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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	6338.213
First Inventor	Stephen L. Schultz
Title	Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images
Express Mail Label No.	Electronically Transmitted

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☐ **Fee Transmittal Form.** (PTO/SB/17 or equivalent)
2. ☑ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☑ **Specification.** [*Total Pages* 41] Both the claims and abstract must start on a new page *(For information on the preferred arrangement, see MPEP § 608.01(a))*
4. ☑ **Drawing(s).** (*35 U.S.C. 113*) [*Total Sheets* 10]
5. **Inventor's Oath or Declaration.** [*Total Sheets* _____] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d))
6. ☑ **Application Data Sheet.** **See Note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
7. ☐ **CD-ROM or CD-R.** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission.** *(if applicable, items a. – c. are required)*
   a. ☐ Computer Readable Form (CRF)
   b. ☐ Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers.** (cover sheet & document(s)) Name of Assignee _____
10. ☐ **37 CFR 3.73(c) Statement.** ☐ **Power of Attorney.** *(when there is an assignee)*
11. ☐ **English Translation Document.** *(if applicable)*
12. ☐ **Information Disclosure Statement.** (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached
13. ☐ **Preliminary Amendment.**
14. ☐ **Return Receipt Postcard.** *(MPEP § 503) (Should be specifically itemized)*
15. ☐ **Certified Copy of Priority Document(s).** *(if foreign priority is claimed)*
16. ☐ **Nonpublication Request.** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ **Other:** _____

***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

18. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 30589 *OR* ☐ Correspondence address below

Name	DUNLAP CODDING, P.C.				
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Country	USA	Telephone	405-607-8600	Email	mbrockhaus@dunlapcodding.com

Signature	Marc Brockhaus	Date	03/08/2013
Name (Print/Type)	Marc A. Brockhaus	Registration No. (Attorney/Agent)	40,923

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6338.213
	Application Number	
Title of Invention	Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Stephen	L.	Schultz	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

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Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Frank	D.	Giuffrida	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

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Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Robert	L.	Gray	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6338.213
	Application Number	
Title of Invention	Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images	

City	Canandiagua	State/Province	NY	Country of Residence	US

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Postal Code	14424	Country	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Charles		Mondello	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Pittsford	State/Province	NY	Country of Residence	US

Mailing Address of Inventor:

Address 1	534 Pittsford-Henrietta Town Line Road		
Address 2			
City	Pittsford	State/Province	NY
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All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

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☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	30589		
Email Address	mbrockhaus@dunlapcodding.com	Add Email	Remove Email

Application Information:

Title of the Invention	Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images		
Attorney Docket Number	6338.213	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	10	Suggested Figure for Publication (if any)	

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Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	13534907	2012-06-27

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13534907	Continuation of	13217885	2011-08-25	8233666	2012-07-31

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13217885	Continuation of	12950643	2010-11-19	8068643	2011-11-29

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12950643	Continuation of	12853616	2010-08-10	7995799	2011-08-09

Prior Application Status	Patented	Remove

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6338.213
	Application Number	
Title of Invention	Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12853616	Continuation of	12186889	2008-08-06	7787659	2010-08-31
Prior Application Status	Patented			Remove	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12186889	Continuation of	10701839	2003-11-05	7424133	2008-09-09
Prior Application Status	Expired			Remove	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
10701839	non provisional of	60425275	2002-11-08

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Priority Claimed
			◉ Yes ○ No

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☒ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6338.213
	Application Number	
Title of Invention	Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☒

Organization Name	Pictometry International Corp.		
Mailing Address Information:			
Address 1	100 Town Centre Drive		
Address 2	Suite A		
City	Rochester	**State/Province**	NY
Country	US	Postal Code	14623-4260
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6338.213
	Application Number	
Title of Invention	Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images	

Assignee 1

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Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information:

Address 1	
Address 2	

City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications

Signature	Marc Brockhaus			Date (YYYY-MM-DD)	2013-03-08
First Name	Marc A.	Last Name	Brockhaus	Registration Number	40923

Additional Signature may be generated within this form by selecting the Add button.

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Electronically filed on: March 8, 2013

Patent
Atty. Dkt. No. 6338.213

METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

INCORPORATION BY REFERENCE

[0001] This application is a divisional of U.S. Serial No. 13/534,907, filed June 27, 2012, which is a continuation of U.S. Serial No. 13/217,885, filed August 25, 2011, which issued as U.S. Patent No. 8,233,666, which is a continuation of U.S. Serial No. 12/950,643, Filed November 19, 2010, which issued as U.S. Patent No. 8,068,643, which is a continuation of U.S. Serial No. 12/853,616, Filed August 10, 2010, which issued as U.S. Patent No. 7,995,799, which is a continuation of U.S. Serial No. 12/186,889, filed August 6, 2008, which issued as U.S. Patent No. 7,787,659, on August 31, 2010, which is a continuation of U.S. Serial No. 10/701,839, filed on November 5, 2003, which issued as U.S. Patent No. 7,424,133, on September 9, 2008, which claims priority to the provisional patent application identified by U.S. Serial No. 60/425,275, filed November 8, 2002, of which the entire content of each is hereby expressly incorporated by reference.

TECHNICAL FIELD

[0002] The present invention relates to photogrammetry. More particularly, the present invention relates to a method and apparatus for capturing oblique images and for measuring the objects and distances between the objects depicted therein.

BACKGROUND

[0003] Photogrammetry is the science of making measurements of and between objects depicted within photographs, especially aerial photographs. Generally,

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photogrammetry involves taking images of terrestrial features and deriving data therefrom, such as, for example, data indicating relative distances between and sizes of objects within the images. Photogrammetry may also involve coupling the photographs with other data, such as data representative of latitude and longitude. In effect, the image is overlaid and conformed to a particular spatial coordinate system.

[0004] Conventional photogrammetry involves the capture and/or acquisition of orthogonal images. The image-capturing device, such as a camera or sensor, is carried by a vehicle or platform, such as an airplane or satellite, and is aimed at a nadir point that is directly below and/or vertically downward from that platform. The point or pixel in the image that corresponds to the nadir point is the only point/pixel that is truly orthogonal to the image-capturing device. All other points or pixels in the image are actually oblique relative to the image-capturing device. As the points or pixels become increasingly distant from the nadir point they become increasingly oblique relative to the image-capturing device and the ground sample distance (i.e., the surface area corresponding to or covered by each pixel) also increases. Such obliqueness in an orthogonal image causes features in the image to be distorted, especially images relatively distant from the nadir point.

[0005] Such distortion is removed, or compensated for, by the process of ortho-rectification which, in essence, removes the obliqueness from the orthogonal image by fitting or warping each pixel of an orthogonal image onto an orthometric grid or coordinate system. The process of ortho-rectification creates an image wherein all pixels have the same ground sample distance and are oriented to the north. Thus, any point on an ortho-rectified image can be located using an X, Y coordinate system and,

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so long as the image scale is known, the length and width of terrestrial features as well as the relative distance between those features can be calculated.

[0006] Although the process of ortho-rectification compensates to a degree for oblique distortions in an orthogonal image, it introduces other undesirable distortions and/or inaccuracies in the ortho-rectified orthogonal image. Objects depicted in ortho-rectified orthogonal images may be difficult to recognize and/or identify since most observers are not accustomed to viewing objects, particularly terrestrial features, from above. To an untrained observer an ortho-rectified image has a number of distortions. Roads that are actually straight appear curved and buildings may appear to tilt. Further, ortho- rectified images contain substantially no information as to the height of terrestrial features. The interpretation and analysis of orthogonal and/or ortho-rectified orthogonal images is typically performed by highly-trained analysts whom have undergone years of specialized training and experience in order to identify objects and terrestrial features in such images.

[0007] Thus, although orthogonal and ortho-rectified images are useful in photogrammetry, they lack information as to the height of features depicted therein and require highly-trained analysts to interpret detail from what the images depict.

[0008] Oblique images are images that are captured with the image-capturing device aimed or pointed generally to the side of and downward from the platform that carries the image-capturing device. Oblique images, unlike orthogonal images, display the sides of terrestrial features, such as houses, buildings and/or mountains, as well as the tops thereof. Thus, viewing an oblique image is more natural and intuitive than viewing an orthogonal or ortho-rectified image, and even casual observers are able to

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recognize and interpret terrestrial features and other objects depicted in oblique images. Each pixel in the foreground of an oblique image corresponds to a relatively small area of the surface or object depicted (Le., each foreground pixel has a relatively small ground sample distance) whereas each pixel in the background corresponds to a relatively large area of the surface or object depicted (i.e., each background pixel has a relatively large ground sample distance). Oblique images capture a generally trapezoidal area or view of the subject surface or object, with the foreground of the trapezoid having a substantially smaller ground sample distance (i.e., a higher resolution) than the background of the trapezoid.

[0009] Oblique images are considered to be of little or no use in photogrammetry. The conventional approach of forcing the variously-sized foreground and background pixels of an oblique image into a uniform size to thereby warp the image onto a coordinate system dramatically distorts the oblique image and thereby renders identification of objects and the taking of measurements of objects depicted therein a laborious and inaccurate task. Correcting for terrain displacement within an oblique image by using an elevation model further distorts the images thereby increasing the difficulty with which measurements can be made and reducing the accuracy of any such measurements.

[0010] Thus, although oblique images are considered as being of little or no use in photogrammetry, they are easily interpreted and contain information as to the height of features depicted therein. Therefore, what is needed in the art is a method and apparatus for photogrammetry that enable geo-location and accurate measurements within oblique images.

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[0011] Moreover, what is needed in the art is a method and apparatus for photogrammetry that enable the measurement of heights and relative heights of objects within an image. Furthermore, what is needed in the art is a method and apparatus for photogrammetry that utilizes more intuitive and natural images.

SUMMARY OF THE INVENTION

[0012] The present invention provides a method and apparatus for capturing, displaying, and making measurements of objects and distances between objects depicted within oblique images. The present invention comprises, in one form thereof, a computerized system for displaying, geolocating, and taking measurements from captured oblique images. The system includes a data file accessible by the computer system. The data file includes a plurality of image files corresponding to a plurality of captured oblique images, and positional data corresponding to the images. Image display and analysis software is executed by the system for reading the data file and displaying at least a portion of the captured oblique images. The software retrieves the positional data for one or more user-selected points on the displayed image, and calculates a separation distance between any two or more selected points. The separation distance calculation is user-selectable to determine various parameters including linear distance between, area encompassed within, relative elevation of, and height difference between selected points.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The above-mentioned and other features and advantages of this invention, and the manner of attaining them, will become apparent and be more

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completely understood by reference to the following description of one embodiment of the invention when read in conjunction with the accompanying drawings, wherein:

[0014] FIG. 1 illustrates one embodiment of a platform or vehicle carrying an image-capturing system of the present invention, and shows exemplary orthogonal and oblique images taken thereby;

[0015] FIG. 2 is a diagrammatic view of the image-capturing system of FIG. 1;

[0016] FIG. 3 is a block diagram of the image-capturing computer system of Fig. 2;

[0017] FIG. 4 is a representation of an exemplary output data file of the image-capturing system of Fig. 1;

[0018] FIG. 5 is a block diagram of one embodiment of an image display and measurement computer system of the present invention for displaying and taking measurements of and between objects depicted in the images captured by the image-capturing system of Fig. 1;

[0019] FIG. 6 depicts an exemplary image displayed on the system of Fig. 5, and illustrates one embodiment of the method of the present invention for the measurement of and between objects depicted in such an image;

[0020] FIGS. 7 and 8 illustrate one embodiment of a method for capturing oblique images of the present invention;

[0021] FIGS. 9 and 10 illustrate a second embodiment of a method for capturing oblique images of the present invention.

[0022] Corresponding reference characters indicate corresponding parts throughout the several views. The exemplifications set out herein illustrate one

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preferred embodiment of the invention, in one form, and such exemplifications are not to be construed as limiting the scope of the invention in any manner.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0023] Referring now to the drawings, and particularly to Fig. 1, one embodiment of an apparatus for capturing and geolocating oblique images of the present invention is shown. Apparatus 10 includes a platform or vehicle 20 that carries image-capturing and geolocating system 30.

[0024] Platform 20, such as, for example, an airplane, space shuttle, rocket, satellite, or any other suitable vehicle, carries image-capturing system 30 over a predefined area of and at one or more predetermined altitudes above surface 31, such as, for example, the earth's surface or any other surface of interest. As such, platform 20 is capable of controlled movement or flight, either manned or unmanned, along a predefined flight path or course through, for example, the earth's atmosphere or outer space. Image capturing platform 20 includes a system for generating and regulating power (not shown) that includes, for example, one or more generators, fuel cells, solar panels, and/or batteries, for powering image-capturing system 30.

[0025] Image-capturing and geo-locating system 30, as best shown in Fig. 2, includes image capturing devices 32a and 32b, a global positioning system (GPS) receiver 34, an inertial navigation unit (INU) 36, clock 38, gyroscope 40, compass 42 and altimeter 44, each of which are interconnected with image-capturing computer system 46.

[0026] Image-capturing devices 32a and 32b, such as, for example, conventional cameras, digital cameras, digital sensors, charge-coupled devices, or other suitable

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image-capturing devices, are capable of capturing images photographically or electronically. Image-capturing devices 32a and 32b have known or determinable characteristics including focal length, sensor size and aspect ratio, radial and other distortion terms, principal point offset, pixel pitch, and alignment. Image-capturing devices 32a and 32b acquire images and issue image data signals (IDS) 48a and 48b, respectively, corresponding to the particular images or photographs taken and which are stored in image-capturing computer system 46, as will be more particularly described hereinafter.

[0027] As best shown in Fig. 1, image-capturing devices 32a and 32b have respective central axes A_1 and A_2, and are mounted to platform 20 such that axes A_1 and A_2 are each at an angle of declination Ø relative to a horizontal plane P. Declination angle Ø is virtually any oblique angle, but is preferably from approximately 20° (twenty degrees) to approximately 60° (sixty degrees) and is most preferably from approximately 40° (forty degrees) to approximately 50° (fifty degrees).

[0028] GPS receiver 34 receives global positioning system signals 52 that are transmitted by one or more global positioning system satellites 54. The GPS signals 52, in known fashion, enable the precise location of platform 20 relative to surface 31 to be determined. GPS receiver 34 decodes GPS signals 52 and issues location signals/data 56, that are dependent at least in part upon GPS signals 52 and which are indicative of the precise location of platform 20 relative to surface 31. Location signals/data 56 corresponding to each image captured by image-capturing devices 32a and 32b are received and stored by image-capturing computer system 46.

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[0029] INU 36 is a conventional inertial navigation unit that is coupled to and detects changes in the velocity, including translational and rotational velocity, of image-capturing devices 32a and 32b and/or platform 20. INU 36 issues velocity signals/data 58 indicative of such velocities and/or changes therein to image-capturing computer system 46, which stores velocity signals/data 58 corresponding to each image captured by image-capturing devices 32a and 32b are received and stored by image-capturing computer system 46.

[0030] Clock 38 keeps a precise time measurement (time of validity) that is used to synchronize events within image-capturing and geo-locating system 30. Clock 38 provides time data/clock signal 62 that is indicative of the precise time that an image is taken by image-capturing devices 32a and 32b. Time data 62 is also provided to and stored by image-capturing computer system 46. Alternatively, clock 38 is integral with image-capturing computer system 46, such as, for example, a clock software program.

[0031] Gyroscope 40 is a conventional gyroscope as commonly found on airplanes and/or within commercial navigation systems for airplanes. Gyroscope 40 provides signals including pitch signal 64, roll signal 66 and yaw signal 68, which are respectively indicative of pitch, roll and yaw of platform 20. Pitch signal 64, roll signal 66 and yaw signal 68 corresponding to each image captured by mage-capturing devices 32a and 32b are received and stored by image-capturing computer system 46.

[0032] Compass 42, such as, for example, a conventional electronic compass, indicates the heading of platform 20. Compass 42 issues heading signal/data 72 that is indicative of the heading of platform 20. Image-capturing computer system 46 receives

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and stores the heading signals/data 72 that correspond to each image captured by image-capturing devices 32a and 32b.

[0033] Altimeter 44 indicates the altitude of platform 20. Altimeter 44 issues altitude signal/data 74, and image-capturing computer system 46 receives and stores the altitude signal/data 74 that correspond to each image captured by image-capturing devices 32a and 32b.

[0034] As best shown in Fig. 3, image-capturing computer system 46, such as, for example, a conventional laptop personal computer, includes memory 82, input devices 84a and 84b, display device 86, and input and output (I/O) ports 88. Image-capturing computer system 46 executes image and data acquiring software 90, which is stored in memory 82. Memory 82 also stores data used and/or calculated by image-capturing computer system 46 during the operation thereof, and includes, for example, non- volatile read-only memory, random access memory, hard disk memory, removable memory cards and/or other suitable memory storage devices and/or media. Input devices 84a and 84b, such as, for example, a mouse, keyboard, joystick, or other such input devices, enable the input of data and interaction of a user with software being executed by image-capturing computer system 46. Display device 86, such as, for example, a liquid crystal display or cathode ray tube, displays information to the user of image-capturing computer system 46. I/O ports 88, such as, for example, serial and parallel data input and output ports, enable the input and/or output of data to and from image-capturing computer system 46.

[0035] Each of the above-described data signals is connected to image-capturing computer system 46. More particularly, image data signals 48, location signals 56,

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velocity signals 58, time data signal 62, pitch, roll and yaw signals 64, 66 and 68, respectively, heading signal 72 and altitude signal 74 are received via I/O ports 88 by and stored within memory 82 of image-capturing computer system 46.

[0036] In use, image-capturing computer system 46 executes image and data acquiring software 90, which, in general, controls the reading, manipulation, and storing of the above-described data signals. More particularly, image and data acquiring software 90 reads image data signals 48a and 48b and stores them within memory 82. Each of the location signals 56, velocity signals 58, time data signal 62, pitch, roll and yaw signals 64, 66 and 68, respectively, heading signal 72 and altitude signal 74 that represent the conditions existing at the instant an image is acquired or captured by image-capturing devices 32a and 32b and which correspond to the particular image data signals 48a and 48b representing the captured images are received by image-capturing computer system 46 via I/O ports 88. Image-capturing computer system 46 executing image and data acquiring software 90 issues image-capture signal 92 to image-capturing devices 32a and 32b to thereby cause those devices to acquire or capture an image at predetermined locations and/or at predetermined intervals which are dependent at least in part upon the velocity of platform 20.

[0037] Image and data acquiring software 90 decodes as necessary and stores the aforementioned signals within memory 82, and associates the data signals with the corresponding image signals 48a and 48b. Thus, the altitude, orientation in terms of roll, pitch, and yaw, and the location of image-capturing devices 32a and 32b relative to surface 31, i.e., longitude and latitude, for every image captured by image-capturing devices 32a and 32b is known.

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[0038] Platform 20 is piloted or otherwise guided through an image-capturing path that passes over a particular area of surface 31, such as, for-example, a predefined area of the surface of the earth or of another planet. Preferably, the image-capturing path of platform 20 is at right angles to at least one of the boundaries of the area of interest. The number of times platform 20 and/or image-capturing devices 32a, 32b pass over the area of interest is dependent at least in part upon the size of the area and the amount of detail desired in the captured images. The particular details of the image-capturing path of platform 20 are described more particularly hereinafter.

[0039] As platform 20 passes over the area of interest a number of oblique images are captured by image-capturing devices 32a and 32b. As will be understood by those of ordinary skill in the art, images are captured or acquired by image-capturing devices 32a and 32b at predetermined image capture intervals which are dependent at least in part upon the velocity of platform 20.

[0040] Image data signals 48a and 48b corresponding to each image acquired are received by and stored within memory 82 of image-capturing computer system 46 via I/O ports 88. Similarly, the data signals (i.e., image data signals 48, location signals 56, velocity signals 58, time data signal 62, pitch, roll and yaw signals 64, 66 and 68, respectively, heading signal 72 and altitude signal 74) corresponding to each captured image are received and stored within memory 82 of image-capturing computer system 46 via I/O ports 88. Thus, the location of image-capturing device 32a and 32b relative to surface 32 at the precise moment each image is captured is recorded within memory 82 and associated with the corresponding captured image.

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[0041] As best shown in Fig. 1, the location of image-capturing devices 32a and 32b relative to the earth corresponds to the nadir point N of orthogonal image 102. Thus, the exact geo-location of the nadir point N of orthogonal image 102 is indicated by location signals 56, velocity signals 58, time data signal 62, pitch, roll and yaw signals 64,66 and 68, respectively, heading signal 72 and altitude signal 74. Once the nadir point N of orthogonal image 102 is known, the geo-location of any other pixel or point within image 102 is determinable in known manner.

[0042] When image-capturing devices 32a and 32b are capturing oblique images, such as oblique images 104a and 104b (Fig. 1), the location of image-capturing devices 32a and 32b relative to surface 31 is similarly indicated by location signals 56, velocity signals 58, time data signal 62, pitch, roll and yaw signals 64,66 and 68, respectively, heading signal 72, altitude signal 74 and the known angle of declination 0 of the primary axes A_1 and A_2 of image-capturing devices 32a and 32b, respectively.

[0043] It should be particularly noted that a calibration process enables image and data acquiring software 90 to incorporate correction factors and/or correct for any error inherent in or due to image-capturing device 32, such as, for example, error due to calibrated focal length, sensor size, radial distortion, principal point offset, and alignment.

[0044] Image and data acquiring software 90 creates and stores in memory 82 one or more output image and data files 120. More particularly, image and data acquiring software 90 converts image data signals 48a, 48b and the orientation data signals (i.e., image data signals 48, location signals 56, velocity signals 58, time data signal 62, pitch, roll and yaw signals 64, 66 and 68, respectively, heading signal 72 and

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altitude signal 74) into computer-readable output image and data files 120. As best shown in Fig. 4, output image and data file 120 contains a plurality of captured image files I_1, I_2, ... , I_n corresponding to captured oblique images, and the positional data C_{PD1}, C_{PD2}, ..., C_{PDn} corresponding thereto.

[0045] Image files I_1, I_2, ... , I_n of the image and data file 120 are stored in virtually any computer-readable image or graphics file format, such as, for example, JPEG, TIFF, GIF, BMP, or PDF file formats, and are cross-referenced with the positional data C_{PD1}, C_{PD2}, ... , C_{PDn} which is also stored as computer-readable data. Alternatively, positional data C_{PD1}, C_{PD2}, ... , C_{PDn} is embedded within the corresponding image files I_1, I_2, ... , I_n in known manner. Image data files 120 are then processed, either by image and data acquiring software 90 or by post-processing, to correct for errors, such as, for example, errors due to flight path deviations and other errors known to one of ordinary skill in the art. Thereafter, image data files 120 are ready for use to display and make measurements of and between the objects depicted within the captured images, including measurements of the heights of such objects.

[0046] Referring now to Fig. 5, image display and measurement computer system 130, such as, for example, a conventional desktop personal computer or a mobile computer terminal in a police car, includes memory 132, input devices 134a and 134b, display device 136, and network connection 138. Image-capturing computer system 130 executes image display and analysis software 140, which is stored in memory 132. Memory 132 includes, for example, non-volatile read-only memory, random access memory, hard disk memory, removable memory cards and/or other suitable memory storage devices and/or media. Input devices 134a and 134b, such as,

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for example, a mouse, keyboard, joystick, or other such input devices, enable the input of data and interaction of a user with image display and analysis software 140 being executed by image display and measurement computer system 130. Display device 136, such as, for example, a liquid crystal display or cathode ray tube, displays information to the user of image display and measurement computer system 130. Network connection 138 connects image display and measurement computer system 130 to a network (not shown), such as, for example, a local-area network, wide-area network, the Internet and/or the World Wide Web.

[0047] In use, and referring now to Fig. 6, image display and measurement computer system 130 executing image display and analysis software 140 accesses one or more 10 output image and data files 120 that have been read into memory 132, such as, for example, via network connection 138, a floppy disk drive, removable memory card or other suitable means. One or more of the captured images I_1, I_n, ... , I_n of output image and data files 120 is thereafter displayed as displayed oblique image 142 under the control of image display and analysis software 140. At approximately the same time, one or more data portions C_{PD1}, C_{PD2}, ... , C_{PDn} corresponding to displayed oblique image 142 are read into a readily-accessible portion of memory 132.

[0048] It should be particularly noted that displayed oblique image 142 is displayed substantially as captured, i.e., displayed image 142 is not warped or fitted to any coordinate system nor is displayed image 142 ortho-rectified. Rather than warping displayed image 142 to a coordinate system in order to enable measurement of objects depicted therein, image display and analysis software 140, in general, determines the geo-locations of selected pixels only as needed, or "on the fly", by referencing data

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portions C_{PD1}, C_{PD2}, ... , C_{PDn} of output image and data files 120 and calculating the position and/or geo-location of those selected pixels using one or more projection equations as is more particularly described hereinafter.

[0049] Generally, a user of display and measurement computer system 130 takes measurements of and between objects depicted in displayed oblique image 142 by selecting one of several available measuring modes provided within image display and analysis software 140. The user selects the desired measurement mode by accessing, for example, a series of pull-down menus or toolbars M, or via keyboard commands. The measuring modes provided by image display and analysis software 140 include, for example, a distance mode that enables measurement of the distance between two or more selected points, an area mode that enables measurement of the area encompassed by several selected and interconnected points, a height mode that enables measurement of the height between two or more selected points, and an elevation mode that enables the measurement of the change in elevation of one selected point relative to one or more other selected points.

[0050] After selecting the desired measurement mode, the user of image display and analysis software 140 selects with one of input devices 134a, 134b a starting point or starting pixel 152 and an ending point or pixel 154 on displayed image 142, and image display and analysis software 140 automatically calculates and displays the quantity sought, such as, for example, the distance between starting pixel 152 and ending pixel 154.

[0051] When the user selects starting point/pixel 152, the geo-location of the point corresponding thereto on surface 31 is calculated by image display and analysis

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software 140 which executes one or more projection equations using the data portions C_{PD1}, C_{PD2}, ... , C_{PDn} of output image and data files 120 that correspond to the particular image being displayed. The longitude and latitude of the point on surface 31 corresponding to pixel 152 are then displayed by image display and analysis software 140 on display 136, such as, for example, by superimposing the longitude and latitude on displayed image 142 adjacent the selected point/pixel or in pop-up display box elsewhere on display 136. The same process is repeated by the user for the selection of the end pixel/point 154, and by image display and analysis software 140 for the retrieval and display of the longitude and latitude information.

[0052] The calculation of the distance between starting and ending points/pixels 152, 154, respectively, is accomplished by determining the geo-location of each selected pixel 152, 154 "on the fly". The data portions C_{PD1}, C_{PD2}, ... , C_{PDn} of output image and data file 120 corresponding to the displayed image are retrieved, and the geo-location of the point on surface 31 corresponding to each selected pixel are then determined. The difference between the geo-locations corresponding to the selected pixels determines the distance between the pixels.

[0053] As an example of how the geo-location of a given point or pixel within displayed oblique image 142 is determined, we will assume that displayed image 142 corresponds to orthogonal image 104a (Fig. 1). The user of image display and analysis software 140 selects pixel 154 which, for simplicity, corresponds to center C (Fig. 1) of oblique image 104a. As shown in Fig. 1, line 106 extends along horizontal plane G from a point 108 thereon that is directly below image-capturing device 32a to the center C of the near border or edge 108 of oblique image 104a. An extension of primary axis A_1

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intersects with center C. Angle Ø is the angle formed between line 106 the extension of primary axis A_1. Thus, a triangle (not referenced) is formed having vertices at image-capturing device 32a, point 108 and center C, and having sides 106, the extension of primary axis A_1 and vertical (dashed) line 110 between point 108 and image-capturing device 32a.

[0054] Ground plane G is a substantially horizontal, flat or non-sloping ground plane (and which typically will have an elevation that reflects the average elevation of the terrain), and therefore the above-described triangle includes a right angle between side/line 110 and sideline 106. Since angle Ø and the altitude of image-capturing device 32 (i.e., the length of side 110) are known, the hypotenuse (i.e., the length of the extension of primary axis A_1) and remaining other side of the right triangle are calculated by simple geometry. Further, since the exact position of image-capturing device 32a is known at the time the image corresponding to displayed image 142 was captured, the latitude and longitude of point 108 are also known. Knowing the length of side 106, calculated as described above, enables the exact geo-location of pixel 154 corresponding to center C of oblique image 104a to be determined by image display and analysis software 140. Once the geo-location of the point corresponding to pixel 154 is known, the geo-location of any other pixel in displayed oblique image 142 is determinable using the known camera characteristics, such as, for example, focal length, sensor size and aspect ratio, radial and other distortion terms, etc. The distance between the two or more points corresponding to two or more selected pixels within displayed image 142 is calculated by image display and analysis software 140 by determining the difference between the geo-locations of the selected pixels using known

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algorithms, such as, for example, the Gauss formula and/or the vanishing point formula, dependent upon the selected measuring mode. The measurement of objects depicted or appearing in displayed image 142 is conducted by a substantially similar procedure to the procedure described above for measuring distances between selected pixels. For example, the lengths, widths and heights of objects, such as, for example, buildings, rivers, roads, and virtually any other geographic or man-made structure, appearing within displayed image 142 are measured by selecting the appropriate/desired measurement mode and selecting starting and ending pixels.

[0055] It should be particularly noted that in the distance measuring mode of image display and analysis software 140 the distance between the starting and ending points/pixels 152, 154, respectively, is determinable along virtually any path, such as, for example, a "straight-line" path P1 or a path P2 that involves the selection of intermediate points/pixels and one or more "straight-line" segments interconnected therewith.

