

# EXHIBIT 21



(12) **United States Patent**  
**Beyer, Jr.**

(10) **Patent No.:** **US 9,408,055 B2**  
 (45) **Date of Patent:** **Aug. 2, 2016**

(54) **METHOD TO PROVIDE AD HOC AND PASSWORD PROTECTED DIGITAL AND VOICE NETWORKS**

(58) **Field of Classification Search**  
 CPC ..... H04W 4/02  
 USPC ..... 455/456.1, 404.2  
 See application file for complete search history.

(71) Applicant: **Advanced Ground Information Systems, Inc.**, Jupiter, FL (US)

(56) **References Cited**

(72) Inventor: **Malcolm K. Beyer, Jr.**, Jupiter, FL (US)

U.S. PATENT DOCUMENTS

(73) Assignee: **Advanced Ground Information Systems, Inc.**, Jupiter, FL (US)

5,555,286 A 9/1996 Tendler  
 5,898,434 A 4/1999 Small et al.

(Continued)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

FOREIGN PATENT DOCUMENTS

(21) Appl. No.: **14/695,233**

JP H085394 1/1996  
 JP H09113288 5/1997

(Continued)

(22) Filed: **Apr. 24, 2015**

OTHER PUBLICATIONS

(65) **Prior Publication Data**

US 2015/0319789 A1 Nov. 5, 2015

Gate5, "Mobile Community Solution: Context-sensitive application suite for mobile communities," published in 2002.

(Continued)

**Related U.S. Application Data**

*Primary Examiner* — Omoniyi Obayanju

(63) Continuation of application No. 14/529,978, filed on Oct. 31, 2014, which is a continuation-in-part of application No. 14/027,410, filed on Sep. 16, 2013, now Pat. No. 8,880,042, which is a continuation of

(74) *Attorney, Agent, or Firm* — Goodwin Procter LLP

(Continued)

(57) **ABSTRACT**

(51) **Int. Cl.**  
**H04W 24/00** (2009.01)  
**H04M 11/04** (2006.01)

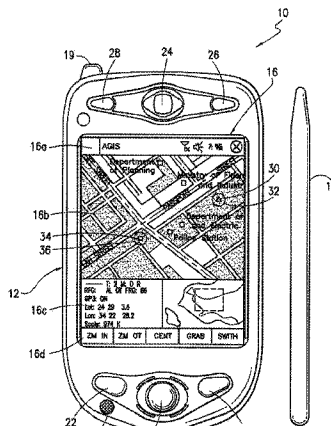
A method and system includes the ability for individuals to set up an ad hoc digital and voice network easily and rapidly to allow users to coordinate their activities by eliminating the need for pre-entry of data into a web or identifying others by name, phone numbers or email. This method is especially useful for police, fire fighters, military, first responders or other emergency situations for coordinating different organizations at the scene of a disaster to elevate conventional communication problems either up and down the chain of command or cross communication between different emergency units. The method and system provides that the users are only required to enter a specific Server IP address and an ad hoc event name, a password and perhaps the name of the particular unit.

(Continued)

(52) **U.S. Cl.**  
 CPC ..... **H04W 4/22** (2013.01); **G06F 3/0482** (2013.01); **G06F 3/0484** (2013.01); **H04L 63/083** (2013.01); **H04L 67/18** (2013.01); **H04M 1/72519** (2013.01); **H04M 1/72536** (2013.01); **H04M 1/72572** (2013.01);

(Continued)

**54 Claims, 7 Drawing Sheets**



## US 9,408,055 B2

Page 2

## Related U.S. Application Data

application No. 13/751,453, filed on Jan. 28, 2013, now Pat. No. 8,538,393, which is a continuation-in-part of application No. 12/761,533, filed on Apr. 16, 2010, now Pat. No. 8,364,129, which is a continuation-in-part of application No. 11/615,472, filed on Dec. 22, 2006, now Pat. No. 8,126,441, which is a continuation-in-part of application No. 11/308,648, filed on Apr. 17, 2006, now Pat. No. 7,630,724, which is a continuation-in-part of application No. 10/711,490, filed on Sep. 21, 2004, now Pat. No. 7,031,728.

