

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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**BMW OF NORTH AMERICA, LLC,**

Petitioner,

v.

**NORTHSTAR SYSTEMS LLC,**

Patent Owner.

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Case No. IPR2023-00890

U.S. Patent No. 8,032,297

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**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. 8,032,297 (“the ’297 patent,” attached as Ex-1001). The application for the ’297 patent was filed on May 8, 2008, as U.S. Patent Application No. 12/151,827 (“the ’827 application”). The ’827 application issued as the ’297 patent on October 4, 2011.

5. I have been asked by Petitioner to provide my opinion whether the claims of the ’297 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 ’297 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 '297 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 '071 patent and the '605 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 Exhibit 1.

12. I earned my Bachelor of Science degree in Industrial Engineering, my Master of Science degree in Human Factors, and Doctor of Philosophy in Human Factors from the University of Washington School of Engineering. For 30 years, I have worked in human factors, user interface design, software development, software architecture, systems engineering, and modeling and simulation across various domains, including aerospace, communications, entertainment, and healthcare.

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 is 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, Exhibit 1.

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. LocationNet*, 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. 8,032,297 (“the ’297 patent”)                                                                                                                                                                                                                                                |
| Ex-1002 | File History of U.S. Patent No. 8,032,297                                                                                                                                                                                                                                                    |
| 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. 8,099,109 ( <i>Altman</i> )                                                                                                                                                                                                                                                  |
| Ex-1008 | U.S. Patent No. 6,480,783 ( <i>Myr</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> <a href="https://pdf.crutchfieldonline.com/ImageBank/v20060207074000/Manuals/150/150NUVI350.PDF">https://pdf.crutchfieldonline.com/ImageBank/v20060207074000/Manuals/150/150NUVI350.PDF</a> |
| Ex-1012 | Apple Reinvents the Phone with iPhone (January 9, 2007) <i>available at</i> <a href="https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/">https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/</a>                                    |
| Ex-1013 | GPS Goes Mainstream (December 26, 2007) <i>available at</i> <a href="https://www.npr.org/templates/story/story.php?storyId=17611103">https://www.npr.org/templates/story/story.php?storyId=17611103</a>                                                                                      |

|         |                                                                                                                                                                                                                                                                            |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ex-1014 | GPS Mobile Phones to Hit the Masses in 2007 (January 25, 2007) <i>available at</i> <a href="https://www.esato.com/news/gps-mobile-phones-to-hit-the-masses-in-2007-1429">https://www.esato.com/news/gps-mobile-phones-to-hit-the-masses-in-2007-1429</a>                   |
| Ex-1015 | GPS-enabled Mobile Phone Invasion in 2007 (October 13, 2005) <i>available at</i> <a href="https://news.softpedia.com/news/GPS-enabled-Mobile-Phone-Invasion-in-2007-45361.shtml">https://news.softpedia.com/news/GPS-enabled-Mobile-Phone-Invasion-in-2007-45361.shtml</a> |
| Ex-1016 | U.S. Patent No. 6,252,544 ( <i>Hoffberg</i> )                                                                                                                                                                                                                              |
| Ex-1017 | WIPO Publication No. 2009/055501 ( <i>Holden</i> )                                                                                                                                                                                                                         |
| Ex-1018 | Improving Selection of Off-Screen Targets with Hopping (April 22-27, 2006) <i>available at</i> <a href="https://www.cs.dartmouth.edu/~xingdong/papers/CHI06.pdf">https://www.cs.dartmouth.edu/~xingdong/papers/CHI06.pdf</a>                                               |

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 '297 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 '297 patent from the perspective of a person of ordinary skill in the art at the '297 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 '297 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 '297 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 '297 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 '297 patent as it would have been understood by one skilled in the art as of May 8, 2008.

54. In Sections VIII-XII, I apply this plain and ordinary meaning.

## **VII. BACKGROUND AND TECHNOLOGY OF THE '297 PATENT**

### **A. Overview of the '297 Patent**

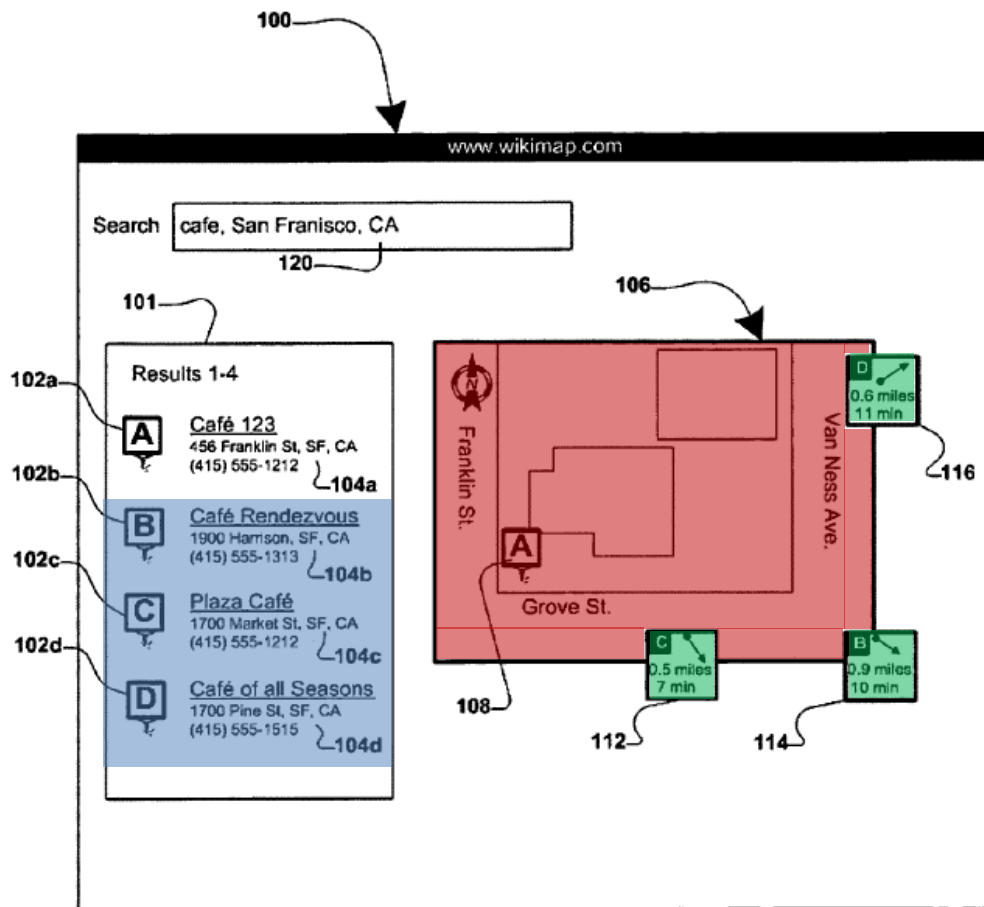
55. The '297 patent was filed on May 8, 2008, with no priority claim making its earliest effective filing date May 8, 2008. I have been asked to assume that May 8, 2008, is the '297 patent's earliest priority, and I have therefore considered and applied this date throughout my declaration.

56. The '297 patent claims a method for “displaying information pertaining to map-objects (e.g., points-of-interest, way-points, etc.) that are outside the visible area of a map.” '297 patent, 1:8-11. The claimed '297 method boils down to four primary steps:

- 1) Displaying a map on the display of an electronic device;

- 2) Determining an off-map location of interest or point of interest (“POI”);
- 3) Displaying a selectable object indicating the location of the off-map POI; and
- 4) When the object is selected, recentering the displayed map around the previously off-map location.

57. In the '297 patent, a map display application on a computing device displays a visible area of the map. '297 patent, 2:63-66. The map-display application identifies map-objects (MOs), or specific locations demarcated on the map, resulting from a user search. '297 patent, 8:22-26. The map-display application then determines whether the MOs are within the displayed area of the map visible to the user. '297 patent, 8:27-35. If the application determines **an MO is not within the visible bounds of the map**, the application creates and displays **an object vector indicator (OVI)** to reference the MO. '297 patent, 8:43-49. **The OVI** is positioned on the periphery of **the visible area of the map** and includes information such as the direction, distance, and travel time to reach the referenced MO. '297 patent, 4:29-38, Figs. 1, 2B, 2C. When the user selects the OVI, the map-display application zooms and/or pans the map, to adjust the visible area of the map to include the MO referenced by the selected OVI. '297 patent, 11:20-33.



'297 patent, Fig. 1.

58. Issued independent claim 1 recites:

[1a] providing an electronic device having a map-display application that is coupled to a mapping service and a display for displaying a selected area of the electronic map;

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

[1c] computing distance and travel-related information from a location within the selected area of the electronic map to the MO;

- [1d] computing a placement position of an OVI  
referencing the MO on the map-display application;
- [1e] creating the OVI containing the distance and travel-  
related information;
- [1f] displaying the OVI on the display at the computed  
placement position;
- [1g] receiving user input selecting the OVI;
- [1h] displaying a secondary area of the electronic map,  
wherein the secondary area is a region of the electronic  
map centered approximately around the MO;
- [1i] displaying a secondary area of the electronic map,  
wherein the secondary area is a region of the electronic  
map centered approximately around the MO.

**VIII. GROUND 1: CLAIMS 1-5, 7-8, 11-12, 14-18, 23-24, 28, AND 30 ARE  
OBVIOUS OVER *KREITLER* IN VIEW OF *SUOMELA***

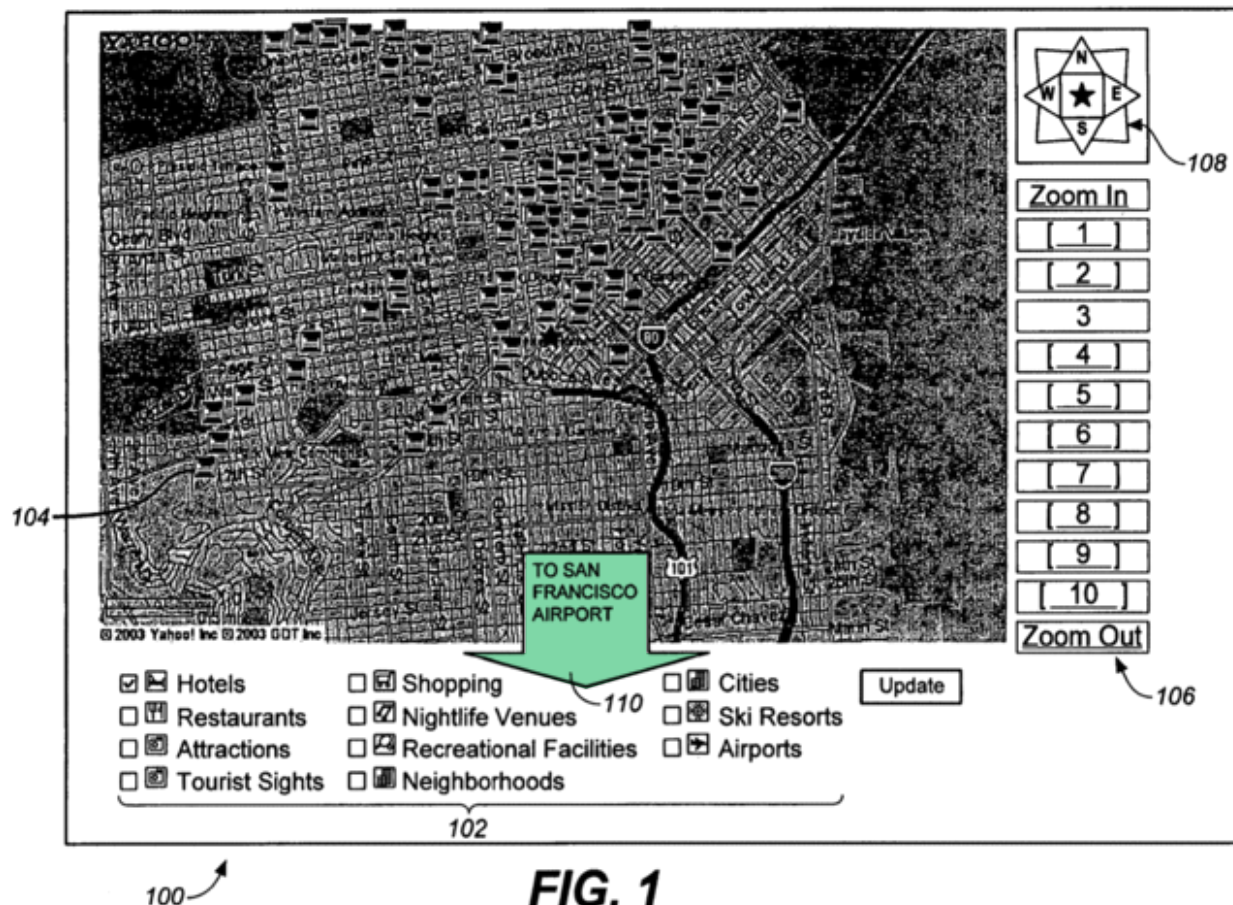
**A. Overview of the Combination and Motivation to Combine**

59. As explained above, the claimed method includes four primary 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; and
4. When the object is selected, recentering the displayed map around  
the previously off-map location.

60. *Kreitler* teaches the heart of the independent claims of the '297  
patent's independent claims, including all four of the primary steps. Like the '297

patent, *Kreitler* discloses presenting location-based items or points of interest (POIs) on a map and allowing a user to obtain detailed information about the items. *Kreitler*, 3:33-36. *Kreitler*'s system "can display **special (distinctive) icons for items that are not positioned on the map** but nonetheless may be of interest to the user." *Kreitler*, 6:43-49. A user may interact with the icons by clicking on the icon to "jump to a higher zoom level and re-center the map around the center of the icon." *Kreitler*, 6:14-43.



*Kreitler*, Fig. 1.

61. While *Kreitler*'s "system may identify the distance between the two points" (*Kreitler*, 7:13-16), *Kreitler*, however, does not expressly disclose that (i) its OVI contains distance-related information, (ii) that its electronic device is GPS-enabled, (iii) recalculating the placement position of an MO in response to a change in position of the mobile device with GPS hardware, (iv) computing distance and travel-related information from the center of a map to allow a user to automatically have a map-display relevant to their present location, or (v) multiple OVIs including distance and travel-related information to the OVIs. All of these elements are taught expressly by *Suomela*.

62. *Suomela* discloses displaying a digital map on a mobile computing 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. The detail area is "located in a substantially central portion of the map" and includes details, such as street names and buildings, which allow a user to follow the steps of a route. *Suomela*, 2:1-13. The object area is "located in a peripheral portion of the map" and includes **objects representing geographic locations of interest (POIs)**. *Suomela*, Abstract, 2:1-13. The objects are "shown in the object area in orientations related to the detail area." *Suomela*, 2:5-6. Moreover, **the objects** include indicators showing the direction and distance from the center of the map to each object. *Suomela*, 4:34-56.

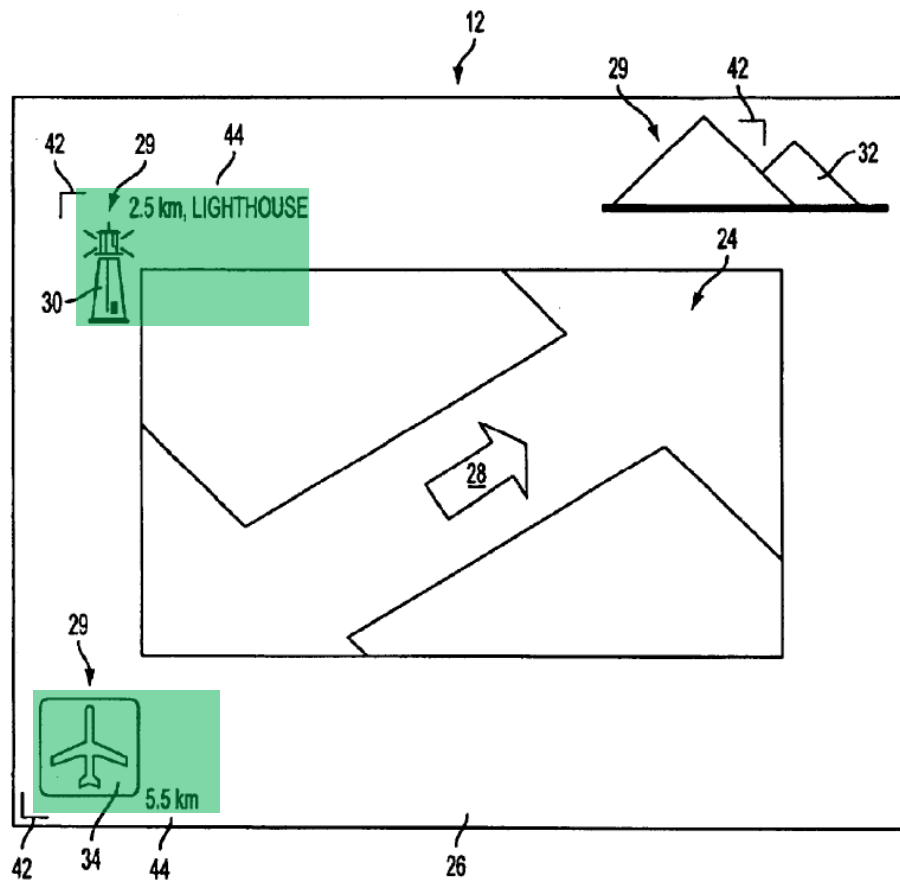


FIG. 5

*Suomela*, Fig. 5.

63. The '297 patent is in the field of mapping on electronic devices and displaying information pertaining to map-objects that are outside the visible area of a map, within a map-display application solving the problem of not being able to discern the direction and distance to the MO when the MO is outside the visible area of the map. *Kreitler* is in the same field as the '297 patent of mapping methods and systems of electronic devices and addresses the same problem. *Suomela* is also in the same field as the '297 patent of displaying a digital map to

include locations of interest and solves the problem of identifying locations of interest and travel information that are not on the currently displayed map. It is my opinion that a person of ordinary skill in the art would have been motivated to combine *Kreitler* with *Suomela*, because both references are in the same field of invention and disclose user interfaces for mapping and navigation software to display navigation information on an electronic map. 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 that shows the items of interest that may not be located within the visible area of the map.

64. 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, for example, an arrow icon (*Kreitler*, 6:55-57) to provide a user with the distance from a position within the selected map to off-map items of interest referenced by the special icons.

65. It is my opinion that 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, because such a modification would allow users to identify the required travel distance to items of interest. In addition, it is my opinion that 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.

66. It is my opinion that 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 '297 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 that a person of ordinary skill in the art would have readily understood and expected to succeed.

67. 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. 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.

68. *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.

69. Like *Suomela*, *Kreitler* discloses displaying an electronic map on a "mobile device including but not limited to a PDA or cellphone." *Kreitler*, 12:3-12. *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*, 1:48-56. In my opinion, a person of ordinary skill in the art would have been motivated to incorporate GPS capabilities, as taught by *Suomela*, in *Kreitler* to take advantage of the benefits of GPS, as 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 '297 patent. For example, the Garmin nüvi Manual discloses a mapping system from September 2005 that 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, 15. In fact, “2007 was the year when the Global Positioning System finally went mainstream” and were “everywhere: in cars, cell phones and strapped onto the arms of joggers.” Ex-1013, 1. Moreover, in the mobile industry, “eighty-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 already comprised of GPS receivers and personal digital assistants with GPS receiver modules prior to the '297 patent. Ex-1016, 26:35-59, 32:60-33:24. Furthermore, client devices included GPS prior to the '297 patent. Ex-1017, [0017].

70. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreidler* to include GPS capabilities from *Suomela*. 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 '297 patent.

For example, the Garmin nüvi Manual discloses a mapping system from September 2005 that 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, 15. In fact, “2007 was the year when the Global Positioning System finally went mainstream” and were “everywhere: in cars, cell phones and strapped onto the arms of joggers.” Ex-1013, 1. Moreover, in the mobile industry, “eighty-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 already comprised of GPS receivers and personal digital assistants with GPS receiver modules prior to the ’297 patent. Ex-1016, 26:35-59, 32:60-33:24. Furthermore, client devices included GPS prior to the ’297 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 that a person of ordinary skill in the art would have readily understood and expected to succeed.

71. It is also my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include recalculating the placement position of an MO in response to a change in position of the mobile device with GPS hardware, as taught by *Suomela*, within *Kreitler*’s special icons that are

positioned relative to the position of the MO to update the icon's positioning relative to the updated position of the item it represents.

72. It is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler* with *Suomela*'s recalculating a change in position of the mobile device with GPS hardware within *Kreitler*'s special icons that are positioned relative to the position of the MO to provide a user with the travel information from a position to POIs referenced by the special icons, because such a modification would allow users to update the icon's positioning relative to the position on the now-recentered map. In addition, in my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler* to recalculate the placement position of the special icon in response to a change in position of the mobile device with GPS hardware, as taught by *Suomela*. Such a modification would allow users to effortlessly identify POIs based on the change in position, and "the user is able to track his route in detail area 24 while maintaining his orientation with known objects in object area 26." *Suomela*, 5:13-22. By using a "[l]ocation indicator 28 [that] shows the user's current location and direction of travel" in real-time on a map, the user is able to obtain helpful information on items, including "[o]bjects, such as airport object 34 representing the airport he arrived at, mountain object 32 that represent mountains he can see in the distance, and lighthouse object 30 representing a famous lighthouse that he saw while

landing at the airport, [which] may assist him in learning the layout of the new city” based on their current travel location in real-time. *Suomela*, 5:13-22.

73. 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 recalculation of a change in position of the mobile device with GPS hardware. Such a modification would have required only routine skill in the art, as recalculating placement positions was common in the art before the date of the ’297 patent. *Kreitler* itself already discloses calculating distance information to off-map locations of interest (*Kreitler*, 7:5-19), and recalculating the placement position information would have required only a modification of the algorithm within the skill of a person of ordinary skill in the art. Accordingly, recalculating the placement position of an MO in response to a change in position of the mobile device with GPS hardware, as taught by *Suomela*, within *Kreitler*’s special icons that are positioned relative to the position of the MO to provide a user with the travel information from a position to POIs referenced by the special icons would have implemented only conventional systems and methods in ways that a person of ordinary skill in the art would have readily understood and expected to succeed.

74. It is also my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to compute distance and travel-related information, as taught by *Kreitler*, from the center of the map, as taught by

*Suomela*, to allow a user to automatically have a map-display relevant to their present location (as identified by GPS).

75. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler* with *Suomela*'s selected area of the map as the center with GPS hardware within *Kreitler*'s selected area of the electronic map to provide a user to automatically have a map-display relevant to their present location, because such a modification would allow users to identify their location as well as the location of their relative position to POIs on the map. In addition, a person of ordinary skill in the art would have been motivated to modify *Kreitler* to include the selected area of the map as the center with GPS hardware, as taught by *Suomela*. Such a modification would allow users to effortlessly identify POIs based on their location on the map. *Suomela*, 3:30-40.

76. 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 selected area of the map as the center with GPS hardware. Such a modification would have required only routine skill in the art, as placing the selected area as the center was common in the art before the date of the '297 patent. *Kreitler* itself already discloses that each map is defined by its center point (*Kreitler*, 5:4-6), and including the selected area of the map as the center would have required only a modification of the algorithm within the skill of a person of ordinary skill in the

art. Accordingly, centering the map as the user's current location with GPS hardware, as taught by *Suomela*, within *Kreitler*'s map that is defined by its center point would have implemented only conventional systems and methods in ways that a person of ordinary skill in the art would have readily understood and expected to succeed.

77. It is also my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include multiple OVIs including the distance and travel-related information to the MOs, as taught by *Suomela*, within *Kreitler*'s OVI to allow a user to see multiple POIs at once.

78. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler*'s OVI to include *Suomela*'s multiple OVIs including the distance and travel-related information within *Kreitler*'s OVI to provide a user to automatically view multiple POIs within the map-display, because such a modification would allow users to identify further helpful information. In addition, a person of ordinary skill in the art would have been motivated to modify *Kreitler* to include additional OVIs with distance and travel-related information, as taught by *Suomela*. "For example, one object includes a lighthouse icon 30 representing the geographical location where an actual lighthouse (not shown) is located. Also, another object includes a mountain icon 32 representing the geographical location where mountains are located, and a further object includes an airport icon 34

representing the geographical location of an airport.” *Suomela*, 3:57-66. Such a modification would allow users to effortlessly identify POIs based on their location on the map. *Suomela*, 3:48-51, 3:58-66, 3:67-4:7.

79. 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 OVIs with distance and travel-related information. Such a modification would have required only routine skill in the art, as placing multiple OVIs with distance and travel-related information was common in the art before the date of the ’297 patent. *Kreitler* itself already discloses OVIs containing travel-related information (*Kreitler*, 1:66-2:8), and adding additional OVIs would have required only a modification of the algorithm within the skill of a person of ordinary skill in the art. Accordingly, including additional OVIs containing distance and travel-related information to the MOs, as taught by *Suomela*, within *Kreitler*’s OVI that already contains travel-related information would have implemented only conventional systems and methods in ways that a person of ordinary skill in the art would have readily understood and expected to succeed.

## **B. Independent Claims**

### **1. Claim 1**

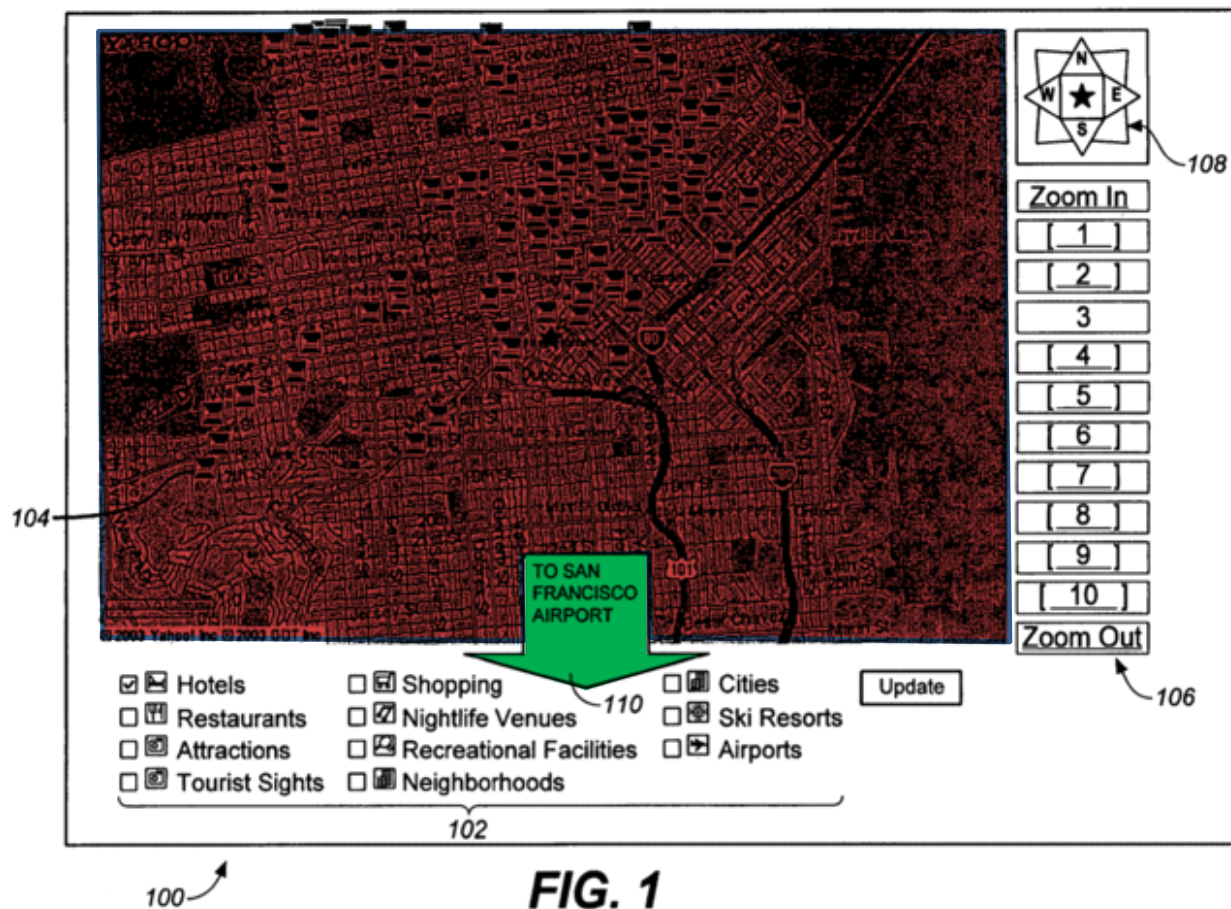
80. In my opinion, claim 1 of the ’297 patent would have been obvious to one of ordinary skill in the art based on *Kreitler* in view of *Suomela*. In particular,

*Kreitler* in view of *Suomela* discloses and renders obvious claims 1-5, 7-8, 11-12, 14-18, 23-24, 28, and 30.

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

81. In my opinion, *Kreitler* discloses [1pre] because *Kreitler* discloses displaying an electronic map including various items of interest or POIs (map-objects) and special icons (object vector indicators) identifying off-map items of interest.

82. *Kreitler* discloses a method of displaying location-based items or POIs on an electronic map. *Kreitler*, 3:33-36, 12:3-12. The items are objects or locations “that may be of interest to any person.” *Kreitler*, 3:37-43. Each item is represented by an icon on the map. *Kreitler*, 5:10-13. Items of interest not positioned on the **visible map** are displayed using “**special (distinctive) icons**,” as illustrated below in Figure 1. *Kreitler*, 6:43-62.



*Kreitler*, Fig. 1.

- b. [1a]: providing an electronic device having a map-display application that is coupled to a mapping service and a display for displaying a selected area of the electronic map

83. In my opinion, *Kreitler* teaches [1a] because *Kreitler* discloses a PDA or cellphone (electronic device) with an interface application displaying a map (map-display application and display for displaying a selected area of the electronic map) that communicates with an intelligent mapping application software system (mapping service).

84. *Kreitler* discloses ***providing an electronic device having a map-display application*** by disclosing a client computer such as “a PDA or cell phone” having “[a]n interface application,” such as a browser or an applet. *Kreitler*, 12:3-9.

85. *Kreitler* discloses that the map-display application is ***coupled to a mapping service*** because *Kreitler*’s interface application in “the user’s computer or device 410 is used to interact with the intelligent mapping application software system 400.” *Kreitler*, 12:5-10. *Kreitler*’s mapping application software system “provides a mapping means for running the intelligent mapping software to generate and transmit the map to the server that receives the query from the user.” *Kreitler*, 12:13-16. *Kreitler*’s mapping application software system communicates with a map server, such as Yahoo! Maps, which is “responsible for generating a map image given a center point and a zoom level.” *Kreitler*, 10:27-29, 12:16-18, Fig. 4. The ’297 patent discloses Yahoo! Maps as an example of a mapping server that connects with map-display application and also lists Yahoo! Maps as a popular mapping service for personal computers and computing devices. ’297 patent, 1:15-19, 7:65-8:9.

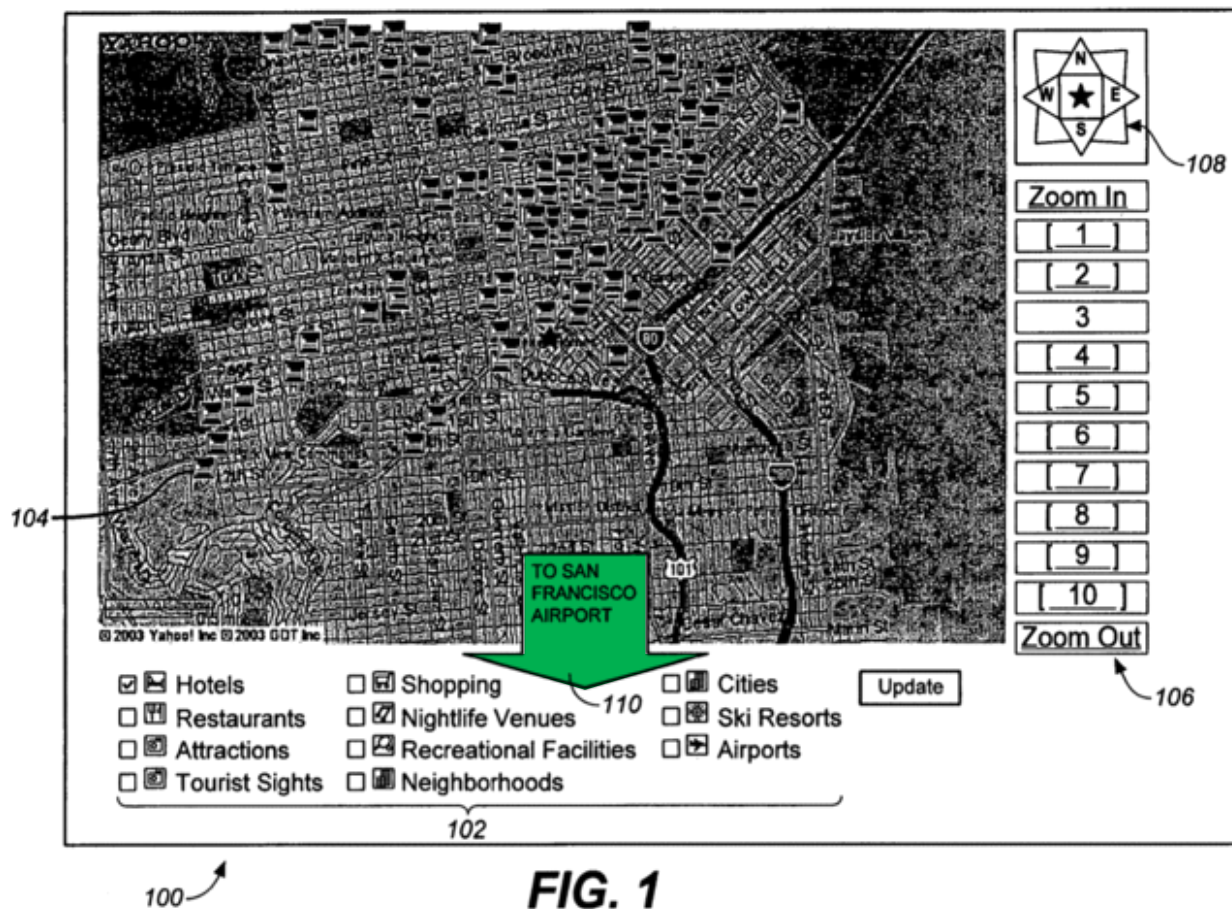
86. *Kreitler* also discloses that its map-display application is ***coupled to a display for displaying a selected area of the electronic map*** because *Kreitler*’s electronic device, such as a PDA or cell phone, includes a display for displaying a

selected area of the electronic map in response to a user query requesting “a particular type of landmark or attraction near an address.” *Kreitler*, Figs 1, 2, 1:38-46, 2:20-24, 5:36-37, 12:27-29.

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

87. In my opinion, *Kreitler* teaches [1b] because *Kreitler* displays special icons representing items of interest if they are not within the visible area of the displayed map 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”).

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



Kreitler, Fig. 1.

89. According to *Kreitler*, its “system would recognize 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*, 6:67-7:4. In my opinion, a person of ordinary skill in the art would have understood this is accomplished by **determining that coordinates of the MO are not within the selected area of the electronic map** because *Kreitler*’s “map is all based on latitudes and longitudes, and the latitude and longitude of the icon coordinates are transformed to pixel coordinates so that the icon can be placed on the correct location on the map.” *Kreitler*, 10:46-49. The

determination is likely to be based on the latitudes of the top and bottom of the currently displayed map and the longitudes of the left and right sides of the currently displayed map and then determining if the MO is within that bounding box. If it is, then the pixel coordinates of the MO could be determined, and the MO could be placed on the map. If the MO is outside of the bounding box, then the OVI is placed on the edge of the map at the appropriate place based on a vector calculation between the center of the map and the location of the MO that is outside the bounding box of the map.

**d. [1c]: computing distance and travel-related information from a location within the selected area of the electronic map to the MO**

90. In my opinion, *Kreitler* teaches [1c] because *Kreitler* discloses determining navigational information including distance and driving directions (distance and travel-related information) to a POI (MO).

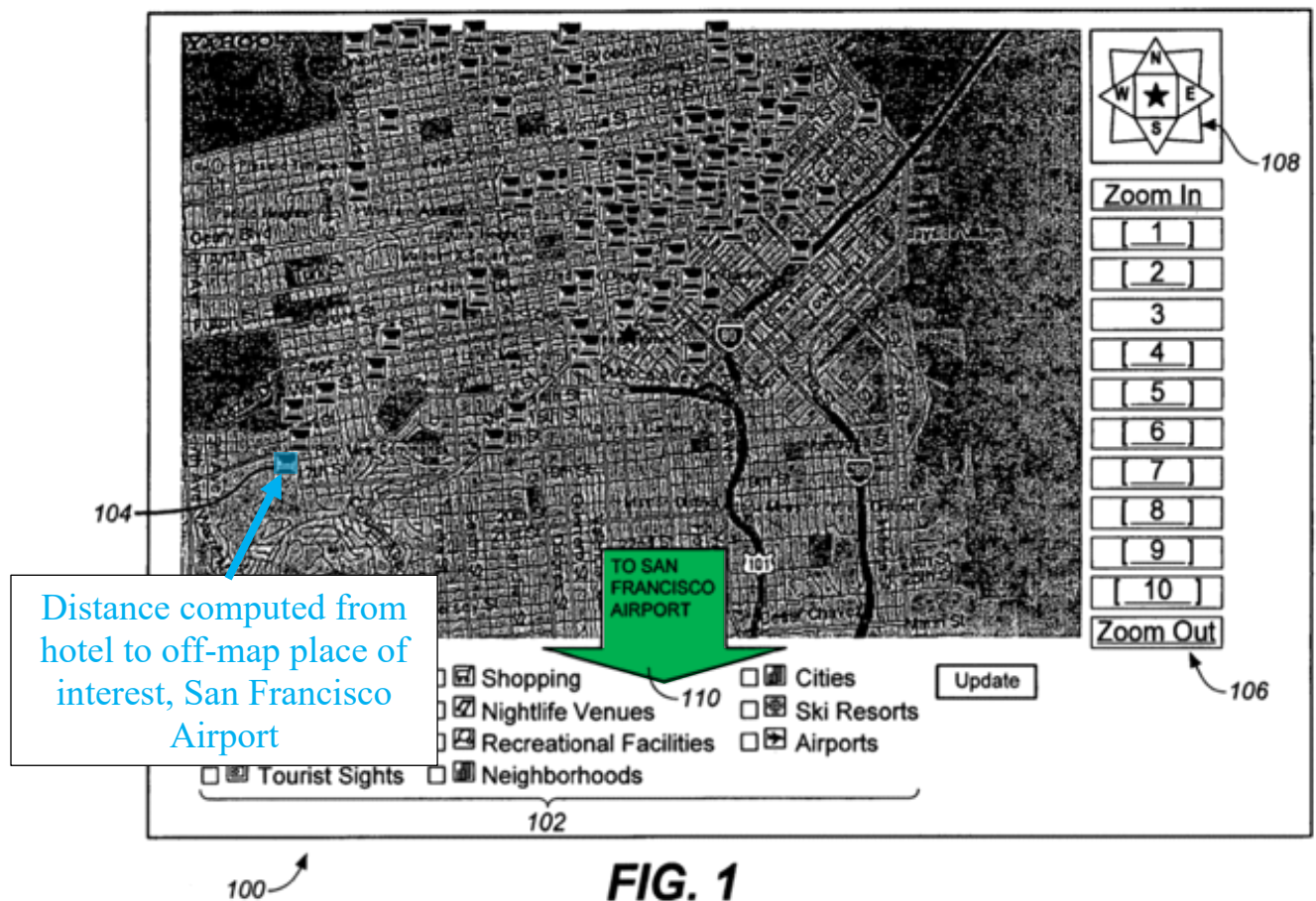
91. *Kreitler*'s user may select an item to obtain navigational information that includes distance and driving directions to other items relative to the selected item. *Kreitler*, 5:36-41, 6:43-45, 7:5-31; '297, Fig. 1, 1:66-2:2, 5:6-9 (distance is "information"). "For example, selecting a hotel would allow the user to obtain the distance of other items in relation to the selected hotel, or obtain driving directions from the selected hotel to the other item." *Kreitler*, 7:5-9. The navigational information additionally includes "the approximate driving time between the

points.” *Kreitler*, 7:10-19. The obtained navigational information is then displayed graphically. *Kreitler*, 7:10-11.

