

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BMW OF NORTH AMERICA, LLC,

Petitioner,

v.

NORTHSTAR SYSTEMS LLC,

Patent Owner.

Case No. IPR2023-00934

U.S. Patent No. 8,478,527

DECLARATION OF CRAIG ROSENBERG, PH.D.

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I. INTRODUCTION

1. I have been retained by BMW of North America, LLC (“BMW NA” or “Petitioner”) as an independent expert consultant in this proceeding before the United States Patent and Trademark Office.

2. I am over 21 years of age and, if I am called upon to do so, I would be competent to testify as to the matters set forth herein.

3. My compensation is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of any proceeding.

4. I understand that this proceeding involves U.S. Patent No. 8,478,527 (“the ’527 patent,” attached as Ex. 1001). The application for the ’527 patent was filed on May 8, 2008, as U.S. Patent Application No. 13/135,431 (“the ’431 application”). The ’431 application issued as the ’527 patent on July 2, 2013.

5. I have been asked by Petitioner to provide my opinion whether the claims of the ’527 patent would have been obvious to a person of ordinary skill in the art at the time of the earliest claimed priority date of the ’527 patent. In performing my analysis, I have been asked to assume that the priority date is May 8, 2008. My opinions are set forth below.

6. Throughout this declaration, I refer to specific pages, figures, and/or line numbers of various exhibits. These citations are illustrative and are not

intended to suggest that they are the only support for the propositions for which they are cited.

II. QUALIFICATIONS

7. I summarize my educational background, work experience, and other relevant qualifications relevant to the '527 patent below. Additional details can be found in my curriculum vitae, which is attached as Ex. 1004.

8. I believe I am qualified to serve as a technical expert in this proceeding based on my educational and work experience, including my 30+ years of experience in designing, developing, and deploying software systems across a wide variety of application areas, including defense and space, healthcare, entertainment, communications, engineering, geolocation utilizing my background in human factors, user interface and user interaction design, human-computer interaction, and software engineering from 1988 through today.

9. This declaration sets forth my opinions, which I formed based on my study of the evidence; my understanding as an expert in the field; and my training, education, research, knowledge, and personal and professional experience. All of my opinions stated in this declaration are based on my own personal knowledge, expertise, training, education, and professional judgment. In forming my opinions, I have relied on my knowledge and experience in human factors, user interface

design, user interaction design, human-computer interaction, and software engineering.

10. If I am called upon to do so, I would be competent to testify to the matters set forth herein. My qualifications to testify about the '527 patent and the relevant technology are outlined in my curriculum vitae and this section of this report.

11. I understand that a copy of my current curriculum vitae is provided for this proceeding as Ex. 1004.

12. I believe I am qualified to serve as a technical expert in this proceeding based on my educational and work experience, including my 30+ years of experience in designing, developing, and deploying software systems across a wide variety of application areas, including defense and space, healthcare, entertainment, communications, engineering, and geolocation utilizing my background in human factors, user interface and user interaction design, human-computer interaction, and software engineering from 1988 through today.

13. I graduated from the University of Washington in 1988 with a Bachelor of Science in Industrial Engineering. After graduation, I continued my studies at the University of Washington College of Engineering. In 1990, I obtained a Master of Science degree in Human Factors. Human Factors is an engineering discipline that studies the design of products, processes, equipment,

and systems to work more efficiently with humans. Human factors are concerned with reducing human error, increasing productivity and efficiency, and enhancing safety and comfort with a specific focus on the interactions and interfaces between humans and the products, processes, or systems with which they interact. In 1994, I graduated with a Doctor of Philosophy in Human Factors, focusing on advanced interface design. My Bachelor of Science, Master of Science, and Doctor of Philosophy degrees were all obtained at the University of Washington College of Engineering.

14. During my doctoral studies, I worked as an Associate Assistant Human Factors Professor at the University of Washington Industrial Engineering Department. My duties included teaching, writing research proposals, designing and conducting funded human factors experiments for the National Science Foundation, and hiring and supervising students. While studying at the University of Washington, I also worked as a human factors researcher. I designed and performed advanced human factors experiments relating to virtual environments and interface design, stereoscopic displays, and advanced visualization research, which the National Science Foundation funded. My duties included user interface design, systems design, software development, graphics programming, experimental design, and hardware and software interfacing.

15. I have published twenty-one research papers in professional journals and proceedings in user interface design, computer graphics, and spatial, stereographic, and auditory display design. I also authored a book chapter on augmented reality displays in the book “Virtual Environments and Advanced Interface Design” (Oxford University Press, 1995). In addition, I created one of the first virtual spatial musical instruments called the MIDIBIRD that utilized the MIDI protocol, two six-dimensional spatial trackers, a music synthesizer, and a computer graphics workstation to create an advanced and novel musical instrument.

16. For the past 21 years, I have been a consultant for Global Technica, Sunny Day Software, Stanley Associates, Tchrizon, CDI Corporation, and the Barr Group. In this capacity, I have provided advanced engineering services for many companies.

17. I consulted for the Boeing Company for 15 years as a senior human factors engineer, user interface designer, and software architect for various advanced commercial and military programs. Many of the projects that I was involved with at Boeing involved advanced software development, user interface design, agent-based software, and modeling and simulations in the areas of missile defense, homeland security, battle command management, computer-aided design, networking and communications, air traffic control, location-based services, and

Unmanned Aerial Vehicle (“UAV”) command and control. Additionally, I was the lead system architect developing advanced air traffic controller workstations and air traffic control analysis applications, toolsets, and trade study simulations for Boeing Air Traffic Management.

18. I was also the architect of the Boeing Human Agent Model. The Boeing Human Agent Model is an advanced model for the simulation of human sensory, cognitive, and motor performance as applied to the roles of air traffic controllers, pilots, and UAV operators. In another project, I was the lead human factors engineer and user interface designer for Boeing’s primary vector and raster computer-aided drafting and editing system that produces the maintenance manuals, shop floor illustrations, and service bulletins for aircraft produced by the Boeing Commercial Aircraft Company. Additional responsibilities in my time as a consultant include system engineering, requirements analysis, functional specification, use case development, user stories, application prototyping, modeling and simulation, object-oriented software architecture, graphical user interface analysis, and design, as well as UML, C++, C#, and Java software development.

19. In 1995 and 1996, I was hired as the lead human factors engineer and user interface designer for the first two-way pager produced by AT&T. Before this technology, individuals could receive pages but could not respond utilizing their

pager. This new technology allowed users to use a small handheld device to receive and send canned or custom text messages, access and update an address book, and access and update a personal calendar. This high-profile project involved designing the entire feature set, user interface/user interaction design and specification, and all graphical design standards.

20. From 1999 to 2001, I was the lead human factors engineer and user interface designer for a company called Eyematic Interfaces, where I was responsible for all user interface design and development activities associated with real-time mobile handheld 3D facial tracking, animation, avatar creation, and editing software for a product for Mattel. My work involved user interface design, human factors analysis, requirements gathering and analysis, and functional specifications.

21. I was the lead user interface designer for a company called ObjectSpeed, which developed a portable handheld telephone for use in homes and businesses with many of the same capabilities we take for granted in mobile cellular phones. This portable multifunction device supports voice, email, chat, video conferencing, Internet radio, streaming media, Microsoft Outlook integration, photo taking, sharing, etc. The ObjectSpeed device was specifically designed and developed as a portable handheld device.

22. I was the lead user interface designer for Ahaza, which was building IPv6 routers. I designed the user interfaces to configure and control these advanced network hardware devices. My responsibilities included requirements analysis, functional specification, user interface design, user experience design, and human factors analysis.

23. I am the founder, inventor, user interface designer, and software architect of WhereWuz. WhereWuz is a company that produces advanced mobile software running on GPS-enabled smartphones and handheld devices. WhereWuz allows users to record exactly where they have been and query this data for subsequent retrieval based on time or location. WhereWuz was specifically designed and developed to run on small handheld devices.

24. I am the co-founder of a medical technology company called Healium. Healium developed advanced wearable and handheld user interface technology to allow physicians to interact more effectively with electronic medical records.

25. I am the co-founder of a medical technology company called StratoScientific. StratoScientific is developing an innovative case for a smartphone that turns a standard handheld smartphone into a full-featured digital stethoscope that incorporates visualization and machine learning for telemedicine and automated diagnosis.

26. I designed and developed a large software project for Disney World called xVR that allowed the operational employees of Disney World to utilize a handheld device to view the current and historical status of all of the guests of Disney World within multiple attractions and one of their restaurants. The application could run in a real-time/live mode where it would display data collected from sensors that showed the location and status of all guests within the attraction; the application could also be run in a fast-time/simulated mode. The application was developed on a laptop computer and designed to run on various devices, including laptops, personal computers, smartphones, and tablets.

27. I have received several awards for my engineering work relating to interface design, computer graphics, and the design of spatial, stereographic, and auditory displays, including a \$10,000 scholarship from the I/ITSEC for advancing the field of interactive computer graphics for flight simulation and a Link Foundation award for furthering the field of flight simulation and virtual interface design. I have also created computer graphic illustrations for several popular book covers and animations for a movie produced by MIRAMAR.

28. More information about my educational and professional background can be found in my curriculum vitae, Ex. 1004.

29. The combination of my education, research, training, and work experience in software development, human factors, user interface design, user

interaction design, and human-computer interaction enables me to provide analysis and opinions on the subject matter of this litigation.

30. Below is a list of my experiencing testifying during the last five years.

- *Foursquare Labs v. Silver State Intellectual Technologies*, IPR2014-00159
- *Silver State Intellectual Technologies v. Garmin*, District of Nevada, 2:11-cv-01578-PMP-PAL
- *Select Retrieval v. Overstock*, District of Delaware, 1:11-cv-00812-RGA
- *Location Labs v. LocatioNet*, IPR2014-00199
- *Intellectual Ventures v. Google*, IPR2014-00787
- *FTC v. Amazon*, 2:14-cv-01038-JCC (Eastern District of Texas)
- *Valmont v. Lindsay*, IPR2015-01039
- *Ford Class Action*, 13-cv-3072-EMC (N.D. California)
- *BeUbiq v. Curtis Consulting Group*, 1-14-cv-270691 (Santa Clara, California)
- *Edulog v. DML*, DV-06-1072 (Montana Fourth Judicial Court, Missoula)
- *GEMSA v. Alibaba*, 6:16-cv-00098 (M.D. Florida)
- *Level One Technologies v. Penske Truck Leasing*, 4:14-cv-1305-RWS (E.D. Missouri)
- *Title Source v. HouseCanary*, 016-CI-06300 (Texas Dist. (state court), Bexar Co.)
- *Sony v. Arris, Pace*, 337-TA-1049 (International Trade Commission case)

- *Tatsoft v. InduSoft*, D-1-GN-14-001853 (Texas state court case)
- *Courthouse News Service v. Yamasaki*, 8:17-cv-00126 AG (KESx) (C.D. Cal.)
- *Princeton Digital Image Corp. v. Konami*, 12-1461-LPS-CJB (D. Del)
- *FCA US LLC Monostable Electronic Gearshift Litigation*, 16-md-02744 (E.D. Michigan)
- *Barbaro Technologies, LLC v. Niantic, Inc.*, 3:18-cv-02955-RS (N.D. California)
- *Blackberry Limited v. Facebook, Inc.*, 2:18-cv-01844 (C.D. California)
- *Blackberry Limited v. Snap, Inc.*, 2:18-cv-02693 (C.D. California)
- *Saracen LLC v. Marginal Unit, Inc.*, 4:18-cv-3714 (S.D. Texas)
- *Fidelity Information Services, LLC v. Groove Digital, Inc.*, IPR2019-00050
- *U.S. Oil & Refining Co. v. City of Tacoma*, 18-2-07232-3 (Superior Court of Washington)
- *X One v. Uber*, 5:16-CV-06050-LHK (N.D. California, San Jose Div.)
- *Kipu Systems, LLC v. ZenCharts, LLC*, 1:17-cv-24733-KMW-EGT (S.D. Florida)
- *Maxell, LTD. v. Apple Inc.*, 5:19-cv-0036-RWS (E.D. Texas)
- *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 3:15-cv-00164-J-IOMCR (M.D. Florida)
- *Universal Electronics Inc. v. Roku, Inc.*, 337-TA-1200 (I.T.C)
- *Opal Labs, Inc. v. Sprinklr, Inc.*, 3:18-cv-01192-HZ (Dist. of Oregon, Portland Div.)

- *ExactLogix, Inc. d/b/a AccuLynx.com v. JobProgress, LLC*, 3:18-cv-50213 (Northern Dist. of Illinois, Western Div.)
- *Samsung Electronics and Apple, Inc. v. Neonode Smartphone LLC*, IPR2021-00145
- *District of Columbia v. Instacart*, 2020-CA-003777-B
- *Google LLC v. Neonode Smartphone LLC*, IPR2021-00141

III. MATERIALS CONSIDERED

31. In forming my opinions, I have reviewed the following documents, and any other document cited in this declaration:

Exhibit	Description
Ex. 1001	U.S. Patent No. 8,478,527 (“the ’527 patent”)
Ex. 1002	File History of U.S. Patent No. 8,478,527
Ex. 1003	Declaration of Dr. Craig Rosenberg
Ex. 1004	Curriculum Vitae of Dr. Craig Rosenberg
Ex. 1005	U.S. Patent No. 9,607,092 (“ <i>Kreitler</i> ”)
Ex. 1006	U.S. Patent No. 6,697,734 (“ <i>Suomela</i> ”)
Ex. 1007	U.S. Patent No. 6,480,783 (“ <i>Myr</i> ”)
Ex. 1008	U.S. Patent No. 8,099,109 (“ <i>Altman</i> ”)
Ex. 1009	U.S. Patent No. 7,158,878 (“ <i>Rasmussen</i> ”)
Ex. 1010	U.S. Patent App. Pub. No. 2007/0050129 (“ <i>Salmre</i> ”)

Ex. 1011	Garmin nüvi Personal Travel Assistant Quick Reference Guide (September 2005) <i>available at</i> https://pdf.crutchfieldonline.com/ImageBank/v20060207074000/Manuals/150/150NUVI350.PDF
Ex. 1012	Apple Reinvents the Phone with iPhone (January 9, 2007) <i>available at</i> https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/
Ex. 1013	GPS Goes Mainstream (December 26, 2007) <i>available at</i> https://www.npr.org/templates/story/story.php?storyId=17611103
Ex. 1014	GPS Mobile Phones to Hit the Masses in 2007 (January 25, 2007) <i>available at</i> https://www.esato.com/news/gps-mobile-phones-to-hit-the-masses-in-2007-1429
Ex. 1015	GPS-enabled Mobile Phone Invasion in 2007 (October 13, 2005) <i>available at</i> https://news.softpedia.com/news/GPS-enabled-Mobile-Phone-Invasion-in-2007-45361.shtml
Ex. 1016	U.S. Patent No. 6,252,544 (“ <i>Hoffberg</i> ”)
Ex. 1017	WIPO Publication No. 2009/055501 (“ <i>Holden</i> ”)
Ex. 1018	File History of U.S. Patent No. 8,032, 297
Ex. 1019	U.S. Patent No. 8,165,808 (“ <i>Scheibe</i> ”)
Ex. 1020	U.S. Patent No. 7,395,152 (“ <i>Watanabe</i> ”)
Ex. 1021	Accessibility of State and Local Government Websites to People with Disabilities (June 2003) <i>available at</i> https://archive.ada.gov/websites2_scrn.pdf
Ex. 1022	U.S. Patent No. 6,424,357 (“ <i>Frulla</i> ”)
Ex. 1023	Voice Command – CodeProject (Sept. 26, 2005) <i>available at</i> https://www.codeproject.com/Articles/11771/Voice-Command

32. I have also relied on my education, experience, research, training, and knowledge in the relevant art, and my understanding of any applicable legal principles described in this declaration.

33. All of the opinions contained in this declaration are based on the documents I reviewed and my knowledge and professional judgment. My opinions have also been guided by my understanding of how a person of ordinary skill in the art would have understood the claims of the '527 patent at the time of the alleged invention. For the purposes of this declaration, I have been asked to assume that the date of the alleged invention is the earliest claimed priority date: May 8, 2008.

34. I reserve the right to supplement and amend any of my opinions in this declaration based on documents, testimony, and other information that becomes available to me after the date of this declaration.

IV. LEGAL STANDARDS

35. For the purposes of this declaration, I have been asked to opine only on issues regarding obviousness under 35 U.S.C. § 103. I have been informed of the following legal standards, which I have applied in forming my opinions.

36. I have been asked to provide my opinions as to whether the cited prior art teaches or renders obvious the elements of claims 1-30 of the '527 patent from the perspective of a person of ordinary skill in the art at the '527 patent's priority date in 2008, as described in more detail below.

37. For the purposes of this declaration, I have been informed and understand certain aspects of the law as it relates to my opinions.

38. I have been advised and understand that there are two ways in which prior art may render a patent claim unpatentable. First, the prior art can “anticipate” the claim. Second, the prior art can make the claim “obvious” to a person of ordinary skill in the art. I understand that for an invention claimed in a patent to be patentable, it must not be anticipated and must not be obvious based on what was known before the invention was made.

39. I have been advised and understand the information used to evaluate whether an invention was new and not obvious when made is generally referred to as “prior art.” I understand that prior art includes patents and printed publications that existed before the earliest filing date of the patent (which I have been informed is called the “effective filing date”). I have been informed and understand that a patent or published patent application is prior art if it was filed before the effective filing date of the claimed invention and that a printed publication is prior art if it was publicly available before the effective filing date.

40. I have been advised and understand that a dependent claim is a patent claim that refers back to another patent claim. I have been informed and understand that a dependent claim includes all of the limitations of the claim to which it refers.

41. I have been advised and understand that a patent claim may be invalid as obvious under 35 U.S.C. § 103 if the differences between the subject matter

claimed and the prior art are such that the claimed subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. I have also been advised that several factual inquiries underlie a determination of obviousness. These inquiries include (1) the scope and content of the prior art, (2) the level of ordinary skill in the field of the invention, (3) the differences between the claimed invention and the prior art, and (4) any objective evidence of non-obviousness (which I have been informed may also be called “secondary considerations”).

42. I have also been advised and understand that, where a party alleges obviousness based on a combination of references, that party must identify a reason why a person skilled in the art would have been motivated to combine the asserted references in the manner recited in the claims and to explain why one skilled in the art would have had a reasonable expectation of success in making such combinations.

43. I have been advised and understand that the law permits the application of “common sense” in examining whether a claimed invention would have been obvious to a person skilled in the art. For example, I have been advised that combining familiar elements according to known methods and in a predictable way may suggest obviousness when such a combination would yield nothing more than predictable results. I understand, however, that a claim is not obvious merely

because every claim element is disclosed in the prior art and that a party asserting obviousness must still provide a specific motivation to combine the references as recited in the claims and explain why one would have reasonably expected to succeed in doing so.

44. I have been advised and understand that two references are considered to be in the same field of art when the references are either (1) in the same field of endeavor, regardless of the problems they address, or (2) reasonably pertinent to the particular problem being solved by the inventor in his patent.

45. I am not aware of any evidence of secondary considerations that would support a determination of non-obviousness of the claimed subject matter in the '527 patent.

46. I have been informed that in *inter partes* review proceedings, such as this one, the party challenging the patent bears the burden of proving unpatentability by a preponderance of the evidence. I understand that a preponderance of the evidence means “more likely than not.”

V. PERSON OF ORDINARY SKILL IN THE ART

47. In rendering the opinions set forth in this declaration, I have been asked to consider the '527 patent's claims and the prior art through the eyes of a person of ordinary skill in the art. I considered factors such as the educational level and years of experience of those working in the pertinent art, the types of problems

encountered in the art, the teachings of the prior art, patents and publications of other persons or companies, and the sophistication of the technology.

48. I have been instructed to assume a person of ordinary skill in the art is not a specific real individual, but rather a hypothetical individual having the qualities reflected by the factors discussed above.

49. Taking these factors into consideration, it is my opinion that a person of ordinary skill in the art of the '527 patent as of its filing date would have been someone knowledgeable in computer systems and graphical user interfaces. In my opinion, that person would have at least a Bachelor's Degree in Computer or Electrical Engineering or an equivalent engineering discipline, and approximately three years of experience in telecommunications, navigation, or geolocation systems. Additional education could substitute for professional experience, and significant work experience could substitute for formal education.

50. By May 8, 2008, I was at least a person of ordinary skill in the art, holding a Ph.D. in Human Factors from the University of Washington (obtained in 1994). In addition, I was continuously working in the field of Human Factors and Interface design from 1994-2013, working on a large number of projects for Socha Computing, AT&T, Boeing, Ahaza, Object Speed, PlaceFull, Eyematic, and Disney. My work involved user interface design, human factors analysis, software

architecture, software development, requirements gathering and analysis, and functional specifications.