## (51) Int. Cl.

**H04W 4/22** (2009.01)  
**H04W 76/00** (2009.01)  
**H04M 1/725** (2006.01)  
**H04W 68/00** (2009.01)  
**H04W 4/02** (2009.01)  
**H04W 4/08** (2009.01)  
**H04W 64/00** (2009.01)  
**H04W 84/18** (2009.01)  
**H04W 12/08** (2009.01)  
**H04W 12/02** (2009.01)  
**G06F 3/0482** (2013.01)  
**G06F 3/0484** (2013.01)  
**H04L 29/06** (2006.01)  
**H04L 29/08** (2006.01)  
**H04W 76/02** (2009.01)  
**H04W 4/10** (2009.01)  
**H04M 1/2745** (2006.01)

## (52) U.S. Cl.

CPC ..... **H04M 1/72583** (2013.01); **H04W 4/02** (2013.01); **H04W 4/021** (2013.01); **H04W 4/023** (2013.01); **H04W 4/027** (2013.01); **H04W 4/08** (2013.01); **H04W 12/02** (2013.01); **H04W 12/08** (2013.01); **H04W 64/00** (2013.01); **H04W 68/00** (2013.01); **H04W 76/007** (2013.01); **H04W 84/18** (2013.01); **H04M 1/27455** (2013.01); **H04M 1/72525** (2013.01); **H04M 1/72547** (2013.01); **H04M 2250/10** (2013.01); **H04M 2250/22** (2013.01); **H04M 2250/62** (2013.01); **H04W 4/026** (2013.01); **H04W 4/10** (2013.01); **H04W 76/005** (2013.01); **H04W 76/021** (2013.01)

## (56)

## References Cited

## U.S. PATENT DOCUMENTS

6,204,844 B1 3/2001 Fumarolo et al.  
6,292,747 B1 9/2001 Amro et al.  
6,366,782 B1 4/2002 Fumarolo et al.  
6,377,210 B1 4/2002 Moore  
6,385,465 B1 5/2002 Yoshioka  
6,434,403 B1 8/2002 Ausems et al.  
6,490,521 B2 12/2002 Wiener  
6,518,957 B1 2/2003 Lehtinen et al.  
6,542,475 B1 4/2003 Bala et al.  
6,549,768 B1 4/2003 Fraccaroli  
6,662,016 B1 12/2003 Buckham et al.  
6,716,101 B1 4/2004 Meadows et al.  
6,775,560 B2 8/2004 King et al.  
6,868,333 B2 3/2005 Melen  
6,868,337 B2 3/2005 Muramatsu  
6,882,856 B1 4/2005 Alterman et al.  
6,885,874 B2 4/2005 Grube et al.  
7,024,207 B2 4/2006 Gorday et al.

7,299,075 B2 11/2007 Gottlieb et al.  
7,330,112 B1 2/2008 Emigh et al.  
7,486,648 B1 2/2009 Baranowski  
7,499,799 B2 3/2009 Park  
7,593,740 B2 9/2009 Crowley et al.  
8,014,763 B2\* 9/2011 Hymes ..... H04M 1/26  
455/414.2  
8,139,514 B2 3/2012 Weber et al.  
2001/0044321 A1 11/2001 Ausems et al.  
2003/0013461 A1 1/2003 Mizune et al.  
2003/0093405 A1 5/2003 Mayer  
2003/0139150 A1 7/2003 Rodriguez et al.  
2003/0149527 A1 8/2003 Sikila  
2003/0200259 A1 10/2003 Tsuge  
2004/0054428 A1 3/2004 Sheha et al.  
2004/0137884 A1\* 7/2004 Engstrom ..... H04L 12/586  
455/414.1  
2004/0143391 A1 7/2004 King et al.  
2004/0148090 A1\* 7/2004 Melen ..... 701/200  
2004/0192299 A1 9/2004 Wilson et al.  
2004/0204070 A1 10/2004 August et al.  
2004/0252050 A1 12/2004 Tengler et al.  
2004/0266456 A1 12/2004 Bostrom et al.  
2005/0060069 A1 3/2005 Breed et al.  
2005/0130634 A1 6/2005 Godfrey  
2005/0227705 A1 10/2005 Rousu et al.  
2006/0030339 A1 2/2006 Zhovnirovsky et al.  
2006/0031927 A1 2/2006 Mizuno et al.  
2006/0047825 A1\* 3/2006 Steenstra et al. .... 709/229  
2007/0150444 A1 6/2007 Chesnais et al.  
2007/0281689 A1 12/2007 Altman et al.  
2008/0132243 A1 6/2008 Spalink et al.  
2010/0052945 A1\* 3/2010 Breed ..... B60N 2/2863  
340/903