92. *Kreitler* also discloses travel related information between items on the map to an item that is off the map, because “when the search is performed, a larger radius may be used than the radius that currently fits on the map.” *Kreitler*, 6:63-67. *Kreitler* also discloses creating and displaying a special icon (OVI) indicating an off-map MO including the direction of the MO. *Kreitler*, 6:51-57; ’297 patent, 1:66-2:2. For example, Figure 1 shows a special icon referencing “San Francisco Airport” is configured as “an arrow icon” “that points in the general direction of San Francisco Airport.” *Kreitler*, 6:51-57. In this case, “[t]he system would recognize 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 that allows the search and jump so the user is able to see that item.” *Kreitler*, 6:67, 7:1-4.

93. *Kreitler* discloses that its system is implemented in computer code executed by a processor, stating that it is “embodied in the form of computer program code embodied in tangible media” such that “when the computer program code is loaded into and executed by a computer, the computer becomes an apparatus for practicing” the disclosed method implemented “on a general-purpose processor.” *Kreitler*, 25:1-19. In my opinion, a person of ordinary skill in the art would have understood that *Kreitler* computes the obtained navigational

information because it determines, with a processor (*Kreitler*, 25:1-19), the navigation and drive-time information. Additionally, a person of ordinary skill in the art would have understood from *Kreitler*'s disclosures that when user selects an icon representing an item (e.g., a hotel) and a special icon representing an off-map item (e.g., San Francisco Airport), *Kreitler*'s disclosed processor computes navigational information from the first item within the selected area of the map to the off-map item because the special icon is "of interest to the user." *Kreitler*, 6:43-45, 25:1-19.

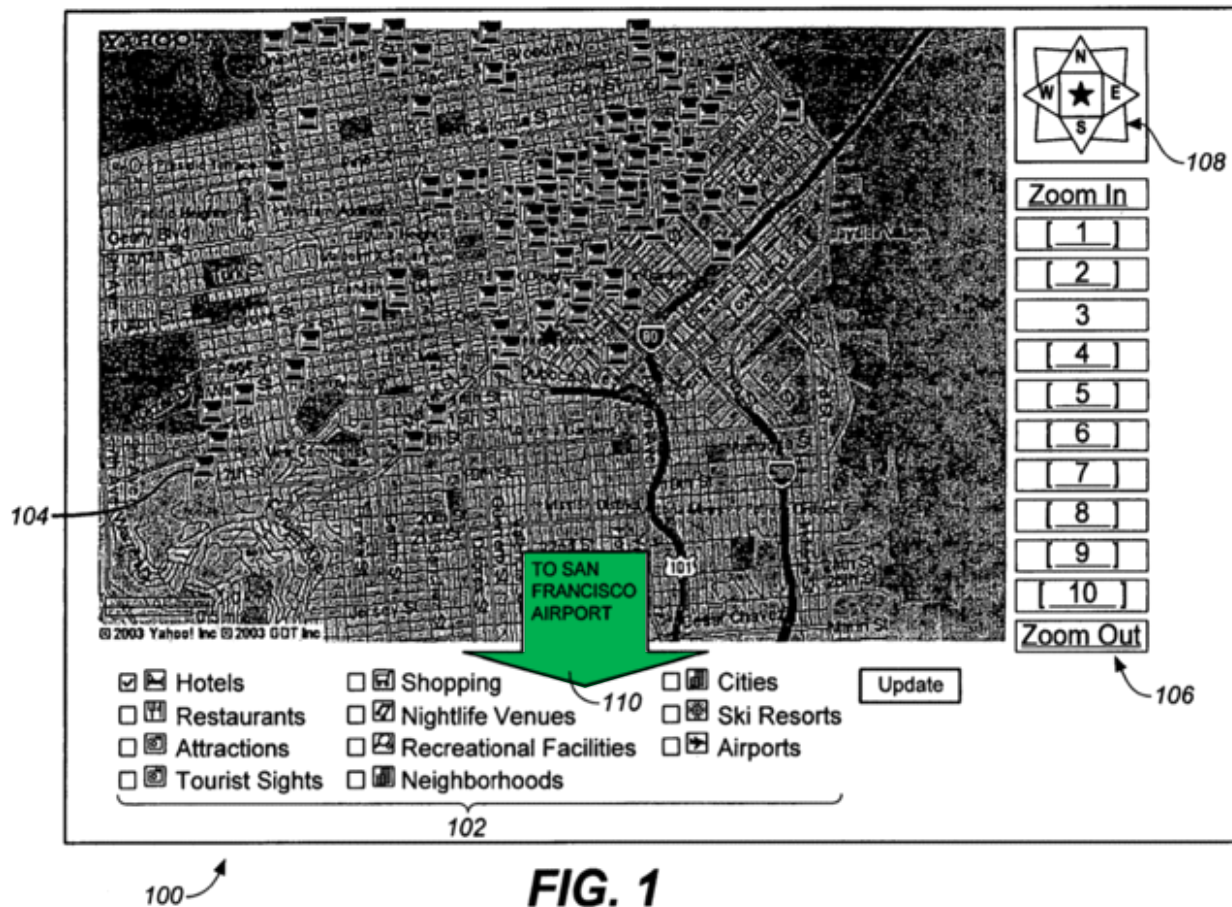


*Kreitler*, Fig. 1.

**e. [1d]: computing a placement position of an OVI  
referencing the MO on the map-display application**

94. In my opinion, *Kreitler* teaches [1d] because *Kreitler* discloses placing a special icon (OVI) in a position corresponding to the off-map item of interest (MO).

95. *Kreitler* discloses placing a special icon corresponding to an off-map item of interest on the map-display. *Kreitler*, 6:47-49. The placement position is relative to the location of the off-map item. *Kreitler*, 6:51-55. For example, because the “San Francisco International Airport is to the south of the city, an icon may be displayed on the south border of the image that points in the general direction of San Francisco Airport.” *Kreitler*, 6:51-60.



*Kreitler*, Fig. 1 (annotated).

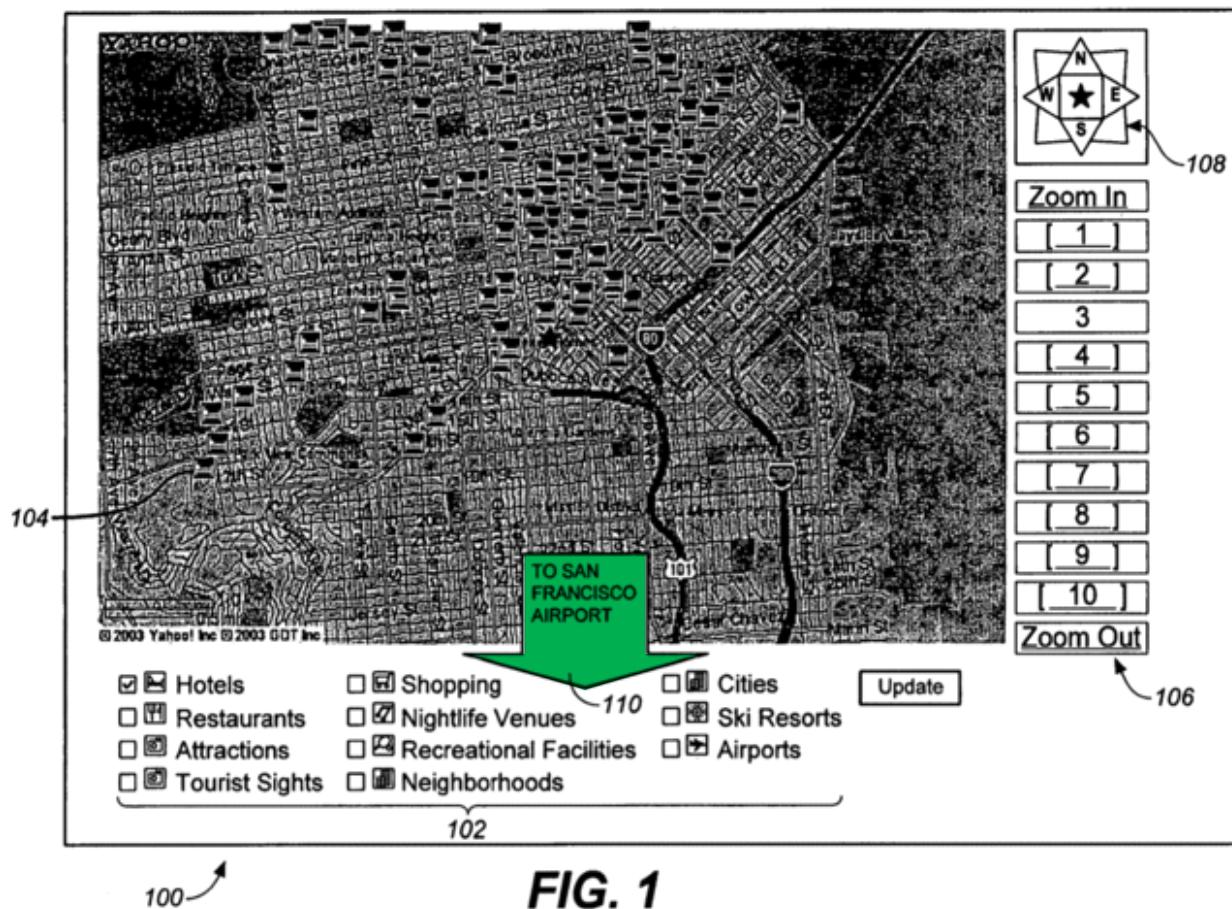
96. *Kreitler* discloses that its system is implemented in computer code executed by a processor, stating that it is “embodied in the form of computer program code embodied in tangible media” such that “when the computer program code is loaded into and executed by a computer, the computer becomes an apparatus for practicing” the disclosed method implemented “on a general-purpose processor.” *Kreitler*, 25:1-19. In my opinion, a person of ordinary skill in the art would have understood that *Kreitler* computes the placement position of the special icon because the position is based on the location of the off-map entity it

references, and is determined and displayed using *Kreitler*'s disclosed processor, which is executing programming code to compute a placement. *Kreitler*, 25:1-19.

**f. [1e]: creating the OVI containing the distance and travel-related information**

97. In my opinion, *Kreitler* in view of *Suomela* renders obvious [1e].

98. *Kreitler* teaches “***creating the OVI containing the ... travel-related information***” because *Kreitler* discloses creating and displaying a special icon (OVI) indicating an off-map item of interest, including the direction of the item of interest (travel-related information). As described in the '297 patent, the OVI may include information on the MO's distance. '297, 1:66-2:2. Figure 1 shows a special icon referencing “San Francisco Airport” is configured as “an arrow icon” “that points in the general direction of San Francisco Airport.” *Kreitler*, 6:51-57.



Kreitler, Fig. 1.

99. *Kreitler* does not expressly disclose that its special icon includes **distance information**, but it suggests it because *Kreitler* teaches computing distance and driving directions from an item within the selected area of the map to an off-map item of interest as explained for [1c] (Section VIII.B.1.d). *Suomela*, however, expressly discloses displaying both distance and travel-related information in an OVI.

100. *Suomela* discloses “a digital map displayed on a mobile computing device.” *Suomela*, 2:14-15. *Suomela* further discloses displaying objects, “in a

peripheral portion of the map” that represent geographic locations of interest not visible within the detailed map area (OVI). *Suomela*, Abstract, 2:1-13. The objects are positioned relative to the direction of travel to reach the locations of interest (travel-related information) and include distance indicators. *Suomela*, 4:34-37.

Figure 5 shows that “[t]he distance indicators 44 show the distance from the center of the map or location indicator 28 to each of the objects 29.” *Suomela*, 4:39-41.

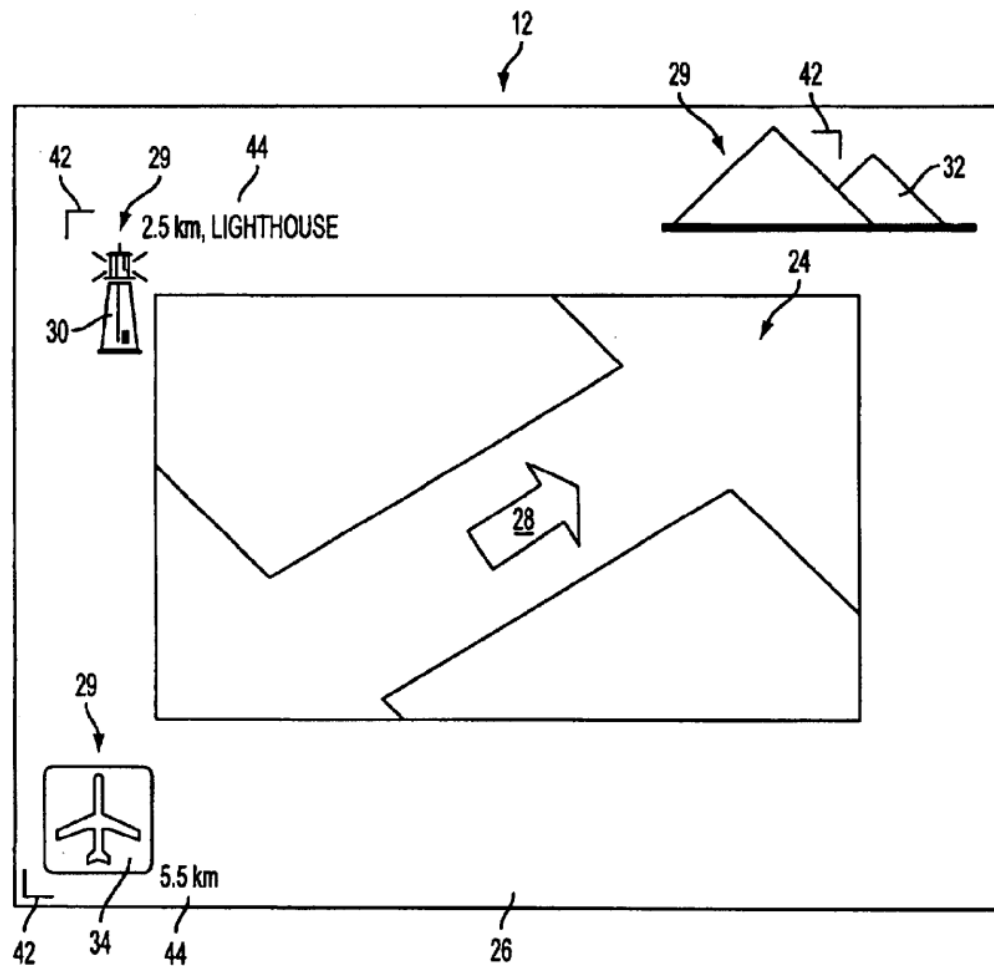


FIG. 5

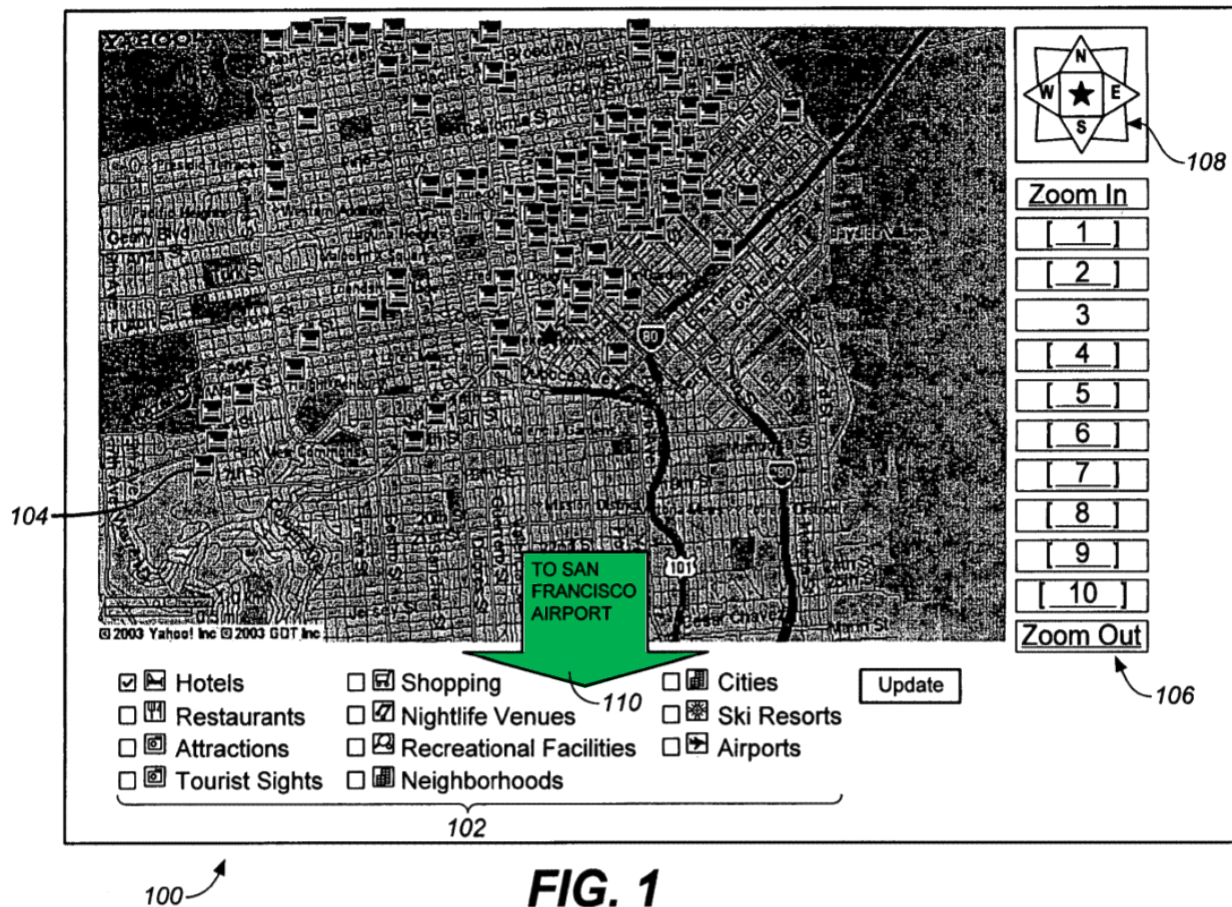
*Suomela*, Fig. 5.