[0056] It should also be particularly noted that the distance measuring mode of image display and analysis software 140 determines the distance between selected pixels according to a "walk the earth" method. The "walk the earth method" creates a series of interconnected line segments, represented collectively by paths P1 and P2, that extend between the selected pixels/points and which lie upon or conform to the planar faces of a series of interconnected facets that define a tessellated ground plane. The tessellated ground plane, as will be more particularly described hereinafter, closely follows or recreates the terrain of surface 31, and therefore paths P1 and P2 also closely follow the terrain of surface 31. By measuring the distance along the terrain

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simulated by the tessellated ground plane, the "walk the earth" method provides for a more accurate and useful measurement of the distance between selected points than the conventional approach, which warps the image onto a flat earth or average elevation plane system and measures the distance between selected points along the flat earth or plane and substantially ignores variations in terrain between the points.

[0057] For example, a contractor preparing to bid on a contract for paving a roadway over uneven or hilly terrain can determine the approximate amount or area of roadway involved using image display and analysis software 140 and the "walk the earth" measurement method provided thereby. The contractor can obtain the approximate amount or area of roadway from his or her own office without having to send a surveying crew to the site to obtain the measurements necessary.

[0058] In contrast to the "walk the earth" method provided by the present invention, the "flat earth" or average elevation distance calculating approaches include inherent inaccuracies when measuring distances between points and/or objects disposed on uneven terrain and when measuring the sizes and/or heights of objects similarly disposed. Even a modest slope or grade in the surface being captured results in a difference in the elevation of the nadir point relative to virtually any other point of interest thereon. Thus, referring again to Fig. 1, the triangle formed by line 106, the extension of primary axis A_1 and the vertical (dashed) line 110 between point 108 and image-capturing device 32a may not be a right triangle. If such is the case, any geometric calculations assuming that triangle to be a right triangle would contain errors, and such calculations would be reduced to approximations due to even a relatively slight gradient or slope between the points of interest.

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[0059] For example, if surface 31 slopes upward between nadir point N and center C at the near or bottom edge 108 of oblique image 104 then second line 110 intersects surface 31 before the point at which such intersection would occur on a level or non-sloping surface 31. If center C is fifteen feet higher than nadir point N and with a declination angle Ø equal to 40° (forty degrees), the calculated location of center C would be off by approximately 17.8 feet without correction for the change in elevation between the points.

[0060] As generally discussed above, in order to compensate at least in part for changes in elevation and the resultant inaccuracies in the measurement of and between objects within image 142, image display and analysis software 140 references, as necessary, points within displayed image 142 and on surface 31 to a pre-calculated tessellated or faceted ground plane generally designated 160 in Fig. 6. Tessellated ground plane 160 includes a plurality of individual facets 162a, 162b, 162c, etc., each of which are interconnected to each other and are defined by four vertices (not referenced, but shown as points) having respective elevations. Adjacent pairs of facets 162a, 162b, 162c, etc., share two vertices. Each facet 162a, 162b, 162c, etc., has a respective pitch and slope. Tessellated ground plane 160 is created based upon various data and resources, such as, for example, topographical maps, and/or digital raster graphics, survey data, and various other sources.

[0061] Generally, the geo-location of a point of interest on displayed image 142 is calculated by determining which of facets 162a, 162b, 162c, etc., correspond to that point of interest. Thus, the location of the point of interest is calculated based on the characteristics, i.e., elevation, pitch and slope, of facets 162a, 162b, 162c, etc., rather

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than based upon a flat or average-elevation ground plane. Error is introduced only in so far as the topography of surface 31 and the location of the point of interest thereon deviate from the planar surface of the facet 162a, 162b, 162c, etc, within which the point of interest lies. That error is reducible through a bilinear interpolation of the elevation of the point of interest within a particular one of facets 162a, 162b, 162c, etc., and using that interpolated elevation in the location calculation performed by image display and analysis software 140.

[0062] To use tessellated ground plane 160, image display and analysis software 140 employs a modified ray-tracing algorithm to find the intersection of the ray projected from the image-capturing device 32a or 32b towards surface 31 and tessellated ground plane 160. The algorithm determines not only which of facets 162a, 162b, 162c, etc., is intersected by the ray, but also where within the facet the intersection occurs. By use of bi-linear interpolation, a fairly precise ground location can be determined. For the reverse projection, tessellated ground plane 160 is used to find the ground elevation value for the input ground location also using bi-linear interpolation. The elevation and location are then used to project backwards through a model of the image-capturing device 32a or 32b to determine which of the pixels within displayed image 142 corresponds to the given location.

[0063] More particularly, and as an example, image display and analysis software 140 performs and/or calculates the geo-location of point 164 by superimposing and/or fitting tessellated ground plane 160 to at least a portion 166, such as, for example, a hill, of surface 31. It should be noted that only a small portion of tessellated ground plane 160 and facets 162a, 162b, 162c, etc., thereof is shown along the profile of portion 166

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of surface 31. As discussed above, each of facets 162a, 162b, 162c, etc., are defined by four vertices, each of which have respective elevations, and each of the facets have respective pitches and slopes. The specific position of point 164 upon the plane/surface of the facet 162a, 162b, 162c, etc., within which point 164 (or its projection) lies is determined as described above.

[0064] Tessellated ground plane 160 is preferably created outside the operation of image display and measurement computer system 130 and image display and analysis software 140. Rather, tessellated ground plane 160 takes the form of a relatively simple data table or look-up table 168 stored within memory 132 of and/or accessible to image display and measurement computer system 130. The computing resources required to calculate the locations of all the vertices of the many facets of a typical ground plane do not necessarily have to reside within image display and measurement computer system 130. Thus, image display and measurement computer system 130 is compatible for use with and executable by a conventional personal computer without requiring additional computing resources.

[0065] Calculating tessellated ground plane 160 outside of image display and measurement computer system 130 enables virtually any level of detail to be incorporated into tessellated ground plane 160, i.e., the size and/or area covered by or corresponding to each of facets 162a, 162b, 162c, etc., can be as large or as small as desired, without significantly increasing the calculation time, slowing the operation of, nor significantly increasing the resources required by image display and measurement computer system 130 and/or image display and analysis software 140. Display and

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measurement computer system 130 can therefore be a relatively basic and uncomplicated computer system.

[0066] The size of facets 162a, 162b, 162c, etc., are uniform in size throughout a particular displayed image 142. For example, if displayed image 142 corresponds to an area that is approximately 750 feet wide in the foreground by approximately 900 feet deep, the image can be broken into facets that are approximately 50 square feet, thus yielding about 15 facets in width and 18 facets in depth. Alternatively, the size of facets 162a, 162b, 162c, etc., are uniform in terms of the number of pixels contained therein, i.e., each facet is the same number of pixels wide and the same number of pixels deep. Facets in the foreground of displayed image 142, where the pixel density is greatest, would therefore be dimensionally smaller than facets in the background of displayed image 142 where pixel density is lowest. Since it is desirable to take most measurements in the foreground of a displayed image where pixel density is greatest, creating facets that are uniform in terms of the number of pixels they contain has the advantage of providing more accurate measurements in the foreground of displayed image 142 relative to facets that are dimensionally uniform.

[0067] Another advantage of using pixels as a basis for defining the dimensions of facets 162a, 162b, 162c, etc., is that the location calculation (pixel location to ground location) is relatively simple. A user operates image display and measurement computer system 130 to select a pixel within a given facet, image display and analysis software 140 looks up the data for the facet corresponding to the selected pixel, the elevation of the selected pixel is calculated as discussed above, and that elevation is used within the location calculation.

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[0068] Generally, the method of capturing oblique images of the present invention divides an area of interest, such as, for example, a county, into sectors of generally uniform size, such as, for example, sectors that are approximately one square mile in area. This is done to facilitate the creation of a flight plan to capture oblique images covering every inch of the area of interest, and to organize and name the sectors and/or images thereof for easy reference, storage and retrieval (a process known in the art as "sectorization"). Because the edges of any geographic area of interest, such as a county, rarely falls on even square mile boundaries, the method of capturing oblique images of the present invention provides more sectors than there are square miles in the area of interest - how many more depends largely on the length of the county borders as well as how straight or jagged they are. Typically, you can expect one extra sector for every two to three miles of border. So if a county or other area of interest is roughly 20 miles by 35 miles, or 700 square miles, the area will be divided into approximately from 740 to 780 sectors.

[0069] The method of capturing oblique images of the present invention, in general, captures the oblique images from at least two compass directions, and provides full coverage of the area of interest from at least those two compass directions. Referring now to Figs. 7 and 8, a first embodiment of a method for capturing oblique images of the present invention is shown. For sake of clarity, Fig. 7 and 8 is based on a system having only one image-capturing device. However, it is to be understood that two or more image-capturing devices can be used.

[0070] The image-capturing device captures one or more oblique images during each pass over area 200. The image-capturing device, as discussed above, is aimed at

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an angle over area 200 to capture oblique images thereof. Area 200 is traversed in a back-and-forth pattern, similar to the way a lawn is mowed, by the image-carrying device and/or the platform to ensure double coverage of area 200.

[0071] More particularly, area 200 is traversed by image-carrying device 32 and/or platform 20 following a first path 202 to thereby capture oblique images of portions 202a, 202b, and 202c of area 200. Area 200 is then traversed by image-carrying device 32 and/or platform 20 following a second path 204 that is parallel and spaced apart from, and in an opposite direction to, i.e., 180° (one-hundred and eighty degrees) from, first path 202, to thereby capture oblique images of portions 204a, 204b, 204c of area 200. By comparing Figs. 7 and 8, it is seen that a portion 207 (Fig. 8) of area 200 is covered by images 202a-c captured from a first direction or perspective, and by images 204a-c captured from a second direction or perspective. As such, the middle portion of area 200 is 100% (one-hundred percent) double covered. The above-described pattern of traversing or passing over area 200 along opposing paths that are parallel to paths 202 and 204 is repeated until the entirety of area 200 is completely covered by at least one oblique image captured from paths that are parallel to, spaced apart from each other as dictated by the size of area 200, and in the same direction as paths 202 and 204 to thereby one-hundred percent double cover area 200 from those perspectives/directions.

[0072] If desired, and for enhanced detail, area 200 is covered by two additional opposing and parallel third and fourth paths 206 and 208, respectively, that are perpendicular to paths 202 and 204 as shown in Figs. 9 and 10. Area 200 is therefore traversed by image-carrying device 32 and/or platform 20 following third path 206 to

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capture oblique images of portions 206a, 206b and 206c of area 200, and is then traversed along fourth path 208 that is parallel, spaced apart from, and opposite to third path 206 to capture oblique images of portions 208a, 208b and 208c of area 200. This pattern of traversing or passing over area 200 along opposing paths that are parallel to paths 206 and 208 is similarly repeated until the entirety of area 200 is completely covered by at least one oblique image captured from paths that are parallel to, spaced apart from as dictated by the size of area 200, and in the same direction as paths 206 and 208 to thereby one-hundred percent double cover area 200 from those directions/perspectives.

[0073] As described above, image-carrying device 32 and/or platform 20, traverses or passes over area 200 along a predetermined path. However, it is to be understood that image-carrying device and/or platform 20 do not necessarily pass or traverse directly over area 200 but rather may pass or traverse an area adjacent, proximate to, or even somewhat removed from, area 200 in order to ensure that the portion of area 200 that is being imaged falls within the image-capture field of the image-capturing device. Path 202, as shown in Fig. 7, is such a path that does not pass directly over area 200 but yet captures oblique images thereof.

[0074] The present invention is capable of capturing images at various levels of resolution or ground sample distances. A first level of detail, hereinafter referred to as a community level, has a ground sample distance of, for example, approximately two-feet per pixel. For orthogonal community-level images, the ground sample distance remains substantially constant throughout the image. Orthogonal community-level images are captured with sufficient overlap to provide stereo pair coverage. For oblique community-

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level images, the ground sample distance varies from, for example, approximately one-foot per pixel in the foreground of the image to approximately two-feet per pixel in the mid-ground of the image, and to approximately four-feet per pixel in the background of the image. Oblique community-level images are captured with sufficient overlap such that each area of interest is typically covered by at least two oblique images from each compass direction captured. Approximately ten oblique community-level images are captured per sector.

[0075] A second level of detail, hereinafter referred to as a neighborhood level, is significantly more detailed than the community-level images. Neighborhood-level images have a ground sample distance of, for example, approximately six-inches per pixel. For orthogonal neighborhood-level images, the ground sample distance remains substantially constant. Oblique neighborhood-level images have a ground sample distance of, for example, from approximately four-inches per pixel in the foreground of the image to approximately six-inches per pixel in the mid-ground of the image, and to approximately ten-inches per pixel in the background of the image. Oblique neighborhood-level images are captured with sufficient overlap such that each area of interest is typically covered by at least two oblique images from each compass direction captured, and such that opposing compass directions provide 100% overlap with each other. Approximately one hundred (100) oblique area images are captured per sector.

[0076] It should be particularly noted that capturing oblique community and/or neighborhood-level images from all four compass directions ensures that every point in the image will appear in the foreground or lower portion of at least one of the captured oblique images, where ground sample distance is lowest and image detail is greatest.

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[0077] In the embodiment shown, image-capturing and geo-locating system 30 includes a gyroscope, compass and altimeter. However, it is to be understood that the image-capturing and geo-locating system of the present invention can be alternately configured, such as, for example, to derive and/or calculate altitude, pitch, roll and yaw, and compass heading from the GPS and INU signals/data, thereby rendering one or more of the gyroscope, compass and altimeter unnecessary. In fact, in the embodiment shown, image-capturing devices are at an equal angle of declination relative to a horizontal plane. However, it is to be understood that the declination angles of the image-capturing devices do not have to be equal.

[0078] In the embodiment shown, image-capturing computer system executes image and data acquiring software' that issues a common or single image-capture signal to the image-capturing devices to thereby cause those devices to acquire or capture an image. However, it is to be understood that the present invention can be alternately configured to separately cause the image-capturing devices to capture images at different instants and/or at different intervals.

[0079] In the embodiment shown, the method of the present invention captures oblique images to provide double coverage of an area of interest from paths/perspectives that are substantially opposite to each other, i.e., 180° (one-hundred and eighty degrees) relative to each other. However, it is to be understood that the method of the present invention can be alternately configured to provide double coverage from paths/perspectives that are generally and/or substantially perpendicular relative to each other.

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[0080] While the present invention has been described as having a preferred design, the invention can be further modified within the spirit and scope of this disclosure. This disclosure is therefore intended to encompass any equivalents to the structures and elements disclosed herein. Further, this disclosure is intended to encompass any variations, uses, or adaptations of the present invention that use the general principles disclosed herein. Moreover, this disclosure is intended to encompass any departures from the subject matter disclosed that come within the known or customary practice in the pertinent art and which fall within the limits of the appended claims.

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WHAT IS CLAIMED IS:

1. A system for capturing images and geo-location data corresponding thereto, comprising:

an image-capturing device, said image-capturing device capturing oblique aerial images at image-capturing events, said image-capturing device issuing image-data signals corresponding to captured images;

at least one geo-locating device, each said at least one geo-locating device issuing a corresponding at least one geo-locating signal, each said at least one geo-locating signal being indicative at least in part of a geo-location of said image-capturing device during each image capturing event;

a computer system receiving and storing said image-data signals and said at least one geo-locating signal; and

the computer system executing image and data acquiring software reading said image-data signals and said at least one geo-locating signal, said image and data acquiring software associating each said image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event.

2. The system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise at least one of:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event;

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a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said image-capturing device at each said image-capturing event;

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said image-capturing device at each said image-capturing event;

a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said image-capturing device at each said image-capturing event; and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said image-capturing device at each said image-capturing event.

3. The system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event;

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said image-capturing device at each said image-capturing event;

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an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said image-capturing device at each said image-capturing event;

a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said image-capturing device at each said image-capturing event; and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said image-capturing device at each said image-capturing event.

4. The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the image-capturing device captures community level oblique aerial images.

5. The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the image-capturing device is a first image-capturing device, and further comprising:

a second image-capturing device, said second image-capturing device capturing images at image-capturing events, said second image capturing device issuing image-data signals corresponding to captured images.

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6. The system for capturing images and geo-location data corresponding thereto of claim 5, wherein the second image-capturing device captures orthogonal images at image-capturing events.

7. The system for capturing images and geo-location data corresponding thereto of claim 5, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device to cause the first and second image-capturing devices to capture images.

8. The system for capturing images and geo-location data corresponding thereto of claim 7, wherein the image capture signals are common to the first and second image-capturing devices.

9. The system for capturing images and geo-location data corresponding thereto of claim 7, wherein the computer system controls the first and second image-capturing devices separately.

10. The system for capturing images and geo-location data corresponding thereto of claim 9, wherein the computer system transmits image capture signals to the first and second image capturing devices to capture images at different instants of time.

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11. The system for capturing images and geo-location data corresponding thereto of claim 9, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different intervals.

12. The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

an inertial navigation unit detecting changes in velocity of the image-capturing device and transmitting one or more velocity signal indicative of velocity of the image-capturing device to the computer system.

13. The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

a clock measuring time and providing one or more time signal indicative of timing of events to the computer system.

14. The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

a gyroscope providing the computer system with one or more gyroscope signals indicative of pitch, roll, and yaw of the image-capturing device.

15. The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

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a compass providing the computer system with one or more heading signals indicative of heading of the image-capturing device.

16. The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

an altimeter providing the computer system with one or more altitude signals indicative of altitude of the image-capturing device.

17. The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the geo-locating device comprises a GPS receiver receiving global positioning system signals and transmitting location signals, that are dependent at least in part upon the global positioning system signals and that are indicative of the location of the image-capturing device, to the computer system.

18. The system for capturing images and geo-location data corresponding thereto of claim 5, further comprising a platform carrying the first and second image-capturing devices through a controlled flight.

19. The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the first and second image-capturing devices capture the oblique aerial images at predetermined image capture intervals, the predetermined image capture intervals dependent at least in part upon velocity of the platform.

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20. The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device to cause the first and second image-capturing devices to capture images.

21. The system for capturing images and geo-location data corresponding thereto of claim 20, wherein the image capture signals are common to the first and second image-capturing devices.

22. The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the computer system controls the first and second image-capturing devices separately.

23. The system for capturing images and geo-location data corresponding thereto of claim 22, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different instants of time.

24. The system for capturing images and geo-location data corresponding thereto of claim 22, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different intervals.

25. The system for capturing images and geo-location data corresponding thereto of claim 18, further comprising:

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an inertial navigation unit detecting changes in velocity of the image-capturing device and transmitting one or more velocity signal indicative of velocity of the image-capturing device to the computer system.

26. The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the first and second image-capturing devices have different angles of declination.

27. The system for capturing images and geo-location data corresponding thereto of claim 18, further comprising a third image-capturing device, wherein the first and second image-capturing devices are capturing oblique aerial images and the third image-capturing device is capturing orthogonal aerial images.

28. The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device and the third image-capturing device to cause the first, second, and third image-capturing devices to capture images.

29. The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system controls the first, second, and third image-capturing devices separately.

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30. The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image capture signals to the first, second, and third image-capturing devices to capture images at different instants of time, wherein the image capture signals are common to the first, second, and third image-capturing devices.

31. The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image capture signals to the first, second, and third image-capturing devices to capture images at different intervals.

32. The system for capturing images and geo-location data corresponding thereto of claim 27, further comprising:

an inertial navigation unit detecting changes in velocity of the image-capturing device and transmitting one or more velocity signal indicative of velocity of the image-capturing device to the computer system.

33. The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the image-capturing devices have characteristics for capturing the oblique aerial images.

34. The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the image-capturing devices capture community level oblique aerial images.

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35. The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the image-capturing devices capture neighborhood level oblique aerial images.

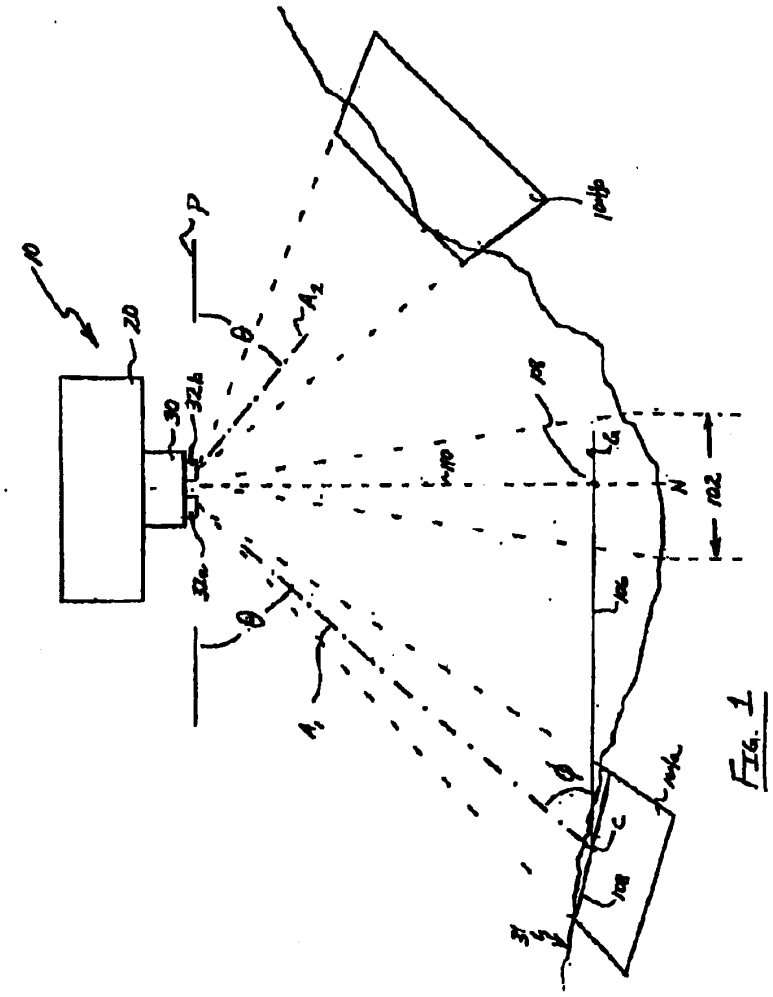
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ABSTRACT

A computerized system for displaying and making measurements based upon captured oblique images. The system includes an image-capturing device capturing oblique aerial images at image-capturing events and issuing image-data signals corresponding to captured images; at least one geo-locating device issuing a corresponding at least one geo-locating signal indicative at least in part of a geo-location of said image-capturing device during each image capturing event; a computer system receiving and storing said image-data signals and said at least one geo-locating signal; and the computer system executing image and data acquiring software reading the image-data signals and the at least one geo-locating signal, and associating each of the image-data signal with a corresponding at least one geo-locating signal for each image-capturing event.

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Electronically Filed: 03/08/2013
Title: Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images
Inventor: Stephen L. Schultz
Attorney: Marc A. Brockhaus Dkt. No.: 6338.213
SHEET 1 OF 10 FORMAL DRAWINGS



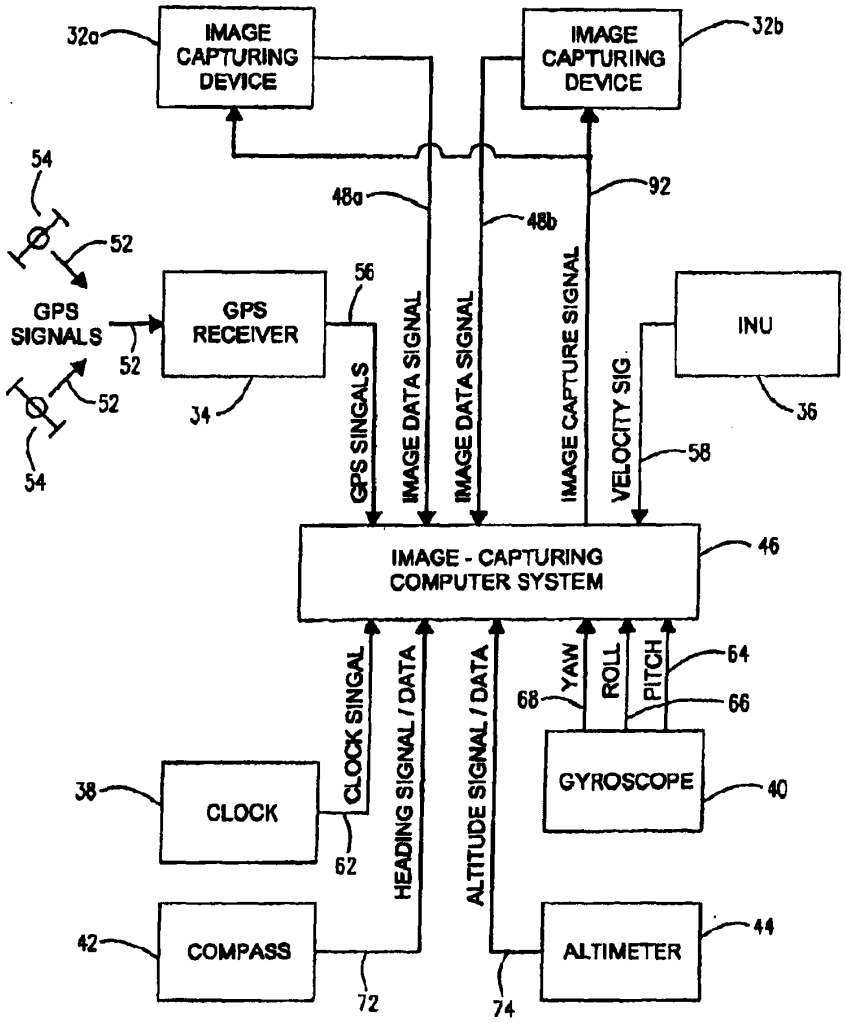

32a
IMAGE CAPTURING DEVICE
IMAGE CAPTURING DEVICE
32b
54
52
GPS SIGNALS
52
52
54
GPS RECEIVER
56
34
48a
48b
92
GPS SINGALS
IMAGE DATA SIGNAL
IMAGE DATA SIGNAL
IMAGE CAPTURE SIGNAL
VELOCITY SIG
INU
36
58
IMAGE - CAPTURING COMPUTER SYSTEM
46
CLOCK SINGAL
HEADING SIGNAL / DATA
ALTITUDE SIGNAL / DATA
YAW
ROLL
PITCH
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68
66
38
CLOCK
62
GYROSCOPE
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COMPASS
72
ALTIMETER
74
44

FIG. 2

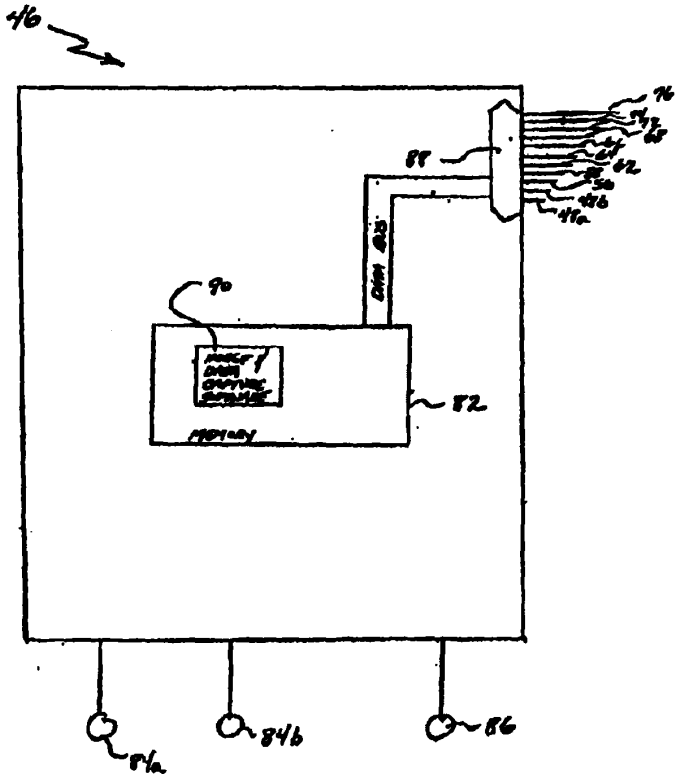


Fig. 3

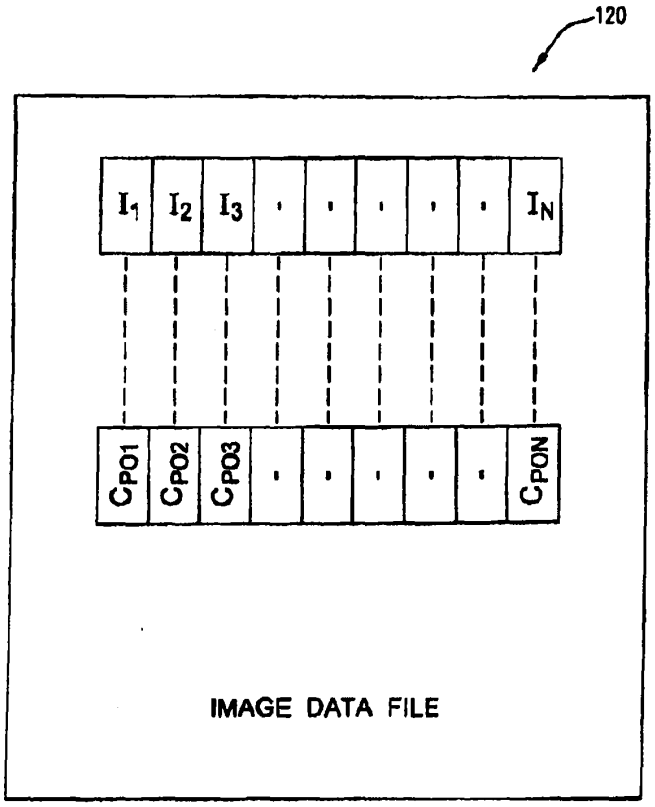


FIG. 4

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Title: Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images
Inventor: Stephen L. Schultz
Attorney: Marc A. Brockhaus Dkt. No.: 6338.213
SHEET 5 OF 10 FORMAL DRAWINGS