51. In this declaration, and for all of my opinions herein, I have applied the knowledge of a person of ordinary skill in the art as of May 8, 2008.

VI. CLAIM CONSTRUCTION

52. I understand that in *inter partes* review, the U.S. Patent and Trademark Office applies the broadest reasonable interpretation of the claims in view of the specification. I have been informed that the broadest reasonable interpretation, however, must be construed in light of the specification. I have also been informed that, in the absence of an intent to use a specific meaning in the specification, the broadest reasonable interpretation is the plain meaning of the term.

53. Based on my review of these materials and my personal knowledge and experience, I have considered the plain and ordinary meaning of each term of the '527 patent as it would have been understood by one skilled in the art as of May 8, 2008.

54. In Sections VII-XV, I apply this plain and ordinary meaning.

VII. BACKGROUND AND TECHNOLOGY OF THE '527 PATENT

A. Overview of the '527 Patent

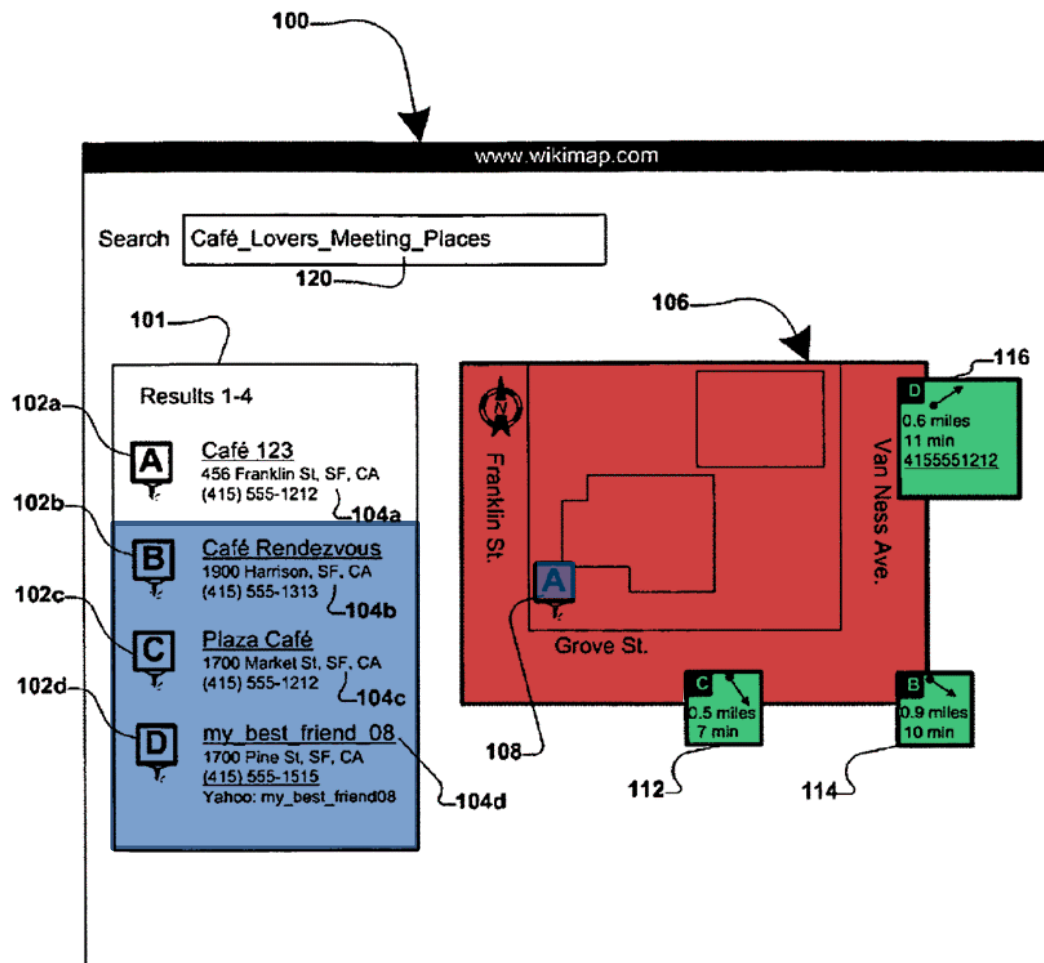
55. The '527 patent was filed on July 5, 2011, and claims priority to May 8, 2008.

56. The '527 patent claims “displaying information associated with a map-objects ... outside the visible area of a map.” The '527 patent, 1:23-27. The claimed '527 method comprises five primary steps:

1. Displaying a map on the display of an electronic device;
2. Determining an off-map POI;
3. Displaying a selectable object indicating the off-map POI's location;
4. Detecting a change in position or user input; and
5. Altering the display.

57. In the '527 patent, a device's map-display application displays a map area. The '527 patent, 3:31-34. The map-display application identifies MOs, or specific locations on the map, such as those resulting from a user search. The '527 patent, 8:47-54, 8:60-63. The map-display application then determines whether the MOs are within the visible map area. The '527 patent, 8:66-9:7. If **an MO is not within the visible bounds of the map**, the application creates and displays **an OVI** to reference the MO. The '527 patent, 9:15-18. The **OVI** is positioned on the **visible map area's** periphery and includes information such as the direction,

distance, and travel-time. The '527 patent, 10:24-28, 10:45-47, Figs. 1, 3B, 6A, 6B, 8A.



The '527 patent, Fig. 1¹.

¹ Annotations throughout added unless noted.

58. A user selects an OVI, and, in response, mapping-media content associated with the corresponding MO is displayed. The '527 patent, 10:57-61, 11:9-23, Fig. 5B.

59. Issued independent claim 1 recites:

[1a] obtaining a MO from a mapping service;

[1b] determining that coordinates of the MO are not within the selected area of the electronic map;

[1c] computing distance and travel-related information to the MO;

[1d] displaying an OVI containing the distance and travel-related information;

[1e] receiving user input selecting the OVI;

[1f] retrieving mapping-media content associated with the selected OVI; and

[1g] displaying the mapping-media content.

VIII. GROUND 1: CLAIMS 1-4, 7, 10-15, AND 17-19 ARE OBVIOUS OVER *KREITLER* IN VIEW OF *SUOMELA*

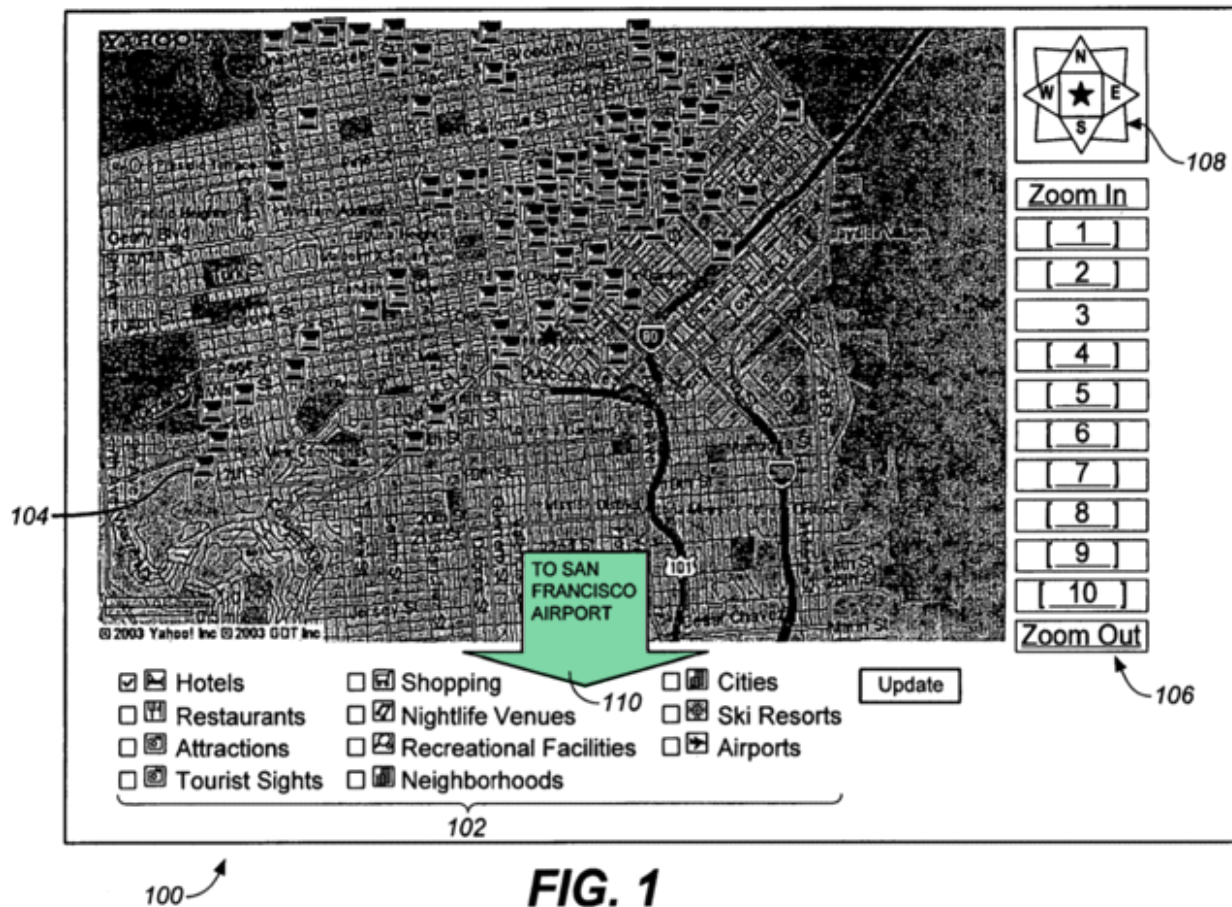
A. Overview of the Combination and Motivation to Combine

60. As explained above, the claimed method includes five core steps:

- 1) Displaying a map on the display of an electronic device;
- 2) Determining an off-map location of interest;
- 3) Displaying a selectable object indicating the location of the off-map location;

- 4) Detecting a change in position or user input; and
- 5) Altering the display, e.g., displaying mapping-media content related to the selected object.

61. *Kreitler* teaches most of the independent claims, including all five primary steps. Like the '527 patent, *Kreitler* discloses presenting POIs on a map and allowing a user to obtain detailed information. *Kreitler*, 3:33-36. *Kreitler* “can display special (distinctive) icons for items that are not positioned on the map but nonetheless may be of interest” *Kreitler*, 6:43-49.

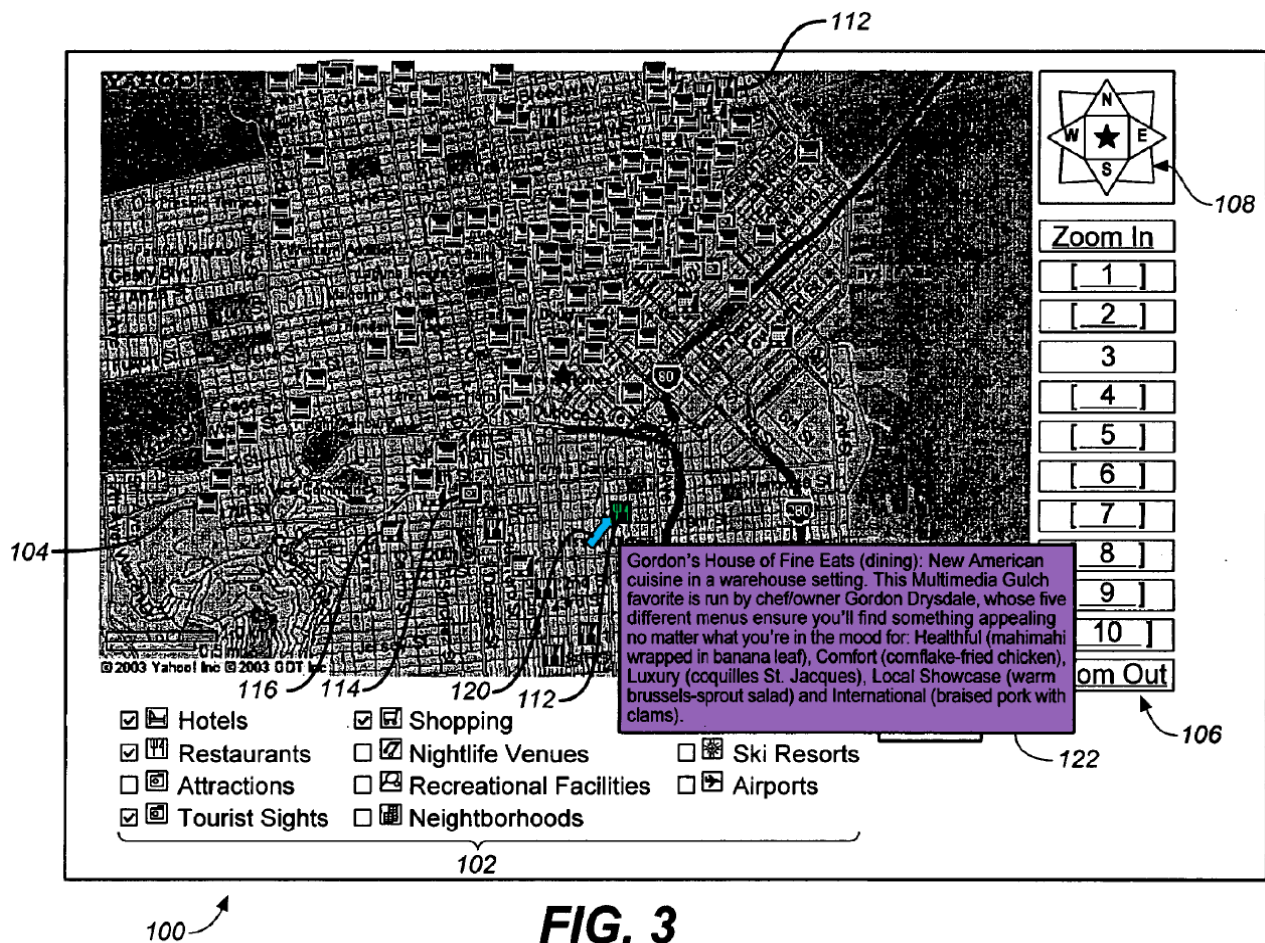


Kreitler, Fig. 1.

62. A user interacts by clicking the icon to “jump to a higher zoom level and re-center the map around the center of the icon,” (*Kreitler*, 6:14-43), or the item represented by the icon, if the icon is a special icon, (*Kreitler*, 6:58-60).

Furthermore, “hovering the cursor ... over an icon allows the user to view a summarization of pertinent information about that item” in a summary box 122.

Kreitler, 6:14-18, Fig. 3.



Kreitler, Fig. 3.

63. While *Kreitler* does not expressly disclose (i) that the OVI contains distance-related information, (ii) that the electronic device is GPS-enabled, and (iii) object icons (i.e., icons in the object area) that are graphical representations of POIs not within the visible area of the map, *Suomela* does disclose these elements.

64. *Suomela* discloses displaying a map on a mobile device including “global positioning system (GPS) hardware 22.” *Suomela*, 2:14-15, 3:3-6. The displayed map has two areas—a detail area and an object area. *Suomela*, 2:1-5, Figs. 3, 4, 5, and 6. The detail area is “located in a substantially central portion of the map” and includes details, like street names and buildings, which allow a user to follow a route. *Suomela*, 2:1-13. The object area is “located in a peripheral portion of the map” and includes **objects representing geographic POIs**. *Suomela*, Abstract, 2:1-13. Objects are “shown in the object area in orientations related to the detail area.” *Suomela*, 2:5-6. **The objects** include indicators showing direction and distance from the center of the map to each object. *Suomela*, 4:34-56.

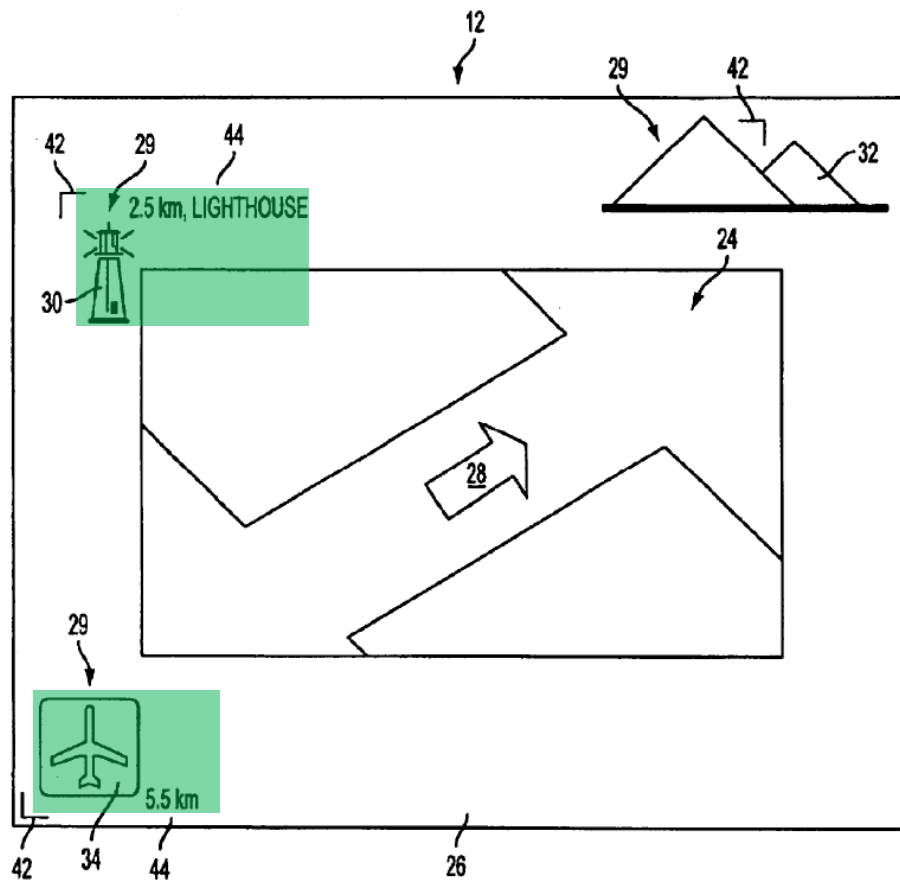


FIG. 5

Suomela, Fig. 5.

65. The '527 patent, *Kreitler*, and *Suomela* are all in the field of mapping on electronic devices. All three address the known problem of displaying information about MOs outside of the visible area, with *Kreitler* and *Suomela* disclosing known solutions, the combination of which yields predictable results. Therefore, it would have been obvious for a person of ordinary skill in the art to combine *Kreitler* and *Suomela* for a more effective and efficient navigation system showing POIs located outside of the visible map-area.

66. **First**, it is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include distance indicators, as taught by *Suomela*, within *Kreitler*'s special icons to provide a user the distance from a position within the selected map to off-map POIs referenced by the special icons.

67. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler*'s special icons to include distance information, as taught by *Suomela*, to provide the user with distance information without requiring the user to specifically request navigation to the off-map items of interest. In addition, a person of ordinary skill in the art would have been motivated to modify *Kreitler* to use the user's current location to select an area to display, as taught by *Suomela*. Such a modification would allow users to effortlessly identify the required travel distance to items of interest represented by the special icons and to orient themselves while "learning the layout of [a] new city." *Suomela*, 5:16-21.

68. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreitler* to include *Suomela*'s distance indicators. Such a modification would have required only routine skill in the art, as calculating and displaying distances on electronic maps from one location to another was common in the art before the date of the '527 patent. *Kreitler* itself already discloses calculating distance information to off-map locations of interest, (*Kreitler*, 7:5-19), and adding that information to the display

would have required only a modification of the graphical display within the skill of a person of ordinary skill in the art. Accordingly, displaying calculated distance information with *Kreitler*'s special icons would have implemented only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

69. **Second**, it is also my opinion that it would have been obvious to a person of ordinary skill in the art to improve *Kreitler* by allowing use of a mobile device with GPS capabilities, as taught by *Suomela*, to enable a user to easily and automatically track their location and identify places of interest. In my opinion, a person of ordinary skill in the art would have also found it obvious to include *Suomela*'s use of a user's current location to select the map area for display for the same reasons.

70. *Suomela* recognizes that navigational digital maps "typically take advantage of global positioning system (GPS) technology to show a user's current location on the digital map." *Suomela*, 1:28-30. The GPS technology "is able to continually update and monitor" the location of the user's device, and, therefore, the user can track the steps of a route between the user's current location and the desired destination. *Suomela*, 5:7-16.