101. It is my opinion that 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, as explained in Section VIII.A.

**g. [1f]: displaying the OVI on the display at the computed placement position**

102. In my opinion, *Kreitler* in view of *Suomela* renders obvious [1f].

103. *Kreitler* discloses ***displaying the OVI on the display at the computed placement position*** because *Kreitler* displays the special icon corresponding to “San Francisco Airport” at the computed “south border” of the map, as shown below in *Kreitler*'s Figure 1. *Kreitler*, Fig. 1, 6:50-55.

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

104. As combined with *Suomela*, *Kreitler*'s OVI would also be displayed including distance and travel-related information, as explained for [1e] (Section VIII.B.1.f), and it is my opinion that 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, as explained in Section VIII.A.

#### h. [1g]: receiving user input selecting the OVI

105. In my opinion, *Kreitler* in view of *Suomela* discloses [1g] because *Kreitler* discloses that the user may click on the special icon (OVI). *Kreitler*,

6:58-60. *Kreitler* discloses that “[w]hen the user clicks that [special] icon 110” corresponding to “San Francisco Airport,” in response, *Kreitler*’s system “re-centers and resizes (re-zooms) the map to show San Francisco Airport in the image.” *Kreitler*, 6:58-60.

i. **[1h]: displaying a secondary area of the electronic map, wherein the secondary area is a region of the electronic map centered approximately around the MO**

106. In my opinion, *Kreitler* discloses [1h] because *Kreitler* discloses that clicking on the special icon causes the map to be repositioned and resized to show a second area of the map with the item of interest centered (centered approximately around the MO). *Kreitler*, 6:58-60.

107. *Kreitler* discloses that in response to the user clicking the **special icon** corresponding to “San Francisco Airport,” *Kreitler*’s system “re-centers and resizes (re-zooms) the map to show San Francisco Airport in the image.” *Kreitler*, 6:58-60. *Kreitler* also discloses that when the user requests display of an MO such as a hotel, for example, the system finds the center point on the map, which would be the address of the hotel. *Kreitler*, 12:32-36. It is my opinion that a person of ordinary skill in the art would have understood that recentering the map around the San Francisco Airport (the selected MO) would result in the San Francisco Airport being at the center of the secondary map area.

j. **[1i]: displaying the MO approximately at the center of the secondary area.**

108. In my opinion, *Kreitler* disclose [1i] for the same reasons as [1h] (Section VIII.B.1.i). If the secondary map is centered approximately around the MO, the MO is displayed in the center.

2. **Claim 18**

109. Claim 18 is similar to claim 1. In my opinion, one of ordinary skill in the art would have found claim 18 obvious based on *Kreitler* in view of *Suomela*.

a. **[18pre]: A method of panning an electronic map, comprising:**

110. In my opinion, *Kreitler* discloses [18pre].

111. *Kreitler* discloses allowing “the user to navigate around the map by zooming and panning around.” *Kreitler*, 5:23-24.

b. **[18a]: receiving a list of map objects (“MOs”);**

112. In my opinion, *Kreitler* discloses [18a] because *Kreitler* discloses that its system includes search engines that receive a list of location-based items (MOs) from content databases. *Kreitler*, 10:65-11:44.

113. *Kreitler*’s 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. *Kreitler*’s system “may interact

with one or more search engines” that receive data items from the content databases. *Kreitler*, 11:49-50, 11:52-55. The search engines use the received data items to locate items that match the user’s query. *Kreitler*, 11:50-52, 12:63-67, Fig. 5. After “a determination is made whether the current item satisfies any additional filtering criteria that the user may have selected to be displayed in the map,” the items are displayed in the map to the user. *Kreitler*, 16:18-20, Figs. 15, 18-20. It is my opinion that a person of ordinary skill in the art would have understood that the results of a search query would result in the system receiving a list of possible location items (receiving a list of map-objects) because the location items responsive to the search query are map-objects (MOs).

**c. [18b]: determining the geographic coordinates of the MOs;**

114. In my opinion, *Kreitler* discloses [18b] because *Kreitler*’s system determines latitude and longitude coordinates for items of interest (MOs).

115. *Kreitler* discloses that data items in content databases (MOs) “are processed through the geocoder component 408 and their address information is translated to a latitude and longitude” (coordinates). *Kreitler*, 11:45-47. *Kreitler* transforms each item’s latitude and longitude “to a pixel coordinate so that the icon for a landmark can be shown at the correct position on the map.” *Kreitler*, 10:42-46. *Kreitler*’s “map is all based on latitudes and longitudes, and the latitude

and longitude of the icon coordinates are transformed to pixel coordinates so that the icon can be placed on the correct location on the map.” *Kreitler*, 10:46-49.

**d. [18c]: determining that the MOs are outside bounds of a first area of the map visible to user;**

116. In my opinion, Element [18c] is similar to [1b]. *Kreitler* in view of *Suomela* discloses [18c] for the reasons discussed above with respect to [1b]. *See* Section VIII.B.1.c.

**e. [18d]: creating an object vector indicator (“OVI”) for each of the MOs;**

117. In my opinion, Element [18d] is similar to [1e]. *Kreitler* in view of *Suomela* discloses [18d] for the reasons discussed above with respect to [1e]. *See* Section VIII.B.1.f.

**f. [18e]: displaying the OVIs on the electronic map;**

118. In my opinion, Element [18e] is similar to [1f]. *Kreitler* in view of *Suomela* discloses [18e] for the reasons discussed above with respect to [1f]. *See* Section VIII.B.1.g.

**g. [18f]: receiving user input selecting one of the OVIs;**

119. In my opinion, Element [18f] is similar to [1g]. *Kreitler* in view of *Suomela* discloses [18f] for the reasons discussed above with respect to [1g]. *See* Section VIII.B.1.h.

**h. [18g]: determining one of the MOs referenced by the selected OVI;**

120. In my opinion, *Kreitler* discloses [18g] because *Kreitler*'s special icons (OVI)s correspond to off-map POIs (MOs) and a person of ordinary skill in the art would have known that selecting an OVI necessarily determines the referenced MO.

121. *Kreitler* discloses that the user may click the special icon corresponding to "San Francisco Airport," and in response, *Kreitler*'s system "re-centers and resizes (re-zooms) the map to show San Francisco Airport in the image." *Kreitler*, 6:58-60. It is my opinion that a person of ordinary skill in the art would have understood that *Kreitler*'s system determines the item referenced by the selected special icon to recenter and resize the map to display that item because recentering the displayed map area would require the system to determine the location of the MO corresponding to the OVI. In this manner, the selected OVI is associated with the MO that the map centers on, and likewise, the MO is referenced by the selected OVI.

**i. [18h]: panning the electronic map to display a secondary area of the map, wherein the secondary area is a region of the electronic map encompassing the determined one of the MOs;**

122. In my opinion, *Kreitler* renders obvious element [18h].

123. As explained in [1h] (Section VIII.B.1.i), *Kreitler* discloses that clicking on the special icon causes the map to be repositioned and resized to show the area of the map (second area of the geographic map) with the item of interest centered (centered approximately around the MO). *Kreitler*, 6:58-60, 12:32-36. *Kreitler* also at least suggests that the repositioning of the map to display the second area with the item of interest centered is a “panning” operation, as explained for [18pre] (Section VIII.B.2.a). *Kreitler*, 5:23-24. *Kreitler* discloses that panning is “achieved by clicking around the map and the zoom level controls, respectively.” *Kreitler*, 5:24-26.

**j. [18i]: wherein the determined one of the MOs is  
approximately at the center of the secondary area.**

124. In my opinion, Element [18i] is similar to [1i]. *Kreitler* in view of *Suomela* discloses [18i] for the reasons discussed above with respect to [1i]. See Section VIII.B.1.j.

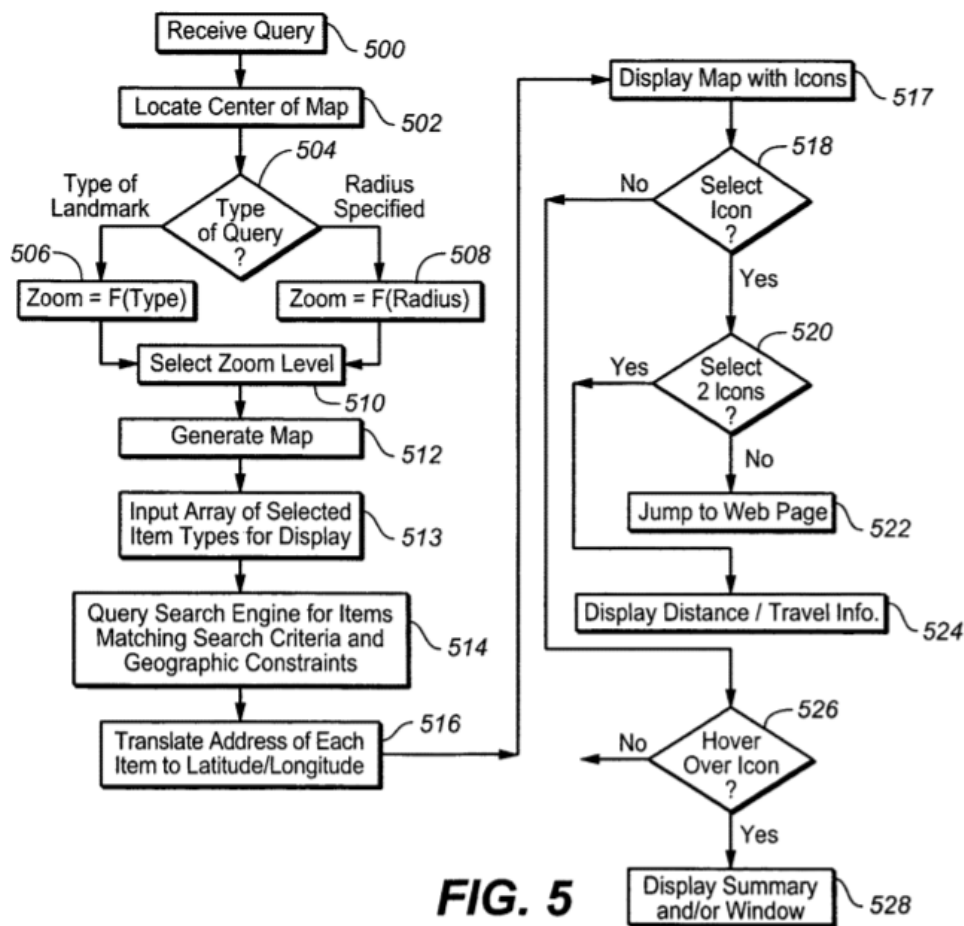
**3. Claim 23**

125. In my opinion, one of ordinary skill in the art would have found claim 23 similar to claim 1 and would have found claim 25 obvious based on *Kreitler* in view of *Suomela*.

**a. [23pre]: A method for selecting information to display in  
an electronic map display application, comprising**

126. In my opinion, *Kreitler* discloses [23pre].

127. *Kreitler* discloses a method for selecting location-based items to display in an interface application, such as a “browser or another more specialized client application,” that includes an electronic map. *Kreitler*, 12:3-12, 12:23-13:11, Fig. 5; Section VIII.B.1.b.



*Kreitler*, Fig. 5.

128. *Kreitler* “receives a query from the user,” such as a request for “a particular type of landmark or attraction near an address.” *Kreitler*, 12:27-29. Based on the user query, *Kreitler* selects the center and appropriate zoom level of

the map to be displayed on the user's computer or device. *Kreitler*, 12:32-50.

*Kreitler* then “queries the one or more search engines 404 for data items matching the user's filter criteria and geographic constraints.” *Kreitler*, 12:63-65. *Kreitler* then displays the map on the user's computer or device, and the map includes icons at locations of items returned from the queries. *Kreitler*, 13:1-11, Fig. 1.

**b. [23a]: displaying a first portion of an electronic map generated by the electronic map display application**

129. In my opinion, *Kreitler* discloses [23a].

130. *Kreitler* discloses “generating ... a rendering of ... location-based data overlaid on the map[] and displaying the rendering on the client computer.” *Kreitler*, Fig. 1, 1:43-46, 12:13-16, 13:8-11

**c. [23b]: displaying an object vector indicator (“OVI”);**

131. In my opinion, Element [23b] is similar to [1f]. *Kreitler* in view of *Suomela* discloses [23b] for the reasons discussed above with respect to [1f]. See Section VIII.B.1.g.

**d. [23c]: receiving a user input;**

132. In my opinion, Element [23c] is similar to [1g]. *Kreitler* in view of *Suomela* discloses [23c] for the reasons discussed above with respect to [1g]. See Section VIII.B.1.h.

**e. [23d]: determining that the user input is associated with the OVI**

133. In my opinion, *Kreitler* discloses [23d] because *Kreitler* discloses that the user may click on the special icon, as explained for [1h] (Section VIII.B.1.i). *Kreitler*, 6:58-60. In my opinion, a person of ordinary skill in the art would have understood that to respond to a user's click (user input) by recentering and resizing the map to display the item associated with the special icon, *Kreitler*'s system must determine that the user input is associated with the special icon (OVI).

**f. [23e]: determining a second portion of the electronic map;**

134. In my opinion, *Kreitler* discloses [23e].

135. As explained for [1h] (Section VIII.B.1.i), *Kreitler* discloses displaying a second portion of the electronic map when a user clicks on the special item by recentering and resizing the displayed map. *Kreitler*, 6:30-34, 6:58-60, 12:32-36. In my opinion, a person of ordinary skill in the art would have understood that to recenter and resize the map appropriately, *Kreitler*'s system must determine the second portion of the map to display in response to the user selecting the special icon.

**g. [23f]: and displaying the second portion of the electronic map by the electronic map display application.**

136. In my opinion, Element [23f] is similar to [1h]. *Kreitler* in view of *Suomela* discloses [23f] for the reasons discussed above with respect to [1h]. See Section VIII.B.1.i.

**4. Claim 28**

137. In my opinion, one of ordinary skill in the art would have found claim 23 similar to claim 1 and would have found claim 25 obvious based on *Kreitler* in view of *Suomela*.

**a. [28pre]: A method for creating and displaying an object vector indicator on an electronic map of a global navigation system (“GPS”) device, comprising:**

138. In my opinion, *Kreitler* in view of *Suomela* renders obvious [28pre].

139. *Kreitler* discloses *a method for creating and displaying an object vector indicator on an electronic map* as explained for [1pre] (method) (Section VIII.B.1.a), [1e] (creating) (Section VIII.B.1.f), and [1f] (displaying) (Section VIII.B.1.g).

140. *Kreitler* does not expressly disclose that its electronic device is a *global navigation system (“GPS”) device*. But *Suomela* does.

141. *Suomela* discloses “a digital map displayed on a mobile computing device.” *Suomela*, 2:14-15. *Suomela* further discloses that the mobile device includes “global positioning system (GPS) hardware 22.” *Suomela*, 3:3-6. “The

GPS hardware 22 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. The “mobile device 10 is able to continually update and monitor its location via **GPS hardware 22.**” *Suomela*, 5:7-9.

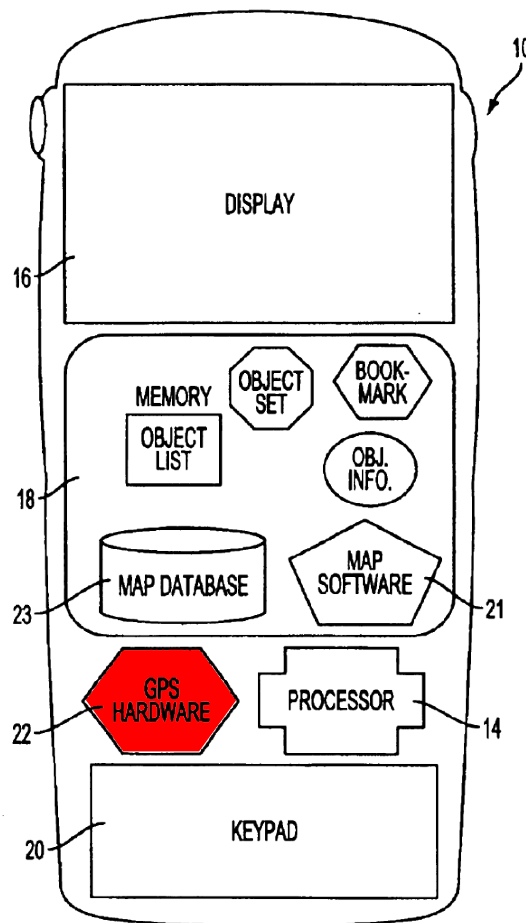


FIG. 2

*Suomela*, Fig. 2.

142. It is my opinion that a person of ordinary skill in the art would have found it obvious to modify *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, as explained in Section VIII.A.

**b. [28a]: providing the GPS device having a map display application that is coupled to a map-content service and a display for displaying a portion of the electronic map;**

143. In my opinion, *Kreitler* in view of *Suomela* renders obvious [28a].

144. *Kreitler* discloses a map display application that is coupled to a map-content service and a display for displaying a portion of the electronic map as explained for [1a] (Section VIII.B.1.b).

145. *Suomela* discloses *a GPS device* as explained for [28pre] (Section VIII.B.4.a).

146. As explained in Section VIII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler* to incorporate *Suomela*'s mobile device with GPS capabilities and would have had a reasonable expectation of success in doing so.

**c. [28b]: receiving coordinates of the GPS device;**

147. In my opinion, *Kreitler* in view of *Suomela* renders obvious [28b].

148. *Suomela* discloses “a digital map displayed on a mobile computing device.” *Suomela*, 2:14-15. *Suomela* further discloses that the mobile device may include “global positioning system (GPS) hardware.” *Suomela*, 3:3-6. The GPS hardware “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. It is my opinion that a person of ordinary skill in the art would have understood that the GPS transmissions communicated with the processor that are used to determine the current location received by *Suomela*’s GPS hardware include the coordinates of the mobile computing device, because GPS hardware provides location information in lat-long coordinate form.

149. As explained in Section VIII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler* to incorporate *Suomela*’s mobile device with GPS capabilities and would have had a reasonable expectation of success in doing so.

**d. [28c]: receiving information on a map-object (“MO”);**

150. In my opinion, *Kreitler* discloses [28c] because *Kreitler* discloses receiving information on various map-objects in response to a query.

151. *Kreitler* discloses querying and receiving, via a search engine, “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. This information is stored in one or more content databases and transmitted to one or more search engines. *Kreitler*, 11:49-50, 11:52-55. The search engines use the received data items to determine location-based items of interest that match the

user's query. *Kreitler*, 11:50-52, 12:63-13:7, Fig. 5; Section VIII.B.2.b ([18a], receiving a list of map objects).

**e. [28d]: determining coordinates of the MO from the received information;**

152. In my opinion, *Kreitler* discloses [28d] because *Kreitler* discloses determining the geographic coordinates of an MO, as explained for [18b] (Section VIII.B.2.c).