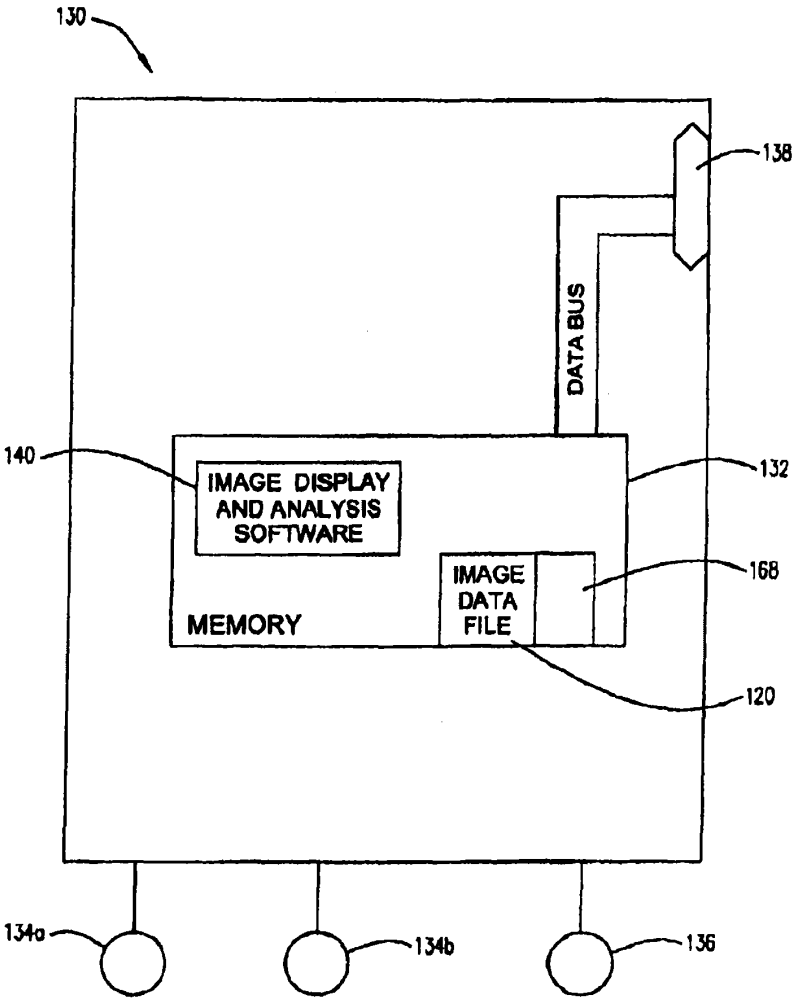


FIG. 5

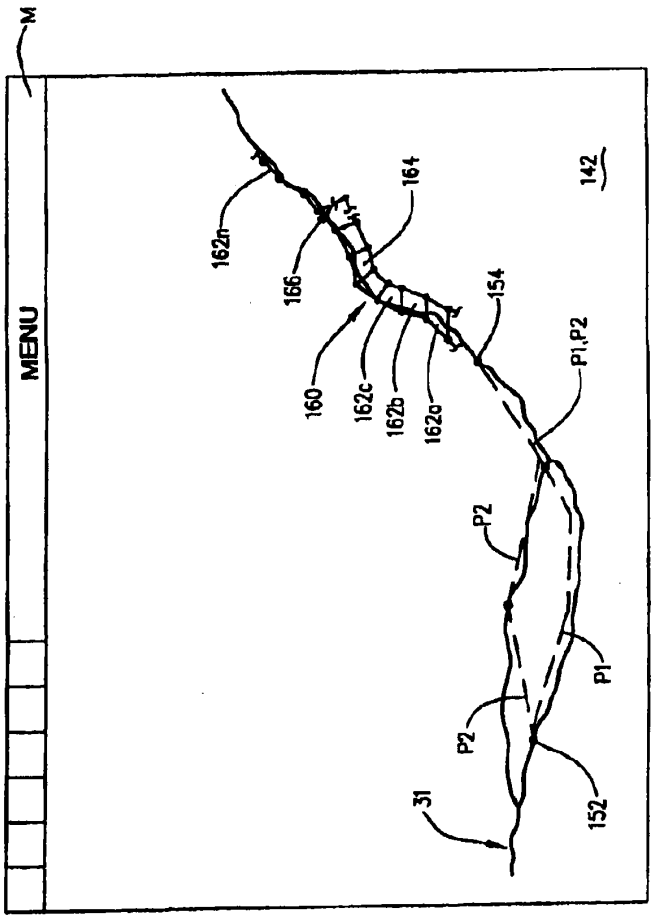

M
MENU
142
164
162n
166
154
160
162c
162b
162a
P1,P2
P2
P1
P2
31
152

FIG. 5

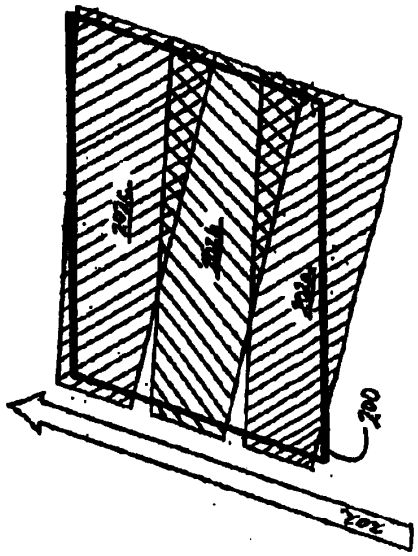


Fig. 1

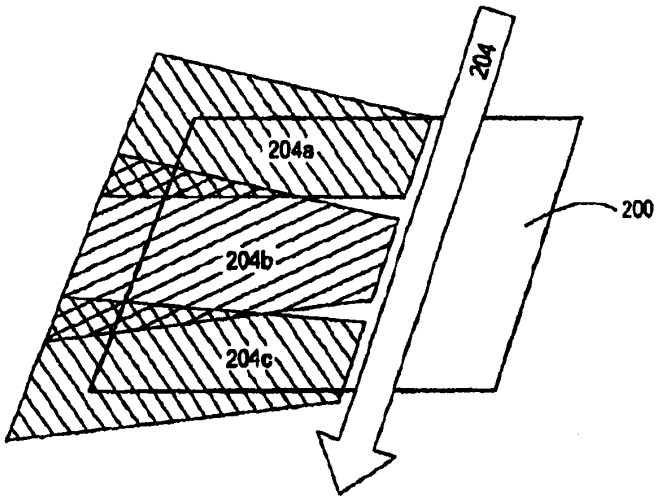


FIG. 8

Electronically Filed: 03/08/2013
Title: Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images
Inventor: Stephen L. Schultz
Attorney: Marc A. Brockhaus Dkt. No.: 6338.213
SHEET 9 OF 10 FORMAL DRAWINGS

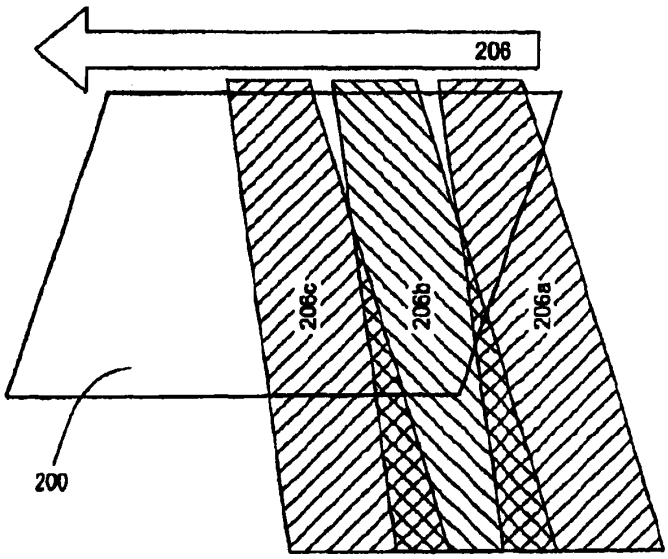


FIG. 3

Electronically Filed: 03/08/2013
Title: Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images
Inventor: Stephen L. Schultz
Attorney: Marc A. Brockhaus Dkt. No.: 6338.213
SHEET 10 OF 10 FORMAL DRAWINGS

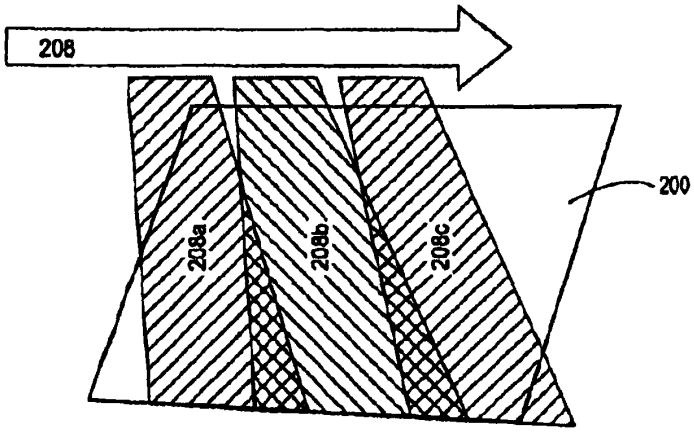


FIG. 10

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Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Filer:	Marc Alan Brockhaus/Lori Radford
Attorney Docket Number:	6338.213

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	98	98
Utility Search Fee	2111	1	310	310
Utility Examination Fee	2311	1	125	125
Pages:				
Claims:				
Claims in excess of 20	2202	15	31	465
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**998**

Electronic Acknowledgement Receipt

EFS ID:	15160670
Application Number:	13791032
International Application Number:	
Confirmation Number:	9486
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Customer Number:	30589
Filer:	Marc Alan Brockhaus/Lori Radford
Filer Authorized By:	Marc Alan Brockhaus
Attorney Docket Number:	6338.213
Receipt Date:	08-MAR-2013
Filing Date:	
Time Stamp:	16:51:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$998
RAM confirmation Number	4999
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Transmittal of New Application	6338213_Transmittal.pdf	83665 bf6c84a1a2ced1125b0568d8b09c1c36be7d54a7	no	1
Warnings:					
Information:					
2	Application Data Sheet	6338213_ADS.pdf	360627 04d070aa35b24b1add63b5d55e1df044c92ef922	no	6
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Information:					
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	Document Description		**Start**	**End**	
	Specification		1	30	
	Claims		31	40	
	Abstract		41	41	
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Information:					
		Total Files Size (in bytes):	2264142		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/791,032

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	35 minus 20 =	* 15	x 40 =	600	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1330		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/791,032	03/08/2013	2668	998	6338.213	35	1

CONFIRMATION NO. 9486

30589
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

FILING RECEIPT

OC000000060560186

Date Mailed: 04/24/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Stephen L. Schultz, West Henrietta, NY;
Frank D. Giuffrida, Honeoye Falls, NY;
Robert L. Gray, Canandiagua, NY;
Charles Mondello, Pittsford, NY;

Applicant(s)

Pictometry International Corp., Rochester, NY

Assignment For Published Patent Application

Pictometry International Corp., Rochester, NY

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a DIV of 13/534,907 06/27/2012
which is a CON of 13/217,885 08/25/2011 PAT 8233666
which is a CON of 12/950,643 11/19/2010 PAT 8068643
which is a CON of 12/853,616 08/10/2010 PAT 7995799
which is a CON of 12/186,889 08/06/2008 PAT 7787659
which is a CON of 10/701,839 11/05/2003 PAT 7424133
which claims benefit of 60/425,275 11/08/2002

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

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Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 04/18/2013
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/791,032**
Projected Publication Date: To Be Determined - pending completion of Corrected Papers
Non-Publication Request: No
Early Publication Request: No
** **SMALL ENTITY** **
Title

METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

Preliminary Class

382

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

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countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

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technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/791,032	03/08/2013	Stephen L. Schultz	6338.213

CONFIRMATION NO. 9486

30589
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

FORMALITIES LETTER

OC000000060560187

Date Mailed: 04/24/2013

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings submitted to the Office are not electronically reproducible because portions of figures 1, 3 & 7 are missing and/or blurry.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- A surcharge (for late submission of the basic filing fee, search fee, examination fee or inventor's oath or declaration) as set forth in 37 CFR 1.16(f) of $ **70** for a small entity in compliance with 37 CFR 1.27, must be submitted.

SUMMARY OF FEES DUE:

Total fee(s) required within **TWO MONTHS** from the date of this Notice is $ **70** for a small entity
- $ **70** Surcharge.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):

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All

Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/afessehaye/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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Electronically Filed via EFS-Web on September 19, 2013

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Stephen L. Schultz	Atty Dkt No:	6338.213
Serial No:	13/791,032	Examiner:	Not Yet Assigned
Filed:	03/08/2013	Art Unit:	2668
Customer No:	30589	Confirmation No:	9486

For: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Applicant herein submits the following Response to the Notice to File Corrected Application Papers, mailed April 24, 2013.

Amendments to the Drawings begin on page 2.

Remarks begin on page 3.

AMENDMENT TO THE DRAWINGS

In the Drawings:

Submitted herewith are replacement sheets for Figures 1, 3, and 7.

Please amend the original Figures 1, 3 and 7 with the replacement sheets.

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REMARKS

Applicant is in receipt of the Notice to File Corrected Application Papers, mailed on April 24, 2013, from the United States Patent & Trademark Office (PTO), for the above-referenced patent application. In the Notice, the PTO requested replacement drawings for Figures 1, 3, and 7 in compliance with 37 C.F.R. §1.84 and 37 C.F.R. §1.21(d). In particular, the Notice stated that the drawings submitted were not electronically reproducible. Applicant appreciates the Notice from the PTO and submits the following corrective actions.

Applicant submits herewith replacement sheets for Figures 1, 3, and 7 for the above-reference patent application and requests the patent application to be amended to include the replacement sheets. Applicant believes that the drawings now meet the formal requirements and respectfully requests acceptance of the drawings. However, if the PTO feels that further corrections are required, Applicant will be happy to make any necessary corrections in order to put the drawings in condition for acceptance.

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CONCLUSION

This is meant to be a complete response to the Notice to File Corrected Application Papers, mailed on April 24, 2013, for the above-referenced patent application. For the reasons set forth above, Applicant believes that the application is now in condition for acceptance and respectfully requests an examination on the merits.

Respectfully submitted,

Marc A. Brockhaus, Reg. No. 40,923
DUNLAP CODDING, P.C.
P.O. Box 16370
Oklahoma City, OK 73113
Customer No. 30589
(405) 607-8600 Office
(405) 607-8686 Facsimile

Attorney for Applicant

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
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Electronically Filed: 09/19/2013
Title: Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images
Inventor: Stephen L. Schultz
Attorney: Marc A. Brockhaus Dkt. No.: 6338.213
SHEET 1 OF 3 FORMAL DRAWINGS

Replacement Drawings

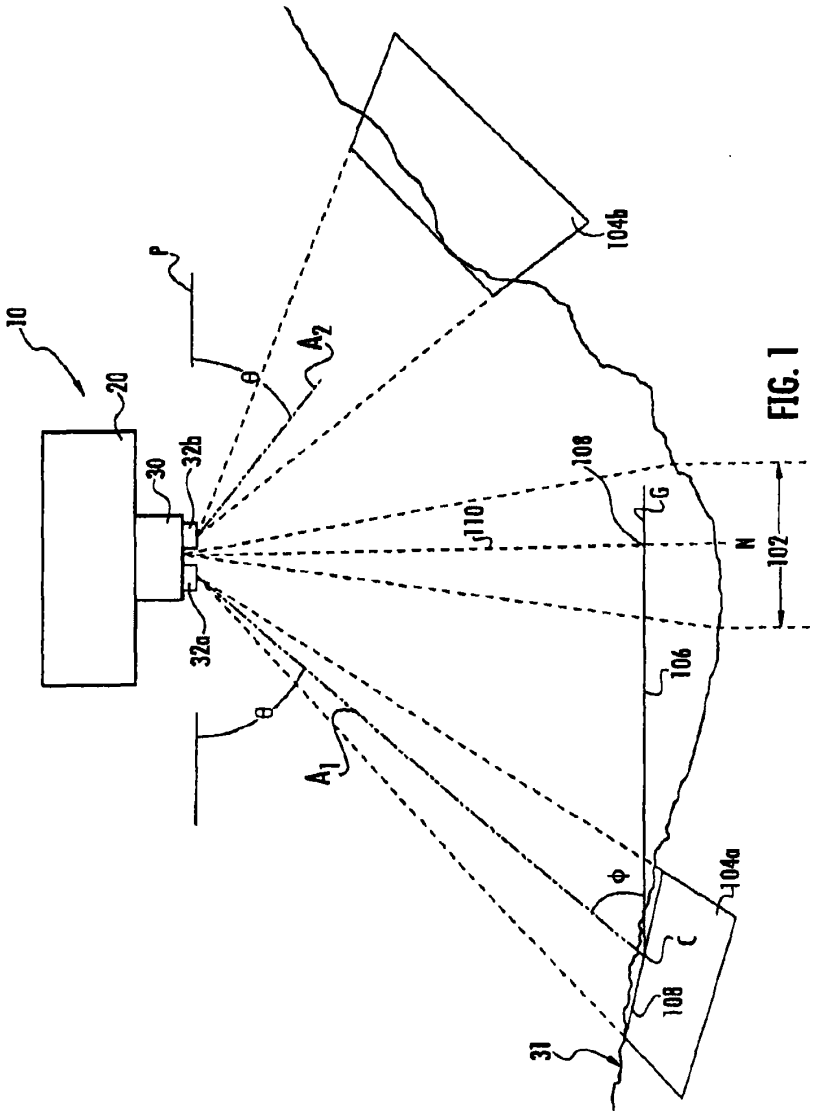


FIG. 1

Electronically Filed: 09/19/2013
Title: Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images
Inventor: Stephen L. Schultz
Attorney: Marc A. Brockhaus Dkt. No.: 6338.213
SHEET 2 OF 3 FORMAL DRAWINGS

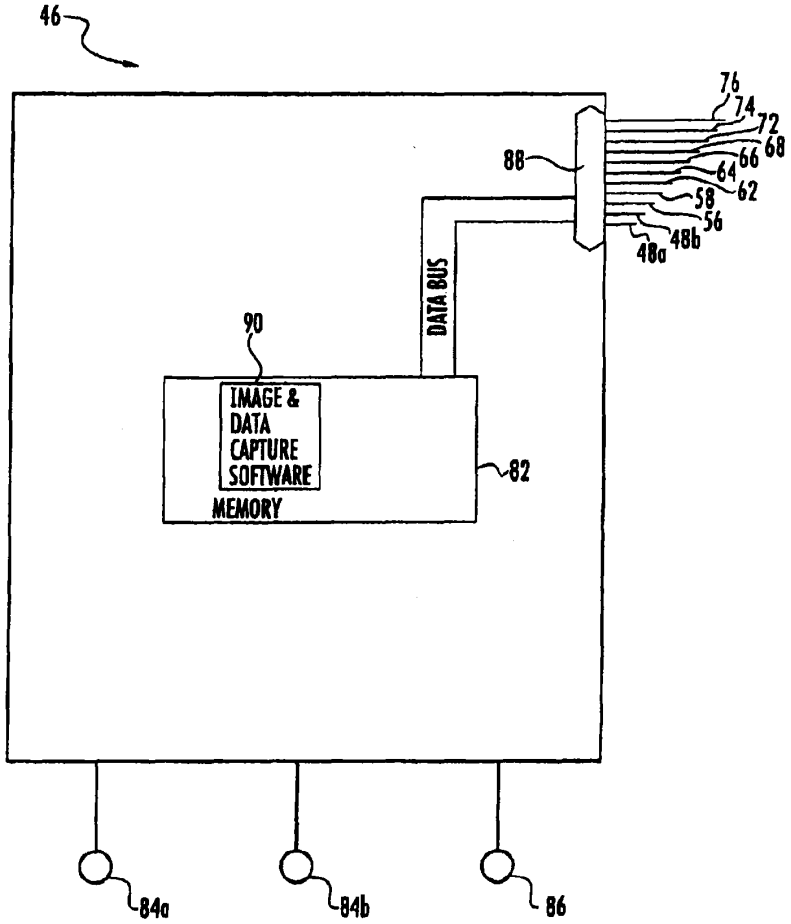


FIG. 3

Replacement Drawings

Electronically Filed: 09/19/2013
Title: Method and Apparatus for Capturing, Geolocating and Measuring Oblique Images
Inventor: Stephen L. Schultz
Attorney: Marc A. Brockhaus
Dkt. No.: 6338.213
SHEET 3 OF 3
FORMAL DRAWINGS

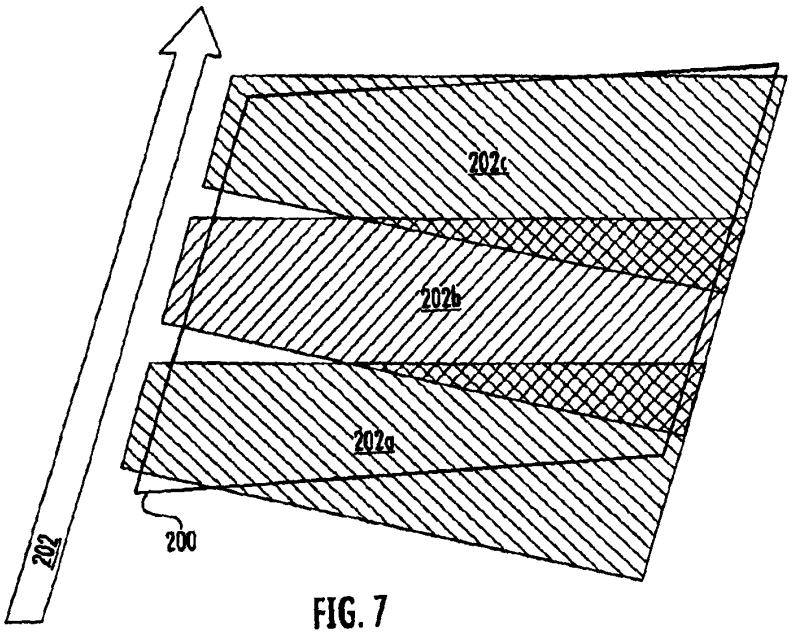


FIG. 7

Electronic Patent Application Fee Transmittal

Application Number:	13791032
Filing Date:	08-Mar-2013
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Filer:	Marc Alan Brockhaus/Lori Radford
Attorney Docket Number:	6338.213

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Late Filing Fee for Oath or Declaration	2051	1	70	70
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 4 months with $0 paid	2254	1	1100	1100
Miscellaneous:				
		Total in USD ($)		**1170**

Electronic Acknowledgement Receipt

EFS ID:	16904127
Application Number:	13791032
International Application Number:	
Confirmation Number:	9486
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Customer Number:	30589
Filer:	Marc Alan Brockhaus/Lori Radford
Filer Authorized By:	Marc Alan Brockhaus
Attorney Docket Number:	6338.213
Receipt Date:	19-SEP-2013
Filing Date:	08-MAR-2013
Time Stamp:	16:44:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1170
RAM confirmation Number	4003
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Transmittal Letter	6338213_Transmittal09192013.pdf	70117 39356d6827ebc6d8ab9f77c0221d89e5b0cead7	no	1
Warnings:					
Information:					
2	Extension of Time	6338213_Extension.pdf	61281 451d063fedfb3b9a601dbbf1259b238f981d51db	no	1
Warnings:					
Information:					
3		6338213_ResponsetoNtctoFileCorrectedApplicationPapers.pdf	73094 5035f1159992b9499bd80b2560c6268745174a86	yes	4
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Preliminary Amendment		1	1	
	Drawings-only black and white line drawings		2	2	
	Applicant Arguments/Remarks Made in an Amendment		3	4	
Warnings:					
Information:					
4	Drawings-only black and white line drawings	6338213_Replacementdrawings.pdf	61443 89c1e00abb3b392c23b807743b3e10cca629352a	no	3
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	32536 be112fa4040829cfc225d4f04f9f273876 2a5ee6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	298471		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2668
Examiner Name	
Attorney Docket Number	6338.213

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☐ Amendment/Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
- ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☑ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):

See Remarks

Remarks

ELECTRONICALLY TRANSMITTED:
1. SB21 Transmittal Form (1 pg);
2. SB22 Extension of Time (1 pg);
3. Response to Notice to File Corrected Application Papers (4 pgs); and
4. Replacement Drawings (3 pgs).

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DUNLAP CODDING, P.C.		
Signature	Marc Brockhaus		
Printed name	Marc A. Brockhaus		
Date	09/19/2013	Reg. No.	40,923

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Marc Brockhaus		
Typed or printed name	Marc A. Brockhaus	Date	09/19/2013

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) 6338.213
Application Number 13/791,032	Filed 03/08/2013
For Stephen L. Schultz	
Art Unit 2668	Examiner

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
☐ One month (37 CFR 1.17(a)(1))	$200	$100	$50	$
☐ Two months (37 CFR 1.17(a)(2))	$600	$300	$150	$
☐ Three months (37 CFR 1.17(a)(3))	$1,400	$700	$350	$
☑ Four months (37 CFR 1.17(a)(4))	$2,200	$1,100	$550	$ 1,100.00
☐ Five months (37 CFR 1.17(a)(5))	$3,000	$1,500	$750	$

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☑ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number _____.

☐ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 40,923.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

Marc Brockhaus — Signature

09/19/2013 — Date

Marc A. Brockhaus — Typed or printed name

405-607-8600 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00085

Document code: WFEE

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ABALINAN ADJ #00000014 Mailroom Dt: 09/19/2013
Seq No: 4003 Sales Acctg Dt: 09/20/2013 13791032
02 FC : 2254 -1100.00 OP

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/791,032	Filing Date 03/08/2013	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	09/19/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 35	Minus	** 35	=	X $ =	
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LDRC
/ROBERT SHERMAN/

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/791,032

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	35 minus 20 =	* 15	x 40 =	600	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1330		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/791,032	03/08/2013	2668	1068	6338.213	35	1

CONFIRMATION NO. 9486

30589
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

UPDATED FILING RECEIPT

OC000000064025534

Date Mailed: 10/02/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Stephen L. Schultz, West Henrietta, NY;
Frank D. Giuffrida, Honeoye Falls, NY;
Robert L. Gray, Canandiagua, NY;
Charles Mondello, Pittsford, NY;

Applicant(s)

Pictometry International Corp., Rochester, NY

Assignment For Published Patent Application

Pictometry International Corp., Rochester, NY

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a DIV of 13/534,907 06/27/2012
which is a CON of 13/217,885 08/25/2011 PAT 8233666
which is a CON of 12/950,643 11/19/2010 PAT 8068643
which is a CON of 12/853,616 08/10/2010 PAT 7995799
which is a CON of 12/186,889 08/06/2008 PAT 7787659
which is a CON of 10/701,839 11/05/2003 PAT 7424133
which claims benefit of 60/425,275 11/08/2002

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

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Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00090

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If Required, Foreign Filing License Granted: 04/18/2013
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/791,032**
Projected Publication Date: 01/09/2014
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

Preliminary Class

382

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Page 00091

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/791,032	03/08/2013	Stephen L. Schultz	6338.213

CONFIRMATION NO. 9486

30589
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

NOTICE

OC000000064025535

Date Mailed: 10/02/2013

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  All
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Page 00094

Doc Code: PA..

Document Description: Power of Attorney

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NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B or equivalent) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Title	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
Art Unit	2668
Examiner Name	
Attorney Docket Number	6338.213

SIGNATURE of Applicant or Patent Practitioner

Signature	Marc Brockhaus	Date	10-23-2013
Name	Marc A. Brockhaus	Telephone	405-607-8600
Registration Number	40,923		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Doc Code: PA..

Document Description: Power of Attorney

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

■ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

30589

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

Name	Registration Number	Name	Registration Number

Please recognize or change the correspondence address for the application identified in the attached transmittal letter to:

☐ The address associated with the above-mentioned Customer Number.

OR

■ The address associated with Customer Number: 30589

OR

☐ Firm or Individual Name	Dunlap Codding, P.C.				
Address	P.O. Box 16370				
City	Oklahoma City	State	OK	Zip	73113
Country	USA				
Telephone	405-607-8600	Email	mbrockhaus@dunlapcodding.com		

I am the Applicant:

☐ Inventor or Joint Inventor

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor

■ Assignee or Person to Whom the Inventor is Under an Obligation to Assign

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (*e.g.*, a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)

SIGNATURE of Applicant for Patent

Signature		Date	10/16/2013
Name	Steve Schultz	Telephone	585-487-1527
Title and Company	Chief Technology Officer, Pictometry International Corp.		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below *.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Stephen L. Schultz, Frank D. Giuffrida, Robert L. Gray, Charles Mondello

Application No./Patent No.: 13/791,032 Filed/Issue Date: 03/08/2013

Titled: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

Pictometry International Corp., a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 025746, Frame 0851, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/AIA/96 (08-12)
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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Signature	Date: 10/16/2013
Steve Schultz	Chief Technology Officer
Printed or Typed Name	Title or Registration Number

Electronic Acknowledgement Receipt

EFS ID:	17211107
Application Number:	13791032
International Application Number:	
Confirmation Number:	9486
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Customer Number:	30589
Filer:	Marc Alan Brockhaus/Lori Radford
Filer Authorized By:	Marc Alan Brockhaus
Attorney Docket Number:	6338.213
Receipt Date:	23-OCT-2013
Filing Date:	08-MAR-2013
Time Stamp:	17:53:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	6338213_Transmittal10232013.pdf	66842 cc30cacb408d3e1749aa13d394138d89e6eabbe4	no	1
Warnings:					
Information:					

2	Oath or Declaration filed	6338213_Declarations.pdf	307706 e6e4bd816885a7bfc556f1587604872b596be015	no	4
Warnings:					
Information:					
3	Power of Attorney	6338213_POA.pdf	142760 ba88f81e953180a29397c7b4700badd51cabaf45	no	2
Warnings:					
Information:					
4	Assignee showing of ownership per 37 CFR 3.73.	6338213_Statement.pdf	119130 c22f2033d60dae4c18c9787c77ce878670f7bd9d	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	636438		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2668
Examiner Name	
Attorney Docket Number	6338.213

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☑ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):
  See Remarks

Remarks

ELECTRONICALLY TRANSMITTED:
1. SB21 Transmittal Form (1 pg);
2. Declarations (4 pgs);
3. Power of Attorney (2 pgs); and
4. Statement Under 37 CFR 3.73(c) (2 pgs).

