location where it can easily be seen by the driver ***when the driver has exited from the vehicle.***” EX1005, Fig. 14, [0132]- [0133]; emphasis added. The entire purpose of Oyobe is enabled when the user has exited the vehicle, which is the opposite of the alleged motivation to combine Oyobe with Ferro (e.g., to keep the user in the

vehicle). I disagree with Mr. Andrews characterization of both Ferro and Oyobe and his motivation to combine them.

85. In summary, Oyobe's system indicates that (i) Oyobe's vehicle is an unspecified general location with respect to charging equipment and (ii) Oyobe's device will not unnecessarily operate when there is no desire to inform the Oyobe operator of a need to charge. Ferro, on the other hand, only initiates Ferro's dynamic transaction planner when the when the vehicle is actually at a charging station 403, and the operator has "an intention to charge, de-charge, or store electric energy on electric vehicle 400." EX1004, [0109]. Oyobe's output from detecting apparatus 108 does not actually specify that the Oyobe vehicle is located at charging equipment in a position where there is an intention to charge, but instead only informs to prevent to the Oyobe operator from forgetting to charge the vehicle because of being at an unspecified location with respect to charging equipment. The Oyobe output from Oyobe's detecting apparatus 108 *is unusable* in Ferro's system because it cannot, and does not, provide the necessary information to initiate generation of Ferro's dynamic energy transaction plan. Accordingly, it is my opinion that a POSITA would not, after reading Oyobe and Ferro, include the output of Oyobe's detecting apparatus, or any other portion of Oyobe, in Ferro's system.

B. Petitioner's "modified" Ferro in combination with Donnelly and Letendre failed to teach or disclose element 1[h], 10[e], or 19[l] "wherein at least one of the one or more charging preferences is

defined by user input received via a graphical user interface and adapted to display a vehicle charge indicator element comprising a first portion indicative of an amount of charge residing in a battery of the electric vehicle and a second portion indicative of an uncharged capacity of the battery of the electric vehicle and wherein the vehicle charge indicator element further comprises a slider by which an amount of charge may be specified” of claims 1, 10, and 19, respectively.

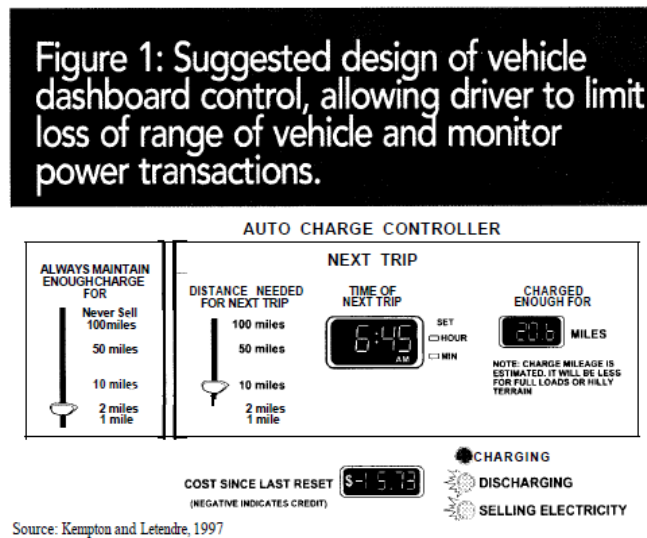
1. Mr. Andrews and Petitioner fail to establish a slider by which an amount of charge may be specified.

86. Claims 1, 10, 19, 28 and respective dependent claims require a user interface that contains a vehicle charge indicator element comprising: (1) a first portion indicating the amount of charge left in the battery of an electric vehicle, (2) a second portion indicating the uncharged capacity of the battery of the electric vehicle, and (3) a slider element which allows a user to select, via the graphical user interface (e.g. touchscreen), the amount of charge for a particular single charge amount for the electric vehicle.

87. As explained in my opinions above, the amount of charge as read by a POSITA would not include a user selecting a desired travel range. As the patent discloses, a user may select, via the vehicle charge indicator element, a “desired charge percent level 718.” EX1001, 14:40-51. The patent further teaches a “current charge range level 720” that is calculated using a “charge amount”. EX1001, 15:1-10.

88. With respect to the “amount of charge that can be specified” portion of the “vehicle charge indicator element”, Mr. Andrews and Petitioner rely on Letendre. *Pet.* at 39-40. In my opinion, Letendre’s disclosure is insufficient in light of the ‘338 claim language. Mr. Andrews also admits that Letendre does not allow a user to select an amount of charge where, in his deposition, he states “From Letendre’s display as it’s shown in this figure, he does not provide enough information about the system to determine what – determine or to set a percentage of total charge or total range.” EX2003, 75:14-19; *see also*, 74:14-75:13.

89. In my opinion, Mr. Andrews and Petitioner ignore the specifics of the vehicle charge indicator element and instead rely upon a combination of Ferro (as modified by Petitioner), Donnelly, and Letendre for allegedly teaching only the individual portions of this limitation. *Pet.* at 33-41. With respect to the “amount of charge that can be specified” portion of the “vehicle charge indicator element”, Petitioner solely relies upon Letendre. *Pet.* at 39-40. *See* EX2003, 75:14-19; *see also*, 74:14-75:13.



90. When first describing the teachings of Letendre (page 6 of Petition), Petitioner (and by incorporation Mr. Andrews) accurately describes the teachings of Letendre stating, “Letendre teaches a user interface comprising a slider by which a user specifies parameters managing the charge of an electric vehicle’s battery.” However, it is my opinion that Letendre teaches away from a user specifying an amount of charge. Any specified amount of charge is specified by the system in the background in response to a desired driving condition specified by the user. There is no disclosure of capacity in Letendre, so there is no “amount of charge” that could be selected. As shown in Letendre’s dashboard control, Letendre appears to provide the user a slider to indicate only “two parameters to set”. EX1007, 11. These two parameters include only “the length of the expected next trip,” and “the minimum range that must always be maintained.” *Id.* As the user would likely not know a desired amount of charge needed to travel “the length of the expected next trip”, the

user would not be able to specify it. Letendre discloses taking a user specified mileage condition and then estimating a corresponding charge amount that will likely meet the condition. Were the user to actually wish to specify a charge amount, the GUI interface of Letendre would actually “prevent” the user from doing so because the Letendre dashboard only gives two parameters to set. For example, a user of Letendre would be unable to specify a 70% charge amount. Letendre does not teach specifying an amount of charge, but, rather, explicitly teaches parameters measured in units of distance travelled not related to an amount of charge.

91. Describing the above figure, Letendre clearly states:

An example control panel is shown in Figure 1. Whether the control is physical, on the dash, or on a Web page, the idea is basically the same. The driver has two parameters to set—the length of the expected next trip (in the case shown in Figure 1, 10 miles at 6:45 the next morning), and the minimum range that must always be maintained, e.g. for an emergency room trip, two miles. (Letendre, pages 19-20).

92. In my opinion, the Letendre reference is specific and limiting - the two parameters to be set. i.e., “specified,” are length (measured in miles) and minimum range (again, measured in miles). *Id.* Both Petitioner and Mr. Andrews mischaracterize Letendre by stating, “Letendre teaches a slider by which an amount of charge may be specified. Namely Letendre discloses ... a slider the driver selects to ‘set [] the length of the expected next trip’ (e.g., 10 miles, being the specified

amount of charge).” Dec., 252; Pet., 39. A distance to travel is not an amount of charge. Distance travelled on a given charge is highly variable based on for example, on loads, terrain characteristics, age of battery, battery cycles, temperature. Mr. Andrews acknowledges this in his deposition. EX2003, 60:14-61:16. The image in Letendre expressly states “CHARGE MILEAGE IS ESTIMATED. IT WILL BE LESS FOR FULL LOADS OR HILLY TERRAIN”. EX1007, 9, Figure 1. Simply stating distance travelled in length (e.g., 10 miles) does not specifically equate to an amount of charge. Therefore, Letendre’s dashboard is only specifying one of the two specific parameters – related to miles to travel – and not specifying an amount of charge as required by the claims (which is calculated in the back system).

93. Kempton, cited by Mr. Andrews (but not included in the Petition), is acknowledged to “describe the same auto charge controller” as Letendre. EX1003, 243. However, Kempton notes that Letendre’s charge controller would never be modified to allow the user to select anything but distance in terms of miles:

The illustrative control panel in Fig. 1 is intended to minimize driver concern by using controls that accommodate user needs. ... Unlike all current and announced charging systems, we do not give the driver a switch to directly control charging. Figure 1 has no switch with 'off' or 'on' or even 'on when cheap'. Rather, the driver specifies what his or her travel needs are. The utility determines the timing of charging and discharging within those constraints. This is the key principle behind the controller design in our proposal.

EX1073, 162-163. It is my opinion that a user utilizing a slider such as that illustrated in Letendre that desires to be able to travel 50 miles can easily move the slider to the markings on the slider scale corresponding to “50 miles.” In such an instance, as Mr. Andrews acknowledges, the user does not, and indeed cannot, know what percentage of the battery will be charged to meet the specified 50 mile requirement. EX2003, 74:14-75:3.

94. As a result, the user can specify a parameter/condition to be met, such as miles to travel, and let the system try to approximate a charge amount that will meet the condition. However, this is inconsistent with specifying an amount of charge. The system may be accurate or not in attempting to charge to a level meeting the user conditions, hence, “Charge mileage is estimated.”