153. *Kreitler* further discloses the coordinates of the MO are determined *from the information received* because part of the information received in response to the query explained for [28c] (Section VIII.B.4.d) is location. *Kreitler*, 10:65-11:3, 11:50-52, 12:63-13:7, Fig. 5. *Kreitler* discloses that items in content databases “are processed through the geocoder component 408 and their address information is translated to a latitude and longitude.” *Kreitler*, 11:45-47. *Kreitler*'s system then transforms each item's latitude and longitude “to a pixel coordinate so that the icon for a landmark can be shown at the correct position on the map.” *Kreitler*, 10:42-46, 13:2-5.

**f. [28e]: determining a range of coordinates inclusive of the displayed portion of the electronic map;**

154. In my opinion, *Kreitler* discloses [28e] because *Kreitler* discloses displaying a map region based on coordinates.

155. *Kreitler* discloses that “[e]ach map is defined by its center point (e.g., latitude/longitude or any other geocoding standard), the zoom level and the items that are displayed on it.” *Kreitler*, 5:4-6. A user query may specify “a radius within which the map is to be displayed,” in which case “the zoom level is determined as a function of the radius.” *Kreitler*, 12:29-31, 12:46-48. *Kreitler* further discloses that “[f]or any given map defined by its center point and zoom level, only items that fall within the geographical area of the map are displayed by the system” because “a determination is made whether the **item** is located within the current radius of the center of the map ....” *Kreitler*, Fig. 15, 5:4-16, 6:43-45, 10:42-46, 13:2-5, 15:48-16:17. It is my opinion that a person of ordinary skill in the art would have understood that *Kreitler* determines the range of coordinates inclusive of the displayed portion of the map as a function of the user’s radius query to establish which items fall within the geographical area of the map and to further identify those items that fall beyond the displayed area and must be represented by special items as explained for [1b] (Section VIII.B.1.c).

g. **[28f]: calculating that the coordinates of the MO are not within the range of coordinates of the displayed portion of the electronic map;**

156. In my opinion, Element [28f] is similar to [1b]. *Kreitler* in view of *Suomela* discloses [28f] for the reasons discussed above with respect to [1b]. See Section VIII.B.1.c.

**h. [28g]: creating the OVI to reference the MO;**

157. In my opinion, Element [28g] is similar to [1d] and [1e]. *Kreitler* in view of *Suomela* discloses [28g] for the reasons discussed above with respect to [1d] and [1e]. See Sections VIII.B.1.e, VIII.B.1.f.

**i. [28h]: calculating the placement of the OVI on the display;**

158. In my opinion, Element [28h] is similar to [1d]. *Kreitler* in view of *Suomela* discloses [28h] for the reasons discussed above with respect to [1d]. See Section VIII.B.1.e.

**j. [28i]: displaying the OVI on the display;**

159. In my opinion, Element [28i] is similar to [1f]. *Kreitler* in view of *Suomela* discloses [28i] for the reasons discussed above with respect to [1f]. See Section VIII.B.1.g.

**k. [28j]: receiving user input selecting the OVI;**

160. In my opinion, Element [28j] is similar to [1g]. *Kreitler* in view of *Suomela* discloses [28j] for the reasons discussed above with respect to [1g]. See Section VIII.B.1.h.

1. **[28k]: and panning the electronic map such that the MO is displayed approximately at the center of the electronic map.**

161. In my opinion, [28k] is identical to [18h] and [18i]/[1i], and is rendered obvious for the reasons explained for [18h] (Section VIII.B.2.i) and [18i]/[1i] (Sections VIII.B.2.j, VIII.B.1.j).

### C. Dependent Claims

1. **Claim 2: The method of claim 1, wherein the location within the selected area of the electronic map is the center of the selected area of the electronic map.**

162. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 2.

163. *Kreitler* discloses that “[e]ach map is defined by its center point (e.g., latitude/longitude or any other geocoding standard), the zoom level and the items that are displayed on it.” *Kreitler*, 5:4-6.

164. *Suomela* teaches the location within the selected area of the electronic map by disclosing a digital map including “a detail area 24 located substantially in a central portion of the digital map 12.” *Suomela*, 3:30-33. *Suomela* also teaches the location is within the selected area is the center of the selected area of the map by disclosing a detail area to “include a location indicator 28, which shows a location of interest around which the digital map is generally centered.” *Suomela*, 3:35-37. And *Suomela*’s displayed location is *selected* by the user’s current

location, stating the “location indicator 28 may include a You Are Here (YAH) indicator” to show the current location of a mobile device. *Suomela*, 3:37-40.

165. *Suomela* discloses a processor that “generates appropriate displays according to instructions contained in map software 21 and data contained in map database 23 for map features within detail area 24 according to the scale of detail area 24.” *Suomela*, 4:19-23. For example, “detail area had a display size of 4 cm by 3 cm and the scale of detail area were 1:5,000, processor 14 would generate a map display of a geographical area 200 meters by 150 meters centered about the location represented by location indicator 28.” *Suomela*, 4:23-27. It is my opinion that a person of ordinary skill in the art would have been motivated to implement *Suomela*’s area with the user’s current location at the center within to allow a user to automatically have a map display relevant to their present location (as identified by GPS), as explained in Section VIII.A.

**2. Claim 3: The method of claim 1, wherein the location within the selected area of the electronic map is a location marker.**

166. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 3.

167. *Kreitler* discloses that each of the items displayed within the selected area of the map is “represented by a respective icon.” As explained in [1c] (Section d), *Kreitler* further discloses that the user can select [icons](#) (location markers) that represent items to obtain navigational information, such as distance

and driving directions to other items in relation to the selected item. It is my opinion that a person of ordinary skill in the art would therefore have understood that *Kreitler* computes a distance to an off-map item of interest represented by a **special icon** (the special icon 110 referencing the “San Francisco Airport” in Figure 1) from a **location marker** (the hotel icon 104 in Figure 1) within the selected area of the map.

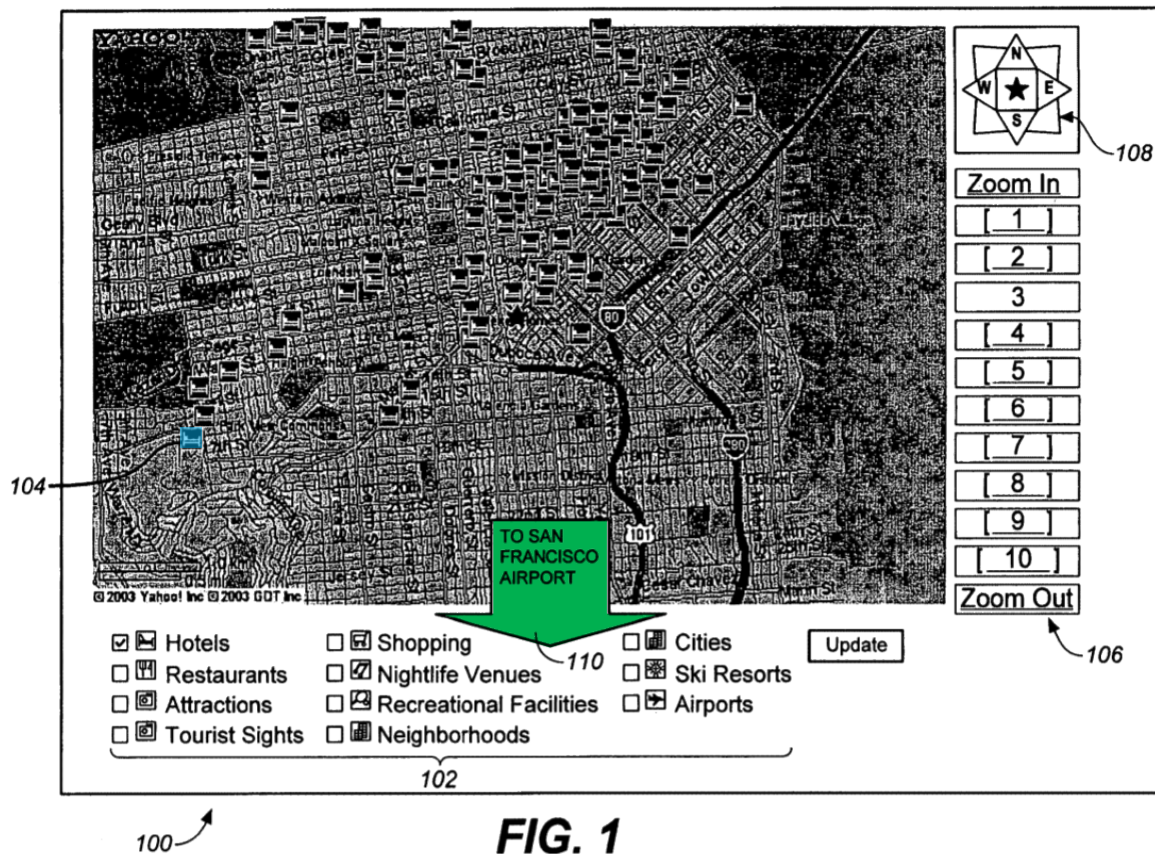


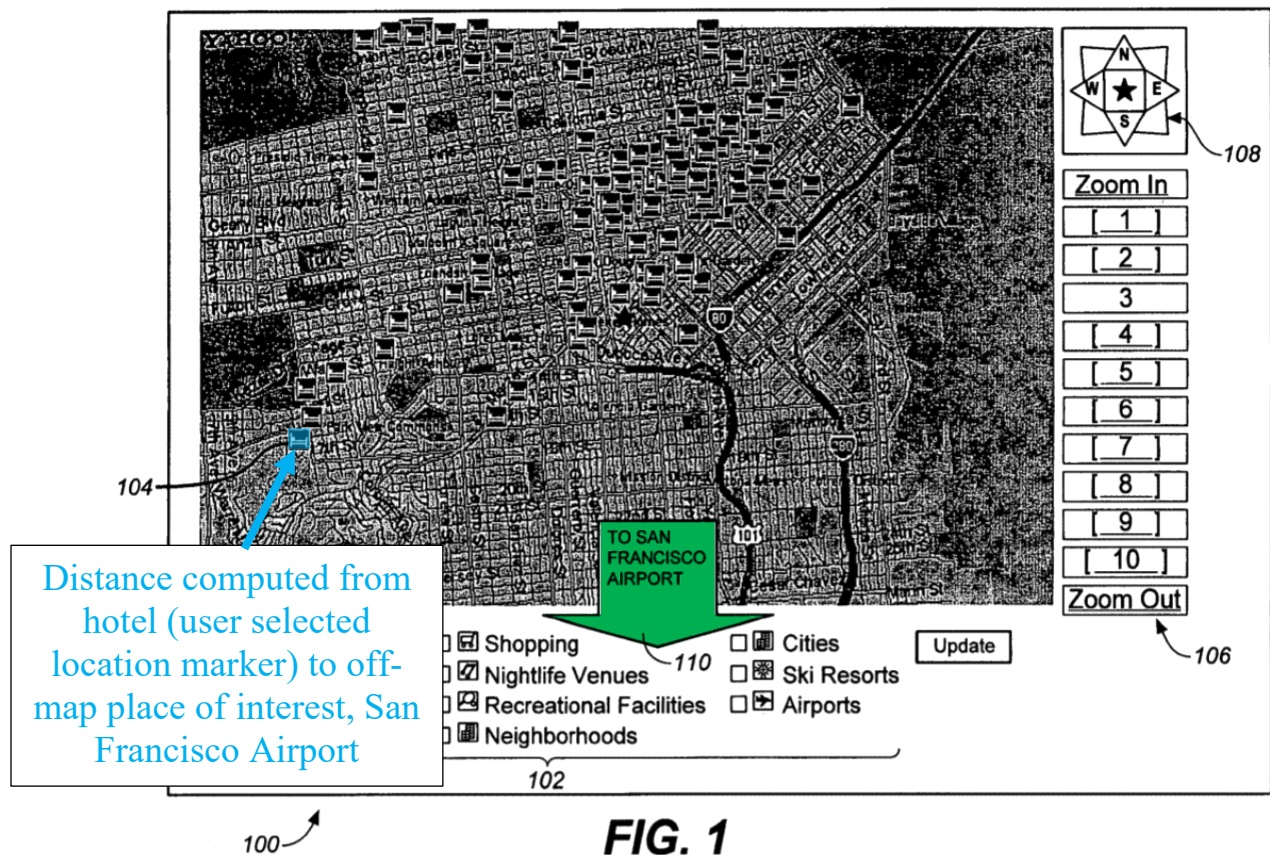
**FIG. 1**

*Kreitler*, Fig. 1.

3. **Claim 4: The method of claim 3, wherein the location marker is selected by the user.**

168. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 4.

169. For example, “user navigational choices (by clicking the icon)” cause *Kreitler* to “re-center the map around the center of the icon with one click.” *Kreitler*, 6:30-34, 6:55-60. It is my opinion that a person of ordinary skill in the art would therefore have understood that the icon is the location marker. In addition, as explained for [1c] (Section VIII.B.1.d), the user may select icons (location markers) representing items to obtain navigational information, such as distance and driving directions to other items in relation to the selected item. It is my opinion that a person of ordinary skill in the art would therefore have understood that *Kreitler*’s location within the selected area of the map used for measuring distance is a user-selected location marker (the [hotel icon](#) in Fig. 1).



Kreitler, Fig. 1.

4. **Claim 5: The method of claim 1, wherein the user input is a voice command.**

170. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 5.

171. As explained for [1g] (Section VIII.B.1.h), *Kreitler* discloses that its system may receive input from a user clicking the special icon. *Kreitler* further discloses that all selection functions “may be done using voice activation.”

*Kreitler*, 17:29-31. It is my opinion that a person of ordinary skill in the art would therefore have understood *Kreitler*’s system could receive a voice command to select the special icon.

**5. Claim 7: The method of claim 1, wherein computing the placement position of the OVI step is repeated in response to a change in position of the electronic device.**

172. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 7.

173. As explained for [1d] (Section VIII.B.1.e) *Kreitler* discloses computing the location to display “special (distinctive) icons for items that are not positioned on the map but nonetheless may be of interest to the user.” *Kreitler*, 6:43-45.

174. *Suomela* discloses “a digital map displayed on a mobile computing device.” *Suomela*, 2:14-15. *Suomela* further discloses that the mobile device may include “global positioning system (GPS) hardware.” *Suomela*, 3:3-6. The GPS hardware “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. As a user and the user’s device travel, the user is “able to track his route ... while maintaining his orientation with known objects,” to “assist him in learning the layout of [a] new city,” as shown in Fig. 5, annotated below. *Suomela*, 5:13-22.

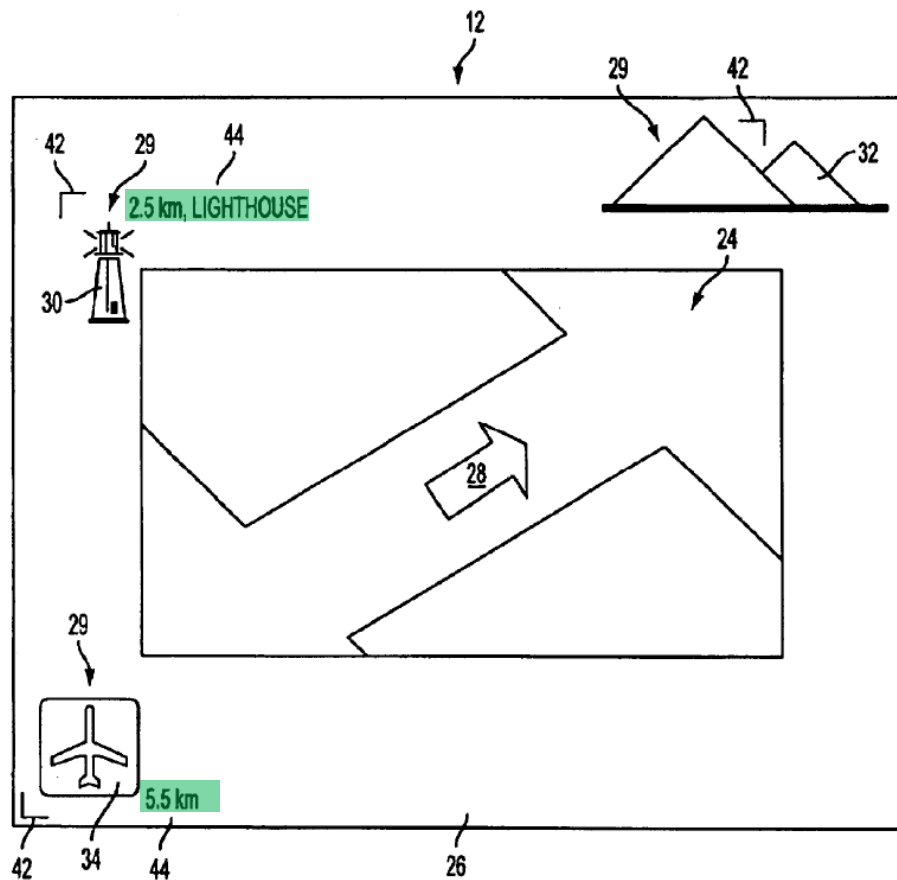


FIG. 5

*Suomela*, Fig. 5.

175. It is my opinion that a person of ordinary skill in the art would have understood that the distance information shown in the icons would be updated based on his movement, because the “mobile device 10 is able to continually update and monitor its location via GPS hardware 22.” *Suomela.*, 5:7-9. And if the user were to turn to the right, the icons would shift accordingly to indicate their direction based on the user’s updated current orientation and direction of travel.

176. As explained in Section VIII.A, it is my opinion that a person of ordinary skill in the art would have found it obvious to modify *Kreitler* to use *Suomela*'s GPS device, and it is my opinion that a person of ordinary skill in the art would have had a reasonable expectation of success in doing so. Further, it is my opinion that a person of ordinary skill in the art would have understood that the proposed *Kreitler-Suomela* system would recalculate the placement position of the special icon in response to a change in position of the mobile device with GPS hardware to update the icon's positioning relative to the updated position of the item it represents.