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DUNLAP CODDING, P.C.		
Signature	Marc Brockhaus		
Printed name	Marc A. Brockhaus		
Date	10/23/2013	Reg. No.	40,923

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Marc Brockhaus		
Typed or printed name	Marc A. Brockhaus	Date	10/23/2013

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Title of Invention	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

■ United States application or PCT international application number 13/791,032 filed on 03/08/2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

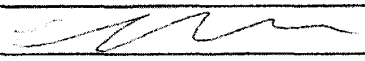
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Charles Mondello Date (Optional): 10/16/13

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

As the below named inventor, I hereby declare that:

This declaration is directed to:

- ☐ The attached application, or
- ■ United States application or PCT international application number 13/791,032 filed on 03/08/2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

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LEGAL NAME OF INVENTOR

Inventor: Stephen L. Schultz Date (Optional): 10/16/2013

Signature:

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450 DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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☐ The attached application, or

☒ United States application or PCT international application number 13/791,032 filed on 03/08/2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Frank D. Giuffrida Date (Optional) :_____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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☐ The attached application, or

☒ United States application or PCT international application number 13/791,032 filed on 03/08/2013.

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I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Robert L. Gray Date (Optional): 8/16/2013

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/791,032	03/08/2013	Stephen L. Schultz	6338.213

CONFIRMATION NO. 9486

30589
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

POA ACCEPTANCE LETTER

OC000000064593446

Date Mailed: 10/28/2013

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/23/2013.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/snguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00106

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

30589 7590 12/12/2013

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

EXAMINER	
CARTER, AARON W	
ART UNIT	PAPER NUMBER
2665	
MAIL DATE	DELIVERY MODE
12/12/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00107

Office Action Summary	Application No. 13/791,032	Applicant(s) SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/8/13 - 10/23/13*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-35* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-8,12-21,25-28 and 32-35* is/are rejected.

8)☒ Claim(s) *9-11,22-24 and 29-31* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1 and 2 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 25 and 26 of U.S. Patent No. 7,424,133. Although the claims at issue are not identical, they are not patentably distinct from each other because all the limitations of claims 1 and 2 are found in obvious variation in claims 25 and 26, respectively, of USPN 7,424,133.

Claims 1 and 2 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 12 and 13 of U.S. Patent No. 7,787,659. Although the claims at issue are not identical, they are not patentably distinct from each other because all the limitations of claims 1 and 2 are found in obvious variation in claims 12 and 13, respectively, of USPN 7,787,659.

Claim 1 is rejected on the ground of nonstatutory double patenting as being unpatentable over claim 13 of U.S. Patent No. 7,995,799. Although the claims at issue are not identical, they

are not patentably distinct from each other because all the limitations of claims 1 and 2 are found in obvious variation in claim 13 of USPN 7,995,799.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4 and 13-17 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by WO 99/18732 to Ciampa.

As to claim 1, Ciampa discloses a system for capturing images and geo-location data corresponding thereto, comprising:

an image-capturing device (***Fig. 1, element 11***), said image-capturing device capturing oblique aerial images at image-capturing events (***page 1, lines 4-10***), said image-capturing device issuing image-data signals corresponding to captured images (***Fig. 2, elements 101 and 102***);

at least one geo-locating device (***Fig. 1, elements 15a, 15b, 12, 14 and 16***), each said at least one geo-locating device issuing a corresponding at least one geo-locating signal (***Fig. 2, element 103***), each said at least one geo-locating signal being indicative at least in part of a geo-location of said image-capturing device during each image capturing event (***page 8, lines 9-24***);

a computer system receiving and storing said image-data signals and said at least one geo-locating signal (***Fig. 1, element 28 and page 7, lines 23-28***); and

the computer system executing image and data acquiring software reading said image-data signals and said at least one geo-locating signal, said image and data acquiring software associating each said image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event (***page 8, line 25 – page 9, line 13 and Fig. 2, element 105***).

As to claim 2, Ciampa discloses, the system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise at least one of:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event (***Fig. 1, page 5, line 13, page 7, lines 17-28, page 9, lines 6-8***);

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said image-capturing device at each said image-capturing event (***Fig. 1, elements 15a, 15b and page 7, line 17 – page 8, line 8 and lines 14-16***);

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said image-capturing device at each said image-capturing event (***Fig. 1, element 12 and page 8, lines 16-17, wherein inclinometer corresponds to gyroscope***);

a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said image-capturing device at each said image-capturing event (***Fig. 1, element 14 and page 8, lines 13-14***); and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said image-capturing device at each said image-capturing event (***Fig. 1, element 16 and page 8, lines 17-18***).

As to claim 4, Ciampa discloses the system for capturing images and geo-location data corresponding thereto of claim 1, where the image-capturing device captures community level oblique aerial images (***Abstract and page 3, lines 1-2***).

As to claim 13, please refer to the rejection of claim 2 above.

As to claim 14, please refer to the rejection of claim 2 above.

As to claim 15, please refer to the rejection of claim 2 above.

As to claim 16, please refer to the rejection of claim 2 above.

As to claim 17, please refer to the rejection of claim 2 above.

Claims 1, 2, 4-8, 13, 16-21, 26-28 and 33-35 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by USPN 7,184,072 to Loewen et al. ("Loewen").

As to claim 1, Loewen discloses a system for capturing images and geo-location data corresponding thereto, comprising:

an image-capturing device (***Fig. 8, element 34, 36, 38 and 40***), said image-capturing device capturing oblique aerial images at image-capturing events (***column 7, line 62 – column 8, line 7***), said image-capturing device issuing image-data signals corresponding to captured images (***column 5, line 62 – column 6, line 58***);

at least one geo-locating device, each said at least one geo-locating device issuing a corresponding at least one geo-locating signal, each said at least one geo-locating signal being indicative at least in part of a geo-location of said image-capturing device during each image capturing event (***column 7, lines 13-55***);

a computer system receiving and storing said image-data signals and said at least one geo-locating signal (***column 6, lines 11-15, 45-51 and column 7, lines 13-31***); and

the computer system executing image and data acquiring software reading said image-data signals and said at least one geo-locating signal, said image and data acquiring software associating each said image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event (***column 8, line 35 – column 9, line 31***).

As to claim 2, Loewen discloses, the system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise at least one of:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event (***column 6, lines 11-15, column 8, lines 54-64 and column 9, lines 14-31***);

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said image-capturing device at each said image-capturing event (***column 7, lines 13-55 and column 9, lines 14-31***);

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said image-capturing device at each said image-capturing event ();

a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said image-capturing device at each said image-capturing event (); and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said image-capturing device at each said image-capturing event (***column 8, lines 15-34***).

As to claim 4, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 1, where the image-capturing device captures community level oblique aerial images (***Fig. 3***).

As to claim 5, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 1, wherein the image-capturing device is a first image-capturing device, and further comprising:

a second image-capturing device, said second image-capturing device capturing images at image-capturing events, said second image capturing device issuing image-data signals corresponding to captured images (***Fig. 8, element 34, 36, 38 and 40***).

As to claim 6, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 5, wherein the second image-capturing device captures orthogonal images at image-capturing events (***column 7, line 62 – column 8, line 14***).

As to claim 7, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 5, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device to cause the first and second image-capturing devices to capture images (***column 7, lines 13-20***).

As to claim 8, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 7, wherein the image capture signals are common to the first and second image-capturing devices (***column 7, lines 13-20***).

As to claim 13, please refer to the rejection of claim 2 above.

As to claim 16, please refer to the rejection of claim 2 above.

As to claim 17, please refer to the rejection of claim 2 above.

As to claim 18, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 5, further comprising a platform carrying the first and second image-capturing devices through a controlled flight (***Fig. 2 and column 5, lines 42-54***).

As to claim 19, Loewen discloses the system for capturing images and geo-location data corresponding hereto of claim 18, wherein the first and second image-capturing devices capture the oblique aerial images at predetermined image capture intervals, the predetermined image capture intervals dependent at least in part upon velocity of the platform (***column 7, line 62 – column 8, line 14 and column 9, lines 14-31***).

As to claim 20, please refer to the rejection of claim 7 above.

As to claim 21, please refer to the rejection of claim 8 above.

As to claim 26, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 18, wherein the first and second image-capturing devices have different angles of declination (***column 7, line 62 – column 8, line 14***).

As to claim 27, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 18, further comprising a third image-capturing device, wherein the first and second image-capturing devices are capturing oblique aerial images and the third image-capturing device is capturing orthogonal aerial images (***Fig. 8, element 34, 36, 38 and 40, Fig. 5 and 6, and column 7, line 62 – column 8, line 14***).

As to claim 28, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device and the third image-capturing device to cause the first, second, and third image-capturing devices to capture images (***column 6, lines 3-30 and column 7, lines 13-20***).

As to claim 33, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the image-capturing devices have characteristics for capturing the oblique aerial images (***column 7, line 62 – column 8, line 14***).

As to claim 34, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the image-capturing devices capture community level oblique aerial images (***Fig. 3 and column 7, line 62 – column 8, line 14***).

As to claim 35, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the image-capturing devices capture neighborhood level oblique aerial images (***Fig. 3 and column 7, line 62 – column 8, line 14***).

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/18732 to Ciampa in view of USPN 5,894,323 to Kain et al. ("Kain").

As to claim 3, Ciampa discloses the system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprises:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event (***Fig. 1, page 5, line 13, page 7, lines 17-28, page 9, lines 6-8***);

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said image-capturing device at each said image-capturing event (***Fig. 1, elements 15a, 15b and page 7, line 17 – page 8, line 8 and lines 14-16***);

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said image-capturing device at each said image-capturing event (***Fig. 1, element 12 and page 8, lines 16-17, wherein inclinometer corresponds to gyroscope***);

a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said image-capturing device at each said image-capturing event (***Fig. 1, element 14 and page 8, lines 13-14***); and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said image-capturing device at each said image-capturing event (***Fig. 1, element 16 and page 8, lines 17-18***).

Ciampa does not disclose expressly an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event.

Kain discloses an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event (***column 2, lines 53-60, wherein the IMU corresponds to the INU and detecting acceleration correspond to detecting changes in velocity which corresponds to velocity data signals indicative of a velocity***).

Ciampa & Kain are combinable because they are from the same art of image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an INU for providing velocity data signals, as taught by Kain, with the system disclosed by Ciampa.

The suggestion/motivation for doing so would have been to use the velocity data in determining geographic data (Kain, column 2, lines 53-60).

Further, Kain's known technique of to use an INU for providing velocity data signals would have been recognized by one skilled in the art as applicable to the "base" process of Ciampa and the results would have been predictable.

Therefore, it would have been obvious to combine Ciampa with Kain to obtain the invention as specified in claim 1.

As to claim 12, please refer to the rejection of claim 3 above.

Claims 25 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 7,184,072 to Loewen et al. ("Loewen") in view of USPN 5,894,323 to Kain et al. ("Kain").

As to claim 25, Loewen discloses the system for capturing images and geo-location data corresponding thereto of claim 18, further comprising using ground speed for image capturing (***column 9, lines 14-31***).

Loewen does not disclose an inertial navigation unit detecting changes in velocity of the image-capturing device and transmitting one or more velocity signal indicative of velocity of the image-capturing device to the computer system.

Kain discloses an inertial navigation unit detecting changes in velocity of the image-capturing device and transmitting one or more velocity signal indicative of velocity of the image-capturing device to the computer system (***column 2, lines 53-60, wherein the IMU corresponds to the INU and detecting acceleration correspond to detecting changes in velocity which corresponds to velocity data signals indicative of a velocity***).

Loewen & Kain are combinable because they are from the same art of image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an INU for providing velocity data signals, as taught by Kain, with the system disclosed by Loewen.

The suggestion/motivation for doing so would have been to use the velocity data in determining geographic data (Kain, column 2, lines 53-60).

Further, Kain's known technique of to use an INU for providing velocity data signals would have been recognized by one skilled in the art as applicable to the "base" process of Loewen and the results would have been predictable.

Therefore, it would have been obvious to combine Loewen with Kain to obtain the invention as specified in claim 25.

As to claim 32, please refer to the rejection of claim 25 above.

Allowable Subject Matter

Claims 9-11, 22-24 and 29-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON W. CARTER whose telephone number is (571)272-7445. The examiner can normally be reached on 9am-5pm EST (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AARON W CARTER/
Primary Examiner, Art Unit 2665

Notice of References Cited	Application/Control No. 13/791,032	Applicant(s)/Patent Under Reexamination SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	Page 1 of 4

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,313,678 A	02-1982	Colvocoresses, Alden P.	356/2
*	B	US-4,758,850 A	07-1988	Archdale et al.	396/8
*	C	US-5,247,356 A	09-1993	Ciampa, John A.	348/144
*	D	US-5,251,037 A	10-1993	Busenberg, Stavros N.	348/147
*	E	US-5,414,462 A	05-1995	Veatch, John W.	348/135
*	F	US-5,467,271 A	11-1995	Abel et al.	702/5
*	G	US-5,625,409 A	04-1997	Rosier et al.	348/117
*	H	US-5,798,786 A	08-1998	Lareau et al.	348/144
*	I	US-5,844,602 A	12-1998	Lareau et al.	348/144
*	J	US-5,894,323 A	04-1999	Kain et al.	348/116
*	K	US-5,995,681 A	11-1999	Lee et al.	382/293
*	L	US-6,088,055 A	07-2000	Lareau et al.	348/113
*	M	US-6,108,032 A	08-2000	Hoagland, Kenneth A.	348/144

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	WO 99/18732	04-1999		Ciampa, John A.	
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	"Live Automatic Coordinates for Aerial Images", Advanced Imaging Vol. 12, Number 6, June 1997
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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Notice of References Cited	Application/Control No. 13/791,032	Applicant(s)/Patent Under Reexamination SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	Page 2 of 4

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,130,705 A	10-2000	Lareau et al.	348/144
*	B	US-6,256,057 B1	07-2001	Mathews et al.	348/144
*	C	US-2001/0015755 A1	08-2001	Mathews et al.	348/144
*	D	US-2001/0048763 A1	12-2001	Takatsuka et al.	382/154
*	E	US-6,373,522 B1	04-2002	Mathews et al.	348/144
*	F	US-2002/0060783 A1	05-2002	Aoyama, Chiaki	356/3.01
*	G	US-2002/0146150 A1	10-2002	Patton et al.	382/103
*	H	US-2002/0149674 A1	10-2002	Mathews et al.	348/144
*	I	US-2003/0044085 A1	03-2003	Dial et al.	382/293
*	J	US-6,549,683 B1	04-2003	Bergeron et al.	382/298
*	K	US-6,600,553 B1	07-2003	Stone, William C	356/4.01
*	L	US-6,735,348 B2	05-2004	Dial et al.	382/293
*	M	US-6,731,329 B1	05-2004	Feist et al.	348/135

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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Notice of References Cited	Application/Control No. 13/791,032	Applicant(s)/Patent Under Reexamination SCHULTZ ET AL.	
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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,747,686 B1	06-2004	Bennett, Russell A.	348/145
*	B	US-2005/0031197 A1	02-2005	Knopp, David E.	382/154
*	C	US-7,009,638 B2	03-2006	Gruber et al.	348/218.1
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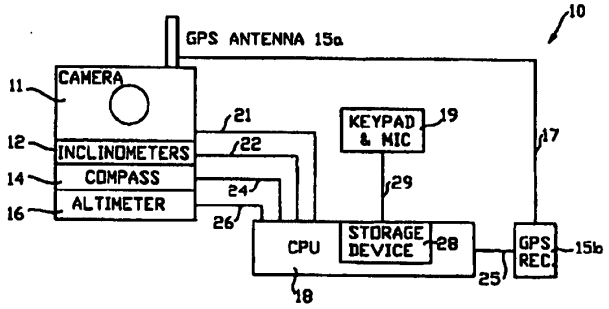
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(57) Abstract

In accordance with the present invention, there is provided an image capture and georeferencing unit. The unit comprises in combination, a portable camera (11) with a GPS antenna and receiver (15b) that captures global coordinates, a compass (14) for determining the direction and an inclinometer (12) for the photographic angle. The camera and other instruments feed image and shot data to a CPU (18), where the shot data is analyzed, mathematically interpolated and reconciled with known constants. The image and shot data are stored in memory (28). The "shot data" analyzed by the computer includes camera parameters such as camera: location, latitude, longitude and altitude, time, bearing, depression angle/pitch or azimuth, roll and yaw. The portable camera and data-gathering instruments move together and, therefore, function as a single unit that provides precise, accurate data and digitized photographic image information, despite topographical changes and/or altitude variations of the camera. Exact digital representations with precise coordinates are instantly available for precise reconnaissance purposes. The photographic shot data is mathematically adjusted (trigonometrically) to coordinate the points on the ground plane with the points in the image plane in order to produce an automatically computationally georeferenced digital image. Elevation data may be used to corroborate or enhance the accuracy of the trigonometric interpolations.

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DIGITAL-IMAGE MAPPING

FIELD OF THE INVENTION

The present invention pertains to the capture and automatic georeferencing of a camera and/or images captured by the camera by utilizing a portable camera and data unit and, more particularly, to a system and method of obtaining precisely located, oblique, digitized land images, taking into account diverse topography and varying camera angles, including changes in heading, roll and yaw.

BACKGROUND OF THE INVENTION

Aerial photography of land images for reconnaissance purposes is well known, as illustrated in United States Patent No. 5,247,356 (issued to John A. Ciampa on September 21, 1993), entitled METHOD AND APPARATUS FOR MAPPING AND MEASURING LAND. This patent teaches that coordinates of a land location can be calculated and combined with photographic information about the terrain. The global position and the elevation information are converted into digitized form, along with the image information and then stored in computer memory.

One of the problems of such aerial-photography methodology is that photographs must be taken over landscapes of relatively flat terrain, while a plane's altitude is generally parallel with the landscape, or at aircraft altitudes where topographical variations are generally minimized in the angular calculations. The inability of the prior art of aerial photographic systems to coordinate image information with collateral measurements has often required the use of expensive

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flight platforms, preordained flight paths and orthogonal camera angles.

In order to obtain exact geographic coordinates of any land image, it is no longer necessary to stabilize the camera, flight path and elevation, as previously calculated in the aforementioned patent. Due to additional data and calculations, the camera may now be freed up, regardless of topographical changes and changes of camera angles with respect to this changing topography.

The present invention combines into a single unit a portable camera with a data unit containing a Global Position Satellite (GPS) antenna/receiver, including but not limited to differential GPS or other type GPS system, a compass and inclinometer. The data unit provides camera coordinates and triaxial angle data, which are combined with the digital representations of the photographic image. Trigonometric formulas correlate to the image pixel and corresponding ground coordinates. An iterative algorithm, as is well known in fuzzy logic and optimization routines, is used to compensate for the changes and variations in the landscape topography. This is accomplished by using known Digital Elevation Models (DEM) that are furnished by the United States Geophysical Survey (USGS) or other digital terrain models captured as a result of laser signals. In addition the system's mathematical algorithms take account of the differences in measurements of known objects such as cars and distribute these differences to fixed variables which has the effect of raising, lowering, tilting or reshaping a virtual ground plane that compensates for differences caused by elevation. The particular camera to be utilized with this invention may be an analog, digital video or still digital

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camera. The camera may be carried by an operator who is on foot or in a land, sea or air craft.

The inclinometer, the GPS antenna/receiver and a compass are affixed to the camera so that they move together as a unit. The inclinometer detect changes in the depression angle and the roll angles of the camera. The photographic data is attached to the image file and is transferred to a small microprocessor (CPU), where the storage device can be a PCMCIA memory card. The microprocessor processes and links the shot data from the instruments with a digital image file. All of the data regarding depression angle, global position, heading (or bearing) and image are interpolated and combined with the shot time. This digitized image and other information are then stored in a spatially managed image file mosaic software, whereby images can be retrieved based on their map location or from a gallery or "contact sheet" of digital miniature thumbnails.

The method of the invention comprises the following steps. The image is first digitally captured by a "digital" camera or other digitizing device, along with the aforementioned shot data. "Shot data" is then analyzed by the computer, including location (i.e., latitude, longitude and altitude); camera bearing or heading (the compass direction in which the lens is pointing); the camera depression angle or azimuth; and the camera roll (i.e., the yaw of the camera, with respect to its horizontal axis). The shot data is then mathematically adjusted (trigonometrically) to coordinate the points on the ground plane with the points in the image plane, so as to produce an automatically computationally georeferenced digital image. Elevation data may be used to corroborate or enhance the accuracy of the trigonometric interpolation. The result of all of this

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processing provides an image, or a portion thereof, from which can be obtained geographic coordinates of any point on the ground and/or ground measurements taken between any two points in the image. This "georeferencing" of each image also determines its placement in a series of adjacent images, so that each image can be depicted as a "tile" within a "mosaic" of tiled images. Each image, in addition to its georeference, is processed so as to contain a discrete sequential identifier, the date and the time. Many images of the same landscape may be taken by using different angles and camera positions, each of which is accessible by means of a graphical user interface. Trigonometric processing also takes into account fixed variables, such as lens focal length, the size of the image plane, the number of pixels in the X-Y axes (horizontal and vertical planes) and the size of the pixels.

It is the object of the present invention to provide an improved oblique aerial-photography system so that any person without special "photo-interpreting" skills may conduct electronic field studies of land and building, as well as ground-based visual inventories.

It is another object of this invention to provide a portable photography system that combines into a single operational unit a photographic camera with a GPS antenna/receiver that captures global coordinates, a compass for determining camera direction and inclinometer for calculating the photographic angle.

It is a further object of this invention to provide a digital photographic imaging system that "georeferences" each geographical image, so that each image, or part thereof, can be depicted as a "tile" within a "mosaic" of tiled images.

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SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided an image capture and georeferencing unit. The unit comprises in combination, a portable camera with a Global Position Satellite (GPS) antenna/receiver that captures global coordinates, a compass for determining the direction and an inclinometer for calculating the photographic angle. The camera and other instruments feed image and shot data to a CPU, where the shot data is analyzed, mathematically interpolated and reconciled with known constants. The image and shot data are then stored in memory. The "shot data" analyzed by the computer includes camera location (i.e., latitude, longitude and altitude), time, camera bearing (the compass direction in which the lens is pointing), the camera depression or azimuth, and camera roll (i.e., the yaw of the camera with respect to its horizontal axis). The portable camera and data-gathering instruments move together and, therefore, function as a single unit that provides precise, accurate data and digitized photographic image information, despite topographical changes and/or altitude variations of the camera. They also provide precise data on the GPS location of the camera and its altitude with respect to the ground. Exact digital representations with precise coordinates are instantly available for precise reconnaissance purposes. The photographic shot data is mathematically adjusted (trigonometrically) to coordinate the points on the ground plane with the points in the image plane in order to produce an automatically computationally georeferenced digital image. Elevation data may be used to corroborate or enhance the accuracy of the trigonometric interpolations.

The result of all of this processing provides an image,

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or a portion thereof, from which can be obtained geographic coordinates of any point on the ground and/or measurements on the ground taken between any two points in the image. The "georeferencing" of each image also determines its placement in a series of adjacent images, so that each image can be depicted as a "tile" within a "mosaic" of tiled images. Each image, in addition to its georeference, is processed so as to contain a discrete sequential identifier, the date and the time. Many images of the same landscape may be taken by using different angles and camera positions, each of which is accessible by means of a graphical user interface. Processing adjusts the shot data to compensate for fixed camera data, such as the lens focal length, the size of the image plane, the number of pixels in the X-Y axes (horizontal and vertical planes) and the size of the pixels.

BRIEF DESCRIPTION OF THE DRAWINGS

A complete understanding of the present invention may be obtained by reference to the accompanying drawings, when considered in conjunction with the subsequent detailed description, in which:

FIGURE 1 illustrates a schematic, block diagram of the camera and instruments of this invention;

FIGURE 2 depicts a flow diagram of the processing method used in the system shown in FIGURE 1, in which an image is captured, digitized and combined with shot data and other georeferencing information, and thereafter stored for future use;

FIGURE 3 shows a flow diagram of the image file management software of the inventive system depicted in FIGURE

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1; and

FIGURES 4 A-C illustrate the inventive technique used to mathematically calculate the georeference at each pixel of the image; and

FIGURES 5 A-B illustrate a schematic view of the inventive technique used to mathematically reconcile the shot data with Digital Elevation Models and/or other known "ground truth".

DESCRIPTION OF THE PREFERRED EMBODIMENT

Generally speaking, the invention features an imaging system, including a novel combination of a portable camera, GPS receiver, bearing compass and inclinometer(s). All of the components move and function as a single unit, so that, despite changes in the depression and the roll angles of the camera, each digital image is captured, along with shot data, which becomes automatically, computationally georeferenced.

Now referring to FIGURE 1, an imaging system 10 of this invention is illustrated. The system combines a camera 11 with an inclinometer 12, a compass 14, an optional altimeter 16 and a Global Position Satellite (GPS) antenna/receiver, 15a and 15b, respectively. The particular camera 11 that can be utilized with this invention may be a databack film camera that is capable of affixing shot time and subsequent digitization. The camera 11 can also be an analog, a digital video or a still digital camera. The camera 11, inclinometer 12, compass 14, optional altimeter 16 and GPS receiver 15b are each individually connected to a CPU processor 18 containing a fixed or removable memory 28 (such as a PCMCIA card) via respective lines 21, 22, 24, 26 and 25. The

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GPS antenna 15a is connected to the GPS receiver 15b via line 17. Also connected to the CPU processor 18 are an optional key-pad-and microphone 19 via line 29. The key-pad-and-microphone 19 can be used to enter comments or additional information with respect to the photographed site. Where altitude provided by the GPS is adequate, the altimeter 16 may be dispensed with. Where comments are impractical, the key-pad-and-microphone 19 may also be dispensed with.

The invention reflects the discovery that in addition to camera location, it is necessary to factor into the calculations the changes in the elevation of the depicted land, the depression and the bearing of the camera, with respect to this encompassed land. The compass 14 provides camera heading or bearing information; the GPS antenna/receiver 15a and 15b provide the camera position information (latitude, longitude and altitude); the inclinometers 12 provide the depression and roll angles; and the optional altimeter laser or other 16 provides additional altitude information. As an alternative to or in addition to instrumental measurements of land, the system may computationally deduce elevations within the image by assessing deficiencies in measurements of known objects such as cars. These variables are combined with the digital image, plane measurements, focal length, and pixel data to give a georeferenced image down to the pixel level.

The instrument's shot data are recorded and used to coordinate the points on the ground plane with the points in the image plane in order to produce a georeference for each pixel. DEM data are used to corroborate or enhance the accuracy of the trigonometric interpolations. The result of all of this processing provides an image, or a portion thereof, from which

can be obtained geographic coordinates of any point on the ground and/or measurements on the ground taken between any two points in the image. The "georeferencing" of each image also determines its placement in a series of adjacent images, so that each image can be depicted as a "tile" within a "mosaic" of tiled images. Each image, in addition to its georeference, is processed so as to contain a discrete sequential identifier, the date and the time. Many images of the same landscape may be taken by using different angles and camera positions, each of which is accessible by means of a graphical user interface. Processing adjusts the shot data to compensate for the lens focal length, the size of the image plane, the number of pixels in the X-Y axes (horizontal and vertical plans) and the size of the pixels.

The GPS antenna/receiver 15a and 15b can be obtained from, among others, Trimble Navigation Systems of Sunnyvale, California. A fluxgate compass 14 and inclinometers 12 are available from, among others, KVH Industries, Inc., of Middletown, Rhode Island.

In processing the information, the CPU 18 accesses Digital Elevation Model (DEM) data from a database in order to adjust the image data for topographical variations. The position variables (camera X, Y and Z coordinates) are obtained from the Global Position Satellite (GPS) receiver. The pointing variables (camera heading or bearing) are obtained from the compass 14, and the depression and the roll information are obtained from the inclinometers 12.

The processing assumes a simple, pin-hole camera model. The ground position of the photographed image can be defined by simple triangular, trigonometric processing of the depression

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angle ϕ_D, the size of the image plane and the focal length (FL) of the camera as shown in FIGURE 4A. A pixel location (P_x, P_y) of a particular point selected on a displayed image can be processed for a particular depression angle by calculating the inverse tangent of the angle as shown in FIGURE 4B.

Referring to FIGURE 4C, assuming a northerly direction, the angle ϕ_D (depression angle) is offset by the arctangent (film height [y] * (row containing focal axis [F_y] -row of selected pixel [P_y])/2* image plane height [Z] * focal length [FL]) resulting in angle ϕ_p. The angle ϕ_p is subtracted from the recorded depression angle ϕ_p and denoted as ρ_v relative to the point on the ground immediately below the camera, with camera altitude above the ground "Z" (height). The northerly distance to the selected point [P_x, P_y] is Z* sin ($\pi/_2$ - ρ_v). The east-west distance is calculated from the (column of selected pixel [P_x] -focal axis column [F_x]/$_2$)*film width [x]/image plane width [x_1].

east-west distance = Camera Z*cos ϕ/2*focal length * sin ρ_v

When the direction is other than north, a simple rotation is made on the point to establish the ground location. The true location is then obtained by translating the ground location of the camera into its recorded position.