71. Like *Suomela*, *Kreitler* discloses displaying an electronic map on a "mobile device including but not limited to a PDA or cellphone." *Kreitler*, 12:3-13.

In my opinion, a person of ordinary skill in the art would have been motivated to incorporate the mobile device with GPS capabilities, as taught by *Suomela*, in *Kreitler* to take advantage of the benefits of GPS, recognized by *Suomela*. The combination of *Kreitler* and *Suomela* would allow the user to obtain navigational information, not only between two location-based items, but also between the current location of a user and a location-based item of interest. In addition, the combination would allow users to monitor their current location as they travel along a route between two location-based items. Indeed, using a GPS in a mobile device to track current location was common well before the '527 patent, and the '527 patent does not purport to invent GPS navigation. For example, the Garmin nüvi Manual discloses a mapping system from September 2005 and mentions that “[t]he Global Positioning System (GPS) is operated by the United States government, which is solely responsible for its accuracy and maintenance.”

Ex. 1011, 11. In fact, “2007 was the year when the Global Positioning System finally went mainstream” and was “everywhere: in cars, cell phones and strapped onto the arms of joggers.” Ex. 1013, 1. Moreover, in the mobile industry, “[e]ighty-three million GPS-enabled handsets were shipped” in 2006 (Ex. 1014, 1), and Nokia introduced a GPS-enabled phone, the N95. Ex. 1015, 1. In addition, mobile communications devices were already comprised of GPS receivers and personal digital assistants with GPS receiver modules prior to the '527 patent.

Ex. 1016, 26:35-59, 32:60-33:24. Furthermore, client devices included GPS prior to the '527 patent. Ex. 1017, [0017].

72. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreitler* to include *Suomela*'s mobile device with GPS capabilities. Such a modification would have required only routine skill in the art, as displaying electronic maps and map items on mobile devices with GPS capabilities was common in the art before the date of the '527 patent. For example, the Garmin nüvi Manual discloses a mapping system from September 2005 and mentions that “[t]he Global Positioning System (GPS) is operated by the United States government, which is solely responsible for its accuracy and maintenance.” Ex. 1011, 11. In fact, “2007 was the year when the Global Positioning System finally went mainstream” and was “everywhere: in cars, cell phones and strapped onto the arms of joggers.” Ex. 1013, 1. Moreover, in the mobile industry, “[e]ighty-three million GPS-enabled handsets were shipped” in 2006 (Ex. 1014, 1), and Nokia introduced a GPS-enabled phone, the N95. Ex. 1015, 1. In addition, mobile communications devices were already comprised of GPS receivers and personal digital assistants with GPS receiver modules prior to the '527 patent. Ex. 1016, 26:35-59, 32:60-33:24. Furthermore, client devices included GPS prior to the '527 patent. Ex. 1017, [0017]. Accordingly, using a mobile device with GPS capabilities, as taught by *Suomela*, with *Kreitler* would

have implemented only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

73. **Third**, it is also my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include object icons, as taught by *Suomela*, with *Kreitler*'s special icons to orient a user "to a new city that is unfamiliar to him" by displaying graphical representations of the items of interest not within the visible area of the map. *Suomela*, 3:59-63, 4:62-5:21. Furthermore, such a modification would improve user experience by allowing a user to quickly determine the type of landmark or POI (e.g., lighthouse) referenced by *Kreitler*'s special icons.

74. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreitler* to include *Suomela*'s object icons. Such a modification would have required only routine skill in the art, as displaying icons that graphically represent landmarks on electronic maps was common in the art before the date of the '527 patent. *Kreitler* itself already discloses icons depicting landmarks that are within the visible map area. *Kreitler*, 5:10-13 ("For example, hotels are displayed by icons depicting a bed."); *see also Kreitler*, 6:60-62 (disclosing that any type of icon can be used for special icons). Altering *Kreitler*'s special icons to include graphical representations of corresponding landmarks would have required only a modification of the graphical

display within the skill of a person of ordinary skill in the art. Accordingly, incorporating icons that graphically represent off-map location-based items with *Kreitler*'s special icons would have implemented only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

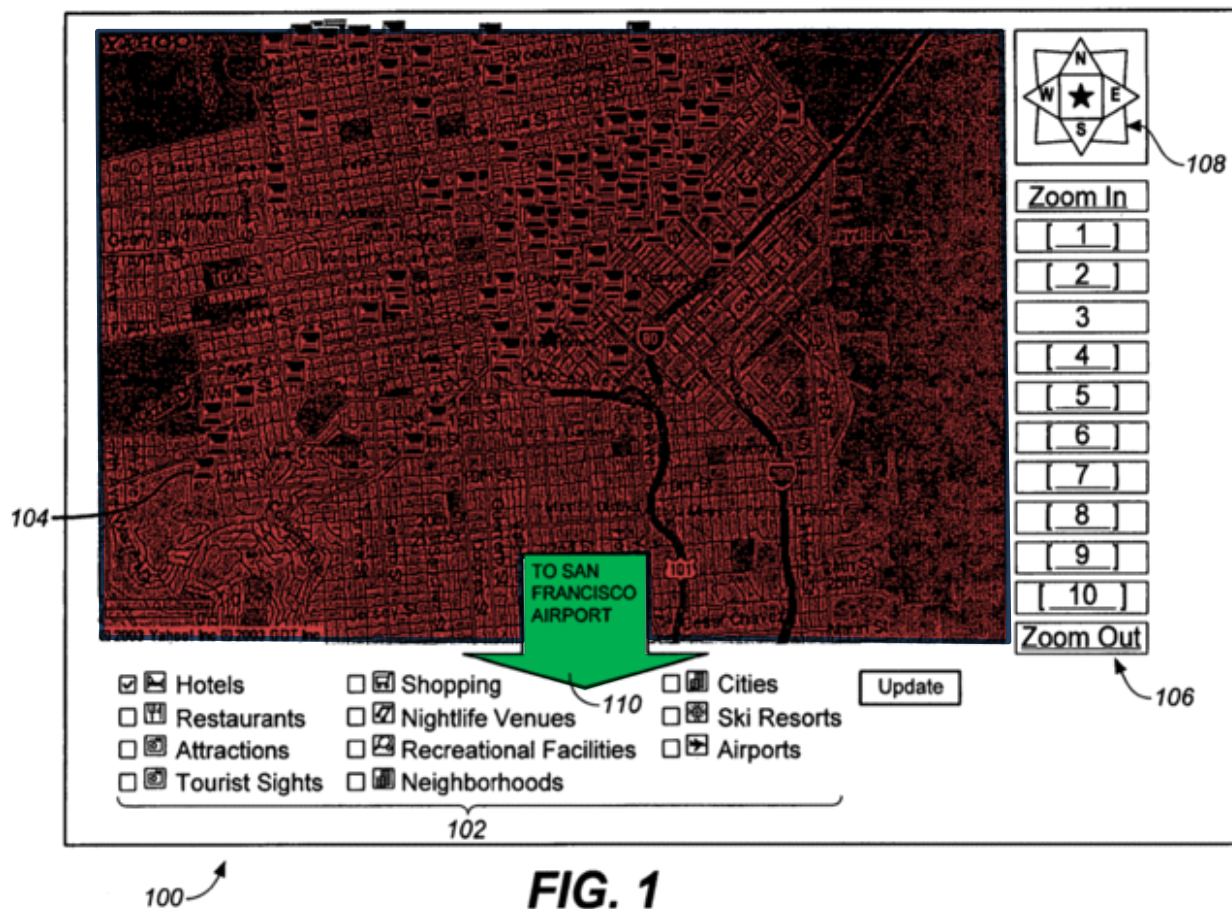
B. Independent Claims

1. Claim 1

- a. [1pre]: A method for displaying object vector indicators (“OVI”) and mapping-media content, referencing map-objects (“MO”) on an electronic map, comprising:**

75. In my opinion, *Kreitler* discloses [1pre] through displaying electronic maps including **special icons (OVIs)** identifying off-map POIs (MOs) and associated summary boxes showing information (mapping-media content).

76. *Kreitler* discloses displaying POIs (MOs) on electronic maps. *Kreitler*, 3:33-36, 12:3-12. POIs are objects or locations “that may be of interest to any person.” *Kreitler*, 3:37-43. Each POI is represented by an icon. *Kreitler*, 5:10-13. POIs positioned beyond the **visible map** are displayed using “**special (distinctive) icons**,” as illustrated below. *Kreitler*, 6:43-62.

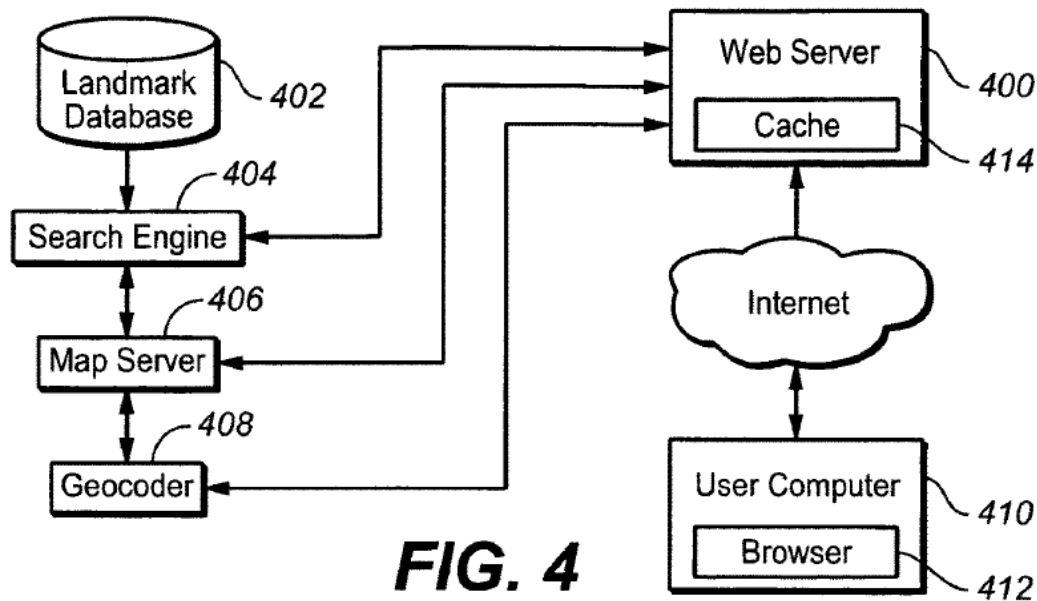


Kreitler, Fig. 1.

77. In my opinion, *Kreitler* also discloses **mapping-media content**. The '527 patent explains “information referenced by the OVI may include any visual media (e.g., diagram, photo, audio/video, an illustration, a wire-frame diagram etc.) associated with the MO referenced by the OVI,” such as “advertising by stores” or “photographs of [a] mall.” The '527 patent, 2:36-44. Like the '527 patent, *Kreitler* discloses that summary boxes for, e.g., a hotel, include “hotel name, address, room rate, or special offers ..., and perhaps an image.” *Kreitler*, 6:15-25, 14:11-13.

b. [1a]: obtaining a MO from a mapping service;

78. In my opinion, *Kreitler* teaches [1a] because *Kreitler* discloses a “system for providing interactive maps via the Internet” that includes the landmark database 402 in communication with map server 406, both of which are in communication with web server 400, which is in turn in communication with user computer 410 over the Internet. *Kreitler*, 10:25-11:8, 11:40-12:22, Fig. 4.



Kreitler, Fig. 4.

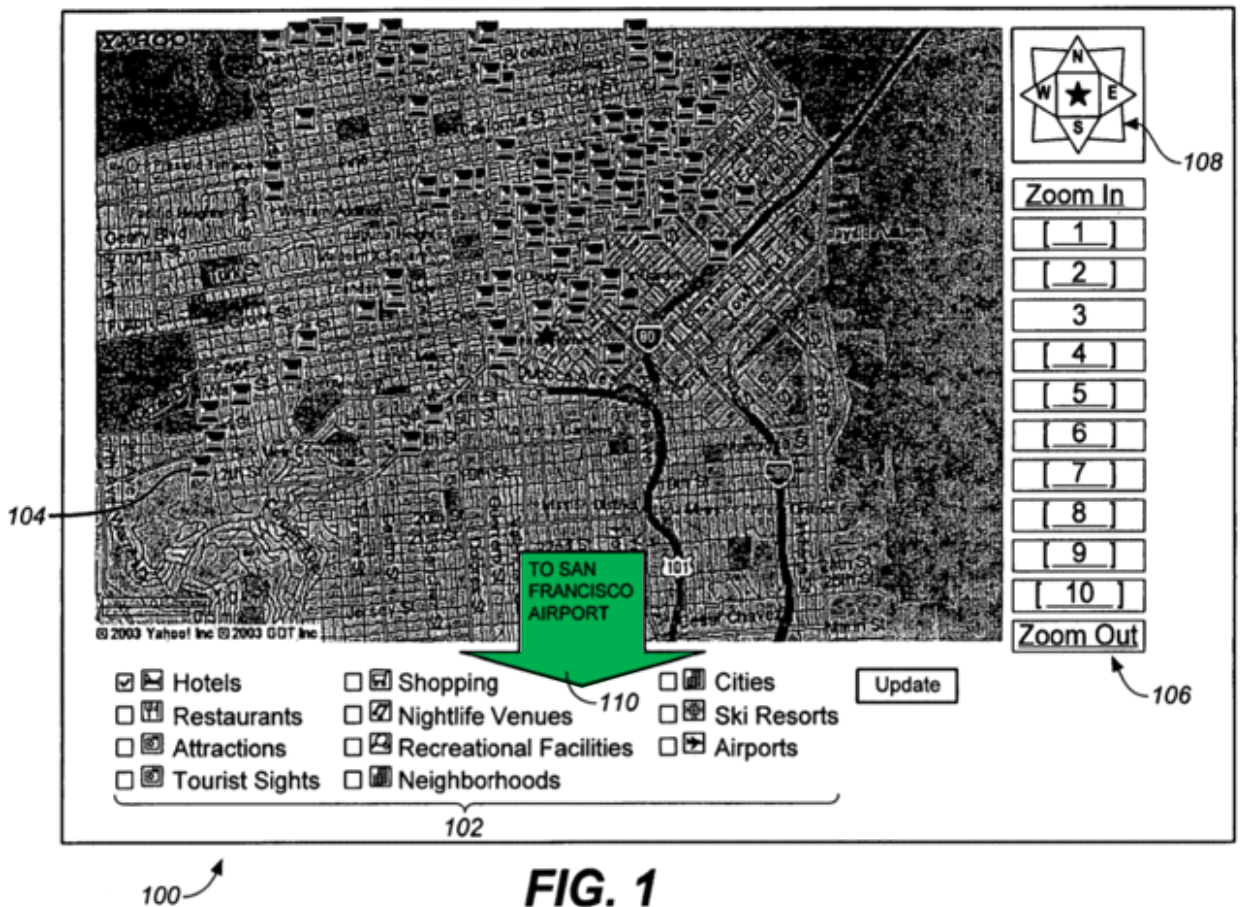
79. In my opinion, *Kreitler*’s “[c]ontent database 402 ... contains information about different kinds of items, for example, hotels, airports, [and] restaurants” (MOs). *Kreitler*, 10:65-11:8. In the same system as seen in Fig. 4, *Kreitler* also discloses “the map server 406 is one developed and used by Yahoo!

Maps,” and, together with the additional remote elements of Fig. 1, constitutes a mapping service. *Kreitler*, 10:27-32.

c. [1b]: determining that coordinates of the MO are not within a selected area of the electronic map;

80. In my opinion, *Kreitler* teaches [1b] by determining whether a POI is within the visible map and, if not, displaying special icons for the POI. *Kreitler*, Fig. 15, 15:48-16:17 (“a determination is made whether the item is located within the current radius of the center of the map”).

81. *Kreitler* “display[s] special (distinctive) icons for items not positioned on the map but nonetheless may be of interest to the user.” *Kreitler*, 6:43-45. Figure 1 displays special icon 110 corresponding to “San Francisco Airport,” which has been determined to be “to the south of the city” (outside of the selected map-area). *Kreitler*, Fig. 1, 6:50-55.



Kreitler, Fig. 1.

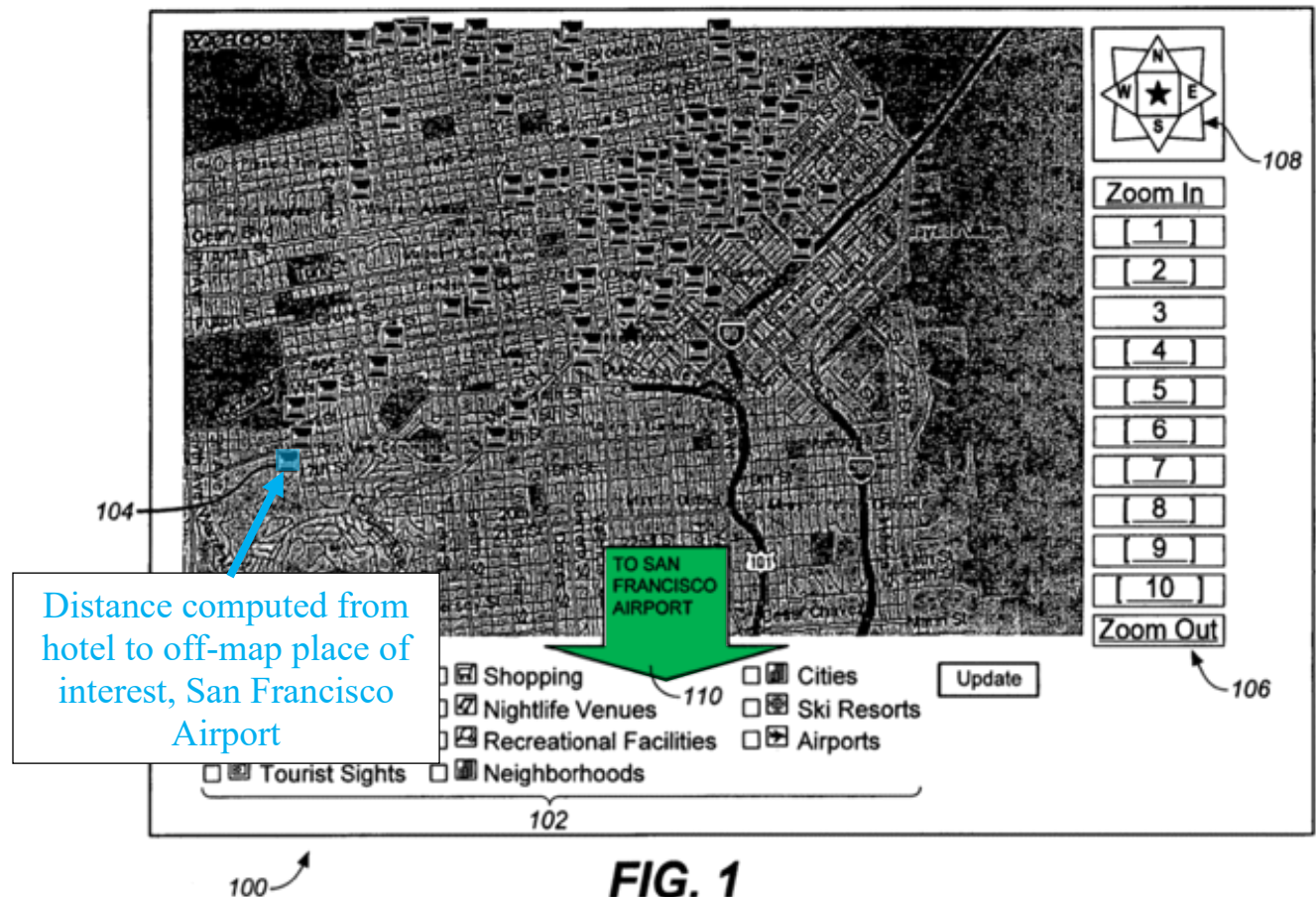
82. *Kreitler* “recognize[s] that this airport is close by (e.g., within 100 miles), but it doesn’t fit on the map, so the link or specific icon is displayed.”

Kreitler, 6:65-7:4.

d. [1c]: computing distance and travel-related information to the MO

83. In my opinion, *Kreitler* teaches [1c] via determining navigational information including distance and driving directions (distance and travel-related information) to an item of interest (MO).