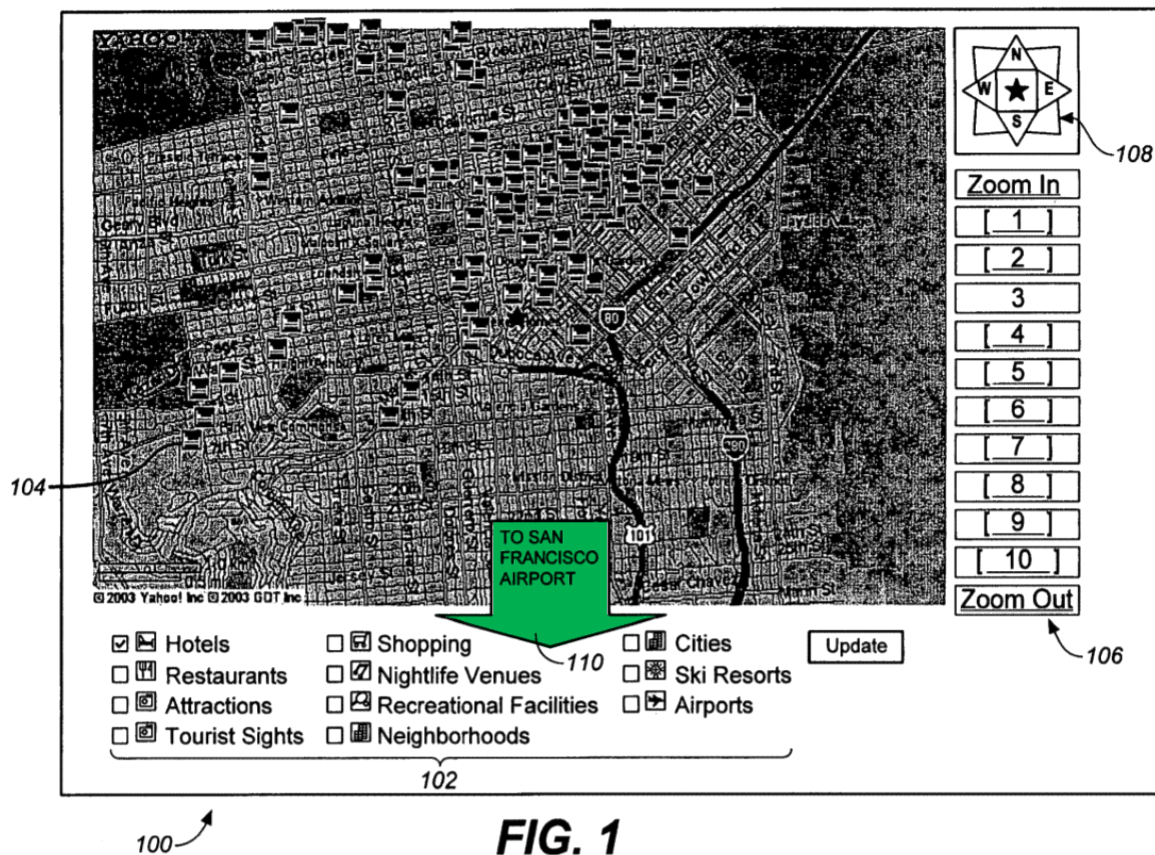
6. **Claim 8: The method of claim 1, wherein the computing the distance-and-travel information includes at least one of the following: an aerial distance to the MO, a travel distance to the MO, a visual indicator pointing in the direction of the MO, and an estimated travel-time to the MO.**

177. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 8.

178. *Kreitler* discloses computing an *aerial distance to the MO* because it discloses that the user can select two items, and *Kreitler*'s "system can calculate the distance between the two points ... using trigonometric functions (or other view coding format)." *Kreitler*, 7:22-25. Trigonometric functions would have been understood by a person of ordinary skill in the art to calculate the aerial distance between two points because it does not take into account travel routes or other information, and purely calculates the shortest distance between the two points.

179. *Kreitler* also discloses computing ***travel distance to the MO*** and an ***estimated travel-time to the MO*** because the user can select two items, and *Kreitler*'s system may provide "information such as the approximate driving time between the points." *Kreitler*, 7:16-17. It is my opinion that a person of ordinary skill in the art would therefore have understood that *Kreitler* calculates the travel distance between the selected points to determine the approximate driving time between those points.

180. *Kreitler* also discloses calculating a ***visual indicator pointing in the direction of the MO*** because, as Figure 1 shows, the special icon 110 is an arrow icon that "points in the general direction of San Francisco Airport." *Kreitler*, 6:51-60, Fig. 1.



*Kreitler*, Fig. 1.

7. **Claim 11:** The method of claim 1, wherein the received user input is the result of the user touching the display at a location of the display approximately corresponding to the OVI displayed.

181. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 11.

182. *Kreitler* discloses a client computer such as “a PDA or cell phone” having “[a]n interface application,” such as a browser or an applet. *Kreitler*, 12:3-9.

183. As explained for [1g] (Section VIII.B.1.h), *Kreitler* discloses receiving user input when a user clicks the special icon corresponding to the San Francisco airport.

184. It is my opinion that a person of ordinary skill in the art would have understood that *Kreitler*'s user clicks would include, or at least suggest, that a user touches the display of the client computer because PDAs, cellphones, and mobile navigation units generally, commonly included touchscreens at the relevant time, and implementing *Kreitler*'s method on a touchscreen device would allow users to effortlessly access specific areas of the display. Ex-1016, 33:31-39 ("the PDA includes ... a touch-sensitive display screen"), 34:16-28 ("The user entry system has both touchscreen keys and press keys.... With a touchscreen, a user enters a request by touching a designated portion overlying a visual display with his finger." "An advantage of the touchscreen is that a label or a placement of the touchscreen, and a corresponding function of the touchscreen, may be changed by the computer controlling the display any number of times without changing the electrical or mechanical hardware."); Ex-1012 (describing first generation iPhone as having "touch controls" and a "large multi-touch display").

185. Touchscreen devices were in wide use well before the '297 patent, both in mobile phones used for navigation and in GPS navigation devices. Ex-1016, 33:31-39, 34:16-28 (filed in 1999); Ex-1012 (iPhone with touch released

in 2007); Ex-1011 (Garmin nüvi GPS system with touchscreen display released in 2005). It is my opinion that a person of ordinary skill in the art would have understood that the mobile device of *Kreitler* (or *Suomela*) would have had a touchscreen interface, or it would have been obvious to implement the method of *Kreitler* (or *Suomela*) on a device with a touchscreen interface because such devices were commonplace, increased usability, and were becoming more and more popular. To accommodate the trend and to capture the benefits of touchscreen devices, it is my opinion that a person of ordinary skill in the art would have, at the very least, been motivated to try implementing a touchscreen device, as suggested by *Kreitler*'s disclosure of a PDA or cellphone, into the *Kreitler-Suomela* combination.

186. Indeed, the '297 patent does not purport to invent a touchscreen interface, nor does not purport to invent a specialized device. Rather, it claims a method for using generic, commercially-available devices, including those with touchscreens to perform a method. Like the '297 patent, *Kreitler* and *Suomela* also disclose methods using generic, commercially available devices like "a PDA or cell phone" that both commonly included touchscreens (*Kreitler*, 12:3-9; *Suomela*, 3:18-20).

8. **Claim 12: The method of claim 1, wherein the computing distance-and-travel information step is repeated in response to a change in the position of the electronic device.**

187. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 12.

188. As explained for [1c] (Section VIII.B.1.d), *Kreitler* discloses computing navigational information, including distance and driving directions, between two items selected by the user.

189. As explained for claim 7 (Section VIII.C.5), *Suomela* at least suggests updating the distance-and-travel-related information as a user moves around the city (in response to a change in the position of the electronic device).

190. It is my opinion that it would have been obvious to a person of ordinary skill in the art to modify *Kreitler*'s system by incorporating *Suomela*'s GPS device to allow the user to obtain navigational information, not only between two location-based items, but also between the current location of the device and a location-based item of interest for the reasons it would have been obvious to implement a GPS-enabled device, as taught by *Suomela*, in *Kreitler* as explained in Section VIII.A. In addition, getting navigational information from one's current position to a given destination is the most common usage for a GPS unit, and would be used more often than getting navigational information between two location-based items. It is my opinion that a person of ordinary skill in the art would have understood that the proposed *Kreitler-Suomela* system would

recalculate the navigational information when the GPS device detects a change in position of the device to provide real-time distance-and-travel information relative to the position of the device.

9. **Claim 14: The method of claim 1, wherein the computing distance-and-travel information step and the computing the placement position of the OVI step are repeated in response to a change in travel conditions.**

191. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 14.

192. As explained for [1c] (Section VIII.B.1.d), *Kreitler* discloses computing navigational information, including distance and driving directions, between two items selected by the user.

193. As explained for [1d] (Section VIII.B.1.e) *Kreitler* discloses computing the location to display “special (distinctive) icons for items that are not positioned on the map but nonetheless may be of interest to the user.” *Kreitler*, 6:43-45.

194. *Kreitler* further discloses that the client device may receive dynamic, location-based data from a content provider. *Kreitler*, 18:44-48. The dynamic, location-based data may include “information such as traffic conditions, weather, environmental conditions, or the like.” *Kreitler*, 18:12-15. *Kreitler* further discloses rendering the dynamic, location-based data such that the data overlies the map displayed on the client device. *Kreitler*, 18:54-19:3, Figs. 21-25. The rendered

traffic data may include “vehicle speed and construction/traffic-incident indicators,” as shown below in *Kreitler*’s Figure 25. *Kreitler*, 18:65-67-19:17, Fig. 25.

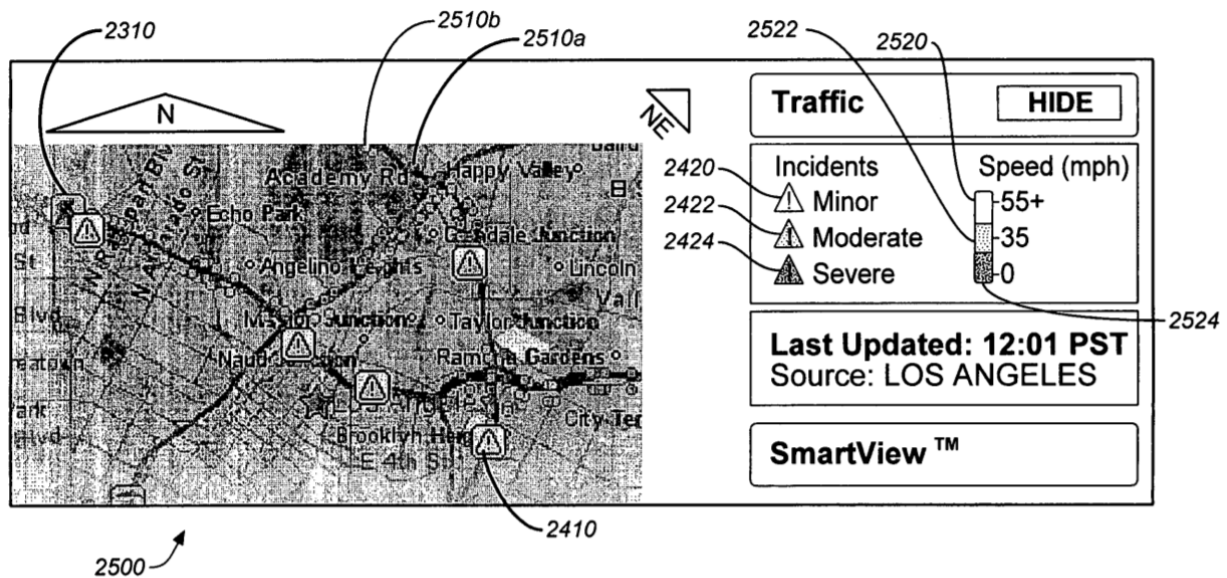


**FIG. 25**

*Kreitler*, Fig. 25.

195. It is my opinion that a person of ordinary skill in the art would have understood that *Kreitler* recalculates the distance-and-travel information and the placement position of the special icon in response to a change in traffic conditions because it uses dynamic location-based data, which includes parameters and attributes that are functions of both location and time. *Kreitler*, 18:12-20. By continuously and dynamically calculating location-based data, such as traffic, *Kreitler* would accommodate a change in travel conditions. *Kreitler*, 18:65-19:7 (“[T]he rendering is displayed with icons representing the traffic data on the map at

map locations corresponding to the locations represented by the icons”). It is my opinion that a person of ordinary skill in the art would have understood *Kreitler* discloses recalculating the distance-and-travel information to provide accurate, real-time navigational information to the *user*. It is my opinion that a person of ordinary skill in the art would have understood *Kreitler* discloses recalculating the placement position of the special icon to update the icon’s positioning to reflect the most efficient direction of travel considering the updated traffic conditions.

*Kreitler*, 18:65-19:7

10. **Claim 15**

196. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 15.

a. **[15a]: The method of claim 1, wherein the computing distance-and-travel information step further comprises: obtaining position of the electronic device;**

197. In my opinion, *Kreitler* in view of *Suomela* renders obvious [15a].

198. As explained for [28b] (Section VIII.B.4.c), *Suomela* discloses receiving coordinates corresponding to the position of the electronic device using a GPS hardware. *Suomela*, 1:27-34, 3:2-20. By using the process of obtaining position with an electronic device, as taught by *Suomela*, the method of *Kreitler* would be improved.

199. As explained in Section VIII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler* to

incorporate *Suomela*'s mobile device with GPS capabilities and would have had a reasonable expectation of success in doing so.

**b. [15b]: transmitting the position of the electronic device to a remote server;**

200. In my opinion, *Kreitler* in view of *Suomela* renders obvious [15b].

201. *Kreitler* discloses “transmitting a map request from a client computer to a server.” *Kreitler*, 1:39-40. *Kreitler* also teaches “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*, 1:48-56. While *Kreitler* discloses transmitting the user-defined location-based data to a remote server position, *Kreitler* does not teach obtaining position of the electronic device.

202. *Suomela* teaches that the “GPS hardware 22 receives GPS 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.

203. By using the process of obtaining 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.

**c. [15c]: receiving from the remote server the distance-and-travel information.**

204. In my opinion, *Kreitler* in view of *Suomela* renders obvious [15c].

205. 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 separately from the data representing the map; generating within the client computer a rendering of the dynamic, location-based data overlaid on the map; and displaying the rendering on the client computer.” *Kreitler*, 1:40-46.

206. *Suomela* also discloses receiving distance-and-travel-related information from a remote server, corresponding to the current location of the device as determined by GPS hardware. *Suomela* discloses that “[i]n accordance with instructions in the memory 18, the processor performs steps for displaying a digital map 12 on the display.” *Suomela*, 3:21-23. *Suomela*’s map software “may receive data via a communications network ... to use in generating [a digital] map.” *Suomela*, 3:27-29. *Suomela* discloses that the digital map generally includes a detail area, which may include a location indicator indicating “the direction of travel and current location of the mobile device.” *Suomela*, 3:30-43.

207. As explained in Section VIII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler* to incorporate *Suomela*’s mobile device with GPS capabilities and would have had a reasonable expectation of success in doing so.

11. **Claim 16**

208. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 16.

a. **[16a]: The method of claim 1, further including:  
computing distance and travel-related information from  
the OVI to the selected area of the electronic map;**

209. In my opinion, *Kreitler* in view of *Suomela* renders obvious [16a].

210. [1c] (Section VIII.B.1.d) similarly requires “computing distance and travel-related information from a location within the selected area of the electronic map to the MO” represented by the OVI. [16a] is rendered obvious by *Kreitler* in view of *Suomela* for the reasons explained for [1c] (Section VIII.B.1.d) because a person of ordinary skill in the art would have understood that calculating distance and travel-related information from the selected area of the map to an MO is the same as calculating distance and travel-related information from any location within the selected area of the map to an MO represented by a displayed OVI.

b. **[16b]: computing a placement position of a second OVI  
referencing the selected area of the electronic map;**

211. In my opinion, *Kreitler* in view of *Suomela* renders obvious [16b].

212. *Kreitler* teaches computing a placement position of an OVI, as explained in [1d] (Section VIII.B.1.e).

213. *Suomela* teaches *computing a placement position of a second OVI referencing the selected area* because *Suomela* discloses a digital map with several off-map items of interest and “include[ing] icons that each represent a geographical

location, and which may also represent a landmark located at the respective location.” *Suomela*, 3:48-4:7.

214. It is my opinion that a person of ordinary skill in the art would have understood that the second OVI position would be calculated *referencing the selected area of the electronic map* because, following computation, the OVI is displayed in the periphery of the selected or displayed area of the map in the object area and thus references the selected area.

**c. [16c]: creating the second OVI including the distance and travel-related information;**

215. In my opinion, *Kreitler* in view of *Suomela* renders obvious [16c].

216. As explained for [1e] (Section VIII.B.1.f), *Kreitler* in view of *Suomela* teaches “**creating ... [an] OVI including the distance and travel-related information.**”

217. As explained for [16b] (Section VIII.C.11.b), *Kreitler* in view of *Suomela* teaches calculating and placing a second OVI.

218. It is my opinion that a person of ordinary skill in the art would further have understood that creating an OVI including distance and travel-related information same would apply for the *second OVI* created because the system would use consistent methodology and display for each OVI created, and *Suomela*

confirms that multiple OVIs may be displayed showing the same distance and travel-related information.

219. It is my opinion that a person of ordinary skill in the art would have been motivated to add *Suomela*'s multiple OVIs including the distance and travel-related information to *Kreitler*'s OVI to provide further helpful information to a user, as explained in Section VIII.A.

**d. [16d]: displaying the second OVI on the display at the computed placement position.**

220. In my opinion, *Kreitler* in view of *Suomela* renders obvious [16d].

221. As explained for [1f] (Section VIII.B.1.g), *Kreitler* in view of *Suomela* teaches “**displaying the ... OVI including the distance and travel-related information.**”

222. As explained for [16b] (Section VIII.C.11.b), *Kreitler* in view of *Suomela* teaches calculating and placing a second OVI.

223. It is my opinion that a person of ordinary skill in the art would further have understood that displaying an OVI including distance and travel-related information same would apply for the *second OVI* because the system would use consistent methodology and display for each OVI created, and *Suomela* confirms that multiple OVIs may be displayed showing the same distance and travel-related information.

224. It is my opinion that a person of ordinary skill in the art would have been motivated to add *Suomela*'s multiple OVIs including the distance and travel-related information to *Kreitler*'s OVI to provide further helpful information to a user, as explained in Section VIII.A.

12. **Claim 17: The method of claim 1, wherein the electronic device is a GPS-enabled navigation unit.**

225. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 17.

226. Claim 17 is similar to [28pre]. As explained for [28pre] (Section VIII.B.4.a), *Kreitler* in view of *Suomela* renders obvious using a GPS-enabled navigation unit.

13. **Claim 24**

227. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 24.

a. **[24a]: The method of claim 23, wherein the determining the second portion of the electronic map comprises: determining a map object ("MO") referenced by the OVI;**

228. In my opinion, this claim is similar to [18g] and is disclosed by *Kreitler* for the reasons explained for [18g] (Section VIII.B.2.h).

b. **[24b]: determining coordinates of the MO;**

229. In my opinion, this claim is similar to [18b] and is disclosed by *Kreitler* for the reasons explained for [18b] (Section VIII.B.2.c).

- c. **[24c]: panning the electronic map such that the center of the electronic map corresponds approximately to the coordinates of the MO.**

230. In my opinion, this claim is similar to [18h] and [18i] and is disclosed by Kreitler in view of Suomela for the reasons explained for [18h] and [18i] (Sections VIII.B.2.i, VIII.B.2.j).

14. **Claim 30: The method of claim 28, further comprising: changing at least one of: GPS coordinates of the GPS device; MO information; a zoom-level of the electronic map.**

231. In my opinion, *Kreitler* in view of *Suomela* renders obvious claim 30.

232. *Kreitler* discloses ***changing a zoom-level of the electronic map*** because when the user clicks on the special icon, “the system re-centers and resizes (re-zooms) the map to show” the item corresponding to the special icon. *Kreitler*, 6:58-60. *Kreitler* also discloses zoom controls “that allow the user to navigate around the map by zooming” and adjusting the displayed map area accordingly. *Kreitler*, 5:23-24, Fig. 1.

233. *Suomela* discloses ***changing GPS coordinates of the GPS device***. *Suomela* discloses “a digital map displayed on a mobile computing device.” *Suomela*, 2:14-15. *Suomela* further discloses that the mobile device may include “global positioning system (GPS) hardware 22.” *Suomela*, 3:3-6. “The GPS hardware 22 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. The “mobile device 10 is able to continually update and monitor its location via GPS hardware 22.” *Suomela*, 5:7-9. It is my opinion that a person of ordinary skill in the art would have understood that *Suomela*’s GPS device updates its location when the GPS coordinates of the device change because it teaches tracking the user’s route as they travel along a route. *Suomela*, 5:7-16.