Ground location for terrain "T" that is not flat is adjusted by using DEM data and an iterative algorithm, well known in the art of optimization routines. The processor 18 uses the algorithm and the point [g_1] assumed for a flat terrain as shown in FIGURE 5A. The processor accesses the DEM data for that point and obtains the elevation [g_2] as shown in FIGURE 5B. The process is complete if the elevation at that camera location is

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the same as that of the selected point. Otherwise, the camera elevation is modified to account for the difference in the ground elevation of the selected point. The revised value is then used to estimate the ground location (G_3). The iterative algorithm continues to revise the estimate until it converges to within acceptable limits. The algorithm is modified to adjust for roll of the camera by transforming pixel coordinates to a new set of coordinates. The transformation is a simple rotation about focal axis "F" by well-known mathematical methods.

$$T\mu = [\cos \mu \sin \mu] - \sin\mu \cos \mu$$

The data points provided by the DEM are sampled along the ground every 30 meters in an orthogonal grid bounded by g_2 and g_1, as shown. Intermediate points are obtained by interpolation, such as by using bilinear interpolation or bicubic splines.

The position of the camera and the pointing angles are subject to a small degree of error and, therefore, may be reconciled with measured ground truth other than DEM data. This is accomplished by locating or measuring discrete objects in several images and then modifying the collected data so as to obtain more accurate estimates.

Referring to FIGURE 2, a flow chart 100 is illustrated for the image-and-data-capture process of this invention. An image is captured by camera 12, step 101; the image information is converted to digital form, step 102. The camera altitude, ground location, tilt, depression angle and heading (bearing) are then obtained, as shown in step 103. The information from steps 102 and 103 is then combined, step 104. The data is then adjusted according to focal length, pixel size, pixel location

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and focal axis, as previously explained with reference to FIGURE 4, step 105. The result of all of the processing provides an image, or a portion thereof, from which can be obtained geographic coordinates on the ground and/or ground measurements taken between any two image points. The "georeferencing" of each image determines its placement in a series of adjacent images, so that each image can be depicted as a "tile" within a "mosaic" of tiles images, step 106. The DEM data is then used to adjust the image data for variations in the terrain, step 107. The image data is then compressed for storage purposes, step 108.

Referring to FIGURE 3, a flow chart 200 illustrates in more detail the DEM adjustment process for the data obtained in FIGURE 2. A tile from the mosaic is obtained, steps 201 and 202. In conjunction with the selection, an associated DEM elevation file is accessed, step 203. The accessed data is then combined and the digitized data decompressed, step 204. The image and adjoining images are then displayed, step 206. Certain features of the images are selected, step 207, and the horizontal or vertical measurements are selected for review, step 208. Different images are reviewed, step 210, and the end points are measured, step 209. The ground points are then estimated, step 211, and compared with the DEM data, step 212. If the elevation estimate is different, the elevation is revised, step 214, and entered via line 215. A new estimate is made via return loop 205, and the re-entering of step 211. After a few iterations, the decision is made, step 212, to report distance between points, step 217 via line 216. When the estimate is found accurate, the actual distance between the selected ground points is made, step 217. The process is then repeated via return loop 220, in order to obtain the distance values for other selected

points and tiles.

The invention has been described in detail with particular reference to certain preferred embodiments thereof, but it will be understood that variations and modifications can be effected within the spirit and scope of the invention.

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What is claimed is:

1. An image georeferencing system, comprising:

a portable, data-capturing device affixed to a camera, with said camera providing an image, said portable, data-capturing device and said camera being carried by hand or upon an aerial surveillance vehicle or other craft, said portable, data-capturing device providing data for computationally generating a georeference, and being independently operative of any aeronautical instruments, said portable, data-capturing device further including at least one inclinometer for determining depression angle, a means for determining heading or bearing of said data-capturing device and a global position satellite antenna/receiver for obtaining georeferencing information, said at least one inclinometer and said global position satellite antenna/receiver being movable as a single unit; and

a processor operatively connected to said portable, data-capturing device and said camera, said processor comprising data storage means, including digital elevation information and a program for modifying image and georeferencing information with respect to variations in terrain and changes in heading, roll and yaw of said data-capturing device, said processor computationally generating a georeference of any object within said image, in which said object can be located and measured therewithin.

2. The imaging georeferencing system in accordance with claim 1, further comprising an altimeter connected to said processor for determining additional altitude data of said portable, data-capturing device.

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3. The imaging georeferencing system in accordance with claim 1, further comprising a key pad connected to said processor for entering pilot information into said processor.

4. The imaging georeferencing system in accordance with claim 1, further comprising a microphone connected to said processor for entering comments into said processor.

5. An image georeferencing system, comprising:

a camera for providing an image in combination with a georeferencing, data-capturing device and inclinometer, said combination carried by hand or upon an aerial surveillance vehicle or other craft, said georeferencing, data-capturing device capturing data for computationally generating a georeference of any object within said image; and

a processor connected to said camera and georeferencing, data-capturing device combination, said processor comprising data storage means, including digital elevation information and a program for modifying image and georeferencing information with respect to variations in terrain and changes in heading, roll and yaw of said data-capturing device and processing said captured data for computing a georeference of any object within said image.

6. The image georeferencing system in accordance with claim 5, wherein said camera and georeferencing, data-capturing device combination comprises at least one inclinometer for determining depression angle, a means for determining heading of said image and a global position satellite antenna/receiver for obtaining georeferencing information with respect to said image, said at least one inclinometer and said global position satellite

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antenna/receiver being movable as a single unit, with each being connected to said processor.

7. The image georeferencing system in accordance with claim 6, further comprising an altimeter connected to said processor for determining additional altitude data.

8. The image georeferencing system in accordance with claim 5, further comprising a key pad connected to said processor for entering comments into said processor.

9. The image georeferencing system in accordance with claim 5, further comprising a microphone connected to said processor for entering comments into said processor.

10. A method of computationally georeferencing images, comprising the steps of:

a) capturing an image of terrain to provide digitized image information;

b) combining said digitized image information with shot data from instrumental data and camera data;

c) analyzing said combined digitized image and said shot data;

d) obtaining information with respect to image location data, including at least one of a group of location data including variations in camera latitude, longitude, altitude, camera bearing, camera depression angle, roll and yaw; and

e) adjusting information obtained in step (b) and utilizing information obtained in step (d) to coordinate points on a ground plane with points in an image plane to produce

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a georeferenced digital image of the terrain.

11. The method in accordance with claim 10, further comprising the step of:

f) utilizing digital elevation model data to enhance accuracy of image and georeferencing information obtained in step (b).

12. The method in accordance with claim 10, further comprising the step of:

f) processing said information obtained in step (b) to provide an image, or a portion thereof, that can be spatially located by using geographic coordinates and/or measurements taken between any two points.

13. The method in accordance with claim 10, further comprising the step of:

f) depicting combined image information and georeferencing information as a "tile" within a "mosaic" of tiled images, with each image, in addition to its respective georeference, being processed so as to contain a discrete sequential identifier, date and time.

14. The method in accordance with claim 10, further comprising the step of:

f) capturing a multiplicity of images of the same terrain in accordance with step (a) by using different angles and capture positions to provide different points of view of the same scene, each of which being accessible by means of a graphical user interface.

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15. The method in accordance with claim 10, further comprising the steps of:

f) obtaining information with respect to lens focal length, size of image plane, number of pixels in horizontal and vertical planes, and size of pixels; and

g) processing said image information in step (a) with respect to said information obtained in step (f) to adjust said image information.

16. A method of aerial surveillance of terrain, comprising the steps of:

f) aerially capturing an image of terrain to provide image information;

g) combining said image information with shot data as georeferencing variables;

h) analyzing said combined image and said georeferencing variables;

i) obtaining information with respect to image location data, including at least one of a group of location data including variations in camera latitude, longitude, altitude, camera bearing, camera depression angle, roll and yaw; and

j) adjusting information obtained in step (b) and utilizing information obtained in step (d) to coordinate points on a ground plane with points in an image plane to produce an exact image of the terrain.

17. The method in accordance with claim 16, further comprising the step of:

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f) utilizing digital elevation model data to enhance accuracy of image and georeferencing information obtained in step (b).

18. The method in accordance with claim 16, further comprising the step of:

f) processing said information obtained in step (b) to provide an image, or a portion thereof, that can be spatially located by using geographic coordinates and/or make known geographic coordinates of the ground at any point depicted in the image and/or ground measurements taken between any two points of the image.

19. The method in accordance with claim 16, further comprising the step of:

f) depicting combined image information and georeferencing information as a "tile" within a "mosaic" of tiled images, with each image, in addition to its respective georeference, being processed so as to contain a discrete sequential identifier, date and time.

20. The method in accordance with claim 16, further comprising the step of:

f) taking a multiplicity of images of the terrain in accordance with step (a) by using different angles and capture positions to provide multiple views, accessible by means of a window-like, graphical user interface.

21. The method in accordance with claim 16, further comprising the steps of:

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f) obtaining information with respect to lens focal length, size of image plane, number of pixels in horizontal and vertical planes, and size of pixels; and

g) processing said image information obtained in step (a) with respect to said information obtained in step (f) to adjust said image information.

22. An image georeferencing system comprising

a camera for providing an image in combination with a georeferencing, data-capturing device, said combination carried by hand or upon an aerial surveillance vehicle or other craft, said georeferencing, data-capturing device capturing data for computationally generating and recording a georeference of the camera for each captured image; and further comprising a device selected from the group consisting of an inclinometer, means for determining heading or bearing of the camera.

23. The image georeferencing system of claim 22 further comprising a processor connected to said camera and georeferencing, data-capturing device combination, said processor comprising data storage means, including digital elevation information and a program for modifying image and georeferencing information with respect to variations in terrain and changes in heading, roll and yaw of said data-capturing device and processing said captured data for computing a georeference of any object within said image.

24. The image georeferencing system of claim 23 wherein said camera further comprising means for recording the depression and roll angle of the camera for each image captured by the camera.

25. The image georeferencing system of claim 23 wherein said camera further comprising means for recording the altitude of the camera for each image captured by the camera.

26. The image georeferencing system of claim 23 wherein said georeference data is obtained by a global position system antenna and receiver connected to the processing unit.

27. The image georeferencing system of claim 26 wherein said processing unit is within said camera.

28. The image georeferencing system of claim 24 wherein said angle means is an inclinometer connected to the processing unit.

29. The image georeferencing system of claim 25 wherein said altitude means is an altimeter connected to the processing unit.

30. A digital mapping system, comprising:

a portable data-capturing device affixed to a camera, said camera providing an image, said portable data-capturing device and said camera being carried by hand or upon an aerial surveillance vehicle or other craft for providing a pixel-based image, said portable data-capturing device providing data for computationally generating a georeference for each pixel of said pixel-based image, said data-capturing device being independently operative of any aeronautical instruments, said portable data-capturing device further including at least one inclinometer for determining declination angel, a means for determining heading or bearing of said image-capturing device and a global position satellite antenna/receiver for obtaining georeferencing information, said at least one inclinometer and

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said global position satellite antenna/receiver being movable as a single unit; and

a processor operatively connected to said portable data-capturing device and said camera, said processor comprising data storage means, including digital elevation information and a program for modifying image and georeferencing information with respect to variations in terrain and changes in heading, roll and yaw of said data-capturing device, said processor computationally generating a georeference of each pixel and any object within said image, wherein said object can be located and measured within said image.

31. The imaging georeferencing system in accordance with claim 30, further comprising a key pad connected to said processor for entering pilot information into said processor.

32. The imaging georeferencing system in accordance with claim 30, further comprising a microphone connected to said processor for entering comments into said processor.

33. An image georeferencing system in accordance with claim 30, further comprising:

a camera for providing an image in combination with a georeferencing, data-capturing device and inclinometer, said combination carried by hand or upon an aerial surveillance vehicle or other craft, said georeferencing, data-capturing device capturing data for computationally generating a georeference of any object within said image; and

a processor connected to said camera and georeferencing, data-capturing device combination, said processor comprising data storage means, including digital elevation

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information and a program for modifying image and georeferencing information with respect to variations in terrain and changes in heading, roll and yaw of said data-capturing device and processing said captured data for computing a georeference of any object within said image.

34. A digital mapping system, comprising:

a camera for providing a pixel-based image in combination with a georeferencing data-capturing device, said combination carried by hand or upon an aerial surveillance vehicle or other craft, said georeferencing data-capturing device capturing data for computationally generating a georeference of each pixel and any object within said image; and

a processor connected to said camera and georeferencing data-capturing device combination, said processor comprising data storage means, including digital elevation information and a program for modifying image and georeferencing information with respect to variations in terrain and changes in heading, roll and yaw of said image-capturing device, and processing said captured data for computing a georeference of each pixel and any object within said image.

35. The image georeferencing system in accordance with claim 34, wherein said camera and georeferencing, data-capturing device combination comprises at least one inclinometer for determining depression angle, a means for determining heading of said image and a global position satellite antenna/receiver for obtaining georeferencing information with respect to said image, said at least one inclinometer and said global position satellite antenna/receiver being movable as a single unit, with each being connected to said processor.

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36. The image georeferencing system in accordance with claim 35, further comprising an altimeter connected to said processor for determining additional altitude data.

37. The image georeferencing system in accordance with claim 34, further comprising a key pad connected to said processor for entering comments into said processor.

38. The image georeferencing system in accordance with claim 34, further comprising a microphone connected to said processor for entering comments into said processor.

39. A method of digitally mapping terrain, comprising the steps of:

a) capturing a pixel-based image of terrain to provide digitized image information;

b) capturing georeferencing information;

c) combining said digitized image information with said captured georeferencing information; and

d) processing said combined digitized image information and said captured georeferencing information in order to generate a georeference of each pixel and any object within said image of said terrain, whereby said object can be located within said image of terrain.

40. The method in accordance with claim 39, further comprising the step of:

f) utilizing digital elevation model data to enhance accuracy of image and georeferencing information obtained in step (b).

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41. The method in accordance with claim 39, further comprising the step of:

f) processing said information obtained in step (b) to provide an image, or a portion thereof, that can be spatially located by using geographic coordinates and/or measurements taken between any two points.

42. The method in accordance with claim 39, further comprising the step of:

f) depicting combined image information and georeferencing information as a "tile" within a "mosaic" of tiled images, with each image, in addition to its respective georeference, being processed so as to contain a discrete sequential identifier, date and time.

43. The method in accordance with claim 39, further comprising the step of:

f) capturing a multiplicity of images of the same terrain in accordance with step (a) by using different angles and capture positions to provide different points of view of the same scene, each of which being accessible by means of a graphical user interface.

44. The method in accordance with claim 39, further comprising the steps of:

f) obtaining information with respect to lens focal length, size of image plane, number of pixels in horizontal and vertical planes, and size of pixels; and

g) processing said image information in step (a)

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with respect to said information obtained in step (f) to adjust said image information.

45. A method of aerial surveillance of terrain, comprising the steps of:

a) aerially capturing a[n] pixel-based image of terrain to provide image information;

b) combining said image information with georeferencing information; and

c) processing said combined image and said georeferencing information, in order to generate a georeference of each pixel and any object within said image of terrain, whereby said object can be located within said image of terrain.

46. The method in accordance with claim 45, further comprising the step of:

f) utilizing digital elevation model data to enhance accuracy of image and georeferencing information obtained in step (b).

47. The method in accordance with claim 45, further comprising the step of:

f) processing said information obtained in step (b) to provide an image, or a portion thereof, that can be spatially located by using geographic coordinates and/or make known geographic coordinates of the ground at any point depicted in the image and/or ground measurements taken between any two points of the image.

48. The method in accordance with claim 45, further

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comprising the step of:

f) depicting combined image information and georeferencing information as a "tile" within a "mosaic" of tiled images, with each image, in addition to its respective georeference, being processed so as to contain a discrete sequential identifier, date and time.

49. The method in accordance with claim 45, further comprising the step of:

f) taking a multiplicity of images of the terrain in accordance with step (a) by using different angles and capture positions to provide multiple views, accessible by means of a window-like, graphical user interface.

50. The method in accordance with claim 45, further comprising the steps of:

f) obtaining information with respect to lens focal length, size of image plane, number of pixels in horizontal and vertical planes, and size of pixels; and

g) processing said image information obtained in step (a) with respect to said information obtained in step (f) to adjust said image information.

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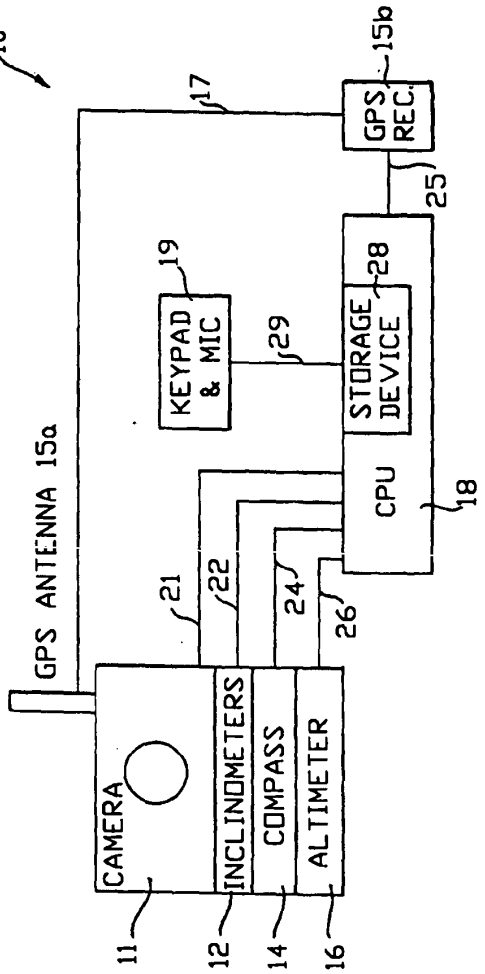


FIG. 1

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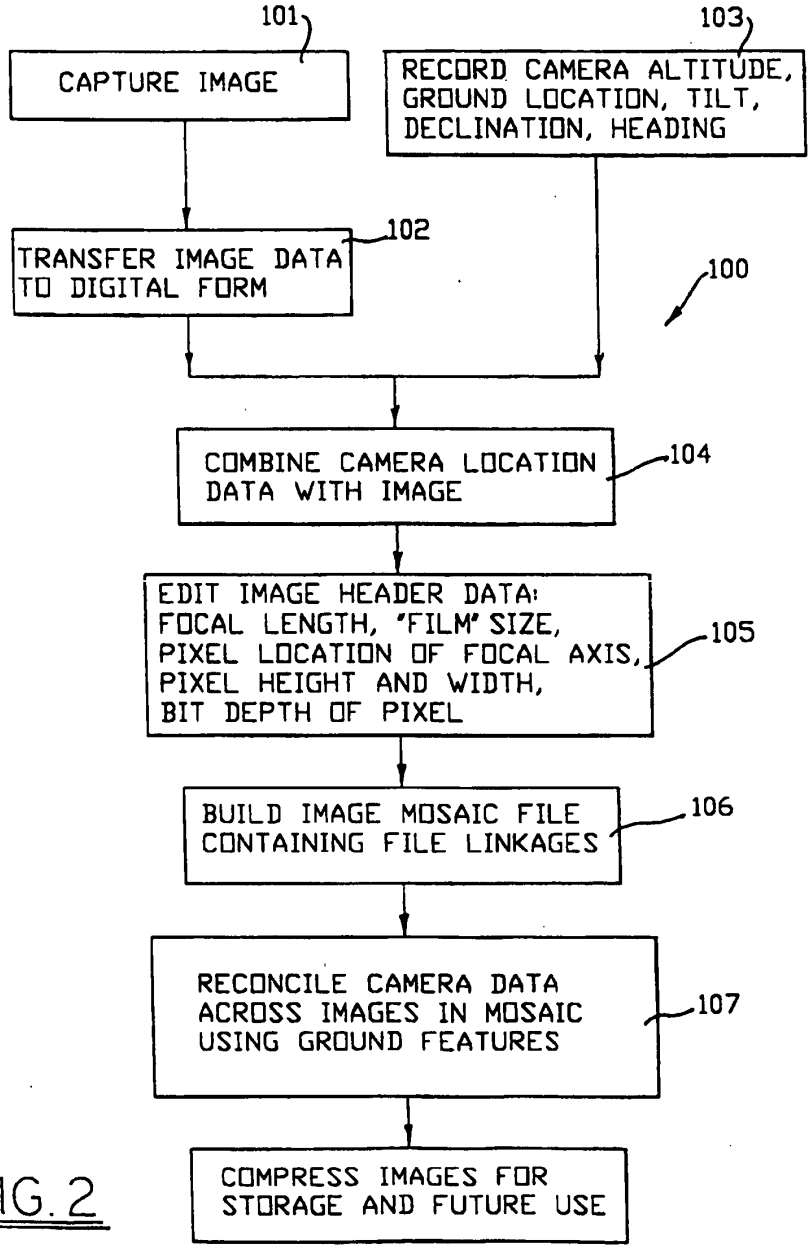


FIG. 2

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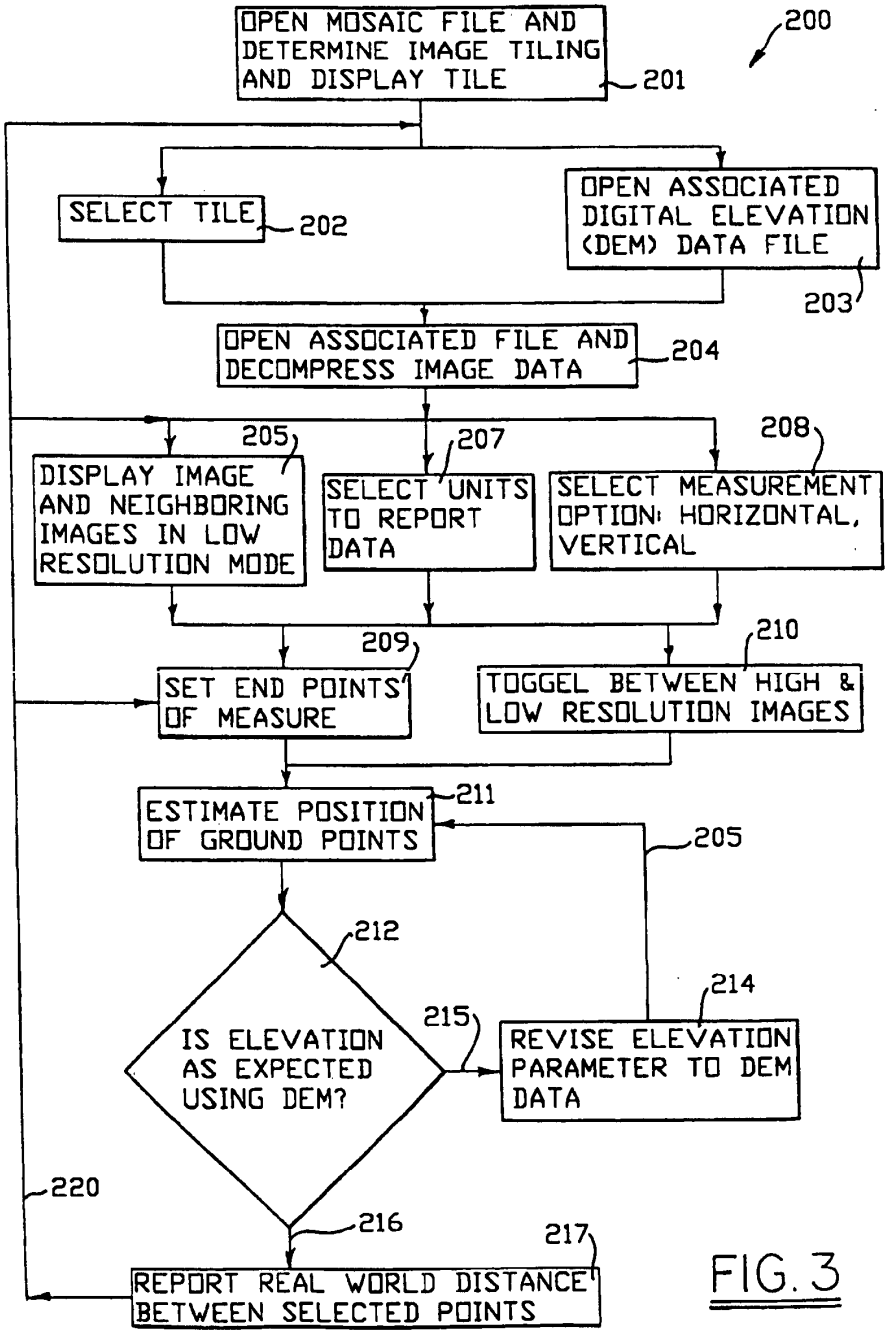


FIG. 3

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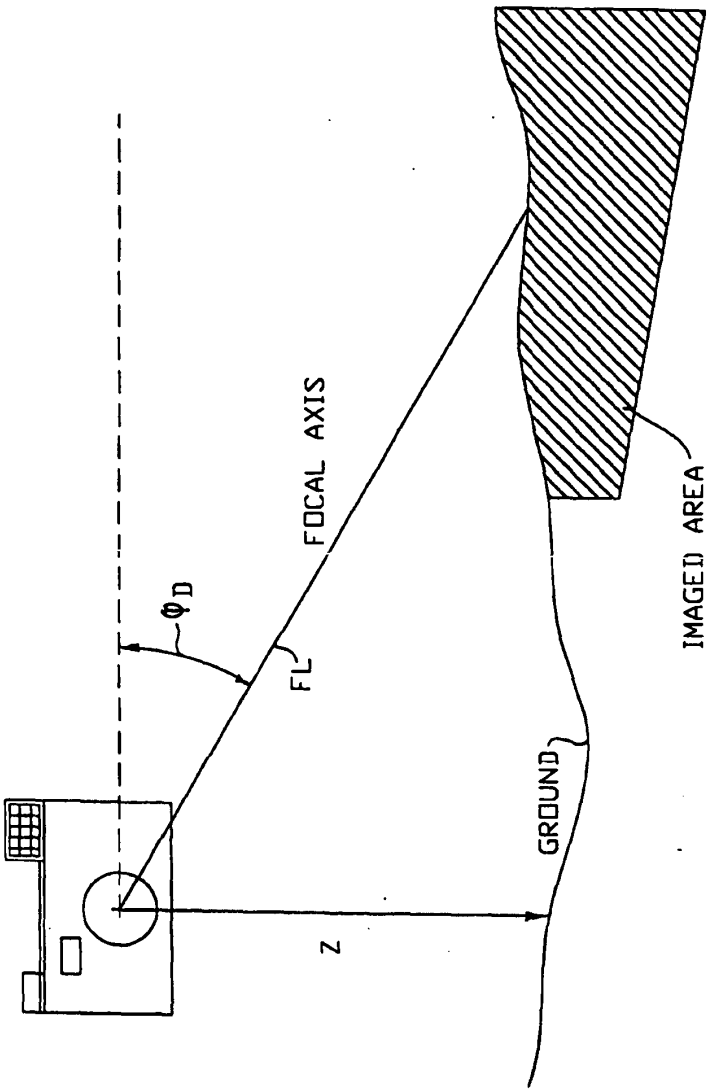


FIG. 4(a)

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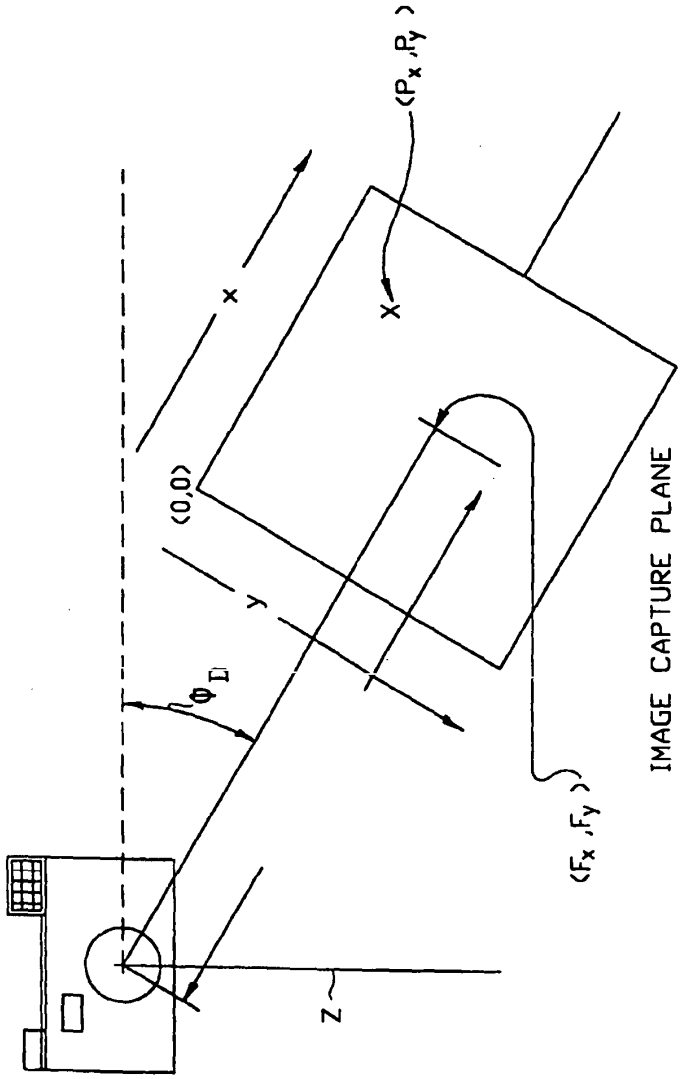


FIG. 4(b)