95. It is my opinion that by incorporating paragraphs 242-244 of Mr. Andrews’ declaration, the following allegation in the Petition is inaccurate:

Letendre teaches *a slider by which an amount of charge may be specified*, namely an “auto charge controller” “control panel” including a movable slider to “set [] the length of the expected next trip” (here, 10 miles) (the specified *amount of charge*).

Pet., 39. It is precisely because the user of Letendre’s interface is fundamentally incapable of knowing what charge amount they need that Letendre’s interface exists. It operates to allow the user to specify something other than a charge amount.

Petitioner and Mr. Andrews fail to explain how specifying the number of miles equates to specifying an amount of charge, or how to reconcile the two scales (battery vs. non-linear mileage).

2. Mr. Andrews does not show how Letendre's slider would be combined with Ferro or Donnelly

96. It is my opinion that A POSITA would not have been motivated to combine modified Ferro (Ferro-Oyobe) with Donnelly and Letendre. As explained above, Letendre teaches a specific selectable parameter – the length of the expected next trip. EX1007, 9. Letendre teaches allowing the user to specify the length of the expected next trip because the user does not know the relationship between battery charge and desired distance to be able to drive. If the user knew the desired charge, a slider would be provided to specify such a charge. Letendre doesn't disclose that parameter to be set because charge mileage "WILL BE LESS FOR FULL LOADS OR HILLY TERRAIN". EX1007, 9, Figure 1. As a result, in the disclosure of Letendre, knowing the present battery charge status is of no use to a user when selecting an amount of miles desired to travel. As a result, combining Letendre's slider for specifying a desired distance to travel with any art, such as Donnelly's picture of a battery, that is measured in units of charge is an unusable modification.

97. Donnelly, on the other hand, shows a picture of a battery that is measured in units of charge. EX1006, FIG. 28. Units of charge cannot equate to

length of trip because, as discussed above and expressly indicated in Letendre's Figure 1, charge mileage is only estimated not exactly specifiable because it "will be less for full loads or hilly terrain". Therefore, Donnelly and Letendre's two different parameters are incompatible.

98. This incompatibility is further established when looking at the scale of the Letendre slider as compared to the scale of the Donnelly battery "state of charge" bar graph. Letendre's dashboard and Donnelly's battery "state of charge" bar graph are reproduced below.

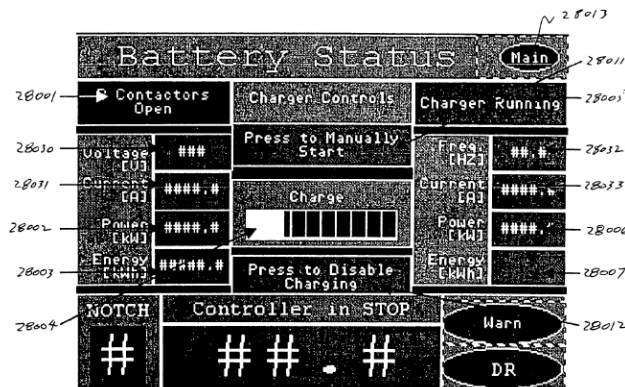
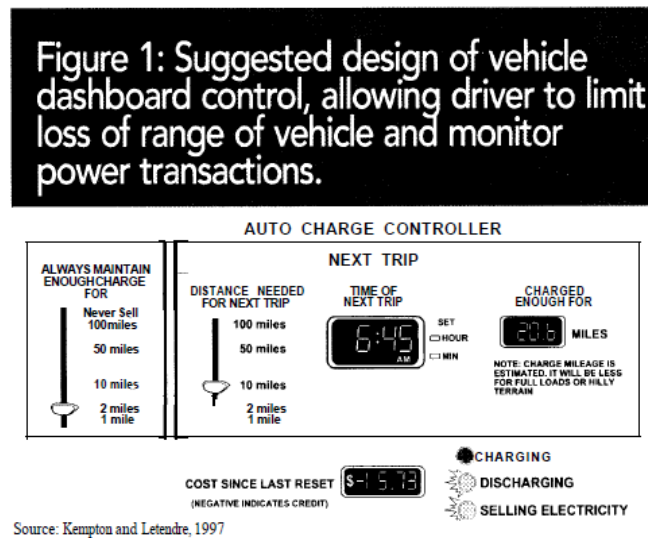


Fig. 28

EX1006, Fig. 28 (Donnelly battery "state of charge" bar graph).



EX1007, Figure 1.

99. It is clear that Letendre is not a linear scale where 50 miles is not halfway between 0 miles and 100 miles. Donnelly, on the other hand, is linear. There is no discussion in either Mr. Andrews or the Andrews Declaration that identifies how a logarithmic, or non-linear, slider such as Letendre's is useable in a linear graph such as Donnelly's "Battery State of Charge 28004". There is no motivation to combine Ferro, Donnelly, and Letendre without hindsight gleaned from the patent.

100. To the extent Petitioner asserts that the combination is just the slider of Letendre on top of Donnelly battery image, again Petitioner fails to explain how this would occur. The Letendre slider and Donnelly bar graph scales are incompatible because, for example, scale of Letendre shows "10 miles" as approximately 1/3 up the slider, and "50 miles" as approximately 2/3 up the slider. However, there is no indication that 10 miles is 33.3% of the charge percentage of the battery and 50 miles

is approximately 66.6% of the charge percentage of the battery. Mr. Andrews and Petitioner do not provide a definition of how a POSITA would reconcile these scale differences. Mr. Andrews's allegations to "include Letendre's graphical slider on the charge level bar graphic" would not make sense to a POSITA. Mr. Andrews and Petitioner did not meet their burden to resolve the fact that scale differences do not match.

101. It is my understanding that Petitioner and Mr. Andrews may assert that the combination the "minimum/maximum" charge of Ferro placed on top of the Donnelly battery image. However, it is my opinion that both Petitioner and Mr. Andrews repeatedly fail to explain how this would allow a user to select a specific amount of charge or how this would result in a *vehicle charge indicator element* as discussed below. The claim requires a slider where an amount of charge may be specified. A POSITA would understand that this allows a user to specify any amount of charge between 1% and 100%, not just to select between two choices. Limiting the selections as described in Ferro to "minimum" and "maximum" would defeat the purpose of implementing a slider where Ferro's choices are between two options.

102. As a result, it is my opinion that the POSITA is not motivated to combine Ferro, Donnelly and Letendre to teach the limitation of *a slider by which an amount of charge may be specified*.

3. Ferro, Donnelly and Letendre, even when combined, do not meet the requirements of a “vehicle charge indicator element” as claimed.

103. In my opinion, even if Letendre’s distance-based travel slider considered an “amount of charge”, which it is not, it is my opinion that the resulting combination would still not be a “vehicle charge indicator *element*” as per the claim construction above. As discussed in the claim construction section above, GUI *elements* are a known term of art having a specific construction. At best, for the sake of argument, Mr. Andrews only discusses displaying separate components of Ferro, Donnelly, and Letendre’s separate GUI’s into a single GUI, but does not explain how one of skill in the art would combine these separate components into a single GUI *element* as required by the “vehicle charge indicator element” of the claims.

104. The claimed invention provides the novel ability to display the battery charge level together with the slider that can indicate the amount of charge selected. Putting together the input and output mechanisms into a single “vehicle charge indicator element” is an important feature of the ‘338 patent. Petitioner ignores these specifics of the vehicle charge indicator element and instead relies upon a combination of Ferro (as modified by Petitioner), Donnelly, and Letendre for allegedly teaching only the individual portions of this limitation *but never discusses why each reference would be combined into a graphical user element* as required by the “vehicle charge indicator *element*” limitation. Pet., 33-41. In my opinion, simply

displaying “the graphical slider on the charge level bar graphic” is not enough to establish a three-component vehicle charge indicator *element* that is a GUI element as claimed.

C. Grounds 1 and 2: Mr. Andrews and the Petition fail to establish the prior art meets the element of “send[ing] an alert to an operator of the electric vehicle” as required by Challenged Claims 1-4, 6-7, 9-13, 15-16, 18-22, 24-25 and 27.

105. In reviewing the '338 Patent, claims 1-4, 6-7,9-13,15-16, 18-22, 24-25 and 27 require an alert to be sent *to the operator* of the electric vehicle in response to the vehicle reaching a predefined threshold when in a parked state. The claims require that the vehicle be able to receive a selected mode of operation to maintain the internal temperature of the electric vehicle in a parked state. The claims further require that the status of operation is displayed via the claimed GUI and that the mode of operation must be suitable for a pet located within the vehicle, and further that the temperature must be maintained such that the temperature is suitable for the pet. This mode is operated for a duration of time, and the vehicle at the same time determines if the amount of charge within the vehicle reaches a predefined threshold or minimum battery amount. If the vehicle reaches a predefined threshold, an alert is sent to the operator of the vehicle. The context of the claims are clear that the operator of the vehicle at the time of the alert *is not in the vehicle*. As Mr. Andrew’s stated in his deposition, even under his interpretation of what would trigger an alert

– a high point or low point in the battery, would be when the operator is away from the vehicle:

So you can imagine getting an alert when your battery is charged and you're sitting in a coffee shop and you need to wrap up and get back to your car

EX2003, 37:10-12.

106. The claims require that an alert be sent to an operator when the vehicle reaches a predefined threshold which can be a charge amount that may no longer be able to maintain a temperature suitable for a pet, as also described in the specification. As the '338 patent describes:

The "pet in car" button 732 may, for example, automatically set alerts and/or charge parameters to levels conducive to maintaining the comfort and safety of a pet left in a parked vehicle. In such a manner, for example, a user may safely leave a pet in a parked vehicle.