234. As explained in Section VIII.A, it would have been obvious to a person of ordinary skill in the art to modify *Kreitler* to use *Suomela*’s GPS device, and it is my opinion that a person of ordinary skill in the art would have had a reasonable expectation of success in doing so. Further, it is my opinion that a person of ordinary skill in the art would have understood that the proposed *Kreitler-Suomela* system would recalculate the placement position of the special icon in response to a change in position of the mobile device with GPS hardware to update the icon’s positioning relative to the updated position of the item it represents.

**IX. GROUND 2: CLAIMS 6 AND 13 ARE OBVIOUS OVER *KREITLER* IN VIEW OF *SUOMELA* AND *ALTMAN***

**A. Overview of the Combination and Motivation to Combine**

235. As explained above, *Kreitler* in view of *Suomela* renders obvious all independent claims. Dependent claims 6 and 13 recite computing placement position, distance, and travel information of the OVI in response to a change in the

position of the MO—that is, if the MO is, for example, another user moving around. *Kreitler* and *Suomela* do not expressly disclose this feature, but *Altman* does. It would have been obvious to incorporate computation of position, distance, and travel information in response to a change in the position of the MO—like another user moving.

236. *Altman* discloses location sharing amongst users and displaying shared location information on electronic maps. *Altman*, 3:53-56. *Altman* determines the geographic location of a user’s mobile communication device, displays a map representation of the area around the mobile communication device on a graphical user interface of the mobile communication device, and allows the user to build a database of trusted friends (other users) whose locations are displayed to the user. *Altman*, 2:8-19, 7:56-65.

237. “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. And, “[a]s 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. These features would have been obvious and advantageous additions to the *Kreitler-Suomela* system, which would benefit from using moving objects—like other users—as MOs. *Kreitler* teaches “updates to the dynamic, location-based data,” (*Kreitler*, 19:11-17), and one

example of such data would be the location of friends and corresponding MOs, as taught by *Altman*.

238. The '297 patent is in the field of mapping on electronic devices and displaying information pertaining to map-objects. *Kreitler*, *Suomela*, and *Altman* are all in the field of mapping on electronic devices. The '297 patent, *Kreitler*, *Suomela*, and *Altman* address the known problem of updating location information of the user or MO, with *Kreitler-Suomela-Altman* disclosing known solutions for multiple users in real-time, the combination of which yields predictable results. It is my opinion that a person of ordinary skill in the art would have been motivated to combine *Altman* with *Kreitler* and *Suomela*, because all references are in the same field of invention and disclose user interfaces for mapping and navigation software to display navigation information on an electronic map. Therefore, it would have been obvious for a person of ordinary skill in the art to combine *Altman* with *Kreitler* and *Suomela* for a more effective and efficient navigation system to allow for users to track their friends' locations in real-time, obtain information on how far away a friend is, and how to travel to meet them.

239. It is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to accommodate a moving MO—like another user—and update the displayed distance and travel-related information displayed, as taught by *Altman*, within the display as disclosed by the *Kreitler-Suomela*

combination. By way of example, *Kreitler* specifically teaches that map “items could include dynamic location based information such as ... the position of a vehicle” and that “the user of client host 2750 may wish to present his/her location-based data on a map for display by another user (e.g., a friend), such as the user of client host 2740.” *Kreitler*, 3:47-51, 22:10-14. Having other users as MOs in *Kreitler-Suomela* would allow for users to track their friends’ locations in real-time and obtain information on how far away a friend is and how to travel to meet them—a benefit recognized extensively in *Altman*. *Altman*, 7:30:35, 9:56-62. Adding transitory other users as MOs and updating distance and travel-related information for other users as they move, would broaden the utility of *Kreitler-Suomela* and incorporate a valuable feature for users.

240. It is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler*’s computation of travel information to include repeated computations based on the change in the position of the MO, as taught by *Altman*, to provide the user with travel information without requiring the user to repeatedly request navigation to the position of the MO. Such a modification would allow users to effortlessly identify the position, travel, and/or distance information repeatedly in response to a change in the position of the MO—in “real time,” as *Altman* recognizes. *Altman*, 7:30-35, 9:56-62.

241. It is my opinion that a person of ordinary skill in the art would have had a reasonable expectation of success in modifying *Kreitler-Suomela* with *Altman*'s repeated computations of distance and travel-related information to accommodate transitory other users as MOs. Such a modification would have required only routine skill in the art because *Kreitler*, as combined with *Suomela*, already calculates and displays the travel computations for stationary destinations 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*, 6:51-57, 7:5-19; *Suomela*, 1:27-30. Incorporating a user as an MO of another user would use the same location calculation and display method already taught by *Kreitler-Suomela*. Displaying the locations of other users, and updating the distance and travel-related data for other users "in real-time" would require only routine skill to adjust the display and update frequency—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.

**B. Claim 6: The method of claim 1, wherein the computing the placement position of the OVI step is repeated in response to a change in the position of the MO.**

242. In my opinion, *Kreitler* in view of *Suomela* and *Altman* renders obvious claim 6.

243. As explained for [1d] (Section VIII.B.1.e), *Kreitler* discloses ***computing the placement position of the OVI***. *Kreitler* and *Suomela* do not expressly disclose repeating computing OVI placement in response to a change in the position of the MO, but *Altman* does.

244. *Altman* discloses that “[a]s the user moves, the position of his location on the displayed map is updated in real-time or near real-time.” *Altman*, 7:30-32. And *Altman* expressly 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.

245. As combined with *Kreitler-Suomela*, if another user (MO) were off-map, it is my opinion that a person of ordinary skill in the art would have understood that implementing the combined system would result in a special icon (OVI) displayed representing the off-map user (MO), and that special icon would be adjusted as the off-map user (MO) travels or changes position. As explained in Section IX.A, 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. Claim 13: The method of claim 1, wherein the computing distance-and-travel information step is repeated in response to a change in the position of the MO.**

246. In my opinion, *Kreitler* in view of *Suomela* and *Altman* renders obvious claim 13.

247. As explained for [1c] (Section VIII.B.1.d), *Kreitler* discloses ***computing distance-and-travel information***. *Kreitler* does not disclose repeated computing in response to a change in the position of the MO.

248. As explained for claim 6 (Section IX.B), *Altman* discloses that “[a]s the user moves, the position of his location on the displayed map is updated in real-time or near real-time.” *Altman*, 7:30-32. For each user or “listed friend,” *Altman* discloses computing distance and travel information, stating “various items of associated information can be displayed, such as the name, location (address, distance plus direction vector, latitude/longitude, time of last update or other), and any associated message or status information.” *Altman*, 10:1-5. And *Altman* discloses “updating a [user] device’s location on a real or near real-time basis” by frequent polling of the user’s location. *Altman*, 17:37-19:30, Figs. 10-11.

249. As combined with *Kreitler-Suomela*, if another user (MO) were off-map, it is my opinion that a person of ordinary skill in the art would have understood that implementing the combined system would result in repeated computation of the distance and travel-related information related to the off-map

user (MO) as the off-map user (MO) travels or changes position. As explained in Section IX.A, 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*.

**X. GROUND 3: CLAIMS 9-10, 20-21, AND 29 ARE OBVIOUS OVER KREITLER IN VIEW OF SUOMELA AND MYR**

**A. Overview of the Combination and Motivation to Combine**

250. As explained above, *Kreitler* in view of *Suomela* renders obvious all independent claims. Dependent claims 9-10, 20-21, and 29 include additional limitations related to calculating a travel route and a travel time along the route. While these limitations are not expressly disclosed by *Kreitler* or *Suomela*, they are expressly disclosed by *Myr*, and it would have been obvious to incorporate travel routes and times along the route into the *Kreitler-Suomela* combination.

251. *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.

252. The ’297 patent is in the field of mapping on electronic devices and displaying information pertaining to map-objects. *Kreitler*, *Suomela*, and *Myr* are all in the field of mapping on electronic devices. The ’297 patent, *Kreitler*, *Suomela*, and *Myr* address the known problem of calculating and displaying travel time and travel route information, with *Kreitler-Suomela-Myr* disclosing known solutions, the combination of which yields predictable results. It is my opinion that a person of ordinary skill in the art would have been motivated to combine *Myr* with *Kreitler* and *Suomela*, because all references are in the same field of invention and disclose user interfaces for mapping and navigation software to display navigation information on an electronic map. Therefore, it would have been obvious for a person of ordinary skill in the art to combine *Myr* with *Kreitler* and *Suomela* for a more effective and efficient navigation system that shows travel routes and travel times based on the MO.

253. **First**, it is my opinion that a person of ordinary skill in the art would have found it obvious and advantageous to include a travel route, as taught by *Myr*, with *Suomela* and *Kreitler* based on user input, such as *Kreitler*’s disclosure of “calculat[ing], 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.

254. It is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler/Suomela*’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 items of interest represented to orient themselves while “learning the layout of [a] new city.” *Suomela*, 5:16-21.

255. It is my opinion that 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 ’297 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

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

256. **Second**, 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 taught by *Myr*, with indicators, as taught by *Suomela*, with *Kreitler*'s special icons to provide a user with the time from a position within the selected map to off-map items of interest referenced by the special icons.

257. It is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler/Suomela*'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.

258. It is my opinion that 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 '297 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 that a person of ordinary skill in the art would have readily understood and expected to succeed.

**B. Claim 9: The method of claim 8, wherein the travel-distance to the MO is computed by selecting a travel route according to various user preferences and travel-route selection algorithms.**

259. In my opinion, *Kreitler* in view of *Suomela* and *Myr* renders obvious claim 9.

260. As explained in [1c] (Section VIII.B.1.d), *Kreitler* discloses that a user may select an item to obtain navigational information. *Kreitler*, 7:5-6. The obtained navigational information includes distance and driving directions to other items relative to the selected item. *Kreitler*, 7:5-9.

261. *Myr* discloses that “[t]he driver enters the desired destination point” on a travel map displayed on a screen, and the driver “may specify route preferences by selecting the ... shortest Travel Distance.” *Myr*, 7:1-6. In addition to using various user preferences in selecting a travel route, *Myr* discloses that

“algorithm Z is used to calculate the shortest travel route using current travel times.” *Myr*, 6:18-19. *Myr* also discloses the travel-route selection algorithms. *Myr*, 6:36-53.

262. As explained in Section X.A, it is my opinion that a person of ordinary skill in the art would have been motivated to add *Myr*’s travel route to the *Kreitler-Suomela* combination.

**C. Claim 10: The method of claim 8, wherein the travel-time to the MO is computed by selecting a travel route according to various user preferences and travel-route selection algorithms.**

263. In my opinion, *Kreitler* in view of *Suomela* and *Myr* renders obvious claim 10.

264. *Kreitler* discloses that a user may select an item to obtain navigational information. *Kreitler*, 7:5-6. The obtained navigational information includes distance and driving directions to other items relative to the selected item. *Kreitler*, 7:5-9.

265. *Myr* discloses that “[t]he driver enters the desired destination point” on a travel map displayed on a screen, and the driver “may specify route preferences by selecting the shortest Travel Time.” *Myr*, 7:1-6. In addition to using various user preferences in selecting a travel route, *Myr* discloses that “algorithm Z is used to calculate the shortest travel route using current travel times.” *Myr*, 6:18-19. *Myr* also discloses the travel-route selection algorithms. *Myr*, 6:36-53.

266. As explained in Section X.A, it is my opinion that a person of ordinary skill in the art would have been motivated to add *Myr*'s travel route to the *Kreitler-Suomela* combination.

**D. Claim 20: The method of claim 18, wherein creating an OVI includes calculating a distance, a direction and a travel time from a point in the first area of the map, to the location of the MO.**

267. In my opinion, *Kreitler* in view of *Suomela* and *Myr* renders obvious claim 20.

268. *Kreitler* discloses that *creating an OVI includes calculating a ... direction* from a point in the first area of the map to the location of the MO because, in *Kreitler*'s Figure 1, the special icon referencing "San Francisco Airport" is configured as "an arrow icon" "that points in the general direction of San Francisco Airport." *Kreitler*, 6:51-57.

269. *Suomela* discloses that *creating an OVI includes calculating a distance* because, in *Suomela*'s Figure 5, "[t]he distance indicators 44 show the distance from the center of the map or location indicator 28 to each of the objects 29." *Suomela*, 4:39-41. As explained in Section VIII.A, it is my opinion that a person of ordinary skill in the art would have found it obvious to include distance indicators, as taught by *Suomela*, with *Kreitler*'s special icons to provide a user with the distance from a position within the selected map to off-map items of interest referenced by the special icons.

270. *Myr* discloses that ***creating an OVI includes ... a travel time from a point in the first area of the map, to the location of the MO.*** *Kreitler* discloses exemplary text boxes that are displayed including reported time and estimated end and also discloses that “[a]dditional information such as the approximate driving time between the points ... may optionally be provided.” *Kreitler*, 7:16-19, 20:50-55, Fig. 23, Fig. 24. *Myr* also discloses travel times and further discloses how travel routes are calculated using current travel times from a starting point (a point in the first area of the map) to a destination point (the location of the MO). *Myr*, 5:59-65, 6:18-19. As explained in Section VIII.A and Section X.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*.

**E. Claim 21: The method of claim 20, wherein the point in the first area of the map corresponds to the location of the electronic device.**

271. In my opinion, *Kreitler* in view of *Suomela* and *Myr* renders obvious claim 21.

272. *Suomela* discloses that “[n]avigational digital maps that indicate a user’s current location are additionally known. These maps typically take advantage of global positioning system (GPS) technology to show a user’s current location on the digital map.” *Suomela*, 1:27-30. Specifically, *Suomela* discloses that navigational digital maps that display travel data “generally include an

indicator showing the user's present location and direction of travel." *Suomela*, 1:32-34. *Suomela* discloses "determin[ing] current location information for mobile devices" and the process of obtaining the position of the electronic device. *Suomela*, 3:2-20.

273. As explained in Section VIII.A and Section X.A, it is my opinion that a person of ordinary skill in the art would have been motivated to include *Suomela*'s determination of the current location of the device within *Kreitler*.

**F. Claim 29: The method of claim 28, wherein the step of creating an OVI includes: calculating the direction, distance and travel-time from the position of the electronic device to the MO, and including the calculated data in the OVI.**

274. In my opinion, *Kreitler* in view of *Suomela* and *Myr* renders obvious claim 29.

275. As explained for claim 20 (Section X.D), *Kreitler* in view of *Suomela* and *Myr* renders obvious *calculating the direction, distance and travel-time from the position of the electronic device to the MO*.

276. *Kreitler* does not expressly disclose displaying an OVI with travel time, but it suggests displaying distance and driving directions as explained for [1f] (Section VIII.B.1.g). *Myr* expressly discloses displaying travel time.

277. *Myr* discloses calculating travel routes using travel times calculated from a starting point (a point in the first area of the map) to a destination point (the

location of the MO) which are displayed on the display. *Myr*, 5:59-65, 6:8-10, 6:18-19.

278. It is my opinion that a person of ordinary skill in the art would have been further motivated to include direction, distance, and travel-time information in *Kreitler*'s OVI to convey important information to the user, as explained in Sections VIII.A, IX.A.

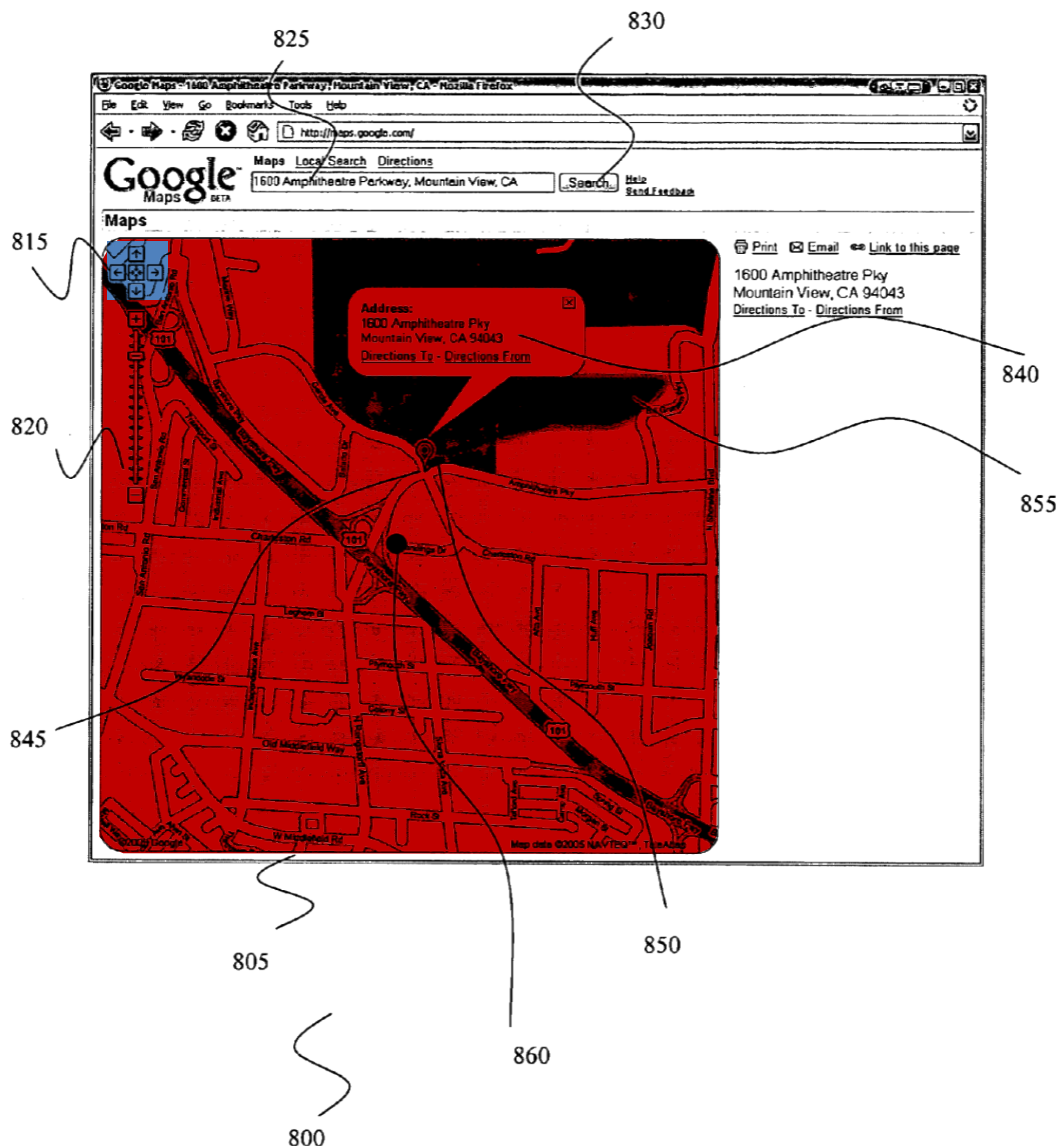
**XI. GROUND 4: CLAIMS 19 AND 25 ARE OBVIOUS OVER *KREITLER* IN VIEW OF *SUOMELA* AND *RASMUSSEN***

**A. Overview of the Combination and Motivation to Combine**

279. As explained above, *Kreitler* in view of *Suomela* renders obvious all independent claims. Dependent claims 19 and 25 further recite animating the pan or zoom of the map. While these limitations are not expressly disclosed by *Kreitler* or *Suomela*, they are expressly disclosed by *Rasmussen*, and it would have been obvious to incorporate the animation steps of *Rasmussen* within *Kreitler-Suomela* because *Kreitler* discloses adjusting the map display to zoom, pan, or recenter, but lacks the technical details of how to make such adjustment. It is my opinion that a person of ordinary skill in the art would, therefore, have looked to other graphical user interface references that disclose technical details for adjusting a map display, like *Rasmussen*.