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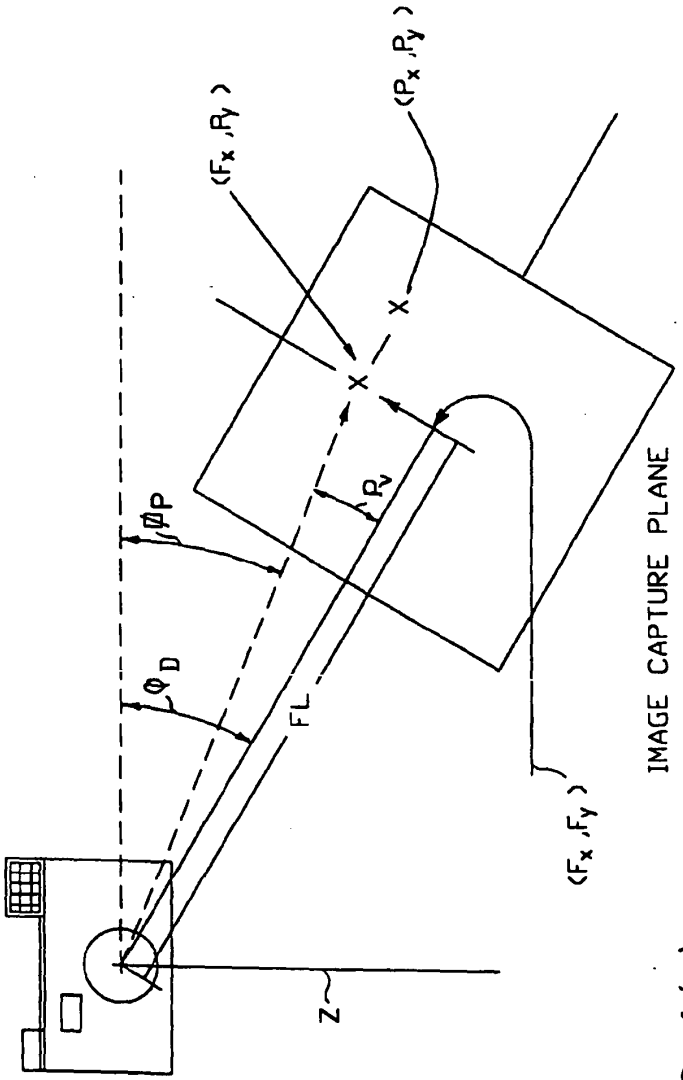


FIG. 4(c)

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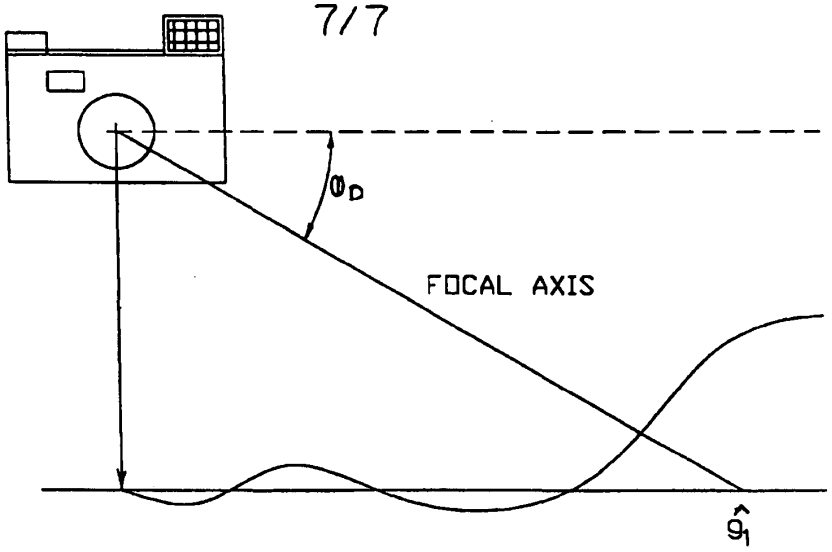


FIG. 5(a)

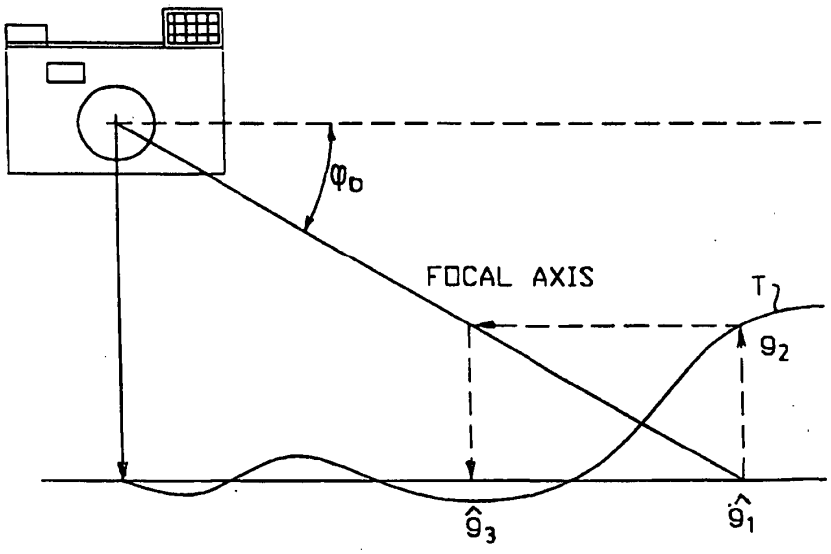


FIG. 5(b)

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/20809

A. CLASSIFICATION OF SUBJECT MATTER

IPC(5) :Please See Extra Sheet.
US CL :348/143,144,145,148, 373; 354/106; 364/420

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 348/143,144,145,148, 373; 354/106; 364/420

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 5,467,271 A (ABEL et al.) 14 November 1995, col. 3-30 and Figs. 1-8	10-21, 22-38
Y	US, A, 5,467,271 A (ABEL et al.) 14 November 1995, col. 3-30 and Figs. 1-8	1-9, 22-38
Y	US, A, 5,508,736 A (COOPER) 16 April 1996, col. 3-6 and Fig. 1	1-9, 22-38
A	US, A, 5,506,644 A (SUZUKI et al.) 09 April 1996, Figs. 3 and 9	None

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 19 NOVEMBER 1998	Date of mailing of the international search report 28 JAN 1999
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer VINCENT F. BOCCIO Joni Hill Telephone No. 703-306-3022

Form PCT/ISA/210 (second sheet)(July 1992)*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/20809

A. CLASSIFICATION OF SUBJECT MATTER:
IPC (5):

H04N 7/18, 9/47, 5/225; G03B 17/24; G01V 1/00; G01W 1/10; G06F 17/00; G06G 7/48

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	4	US-20010038718-$.DID. OR US-20020121969-$.DID. OR US-20020041328-$.DID. OR US-6222583-$.DID.	US-PGPUB; USPAT; USOCR	OR	ON	2007/07/22 19:02
S2	1	"20040105090".pn.	DERWENT	OR	ON	2007/07/19 15:54
S3	2	WO9918732	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:12
S4	88	(mosaic near3 imag$4).ti.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:15
S5	40	(photogrammetry).ti.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:15
S6	93	(photogrammetry).ab.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:17
S7	1	S6 and oblique	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:18
S8	3456	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:18
S9	3218	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:19
S10	2897	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:19
S11	9371	S8 S9 S10	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:19
S12	163	S11 and (oblique near5 imag$4)	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:20
S13	1211	(oblique near5 imag$4) and (geo$9)	US-PGPUB;	OR	ON	2007/07/19 16:21

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			USPAT; EPO			
S14	227	(oblique near5 imag$4) and (geo$9) and (terra$5 earth ariel arial airplane satellite)	US-PGPUB; USPAT; EPO	OR	ON	2007/07/19 16:23
S15	5	("4489322").URPN.	USPAT	OR	ON	2007/07/19 16:39
S16	35	("5247356").URPN.	USPAT	OR	ON	2007/07/20 14:17
S17	1	"5467271".pn.	USPAT	OR	ON	2007/07/20 14:31
S18	86	(georeferenc$4)	USPAT	OR	ON	2007/07/20 14:31
S19	20	(georeferenc$4) and ((mosaic$4 til$4) near5 imag$4)	USPAT	OR	ON	2007/07/20 14:36
S20	3	(georeferenc$4 same (pitch slope)) and ((mosaic$4 til$4) near5 imag$4)	USPAT	OR	ON	2007/07/20 14:43
S21	123	oblique same ((mosaic$4 til$4) near5 imag$4)	USPAT	OR	ON	2007/07/20 14:44
S22	2	S21 and 348/143-148.ccls.	USPAT	OR	ON	2007/07/20 14:44
S23	3456	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/20 14:48
S24	3218	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/20 14:48
S25	2897	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/20 14:48
S26	9371	S23 S24 S25	US-PGPUB; USPAT; EPO	OR	ON	2007/07/20 14:48
S27	10	S26 and (image near5 (point pixel) near5 elevation near5 distance)	US-PGPUB; USPAT; EPO	OR	ON	2007/07/20 14:49
S28	0	("2004/0105090").URPN.	USPAT	OR	ON	2007/07/20 14:51
S29	0	("2004/0105090").URPN.	USPAT	OR	ON	2007/07/20 14:51
S30	17	(US-20070046448-$ or US-20070024612-$ or US-20060238383-$).did. or (US-6373522-$ or US-6256057-$ or US-6130705-$ or US-6108032-$ or US-6088055-$ or US-6747686-$ or US-5844602-$ or US-5247356-$ or US-5798786-$ or US-5894323-$ or US-6731329-$ or US-5467271-$ or US-5414462-$ or US-4758850-$).did.	US-PGPUB; USPAT	OR	ON	2007/07/22 10:05
S31	12	S30 and (speed velocity)	US-	OR	ON	2007/07/22

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			PGPUB; USPAT			10:05
S32	9	S30 and ((speed velocity) near10 camera)	US-PGPUB; USPAT	OR	ON	2007/07/22 13:46
S33	17	(US-20070046448-$ or US-20070024612-$ or US-20060238383-$).did. or (US-6373522-$ or US-6256057-$ or US-6130705-$ or US-6108032-$ or US-6088055-$ or US-6747686-$ or US-5844602-$ or US-5247356-$ or US-5798786-$ or US-5894323-$ or US-6731329-$ or US-5467271-$ or US-5414462-$ or US-4758850-$).did.	US-PGPUB; USPAT	OR	ON	2007/07/22 13:47
S34	0	S33 and (maintain near5 altitude near5 (airplane aircraft))	US-PGPUB; USPAT	OR	ON	2007/07/22 13:47
S35	8	S33 and (altitude near5 (airplane aircraft))	US-PGPUB; USPAT	OR	ON	2007/07/22 15:25
S36	289	348/144.ccls.	US-PGPUB; USPAT	OR	ON	2007/07/22 15:26
S37	26	S36 and (imag$4 near5 (distance elevation height area) near5 object)	US-PGPUB; USPAT	OR	ON	2007/07/22 16:23
S38	6	S36 and (imag$4 near5 (distance elevation height area) near5 object near5 (measur$4 measurement calculat$4))	US-PGPUB; USPAT	OR	ON	2007/07/22 16:28
S39	3456	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/22 16:28
S40	3218	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/22 16:28
S41	2897	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2007/07/22 16:28
S42	9371	S39 S40 S41	US-PGPUB; USPAT; EPO	OR	ON	2007/07/22 16:42
S43	4	S36 and (imag$4 near5 (distance elevation height) near5 object near5 (measur$4 measurement calculat$4))	US-PGPUB; USPAT	OR	ON	2007/07/22 16:29
S44	342	S42 and (imag$4 near5 (distance elevation height) near5 object near5 (measur$4 measurement calculat$4))	US-PGPUB; USPAT	OR	ON	2007/07/22 16:30
S45	0	S42 and (imag$4 near5 (geographic$4 geolocat$4) near5 (distance elevation height) near5 object near5 (measur$4 measurement calculat$4))	US-PGPUB; USPAT	OR	ON	2007/07/22 16:30
S46	1	S42 and ((geographic$4 geolocat$4)	US-	OR	ON	2007/07/22

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		near5 (distance elevation height) near5 object near5 (measur$4 measurement calculat$4))	PGPUB; USPAT			16:31
S47	12	S42 and ((image near5 mosaic) and ((distance elevation height) near5 object near5 (measur$4 measurement calculat$4)))	US-PGPUB; USPAT	OR	ON	2007/07/22 16:34
S48	9442	((difference) and ((distance elevation height) near5 objects near5 (measur$4 measurement calculat$4)))	US-PGPUB; USPAT	OR	ON	2007/07/22 16:35
S49	674	((difference) near5 ((distance elevation height) near5 objects near5 (measur$4 measurement calculat$4)))	US-PGPUB; USPAT	OR	ON	2007/07/22 16:37
S50	38	S49 and "382"/$.ccls.	US-PGPUB; USPAT	OR	ON	2007/07/22 16:35
S51	7	((difference) near5 ((elevation) near5 objects near5 (measur$4 measurement calculat$4)))	US-PGPUB; USPAT	OR	ON	2007/07/22 16:37
S52	165	S42 and (flight near5 path)	US-PGPUB; USPAT; EPO	OR	ON	2007/07/22 16:43
S53	1	S42 and ((flight near5 path) same ((first second) near5 perspective))	US-PGPUB; USPAT; EPO	OR	ON	2007/07/22 16:44
S54	15	("4527055" | "4807024" | "5138444" | "5155597" | "5210586" | "5247356" | "5251037" | "5481479" | "5486948" | "5668593" | "5798786" | "5835133" | "5841574" | "5852753" | "6094215").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/07/22 16:46
S55	3920	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/05 20:32
S56	3509	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/05 20:32
S57	3086	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/05 20:32
S58	10286	S55 S56 S57	US-PGPUB; USPAT; EPO	OR	ON	2008/05/05 20:32
S59	3924	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 09:41
S60	3514	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 09:41
S61	3087	356/3-3.09,601-613.ccls.	US-	OR	ON	2008/05/06

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			PGPUB; USPAT; EPO			09:41
S62	10296	S59 S60 S61	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 09:41
S63	76	((ground terrain) near5 (mosaic$4 til$4) near5 imag$4)	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:23
S64	105	((ground terrain earth) near5 (mosaic$4 til$4) near5 imag$4)	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:23
S65	112	((ground terrain earth) near5 (mosaic$4 til$4) near5 (imag$4 photo photograph$4))	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:23
S66	975	S62 and @pd>"20070701"	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:25
S67	2	S65 and S66	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:25
S68	3	S65 and ((til$4 facet$4) near5 (number count) near5 pixel)	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:27
S69	9	S65 and ((oblique slant$4 indirect bevel$4 bias) near3 imag$4)	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:33
S70	28	S65 and ((oblique angl$4 slant$4 indirect bevel$4 bias) near3 imag$4)	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:33
S71	1697	((mosaic$4 til$4) near5 imag$4).ab.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:34
S72	376	S71 and ((oblique angl$4 slant$4 indirect bevel$4 bias) near3 imag$4)	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:34
S73	98	S71 and ((oblique angl$4 slant$4 indirect bevel$4 bias) near3 imag$4).ab.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:34
S74	17	S73 and ((number count quantit$4) near3 pixel)	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:35
S75	997	((mosaic$4 tile tiling) near5 imag$4).ab.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:38

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S76	5	S75 and ((oblique angl$4 slant$4 indirect bevel$4 bias) near3 imag$4).ab.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:38
S77	1020	((mosaic$4 tile tiling tessel$6) near5 imag$4).ab.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:44
S78	5	S76 and ((oblique angl$4 slant$4 indirect bevel$4 bias) near3 imag$4).ab.	US-PGPUB; USPAT; EPO	OR	ON	2008/05/06 10:44
S79	0	(geolocat$4 same oblique same imag$4 same position$4 same ground same facet).clm.	US-PGPUB	OR	ON	2008/05/06 11:03
S80	1	(geolocat$4 same oblique same imag$4).clm.	US-PGPUB	OR	ON	2008/05/06 11:03
S81	444	(oblique same imag$4).clm.	US-PGPUB	OR	ON	2008/05/06 11:05
S82	2	(oblique same imag$4 same terrain).clm.	US-PGPUB	OR	ON	2008/05/06 11:05
S83	3	(oblique same imag$4 same elevation).clm.	US-PGPUB	OR	ON	2008/05/06 11:07
S84	1	"20040105090".pn.	DERWENT	OR	ON	2008/05/06 12:15
S85	1	2004-402730.NRAN.	DERWENT	OR	ON	2008/05/06 12:16
S86	1	"7424133".pn.	USPAT	OR	ON	2009/10/12 16:14
S87	31	US-2273876-$.DID. OR US-3153784-$.DID. OR US-3594556-$.DID. OR US-3614410-$.DID. OR US-3621326-$.DID. OR US-3661061-$.DID. OR US-3716669-$.DID. OR US-3725563-$.DID. OR US-3864513-$.DID. OR US-3866602-$.DID. OR US-3877799-$.DID. OR US-4015080-$.DID. OR US-4044879-$.DID. OR US-4184711-$.DID. OR US-4240108-$.DID. OR US-4281354-$.DID. OR US-4344683-$.DID. OR US-4360876-$.DID. OR US-4382678-$.DID. OR US-4387056-$.DID. OR US-4396942-$.DID. OR US-4463380-$.DID. OR US-4489322-$.DID. OR US-4490742-$.DID. OR US-4491399-$.DID. OR US-4495500-$.DID. OR US-4527055-$.DID. OR US-4543603-$.DID. OR US-4586138-$.DID.	US-PGPUB; USPAT; USOCR	OR	ON	2009/10/13 16:56
S88	44	US-4653136-$.DID. OR US-4653316-$.DID. OR US-4673988-$.DID. OR US-4686474-$.DID. OR US-4688092-$.DID. OR US-4689748-$.DID. OR US-4707698-$.DID. OR US-4758850-$.DID. OR US-4805033-$.DID. OR US-4807024-$.DID. OR US-4814711-$.DID. OR US-4814896-$.DID. OR US-4843463-$.DID. OR US-4899296-$.DID. OR US-4906198-$.DID. OR US-	US-PGPUB; USPAT; USOCR	OR	ON	2009/10/13 16:57

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		4953227-$.DID. OR US-4956872-$.DID. OR US-5034812-$.DID. OR US-5086314-$.DID. OR US-5121222-$.DID. OR US-5138444-$.DID. OR US-5155597-$.DID. OR US-5164825-$.DID. OR US-5166789-$.DID. OR US-5191174-$.DID. OR US-5200793-$.DID. OR US-5210586-$.DID. OR US-5231435-$.DID. OR US-5247356-$.DID. OR US-5251037-$.DID. OR US-5265173-$.DID. OR US-5267042-$.DID. OR US-5270756-$.DID. OR US-5296884-$.DID. OR US-5335072-$.DID. OR US-5342999-$.DID. OR US-5345086-$.DID. OR US-5353055-$.DID. OR US-5369443-$.DID. OR US-5402170-$.DID. OR US-5414462-$.DID. OR US-5467271-$.DID. OR US-5481479-$.DID. OR US-5486948-$.DID.				
S89	44	US-5508736-$.DID. OR US-5555018-$.DID. OR US-5604534-$.DID. OR US-5617224-$.DID. OR US-5633946-$.DID. OR US-5668593-$.DID. OR US-5677515-$.DID. OR US-5798786-$.DID. OR US-5835133-$.DID. OR US-5841574-$.DID. OR US-5844602-$.DID. OR US-5852753-$.DID. OR US-5894323-$.DID. OR US-5899945-$.DID. OR US-5963664-$.DID. OR US-6088055-$.DID. OR US-6094215-$.DID. OR US-6097854-$.DID. OR US-6108032-$.DID. OR US-6130705-$.DID. OR US-6157747-$.DID. OR US-6167300-$.DID. OR US-6222583-$.DID. OR US-6236886-$.DID. OR US-6256057-$.DID. OR US-6373522-$.DID. OR US-6434280-$.DID. OR US-6597818-$.DID. OR US-6639596-$.DID. OR US-6421610-$.DID. OR US-6731329-$.DID. OR US-6711475-$.DID. OR US-6747686-$.DID. OR US-6834128-$.DID. OR US-6876763-$.DID. OR US-7009638-$.DID. OR US-7018050-$.DID. OR US-7046401-$.DID. OR US-7061650-$.DID. OR US-7065260-$.DID. OR US-7123382-$.DID. OR US-7127348-$.DID. OR US-7142984-$.DID. OR US-7233691-$.DID.	US-PGPUB; USPAT; USOCR	OR	ON	2009/10/13 16:57
S90	20	US-20020041328-$.DID. OR US-20030043824-$.DID. OR US-20030088362-$.DID. OR US-20020114536-$.DID. OR US-20030214585-$.DID. OR US-20040105090-$.DID. OR US-20050169521-$.DID. OR US-20050073241-$.DID. OR US-20060028550-$.DID. OR US-20060238383-$.DID. OR US-20060250515-$.DID. OR US-20060092043-$.DID. OR US-20070024612-$.DID. OR US-20070046448-$.DID. OR US-	US-PGPUB; USPAT; USOCR	OR	ON	2009/10/13 16:58

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		20080123994-$.DID. OR US-20020041717-$.DID. OR US-20030014224-$.DID. OR US-20040167709-$.DID. OR US-20080120031-$.DID. OR US-20070237420-$.DID.				
S91	117	S87 S88 S89 S90	USPAT	OR	ON	2009/10/13 16:58
S92	1	"20090096884".pn.	USPAT; DERWENT	OR	ON	2009/10/14 15:49
S93	1	2004-402730.NRAN.	DERWENT	OR	ON	2009/10/14 15:49
S94	4857	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2009/10/14 16:37
S95	4225	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2009/10/14 16:37
S96	3441	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2009/10/14 16:37
S97	12253	S94 S95 S96	US-PGPUB; USPAT; EPO	OR	ON	2009/10/14 16:37
S98	1907	(mosaic$4 panoram$5 combin$6 composit$4 tesselat$4) near5 (til$4 facet$4) near5 (imag$4 fram$4 video)	US-PGPUB; USPAT; EPO	OR	ON	2009/10/15 09:31
S99	98	S98 and ((til$4 facet$4) near5 ("same" similar uniform identical$4) near5 (siz$4))	US-PGPUB; USPAT; EPO	OR	ON	2009/10/15 09:34
S100	8	S98 and ((til$4 facet$4) near5 ("same" similar uniform identical$4) near5 (pixel (picture near1 element) pels voxel) near5 (number quanti$9))	US-PGPUB; USPAT; EPO	OR	ON	2009/10/15 09:38
S101	5284	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2010/04/20 16:23
S102	4584	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2010/04/20 16:23
S103	3577	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2010/04/20 16:23
S104	13158	S101 S102 S103	US-PGPUB; USPAT; EPO	OR	ON	2010/04/20 16:23
S105	950	S104 and @pd>"20091001"	US-PGPUB;	OR	ON	2010/04/20 16:24

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			USPAT; EPO			
S107	1	"7787659".pn.	USPAT	OR	ON	2010/09/29 08:44
S108	2	"7787659".pn.	US-PGPUB; USPAT; DERWENT	OR	ON	2010/09/29 08:53
S109	1	2004-402730.NRAN.	DERWENT	OR	ON	2010/09/29 08:53
S110	1	"7787659".pn.	US-PGPUB; USPAT	OR	ON	2010/09/29 08:54
S111	1	"7424133".pn.	US-PGPUB; USPAT	OR	ON	2010/09/29 08:54
S112	2617	((ground terrian earth geo$9) near5 imag$4).ab.	US-PGPUB; USPAT	OR	ON	2010/09/29 11:31
S113	569	S112 and (distanc$4 near5 (measur$6 calculat$4))	US-PGPUB; USPAT	OR	ON	2010/09/29 11:31
S114	5	S112 and (distanc$4 near5 (measur$6 calculat$4) near5 (user operator human) near5 (select$4 accuat$4))	US-PGPUB; USPAT	OR	ON	2010/09/29 11:32
S115	5732	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2010/09/29 11:33
S116	4920	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2010/09/29 11:33
S117	3705	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2010/09/29 11:33
S118	14054	S115 S116 S117	US-PGPUB; USPAT; EPO	OR	ON	2010/09/29 11:33
S119	97	S118 and ((distanc$4 near5 (measur$6 calculat$4)) same ((user operator human) near5 (select$4 accuat$4)))	US-PGPUB; USPAT	OR	ON	2010/09/29 11:34
S120	1	S118 and ((distanc$4 near5 (measur$6 calculat$4)) and ((user operator human) near5 (select$4 accuat$4) near5 (start$4 initial) near5 (end$4 terminat$4)))	US-PGPUB; USPAT	OR	ON	2010/09/29 11:35
S121	60	S119 and @ad<"20030101"	US-PGPUB; USPAT	OR	ON	2010/09/29 11:36
S122	27	((ground terrian earth geo$9) near5 imag$4) and S119	US-PGPUB; USPAT	OR	ON	2010/09/29 11:45
S123	11	S122 and @ad<"20030101"	US-PGPUB; USPAT	OR	ON	2010/09/29 11:45

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S124	1	"20070153369"	USPAT	OR	ON	2010/10/07 15:23
S125	0	"20070153369"".pn"	USPAT	OR	ON	2010/10/07 15:23
S126	0	"20070153369".pn.	USPAT	OR	ON	2010/10/07 15:23
S127	1	"20070153369".pn.	US-PGPUB; USPAT	OR	ON	2010/10/07 15:23
S128	6151	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/03/02 13:28
S129	5234	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/03/02 13:28
S130	3821	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/03/02 13:28
S131	14893	S128 S129 S130	US-PGPUB; USPAT; EPO	OR	ON	2011/03/02 13:28
S133	792	S131 and @pd>"20101001"	US-PGPUB; USPAT	OR	ON	2011/03/02 15:26
S136	6233	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/03/31 13:05
S137	5306	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/03/31 13:05
S138	3840	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/03/31 13:05
S139	15064	S136 S137 S138	US-PGPUB; USPAT; EPO	OR	ON	2011/03/31 13:05
S140	958	S139 and @pd>"20101001"	US-PGPUB; USPAT	OR	ON	2011/03/31 13:05
S142	456	(ground terrain earth) near5 (imag$4) near5 (distance elevation height)	USPAT	OR	ON	2011/04/06 14:43
S143	1	(ground terrain earth) near5 (imag$4) near5 (distance elevation height) near5 (difference) near5 (points coordinate location)	USPAT	OR	ON	2011/04/06 14:43
S144	1	(ground terrain earth) near5 (imag$4) near5 (distance elevation height) near5 (difference) near5 (points coordinate location)	US-PGPUB; USPAT	OR	ON	2011/04/06 14:43

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S145	1	"5247356".pn.	US-PGPUB; USPAT	OR	ON	2011/04/06 16:18
S146	1	"7424133".pn.	US-PGPUB; USPAT	OR	ON	2011/04/06 16:44
S147	6236	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/04/06 19:54
S148	5316	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/04/06 19:54
S149	3842	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/04/06 19:54
S150	15079	S147 S148 S149	US-PGPUB; USPAT; EPO	OR	ON	2011/04/06 19:54
S151	331	S150 and @pd>"20110201"	US-PGPUB; USPAT	OR	ON	2011/04/06 19:54
S152	6687	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/09/26 09:39
S153	5689	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/09/26 09:39
S154	3952	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2011/09/26 09:39
S155	15997	S152 S153 S154	US-PGPUB; USPAT; EPO	OR	ON	2011/09/26 09:39
S156	931	S155 and @pd>"20110401"	US-PGPUB; USPAT	OR	ON	2011/09/26 09:39
S158	7455	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 14:39
S159	6290	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 14:39
S160	4148	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 14:39
S161	17534	S158 S159 S160	US-PGPUB;	OR	ON	2012/06/03 14:39

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			USPAT; EPO			
S162	241092	(area near5 (measur$6 calculat$4))	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 14:51
S163	50933	(area near5 (measur$6 calculat$4)) same (imag$4 photo photograph$4)	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 14:52
S164	23351	(area near5 (measur$6 calculat$4) near5 (imag$4 photo photograph$4))	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 14:52
S165	81	(area near5 (measur$6 calculat$4) near5 (imag$4 photo photograph$4)) same (altitud$4 elevat$4)	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 14:53
S166	81	(area near5 (measur$6 calculat$4) near5 (imag$4 photo photograph$4)) same (altitud$4 elevat$4)	US-PGPUB; USPAT	OR	ON	2012/06/03 14:53
S167	3045	(area near5 (measur$6 calculat$4 determin$9) near5 (imag$4 photo photograph$4)) near5 (coordinat$4 point$4)	US-PGPUB; USPAT	OR	ON	2012/06/03 15:10
S168	278	S161 and S167	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 15:12
S169	86	S168 and @ad<"20021115"	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 15:12
S170	111	(area near5 (measur$6 calculat$4 determin$9) near5 (imag$4 photo photograph$4) near5 (coordinat$4 point$4)) same (orthorectif$8 geo$8 earth terrain)	US-PGPUB; USPAT	OR	ON	2012/06/03 15:15
S171	16	(area near5 (measur$6 calculat$4 determin$9) near5 (imag$4 photo photograph$4) near5 (coordinat$4 point$4) near5 (select$4 pick$4 choos$4)) same (orthorectif$8 geo$8 earth terrain)	US-PGPUB; USPAT	OR	ON	2012/06/03 15:16
S172	219	(area near5 (measur$6 calculat$4 determin$9) near5 (imag$4 photo photograph$4) near5 (coordinat$4 point$4) near5 (select$4 pick$4 choos$4))	US-PGPUB; USPAT	OR	ON	2012/06/03 15:18
S173	83	S172 and @ad<"20021115"	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 15:18
S174	249	(area near5 distance near5 (measur$6 calculat$4 determin$9) near5 (imag$4 photo photograph$4)) near5 (coordinat$4 point$4)	US-PGPUB; USPAT	OR	ON	2012/06/03 15:28
S175	84	S174 and @ad<"20021115"	US-PGPUB;	OR	ON	2012/06/03 15:28