84. *Kreitler* teaches that selecting hotel 104 “would allow the user to obtain the distance of other items [(MOs)] in relation to the selected hotel” *Kreitler*, Fig. 1, 5:36-41, 6:43-45, 7:5-31; the ’527 patent, 2:18-21 (distance and direction are “information”). *Kreitler* also discloses creating and displaying a **special icon (OVI)** indicating an **off-map MO** including the direction of the MO (travel-related information). *Kreitler*, 6:51-57; the ’527 patent, 2:18-21. Figure 1 shows a special icon referencing “San Francisco Airport” configured as “an arrow icon” “that points in the general direction of San Francisco Airport.” *Kreitler*, 6:51-57.

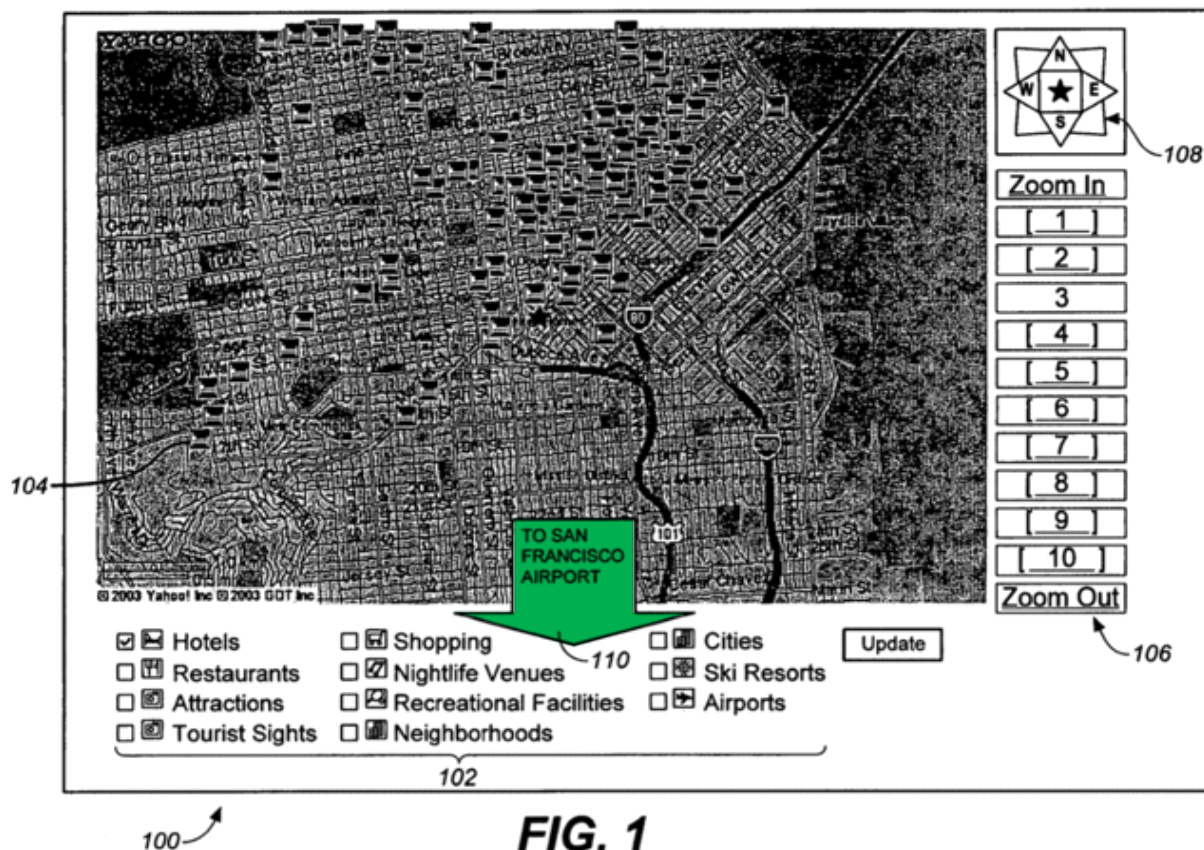


Kreitler, Fig. 1.

e. [1d]: displaying an OVI containing the distance and travel-related information;

85. In my opinion, *Kreitler/Suomela* renders obvious [1d] by displaying the **special icon** corresponding to “San Francisco Airport” at the computed location on the “south border” of the map, as shown below. *Kreitler*, Fig. 1, 6:50-55.

86. *Kreitler* teaches a **special icon (OVI)** indicating an **off-map MO** and “an arrow icon” “that points in [its] general direction” (travel-related information). *Kreitler*, Fig. 1, 6:51-57; the ’527 patent, 2:18-27.



Kreitler, Fig. 1.

87. In my opinion, *Kreitler* does not expressly disclose displaying an OVI with ***distance information*** but suggests it by computing distance and driving directions, as explained for [1c] (Section VIII.B.1.d). *Suomela* expressly discloses displaying both distance and travel-related information.

88. Like *Kreitler*, *Suomela* discloses “a digital map” including objects “in a peripheral portion” representing off-map locations, placed according to the direction to the off-map locations. *Suomela*, Abstract, Fig. 5, 2:1-15, 4:34-41.

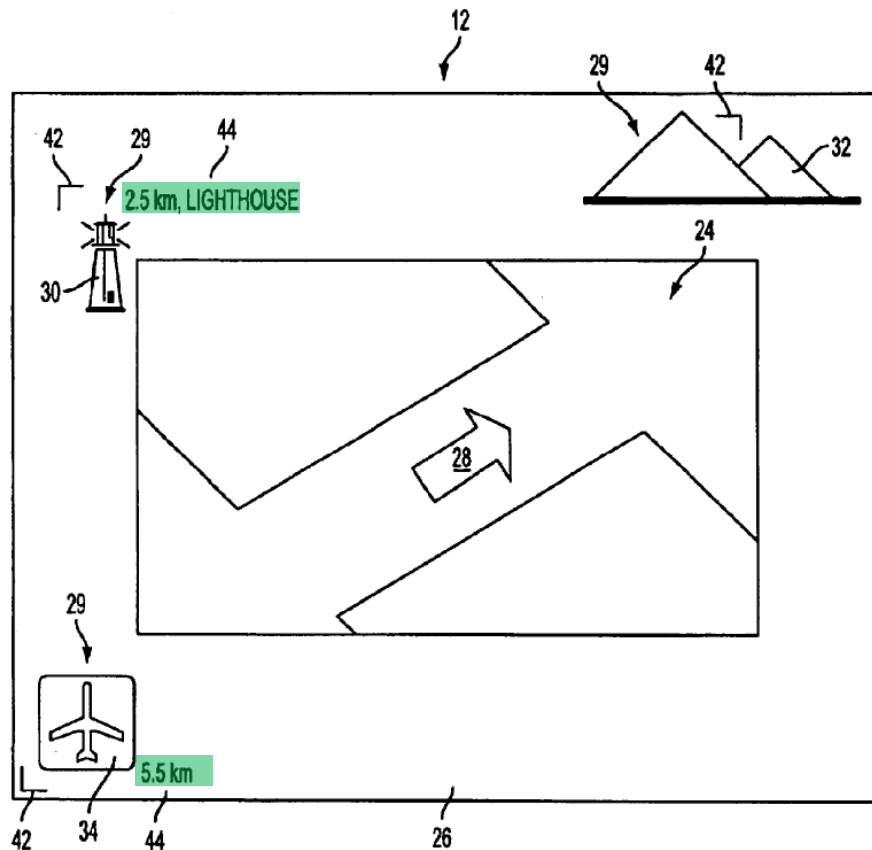


FIG. 5

Suomela, Fig. 5.

89. In my opinion, a person of ordinary skill in the art would have been motivated to add *Suomela*'s distance and travel-related information to *Kreitler*'s OVI to provide further helpful information to a user, such as the distance to the location of the MO, so the user could decide if they wanted to take the time to go there or not.

f. [1e]: receiving user input selecting the OVI

90. In my opinion, *Kreitler* renders obvious [1g] because *Kreitler* discloses that the user may hover over the special icon (OVI). *Kreitler*, 6:14-18 (“hovering the cursor ... over an icon allows the user to view a summarization of pertinent information about that item”).

g. [1f]: retrieving mapping-media content associated with the selected OVI;

91. In my opinion, *Kreitler* renders obvious [1f].

92. *Kreitler* discloses summary boxes that include “a summarization of pertinent information about that item” or MO when the user “hover[s] the cursor ... over an icon.” *Kreitler*, 6:14-18. *Kreitler* discloses that mapping-media content, such as the hotel’s “image of a room interior” may be displayed when the user “hover[s] the cursor of the mouse ... over [a hotel] icon.” *Kreitler*, 6:14-29.

h. [1g]: and displaying the mapping-media content.

93. In my opinion, *Kreitler* renders obvious [1g].

94. As explained in [1f] (Section VIII.B.1.g), a summary box containing pertinent information about an item (mapping-media content) is displayed.

Kreitler, 6:15-18; *see also Kreitler*, 13:24-27, 13:54-59, Fig. 3.

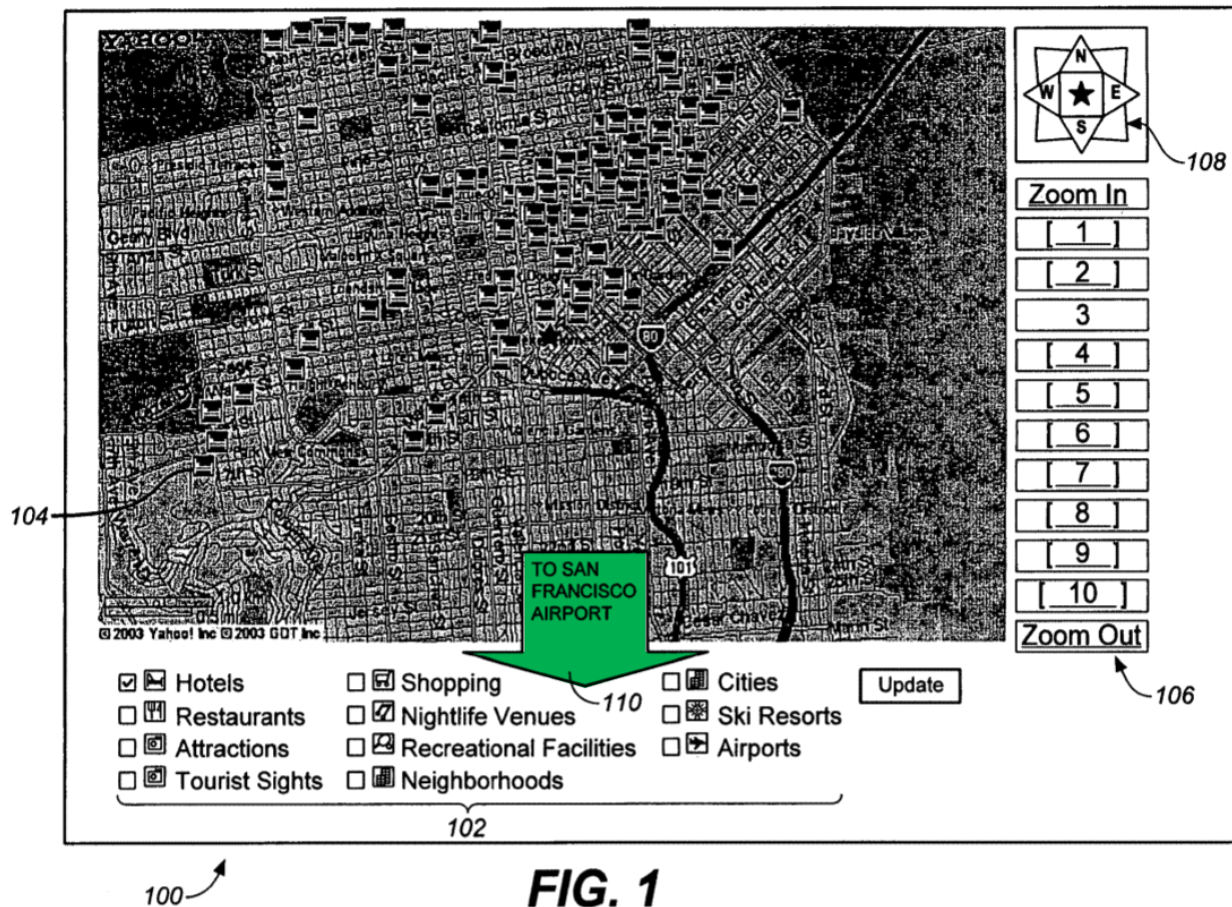
2. Claim 13

a. [13pre]: An apparatus, comprising:

95. In my opinion, *Kreitler* discloses [13pre] because *Kreitler* discloses a mobile device (apparatus). *Kreitler*, 12:3-9, Fig. 4 (block diagram).

b. [13a]: a display device configured to display a first portion of an electronic map and an object vector indicator (OVI),

96. In my opinion, *Kreitler* renders obvious [13a] via “generating ... a rendering of ... location-based data overlaid on the map[] and displaying the rendering on the client computer” and by displaying the **special icon** corresponding to “San Francisco Airport” at the computed location on the “south border” of the map, as shown below. *Kreitler*, Fig. 1, 1:43-46, 6:50-55, 12:13-16, 13:8-11.

**FIG. 1***Kreitler*, Fig. 1.

- c. [13b]: wherein the OVI provides reference information for a map object (MO) which is not visible on the first portion of the electronic map;

97. In my opinion, *Kreitler* renders obvious [13b] via *Kreitler*'s special icons representing POIs that are not within the visible area of the displayed map as explained in [1b] (Section VIII.B.1.c). *Kreitler* also discloses the OVI provides reference information for a map object, because *Kreitler*'s user selects an item to obtain navigational information including distance and driving directions to other

items relative to the selected item on a display. *Kreitler*, 7:5-9; the '527 patent, 2:9-13 (“In response to a user’s selecting an OVI ... information referenced by the OVI may be retrieved and displayed”), the '527 patent, 2:18-21 (distance and direction are “information”).

d. [13c]: a processing device, configured to:

98. In my opinion, *Kreitler* discloses [13c] via “a general-purpose processor” that implements “computer program code” that performs *Kreitler*’s mapping methods. *Kreitler*, 25:8-19.

e. [13d]: receive a user input indicating selection of the OVI;

99. In my opinion, *Kreitler/Suomela* renders obvious [13d], as explained in [1e] (Section VIII.B.1.f).

f. [13e]: in response to receiving the user input, cause the display device to display media content associated with the MO.

100. In my opinion, *Kreitler* discloses [13e] because *Kreitler* teaches user input by “hovering the cursor ... over an icon” (user input) and, in response, displaying “a summarization of pertinent information about that item” (media content associated with the MO). *Kreitler*, 6:14-18. For example, in the case of “hovering the cursor ... over [a hotel] icon,” the summary will include media content associated with the hotel, such as “an image of the room interior” of the hotel. *Kreitler*, 6:22-25.

3. Claim 18

a. [18pre]: An apparatus, comprising:

101. In my opinion, *Kreitler* discloses [18pre], as explained in [13pre]

(Section VIII.B.2.a).

b. [18a]: a display device configured to display a first portion of an electronic map and an object vector indicator (OVI),

102. In my opinion, *Kreitler* discloses [18a], as explained in [13a]

(Section VIII.B.2.b).

c. [18b]: wherein the OVI provides reference information for a map object (MO) which is not visible on the first portion of the electronic map;

103. In my opinion, *Kreitler* discloses [18b], as explained in [13b]

(Section VIII.B.2.c).

d. [18c]: a processing device, configured to:

104. In my opinion, *Kreitler* discloses [18c], as explained in [13c]

(Section VIII.B.2.d).

e. [18d]: identify a user selection of the OVI;

105. In my opinion, *Kreitler* discloses [18d] because it responds “[w]hen the user clicks on that [special] icon 110” (the OVI). *Kreitler*, 6:58-60.

106. Unlike [1e] (Section VIII.B.1.f), which recites user input, [18d] refers to a user selection resulting in an adjustment to the map-display as explained in [18e] (Section VIII.B.3.f).

107. As seen in [1e], *Kreitler* discloses a user input when the user “hover[s] the cursor ... over an icon” displaying mapping-media content, such as an “image of a room interior.” *Kreitler*, 6:14-29. As explained here in [18d], *Kreitler* also discloses user selection “[w]hen the user clicks on that [special] icon 110.” *Kreitler*, 6:58-60.

f. [18e]: in response to identifying the user selection, cause the display device to display a second portion of the electronic map.

108. In my opinion, *Kreitler* discloses [18e] because in response to a user selecting a special icon, *Kreitler* “re-centers and resizes the map” displaying a second map portion containing the POI represented by the special icon “to show San Francisco Airport in the image.” *Kreitler*, 6:58-60.

C. Dependent Claims

1. Claim 2: wherein the distance to the MO is computed from a center of the selected area of the electronic map.

109. In my opinion, *Kreitler/Suomela* renders obvious claim 2.

110. *Kreitler* discloses that “[e]ach map is defined by its center point,” *Kreitler*, 5:4-6, and *Suomela* discloses “distance indicators 44 show the distance

from the center of the map or location indicator 28 to each of objects 29.” *Suomela*, 4:34-41; Section VIII.A.

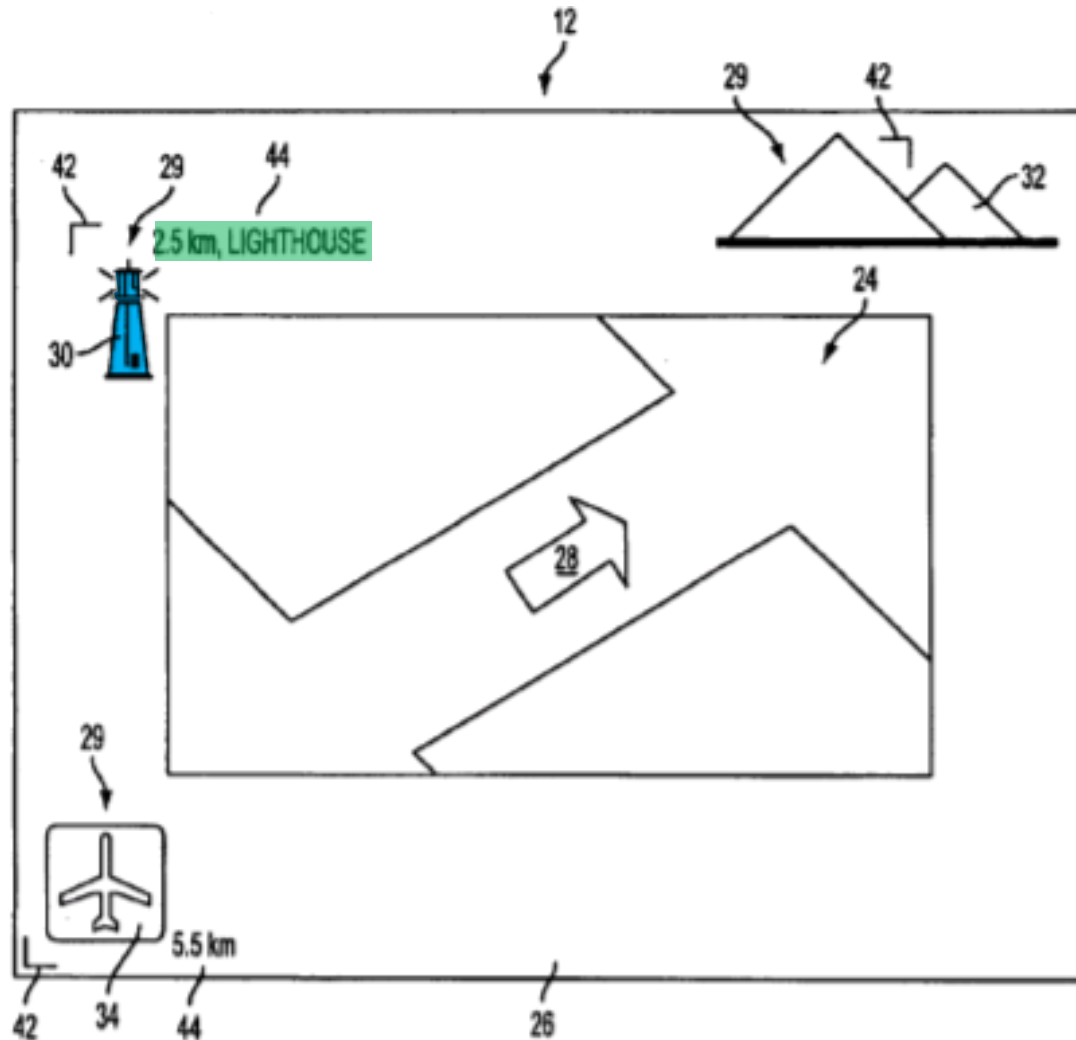


FIG. 5

Suomela, Fig. 5.