280. *Rasmussen* discloses a digital mapping system that uses a tiling approach for displaying digital maps on a computing device having a processor to interpret and execute instructions and an output device (e.g., a display).

*Rasmussen*, 3:13-21, 3:25-42, 6:21-48. The system 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 the panning operations by 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.

281. The '297 patent is in the field of mapping on electronic devices and displaying information pertaining to map-objects. *Kreitler*, *Suomela*, and *Rasmussen* are all in the field of mapping on electronic devices. The '297 patent, *Kreitler*, *Suomela*, 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. It is my opinion that a person of ordinary skill in the art would have been motivated to combine *Rasmussen* with *Kreitler* and *Suomela*, because all references are in the same field of invention and disclose user interfaces for mapping and navigation software to display navigation information on an electronic map. 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.

282. It is my opinion that 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, as taught by *Rasmussen*, with *Kreitler*'s mapping system to increase the usability of the mapping software and to "present a smooth pan along contiguous map imagery." *Rasmussen*, 21:37-39; Ex-1018, 304. To present the smooth pan, it is my opinion that a person of ordinary skill in the art would have been motivated to implement *Rasmussen*'s method by 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 "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.

283. It is my opinion that a person of ordinary skill in the art would have been motivated to modify *Kreitler*'s processor to cause the display of a client device or the server computing system to display an animated transition, as 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), and one of *Kreitler*'s map systems "allows the user to navigate around the map by zooming and panning around" to initiate a panning operation (*Kreitler*, 5:23-24.). It is my opinion that a person of ordinary skill in the art would also have been motivated to modify *Kreitler*'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.

284. 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 Kreitler/Suomela* system 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 using algorithms 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 '297 patent. *Kreitler* itself already discloses panning a map from one map area to another map area (*Kreitler*, 6:58-60), and adding the panning operations, as taught by *Rasmussen*, would have required only a modification of the instructions executed by *Kreitler*'s processor to accomplish the requested pan in multiple smaller steps, which is within the skill of a person of ordinary skill in the art. Accordingly, modifying *Kreitler*'s processor to cause the display of a client device or the server computing system to display an animated transition from the first portion to the second portion of the electronic map in response to a user selecting a specific portion of the map (e.g., an off-map entity information indicator control) or the map movement controls would have implemented only conventional systems and methods in ways that a person of ordinary skill in the art would have readily understood and expected to succeed.

**B. Claim 19**

285. In my opinion, *Kreitler* in view of *Suomela* and *Rasmussen* renders obvious claim 19.

1. **[19a]: The method of claim 18, further comprising animating the panning transition of the electronic map from displaying the first area to displaying the secondary area, wherein the animation includes the steps of: defining a number of animation steps;**

286. In my opinion, *Kreitler* in view of *Suomela* and *Rasmussen* renders obvious claim 19[a].

287. *Kreitler* discloses panning the electronic map to display a secondary area of the map. *Kreitler*, 5:23-24. However, *Kreitler* and *Suomela* do not expressly disclose animation.

288. *Rasmussen* discloses a processing device that causes a display device to display an animated transition from one map view to another according to map image panning operations. *Rasmussen*, 6:60-62, 7:60-64, 20:59-22:18. The panning operations from one map view to a new map view include determining the number of frames over which to perform a panning animation (*Rasmussen*, 20:60-66). More specifically, *Rasmussen* teaches that “the pan should be animated over n frames (where n=1 indicates that the switch from the old to the new view should take place in a single step, while higher values of n indicate that the switch should be presented as a smoother, animated pan).” *Rasmussen*, 6:60-62, 7:60-64, 20:59-22:18.

289. As explained in Section XI.A, it is my opinion that a person of ordinary skill in the art would have been motivated to include *Rasmussen*'s animation within *Kreitler-Suomela*.

**2. [19b]: defining a time delay;**

290. In my opinion, *Kreitler* in view of *Suomela* and *Rasmussen* renders obvious [19b].

291. *Rasmussen* discloses that “[d]epending on the host system’s efficiency, it may be necessary to pause for some time period between frames.” *Rasmussen*, 21:30-31, 22:57-62 (“pause is included if appropriate”), 22:65-23:3.

292. As explained in Section XI.A, it is my opinion that a person of ordinary skill in the art would have been motivated to include *Rasmussen*'s animation, including the time delay, within *Kreitler-Suomela*.

**3. [19c]: defining a small travel distance;**

293. In my opinion, *Kreitler* in view of *Suomela* and *Rasmussen* renders obvious [19c].

294. *Rasmussen* discloses that the panning travel distance from one map view to a new map view includes determining the pixel coordinates of the current map view and the new map view (*Rasmussen*, 20:60-62), determining the number of frames over which to perform a panning animation (*Rasmussen*, 20:60-66), calculating the change in pixel coordinates in both the x and y coordinates

(*Rasmussen*, 21:19-21), and incrementally moving the map grid to the new pixel coordinates based on the determined number of frames over which to perform the panning operation (*Rasmussen*, 21:28-30) to define a small travel distance (offset). More specifically, *Rasmussen* teaches to “for each  $i$  between 1 and  $n$ , move the tile grid by an offset of  $(dx, dy)/n$  and display the resulting frame.” *Rasmussen*, 21:28-30. With regard to the above, “ $i$ ” represents each panning step, from the first step to the  $n^{\text{th}}$  step.

295. *Rasmussen* discloses that the offset equates to the small travel distance through panning from one map view  $(x, y)$  to a new map view  $(x^1, y^1)$ , animated over  $n$  frames and by “mov[ing] the tile grid [of the map] by an offset of  $(dx, dy)/n$  [(small travel distance)] and display[ing] the resulting frame” as disclosed in [19e]. *Rasmussen*, 20:60-66, 21:19-21, 21:28-30, Figs. 17-21.

296. As explained in Section XI.A, it is my opinion that a person of ordinary skill in the art would have been motivated to include *Rasmussen*’s animation, including defining small travel distances (distance that the map is panned as defined by the number of frames), within *Kreitler-Suomela*.

4. **[19d]: determining a path between the determined one of the MOs and an approximate center of the first area of the map;**
- [19e]: panning the map by the small travel distance in the direction of the determined one of the MOs;**
- [19f]: waiting an amount of time specified by the time delay;**
- [19g]: wherein the steps e-f are repeated until the determined one of the MOs is approximately at the center of the displayed secondary map.**

297. In my opinion, *Kreitler* in view of *Suomela* and *Rasmussen* renders obvious [19d]-[19e]. These three limitations are best understood together in context, and collectively require (1) determining a panning path for adjusting the displayed map from a first displayed area to a second displayed area, broken into small segments (small travel distances), and (2) panning the map across the small segments. iteratively after the time delay, such that the MO is in the center of the second displayed area at the end of the panning animation.

298. As explained for [19a]-[19c] (Sections XI.B.1-3), *Rasmussen* discloses defining animation steps, defining a time delay, and defining small travel distances.

299. As explained for [1h] (Section VIII.B.1.i), *Kreitler* discloses displaying the selected MO approximately at the center of the displayed secondary map.

300. *Rasmussen* discloses **determining a path between the determined one of the MOs and an approximate center of the first area of the map** because it discloses calculating the change in pixel coordinates in both the x and y directions with the linear equation “ $(dx, dy) = (x, y) - (x^1, y^1)$ ,” “mov[ing] the tile grid [of the map] by an offset of  $(dx, dy)/n$  and display[ing] the resulting frame.” *Rasmussen*, 20:60-66, 21:19-21, 21:28-30, Figs. 17-21. *Rasmussen* also discloses performing a map image panning when “the client receives a command from the user indicating a pan event (e.g., by activation of a directional control object ....)” *Rasmussen*, 21:41-44. As combined with *Kreitler-Suomela*, which disclose panning a map from a first area to a second area ([1h]-[1i], Sections VIII.B.1.i-j), it is my opinion that a person of ordinary skill in the art would have understood that *Rasmussen*’s calculated change in pixel coordinates (defined path) would be between the determined MO and the center of the map.

301. *Rasmussen* discloses **panning the map by the small travel distance in the direction of the determined one of the MOs** because, as explained above, it discloses panning from one map view  $(x, y)$  to a new map view  $(x^1, y^1)$ , animated over n frames and by “mov[ing] the tile grid [of the map] by an offset of  $(dx, dy)/n$  [(small travel distance)] and display[ing] the resulting frame.” *Rasmussen*, 20:60-66, 21:19-21, 21:28-30, Figs. 17-21.

302. *Rasmussen* discloses ***waiting an amount of time specified by the time delay*** as explained for [19b] (Section XI.B.2). *Rasmussen* also discloses the panning operations are repeated, after the time delay until the map image is on the new map view. *Rasmussen*, 20:59-66, 21:1-67, 22:1-18, Figs. 14-21. As combined with *Kreitler-Suomela*, which disclose panning a map from a first area to a second area with the selected MO at the center of the second area ([1h]-[1i], Sections VIII.B.1.i-j), it is my opinion that a person of ordinary skill in the art would have understood that *Rasmussen*'s panning animation would be repeated until the selected MO is at the center of the map.

303. As explained in Section XI.A and XI.B, it is my opinion that a person of ordinary skill in the art would have been motivated to include *Rasmussen*'s panning animation within *Kreitler-Suomela*.

**C. Claim 25: The method of claim 23, wherein the displaying the second portion of the electronic map includes an animation.**

304. In my opinion, *Kreitler* in view of *Suomela* and *Rasmussen* renders obvious claim 25.

305. *Kreitler* discloses re-centering and resizing the map when the user clicks on a special icon such that the item corresponding to the special icon is shown on the map. *Kreitler*, 6:58-60. However, *Kreitler* and *Suomela* do not explicitly disclose an animation.

306. *Rasmussen* discloses that “performing a map image panning from one map view (x, y, z) to a new map view (x', y', z[']) ... should be animated over n frames ....” when “the client receives a command from the user indication a pan event (e.g., by activation of a directional control object 815 as shown in FIG.8).” *Rasmussen*, 20:60-66, 7:60-64, 22:42-43. *Rasmussen* also discloses “scripts may be used to smoothly animate the transition from the old to the new map view.” *Rasmussen*, 22:6-9. *Rasmussen* further discloses that when the client receives an action event from the user, such as a Notification of Change in Window Size (Fig. 30.), the client determines the center of the map window, performs the actions to determine the new map window, and then re-centers the clipping window on the Map Center. *Rasmussen*, 26:38-56.

307. It is my opinion that a person of ordinary skill in the art would have understood that when the client performs the actions to determine the new map window and recenters the clipping window after the map image panning, an animation sequence that includes one or more in-between map regions is displayed.

308. 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 display of the second portion of the electronic map,

which includes an animation, and would have had a reasonable expectation of success in doing so.

**XII. GROUND 5: CLAIMS 22 AND 26-27 ARE OBVIOUS OVER  
*KREITLER* IN VIEW OF *SUOMELA*, *MYR*, AND *RASMUSSEN***

**A. Overview of the Combination and Motivation to Combine**

309. As explained above, the combinations of *Kreitler* in view of *Suomela* (Ground 1), *Kreitler* in view of *Suomela* and *Myr* (Ground 2), and *Kreitler* in view of *Suomela* and *Rasmussen* (Ground 4) render most claims of the '297 patent as obvious. Dependent claims 22, 26, and 27 further recite that the animating and panning the electronic map takes place along a travel route with associated travel time (disclosed by *Myr*, Ground 3). While these additional limitations are not expressly disclosed by *Kreitler/Suomela/Rasmussen* (Ground 4), they are expressly disclosed by the addition of *Myr*'s travel routes and times, which it would have been obvious to incorporate within *Kreitler/Suomela/Rasmussen*.

310. The '297 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 would have been obvious for a person of ordinary skill in the art to combine *Myr* with *Kreitler*, *Suomela*, and

*Rasmussen* for a more effective and efficient navigation system that shows panning maps with travel routes to the MO. It is my opinion that it would have been motivated to modify, and have had a reasonable expectation of success in modifying *Kreitler/Suomela/Rasmussen* to include travel route information, as taught by *Myr*, for the reasons in Section VIII.A.

311. In my opinion, a person of ordinary skill in the art would have found it obvious to include panning operations in short intervals, as taught by *Rasmussen*, along the travel route, as taught by *Myr*, until the center of the map corresponds to the MO when the map is repositioned to display a travel route from a point on the first portion of the map to the MO to “present a smooth pan along contiguous map imagery.” *Rasmussen*, 21:37-39. To present the smooth pan in short intervals along the travel route, 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<sup>1</sup>, y<sup>1</sup>)” 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*, 20:60-66, 21:1-67, Figs. 17-21), with *Myr*’s travel route that is calculated from a point on the first portion of the electronic map to the MO when “[t]he driver enters the desired destination point” on a travel map displayed on a screen *Myr*, 7:1-6.

312. In my opinion, a person of ordinary skill in the art would have been motivated to modify *Kreitler/Suomela* to display an animated transition, as taught by *Rasmussen*, to provide “a smoother, animated pan” (*Rasmussen*, 20:60-66) with Myr’s travel route with “algorithm Z [that] is used to calculate the shortest travel route using current travel times” between the starting point and desired destination point (*Myr*, 6:18-19) 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. A person of ordinary skill in the art would also have been motivated to modify *Kreitler/Suomela*’s mapping system to include a path to a determined MO 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* and *Myr*. *Rasmussen*, 21:63-22:1; *Myr*, 6:18-19, 7:1-6.

313. In my opinion, a person of ordinary skill in the art would have also had a reasonable expectation of success in modifying *Kreitler/Suomela* to include *Rasmussen*’s animated transition with *Myr*’s travel route. 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 to an MO and *Myr* to define a travel route, was common in the art before the date of the ’297 patent. *Kreitler*

itself already discloses panning a map from one map area to another map area (*Kreitler*, 6:58-60) and using the MO's address as the center point to generate the map image (*Kreitler*, 6:58-60, 12:32-36) and adding the panning operations, as taught by *Rasmussen*, and travel route, as taught by *Myr*, 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 display an animated transition to include panning operations in short intervals along the travel route and until the center of the map corresponds to the MO to display a travel route from a point on the first portion of the electronic map to the MO when the map is repositioned 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 22**

314. In my opinion, *Kreitler* in view of *Suomela*, *Rasmussen*, and *Myr* renders obvious claim 22.

1. **[22a]: The method of claim 18, wherein the step of panning the map by a small interval further includes: defining a travel route.**

315. In my opinion, *Kreitler* in view of *Suomela*, *Myr*, and *Rasmussen* renders obvious [22a].

316. *Myr* discloses defining and “calculat[ing] the shortest travel route.” *Myr*, 6:18-19. *Myr* teaches using a route-planning algorithm to calculate the optimal route while using a multilevel map database, requesting travel times for various sections from the section travel time managing algorithm, and using the returned section travel times for further processing. *Myr*, 6:1-17, 6:19-53, Fig. 7. Moreover, *Myr* discloses repeatedly performing calculations “until an optimal travel route and corresponding travel time have been calculated.” *Myr*, 14:19-22. It is my opinion that a person of ordinary skill in the art would readily understand that using a route-planning algorithm to calculate optimal travel routes discloses defining a travel route.

317. In addition, as explained in Section XII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to incorporate *Myr*’s travel route calculation into the *Kreitler-Suomela-Rasmussen*.

## 2. [22b]: panning the map along the defined travel route

318. In my opinion, *Kreitler* in view of *Suomela*, *Rasmussen*, and *Myr* render obvious [22b].

319. *Rasmussen* discloses a digital mapping system that uses a tiling approach for displaying digital maps. *Rasmussen*, 3:13-21, 3:25-42, 6:21-48. The system 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.

320. *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. As explained in Section X.A, a person of ordinary skill in the art would have understood that panning from one point to the next point, as taught by *Rasmussen*, discloses panning with the shortest distance from one point to the next point. A person of ordinary skill in the art would have also understood that *Myr* also uses the shortest distance between two points in determining the shortest route to any destination. Therefore, a person of ordinary skill in the art would have understood that panning between two points as taught in *Rasmussen* and the travel route between two points as taught in *Myr* involve the same travel route. Therefore, a person of ordinary skill in the art would have understood that panning in *Rasmussen* includes panning along the defined travel route.

**C. Claim 26: The method of claim 25, wherein the animation includes panning the electronic map in small intervals along a travel route until the center of the electronic map corresponds approximately to the coordinates of the MO.**

321. In my opinion, *Kreitler* in view of *Suomela*, *Rasmussen*, and *Myr* renders obvious claim 26.

322. As explained for claim 25 (Section XI.C), *Kreitler* in view of *Suomela* and *Rasmussen* teaches a processing device that causes a display device to display an animated transition from one map view to another according to map image panning operations. *Rasmussen*, 6:60-62, 7:60-64, 20:59-22:18.

323. *Rasmussen* discloses a “digital mapping system,” or an electronic map. *Rasmussen*, 3:26. *Rasmussen* also discloses panning operations in small intervals by determining a path by calculating the change in pixel coordinates in both the x and y directions with the linear equation “ $(dx, dy) = (x, y) - (x^1, y^1)$ ,” “mov[ing] the tile grid [of the map] by an offset of  $(dx, dy)/n$  and display[ing] the resulting frame.” *Rasmussen*, 20:60-66, 21:19-21, 21:28-30, Figs. 17-21.

324. *Myr* discloses the travel route that is calculated from a point on the first portion of the electronic map to the MO by disclosing that “[t]he driver enters the desired destination point” on a travel map displayed on a screen. *Myr*, 7:1-6. In addition to using various user preferences in selecting a travel route, *Myr* discloses that “algorithm Z is used to calculate the shortest travel route using current travel times” between the starting point and desired destination point. *Myr*, 6:18-19.

325. Lastly, *Kreitler* discloses that clicking a special icon causes the map to be repositioned and resized such that the system displays a secondary area of the map centered around the item of interest previously represented by the special icon. *Kreitler*, 6:58-60.

326. It is my opinion that a person of ordinary skill in the art considering the combination of *Kreitler*, *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.

327. As explained in Section XII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to incorporate *Myr*'s travel route into the *Kreitler-Suomela-Rasmussen*.

**D. Claim 27: The method of claim 26, wherein the travel route spans a distance from a point on the first portion of the electronic map to the MO.**

328. In my opinion, *Kreitler* in view of *Suomela*, *Rasmussen*, and *Myr* renders obvious claim 27.

329. As explained for [19c] and [19d] (Sections XI.B.3 and IX.B.4), *Kreitler* in view of *Suomela* and *Rasmussen* teaches spanning a distance from a point on the first portion of the electronic map to the MO.

330. As explained for claim 20 (Section X.D), *Myr* discloses calculating travel routes using current travel times from a starting point (a point in the first area of the map) to a destination point (the location of the MO). *Myr*, 5:59-65, 6:18-19. It is my opinion that a person of ordinary skill in the art 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.

331. As explained in Section XII.A, it is my opinion that a person of ordinary skill in the art would have been motivated to incorporate *Myr*'s travel route calculation into the *Kreidler-Suomela-Rasmussen* combination.

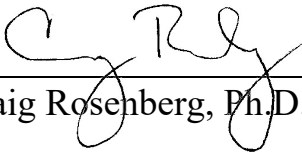
### **XIII. CONCLUSION**

332. For the reasons set forth in Sections VIII-XII, it is my opinion that one skilled in the art would have found claims 1-30 of the '297 patent obvious.

333. 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.

334. 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 5<sup>th</sup>, 2023

  
\_\_\_\_\_  
Craig Rosenberg, Ph.D.