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			USPAT; EPO			
S176	53	((area near5 distance near5 (measur$6 calculat$4 determin$9) near5 (imag$4 photo photograph$4)) near5 (coordinat$4 point$4)) and (orthorectif$8 geo$8 earth terrain)	US-PGPUB; USPAT	OR	ON	2012/06/03 16:26
S177	9	S176 and @ad<"20021115"	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 16:27
S178	17	("3191170" | "4589610" | "4764781" | "4814711" | "5166789" | "5247356" | "5251037" | "5267042" | "5270756" | "5438404" | "5467271" | "5477459" | "5490075" | "5503350" | "5519620" | "5557397").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/06/03 16:32
S179	103	("3594556" | "3614410" | "3877799" | "4015080" | "4281354" | "4396942" | "4635136" | "4686474" | "4906198" | "5086314" | "5155597" | "5265173" | "5555018" | "5617224" | "5835133" | "6421610" | "7065260" | "4689748" | "3866602" | "4184711" | "4344683" | "4382678" | "4463380" | "4489322" | "4490742" | "4653136" | "4807024" | "4814711" | "4843463" | "4953227" | "5164825" | "5200793" | "5231435" | "5345086" | "5402170" | "5841574" | "5963664" | "6097854" | "7123382" | "7233691" | "7262790" | "4360876" | "4387056" | "4491399" | "5034812" | "5138444" | "5668593" | "5852753" | "6157747" | "3153784" | "3621326" | "3716669" | "3864513" | "4899296" | "5210586" | "5296884" | "6434280" | "6597818" | "6711475" | "7061650" | "7127348" | "3661061" | "4527055" | "4805033" | "4814896" | "5166789" | "5335072" | "5369443" | "4495500" | "4673988" | "4956872" | "5191174" | "5486948" | "5508736" | "6876763" | "2273876" | "3662061" | "3725563" | "4044879" | "4543603" | "4586138" | "4653316" | "4688092" | "5121222" | "5267042" | "5342999" | "5353055" | "5481479" | "6094215" | "5467271" | "4240108" | "4707698" | "5270756" | "5506644" | "5604534" | "5633946" | "5677515" | "5899945" | "6167300" | "6236886").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/06/03 16:43
S180	8	S179 and (area near5 (measur$6 calculat$4 determin$4) near5 (imag$4 photo photograph$4))	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 16:44
S181	2	"20120020571".pn.	US-PGPUB; USPAT; DERWENT	OR	ON	2012/06/03 16:55
S182	1	2004-402730.NRAN.	DERWENT	OR	ON	2012/06/03 16:55

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S183	78	Ciampa.in.	US-PGPUB; USPAT; DERWENT	OR	ON	2012/06/03 17:02
S184	47	Ciampa.in.	US-PGPUB; USPAT	OR	ON	2012/06/03 17:02
S185	170	((ground terrian earth geo$9) near5 imag$4 near5 area near5 (calculat$4 measur$6))	US-PGPUB; USPAT	OR	ON	2012/06/03 19:30
S186	45	S185 and @ad<"20021115"	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 19:30
S187	92	356/628.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 20:14
S188	51	S187 and @ad<"20021115"	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 20:14
S189	3	S187 and oblique	US-PGPUB; USPAT; EPO	OR	ON	2012/06/03 20:15
S191	1	"8233666".pn.	USPAT	OR	ON	2013/07/11 16:22
S192	1	"8068643".pn.	USPAT	OR	ON	2013/07/11 16:23
S193	1	"8204341".pn.	USPAT	OR	ON	2013/07/11 16:23
S194	1	"7995799".pn.	USPAT	OR	ON	2013/07/11 16:23
S195	1	"7787659".pn.	USPAT	OR	ON	2013/07/11 16:23
S196	1	"7424133".pn.	USPAT	OR	ON	2013/07/11 16:23
S197	6	S191 S192 S193 S194 S195 S196	USPAT	OR	ON	2013/07/11 16:24
S198	6	S191 S192 S193 S194 S195 S196	US-PGPUB; USPAT	OR	ON	2013/07/11 16:24
S199	9026	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2013/09/15 11:33
S200	7720	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2013/09/15 11:33
S201	4541	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2013/09/15 11:33
S202	20867	S199 S200 S201	US-PGPUB;	OR	ON	2013/09/15 11:33

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			USPAT; EPO			
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S204	20940	S202 S203	US-PGPUB; USPAT; EPO	OR	ON	2013/09/15 11:34
S205	300	S204 and @pd>"20130801"	US-PGPUB; USPAT; EPO	OR	ON	2013/09/15 11:34
S206	2	S205 and @ad<"20021109"	US-PGPUB; USPAT; EPO	OR	ON	2013/09/15 11:35
S208	1	"7424133".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/02 17:31
S209	1	"7787889".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/02 17:32
S210	1	"7995799".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/02 17:32
S211	1	"8204341".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/02 17:32
S212	1	"8068643".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/02 17:32
S213	5	S208 S209 S210 S211 S212	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/02 17:32
S214	1	"5894323".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/03 09:13
S215	9338	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2013/12/04 05:35
S216	7992	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2013/12/04 05:35
S217	4612	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2013/12/04 05:35

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S218	21514	S215 S216 S217	US-PGPUB; USPAT; EPO	OR	ON	2013/12/04 05:35
S219	0	G01C1102.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:13
S220	413	G01C11/02.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:14
S221	54	ciampa.in.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:35
S222	532	G06K9/0063.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:55
S223	0	G06K9/0037.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:55
S224	66	G06K9/00637.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:55
S225	43	G06K9/00651.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:56
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S227	530	G06K9/00664.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:56
S228	85	G06K9/00671.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:56
S229	61	G06K9/00704.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 08:56
S230	196	G06T2207/10032.cpc.	US-PGPUB; USPAT	OR	ON	2013/12/04 09:01
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S236	44	S235 and @ad<"20021109"	US-PGPUB;	OR	ON	2013/12/04 16:09

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S239	2	"7424133".pn.	US-PGPUB; USPAT; DERWENT	OR	ON	2013/12/08 11:57
S240	1	2004-402730.NRAN.	DERWENT	OR	ON	2013/12/08 11:57
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S245	4	S241 S242 S243 S244	US-PGPUB; USPAT	OR	ON	2013/12/08 12:09
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S247	1	"7787659".pn.	US-PGPUB; USPAT	OR	ON	2013/12/08 12:13
S248	1	"7995799".pn.	US-PGPUB; USPAT	OR	ON	2013/12/08 12:13
S249	1	"8204341".pn.	US-PGPUB; USPAT	OR	ON	2013/12/08 12:13
S250	1	"8068643".pn.	US-PGPUB; USPAT	OR	ON	2013/12/08 12:13
S251	1	"8233666".pn.	US-PGPUB; USPAT	OR	ON	2013/12/08 12:13
S252	6	S246 S247 S248 S249 S250 S251	US-PGPUB; USPAT	OR	ON	2013/12/08 12:14

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S106	3	(oblique same imag$4 same terrain same facet).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2010/04/20 16:24

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S134	5	(oblique same imag$4 same terrain same facet).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2011/03/02 15:28
S135	5	(oblique same imag$4 same terrain same point).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2011/03/02 15:29
S141	5	(oblique same imag$4 same terrain same point).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2011/03/31 13:06
S157	7	(oblique same imag$4 same terrain same point same start$4 same end$4).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2011/09/26 09:41
S190	3	(area same three same points same image same oblique).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2012/06/03 19:36
S207	2	(facet same oblique same image same height same elevation).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2013/09/15 11:38

12/9/2013 11:48:18 AM
C:\Users\acarter\Documents\EAST\Workspaces\13791032.wsp

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	Art Unit
	AARON W CARTER	2665

CPC- SEARCHED		
Symbol	Date	Examiner
G01C 11/02	12/9/13	awc
G06K 9/0063, 9/00664	12/9/13	awc
G06T 2207/10032	12/9/13	awc

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
382	106, 154, 284, 294	12/9/13	awc
348	113-118, 143-148	12/9/13	awc
356	3-3.09, 601-613	12/9/13	awc

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Text Search (PGPUB, USPAT, DERWENT), See Search History Printout	12/9/13	awc
Inventor Name Search	12/9/13	awc
Google Patent/Scholar/Inventor Search	12/9/13	awc

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/791,032	03/08/2013	Stephen L. Schultz	6338.213

CONFIRMATION NO. 9486

30589
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

PUBLICATION NOTICE

OC000000065982801

Title:METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

Publication No.US-2014-0009626-A1
Publication Date:01/09/2014

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

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Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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PTO/SB/26 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 6338.213

In re Application of: Stephen L. Schultz

Application No.: 13/791,032

Filed: 03/08/2013

For: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

The owner*, Pictometry International Corp., of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term **prior patent** No. 7,424,133, 7,787,659, 7,995,799 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 40,923

Marc Brockhaus — Signature

04/15/2014 — Date

Marc A. Brockhaus — Typed or printed name

405-607-8600 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Electronically Transmitted: 04/15/2014 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.:	13/791,032	Confirmation No.: 9486
First Named Inventor:	Stephen L. Schultz	
Filed:	03/08/2013	
Art Unit:	2668	
Examiner:	CARTER, AARON W.	
Title:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES	
Docket No.:	6338.213	
Customer No.:	30589	

Mail Box Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

The following is being submitted in response to the Office Action dated December 12, 2013:

Amendments to the Claims begin on page **2** of this paper.

Remarks/Arguments begin on page **12** of this paper.

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A system for capturing images and geo-location data corresponding thereto, comprising:

[[an]] a first image-capturing device, said first image-capturing device capturing oblique aerial images at image-capturing events, said first image-capturing device issuing first image-data signals corresponding to captured images;

a second image-capturing device, said second image-capturing device capturing images at image-capturing events, said second image capturing device issuing second image-data signals corresponding to captured images;

at least one geo-locating device, each said at least one geo-locating device issuing a corresponding at least one geo-locating signal, each said at least one geo-locating signal being indicative at least in part of a geo-location of said first image-capturing device during each first image capturing event;

a computer system receiving and storing said first and second image-data signals and said at least one geo-locating signal; [[and]]

the computer system executing image and data acquiring software reading said first and second image-data signals and said at least one geo-locating signal, said image and data acquiring software associating each said first or second image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event; and

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wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device to cause the first and second image-capturing devices to capture images, and wherein the computer system controls the first and second image-capturing devices separately.

2. (Currently Amended) The system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise at least one of:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event;

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said first or second image-capturing device at each said image-capturing event;

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said first or second image-capturing device at each said image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said first or second image-capturing device at each said image-capturing event;

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a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said first or second image-capturing device at each said image-capturing event; and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said first or second image-capturing device at each said image-capturing event.

3. (Currently Amended) The system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event;

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said first or second image-capturing devices at each said image-capturing event;

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said first or second image-capturing device at each said image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said first or second image-capturing device at each said image-capturing event;

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a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said first or second image-capturing device at each said image-capturing event; and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said first or second image-capturing device at each said image-capturing event.

4. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the first or second image-capturing device captures community level oblique aerial images.

5. (Cancelled).

6. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim [[5]] 1, wherein the second image-capturing device captures orthogonal images at image-capturing events.

7. (Cancelled).

8. (Cancelled).

9. (Cancelled).

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10. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim [[9]] 1, wherein the computer system transmits image capture signals to the first and second image capturing devices to capture images at different instants of time.

11. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim [[9]] 1, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different intervals.

12. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

an inertial navigation unit detecting changes in velocity of the first and second image-capturing ~~device~~ devices and transmitting one or more velocity signal indicative of velocity of the first and second image-capturing ~~device~~ devices to the computer system.

13. (Original) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

a clock measuring time and providing one or more time signal indicative of timing of events to the computer system.

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14. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

a gyroscope providing the computer system with one or more gyroscope signals indicative of pitch, roll, and yaw of the first and second image-capturing ~~device~~ devices.

15. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

a compass providing the computer system with one or more heading signals indicative of heading of the first and second image-capturing ~~device~~ devices.

16. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

an altimeter providing the computer system with one or more altitude signals indicative of altitude of the first and second image-capturing ~~device~~ devices.

17. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the geo-locating device comprises a GPS receiver receiving global positioning system signals and transmitting location signals, that are dependent at least in part upon the global positioning

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system signals and that are indicative of the location of the first and second image-capturing ~~device~~ devices, to the computer system.

18. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim [[5]] 1, further comprising a platform carrying the first and second image-capturing devices through a controlled flight.

19. (Original) The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the first and second image-capturing devices capture the oblique aerial images at predetermined image capture intervals, the predetermined image capture intervals dependent at least in part upon velocity of the platform.

20. (Original) The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device to cause the first and second image-capturing devices to capture images.

21. (Cancelled).

22. (Cancelled).

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23. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim [[22]] 18, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different instants of time.

24. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim [[22]] 18, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different intervals.

25. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 18, further comprising:

an inertial navigation unit detecting changes in velocity of the first and second image-capturing ~~device~~ devices and transmitting one or more velocity signal indicative of velocity of the first and second image-capturing ~~device~~ devices to the computer system.

26. (Original) The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the first and second image-capturing devices have different angles of declination.

27. (Original) The system for capturing images and geo-location data corresponding thereto of claim 18, further comprising a third image-capturing

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device, wherein the first and second image-capturing devices are capturing oblique aerial images and the third image-capturing device is capturing orthogonal aerial images.

28. (Original) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device and the third image-capturing device to cause the first, second, and third image-capturing devices to capture images.

29. (Cancelled).

30. (Original) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image capture signals to the first, second, and third image-capturing devices to capture images at different instants of time, wherein the image capture signals are common to the first, second, and third image-capturing devices.

31. (Original) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image capture signals to the first, second, and third image-capturing devices to capture images at different intervals.

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32. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 27, further comprising:

an inertial navigation unit detecting changes in velocity of the first, second, and third image-capturing devices ~~image-capturing device~~ and transmitting one or more velocity signal indicative of velocity of the first, second, and third image-capturing devices ~~image-capturing device~~ to the computer system.

33. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the first and second image-capturing devices ~~image-capturing devices~~ have characteristics for capturing the oblique aerial images.

34. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the first and second image-capturing devices capture community level oblique aerial images.

35. (Currently Amended) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the first and second image-capturing devices capture neighborhood level oblique aerial images.

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REMARKS

This is intended to be a complete response to the Office Action mailed December 12, 2013. In the Office Action, claims 1-8, 12-21, 25-28 and 32-35 were rejected, and claims 9-11, 22-24 and 29-31 were objected to. Claims 1-4, 6, 10-20, 23-28, and 30-35 remain pending in the application. Claims 5, 7-9, 21, 22, and 29 have been cancelled. Claims 1-4, 6, 10-12, 14-18, 23-25, and 32-35 have been amended.

First, Applicants would like to thank the Examiner for finding that claims 9-11, 22-24 and 29-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Independent claim 1 has been amended to include the limitations of claims 9, 7, and 5. Claims 2-4, 6, 10-20, 23-28 and 30-35 are dependent claims. Based on the preceding amendments and the following remarks, Applicants respectfully request the withdrawal of the objections and the issuance of a timely notice of allowance for all pending claims 1-4, 6, 10-20, 23-28, and 30-35.

Claim Amendments

Applicants respectfully submit that the amendments to claims 1-4, 6, 10-12, 14-18, 23-25, and 32-35 are simply to put the claims in condition for allowance in accordance with the Office Action. The amendments to claims 1-4, 6, 10-12, 14-18, 23-25, and 32-35 do not introduce any new matter. Therefore, no new matter is added by said amendments.

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Double Patenting Rejection

Claims 1 and 2 were rejected on the ground of nonstatutory double patenting as being unpatentable over claims 25 and 26 of U.S. Patent No. 7,424,133 and over claims 12 and 13 of U.S. Patent No. 7,787,659. Claim 1 was rejected on the ground of nonstatutory double patenting as being unpatentable over claim 13 of U.S. Patent No. 7,995,799. Applicants respectfully submit that the rejection is overcome in light of the amendments to independent claim 1 and claim 2 which depends therefrom.

Claim Rejections – 35 U.S.C. § 102

1. Claims 1, 2, 4 and 13-17 were rejected under pre-AIA 35 U.S.C. § 102(b) as being anticipated by WO 99/18732 to Ciampa. Applicants respectfully submit that the rejection is overcome in light of the amendments to claim 1, discussed above.

2. Claims 1, 2, 4-8, 13, 16-21, 26-28 and 33-35 were rejected under pre-AIA 35 U.S.C. § 102(e) as being anticipated by US 7,184,072 to Loewen et al. (hereinafter "Loewen"). Applicants respectfully submit that the rejection is overcome in light of the amendments to claim 1, discussed above.

Claim Rejections – 35 U.S.C. § 103

1. Claims 3 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 99/18732 to Ciampa in view of USPN 5,894,323 to Kain et al. ("Kain"). Applicants respectfully submit that the rejection is overcome in light of the amendments to claim 1, discussed above, from which claims 3 and 12 depend.

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2. Claims 25 and 32 were rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 7,184,072 to Loewen et al. ("Loewen") in view of USPN 5,894,323 to Kain et al. ("Kain"). Applicants respectfully submit that the rejection is overcome in light of the amendments to claim 1, discussed above, from which claims 25 and 32 depend.

Claim Objection

Claims 9-11, 22-24 and 29-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 1 has been amended to include the limitations of claims 5, 7 and 9. Because original dependent claims 9, 22 and 29 contained the same limitation, the incorporation of such limitation into amended claim 1 is believed to put claim 1 into a condition for allowance. In light of the amendments to claim 1, claims 5, 7, 9, 22 and 29 have been cancelled. Due to the amendments to claim 1 incorporating the limitations of claims 9, 22 and 29, reconsideration and withdrawal of the objection to claims 10-11, 23-24 and 30-31 is respectfully requested.

CONCLUSION

The foregoing is intended to be a complete response to the Office Action dated December 12, 2013. Applicants respectfully request reconsideration and withdrawal of the rejections and objections set forth in the Office Action and a timely notice of allowance for all of the pending claims. Should the Examiner

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have any questions or comments regarding the foregoing, or any other matter, the undersigned would welcome a telephonic interview with the Examiner.

Respectfully Submitted,



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Attorney for Applicants

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Page 00202

Electronic Patent Application Fee Transmittal

Application Number:	13791032
Filing Date:	08-Mar-2013
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Filer:	Marc Alan Brockhaus/Lori Radford
Attorney Docket Number:	6338.213

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 2 months with $0 paid	2252	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Statutory or Terminal Disclaimer	1814	1	160	160
		Total in USD ($)		**460**

Electronic Acknowledgement Receipt

EFS ID:	18771182
Application Number:	13791032
International Application Number:	
Confirmation Number:	9486
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Customer Number:	30589
Filer:	Marc Alan Brockhaus/Lori Radford
Filer Authorized By:	Marc Alan Brockhaus
Attorney Docket Number:	6338.213
Receipt Date:	15-APR-2014
Filing Date:	08-MAR-2013
Time Stamp:	17:26:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$460
RAM confirmation Number	4168
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Transmittal Letter	6338213_Transmittal04152014.pdf	64863 da0c52d1bf1668cc5b5e211791dd583d66be765d	no	1
Warnings:					
Information:					
2	Extension of Time	6338213_Extension04152014.pdf	61711 e5d3bf07bcdfc3bf98591d0deb8f3f3382ab3d80	no	1
Warnings:					
Information:					
3	Terminal Disclaimer Filed	6338213_TD.pdf	77082 a6ceb53e53df2f4da951ddce539635385a040eee	no	1
Warnings:					
Information:					
4		6338213_Response.pdf	453668 9ed04663048bb79cd0a4b2c85ea84e83171b36b4	yes	15

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	11
	Applicant Arguments/Remarks Made in an Amendment	12	15

Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	32471 99dfbf4b91c8d4e0b301aeebf3ec2010b8b0582c	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	689795		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket Number	6338.213

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☑ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☑ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☑ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):
  See Remarks

Remarks

ELECTRONICALLY TRANSMITTED:
1. SB21 Transmittal Form (1 pg);
2. SB22 Extension of Time (1 pg);
3. SB26 Terminal Disclaimer (1 pg); and
3. Response (15 pgs).

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DUNLAP CODDING, P.C.		
Signature	Marc Brockhaus		
Printed name	Marc A. Brockhaus		
Date	04/15/2014	Reg. No.	40,923

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Marc Brockhaus		
Typed or printed name	Marc A. Brockhaus	Date	04/15/2014

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/AIA/22 (03-13)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) 6338.213
Application Number 13/791,032	Filed 03/08/2013
For Stephen L. Schultz	
Art Unit 2665	Examiner Aaron W. Carter

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$200	$100	$50	$
☑	Two months (37 CFR 1.17(a)(2))	$600	$300	$150	$ 300.00
☐	Three months (37 CFR 1.17(a)(3))	$1,400	$700	$350	$
☐	Four months (37 CFR 1.17(a)(4))	$2,200	$1,100	$550	$
☐	Five months (37 CFR 1.17(a)(5))	$3,000	$1,500	$750	$

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☑ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number _____.

☑ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 40,923.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

Marc Brockhaus — Signature

04/15/2014 — Date

Marc A. Brockhaus — Typed or printed name

405-607-8600 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/791,032	Filing Date 03/08/2013	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	04/15/2014	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 28	Minus	** 35	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/NINA RATANAVONG/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/791,032	SCHULTZ ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 4/15/14	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

jean proctor

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NOTICE OF ALLOWANCE AND FEE(S) DUE

30589 7590 04/30/2014

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

EXAMINER	
CARTER, AARON W	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 04/30/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

TITLE OF INVENTION: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	07/30/2014

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 02/11)

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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Page 00212

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

30589 7590 04/30/2014
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

TITLE OF INVENTION: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	07/30/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
CARTER, AARON W	2665	382-106000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00213

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

30589 7590 04/30/2014

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

EXAMINER	
CARTER, AARON W	
ART UNIT	**PAPER NUMBER**
2665	

DATE MAILED: 04/30/2014

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/791,032	Applicant(s) SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *papers filed on 4/15/14*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-4,6,10-20,23-28 and 30-35*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☒ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

In response to applicant's amendment received on 4/15/14, all requested changes to the claims have been entered. Claims 1-35 were previously pending. Claims 5, 7-9, 21, 22 and 29 been cancelled. Claims 1-4, 6, 10-20, 23-28 and 30-35 are currently pending.

Terminal Disclaimer

The terminal disclaimer filed on 4/15/14 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration dates of USPN 7,424,133; USPN 7,787,659 and USPN 7,995,799 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

Claims 1-4, 6, 10-20, 23-28 and 30-35 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON W. CARTER whose telephone number is (571)272-7445. The examiner can normally be reached on 9am-5pm EST (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AARON W CARTER/
Primary Examiner, Art Unit 2665

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S266	6	S260 S261 S262 S263 S264 S265	US-PGPUB; USPAT	OR	ON	2014/04/23 12:42
S265	1	"8233666".pn.	US-PGPUB; USPAT	OR	ON	2014/04/23 12:42
S264	1	"8068643".pn.	US-PGPUB; USPAT	OR	ON	2014/04/23 12:42
S263	1	"8204341".pn.	US-PGPUB; USPAT	OR	ON	2014/04/23 12:42
S262	1	"7995799".pn.	US-PGPUB; USPAT	OR	ON	2014/04/23 12:42
S261	1	"7787659".pn.	US-PGPUB; USPAT	OR	ON	2014/04/23 12:42
S260	1	"7424133".pn.	US-PGPUB; USPAT	OR	ON	2014/04/23 12:42
S259	18	S258 and @pd>"20131201"	US-PGPUB; USPAT; EPO	OR	ON	2014/04/23 12:33
S258	241	((ground terrian earth geo$9) near5 imag$4 near5 area near5 (calculat$4 measur$6))	US-PGPUB; USPAT	OR	ON	2014/04/23 12:33
S257	1025	S256 and @pd>"20131201"	US-PGPUB; USPAT; EPO	OR	ON	2014/04/23 12:17
S256	22504	S253 S254 S255	US-PGPUB; USPAT; EPO	OR	ON	2014/04/23 12:13
S255	4730	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/04/23 12:13
S254	8454	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/04/23 12:13
S253	9765	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/04/23 12:13

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S267	1	(image same geo-location same oblique same aerial same event same software).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/04/23 12:49

4/25/2014 8:52:06 AM
C:\Users\acarter\Documents\EAST\Workspaces\13791032.wsp

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 9486

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/791,032	03/08/2013 RULE	382	2665	6338.213

APPLICANTS

Pictometry International Corp., Rochester, NY

INVENTORS

Stephen L. Schultz, West Henrietta, NY;
Frank D. Giuffrida, Honeoye Falls, NY;
Robert L. Gray, Canandiagua, NY;
Charles Mondello, Pittsford, NY;

**** CONTINUING DATA ***************************

This application is a DIV of 13/534,907 06/27/2012 PAT 8634594
which is a CON of 13/217,885 08/25/2011 PAT 8233666
which is a CON of 12/950,643 11/19/2010 PAT 8068643
which is a CON of 12/853,616 08/10/2010 PAT 7995799
which is a CON of 12/186,889 08/06/2008 PAT 7787659
which is a CON of 10/701,839 11/05/2003 PAT 7424133
which claims benefit of 60/425,275 11/08/2002

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
04/18/2013

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /AARON W CARTER/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		NY	10	35	1

ADDRESS

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113
UNITED STATES

TITLE

METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

FILING FEE RECEIVED		
1068	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	Art Unit
	AARON W CARTER	2665

CPC- SEARCHED		
Symbol	Date	Examiner
G01C 11/02	12/9/13	awc
G06K 9/0063, 9/00664	12/9/13	awc
G06T 2207/10032	12/9/13	awc

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
382	106, 154, 284, 294	12/9/13	awc
348	113-118, 143-148	12/9/13	awc
356	3-3.09, 601-613	12/9/13	awc
Updated Above		4/23/14	awc

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Text Search (PGPUB, USPAT, DERWENT), See Search History Printout	12/9/13	awc
Inventor Name Search	12/9/13	awc
Google Patent/Scholar/Inventor Search	12/9/13	awc
Interference Search History Printout	4/23/14	awc

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
PGPUB and UPAD Text Search		4/23/14	awc

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

CPC						
Symbol					**Type**	**Version**
H04N		5	/	235	F	2013-01-01
G01C		11	/	02	I	2013-01-01
G03B		37	/	02	I	2013-01-01
			/			
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CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 28	
/AARON W CARTER/ Primary Examiner.Art Unit 2665 (Primary Examiner)	04/23/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
382	106	G 0 6 K 9 / 00 (2006.01.01)	

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
382	284	294			
348	143				
356	3	601			

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 28	
/AARON W CARTER/ Primary Examiner.Art Unit 2665 (Primary Examiner)	04/23/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Page 00224

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	13	17	26	33										
2	2	14	18	27	34										
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8	12	22	28												
9	13		29												
10	14	23	30												
11	15	24	31												
12	16	25	32												

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 28	
/AARON W CARTER/ Primary Examiner.Art Unit 2665 (Primary Examiner)	04/23/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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PTO/SB/30 (07-09)
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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket Number	6338.213

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☐ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☑ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☐ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. _____.

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☑ Other Information Disclosure Statement Fee

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☑ Payment by credit card (Form PTO-2038 enclosed)

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	Marc Brockhaus	Date	07/11/2014
Name (Print/Type)	Marc A. Brockhaus	Registration No.	40,923

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

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This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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Electronically Transmitted: July 11, 2014 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	**:**	**13/791,032**
Applicant(s)	**:**	**Stephen L. Schultz**
Filed	**:**	**03/08/2013**
TC/Au	**:**	**2665**
Examiner	**:**	**Aaron W. Carter**
Title	**:**	**METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES**
Docket No.	**:**	**6338.213**
Customer No.	**:**	**30589**

MS Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

List of Sections Forming Part of This Information Disclosure Statement

The following sections are being submitted for this Information Disclosure Statement:

1. [X] Preliminary Statements
2. [X] Form PTO-1449 (Modified)
3. [X] Copies of Listed Information Items Accompanying this Statement
4. [ ] Concise Explanation of English Language Listed Information Items (Optional)
5. [X] Identification of Person(s) Making this Information Disclosure Statement

6338.213 IDS LTR.wpd

Section 1. Preliminary Statements

Applicants submit herewith patents, publications or other information of which they are aware, which they believe may be material to the examination of this application and in respect of which there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

Section 2. Form PTO-1449 (Modified)

[X] A completed Form PTO-1449 (Modified) is attached hereto.

[ ] No Form 1449 (Modified) is attached.

Section 3. Copies of Listed Information Items Accompanying this Statement

[X] As this application is being filed after June 30, 2003, no copies of cited U.S. patents or patent application publications are submitted herewith.

Section 4. Concise Explanation of English Language Listed Information Items (OPTIONAL)

Section 5. Identification of Person(s) Making this INFORMATION DISCLOSURE STATEMENT

The person making this statement is the attorney who signs below on the basis of the information:

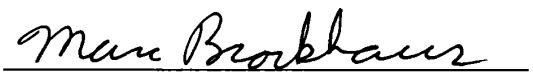
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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Page 00228

[ ] supplied by an individual associated with the filing and prosecution of this application (37 C.F.R. § 1.56(c)).