EX1001, 15:62-16:5

107. The claim language requires that the claimed system “send an alert to the operator of the electric vehicle” rather than “display via the graphical user interface” as required elsewhere in the same claim. In my opinion, the Petitioner’s interpretation equates “send an alert” to “display via the graphical display.” The Petition and Mr. Andrews appear to ignore the requirements of the claim limitation and relies on Donnelly, stating that Donnelly’s display of warnings meets this limitation. Pet., 57. Mr. Andrews and the Petition do not explain how Donnelly’s

systems send a warning to the user but instead rely on a single paragraph for this limitation:

Donnelly thus teaches Claim 1[n], namely determining the battery voltage or state of charge (*amount of charge residing in a battery*) is “below the lower set point” (*has reached a predefined threshold*), and sending a “warning” via the display (*send an alert to an operator*) indicating the battery voltage is low (*indicative of the charge residing in the battery having reached the predetermined threshold*). Donnelly, 18:65-67, 25:15-16, FIG. 34; Dec., 298.

Petition at 57.

108. However, Mr. Andrews and Petitioner’s apparent interpretation exceeds the proper scope as understood given the specification. It is my opinion that, consistent with the differentiating claim terms and the specification which discusses the operator leaving the vehicle and leaving the pet therein as discussed above, a POSITA would recognize that sending an alert to an operator requires the electric vehicle to send an alert to an operator via means other than displaying the status of the vehicle on the dash.

109. Mr. Andrews and the Petitioners’ apparent interpretation also conflates its own understanding of the claims. Petitioner, when asserting a motivation to combine Ferro’s display with Donnelly and Zeigler. Pet. at 50. The Petition states:

A POSITA would have been motivated to display an indication of the selected mode on the GUI to provide a user with confirmation their selected mode choice was being implemented. For example, a driver may confirm

the HVAC mode is on before *leaving a passenger in the parked vehicle*, providing peace-of-mind the passenger will stay comfortable *while they are away*.

Pet. at 50 (emphasis added). Here Petitioner clearly understands the purpose of the claims is to allow the driver/operator of the vehicle to leave the vehicle and have “peace of mind.”

110. The claims of the ‘338 Patent already separately require “*display via the graphical user interface* an indication of a status of the selected mode of operation of the electric vehicle.” ‘338 Patent, Claim 1[k], 10[g], 19[n]. When the status of the selected mode of operation is changing, the graphical user interface will already display the warning represented as a “status” of the selected mode of operation. I understand that Petitioner in fact points to displaying the mode of operation on the electric vehicle through the Donnelly GUI. Petition at 49. However, the claims require an additional limitation of “sending an alert” which Petitioner appears to ignore and instead equate to displaying. Pet. at 73.

111. It is clear to a POSITA that the patent claimed two separate words and intended separate functions. This is clear under Petitioner’s assertion for Claim 8, where Petitioner states that “[t]he GUI in the modified system is adapted to display an alert.” Pet. at 73. I have been instructed that where a claim lists elements separately, the clear implication of the claim language is that those elements are distinct components of the patented invention.

112. Mr. Andrews and the Petition alleges in a conclusory manner that displaying a warning on a GUI within the vehicle and sending an alert to an operator are the same function despite the patent claiming display via the graphical user interface and send in distinct manner. Petition at 56-57. Mr. Andrews testified that there is no difference at all to displaying and sending. *See* EX2003, 39:4-16. In my opinion, this is improper and sending an alert to the operator would not be satisfied in view of the context of the claims by simply displaying an alert within the vehicle's GUI.

D. No reference cited by Petitioner establishes an electric charging system or method that has a graphical user interface adapted to display a webpage as required in Claims 2, 11 and 20.

113. Claims 2, 11 and 20 require the claimed graphical user interface within the electrical charging system or method to be adapted to display a web page. Mr. Andrews fails to point to any reference that contains a GUI that displays a webpage. Instead, the Petition through Mr. Andrews relies on the fact that Letendre mentions that it can display its purported slider on a web page. Pet., 60. Mr. Andrews fails to establish how the claimed GUI is adapted to display a web page. Mr. Andrews' motivations are additionally incomplete as he provides no reasoning as to why Petitioner's modified system would be further modified to display a web page other than now further modifying the GUI to be web-based and at a remote server.

VIII. GROUND 2: PETITIONER FAILED TO ESTABLISH THAT CLAIMS 5, 8, 14, 17, 23, AND 26 ARE UNPATENTABLE AS OBVIOUS OVER FERRO IN VIEW OF OYOBE, DONNELLY, LETENDRE, ZEIGLER, GALVEZ-RAMOS, AND KNOCKEART

A. Ground 2 should be denied for similar reasons presented for Ground 1 above.

114. My comments above regarding Ground 1 apply to any claim in Ground 2 that depends from a claim discussed above.

B. Petitioner has not established a motivation to combine Knockeart with the other cited references for Ground 2.

115. For Ground 2, Petitioner adds Knockeart's removable personal device to the six references already listed in Ground 1 without describing how a POSITA could be motivated to configure this additional art in addition to the other five references used to alter the Ferro vehicle. *See Pet.*, 72-73. Petitioner only notes that "[a] POSITA would have appreciated displaying the GUI on a removable device would allow the user to view charging information when they are away from the vehicle," while again relying on Mr. Andrews opinion.

116. This statement of the limitation in the claim as a problem to be solved is a hindsight motivation. I have been told by counsel that defining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness. Petitioner only relies on the fact that Knockeart describes a PDA and does not specify how a POSITA would utilize Knockeart's PDA to monitor or input selected modes of operation as claimed in the '338 Patent. Knockeart's PDA

does not control any mode of operation of the vehicle remotely. It is my opinion that there is no motivation to combine Knockeart with the prior combination of references presented in Ground 1.

IX. GROUND 3: PETITIONER FAILED TO ESTABLISH THAT CLAIMS 28 AND 29 ARE UNPATENTABLE AS OBVIOUS OVER FERRO IN VIEW OF DONNELLY, LETENDRE, AND SUTARDJA

A. Petitioner’s “modified” Ferro in combination with Donnelly and Letendre failed to teach or disclose element 28[e]

117. Limitation 28[e] of Claim 28, and dependent claim 29, require “wherein at least the predetermined amount of charge is defined by user input received via a graphical user interface and adapted to display a vehicle charge indicator element comprising a first portion indicative of an amount of charge residing in a battery of the electric vehicle and a second portion indicative of an uncharged capacity of the battery of the electric vehicle and wherein the vehicle charge indicator element further comprises a slider by which the predetermined amount of charge may be specified.” Addressing claim 28[e], Mr. Andrews relies on the discussion of limitation 1[h]: “The mappings and motivations provided for Claim 1[h] are incorporated herein.” *Pet.* 75-76. It is my opinion that Ferro, Donnelly, and Letendre do not render obvious the subject matter of limitation 28[e] for similar reasons discussed above in sections VII.B-VII.D, which are incorporated by reference here. The inclusion of Sutardja does not change or alter the analysis presented in sections

VII.B-VII.D, and thus Sutardja does not remedy the deficiencies of Ferro, Donnelly, and Letendre with respect to limitation 28[e].

B. Petitioner has not established a motivation to combine the Sutardja with the other cited references of Ground 3.

118. With respect to Ground 3, Petitioner again uses four separate references – Ferro, Donnelly, Letendre and Sutardja. Petitioner dedicates only a single paragraph on motivation to combine without providing *any* particularity as to why a POSITA would actually combine these references. Petitioner merely states generic statements such as the modification would yield predictable results and the only motivation that is mentioned is that a POSITA would have recognized a user would “want to know ASAP that charging preferences were unacceptable.” *Pet.*, 81-82. Again, this statement of the limitation in the claim as a problem to be solved is a hindsight motivation. It is my opinion that Petitioner provides no motivation within Mr. Andrews declaration other than improper conclusory hindsight.

X. GROUND 1, 2, AND 3: PETITIONER HAS NOT ARTICULATED ANY MEANINGFUL MOTIVATION TO COMBINE OR A REASONABLE EXPECTATION OF SUCCESS

A. Petitioner Has Not Shown that a POSITA Would Have Been Motivated to Combine Ferro with the other cited references

119. I have been told by counsel that to satisfy its burden of proving obviousness, a petitioner must articulate specific reasoning why a POSITA would have combined or modified prior art references. It is my opinion that Petitioner

provides only general declarations that a POSITA would be motivated to combine the references.

120. Petitioner uses six references for Ground 1, seven references for Ground 2 and four references for Ground 3. As admitted by Petitioner, Ferro fails to disclose a number of limitations, such as the vehicle charge indicator comprising a slider, the selected mode of operation to allow the claimed electric vehicle to maintain an internal temperature suitable for a pet, or the claimed vehicle sensors. To address this, Mr. Andrews creates a hypothetical electric charging system, wherein Ferro is modified in a number of ways. For Ground 1, Petitioner proposes to:

- a) Take the Ferro system and add a vehicle sensor from Oyobe, despite the Ferro system having no need for a vehicle sensor and the vehicle sensor of Oyobe being superfluous of Ferro's functionality. Pet. at 10-12.
- b) Further modify the now modified "Ferro-Oyobe" system to add in a Graphical User Interface from a reference directed at trains solely due to the fact that (1) the Donnelly displays a picture of a charge status in bar graph format (Pet. at 34-36) and (2) the Donnelly reference displays a picture of a warning when the train battery is low that Petitioner has improperly construed as meeting the limitation of sending an alert to the operator. Pet. at 56-59.
- c) Further modifying the new "Ferro-Oyobe-Donnelly" system to include Letendre for the purpose of adding in a slider based on a single figure in a magazine article. Pet. at 39-40.
- d) Modify the new "Ferro-Oyobe-Donnelly-Letendre" system with Zeigler as none of the previous four references teach or suggest selecting a mode of operation relating to maintaining the interior temperature of the electric vehicle while in a parked state. Pet. at 43-46.