111. In my opinion, a person of ordinary skill in the art would have been motivated to implement *Suomela*'s distance indicators that calculate distance with *Kreitler*'s defined center point of each map, as explained in Section VIII.A.

2. Claim 3: wherein the distance to the MO is computed from a location marker on the electronic map.

112. In my opinion, *Kreitler/Suomela* renders obvious claim 3 through *Suomela*'s "location indicator 28, which shows a location of interest around which the digital map is generally centered." *Suomela*, Fig. 4, 3:35-37, 4:34-41 ("distance indicators 44 show the distance from the center of the map or location indicator 28 to each of objects 29"). "The location indicator 28 may include a You Are Here (YAH) indicator or symbol as is common on many maps, which shows the current location of mobile device 10... [and also] indicates the direction of travel and current location of the mobile device as determined using GPS hardware 22." *Suomela*, 3:37-43.



3. Claim 4: wherein the user input comprises a voice command.

57

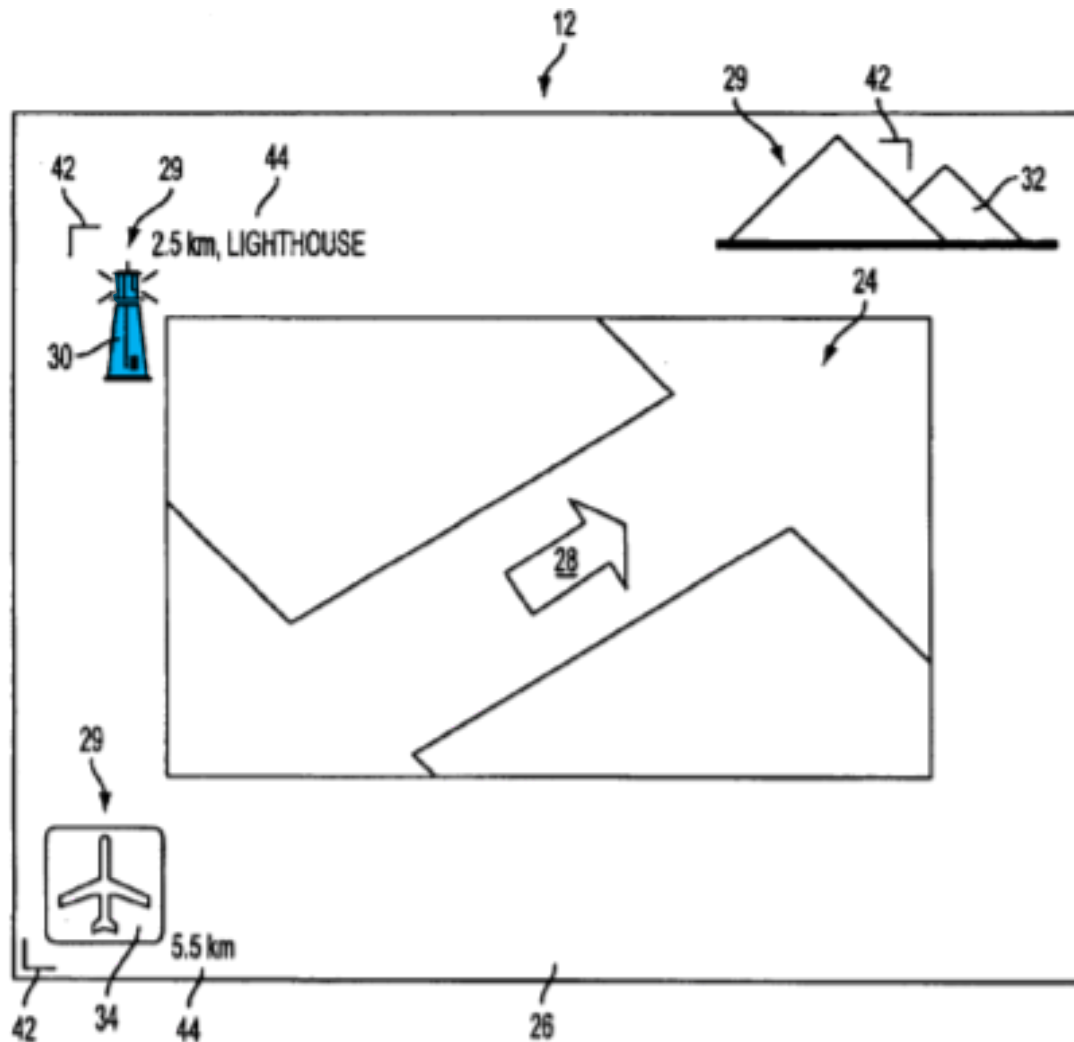
115. *Kreitler* discloses that selection functions, including “clicking on the item or holding the cursor over the item” by a user, “may be done using voice activation.” *Kreitler*, 17:9-11, 17:29-31. Ex. 1021 (“People who have difficulty using a computer mouse can use voice recognition software to control their computers with verbal commands.”); Ex. 1022, Abstract (“A user speaks voice commands into the microphone, with the computing device operating a voice command module that interprets the voice command and causes the graphical or non-graphical application to be commanded and controlled consistent with the use of a physical mouse.”); Ex. 1023 (“Voice commands allow the user to control an application by speaking commands through an audio input device rather than by using the mouse or keyboard.”).

4. Claim 7: wherein the OVI comprises a graphical representation of the MO.

116. In my opinion, *Kreitler/Suomela* renders obvious claim 7.

117. *Suomela* discloses objects that are displayed “in a peripheral portion of the map” and that represent geographical locations of interest not visible within the detailed map area. *Suomela*, Abstract, 2:1-13. The objects “include icons that each represent a geographical location.” *Suomela*, 3:58-60. As shown below in *Suomela*’s Figure 4, “one object includes a [lighthouse icon 30](#) representing the geographical location where an actual lighthouse (not shown) is located.” *Suomela*,

3:59-63. A person of ordinary skill in the art would have understood that the lighthouse icon 30, as well as the other icons representing an airport and mountains, are examples of “a graphical representation of the MO.”



Suomela, Fig. 5.

118. As explained in Section VIII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to combine *Suomela*’s object

icons with *Kreitler* and also would have had a reasonable expectation of success in combining *Suomela*'s object icons with *Kreitler*.

5. Claim 10

a. [10a]: obtaining a position of an electronic device configured to display the electronic map;

119. In my opinion, *Kreitler/Suomela* renders obvious [10a].

120. *Kreitler/Suomela* renders obvious [10a] because *Suomela* “receives GPS transmissions...and communicates with processor 14 to enable the processor to determine current location information for mobile device 10.” *Suomela*, 3:14-17, 1:27-34, 3:2-20.

b. [10b]: transmitting the position of the electronic device to a remote server;

121. In my opinion, *Kreitler/Suomela* renders obvious [10b].

122. *Kreitler* discloses “transmitting a map request from a client computer to a server.” *Kreitler*, 1:39-40. *Kreitler* also discloses “transmitting a map request from a first user at a first client computer to a web server, including a request for ... user-defined location-based data.” *Kreitler*, 1:48-51. While *Kreitler* discloses transmitting a request for user-defined location-based data to a remote server, *Kreitler* does not teach that the request includes the position of the electronic device.

123. *Suomela* discloses that the “GPS hardware receives transmissions (not shown) and communicates with processor 14 to enable the processor to determine current location information for [a] mobile device.” *Suomela*, 3:14-17. By using the process of obtaining a position with an electronic device taught by *Suomela*, the method of *Kreitler* would be improved to provide information relevant to the user’s automatically determined current location.

124. It is my opinion that a person of ordinary skill in the art would have found it obvious to modify *Kreitler* to obtain map information centered on the *Suomela*’s GPS location in order to automate the process of location selection and provide the user with immediately useful map information.

125. It is my opinion that a person of ordinary skill in the art would have known to combine *Suomela*’s GPS hardware that receives transmissions and determines the current location information with *Kreitler*, which already transmits information, including user-defined location-based data, to a server.

c. [10c]: receiving, from the remote server, the distance-and-travel information.

126. In my opinion, *Kreitler/Suomela* renders obvious [10c].

127. As explained for [1c] (Section VIII.B.1.d), *Kreitler* discloses computing distance and travel-related information. This information is *receive[ed]* *from the remote server* because *Kreitler* teaches “receiving, in the client computer,

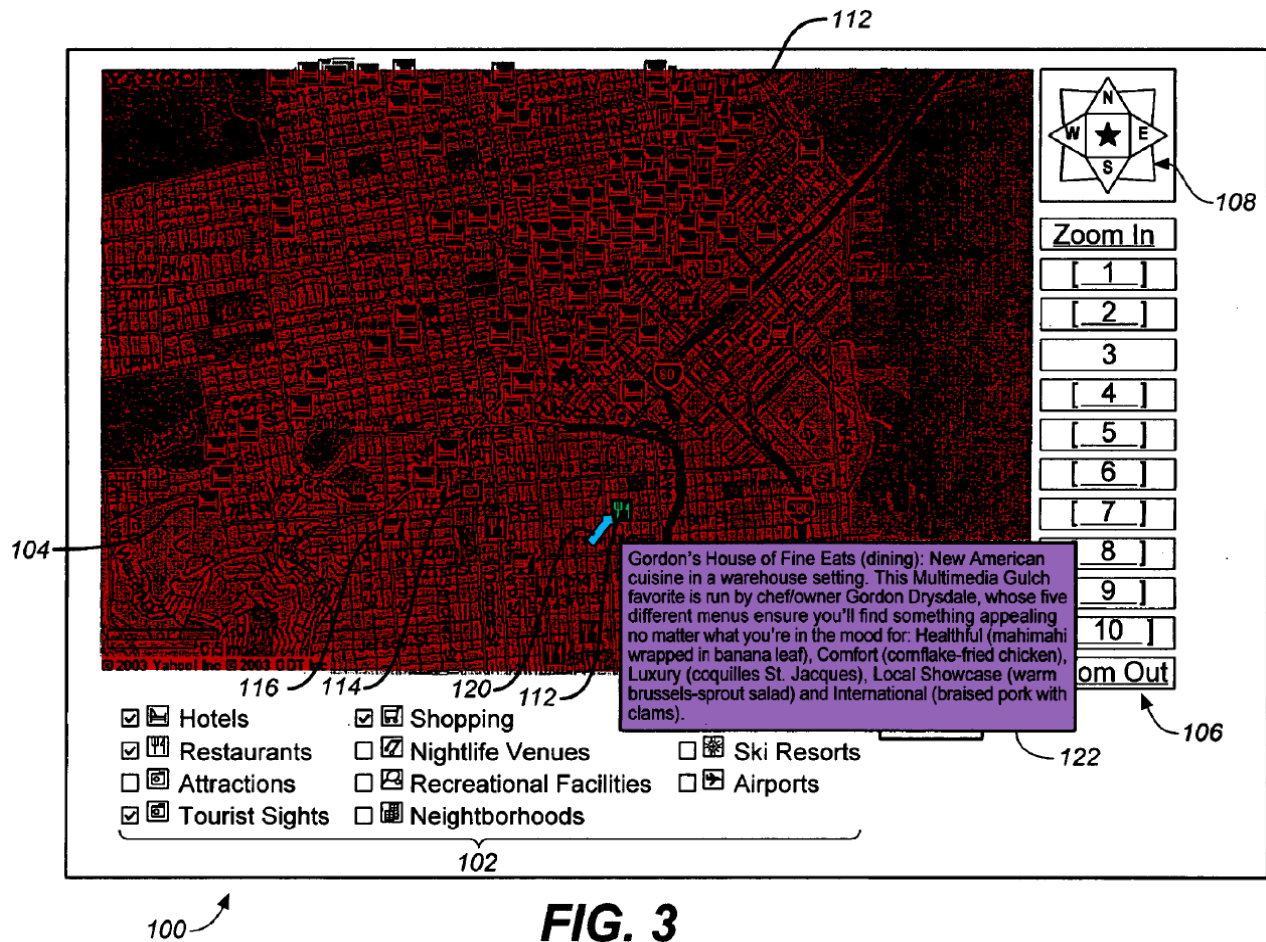
dynamic, location-based data from a content provider,” and that a “server transmits the map data from the map server to the client, and the client receives the map data.” *Kreitler*, 1:40-46, 18:21-53, Figs. 22 and 27. Further, the ’527 patent lists “Yahoo!® Maps” as an exemplary mapping server-based mapping service, and *Kreitler* teaches that “approximate driving time between [two] points and/or the direction of a straight path connecting the two locations may” be obtained when “the locations of the two points are fed to ... Yahoo! maps” *Kreitler*, 7:16-30, 11:59-61 (“The search engines can be hosted locally or on remote servers”).

6. Claim 11

- a. **[11pre]: wherein displaying the mapping-media content comprises overlaying the mapping-media content over at least a portion of the selected area of the electronic map, and wherein the method further comprises:**

128. In my opinion, *Kreitler/Suomela* discloses [11pre].

129. As explained in [1pre] (Section VIII.B.1.a), *Kreitler*’s summary boxes are the *mapping-media content*. *Kreitler*’s summary boxes are displayed over a portion of the visible area of the map in response to a user selecting with a cursor or other pointing device over an icon. In Figure 3, a **summary box 122** overlays at least a portion of the **map 100** in response to a “user hover[ing] **cursor 120** over a **restaurant icon 112**.” *Kreitler*, 6:18-22.



Kreitler, Fig. 3.

b. [11a]: receiving user input;

130. In my opinion, *Kreitler/Suomela* discloses [11a].

131. As explained in [1e] (Section VIII.B.1.f), *Kreitler* discloses that a user may hover a cursor or other pointing device over an icon causing a summary box to be displayed that provides information about a location-based item associated with the icon. The summary box “only appears when the item is selected.”

Kreitler, 13:54-59, Figs. 6-13 (illustrating summary boxes 630 overlaying a map

600 that only appear when a cursor 620 hovers over or selects an icon associated with the displayed summary box). A person of ordinary skill in the art would have understood that *Kreitler* receives user input when a user moves a cursor away from a first location hovered over a first icon to another location of the GUI because the summary box associated with the first icon “only appears when the item is selected,” which enables the user to view other icons and summary boxes associated with those icons without obscuring the displayed map. *Kreitler*, 13:54-59.

c. [11b]: in response to receiving the user input, eliminating the mapping-media content.

132. In my opinion, *Kreitler/Suomela* discloses [11b].

133. As explained in [11a] (Section VIII.C.6.b), *Kreitler* discloses that a summary box only appears when a user hovers over the corresponding icon and, therefore, a person of ordinary skill in the art would have understood that, in response to a user moving the cursor away from the icon, *Kreitler* eliminates the summary box from the display to enable the user to view other icons and summary boxes without obscuring the map. Hovering over a user interface element is often called a “tooltip” or “hover box.” Using tooltips or hover boxes is a common user interface pattern in software design. In my opinion, a person of ordinary skill in the art would understand that the additional content is only displayed to the user while

the pointer is hovering over the item of interest. As soon as the pointer is no longer over the item of interest, the tooltip/hover box goes away.

7. Claim 12: restoring the portion of the selected electronic map that was overlaid with the mapping-media content.

134. In my opinion, *Kreitler/Suomela* renders obvious claim 12.

135. As explained in [11b] (Section VIII.C.6.c), *Kreitler* discloses that a summary box only appears when a user hovers over the corresponding icon, and, therefore, it is my opinion that a person of ordinary skill in the art would have understood that *Kreitler* at least suggests that the summary box would be removed from the display when the user moves the cursor away from the icon. In my opinion, a person of ordinary skill in the art would understand that when using a hover box, the additional content is only displayed to the user while the pointer is hovering over the item of interest. As soon as the pointer is no longer over the item of interest, the tooltip/hover box goes away. It is also my opinion that a person of ordinary skill in the art would have also understood that *Kreitler* would restore the portion of the map previously overlaid with the summary box, because by simply moving a cursor away from the summary box, a user does not initiate a zooming, panning, or other modifying function to alter the displayed map but rather indicates a desire to return to the map as displayed before it was overlaid with the summary box.

8. Claim 14: wherein the reference information comprises a distance from the apparatus to the MO and an estimated time of travel.

136. In my opinion, *Kreitler/Suomela* renders obvious claim 14.

137. *Kreitler* discloses that “hovering the cursor ... over an icon allows the user to view a summarization of pertinent information about that item.” *Kreitler*, 6:15-18. *Kreitler* also discloses that its “system may identify the distance between [] two points” and may provide “[a]dditional information such as the approximate driving time between the points.” *Kreitler*, 7:13-19.

138. It is my opinion that a person of ordinary skill in the art would have understood that, in response to the user hovering the cursor to view additional information, *Kreitler*’s summarization of pertinent information may also include the distance from the apparatus to that item (MO) or the approximate driving time from the apparatus to that item (MO).

9. Claim 15: wherein the media content comprises a coupon or a sales event associated with the MO.

139. In my opinion, *Kreitler/Suomela* renders obvious claim 15 because *Kreitler*’s summary boxes provide “pertinent information about the item[s],” including “special offers” (coupons or sales events) associated with the items. *Kreitler*, 6:14-29.

10. Claim 17

a. [17a]: wherein the MO is associated with a building,

140. In my opinion, *Kreitler/Suomela* renders obvious [17a] because *Kreitler*'s location-based items include buildings, such as restaurants, hotels, and airports. *Kreitler*, 3:37-47; *see also Kreitler*, Fig. 1 (illustrating a special icon referencing a location-based item, "San Francisco Airport").

b. [17b]: wherein the media content comprises a floor plan of the building.

141. In my opinion, *Kreitler/Suomela* renders obvious claim [17b] because *Kreitler*'s summary boxes include "images of room interiors" and "venue or restaurant seating charts" *Kreitler*, 6:22-25, 6:41-42. In my opinion, a person of ordinary skill in the art would have known that a floor plan of a building includes images of room interiors and seating charts, because those images allow the user to visualize the arrangement or physical features of a structure. A person of ordinary skill in the art would have known that the images and seating charts include a diagram or view of the arrangement or physical features of a structure or building, similar to the images of room interiors and seating charts for venues or restaurants.

11. Claim 19: wherein the MO is displayed together with the second portion of the electronic map.

142. In my opinion, *Kreitler/Suomela* renders obvious claim [19] because when clicking *Kreitler*'s "San Francisco Airport" **special icon**, *Kreitler* "re-centers

and resizes (re-zooms) the map to show San Francisco Airport [the MO] in the image” *Kreitler*, 6:58-60, 12:32-36.

**IX. GROUND 2: CLAIMS 9 AND 20 ARE OBVIOUS OVER
KREITLER IN VIEW OF SUOMELA AND MYR**

A. Overview of the Combination and Motivation to Combine

143. As explained above, *Kreitler*/*Suomela* renders obvious most independent claims. Dependent claims 9 and 20 include additional limitations related to identifying travel conditions, calculating a travel route, and computing travel times along the route. While not expressly disclosed by *Kreitler* or *Suomela*, these limitations are expressly disclosed by *Myr* and it would have been obvious to incorporate travel conditions, travel routes, and times along the route into the *Kreitler*/*Suomela* combination.

144. *Myr* discloses a real-time travel Guidance System capable of handling a driver’s request for the shortest route to any destination. *Myr*, 4:49-51. With this system, the driver “can enter a request for alternative route and will receive an updated route reflecting the real-time traffic situation directly on his display panel,” and this information “will also be updated by visual and audio instructions, and driver’s vehicle position will be displayed dynamically on the display unit.” *Myr*, 4:51-57. A driver may also enter alternate times for future trips and compare

travel time estimates for the same destination and receive “an option to select a trip proposal ideally suited” for the driver’s needs. *Myr*, 4:57-65.

145. **First**, it is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include travel conditions, as taught by *Myr*, with *Suomela* and *Kreitler* based on user input, such as *Kreitler*, which “may calculate, based on the traffic information, how long is it will take for a vehicle to reach its destination, or allow comparison and selection between one of two routes based on current traffic conditions.” *Kreitler*, 21:33-36.

146. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler*’s travel information to include the travel conditions information, as taught by *Myr*, to provide the user with travel information without requiring the user to specifically request navigation to the off-map items of interest. Such a modification would allow users to effortlessly identify the required travel route to the items of interest represented in order to orient themselves while “learning the layout of [a] new city.” *Suomela*, 5:16-21.

147. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreitler* to include *Suomela* with *Myr*’s travel conditions. Such a modification would have required only routine skill in the art, as identifying the travel conditions to display travel time information on electronic maps from one location to another was common in the

art before the date of the '527 patent. *Kreitler* itself already discloses calculating time and distance information to off-map locations of interest, (*Kreitler*, 7:5-19), and adding identification of travel conditions for travel time information to the display would have required only a modification within the skill of a person of ordinary skill in the art.