## FOREIGN PATENT DOCUMENTS

JP 2000/357296 12/2000  
JP 2002245336 8/2002  
JP 2002/277256 9/2002  
WO 03074973 A2 9/2003

## OTHER PUBLICATIONS

Gate5, "Mobile Guide Solution: Context-sensitive applications for PDA based mobile city and travel guides," published in 2002.  
Batista, "Your Boss May Know Where You Are," Wired News, published May 31, 2002.  
Edlund, Therese et al., "Mobile Services for truck drivers," Master thesis in Mobile Informatics, IT University of Goteborg, Sweden, 2003.  
The Gate5 system, which, upon information and belief, was sold and/or publicly used within the U.S. prior to 2004 and at least as early as 2002.  
Kim, Ryan, "Find Friends by cell phone/Loopt application's GPS program can beam map location," published Nov. 14, 2006 by SFGate.  
LocatioNet Press Release: "LocatioNet Releases Ground Breaking Mass Market LBS Application Suite—LocatioNet MyMap," published May 6, 2003.  
LocatioNet LBS Applications: MyMap description web page, published before 2004 upon information and belief.  
The LocatioNet system which, upon information and belief, was sold and/or publicly used within the U.S. prior to 2004 and at least as early as 2003.  
Luna, Lynnette, "This Man Knows You Live . . . and Work and Play," Wireless Review, Sep. 2002; pp. 24-32.  
Meggers, Jens et al., "A Multimedia Communication Architecture for Handheld Devices," IEEE Paper 0-7803-4872-9/98, published 1998.  
Memory Map Remote Tracking, available at <https://web.archive.org/web/20060202161013/http://memory-map.com/>.  
Ostman, Lennart, "A Study of Location-Based Services Including a Design and Implementation of an Enhanced Friend Finder Client with Mapping Capabilities," Lulea Tekniska Univeritet, 2001.

**US 9,408,055 B2**

Page 3

(56)

**References Cited**

OTHER PUBLICATIONS

Elisa Batista, Your Boss May Know Where You Are, May 31, 2002, <<http://archive.wired.com/gadgets/wireless/news/2002/05/52852?currentPage=all>>.