- e) Modify the new “Ferro-Oyobe-Donnelly-Letendre-Zeigler” system with Galvez-Ramos, as none of the previous five reference teach or suggest anything related to maintaining a temperature in a vehicle suitable for pets as required by the Challenged Claims.

121. The proposed combination (and sub combinations in Grounds 2 and 3) create an unlikely proposed electrical charging system or method where systems designed for locomotives are attempting to communicate with electric vehicles with respect to combining Donnelly with Ferro, combining an HVAC system built for a non-electric vehicle from Zeigler with the electric based system in Ferro, and then combining this arbitrary creation with Galvez-Ramos (a short application that mentions both climate control and pets).

122. I have been told by counsel that (1) a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art; (2) a claim cannot be found obvious where Petitioner does not provide a plausible rational as to why the prior art references would have worked together to render the claims obvious; and (3) it is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to a POSITA.

123. Based on my understanding of Mr. Andrews' opinions, he relies on hindsight by using the '338 Patent to determine motivation to combine.

124. It is my opinion that Mr. Andrews doesn't explain why he would combine *all* the proposed references in each of the three Grounds to arrive at the claimed invention. For example, Mr. Andrews testified he really only looked at Ferro for each combination as opposed to looking at the combination as a whole. EX2003, 77:15-78:4. When discussing Galvez-Ramos and Oyobe, Mr. Andrews stated there isn't a motivation because the claims in his opinion are "a hot mess" (implying disparate topics in the claim) *Id.*, 78:12-13. I disagree. In my opinion, as a POSITA, it is improper to focus solely on specific combinations and address motivation to combine in relation only to the combination asserted against a particular element. For example, with respect to modifying Ferro with Oyobe, Petitioner states the motivation would be to allow the user to conduct charging without exiting the vehicle. Pet., 12. However, with respect for modifying Ferro with Zeigler, Petitioner (1) ignores Oyobe and other modifications and then (2) states that the motivation would be to display a confirmation of the selected mode so that the user can leave the vehicle with "peace of mind." Pet., 50.

125. Mr. Andrews and the Petitioner make a similar contradictory motivation to combine in Ground 2, alleging the to include Knockart for the purpose of allowing "the user to view the charging information when they are away from the

vehicle.” Pet., 73. Petitioner fails to explain why a POSITA would want to combine Zeigler or Knockeart that purportedly allows a user to leave the vehicle with the previously alleged combination of Ferro-Oyobe, which was made under the premise of the user staying in the vehicle. In other words, the purported reason to include Zeigler or Knockeart in the obviousness combination is the direct opposite of the motivation to combine Ferro with Oyobe. Mr. Andrews is silent about these specific combinations and Petitioner fails to explain why a POSITA would be motivated to combine *all* six references for Ground 1, seven references for Ground 2 and four references for Ground 3. It is therefore my opinion that Petitioner and Mr. Andrews’ motivations to combine fail when considering the combination as a whole because the various motivations conflict with one another, which indicate hindsight using the ’338 Patent as a guide.

B. Petitioner Has Not Shown a Reasonable Expectation of Success in Reconfiguring Ferro in view of Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos

126. A POSITA would understand that designing an electric charging system that performs all the functions of the challenged claims is extremely challenging. Finding the right balance between a charging system and HVAC system that can integrate multiple sensors and thresholds requires careful experimentation and engineering. Some of Petitioner’s explanations conclusory. For example, for adding

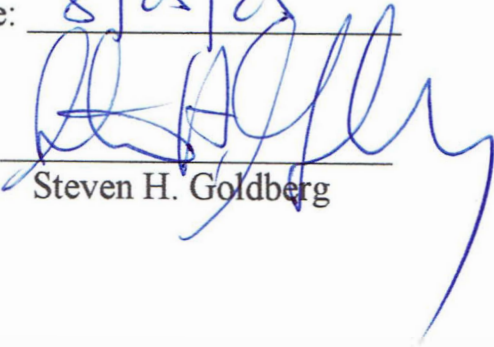
a touchscreen GUI via Donnelly and Letendre to the modified Ferro-Oyobe combination, Petitioner merely states there would be a reasonable expectation of success (“REOS”) given the ubiquity of touchscreens in vehicles. Pet., 33. However, at the time of invention, those of skill in the art knew that GUI creation was not obvious or trivial: “Due to data-driven application nature and its increasing complexity, developing its user interface can be a repetitive and time-consuming activity.” EX2004, Abstract. There is no REOS simply because touchscreens were ubiquitous as alleged by Petitioner.

127. It is my opinion that Petitioner fails to present a reasonable expectation of success for each of the combinations as a whole but instead addresses specific additions individually. For example, Petitioner looks at the REOS for combining Ferro with one other reference, as opposed to taking into consideration the multitude of modifications and reconfigurations proposed.

XI. CONCLUSION

128. I declare that all statements made herein of my knowledge are true, and 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.

Date: 8/25/25

By: 

Steven H. Goldberg

STEVEN H. GOLDBERG

18480 Chelmsford Drive, Cupertino, California 95014

E-mail: steve_goldberg@comcast.net

Mobile: 650-868-9040

SUMMARY

SENIOR HIGH TECHNOLOGY EXECUTIVE with 40+ years of engineering and management experience in both small and large business environments. Strong technical background with emphasis on wireless, security, signal processing, AI/ML, telematics, and networking. A hands-on, energetic, people-oriented leader with proven ability to quickly build effective results-oriented teams with focused business objectives. Strong interpersonal and business skills are equally effective with customers and partners as with employees.

- **Operating Partner at Tier 1 venture capital firm for 10+ years**
- **Serial CEO with early-stage technology companies**
- **70+ cases as Expert Witness for IP and patent disputes**
- **Early-stage technology investor and board member**
- **Built successful teams at Trimble, Cylink, Verticom, Nokia, and Arcwave**
- **Supported revenue generation from pre-revenue (Arcwave) to >\$250M (Nokia)**
- **Managed ASIC development at Cylink, Nokia, and CoWave**
- **Functional AI skillset including adaptive filtering and 1D/2D signal processing**

PROFESSIONAL EXPERIENCE

DYDX Capital (fka Finistere Ventures), Palo Alto, CA
Managing Partner

November 2021 – Present

Investing partner at early-stage venture capital firm; focused on technology-based companies focused in and around the food and agriculture ecosystem including adjacent areas of transportation, supply chain, finance, security, ML/AI, robotics, water, climate, etc. and companies that leverage data to solve hard problems.

BUSINESS AND TECHNOLOGY EXECUTIVE, Cupertino, CA

May 2006 to Present

Support range of markets including wireless communications, IoT, physical and cyber security, signal processing, embedded systems, automotive, robotics, location services, and telematics. Public company board member (SLDP:Nasdaq); advisor to several private companies. Provide Expert Witness support for IP/Patent litigation for wireless, telematics, GPS, and RF-related cases.

VENROCK ASSOCIATES, Palo Alto, CA.
Operating Partner/Investor

May 2009 to January 2020

Operating partner of Venrock, a leading, global venture capital firm; Chartered to manage a technology portfolio and identify attractive new business opportunities in the wireless, security, location services, IoT, robotics, and satellite technology sectors; Current and past director/observer/advisor of 20+ early-stage companies. Frequent public speaker and panelist on a variety of management and technology topics. Provide ongoing business and technical diligence support to Venrock on wide variety of technologies including wireless, telematics, automotive, machine learning, robotics, and IoT. Reviewed/diligenced over 5000 technology companies.

STEVEN H. GOLDBERG

DATARUNWAY, Inc., Cupertino, CA
President and CEO

August 2007 to November 2008

Early-stage, high-technology company focused on providing broadband Internet and phone service to commercial aircraft and private planes in flight. Technology demonstrated to airline industry; company IP ultimately used to support broadband services to cruise ship industry.

VIDIENT SYSTEMS, Inc., Santa Clara, CA
President and CEO

January 2007 to July 2007

Overall corporate responsibility for 3-year old venture-backed startup (turn-around) in the video surveillance market (specifically video analytics/content analysis); backed by Trident Capital, Blueprint Ventures, Canaan Partners, and Hotung Capital Mgmt.

- Products include the SmartCatch family of software analytics and hardware processing platforms
- Technology/Channel partners include AMAG/G4, Unisys, Intergraph, Broadware, OnSSI, Milestone, NEC
- Lowered cash usage from \$750k to \$500K/ mo.; restructured business model/go-to-market strategy from VAR/Integrator to OEM model; added marketing function; restructured product offering and focus; relocated company HQ; supported delivery of SmartCatch 3.0 software and IVR2400 analytics appliance; restructured pricing and margin model; renegotiated all sales/employee revenue-based compensation and commission plans
- Wrote two industry white papers on video analytics; gave numerous press/media interviews; Red Herring and AlwaysOn 100 finalists
- Negotiated \$4M bridge funding

VENROCK ASSOCIATES, Menlo Park, CA.
Entrepreneur-in-Residence

April 2005 to April 2006

Engaged as a full-time contractor to Venrock, a leading, global venture capital firm, to assist in identifying attractive new business opportunities in the wireless, security, networking, and/or location markets.