148. Accordingly, in my opinion, displaying calculated travel information based on identified travel conditions with *Kreitler* and *Suomela* would have implemented only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

149. **Second**, it is also my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include the travel route, as taught by *Myr*, with *Suomela/Kreitler*, based on *Kreitler*'s teaching of "calculat[ing], based on the traffic information, how long is it [sic] will take for a vehicle to reach its destination, or allow comparison and selection between one of two routes based on current traffic conditions." *Kreitler*, 21:33-36.

150. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler*'s travel information to include the travel route information, as taught by *Myr*, to provide the user with travel information without requiring the user to specifically request navigation to the off-map items of interest. Such a modification would allow users to effortlessly identify the required

travel route to the items of interest represented in order to orient themselves while “learning the layout of [a] new city.” *Suomela*, 5:16-21.

151. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreitler* to include *Suomela* with *Myr*’s travel route. Such a modification would have required only routine skill in the art, as calculating and displaying the travel route on electronic maps from one location to another was common in the art before the date of the ’527 patent. *Kreitler* itself already discloses calculating time and distance information to off-map locations of interest, (*Kreitler*, 7:5-19), and adding route information to the display would have required only a modification of the graphical display within the skill of a person of ordinary skill in the art. Accordingly, displaying calculated travel route information with *Kreitler* and *Suomela* would have implemented only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

152. **Third**, it is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include travel time, as rendered obvious by *Myr*, with indicators, as taught by *Suomela*, with *Kreitler*’s special icons to provide a user the time from a position within the selected map to off-map items of interest referenced by the special icons.

153. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler*'s special icons to include travel information, as taught by *Myr*, through indicators, as taught by *Suomela*, to provide the user with travel information without requiring the user to specifically request navigation to the off-map items of interest. Such a modification would allow users to effortlessly identify the required travel time to items of interest represented by the special icons and to orient themselves while "learning the layout of [a] new city." *Suomela*, 5:16-21.

154. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreitler* to include *Suomela*'s indicators with *Myr*'s travel time. Such a modification would have required only routine skill in the art, as calculating and displaying travel time on electronic maps from one location to another was common in the art before the date of the '527 patent. *Kreitler* itself already discloses calculating time information to off-map locations of interest, (*Kreitler*, 7:5-19), and adding that information to the display would have required only a modification of the graphical display within the skill of a person of ordinary skill in the art. Accordingly, displaying calculated time information with *Kreitler*'s special icons would have implemented only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

B. Claim 9

155. In my opinion, *Kreitler/Suomela* and *Myr* renders obvious claim 9.

1. [9pre]: wherein computing distance-and-travel information comprises:

156. In my opinion, *Kreitler/Suomela* render obvious [9pre], as explained in [1c] (Section VIII.B.1.d).

2. [9a]: identifying a change in travel conditions

157. In my opinion, *Kreitler/Suomela/Myr* render obvious [9a].

158. As explained in [1c] (Section VIII.B.1.d), *Kreitler* discloses obtaining navigational information, including distance and driving directions to other items relative to the selected item. *Kreitler*, 7:5-6. *Kreitler* also discloses content databases 402 contain “information about different kinds of items, for example hotels, airports, restaurants, and also dynamic information such as weather conditions, traffic conditions, environmental measurements and the like.” *Kreitler*, 10:65-11:3. However, *Kreitler* and *Suomela* do not teach travel conditions as fully as in *Myr*.

159. First, *Myr* discloses identifying changes in road conditions known in advance using the Section Travel Time Managing Algorithm. *Myr*, 9:47-64, 10:8-21. Second, *Myr* discloses identifying regular, predictable changes, like everyday slowdowns or rush hours, by collecting statistics on travel times along particular roads, types of roads, hours, or days. *Myr*, 10:3-4, 10:22-36. Third, *Myr*

discloses identifying sudden unpredictable changes, such as traffic accidents, traffic congestion due to sudden and drastic changes in weather conditions, to provide “truly real time capabilities.” *Myr*, 10:5-7, 10:37-50.

160. As explained in Section IX.A, it is my opinion that a person of ordinary skill in the art would have been motivated to add *Myr*’s identification and calculation of changed travel conditions to predict travel times to the combination of *Kreitler* and *Suomela*.

3. [9b]: computing an estimated time of arrival at the MO;

161. In my opinion, *Kreitler/Suomela/Myr* render obvious [9b].

162. *Kreitler* also discloses computing “information such as the approximate driving time” to the MO. *Kreitler*, 7:16-17.

163. *Myr* discloses calculating travel routes using current travel times from a starting point to a destination point. *Myr*, 5:59-65, 6:18-19. With the calculated travel times, a person of ordinary skill in the art would have known to add the travel time and the starting time to compute an estimated time of arrival at the MO, simply using basic addition. As explained in Section IX.A, it is my opinion that a person of ordinary skill in the art would have found it obvious to include the travel time calculated by *Myr* in the OVI of *Kreitler-Suomela* to compute an estimated time of arrival by simply adding the travel time with the starting time.

4. [9c]: displaying the OVI with the estimated time of arrival in response to identifying the change in travel conditions.

164. In my opinion, *Kreitler/Suomela/Myr* render obvious [9c].

165. As explained in [1d] (Section VIII.B.1.e), *Kreitler* displays the special icon corresponding to “San Francisco Airport” at the computed “south border” of the map. *Kreitler*, Fig. 1, 6:50-55. As explained in [9a] and [9b], (Sections IX.B.2 and IX.B.3), *Kreitler/Suomela/Myr* renders obvious identifying the change in travel conditions and calculating a travel time. As explained in Section IX.A, it is my opinion that a person of ordinary skill in the art would have found it obvious to add the travel time calculated by *Myr* to the starting time to display an estimated time of arrival in the OVI to provide helpful information to the user.

C. Claim 20: wherein the second portion of the electronic map comprises a travel route to the MO.

166. In my opinion, *Kreitler/Suomela/Myr* render obvious claim 20.

167. *Kreitler* discloses a second portion of the electronic map in [18e] (Section VIII.B.3.f).

168. *Myr* discloses calculating travel routes from a starting point to a destination point (the location of the MO). *Myr*, 5:59-65, 6:18-19. A person of ordinary skill in the art would have understood that a route from the user to the

MO would be included within the second map portion because the second map portion is centered around the MO.

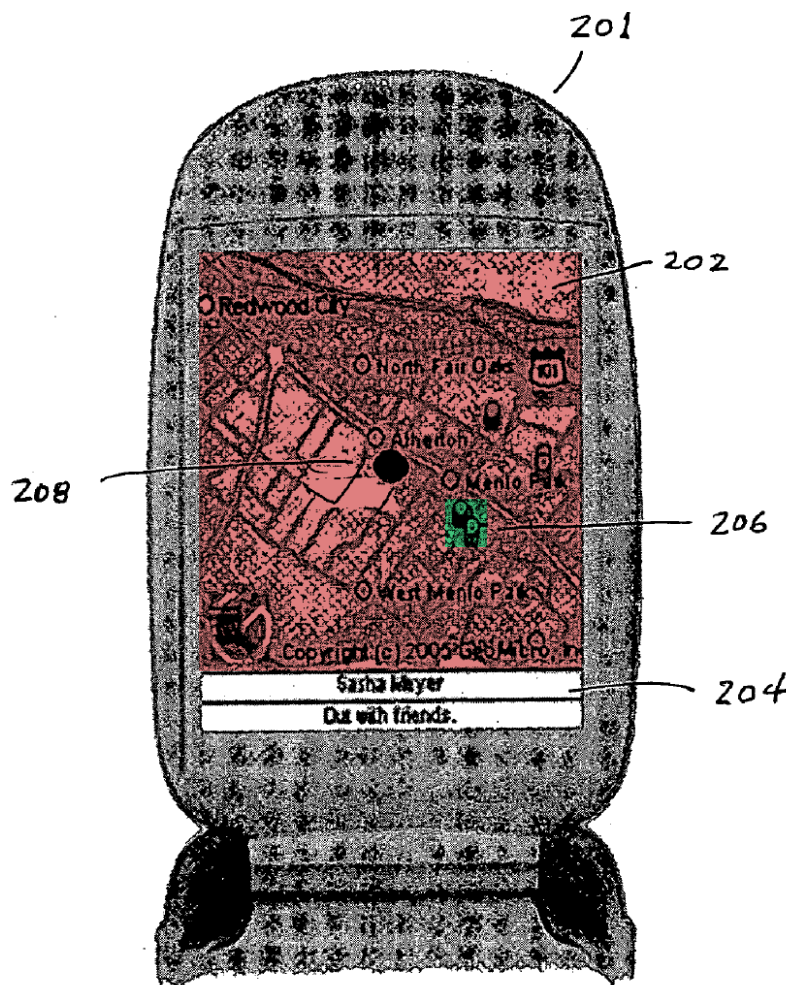
169. As explained in Section IX.A, it is my opinion that a person of ordinary skill in the art would have found it obvious to include the travel route calculated by *Myr* in the second portion of the electronic map of *Kreitler/Suomela* to allow a user to preview their anticipated travel route.

X. GROUND 3: CLAIMS 5-6, 8, 16, 26-27, AND 30 IS OBVIOUS OVER *KREITLER* IN VIEW OF *SUOMELA* AND *ALTMAN*

A. Overview of the Combination and Motivation to Combine

170. In response to a change in the position of the MO or electronic device, independent claim 26 recites altering an OVI visual characteristic, dependent claims 5 and 6 recite computing OVI placement position, distance, and travel information, claim 8 recites contact information of the MO, claim 16 recites identifying and displaying an image of a social networking member, claims 27 and 30, which depend from claim 26, recite displaying a position of the apparatus or further altering an OVI. *Kreitler* and *Suomela* do not expressly disclose these features, but *Altman* renders them obvious. It would have been obvious to incorporate computation of distance information after a change in MO position—like another user moving—and identifying another user using their image.

171. *Altman* discloses location sharing amongst users and displaying shared location information, such as other users' locations and photos on electronic maps. *Altman*, 2:1-31, 3:4, 3:53-55, 3:65-4:1, 5:57-61. *Altman* discloses that a user can view "on the map the respective locations of one or more other users of mobile communication devices coupled to the mobile communication device over the network." *Altman*, 2:1-31, 3:65-4:1. *Altman* expressly discloses that the "user can build a database of trusted friends among the one or more other users." *Altman*, 2:8-19.



Altman, Fig. 2A.

172. “Because the users of the mobile devices are inherently transitory, a fundamental data object associated with each of the users of the mobile devices is **the location of each user** within a particular region.” *Altman*, 4:26-32. “As the user moves, the **position of his location** on the displayed map is updated in real-time or near real-time.” *Altman*, 7:30:35, 9:56-62. *Altman*’s “database 128 stores [each] user’s picture, and any other associated images,” which “can be displayed on the other user’s mobile devices to provide a visual reference for each user.” *Altman*, 5:57-61, 10:14-17 (“In this embodiment, the same location and status information 506 is displayed for each friend along with an image 508 of that person.”).

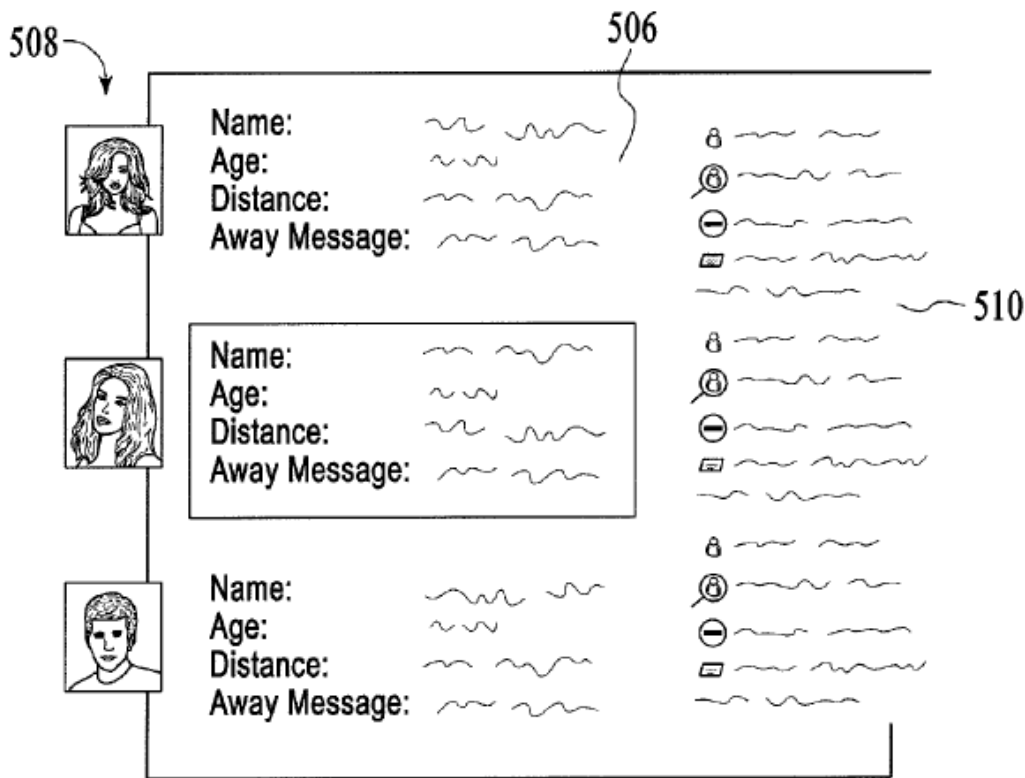


FIG. 5B

Altman, Fig. 5B.

173. The '527 patent, *Kreitler*, *Suomela*, and *Altman* are all in the field of mapping on electronic devices. All address the known problem of updating the location information of the user or MO, with the combination of *Kreitler/Suomela/Altman* disclosing known solutions for multiple users in real-time, the combination of which yields predictable results. Therefore, it would have been obvious for a person of ordinary skill in the art to combine *Kreitler* and *Suomela* to allow users to track their friends' locations in real-time, obtain

information on how far away a friend is, and obtain information on how to travel to meet them.

174. **First**, it is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include real-time updated information of the location and distance of the mobile communication device and users, as taught by *Altman*, within the combination of *Kreitler* and *Suomela*. *Kreitler* specifically teaches map “items could include dynamic location based information such as ... the position of a vehicle.” *Kreitler*, 3:47-51, 22:10-14. *Suomela* discloses “[a] mobile device 10 is able to continually update and monitor its location via GPS hardware 22.” *Suomela*, 5:7-9, 5:13-22. Therefore, it is my opinion that a person of ordinary skill in the art would have found including *Altman*’s real-time updated information of the location and distance of the mobile communication device and users within the combination of *Kreitler* and *Suomela* to be obvious.

175. In my opinion, a person of ordinary skill in the art would have been motivated to modify the combination of *Kreitler* and *Suomela* to include real-time information of the location and distance of the mobile communication device and users, as taught by *Altman*, because such a modification would allow users to identify the location of and distance from POIs in real-time as the mobile

communication device or user moves. Such a modification would allow users to effortlessly obtain relative location information to the POIs.

176. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying the OVI in the combination of *Kreitler* and *Suomela* to include *Altman*'s real-time updated information of the location and distance of the mobile communication device and users to represent travel information in real-time to and from POIs. Such a modification would have required only routine skill in the art, because including real-time information of the location and distance of the mobile communication device and users was known in the art before the date of the '527 patent. The combination of *Kreitler* and *Suomela* already discloses a mobile device that is able to continually update and monitor its location and distance as explained in [26d] (Section X.B.1.e) and including real-time updated information of the location and distance of the mobile communication device and users would have required only a modification of the graphical display within the skill of a person of ordinary skill in the art. Accordingly, it is my opinion that including real-time updated information of the location and distance of the mobile communication device and users to provide real-time information on POIs with the combination of *Kreitler* and *Suomela* would have been implemented using only conventional systems and methods in

ways a person of ordinary skill in the art would have readily understood and expected to succeed.

177. **Second**, it is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to accommodate images of users, as taught by *Altman*, within the combination of *Kreitler* and *Suomela*. Having images of other users in the combination of *Kreitler* and *Suomela* would allow for users to easily track friends, utilize their friends' faces for easy identification and recall as to which friend the user was tracking, and to visualize each friend's face. In this way, pictures of friends could be used similar to icons, which could have more utility than simply using the name of the friend alone. Adding users' images would broaden the utility of the combination of *Kreitler* and *Suomela* and incorporate a valuable feature.

178. In my opinion, a person of ordinary skill in the art would have been motivated to include images of other users in a social network, as taught by *Altman*, to help the user recall the face of a friend they had not seen in a while and identify which friend is which. Such a modification would allow users to effortlessly identify other users or friends, as *Altman* recognizes.

179. In my opinion, a person of ordinary skill in the art would have reasonably expected success in modifying the combination of *Kreitler* and *Suomela* with *Altman*'s images of other users. Such a modification would have

required only routine skill in the art because *Kreitler*, as combined with *Suomela*, already calculates and displays travel information and also already contemplates a system with multiple users, each of which uses a GPS-enabled mobile device that displays the user's own location on a map. *Kreitler*, 4:16-19, 7:5-19; *Suomela*, 1:27-30. Incorporating images of other users or friends in a social network would use the same location calculation and display method already taught by the combination of *Kreitler* and *Suomela*. Displaying the images of other users would require only routine skill to adjust the display—simple software modifications. Such modification would have required conventional and routine skill applied as a person of ordinary skill in the art would have readily understood and expected to succeed.

180. **Third**, it is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include contact information, as taught by *Altman*, to the combination of *Kreitler* and *Suomela*'s OVI.

181. In my opinion, a person of ordinary skill in the art would have been motivated to modify the combination of *Kreitler* and *Suomela* to include phone number information, as taught by *Altman*, because such a modification would allow users to contact the POIs. Such a modification would allow users to effortlessly obtain contact information to contact the POIs, for example, to determine if the POI is available.

182. It is my opinion that a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying the OVI in the combination of *Kreitler* and *Suomela* to include *Altman*'s phone number to represent contact information for POIs. Such a modification would have required only routine skill in the art, because including a phone number information was known in the art before the date of the '527 patent. The combination of *Kreitler* and *Suomela* already discloses an OVI to represent distance and travel-related information, and including a phone number to the OVI would have required only a modification of the graphical display within the skill of a person of ordinary skill in the art. Accordingly, including the phone number to an OVI to provide contact information on POIs with the combination of *Kreitler* and *Suomela*'s OVI that already displays distance and travel-related information would have been implemented using only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

B. Independent Claim

1. Claim 26

a. [26pre]: An apparatus, comprising:

183. In my opinion, *Kreitler* discloses [26pre], as explained in [13pre] (Section VIII.B.2.a).

- b. [26a]: a display device configured to display a first portion of an electronic map and an object vector indicator (OVI),**

184. In my opinion, *Kreitler* discloses [26a], as explained in [13a]

(Section VIII.B.2.b).

- c. [26b]: wherein the OVI provides reference information for a map object (MO) which is not visible on the first portion of the electronic map;**

185. In my opinion, *Kreitler* discloses [26b], as explained in [13b]

(Section VIII.B.2.c).

- d. [26c]: a processing device, configured to:**

186. In my opinion, *Kreitler* discloses [26c], as explained in [13c]

(Section VIII.B.2.d).

- e. [26d]: monitor a change in position of the apparatus;**

187. In my opinion, *Kreitler/Suomela* renders obvious [26d].

188. *Suomela* discloses “[a] mobile device 10 is able to continually update and monitor its location via GPS hardware 22.” *Suomela*, 5:7-9, 5:13-22.

- f. [26e]: in response to identifying the change in position, cause the display device to alter a visual characteristic of the OVI to represent a change in spatial relationship between the apparatus and the MO.**

189. In my opinion, *Kreitler/Suomela/Altman* renders obvious [26e].

190. *Altman* discloses that “mobile communication device 1202 displays the status information for a number of friends” (MOs), which includes the continually updated distance between the device and the friends and is updated by polling the mobile device to determine changes in its location. *Altman*, 10:1-5, 18:17-22, 20:33-39.

191. As combined with *Kreitler/Suomela*, it is my opinion that a person of ordinary skill in the art would have understood that the change in position of the mobile communication device operated by a user is a change in position of the apparatus. A person of ordinary skill in the art would have also understood that the updated display area with the updated distance information based on a change in position between the mobile communication device and the user’s friend is the altered visual characteristic of the OVI to represent a change in distance or a change in spatial relationship between the apparatus and the MO.