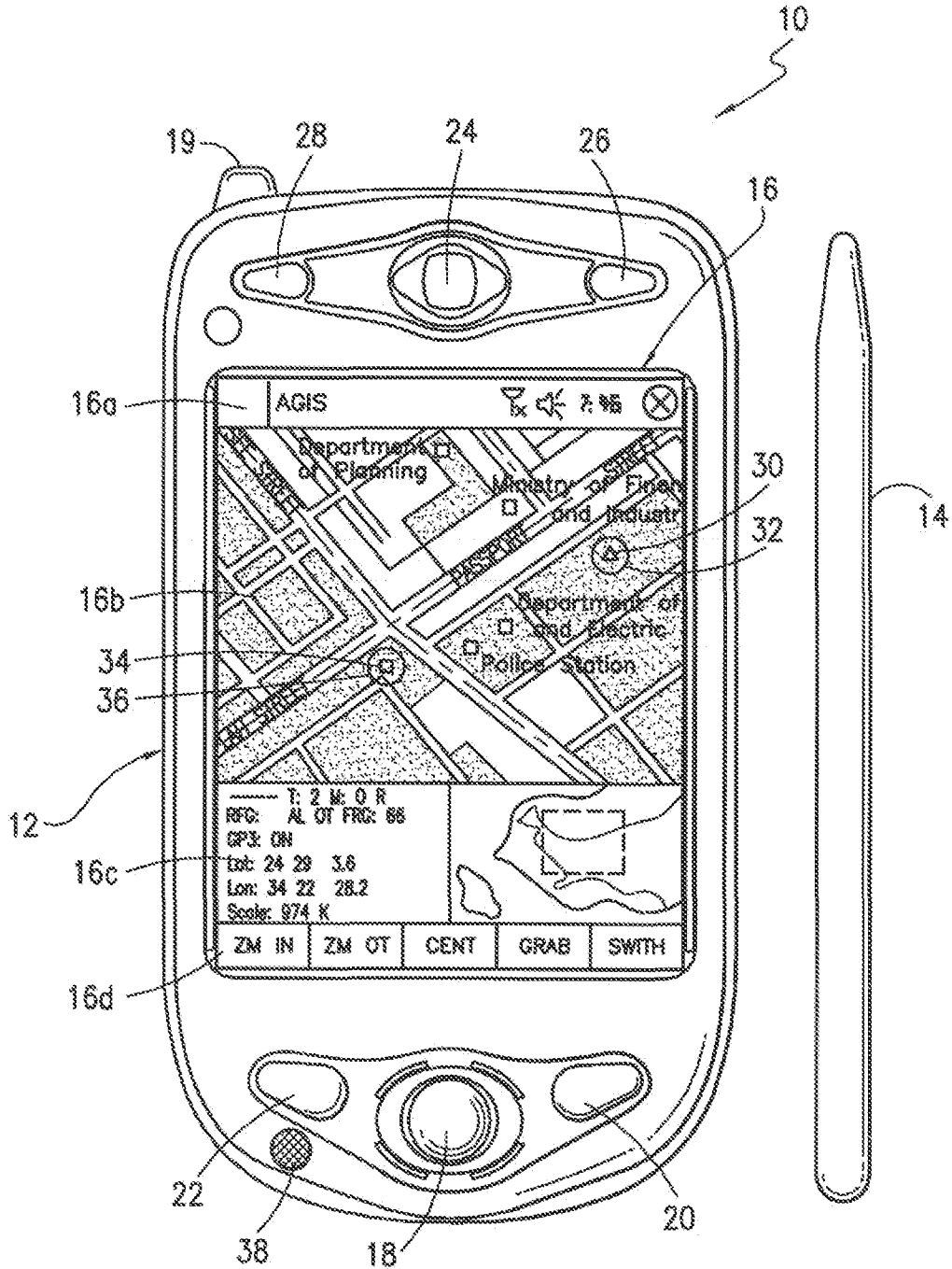
International Preliminary Report on Patentability for International Patent Application No. PCT/JP2004/000250, dated Jul. 15, 2005 (4 pages).

Garmin rino 110 2-way radio & personal navigator: Owner's manual and reference guide, dated Apr. 2003 (88 pages).

Life360's Rule 50(a) Motion for Judgment as a Matter of Law, *AGIS, Inc. v. Life360, Inc.* (S.D. FL), dated Mar. 12, 2015 (27 pages). Plaintiff Advanced Ground Information Systems, Inc.'s Motions in Limine, *AGIS, Inc. v. Life360, Inc.* (S.D. FL), dated Feb. 19, 2015 (54 pages).

"Trimble GPS Technology Enables Seiko Epson Communication Device and Wireless Data Service," Nov. 8, 1999 [retrieved on Jun. 16, 2016]. Retrieved from <http://www.prnewswire.com/news-releases/trimble-gps-technology-enables-seiko-epson-communication-device-and-wireless-data-service-77056402.html>. 4 pages.

\* cited by examiner



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.