ARCWAVE, Inc. Campbell, California
(CoWave Networks merged with Advanced Radio Cells to form Arcwave in April 2003)
President and CEO

October 2000 to February 2005

First employee of VC-funded (Mayfield, Venrock, SBV, Comcast, Vulcan, Lucent) wireless startup supplying wireless broadband access products to the global cable industry; oversaw construction of corporate infrastructure, hired executive team; led marketing and sales strategy and key technology developments; led all corporate fundraising activities.

- Key in creating product positioning and branding strategy for residential wireless mesh technology (MeshCast™); 5 patents
- Positioned technology as mesh component of IEEE 802.16a standard; managed ASIC development
- Managed \$12.4M in original Series A funding and raised \$3.7M in a Series B round in Dec. 2002

STEVEN H. GOLDBERG

- Initiated and successfully managed merger of CoWave Networks with Advanced Radio Cells, Inc. to form Arcwave, in April 2003; Raised \$8M Series C funds in June 2004 led by new investors Comcast Interactive Capital and Vulcan Ventures
- At Arcwave, led definition and oversaw development of last-mile wireless cable extension product for Enterprise broadband voice/data service offering from cable industry
- Arcwave customers included Comcast, Time Warner, Cox, Adelphia, Charter, Mediacomm, CableOne

NOKIA CORP., Mt. View, California

August 1999 to Oct. 2000

Vice President, Research and Development, Nokia Internet Communications

Brought in to help with the integration of the recently acquired start-up, Ipsilon Networks; overall responsibility for R&D for \$70 million R&D budget with 275 engineers worldwide; participated in growth of new business unit from \$50M to \$250M+ run-rate; hired over 70 engineers and managers; successfully integrated a second 70 person engineering group in Boston, Mass.; core products tied to networking and internet application appliances with strong ties to next generation packet-based cellular systems.

- Actively involved in Sales, Marketing, and Support of global firewall appliance business; regular customer interaction tied to new product development and feature enhancement
- Led development of entire product line, including IP530, IP740, ISS appliance, Anti-Virus appliance, and current version of operating system
- Managed 20+ person ASIC team developing packet processing acceleration ASICs

VERTICOM, INC., Santa Rosa, California

December 1997 to August 1998

President and CEO

Overall corporate responsibility for a four-year-old private, VC-funded (NEA) wireless restart involved in radio subsystems for satellite and terrestrial wireless infrastructures.

- Recruited to facilitate turn-around; created new \$6.5M operating plan for 1998 (revenue peaked at \$16M in FY2000); reduced monthly operating loss from \$500K to under \$300K
- Built new management team including V.P.'s of manufacturing, finance, and engineering and streamlined document control, sales lead tracking, order generation, and project engineering
- Oversaw restart of stalled product shipments and improvement of average gross margins by >20%
- Oversaw global sales and distribution channel
- More than doubled revenue \$/direct labor from \$100K to over \$200K

CYLINK CORPORATION, Sunnyvale, California

March 1995 to Dec. 1997

Vice President, General Manager, Wireless Communications Division

Reporting directly to CEO, created Wireless business unit/division; products included spread spectrum radio-modems with worldwide distribution in over 90 countries, 6 international sales offices.

- Brought revenues, profitability from under \$7M annually to \$31M with gross margins of >55%
- Built management team in sales, marketing, engineering, customer service, and manufacturing
- Managed Cylink cordless phone ASIC business
- Intimately involved in highly successful Cylink IPO in February 1996; worked directly with investment banks and wrote key sections of S-1 registration statement

STEVEN H. GOLDBERG

- Positioned division for sale and made key presentation resulting in Cylink Wireless Division sale to P-Com, Inc. in March 1998 for \$60.5M
- Returned to P-Com, Inc. from Aug. 1998 to Nov. 1998 to manage Cylink integration

TRIMBLE NAVIGATION, Ltd., Sunnyvale, California **Program Manager – Military Division**

Nov. 2008 to Sept. 2009

- Led interdisciplinary team of engineers (hardware, software, mechanical, RF) in the design of next generation military M-Code GPS receivers for in-flight applications
- Interacted with Program Managers from program partners Raytheon, General Dynamics and with the U.S Air Force GPS Wing contracting organization

Manager – Vehicle Tracking Division – Communications Systems Group

1993 to 1995

- Led development and marketing group for GPS-based tracking, navigation, and positioning systems
- Co-created new product line for tracking people and cargo using cellular phones with GPS; Tens of thousands sold globally over 10-year period; product line continues today
- On-going global customer interaction during product development and rollout
- Regular interaction with global Sales, Marketing and Support organizations
- Directed engineering teams from concept to fully functional end-user installations; system level interaction with core GPS ASIC development team
- Served as corporate-wide technical resource for strategic planning and intellectual property

Senior Engineer – Survey Division

1991 to 1993

- Co-lead in Differential Corrections Group that developed the line of TrimTalk radio systems; used to provide local corrections to Trimble Series 4000 GPS survey receivers

APPLIED SIGNAL TECHNOLOGY, Sunnyvale, California **Program Manager – Wireless Communication Division**

1988 to 1991

- Regular interaction with government intelligence customers to define product needs
- Directed development of wideband, 1-40GHz, 'flexible' surveillance receiving system
- Led many corporate marketing activities including technical presentations and proposal writing
- Developed company-wide technical training program for over 200 company employees; Developed and taught DSP, Adaptive Filtering, and Digital Communications courses

HEWLETT-PACKARD CO., Palo Alto, California

1979 to 1988

Instructor – Microwave and Communications Group Training Center

1980 to 1988

Responsible for course development and teaching of a variety of electronic measurement subjects on a global basis to HP customers and newly hired HP engineers. Topics included transmission lines, network analysis, spectrum analysis, noise figure, general signal processing techniques, modulation and telecommunications principles.

Hewlett-Packard Visiting Professor – North Carolina A&T State University

1982 to 1983

On temporary assignment to teach undergraduate electrical engineering courses. Courses included Communications and Modulation Theory, Circuit Analysis and Synthesis and Circuits and Systems.

STEVEN H. GOLDBERG

Production Engineer – HP Microwave Semiconductor Division

1979 to 1980

Responsible for production line support, product improvement and new product introduction for microwave GaAs FET amplifiers and broad range of RF and microwave passive component line from 1-18GHz.

EMERSON ELECTRIC CO., St. Louis, Missouri

1978 to 1979

Radar Engineer

Responsible for the design and development of the receiver/transmitter portions of military radar systems. Products included high dynamic range logarithmic receivers and magnetron/klystron-based transmitters.

CALIFORNIA MICROWAVE, Inc., Sunnyvale, California

1976 to 1978

RF and Microwave Engineer

Responsible for the design and testing of RF and microwave circuits and components for military, telecommunications, and commercial applications. Frequency range from 1-30 GHz.

EXPERT WITNESS EXPERIENCE

1. Type of Matter: Contract Litigation
Parties Involved: Strategic v. Natomas Park
Services Provided: Expert report provided for Plaintiff
Disposition: Judge ruled in favor of Plaintiff
Date: 2006
2. Type of Matter: Patent Infringement
Law Firm: Jenkins and Gilchrist
Services Provided: Infringement research; Wireless LAN
Disposition: Completed/Outcome Unknown
Date: 2006
3. Type of Matter: Patent Infringement; Defense
Law Firm: Orrick, Herrington & Sutcliffe, LLP
Services Provided: Infringement research, prior art
Subject Matter: GPS technology
Parties: SIRF v Global Locate
Disposition: Completed/Settled
Date: 2007
4. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Fish and Richardson
Subject Matter: Location Services; GPS
Services Provided: Infringement expert report; Invalidity Rebuttal report; Deposition; Vehicle IP v GM Corp.
Disposition: Completed
Date: 2007/2008
5. Type of Matter: Patent Invalidity; Defense
Law Firm: Kilpatrick Stockton
Parties: Telematics v. Motorola

STEVEN H. GOLDBERG

Services Provided: Declaration
Disposition: Completed/Outcome Unknown
Date: 2008

6. Type of Matter Patent Invalidity; Defense
Law Firm: Keker & Van Nest
Service Provided: Patent Review, Cable Modems; Rembrandt v Comcast
Disposition: Completed/Outcome Unknown
Date: Nov 2008 – Jan 2009

7. Type of Matter Patent Infringement; Plaintiff
Law Firm: Fulbright & Jaworski
Subject Matter: Location Services; GPS
Service Provided: Product review; RemoteMDx vs. STOP LLC
Disposition: Completed/Settled
Date: Dec. 2008 - Jan. 2009

8. Type of Matter Patent Infringement; Plaintiff
Law Firm: Kirkland & Ellis
Service Provided: Patent and Prior Art Review
Parties: Intel v Wi-Lan
Disposition: Completed/Outcome unknown
Date: Jan. 2009 – March 2010

9. Type of Matter Patent Infringement; Defense
Law Firm: Cravath, Swain, & Moore
Service Provided: Patent and Prior Art Review
Parties: ITT v. Qualcomm
Disposition: Completed
Date: Feb. 2010

10. Type of Matter Patent Reexamination; Defense
Law Firm: Fish and Richardson
Service Provided: Reexamination support; Declaration
Subject Matter: Location Services
Party: Vehicle IP
Disposition: Completed
Date: Nov. 2010

11. Type of Matter Patent Infringement; Plaintiff
Law Firm: Paul Hastings
Service Provided: Infringement research, telematics hardware
Parties: HTI vs. ProCon
Disposition: Completed
Date: February 2011