192. As explained in Section X.A, it is my opinion that it would have been obvious to a person of ordinary skill in the art to implement *Altman*’s real-time update of the location of the mobile communication device within the combination of *Kreitler* and *Suomela*. In my opinion, a person of ordinary skill in the art would have been motivated to combine *Altman*’s real-time update of distance between the mobile communication device and the user’s friend within the combination of *Kreitler* and *Suomela*’s OVI.

C. Dependent Claims**1. Claim 5****a. [5a]: identifying a change in position of the MO.**

193. In my opinion, *Kreitler/Suomela/Altman* renders obvious [5a].

194. *Altman* discloses that other users (MOs) are displayed to the user, updated in real-time, as the other user (MO) moves. *Altman* states, “[e]ach user who desires to interact with other users in the system using this data utilizes the location-based social network manager process 112” that allows users to view other users’ (MOs) current location based on updated information generated by a new location of the user (MO). *Altman*, 4:32-34, 11:1-13, 20:3-15.

195. As combined with *Kreitler* and *Suomela*, if another user (MO) were off-map, a person of ordinary skill in the art would have understood that the system would display a special icon (OVI) representing the off-map user (MO) and adjust that special icon as the off-map user (MO) changes position. As explained in Section X.A, it is my opinion that it would have been obvious to a person of ordinary skill in the art to implement *Altman*’s real-time update on the location of other users within the combination of *Kreitler* and *Suomela*.

b. [5b]: computing a revised distance to the MO;

196. In my opinion, *Kreitler/Suomela/Altman* renders obvious [5b].

197. As explained in [1c] (Section VIII.B.1.d), *Kreitler* discloses computing navigational information, including distance and driving directions, between two items. *Kreitler* and *Suomela* do not expressly disclose computing a revised distance to the MO, but *Altman* does.

198. *Altman* discloses “a user update on a mobile communication device ... as a friend changes location” and an information table with the “distance to the user” from the user’s friends. *Altman*, 20:31-45, Figs. 5A and 12. A person of ordinary skill in the art would have understood that the updated distance information in the information table as a friend changes location is the revised distance from the user to the user’s friend (MO).

199. As explained in Section X.A, it is my opinion that it would have been obvious to a person of ordinary skill in the art to implement *Altman*’s real-time update on the location of other users within *Kreitler-Suomela*.

c. [5c]: displaying the OVI with the revised distance in response to identifying the change in the position of the MO.

200. In my opinion, *Kreitler/Suomela/Altman* renders obvious [5c].

201. As explained regarding [1d] (Section VIII.B.1.e), *Kreitler/Suomela*’s OVIs display MO distance information.

202. As explained in [5a] and [5b] (Sections X.C.a and VIII.C.b), *Altman* discloses “[t]he display area 1204 of mobile communication device 1202 displays

the status information for a number of friends ... as a friend [(MO)] changes location,” which includes the “distance to the user.” *Altman*, 20:31-45, Fig. 12.

203. As explained in Section X.A, it is my opinion that it would have been obvious to a person of ordinary skill in the art to modify the combination of *Kreitler* and *Suomela*’s OVI distance indication to include *Altman*’s real-time distance updating, and a person of ordinary skill in the art would have had a reasonable expectation of success in doing so.

2. Claim 6

a. [6a]: identifying a change in position of an electronic device configured to display the electronic map;

204. In my opinion, *Kreitler/Suomela/Altman* renders obvious [6a], as explained in [26d] (Section X.B.1.e).

b. [6b]: computing a revised distance to the MO;

205. In my opinion, *Kreitler/Suomela/Altman* renders obvious [6b], as explained in [5b] (Section X.C.1.b).

c. [6c]: displaying the OVI with the revised distance in response to identifying the change in the position of the electronic device.

206. In my opinion, *Kreitler/Suomela/Altman* renders obvious [6c], as explained in [5c] (Section X.C.1.c).

3. Claim 8: wherein the OVI comprises contact information of the MO.

207. In my opinion, *Kreitler/Suomela/Altman* renders obvious claim 8.

208. *Altman* discloses a “location-based social network manager [that] stores and provides access to sometimes sensitive personal identification information (PII) of a user to a network of people” which “may include information about the user (e.g., ... mobile phone number ...).” *Altman*, 10:22-31; the ’527 patent, 6:57-64 (“For example, the contact information 312 may be a phone number”).

209. As combined with the combination of *Kreitler* and *Suomela*, it is my opinion that a person of ordinary skill in the art would have understood that the mobile phone number stored in the location-based social network manager is the contact information for the MO referenced by the OVI.

210. As explained in Section X.A, it is my opinion that a person of ordinary skill in the art would have been motivated to combine *Altman*’s contact information with the combination of *Kreitler* and *Suomela* and had a reasonable expectation of success in doing so.

4. Claim 16: wherein the MO identifies a social networking member, and wherein the media content comprises an image of the social networking member.

211. In my opinion, *Kreitler/Suomela/Altman* renders obvious claim 16.

212. *Altman* discloses a location-based social network manager where a user can view “on the map the respective locations of one or more other users of

mobile communication devices coupled to the mobile communication device over the network.” *Altman*, 2:1-31, 3:65-4:1. *Altman* expressly discloses that the “user can build a database of trusted friends among the one or more other users.” *Altman*, 2:8-19. *Altman* further states that the “user provided database 128 [that] stores graphic information related to each user, such as the user’s picture, and any other associated images” and teaches displaying remote users’ images. *Altman*, Fig. 5B, 5:57-60.

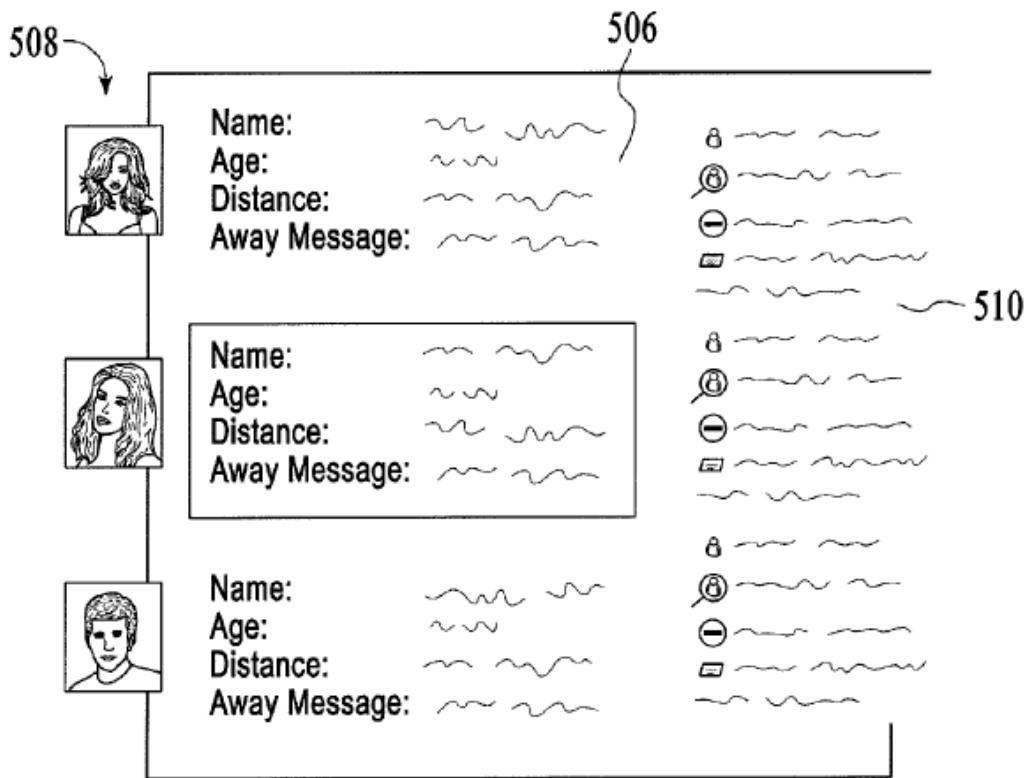


FIG. 5B

Altman, Fig. 5B.

213. As explained in Section X.A, it is my opinion that it would have been obvious to a person of ordinary skill in the art to implement *Altman*'s social networking member with an image within the combination of *Kreitler* and *Suomela*.

5. Claim 27

- a. **[27a]: the processing device is further configured to cause the display device to: display a position of the apparatus on the electronic map;**

214. In my opinion, *Kreitler/Suomela/Altman* renders obvious claim [27a] because *Suomela* discloses a “**You Are Here (YAH) indicator**” 28 that “indicates the direction of travel and current location of the mobile device as determined using GPS hardware 22.” *Suomela*, 3:35-43.

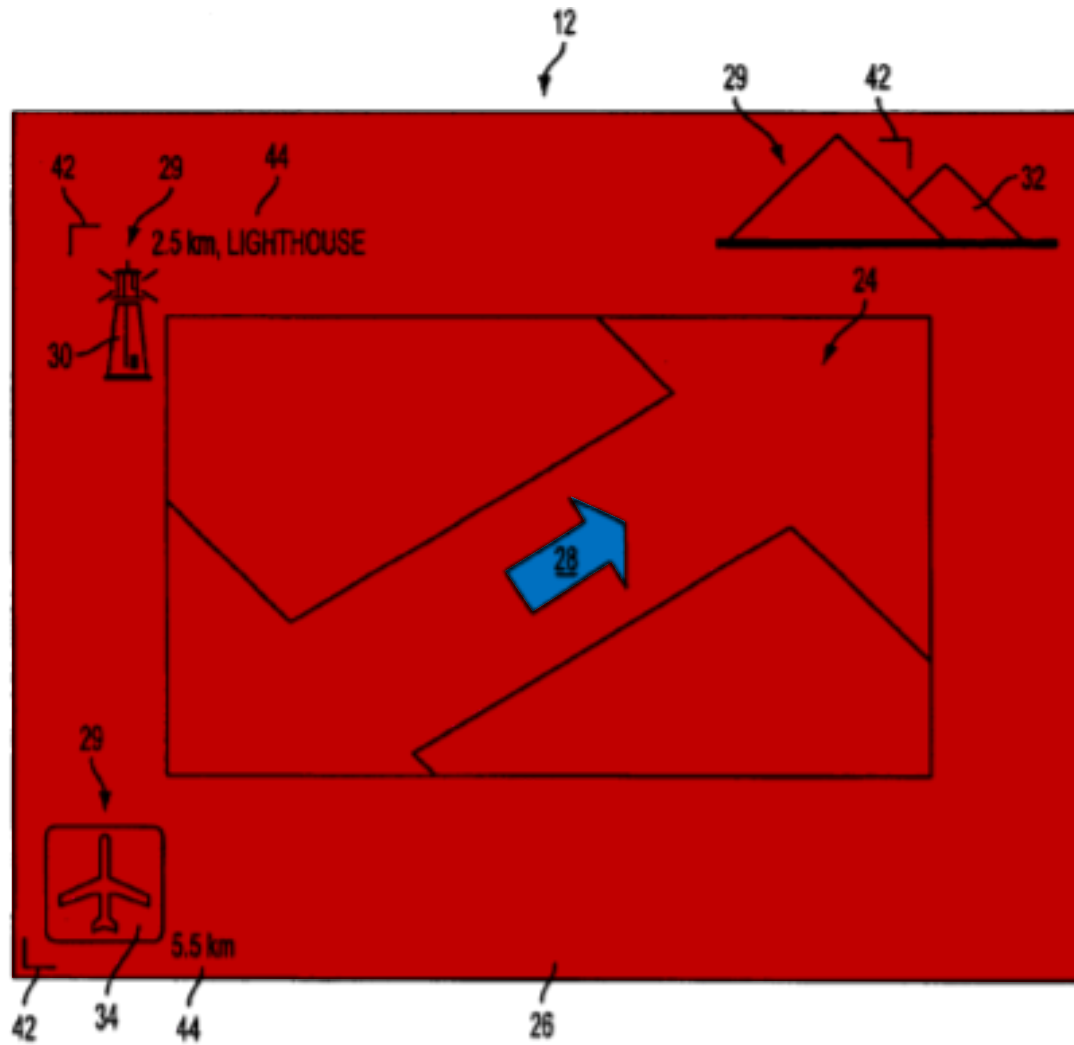


FIG. 5

Suomela, Fig. 5.

215. As explained in Section X.A, it is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler*'s mobile computing device to include GPS hardware in communication with a processor to track and display an indicator of a mobile device's current location, as taught by *Suomela*, to allow a user of the mobile device to monitor their current location as they travel along a route between two location-based items.

b. [27b]: alter an angular position of the OVI with respect to the position of the apparatus and the MO.

216. In my opinion, *Kreitler/Suomela/Altman* renders obvious claim [27b], as explained in claim 5 (Section X.C.1).

217. *Kreitler/Suomela/Altman* discloses identifying a change in position of the MO, and, as explained in claim 5 (Section X.C.1), a person of ordinary skill in the art would have understood that the system would display and adjust or alter the position of the special icon (OVI) representing the off-map user (MO) as the off-map user (MO) changes position and distance.

6. Claim 30: wherein the processing device is further configured to cause the display device to alter a position of the OVI with respect to a center of the electronic map.

218. In my opinion, *Kreitler/Suomela/Altman* renders obvious claim [30], as explained in claim 5 (Section X.C.1).

219. *Suomela* discloses that objects representing geographic locations of interest not visible within the detailed map area are positioned relative to the center of the displayed map. *Suomela*, 2:26-30 (“If his home is a great distance away such that it is not within the current map view and scales, a permanent object representing his home may be continuously shown in its proper orientation or alignment with the center of the map.”). Accordingly, it is my opinion that a person of ordinary skill in the art would have understood that *Kreitler/Suomela/Altman*’s processor alters the position of the object with respect to the center of the displayed map when it determines that the position of the off-map location of interest has changed relative to the updated position of the mobile device.

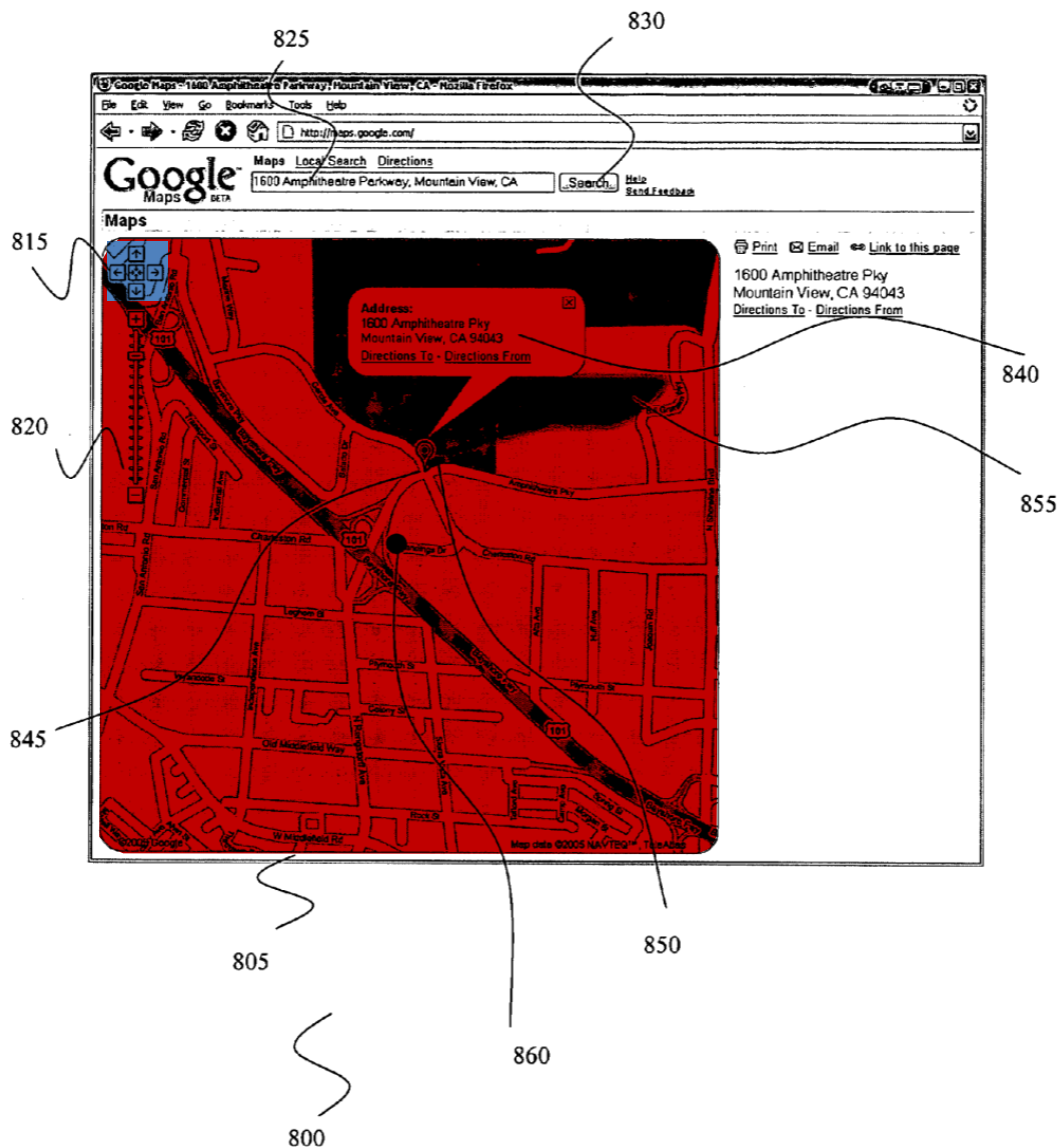
XI. GROUND 4: CLAIMS 21-22 ARE OBVIOUS OVER *KREITLER* IN VIEW OF *SUOMELA* AND *RASMUSSEN*

A. Overview of the Combination and Motivation to Combine

220. Dependent claims 21 and 22 further recite animating the map’s pan/zoom. While not expressly disclosed by *Kreitler* or *Suomela*, these limitations are taught by *Rasmussen*, and it would have been obvious to incorporate *Rasmussen*’s animation/panning within *Kreitler/Suomela* because *Kreitler* discloses zooming and panning but stops short of teaching the technical details of how to make such an adjustment. *Kreitler*, 5:23-26 (teaching “zooming and panning around”), 5:41-45, 19:20-22. A person of ordinary skill in the art would

have looked to other graphical user interface references that disclose technical details for adjusting a map-display, like *Rasmussen*.

221. *Rasmussen* discloses a digital mapping system using a tiling approach for displaying digital maps. *Rasmussen*, 3:13-21, 3:25-42, 6:21-48. *Rasmussen* is configured to include “map image panning operations” that present a transition from one map view to a new map view “as a smooth[], animated pan.” *Rasmussen*, 20:59-66. A user may initiate panning operations using “[arrow-labeled pan buttons](#)” displayed on the map, (*Rasmussen*, 8:54-57), or by “‘clicking on’ or otherwise selecting a specific portion of [map image 805](#) [which] causes the selected location to pan to the center of the [map image 805](#).” *Rasmussen*, 8:54-57, 9:3-10.



Rasmussen, Fig. 8.

222. The '527 patent, *Kreitler*, *Suomela*, and *Rasmussen* are all in the field of mapping on electronic devices to show travel-related information. The '527 patent, *Kreitler*, and *Rasmussen* address the known problem of calculating and displaying panning a map from one map view to another, with *Kreitler/Suomela/Rasmussen* disclosing known solutions, the combination of

which yields predictable results. Therefore, it would have been obvious for a person of ordinary skill in the art to combine *Rasmussen* with *Kreitler* and *Suomela* for smooth panning operations from one map view to another.

223. In my opinion, a person of ordinary skill in the art would have found it obvious to include an animated transition from one map view to another map view, taught by *Rasmussen*, with *Kreitler/Suomela*'s mapping system to "present a smooth pan along contiguous map imagery." *Rasmussen*, 21:37-39. To present the smooth pan, a person of ordinary skill in the art would have been motivated to implement *Rasmussen*'s method of determining a path by calculating the change in pixel coordinates in both the x and y directions with the linear equation " $(dx, dy) = (x, y) - (x^1, y^1)$ " and iteratively "mov[ing] the tile grid [of the map] by an offset of $(dx, dy)/n$ and display[ing] the resulting frame" to include an animation with "map image panning operations." *Rasmussen*, 20:59-22:5, Figs. 17-21.

224. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler/Suomela* to display an animated transition, taught by *Rasmussen*, to provide "a smoother, animated pan," (*Rasmussen*, 20:60-66), when a user selects a specific portion of the map, (*Rasmussen*, 9:3-10), as this merely provides additional implementation details beyond *Kreitler*'s teaching of "allow[ing] the user to navigate around the map by zooming and panning around." *Kreitler*, 5:23-24. In my opinion, a person of ordinary skill in the art would also

have been motivated to modify *Kreitler/Suomela*'s mapping system to include a path between a determined MO and an approximate center of the first area of the map and to display a second portion to include an animation to improve the overall user experience of the *Kreitler/Suomela* system and allow for the pans to be "presented smoothly" using the process taught in *Rasmussen*. *Rasmussen*, 21:63-22:5.