12. Type of Matter Patent Infringement; Defense
Law Firm: FTBK Law
Service Provided: Markman Declaration
Parties: Visteon v. Mitac

STEVEN H. GOLDBERG

Disposition: Unknown; completed.
Date: July 2011

13. Type of Matter: Patent Infringement; Defense
Law Firm: Fish and Richardson
Service Provided: Rebuttal Infringement and Invalidity reports; Deposition
Subject Matter: Consumer golf-related location services
Parties Involved: SkyHawke Technologies, LLC v. Callaway Golf
Disposition: Favorably settled before trial; 3/2012

14. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Ostrow Kaufman, LLP
Subject Matter: Air to ground communications
Service Provided: Claim Construction/Summary Judgment Preparation
Parties Involved: Advanced Media Networks v. Gogo LLC/Aircell
Disposition: Favorably settled before trial in Summer 2013

15. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Fish and Richardson
Service Provided: Infringement report, Rebuttal Invalidity report, Deposition, Trial Testimony
U.S. District Court, Delaware
Parties Involved: Vehicle IP, LLC v. Werner Enterprises
Subject Matter: Location Services; GPS
Disposition: Jury trial complete in Sept. 2013 favoring defense on infringement; validity upheld

16. Type of Matter: Patent Infringement: Defense
Law Firm: Fish and Richardson
Subject Matter: RF/Signal Processing for Cellular Telephones
Service Provided: Claim Construction and Invalidity report, Deposition, Trial Testimony at ITC
Parties Involved: Ericsson v. Samsung
Disposition: Trial at ITC in Sept. 2013; Favorably settled before court decision, Jan. 2014

17. Type of Matter: Patent Infringement; Defense
Law Firm: Bryan Cave
Subject Matter: Automotive GPS
Service Provided: Declaration re: Preliminary Injunction Hearing; Deposition; Hearing testimony; IPR declaration
Parties Involved: MAcom v. Laird
Disposition: Favorably settled before trial/IPR, April 2015

18. Type of Matter: Product Liability: Defense
Law Firm: Keker and Van Nest, San Francisco, CA
Service Provided: Declaration re: GPS semiconductor architecture and performance
Parties Involved: TomTom International v. Broadcom Corp.
Disposition: Favorably settled before trial, May 2015

19. Type of Matter: IPR; Plaintiff
Law Firm: Sheppard Mullin
Subject Matter: GPS; location services

STEVEN H. GOLDBERG

Service Provided: Multiple expert declarations; Deposition; IPRs
Parties Involved: TCL
Disposition: Completed; 2016

20. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Fish and Richardson
Subject Matter: Location Services
Service Provided: Multiple expert reports; 2 Depositions
Parties Involved: Vehicle IP v. ATT/Verizon
Disposition: Favorably settled with one defendant; 2017

21. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Smith, Gambrell, and Russell
Service Provided: Discovery support
Parties Involved: InfoGation; ZTE, HTC
Disposition: Unknown as of Dec. 2017

22. Type of Matter: Patent Infringement; Defendant
Law Firm: Fish and Richardson
Subject Matter: Consumer Electronics; GPS
Service Provided: Testifying expert; Declaration for IPR
Parties Involved: Escort, Inc. v. Uniden America Corporation
Case No.: Civil Action No. 3:18-CV-00161-N
Court: Northern District of Texas, Dallas Division
Disposition: Favorably Settled; July, 2020

23. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Bunsow De Mory LLP
Subject Matter: Consumer Electronics; Cellular Telephones
Service Provided: Markman Hearing support; Deposition
Parties Involved: Theta IP, LLC. v Samsung Electronics Co., LTD and Samsung Electronics America, Inc.
Case No.: Civil Action No.: WA:20-CV-0160-ADA
Court: Western District of Texas, Waco Division
Disposition: Favorably settled; January 2022

24. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Steptoe
Subject Matter: Consumer Electronics; Automotive Telematics; GPS
Service Provided: Testifying expert; Infringement report, Rebuttal Report, Witness Statement, Deposition; ITC trial testimony
Parties Involved: Broadcom v. Toyota; CERTAIN INFOTAINMENT SYSTEMS, COMPONENTS THEREOF, AND AUTOMOBILES CONTAINING THE SAME
Court: International Trade Commission
Case No. 337-TA-1119
Disposition: 2018-2020; Completed; Decision in favor of Defense; Under Appeal

25. Type of Matter: Patent Infringement; Supporting Defendant and Counter Plaintiff
Law Firm: Amster, Rothstein, and Ebenstein

STEVEN H. GOLDBERG

Subject Matter: Enterprise Wireless; Retail; Bluetooth
Service Provided: Testifying expert; Non-Infringement Rebuttal Report
Court: Middle District of Florida, Orlando Division
Case No.: 6:18-cv-00064-RBD-GJK
Parties Involved: Proxicom Wireless v. Macy's Inc. and Macy's Florida Stores, LLC
Disposition: Favorably settled; July 2019

26. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive, GPS
Law Firm: Steptoe
Court: Patent Trial and Appeal Board
Case No.: IPR2019-00737, IPR2019-00816
Services Provided: Declarations, Deposition
Parties Involved: u-blox AG, Japan Radio Co., Ltd., Petitioners; Broadcom Corp., Patent Owner
Disposition: Unknown

27. Type of Matter: Patent IPR, Supporting Petitioner
Subject Matter: Automotive, Mapping
Law Firm: Erise IP, P.A.
Court: Patent Trial and Appeal Board
Case No.: IPR2020-01254, IPR2020-01253
Services Provided: Two (2) declarations, 2H2020
Parties Involved: Apple Inc., Petitioner; Navblazer, LLC, Patent Owner
Disposition: Awaiting Deposition (if needed)

28. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Vehicle to Vehicle Communication
Law Firm: McDonnell, Boehnen, Hulbert & Berghoff
Services Provided: IPR Declaration, 2H2020
Court: Patent Trial and Appeal Board
Case No.: IPR2020-00354
Parties Involved: Unified Patents, LLC, Petitioner; AutoBrilliance, LLC, Patent Owner
Disposition: Declaration Completed; Case Status Unknown

29. Type of Matter: Patent Infringement; Defendant
Subject Matter: Consumer Electronics
Law Firm: WilmerHale
Services Provided: Technical/Business Expert; Expert Report; Deposition
Court: U.S. District Court, District of Delaware
Case No.: Civil Action No. 19-1031-RGA-SRF
Parties Involved: NextStep, Inc. v. Comcast Communications
Disposition: Favorably settled at trial in Sept 2021

30. Type of Matter: Patent Infringement; Plaintiff
Subject Matter: Business Aviation Communications
Law Firm: Burr and Foreman
Service Provided: Testifying Expert; Declaration supporting Summary Judgement;
Infringement report, Invalidity Rebuttal report, Reply report;
2 depositions
Court: U.S District Court, District of Delaware

STEVEN H. GOLDBERG

Case No.: C.A. No. 22-266-VAC-MPT
Parties Involved: SmartSky Networks, LLC v. Gogo Business Aviation, LLC
Disposition: Ongoing; Trial scheduled April 14-20, 2025

31. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive; EV Charging
Law Firm: Carter Arnett
Service Provided: IPR Declaration
Court: Patent Trial and Appeal Board
Case No: IPR2022-0519
Parties Involved: United Patents, LLC, Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition: PTAB found in favor of Patent Owner, August, 2022

32. Type of Matter: Patent IPR; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Volpe Koenig
Service Provided: IPR Declaration
Court: Patent Trial and Appeal Board
Case No: IPR2022-00708
Parties Involved: Toyota Motor Corp., Petitioner; Intellectual Ventures II, LLC, Patent Owner
Disposition: Declaration Completed

33. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration Opposing Summary Judgement
Parties Involved: Fleet Connect Solutions, LLC. v. Precision Drilling Corporation
Court: Western District of Texas, Waco Division
Case No.: Civil Action No. 6:21-CV-00987-ADA
Disposition: Declaration Completed; May, 2022

34. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration Opposing Summary Judgement
Court: Western District of Texas, Waco Division
Case No: Civil Action No. 6:21-CV-00988-ADA
Parties Involved: Fleet Connect Solutions, LLC v. Flying Star Transport, LLC
Disposition: Declaration Completed; May 2022

35. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration Supporting Claim Construction Brief
Court: Western District of Texas, Waco Division
Case No: Civil Action No. 6:21-cv-01306-ADA
Parties Involved: Fleet Connect Solutions, LLC v. MV Transportation, Inc. and MV Contract Transportation, Inc.

STEVEN H. GOLDBERG

Disposition: Declaration Completed, July 2022

36. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding the Meaning of Certain Terms in the Asserted Patents
Court: Western District of Texas, Marshall Division
Case No: Civil Action No. 2:21-cv-365-JRG
Parties Involved: Fleet Connect Solutions, LLC v. Waste Connections US, Inc. and Waste Connections of Texas, LLC
Disposition: Unknown, July 2022

37. Type of Matter: Patent Infringement; Supporting Plaintiff
Subject Matter: Automotive Telematics
Law Firm: Kirkland and Ellis, LLP
Service Provided: Claim Construction Support; Declaration, Deposition
Parties Involved: Omnitracs, LLC and XRS Corporation v. Platform Sciences, Inc.
Court: Southern District of California
Case No: 3:20-cv-0958-CAB-MDD
Disposition: Completed, August 2022

38. Type of Matter: Contract Dispute; Supporting Respondents
Subject Matter: Enterprise Software; Internet Communications
Services Provided: Witness Statement Prep
Law Firm: Snell & Wilmer
Parties Involved: DISH WIRELESS L.L.C. and DISH PURCHASING CORPORATION v. REVOKIND INC., JUSTIN CASWELL and REVOFI LLC
Court: American Arbitration Association
Case No: 01-22-0002-3635
Disposition: Completed; Case status unknown

39. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive; EV Charging
Law Firm: Carter Arnett
Service Provided: IPR Declaration; Deposition
Court: Patent Trial and Appeal Board
Case No: IPR2022-01217
Parties Involved: Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition: Declaration Complete, September 2022

40. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Volpe Koenig
Service Provided: IPR Declaration
Court: Patent Trial and Appeal Board
Case No: IPR2022-00429
Parties Involved: United Patents; Intellectual Ventures II, LLC, Patent Owner
Disposition: Declaration Completed, November 2022

41. Type of Matter: Patent IPR, Supporting Patent Owner

STEVEN H. GOLDBERG

Subject Matter: Automotive Communications
Law Firm: Volpe Koenig
Service Provided: IPR Declaration
Court: Patent Trial and Appeal Board
Case No: IPR2022-00709
Parties Involved: Toyota Motor Corp., Petitioner; Intellectual Ventures II, LLC, Patent Owner
Disposition: Declaration Completed, January 2023

42. Type of Matter Patent Infringement; Supporting Plaintiff
Subject Matter Automotive Telematics
Law Firm: Kirkland & Ellis, LLP
Service Provided: Claim Construction Support; Second declaration; Deposition
Parties Involved: Omnitrac, LLC and XRS Corporation v. Platform Sciences, Inc.
Court: Southern District of California
Case No: CASE NO. 3:20-cv-0958-CAB-MDD
Disposition: Completed, February 2023

43. Type of Matter Patent Dispute, Supporting Patent Owner
Subject Matter: Automotive; EV Charging
Service Provided: Claim Construction Declaration
Law Firm: Carter Arnett
Court: Patent Trial and Appeal Board
Parties Involved: Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Case No: IPR2023-00062
Disposition: Declaration Completed, February 2023

44. Type of Matter Patent IPR, Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Volpe Koenig
Service Provided: IPR Declaration
Court: Patent Trial and Appeal Board; Deposition
Case No: IPR2022-00857
Parties Involved: Toyota Motor Corp., Petitioner; Intellectual Ventures II, LLC, Patent Owner
Disposition: Completed, February 2023

45. Type of Matter Patent IPR, Supporting Petitioner (Foursquare)
Subject Matter: Targeted Marketing/Wireless Messaging
Law Firm: Barnes & Thornburg, LLP
Service Provided: IPR Declaration for two patents
Court: Patent Trial and Appeal Board
Case No: IPR2023-00918/19
Parties Involved: Foursquare Labs, Inc. v. BoardActive Corporation
Disposition: IPRs Completed, May 2023; Both instituted Dec. 2023, Deemed Unpatentable Dec. 2024

46. Type of Matter Patent Dispute; Supporting Patent Owner
Subject Matter Consumer Electronics
Service Provided Claim Construction Declaration; 2 Depositions; In-person Technical Tutorial
Law Firm Fried Frank

STEVEN H. GOLDBERG

Court	U.S District Court, Northern District of CA, Oakland Div.
Case No.	4:19-CV-01315-JSW
Parties Involved	Cellwitch Inc. v. Tile, Inc.
Disposition	Settled/Withdrawn; May 2025
47. Type of Matter	Patent Dispute; Supporting Defendant, Charter Communications
Subject Matter	Telecommunications Service Provider
Service Provided	Invalidity Expert for 6 patents; Expert report; Deposition
Law Firm	Arnold & Porter
Court	U.S. District Court, Eastern District of Texas, Marshall Div.
Case No.	2:22-cv-00125-JRG
Parties Involved	Entropic Communications, LLC v. Charter Communications, Inc.
Disposition	Favorably settled; Dec. 2023
48. Type of Matter:	Patent IPR, Supporting Patent Owner
Subject Matter:	Automotive; EV Charging
Law Firm:	Carter Arnett
Service Provided:	IPR Declaration; Patent Owner Response; Deposition
Court:	Patent Trial and Appeal Board
Case No:	IPR2023-00062
Parties Involved:	Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition:	Declaration Complete, August 2023
49. Type of Matter:	Patent IPR, Patent Owner Response
Subject Matter:	Automotive; EV Charging
Law Firm:	Carter Arnett
Service Provided:	IPR Declaration, Deposition
Court:	Patent Trial and Appeal Board
Case No:	IPR2023-00063
Parties Involved:	Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition:	Declaration Complete, September 2023
50. Type of Matter:	Patent Dispute; Supporting Plaintiff
Subject Matter:	Automotive; Telematics
Law Firm:	Kirkland & Ellis LLP
Court:	International Trade Commission
Services Provided	3 patents, Infringement, Invalidity Rebuttal reports; Deposition ITC trial testimony
Parties Involved:	Samsara Inc. v. Motive Technologies, Inc.
Case No.	337-TA-1393
Disposition:	ITC Hearing, March, 2025, completed.
51. Type of Matter:	Patent Dispute; Supporting Plaintiff
Subject Matter:	Location Services
Law Firm:	Wilson Sonsini Goodrich & Rosati
Court:	U.S. District Court, District of Delaware
Case No:	1:23-cv-00055-CFC
Parties Involved:	SZ DJI Technology Co. Ltd. v. Textron Specialized Vehicles Inc.
Disposition:	Completed February 2024

STEVEN H. GOLDBERG

52. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding the Meaning of Certain Terms in the Asserted Patents
Court: U.S District Court, Western District of Texas, Waco Division
Case No: Civil Action No. 6:23-CV-00623-ADA; Civil Action No. 6:23-CV-00682-ADA
Parties Involved: Fleet Connect Solutions, LLC v. Rivian/Peloton
Disposition: Completed October 2024
53. Type of Matter: Corporate Dispute; Supporting Defendants
Subject Matter: Consumer Electronics
Law Firm: Rutan & Tucker, LLP, Talglaw
Court: U.S. District Court, Central District of California
Case No: 8:23-cv-01709-CBM-DFM
Parties Involved: Hyundai Motor Company, et al., v Hyundai Technology Group, Inc., et. al.
Disposition: On Hold; May 2025
54. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding the Meaning of Certain Terms in the Asserted Patents
Court: U.S. District Court, Western District of Texas, Waco Division
Case No: Civil Action No. 6:24-cv-00116
Parties Involved: Fleet Connect Solutions, LLC (Plaintiff) v. Enterprise Holdings, Inc. and Enterprise Fleet Management, Inc. (Defendants)
Disposition: Completed October 2024
55. Type of Matter: Patent IPR; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Volpe Koenig
Service Provided: IPR Declaration
Court: Patent Trial and Appeal Board
Case No: IPR2024-00109, IPR2024-00124
Parties Involved: Lenovo Petitioner; Intellectual Ventures II, LLC, Patent Owner
Disposition: IPR Completed, December 2024
56. Type of Matter: Civil Breach of Contract/Fiduciary Duty
Subject Matter: Venture Investing
Law Firm: Demeo LLP
Service Provided: Declaration, Deposition
Court: Superior Court of the State of California
Case No: 0-2021-01191735-CU-BT-CJC
Parties Involved: Preston Clark and Growthpoint Global, Inc., Plaintiffs, v. Windsail Credit Fund, L.P., Windsail Capital Fund, L.P., et al.
Disposition: Trial Completed; May 2025
57. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; In Support of Consolidated Complaint for Patent Infringement

STEVEN H. GOLDBERG

Court: U.S. District Court, Eastern District of Texas, Marshall Division
Case No: Civil Action No. 2:24-cv-00718-JRG-RSP
Parties Involved: Fleet Connect Solutions, LLC (Plaintiff) v. Powerfleet, Inc. (Defendant)
Disposition: Completed December 2024

58. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding the Meaning of Certain Terms in the Asserted Patents
Court: U.S. District Court, Central District of California
Case No: Civil Action No. 5:24-cv-00376-KK-SP
Parties Involved: Fleet Connect Solutions, LLC (Plaintiff) v. C.R. England and Orbcomm, Inc. (Defendants)
Disposition: Completed December 2024

59. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration: Supplemental Declaration in Support of Plaintiffs Complaint for Patent Infringement (101 Related)
Court: U.S. District Court, District of Arizona
Case No: Civil Action No. 2:24-cv-02894-MTL
Parties Involved: Fleet Connect Solutions, LLC (Plaintiff) v. GPS Insight, Inc. (Defendants)
Disposition: Completed March 2025

60. Type of Matter: Patent Infringement, Supporting Plaintiff
Subject Matter: Automotive; EV Charging
Law Firm: Altima Advisors/Attorneys, LLC, Cozen O'Connor
Service Provided: Infringement support
Court: U.S. District Court, District of Delaware
Case No: C.A. No. 1:22-cv-01379-JCB
Parties Involved: Charge Fusion Technologies, LLC (Plaintiff) v. Polestar Automotive USA, Inc. (Defendant)
Disposition: On Hold; Defendant leaving U.S.; August 2025

61. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive; EV Charging
Law Firm: Carter Arnett
Service Provided: IPR Declaration in Support of Patent Owner's Response
Court: Patent Trial and Appeal Board
Case No: Case IPR2025-00032
Parties Involved: Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition: Completed, February, 2025