225. In my opinion, a person of ordinary skill in the art would have had a reasonable expectation of success in modifying *Kreitler/Suomela* to include *Rasmussen*'s animated transition from one map view to another map view and including a path and an animation. Such a modification would have required only routine skill in the art, as implementing the steps taught by *Rasmussen* to define a path along which to incrementally pan a map from one map view to another map view, including a path between a determined MO and an approximate center of the first area of the map, and displaying a second portion to include an animation was common in the art before the date of the '527 patent. *Rasmussen*, 21:63-22:5.

Kreitler itself already discloses panning a map from one map area to another map area, (*Kreitler*, 6:58-60), and adding the panning operations, taught by *Rasmussen*, would have required only a routine modification of the instructions executed by *Kreitler*'s processor, which would have been well within the skill of a person of ordinary skill in the art. Accordingly, modifying *Kreitler/Suomela* to animate the

transition from the first to second portions of the electronic map when a user selects a specific maps portion (an off-map entity information indicator control) or the map movement controls would have implemented only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

B. Claim 21: wherein the processing device is further configured to cause the display device to display an animated transition from the first portion to the second portion of the electronic map.

226. In my opinion, *Kreitler/Suomela/Rasmussen* renders obvious claim 21.

227. *Kreitler* discloses re-centering and resizing the map. *Kreitler*, 6:58-60. However, *Kreitler* and *Suomela* do not expressly disclose animating transitions.

228. *Rasmussen* discloses that “from one map view (x, y, z) to a new map view (x', y', z[']) ... should be animated over n frames” *Rasmussen*, 20:60-66, 7:60-64 (“scripts may be used to smoothly animate the transition from the old to the new map view”), 22:6-9.

229. As explained in Section XI.A, it is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler* to incorporate *Rasmussen*’s animated transition for a better user experience and would have had a reasonable expectation of success in doing so.

C. Claim 22: wherein the animated transition comprises a series of images along a linear path of travel between the first portion and the second portion of the electronic map.

230. In my opinion, *Kreitler/Suomela/Rasmussen* renders obvious claim 22.

231. *Rasmussen* discloses panning from one map view (first map portion) (x, y) to a new map view (second map portion) (x¹, y¹) via animating over n frames (series of images) along a predetermined path via the linear equation “(dx, dy)=(x, y)-(x¹, y¹),” repeatedly “mov[ing] the [map’s] tile grid by an offset of (dx, dy)/n and display[ing] the resulting frame.” *Rasmussen*, 20:62-66, 21:19-21, 21:28-30, Figs. 17-21.

232. As explained in Section XI.A, it is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler* to incorporate *Rasmussen*’s transition implementation details and would have had a reasonable expectation of success in doing so.

XII. GROUND 5: CLAIMS 23 AND 24 ARE OBVIOUS OVER KREITLER IN VIEW OF SUOMELA, RASMUSSEN, and MYR

A. Overview of the Combination and Motivation to Combine

233. Claims 23 and 24 depend from claims 21 (Ground 4) and 23, respectively, and further recite animating and panning (disclosed by *Rasmussen*) along a travel route and at a speed of transition mimicking real travel conditions. While not expressly disclosed by *Kreitler/Suomela/Rasmussen* (Ground 4), these

additional limitations are expressly disclosed by the addition of *Myr*'s travel routes and estimated travel times, which would have been obvious to incorporate within *Kreitler/Suomela/Rasmussen*.

234. The '527 patent, *Kreitler*, *Suomela*, *Rasmussen*, and *Myr* are all in the field of mapping on electronic devices to show travel-related information. All five address the known problem of calculating and displaying travel information, with *Kreitler/Suomela/Rasmussen/Myr* disclosing known solutions, the combination of which yields predictable results. Therefore, it is my opinion that it would have been obvious for a person of ordinary skill in the art to further modify *Kreitler/Suomela/Rasmussen* to include *Myr*'s calculation of shortest-distance routes and estimated travel times when panning along a predetermined route to allow a user to have a more realistic preview of their anticipated travel route.

235. In my opinion, a person of ordinary skill in the art would have been motivated to modify and had a reasonable expectation of success in modifying *Kreitler/Suomela/Rasmussen* to include *Myr*'s travel route information (including travel time estimates) for the reasons in Section XI.A and because users desire to understand their anticipated travel route, especially "on unfamiliar roads." *Myr*, 2:18-21 ("the optimal route found is communicated to the driver and displayed on the vehicle's computer screen featuring the digital map"), 3:20-25 (after "receiving a request from a driver for a shortest route ... the optimal route is communicated to

the driver”); *Rasmussen*, 19:63-66 (“additional information beyond the fundamental map image (e.g., driving routes, specific locations) can be drawn as overlays and placed on top of a map”).

236. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreitler/Suomela/Rasmussen* to include *Myr*’s travel route information (including travel time estimates). Such a modification would have required only routine skill in the art, as route calculation and time estimation were common in the art before the date of the ’527 patent. It is my opinion that a person of ordinary skill in the art, considering the combination of *Kreitler*, *Suomela*, *Rasmussen*, and *Myr*, would have understood that, when the map is repositioned to display a travel route from a point on the first portion of the electronic map to the MO, panning operations are implemented in short intervals along the travel route and until the center of the map corresponds to the MO. *Kreitler* itself already discloses calculating time and distance information to off-map locations of interest, (*Kreitler*, 7:5-19), and *Rasmussen* discloses panning between two locations, (*Rasmussen*, 20:59-66), and panning along a route to mimic or preview the expected travel route and speed would have required only modification within the skill of a person of ordinary skill in the art.

237. Accordingly, displaying calculated travel information based on identified travel conditions with *Kreitler* and *Suomela* would have implemented

only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

B. Claim 23: wherein the animated transition comprises a series of images along a predetermined route of travel between the first portion and the second portion of the electronic map.

238. In my opinion, *Kreitler/Suomela/Rasmussen/Myr* renders obvious claim 23.

239. *Rasmussen* discloses panning from one map view (first map portion) (x, y) to a new map view (second map portion) (x¹, y¹) via animating over n frames (series of images) along a predetermined path via the linear equation “(dx, dy)=(x, y)-(x¹, y¹),” repeatedly “mov[ing] the [map’s] tile grid by an offset of (dx, dy)/n and display[ing] the resulting frame.” *Rasmussen*, 20:62-66, 21:19-21, 21:28-30, Figs. 17-21.

240. *Myr* discloses calculating the shortest route between two points. *Myr*, 4:49-51, 7:3-6.

241. It is my opinion that a person of ordinary skill in the art would have understood that where the shortest distance is along a straight travel path (e.g., road), the route of travel calculated by *Myr* would be the same as *Rasmussen*’s linear panning path. Accordingly, a person of ordinary skill in the art would have understood that *Kreitler/Suomela/Rasmussen/Myr* teaches an animated transition

that comprises a series of images along a predetermined route of travel between the first portion and the second portion of the electronic map.

242. In my opinion, a person of ordinary skill in the art would have been motivated to add *Myr*'s shortest route calculation to *Kreitler/Suomela/Rasmussen*'s panning to assist the user in accurately previewing their planned route.

Section XII.A.

C. Claim 24: wherein the series of images are displayed at a speed of transition that mimics real travel conditions.

243. In my opinion, *Kreitler/Suomela/Rasmussen/Myr* renders obvious claim 24.

244. *Rasmussen* teaches that during a pan “it may be necessary to pause for some time period between frames” (images). *Rasmussen*, 21:30-31.

245. *Myr* discloses estimating travel times using information including “[r]egular predictable changes like everyday slowdowns in rush hours” *Myr*, 2:41-42, 9:47-10:50 (estimated travel time accounts for “statistical travel times based on which the corresponding empirical speed coefficients may be calculated”).

246. In my opinion, a person of ordinary skill in the art would have found it obvious to modify *Kreitler/Suomela/Rasmussen*'s inter-frame delays to reflect expected real-world conditions, including “everyday slowdowns” as taught by

Myr, (*Myr*, 10:3-4), so the user could accurately preview their planned route.

Section XII.A.

**XIII. GROUND 6: CLAIM 25 IS OBVIOUS OVER *KREITLER* IN
VIEW OF *SUOMELA*, *RASMUSSEN*, AND *ALTMAN***

A. Overview of the Combination and Motivation to Combine

247. Claim 25 depends from claim 21 (Ground 4) and further recites configuring to cause the display device to display the first portion of the map after the animated transition is complete. While not expressly disclosed by *Kreitler/Suomela/Rasmussen* (Ground 4), displaying the first portion of the map after the animated transition is complete is taught by *Altman*.

248. *Altman* discloses a location-based social network manager process amongst users and displaying the shared location information on electronic maps. *Altman*, 2:1-31, 3:4, 3:53-55, 3:65-4:1, 5:57-61. *Altman* also discloses “[s]crolling and scaling functions for control of the displays on [] the mobile device ... that can be used in conjunction ... the location-based social network manager process.” *Altman*, 16:64-17:2. *Altman* discloses that this “display process may utilize various smart mechanisms for panning, zooming, scaling, ... [and] may utilize an automatic zoom out mechanism ... when a user pans off a screen” to “[t]hen display [and] then zoom[] back to the original zoom level when the user stops panning.” *Altman*, 16:64-17:2.

249. The '527 patent, *Kreitler, Suomela, Rasmussen*, and *Altman* are all in the field of mapping on electronic devices to show travel-related information. All five address the known problem of calculating and displaying travel information, with *Kreitler/Suomela/Rasmussen/Altman* disclosing known solutions, the combination of which yields predictable results. Therefore, it is my opinion that it would have been obvious for a person of ordinary skill in the art to combine *Altman* with *Kreitler/Suomela/Rasmussen* to display the first portion of the map after the animated transition is complete.

250. In my opinion, a person of ordinary skill in the art would have found it obvious and advantageous to alter the display to include displaying the first portion of the map again after the animated transition is complete, as taught by *Altman*, to *Kreitler/Suomela/Rasmussen*'s animated transition.

251. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler/Suomela/Rasmussen* to display the first portion of the map after the animated transition is complete, as taught by *Altman*, because such a modification would allow users to effortlessly revert back to their original map image without having the user search again for their original map image.

252. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying the OVI in *Kreitler/Suomela/Rasmussen* to include *Altman*'s display to include displaying the

first portion of the map again after the animated transition is complete. Such a modification would have required only routine skill in the art, because displaying the first portion of the map again after the animated transition is complete was known in the art before the date of the '527 patent. *Kreitler/Suomela/Rasmussen* already disclose panning a map with an animated transition from a first portion to a second portion of the electronic map, so displaying the first portion of the map again after the animated transition is complete would have required only a modification of the graphical display within the skill of a person of ordinary skill in the art. Accordingly, displaying the first portion of the map again after the animated transition is complete with *Kreitler/Suomela/Rasmussen*'s animated transition would have been implemented using only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

B. Claim 25: wherein the processing device is further configured to cause the display device to display the first portion of the electronic map after the animated transition is complete.

253. In my opinion, *Kreitler/Suomela/Rasmussen/Altman* renders obvious claim 25.

254. *Altman* discloses display processes for panning maps. For example, when “a user pans off a screen” in a smart pan and zoom feature, *Altman* discloses

displaying that screen and “then zoom[ing] back to the original zoom level when the user stops panning.” *Altman*, 17:3-10.

255. In my opinion, a person of ordinary skill in the art would have understood *Kreitler/Suomela/Rasmussen* in further view of *Altman* to render obvious displaying the first portion of the map again after the animated transition is complete.

256. As explained in Section XIII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to add *Altman*’s display to include displaying the first portion of the map again after the animated transition is complete to *Kreitler/Suomela/Rasmussen*.

XIV. GROUND 7: CLAIM 28 IS OBVIOUS OVER *KREITLER* IN VIEW OF *SUOMELA*, *ALTMAN*, AND *SCHEIBE*

A. Overview of the Combination and Motivation to Combine

257. Claim 28 depends from claim 26 (Ground 3) and further recites altering the OVI color to indicate relative distance between the apparatus and the MO. While not expressly disclosed by *Kreitler/Suomela/Altman* (Ground 3), altering a color of the OVI is taught by *Scheibe*.

258. *Scheibe* discloses a map-interface showing POIs relative to a user-defined geographic area, in which variations in color represent the POI locations within the geographic area. The POIs “being represented by the color overlay may

be specified or constrained by the user to select points of interest of particular interest to the user.” *Scheibe*, 3:65-4:1. For example, “users may specify or constrain points of interest [to] include ... a specific distance from a user-defined location.” *Scheibe*, 4:8-14.

259. The ’527 patent, *Kreitler*, *Suomela*, *Altman*, and *Scheibe* are all in the field of mapping on electronic devices to show travel-related information. All five address the known problem of calculating and displaying travel information, with *Kreitler/Suomela/Altman/Scheibe* disclosing known solutions, the combination of which yields predictable results. Therefore, it would have been obvious for a person of ordinary skill in the art to combine *Scheibe* with *Kreitler/Suomela/Altman* to provide the user with straightforward means to judge the distance of an MO.

260. It is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to alter the OVI to include altering the color of the OVI to show a specific distance from a user-defined location to POIs, as taught by *Scheibe*, to *Kreitler/Suomela*’s OVI.

261. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler/Suomela/Altman* to include altering the visual characteristic of OVIs with a color overlay based on a specific distance from a POI as taught by *Scheibe*, because such a modification would allow users to identify

POIs based on distance from the user-defined location. Such a modification would allow users to effortlessly identify the relative distance from the user-defined location to POIs, which “would be readily discernible by the user simply by looking at the map interface.” *Scheibe*, 4:6-8.

262. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying the OVI in *Kreitler/Suomela/Altman* to include *Scheibe*’s color overlay alteration to represent POIs based on a specific distance from a user-defined location. Such a modification would have required only routine skill in the art, because altering the color on electronic maps based on a specific distance from a user-defined location was known in the art before the date of the ’527 patent. *Kreitler/Suomela/Altman* already disclose altering a visual characteristic of the OVI to represent a change in spatial relationship, and altering the color to the OVI through a color overlay would have required only a modification of the graphical display within the skill of a person of ordinary skill in the art. Accordingly, altering an OVI to include a color to indicate a specific distance from a user-defined location with *Kreitler/Suomela/Altman*’s OVI that is already altered based on a change in position of an apparatus and represents a change in spatial relationship between the apparatus and an MO would have been implemented using only conventional

systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

B. Claim 28: wherein the processing device is further configured to cause the display device to alter a color of the OVI to indicate a relative distance between the apparatus and the MO.

263. In my opinion, *Kreitler/Suomela/Altman/Scheibe* renders obvious claim 28.

264. As explained in [26e] (Section X.B.1.f), *Kreitler/Suomela/Altman* renders obvious altering an OVI visual characteristic in response to a change in position.

265. *Scheibe* discloses that POIs “represented by the color overlay may be specified or constrained by the user to select points of interest of particular interest to the user.” *Scheibe*, 3:65-4:1. For example, “users may specify or constrain points of interest [to] include ... a specific distance from a user-defined location.” *Scheibe*, 4:8-14.

266. In my opinion, a person of ordinary skill in the art would have understood *Kreitler/Suomela/Altman* in further view of *Scheibe* to render obvious altering the OVI color based on an updated distance between the user and the MO.

267. As explained in Section XIV.A, it is my opinion that a person of ordinary skill in the art would have been motivated to add *Scheibe*'s distance-based color alteration to *Kreitler/Suomela/Altman*.

XV. GROUND 8: CLAIM 29 IS OBVIOUS OVER *KREITLER* IN VIEW OF *SUOMELA*, *ALTMAN*, AND *WATANABE*

A. Overview of the Combination and Motivation to Combine

268. Claim 29 depends from claim 26 (Ground 3) and further recites altering a graphical vector to indicate a relative distance between the apparatus and the MO. While not expressly disclosed by *Kreitler/Suomela/Altman* (Ground 3), altering a length of a graphical vector is taught by *Watanabe*.

269. *Watanabe* discloses a “navigation system [that] identif[ies] a current position and the direction of a route” by “display[ing] an arrow.” *Watanabe*, 2:8-27. *Watanabe* also discloses “[a]djusting the length of the arrow when the arrow-head reaches a guide point,” including the destination (MO). *Watanabe*, 9:48-49. *Watanabe* discloses that the “length L of the arrow α may be dynamically changed based on a situation of guiding along the route β .” *Watanabe*, 9:50-51. More specifically, *Watanabe* discloses that “when the arrowhead reaches the destination on the route β , the length of the arrow α is adjusted so that the arrowhead will be locked at the destination ..., and the length of the arrow α is

gradually decreased along with the shift of a current position.” *Watanabe*, 9:64-10:3.

270. The ’527 patent, *Kreitler*, *Suomela*, *Altman*, and *Watanabe* are all in the field of mapping on electronic devices to show travel-related information. All five address the known problem of calculating and displaying travel information, with *Kreitler/Suomela/Altman/Watanabe* disclosing known solutions, the combination of which yields predictable results. Therefore, it would have been obvious for a person of ordinary skill in the art to combine *Watanabe*’s alteration of the length of the arrow with *Kreitler/Suomela/Altman*’s OVI for a more effective and efficient navigation system to show a specific distance from the user to the MO.

271. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler/Suomela/Altman* to include altering the visual characteristic of OVIs by altering the length of the OVI based on a specific distance from a POI as taught by *Watanabe*, because such a modification would allow users to identify POIs based on distance from the user-defined location. Such a modification would allow users to effortlessly identify the relative distance from the user to POIs, “making it possible to identify a current position ... without the necessity of moving a line of vision.” *Watanabe*, 2:4-7, 2:33-35. Moreover, a “user who sees the arrow would readily grasp a sense of a distance.” *Watanabe*, 2:50-51.

272. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying the OVI in *Kreitler/Suomela/Altman* to include *Watanabe*'s alteration of the length of the arrow to represent POIs based on a specific distance from a user-defined location. Such a modification would have required only routine skill in the art, because altering the length of the arrow on electronic maps based on a specific distance from a user vehicle to the MO was known in the art before the date of the '527 patent. *Kreitler/Suomela/Altman* already disclose altering a visual characteristic of the OVI to represent a change in spatial relationship, and altering the length of the OVI would have required only a modification of the graphical display within the skill of a person of ordinary skill in the art. Accordingly, altering the length of the arrow to indicate a specific distance from a user-defined location with *Kreitler/Suomela/Altman*'s OVI, that is already altered based on a change in position of an apparatus and represents a change in spatial relationship between the apparatus and an MO, would have been implemented using only conventional systems and methods in ways a person of ordinary skill in the art would have readily understood and expected to succeed.

- B. Claim 29: wherein the processing device is further configured to cause the display device to alter a length of a graphical vector associated with the OVI to indicate a relative distance between the apparatus and the MO.**

273. In my opinion, *Kreitler/Suomela/Altman/Watanabe* renders obvious claim 29.

274. As explained in [26e], *Kreitler/Suomela/Altman* renders obvious altering a visual characteristic of the OVI by updated the distance between the apparatus and an MO in response to a change in position.

275. *Watanabe* discloses “[a]djusting the length of the arrow when the arrow-head reaches a guide point” or MO, where the “length L of the arrow α may be dynamically changed based on a situation of guiding along the route β .” *Watanabe*, 9:48-51. *Watanabe* discloses that “when the arrowhead reaches the destination [or MO] on the route β , the length of the arrow α is adjusted so that the arrowhead will be locked at the destination ..., and the length of the arrow α is gradually decreased along with the shift of a current position.” *Watanabe*, 9:64-10:3.

276. In my opinion, a person of ordinary skill in the art would have understood that an arrow is a graphical vector, and further that *Kreitler/Suomela/Altman* in further view of *Watanabe* render obvious altering graphical vector length based on an updated distance between the user and the MO.

277. As explained in Section XV.A, it is my opinion that a person of ordinary skill in the art would have been motivated to add *Watanabe*’s distance-based alteration of arrow length to *Kreitler/Suomela/Altman*.

XVI. CONCLUSION

278. For the reasons set forth in Sections VIII-XV, it is my opinion that one skilled in the art would have found claims 1-30 of the '527 patent obvious.

279. In signing this declaration, I understand that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in this case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination via Zoom during the time allotted for cross-examination.

280. 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: May 25, 2023



Craig S. Rosenberg, Ph.D.