62. Type of Matter: Patent Dispute; Supporting Plaintiff
Subject Matter: Cellular Technology
Law Firm: Mayer Brown LLP
Court: International Trade Commission
Services Provided: Multiple patents review; infringement and validity report; deposition

STEVEN H. GOLDBERG

Parties Involved: Certain Mobile Electronic Devices; Maxell v Samsung
Case No. 337-TA-1432
Disposition: ITC Hearing; October 2025

63. Type of Matter: Patent Dispute; Supporting Plaintiff
Subject Matter: Automotive; Telematics and Vehicle Sensors
Law Firm: Kasowitz Benson Torres LLP
Court: Western District of Texas, Austin Division
Services Provided: 4 patents, Infringement review
Parties Involved: Intellectual Ventures II LLC v Tesla, Inc.
Case No. 1:24-cv-884-ADA
Disposition: Ongoing

64. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive; EV Charging
Law Firm: Cozen O'Connor
Service Provided: IPR Declaration in Support of Patent Owner's Preliminary Response
Court: Patent Trial and Appeal Board
Case No: Case IPR2025-00152
Parties Involved: Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition: Completed April 2022

65. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive; EV Charging
Law Firm: Cozen O'Connor
Service Provided: IPR Declaration in Support of Patent Owner's Preliminary Response
Court: Patent Trial and Appeal Board
Case No: Case IPR2025-00153
Parties Involved: Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition: Completed, April 2025

66. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding 35 U.S.C. 101
Court: U.S. District Court, Northern District of Texas, Dallas Division
Case No: Civil Action No. 3:25-cv-00233-B
Parties Involved: Fleet Connect Solutions, LLC (Plaintiff) v. Werner Enterprises, Inc. (Defendant)
Disposition: Completed April 2025

67. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding 35 U.S.C. 101
Court: U.S. District Court, Eastern District of Texas, Marshall Division
Case No: Civil Action No. 2:25-cv-00256-JRG
Parties Involved: Local Interest, LLC (Plaintiff) v. Petsmart, LLC. (Defendant)
Disposition: Completed May 2025

68. Type of Matter: Patent Infringement; Supporting Patent Owner

STEVEN H. GOLDBERG

Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding 35 U.S.C. 101
Court: U.S. District Court, Middle District of Florida, Tampa Division
Case No: Civil Action No. 8:25-cv-00576-MSS-TGW
Parties Involved: Pointivo, Inc. (Plaintiff) v. 5x5 Technologies, Inc. (Defendant)
Disposition: Completed May 2025

69. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding 35 U.S.C. 101
Court: U.S. District Court, District of Arizona
Case No: Civil Action No. 2:24-cv-02894-MTL
Parties Involved: Fleet Connect Solutions, LLC. (Plaintiff) v. GPSInsight, Inc. (Defendant)
Disposition: Completed May 2025

70. Type of Matter: Personal Injury; Supporting Plaintiff
Subject Matter: Traffic Accident; Personal Injury
Law Firm: Chopra & Nocerino, LLP
Service Provided: Declaration; Video Recording Technology
Court: Supreme Court, Nassau County, NY
Parties Involved: Marianna Inniatto (Plaintiff) v. BLS Company (Defendant)
Disposition: Trial Complete; Liability upheld

71. Type of Matter: Class Action Suit
Subject Matter: Violation of Washington State Gambling Laws
Law Firm: Schroeter Goldmark & Bender
Service Provided: Location services technology research and support
Court: U.S. District Court, Western District of Washington, Seattle
Case No: Civil Action No. 2:24-cv-00460-TL
Parties Involved: Tyler Kuhk (Plaintiff) v. Playstudios, Inc. (Defendant)
Disposition: Ongoing; March 2025

72. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive; EV Charging
Law Firm: Carter Arnett
Service Provided: IPR Declaration in Support of Patent Owner's Response;
Court: Patent Trial and Appeal Board
Case No: Case IPR2025-00032
Parties Involved: Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition: Ongoing; August 2025

73. Type of Matter: Business Dispute; Representing Plaintiff
Subject Matter: Product and Customer Theft; GPS/Location Services
Law Firm: Massey & Gail LLP
Service Provided: Research; Consultation
Court: U.S. District Court for the Northern District of Illinois
Case No: No. 23-cv-04964

STEVEN H. GOLDBERG

Parties Involved: LandAirSea Systems, Inc., Plaintiff, v. EventFalcon, Ltd. and John Stanley, Defendants
Disposition: Settled; May 2023

74. Type of Matter: Consumer Protection
Subject Matter: Telematics
Law Firm: State of Texas; Attorney General
Service Provided: Research; Consultation
Court: District Court, Montgomery County, Texas
Case No: 24-08-12392
Parties Involved: State of Texas, Plaintiff v. General Motors LLC, and Onstar LLC, Defendants
Disposition: Completed; June 2025

75. Type of Matter: Patent, *Ex-Parte* Re-examination
Subject Matter: Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Response to Non-Final Office Action
Court: USPTO
Case No: Reexam Control No. 90/019,766
Parties Involved: ORBCOMM Inc. (Requester), Fleet Connect Solutions LLC (“Patent Owner”)
Disposition: Completed August 2025

PUBLICATIONS

1. “Bit Error Rate Performance of a DS/DPSK Spread Spectrum Receiver”, S.H. Goldberg and R.A. Iltis, Proceedings of MILCOM, 1985;
2. “Joint Interference Rejection / Channel Equalization in DS Spread Spectrum Using the CMA Equalizer and Maximum Likelihood Techniques”, R.A. Iltis and S.H. Goldberg, Proceedings of MILCOM, 1987;
3. “PN Code Synchronization Effects on Narrowband Interference Rejection in a Direct-Sequence Spread Spectrum Receiver,” R.A. Iltis and S.H. Goldberg, IEEE Transactions on Communications, 1988;
4. “A single processor packet radio modem for land mobile vehicle tracking applications,” G. Kremer, J. MacKnight, R. Lao, and S. Goldberg, Signals, Systems and Computers, 1994, 1994 Conference Record of the Twenty-Eighth Asilomar Conference;
5. “Separation and bearing estimation of co-channel signals,” B.J. Sublett, R.P. Gooch, S.H. Goldberg, Proceedings of MILCOM 1989;
6. “A DS spread spectrum RAKE receiver with narrowband interference rejection capability: operation in fading channels,” R.A. Iltis, and S.H. Goldberg, S.H. Proceedings of MILCOM 1989

EDUCATION

Ph.D.E.E., Dept. of Electrical and Computer Engineering, University of California, Santa Barbara, CA, 1988

STEVEN H. GOLDBERG

Dissertation Subject Area: Signal Processing for Broadband Communications; strong background in adaptive filtering, communications systems architectures, and statistical signal processing

M.S.E.E., B.S.E.E., Washington University, Saint Louis, Missouri, 1975, 1980

Major areas of study included RF design and communications theory

PATENTS

<u>Patent</u>	<u>Date</u>	<u>Description</u>
5,742,509	4/21/1998	Personal tracking system integrated with base station
4,410,949	10/18/1983	Controller for fuel dispenser

ACTIVITIES - PERSONAL

- Advisor, Alcatraz.ai, Palo Alto, CA; AI-based Security Access Control; January 2018-Present
- Advisor, Bruviti, Campbell, CA; AI-based S/W for Enterprise Industrial Maintenance/Triage; March 2020-Present
- Advisor, Accern, New York, NY; AI-based Enterprise Support; September 2020 - December, 2024
- Board Member, Sidework (fka Backbar), San Diego, CA, Representing DYDX Capital, 2022-Present
- Board Member, Growers Edge, Johnston, IA, Representing DYDX Capital, 2022- December 2024
- Board Member, CropX, Netanya, Israel, Representing DYDX Capital, 2022- February, 2025

STEVEN H. GOLDBERG

- Board Observer, Taranis, Aviv-Yafo, Israel, Representing DYDX Capital, 2022-February, 2025
- Independent Board Member; Chairman, Compensation Committee; Solid Power (NASDAQ:SLDP): Louisville, Colo.; Sept. 2019 – Present
- Independent Board Member, Savari Networks, Santa Clara, CA; April 2016- December 2020
- Venture Partner, Fusion Fund, Palo Alto, California; June 2020 – August 2021
- Engineering Consultant, Hi Fidelity Genetics, Durham, N.C.; September 2020 – September 2021
- Mentor, Silicon Valley Forum International Programs; 2018-2019
- Board Observer/Board Member/Past Chairman; SVForum, January 2014-May 2018
- Dean's Executive Professor, Santa Clara University, Leavey School of Business, Fall 2015
- National Judge, Ernst and Young 2013/2014/2015 Entrepreneur of the Year Award
- National Judge, VCIC, 2015 (Global MBA student VC competition)
- National Judge, FLoW, 2015 (DOE sponsored Cleantech competition)
- Life Senior Member IEEE; 1994 President IEEE Santa Clara Valley Communications Society
- Adjunct Professor, Electrical Engineering Dept; Santa Clara University, 1990
- Visiting Faculty, Elec. Eng. Dept.; U.C. Santa Barbara, 1985
- Lifetime CA Community College Instructor Credential in Engineering
- Amateur Radio Extra Class License WQ6L
- German language proficiency
- U.S. Soccer Federation Referee; NISOA/NCAA Soccer Referee
- 1996 U.S. Figure Skating Association Masters Pairs Champion, Lake Placid, New York.
- Married (Monica), Two children (Aren, 31 and Jennifer, 28)