[X] in the attorney's file

Respectfully submitted,



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Page 00229

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

U. S. PATENT APPLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Patent Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Issue Date MM/DD/YYYY	
	1	8,078,396	Meadow	12/13/2011	
	2	7,509,241	Guo	03/24/2009	
	3	7,133,551	Chen	11/07/2006	
	4	7,728,833	Verma	06/01/2010	
	5	7,832,267	Woro	11/16/2010	
	6	7,844,499	Yahiro	11/30/2010	
	7	7,184,072	Loewen et al.	02/27/2007	

U. S. PATENT APPLICATION PUBLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Publication Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Publications Date MM/DD/YYYY	
	8	2009/0177458	Hochart et al.	07/09/2009	
	9	2009/0304227	Kennedy et al.	12/10/2009	
	10	2009/0208095	Zebedin	08/20/2009	
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Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

Examiner Signature: _____ Date Considered: _____

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FOREIGN PATENT DOCUMENTS

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	13	EP1010966	Aerowest GmbH	02/12/1999	

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EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	14	Aerowest Pricelist of Geodata as of October 21, 2005 and translations to English 3 pages.
	15	www.archive.org Web site showing archive of German AeroDach Web Site http://www.aerodach.de from June 13, 2004 (retrieved September 20, 2012) and translations to English 4 pages.
	16	"AeroDach®Online Roof Evaluation Standard Delivery Format and 3D Data File: Document Version 01.00.2002 with publication in 2002, 13 pages.

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Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
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Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	17	Noronha et al., "Detection and Modeling of Building from Multiple Aerial Images, " Institute for Robotics and Intelligent Systems, University of Southern California, November 27, 2001, 32 pages.
	18	Applicad Reports dated 11/25/1999 – 03/09/2005, 50 pages.
	19	Applicad Online Product Bulletin archive from 01/07/2003, 4 pages.
	20	Applicad Sorcerer Guide, Version 3, 09/08/1999, 142 pages.
	21	Xactimate Claims Estimating Software archive from 02/12/2010, 8 pages.
	22	BIGNONE et al, Automatic Extraction of Generic House Roofs from High Resolution Aerial Imagery, Communication Technology Laboratory, Swiss Federal Institute of Technology ETH, CH-8092 Zurich, Switzerland, 12 pages, 1996.
	23	Geospan 2007 Job proposal.
	24	GEOSPAN, Preliminary Prior Art Statement, February 14, 2014, U.S. District Court – District of Minnesota - Case No. 0: 13-cv-02359-ADM-JJK.
	25	PICTOMETRY INTERNATIONAL, CORP., EFS Version 2.3 User Guide, April 2, 2001.
	26	PICTOMETRY INTERNATIONAL, CORP., EFS Version 2.4 User Guide, 2002.
	27	Geospan Amended Prior Art Statement.

Examiner Signature:	Date Considered:

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

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IPR2024-00729
Page 00232

(19) Europäisches Patentamt
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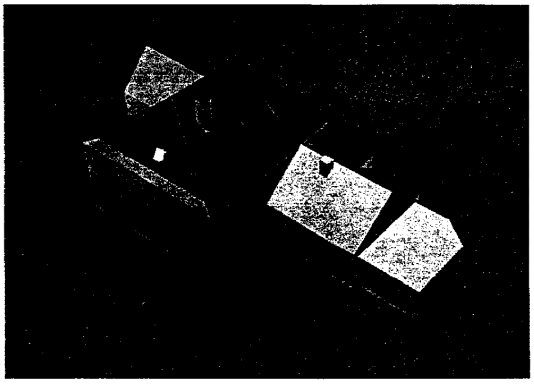
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(54) Verfahren zur Erzeugung einer drei-dimensionalen Objektbeschreibung

(57) Die vorliegende Erfindung bezieht sich auf ein Verfahren zur Erzeugung einer drei-dimensionalen Objektbeschreibung eines lokalisierten räumlichen Objekts anhand von stereoskopischen Luftbildpaaren. Um den erforderlichen Rechenaufwand zur Erzeugung von drei-dimensionalen Objektbeschreibungen zu verringern und die dabei erzeugte Gesamt-Datenmenge soweit zu reduzieren, daß eine nutzerfreundliche Datenübertragung über Datenleitungen relativ geringer Kapazität ermöglicht wird, schlägt die Erfindung vor, daß zunächst zwei-dimensionale Orthophoto-Daten berechnet werden, die mit externen Sachdaten verknüpft in einem Datennetz zur Verfügung gestellt werden. Nach Auswahl eines objektspezifischen Orthophoto-Hybriddatensatzes beim Kunden wird die objektspezifische drei-dimensionale Objektbeschreibung erzeugt und über Datenleitungen zum Kunden gesendet.

Fig.4



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Beschreibung

[0001] Die vorliegende Erfindung bezieht sich auf ein Verfahren zur Erzeugung einer drei-dimensionalen Objektbeschreibung eines lokalisierten räumlichen Objekts - insbesondere eines Gebäudes - aus stereoskopischen Luftbildpaaren, bei dem

- von den Luftbildpaaren zwei-dimensionale Bilddaten und stereoskopische Parameterdaten digitalisiert als drei-dimensionale Rohdaten in einer Datenverarbeitungsanlage gespeichert werden,
- aus den Rohdaten drei-dimensionale Objektdaten berechnet werden,
- den drei-dimensionalen Objektdaten externe objektspezifische Sachdaten zur Bildung einer drei-dimensionalen Objektbeschreibung zugeordnet werden.

[0002] Gegenstand dieser Meßverfahren ist die drei-dimensionale Beschreibung von auf der Erdoberfläche befindlichen, räumlichen Objekten, insbesondere von räumlich begrenzten Grundstücken und Bauwerken wie etwa Straßen, Wohn- und Industriebauten oder sonstigen Gebäuden, anhand von Luftbildern. Dadurch, daß von den Objekten jeweils stereoskopische Luftbildpaare, d. h. jeweils zwei Luftbilder in stereoskopischer Überdeckung, aufgenommen werden erhält man Sätze von zwei-dimensionalen, geometrischen Bilddaten sowie Parameterdaten, die hochgenaue Angaben über die relativen Aufnahmewinkel der Luftbildpaare, absolute Aufnahmekoordinaten und weitere Aufnahmeparameter enthalten. Diese Daten bilden die Rohdaten zur Berechnung realitätstreuer, orientierter Darstellungen der Erdoberfläche. Durch Einscannen der einzelnen Luftbilder in eine elektronische Datenverarbeitungsanlage erhält man digitale, zwei-dimensionale Bilddaten. Unter Berücksichtigung der stereoskopischen Parameterdaten werden daraus durch Aerotriangulation orientierte Luftbilder mit Höheninformation berechnet. Auf diese Weise werden aus den ursprünglich vorliegenden Rohdaten drei-dimensionale Objektdaten gewonnen, die eine drei-dimensionale Objektbeschreibung bilden.

[0003] Die drei-dimensionalen Objektdaten werden bislang in Datenverarbeitungsanlagen gespeichert und stehen für weitere Auswertungen zur Verfügung. Aus dem gesamten drei-dimensionalen Objektdatenbestand, der durch luftbildmäßige Erfassung einer Stadt oder eines Stadtteils anfällt, werden beispielsweise topographische Karten, Verkehrswegepläne, digitale Geländemodelle einschließlich drei-dimensionaler Präzisionspunktbestimmungen erstellt. Die erreichbare Meßgenauigkeit erlaubt es dabei ohne weiteres, Gebäude und Gebäudeteile zur Gewinnung von Eckdaten für bautechnische und architektonische Maßnahmen mit hinreichender Genauigkeit zu erfassen und darzustellen. Beispielsweise können zur Sanierung eines Hausdachs alle relevanten Angaben, wie Dachform, Dachfläche, Dachneigung einschließlich eventueller Besonderheiten hinreichend präzise ermittelt werden, so daß anhand dieser Angaben bereits die Erstellung eines Aufmaßes möglich ist.

[0004] Im Stand der Technik wird ein Verfahren der eingangs genannten Art zur Erfassung und Auswertung von Luftbilddaten in der DE 44 19 359 A1 beschrieben. Dieses sieht vor, daß anhand von Luftbildpaaren durch Anwendung der vorangehend erläuterten Verfahrensschritte drei-dimensionale Modelle der Erdoberfläche nebst orthophotografischer Projektionen davon erstellt werden. Darin wird weiterhin auf die bereits bekannte Möglichkeit hingewiesen, die aus den Luftbilddaten gewonnenen drei-dimensionalen Objektdaten mit externen objektspezifischen Sachdaten, beispielsweise vorhandenen Katasterlinien, zu verknüpfen.

[0005] Der vorangehend erläuterte Stand der Technik weist zwar bereits darauf hin, einen durchs luftbildgestützte Messungen ermittelten, drei-dimensionalen Objektdatenbestand mit externen Sachdaten zu kombinieren und potentiellen Nutzern auf Datenträgern gespeichert zur Verfügung zu stellen. Ein wesentlicher Nachteil dieses Verfahrens, welches in seiner Grundform im übrigen bereits seit langem in der Fotogrammetrie zur kartographischen Erfassung eingesetzt wird, liegt jedoch darin, daß außerordentlich umfangreiche Objektdatenbestände geschaffen werden, die im Hinblick auf den erforderlichen technischen Aufwand nicht unproblematisch sind. Der bei der Aufbereitung der gesamten Rohdaten anfallende Rechenaufwand zur Erzeugung eines vollständigen drei-dimensionalen Objekt-Datenbestands ist erheblich und erfordert entsprechend leistungsfähige Datenverarbeitungsanlagen. Die dabei erhaltenen Datenmengen lassen sich zwar grundsätzlich auf Datenträgern hoher Kapazität, etwa CD-ROMs, speichern. Eine Datenübertragung über zur Zeit verfügbare Datenleitungen mit üblicher Kapazität, beispielsweise Telefonleitungen, ist jedoch ausgesprochen langwierig und in der Praxis kaum umsetzbar. Schließlich ist die Erzeugung umfangreicher, strukturierter Datensätze unter datenschutzrechtlichen Gesichtspunkten unter Umständen bedenklich.

[0006] Der Erfindung liegt mithin die Aufgabenstellung zugrunde, den erforderlichen Rechenaufwand zur Erzeugung von drei-dimensionalen Objektbeschreibungen zu verringern und die dabei erzeugte Gesamt-Datenmenge so weit zu reduzieren, daß eine nutzerfreundliche Datenübertragung über Datenfernleitungen relativ geringer Kapazität ermöglicht wird. Insbesondere bezieht sich dies auf eine Handhabung von Luftbilddaten via Telefonleitungen im World-Wild-Web (Internet). Schließlich soll eine unter datenschutzrechtlichen Gesichtspunkten überschaubare Handhabung der Objektbeschreibungen möglich sein.

[0007] Zur Lösung der vorangehend dargestellten Aufgabe schlägt die Erfindung ausgehend von Stand

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der Technik ein Verfahren mit folgenden Verfahrensschritten vor:

- Berechnung von zwei-dimensionalen Orthophoto-Daten aus den drei-dimensionalen Rohdaten,
- Zuordnung externer objektspezifischer Sachdaten zu den zwei-dimensionalen Orthophoto-Daten zur Bildung objektspezifischer Orthophoto-Hybriddatensätze,
- Speicherung der Orthophoto-Hybriddatensätze auf einem Host-Rechner einer netzförmigen Datenverarbeitungsanlage, der über Datenübertragungsleitungen an Client-Rechnern angeschlossen ist,
- Übertragung der Orthophoto-Hybriddatensätze über die Datenübertragungsleitungen zu einem Client-Rechner,
- Auswahl eines objektspezifischen Orthophoto-Hybriddatensatzes beim Client-Rechner durch Eingabe der objektspezifischen Sachdaten,
- Übertragung der ausgewählten objektspezifischen Sachdaten über die Datenübertragungsleitungen zum Host-Rechner,
- Berechnung eines objektspezifischen drei-dimensionalen Objektdatensatzes aus den im dem Host-Rechner gespeicherten drei-dimensionalen Rohdaten, die dem ausgewählten objektspezifischen Orthophoto-Hybriddatensatz zugrunde liegen,
- Übertragung des drei-dimensionalen Objektdatensatzes mit den objektspezifischen Sachdaten als drei-dimensionale Objektbeschreibung über die Datenübertragungsleitungen zum Client-Rechner.

[0008] Ein besonderer Vorteil des erfindungsgemäßen Verfahrens resultiert daraus, daß nicht, wie bislang üblich, ein vollständiger drei-dimensionaler Objektdatenbestand erzeugt wird, sondern zunächst lediglich ein zwei-dimensionaler Orthophoto-Datenbestand, also eine flächentreue zwei-dimensionalen Projektion. Der datentechnische Aufwand bei der Erzeugung, Handhabung und Speicherung dieser zwei-dimensionalen Bilddaten ist deutlich geringer, als wenn die anfallenden Rohdaten unmittelbar und vollständig drei-dimensional aufbereitet würden.

[0009] Im nächsten Verfahrensschritt werden die Orthophoto-Daten durch Hinzuziehung externer Sachdaten strukturiert. Im Ergebnis werden dabei objektspezifische Orthophoto-Hybriddatensätze gebildet. Als Sachdaten kommen dabei beispielsweise Katasterdaten, Straßen- und/oder sonstige Gebäudedaten in Frage. Auf diese Weise wird beispielsweise eine eindeutige Verknüpfung einer Adressangabe mit Straßennamen und Hausnummer zu einem bestimmten Gebäude hergestellt. Die zwei-dimensionalen Orthophoto-Daten werden zusammen mit diesen externen Sachdaten in jeweils einem dem spezifischen Objekt zugeordneten Orthophoto-Hybriddatensatz gespeichert.

[0010] Die vorgenannten Orthophoto-Hybriddatensätze werden im folgenden Verfahrensschritt auf einem Host-Rechner, d. h. einem Server, abgespeichert. Dieser ist über Datenübertragungsleitungen in eine netzförmige Datenverarbeitungsanlage eingebunden. Dies kann sowohl ein lokales Netzwerk in einem Unternehmen sein, als auch ein dezentrales, ausgedehntes Netzwerk, wie beispielsweise die globale Struktur des Internets. An die Datenübertragungsleitungen sind eine Vielzahl von Client-Rechnern angeschlossen, die über die Datenübertragungsleitungen Zugriff auf die Datenbestände des oder der Host-Rechner haben.

[0011] Die Orthophoto-Hybriddatensätze werden im nächsten Schritt auf Anfrage zu einem beliebigen, an das Netzwerk angeschlossenen Client-Rechner übertragen. Die überschaubare Datenmenge der zwei-dimensionalen Bilddaten ermöglicht es, großflächige Luftbildausschnitte selbst über Datenfernleitungen mit begrenzter Übertragungskapazität zu übermitteln. Es ist beispielsweise denkbar, auf Anfrage die Bilddarstellung einer Ortschaft oder eines Stadtteils via Internet, d. h. per Telefonleitung zum Kunden zu übertragen.

[0012] Der nächste Verfahrensschritt bezieht sich auf die Auswahl eines objektspezifischen Orthophoto-Hybriddatensatzes beim Client-Rechner. Dabei kann der Anwender am Client-Rechner, d. h. der Kunde, beispielsweise über die Eingabe der Adresse, ein bestimmtes Gebäude auswählen. Ein besonderer Vorteil des erfindungsgemäßen Verfahrens liegt darin, daß nun nicht mehr - wie bisher - mühselig in einem Luftbild ein Gebäude identifiziert werden braucht, sondern zur Auswahl lediglich die objektspezifischen Sachdaten eingegeben werden, beispielsweise Straßenname und Hausnummer. Dies ist zur Anwahl eines objektspezifischen Orthophoto-Hybriddatensatzes vollkommen ausreichend.

[0013] Die in dem vorangehenden Verfahrensschritt ausgewählten objektspezifischen Sachdaten werden nunmehr über die Datenübertragungsleitung vom Client-Rechner zum Host-Rechner übertragen. Dort stehen die gesamten ursprünglichen drei-dimensionalen Rohdaten in gespeicherter Form zur Verfügung.

[0014] Anhand des vom Client-Rechner durch Eingabe der objektspezifischen Sachdaten gesendeten Auftrags werden nun im Host-Rechner zunächst die drei-dimensionalen Rohdaten identifiziert, die dem am Client-Rechner ausgewählten objektspezifischen Orthophoto-Hybriddatensatz zugrunde liegen. Dies sind die Luftbilddaten und die Parameterdaten, beispielsweise eines Gebäudes bzw. eines Hausdachs. Aus den drei-dimensionalen Rohdaten wird nun im Host-Rechner eine drei-dimensionale Modellrechnung

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für das ausgewählte Objekt durchgeführt. Im Ergebnis wird dabei ein drei-dimensionaler Objektdatensatz erzeugt, der zusammen mit den objektspezifischen Sachdaten eine vollständige drei-dimensionale Objektbeschreibung aus der Luftperspektive bildet. Konkret kann eine solche drei-dimensionale Objektbeschreibung beispielsweise genaue Angaben zur Form und Fläche eines Hausdachs enthalten, einschließlich Daten zur Dachneigung, Anordnung und Größe von Fenstern und Kaminen und dergleichen. Durch die eindeutige Kombination mit den Sachdaten, wie Straße und Hausnummer, ist ein einfacher und eindeutiger Zugriff gewährleistet.

[0015] Schließlich werden die auf diese Weise aufbereiteten Objektdaten einschließlich der dazugehörigen Sachdaten als drei-dimensionale Objektbeschreibung über die Datenübertragungsleitungen zum Client übermittelt. An dieser Stelle erfolgt zwar eine Übertragung drei-dimensionaler Daten über die Datenübertragungsleitung, die unter Umständen eine geringe Übertragungskapazität haben kann. Die tatsächlich gesendete Datenmenge ist jedoch insofern relativ gering, da die Beschreibung sich lediglich auf ein spezifisches Objekt bezieht. Der technische Aufwand ist mithin an dieser Stelle ebenfalls wesentlich geringer als im Stand der Technik.

[0016] Zweckmäßigerweise enthalten die externen Sachdaten die bereits erwähnten Straßen- bzw. Katasterdaten. Für einen gegebenen Anwendungsfall können jedoch im Prinzip beliebige externe Daten, die in irgendeiner Form mit dem jeweiligen Objekt in Verbindung stehen, den Sachdaten hinzugefügt werden. Beispielsweise sind für bestimmte landwirtschaftliche Nutzungen klimatische bzw. meteorologische Daten interessant, während für die Erschließung von Wohn- oder Feriengebieten lokale Imissionsdaten von Bedeutung sein können. Je nach Anwendung kann die Hinzufügung weiterer externer Sachdaten sinnvoll sein.

[0017] Auf dem Client-Rechner kann eine grafische und/oder alphanumerische Darstellung der Objektbeschreibung erfolgen. Zweckmäßigerweise geht die Aufbereitung der Meßdaten im Host-Rechner so weit, daß eine weitere Bearbeitung beim Client nicht erforderlich ist. Beispielsweise erhält der Kunde weitgehende Maßangaben bezüglich eines Hausdachs, welche die Material- und Kostenkalkulation zur Sanierung eines Dachs durch einen Dachdecker betreffen.

[0018] Durch das erfindungsgemäße Verfahren wird erstmals breiten Anwenderkreisen die Möglichkeit an die Hand gegeben, Luftbilddaten zur räumlichen Messung und Beschreibung spezifischer Objekte zu nutzen. Dies erfolgt auf der Grundlage, daß zunächst eine zwei-dimensionale Aufbereitung der durch die Messung zunächst gewonnenen Rohdaten erfolgt. Die dabei erhaltene, begrenzte Datenmenge ist, nach der Strukturierung durch Integration externer Sachdaten, optimal zur Handhabung in einer netzförmigen, dezentralen Datenverarbeitungsanlage, insbesondere mit Übertragungsleitungen geringer Übertragungskapazität, wie beispielsweise dem Internet, optimal geeignet.

[0019] Eine besonders vorteilhafte Anwendung findet das erfindungsgemäße Verfahren bei der Planung von Hausdachsanierungen. In diesem Fall bildet das Dach des Gebäudes das Objekt, für das in der erfindungsgemäßen Weise eine räumliche Objektbeschreibung erstellt wird. Zweckmäßigerweise enthalten die Sachdaten in diesem Fall Straßendaten bezüglich dieses Gebäudes, d. h. Straßennamen zzgl. Hausnummer. Selbstverständlich können darin auch Katasterdaten bzw. -koordinaten enthalten sein.

[0020] Dabei kann die Bestimmung der Dachform und/oder der Dachfläche im Host-Rechner durch teil- oder vollautomatisierte Bildanalyseverfahren erfolgen. Damit entfällt eine zeitaufwendige manuelle Bearbeitung.

[0021] Vorzugsweise werden die Orthophoto-Daten auf dem Client-Rechner grafisch dargestellt. Diese Darstellung ist besonders benutzerfreundlich, wenn zugleich die Sachdaten der Orthophoto-Hybriddatensätze grafisch dargestellt, d. h. in die Orthophoto-Daten eingeblendet werden. In der vorangehend vorgeschlagenen Anwendung ist es beispielsweise denkbar, den Umriß von Dachflächen, welche die Objekte bilden, grafisch zu markieren, beispielsweise farblich hervortreten zu lassen. Diese Darstellung ist besonders benutzerfreundlich.

[0022] Bei einer bevorzugten Weiterbildung der grafischen Darstellung der Orthophoto-Hybriddatensätze werden nicht nur die Orthophoto-Hybriddaten und die Sachdaten gemeinsam grafisch auf dem Client-Rechner dargestellt, sondern sie bilden darüber hinaus eine grafische Benutzeroberfläche, wobei jeweils spezifische Orthophoto-Hybriddatensätze interaktiv grafisch auswählbar sind. Dies ermöglicht eine Benutzerführung, wie sie von modernen grafischen Benutzeroberflächen her bekannt ist. Konkret wird interaktiv ein Markierung, wie etwa ein Mausanzeiger, mittels entsprechender Eingabevorrichtungen über die auf dem Bildschirm dargestellte Grafik bewegt und beispielsweise die gewünschte Dachfläche durch Anklicken markiert. Damit wird bereits ein Auftrag zur Anfertigung einer Objektbeschreibung erteilt.

[0023] Zweckmäßige Weiterbildungen des erfindungsgemäßen Verfahrens sehen vor, daß jeweils vor der Übertragung von Daten über die Datenübertragungsleitungen eine Datenkompression angewendet wird, um die zu übertragende Datenmenge zu reduzieren.

[0024] Vorzugsweise wird vor der Berechnung und Übertragung der objektspezifischen, drei-dimensionalen Objektdaten eine Sicherheitsabfrage installiert, um unautorisierten Zugriff zu unterbinden. Damit läßt sich überdies eine Dienstleistung zur Ausmessung von Hausdächern über ein öffentliches Datennetz anbieten und abrechnen. Datenschutztechnischen Belangen kann dabei ebenfalls umfassend Rechnung getragen

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werden.

[0025] Das erfindungsgemäße Verfahren wird im folgenden anhand der Zeichnungen näher erläutert. Hierzu zeigen im einzelnen:

Fig. 1: eine zwei-dimensionale Orthophoto-Darstellung von Gebäudedächern;

Fig. 2: einen grafisch aufbereiteten Orthophoto-Hybriddatensatz gemäß Fig. 1;

Fig. 3: eine graphische Darstellung einer Dachauswertung;

Fig. 4: eine räumliche Darstellung einer dreidimensionalen Objektbeschreibung des Gebäudes gemäß Fig. 3.

[0026] Fig. 1 zeigt die aus einem entsprechenden Luftbildpaar erzeugte, orthophotografische Darstellung einer Vielzahl von Hausdächern. Gemäß dem erfindungsgemäßen Verfahren ist dieses Bild in Form von zwei-dimensionalen Orthophoto-Daten in einem Host-Rechner gespeichert, der beispielsweise ans Internet angeschlossen ist.

[0027] Der dargestellte Bildausschnitt ist lediglich der Deutlichkeit halber gewählt. Am Client-Rechner, der über Datenleitungen an dem vorgenannten Host-Rechner angeschlossen ist, kann in dieser grafischen Darstellung beispielsweise die Abbildung einzelner Gebäude, einer Straße oder eines ganzen Stadtteils abgerufen werden.

[0028] Die Orthophoto-Daten sind nach externen Sachdaten, beispielsweise Straßenangaben zzgl. Hausnummern strukturiert. In Fig. 2 ist der in Fig. 1 grafisch dargestellte Orthophoto-Datensatz durch Hinzuziehung solcher externen Sachdaten zu einem Orthophoto-Hybriddatensatz aufbereitet. Beispielhaft ist dabei ein Straßenzug durch die helle Linie grafisch hervorgehoben. Zusätzlich ist ein einzelnes Gebäude durch einen Kreis grafisch markiert. Der Kunde, d. h. der Endanwender am Client-Rechner hat bei Gestaltung einer entsprechenden Benutzeroberfläche die Möglichkeit, durch interaktive grafische Dateneingabe beispielsweise das mit dem Kreis markierte Gebäude auszuwählen.

[0029] Nach Auswahl des Gebäudes wird über die Datenleitungen ein Auftrag an den Host-Rechner gesendet. Anhand der dort vorliegenden drei-dimensionalen Rohdaten wird eine stereoskopische Modellbeschreibung des Daches berechnet. Mittels Bildanalyseverfahren ist es dabei möglich, die zur Sanierung notwendigen Informationen zur Beschreibung des Dachs - Dachfläche, Dachform, Firstlinien, Trauflinien, Schornsteine, Fenster, Dachaufbauten - mit hinreichender Genauigkeit zu ermitteln.

[0030] Der Orthophoto-Hybriddatensatz kann weiterhin zu einer technischen Graphik mit Angabe von Maßen aufbereitet werden, wie in Fig. 3 dargestellt.

[0031] Die daraus errechnete drei-dimensionale Objektbeschreibung wird alternativ in einer flächigen, zwei-dimensionalen Graphik, wie in Fig. 3, und/oder in perspektivischer, räumlicher Darstellung, wie in Fig. 4, ausgegeben und zum Client-Rechner übermittelt. Zugleich werden die Sachdaten aufbereitet und alphanumerisch den übermittelten Bilddaten beigefügt. So wird beispielsweise die Dachfläche in m^2 angegeben, um einen ersten Eindruck über den Umfang einer notwendigen Dachsanierung zu geben.

[0032] Gegebenenfalls werden die zu übertragenden Daten komprimiert, um den Aufwand zu begrenzen. Zweckmäßigerweise sind Sicherheitsabfragen zwischengeschaltet, um unautorisierte Benutzung zu unterbinden und die Dienstleistung abrechnen zu können.

Patentansprüche

1. Verfahren zur Erzeugung einer dreidimensionalen Objektbeschreibung eines lokalisierten, räumlichen Objekts - insbesondere eines Gebäudes - aus stereoskopischen Luftbildpaaren, bei dem

   - von den Luftbildpaaren zwei-dimensionale Bilddaten und stereoskopische Parameterdaten digitalisiert als drei-dimensionale Rohdaten in einer Datenverarbeitungsanlage gespeichert werden,
   - aus den Rohdaten drei-dimensionale Objektdaten berechnet werden,
   - den drei-dimensionalen Objektdaten externe objektspezifische Sachdaten zur Bildung einer drei-dimensionalen Objektbeschreibung zugeordnet werden,

   gekennzeichnet durch die Verfahrensschritte:

   - Berechnung von zwei-dimensionalen Orthophoto-Daten aus den drei-dimensionalen Rohdaten,
   - Zuordnung externer objektspezifischer Sachdaten zu den zwei-dimensionalen Orthophoto-Daten zur Bildung objektspezifischer Orthophoto-Hybriddatensätze,
   - Speicherung der Orthophoto-Hybriddatensätze auf einem Host-Rechner einer netzförmigen Datenverarbeitungsanlage, der über Datenübertragungsleitungen an Client-Rechnern angeschlossen ist,
   - Übertragung der Orthophoto-Hybriddatensätze über die Datenübertragungsleitungen zu einem Client-Rechner,

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- Auswahl eines objektspezifischen Orthophoto-Hybriddatensatzes beim Client-Rechner durch Eingabe der objektspezifischen Sachdaten,
- Übertragung der ausgewählten objektspezifischen Sachdaten über die Datenübertragungsleitungen zum Host-Rechner,
- Berechnung eines objektspezifischen drei-dimensionalen Objektdatensatzes aus den im dem Host-Rechner gespeicherten drei-dimensionalen Rohdaten, die dem ausgewählten objektspezifischen Orthophoto-Hybriddatensatz zugrunde liegen,
- Übertragung des drei-dimensionalen Objektdatensatzes mit den objektspezifischen Sachdaten als drei-dimensionale Objektbeschreibung über die Datenübertragungsleitungen zum Client-Rechner.

2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß das Objekt das Dach eines Gebäudes ist.

3. Verfahren nach Anspruch 2, dadurch gekennzeichnet, daß die Sachdaten Straßendaten des Gebäudes enthalten.

4. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die Sachdaten Katasterdaten enthalten.

5. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die Orthophoto-Daten zumindest auf einem Client-Rechner grafisch dargestellt werden.

6. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die Sachdaten der Orthophoto-Hybriddatensätze grafisch dargestellt werden.

7. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die Orthophoto-Hybriddaten und die Sachdaten auf einem Client-Rechner gemeinsam in Form einer grafischen Benutzeroberfläche grafisch dargestellt werden, wobei ein spezifischer Orthophoto-Hybriddatensatz interaktiv grafisch auswählbar ist.

8. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß der Host-Rechner ein Internet-Server ist.

9. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß das Datennetz das World-Wide-Web (WWW = Internet) ist.

10. Verfahren nach Anspruch 2, dadurch gekennzeichnet, daß im Host-Rechner durch zumindest teilautomatisierte Bildanalyseverfahren die Bestimmung der Dachform und/oder der Dachfläche erfolgt.

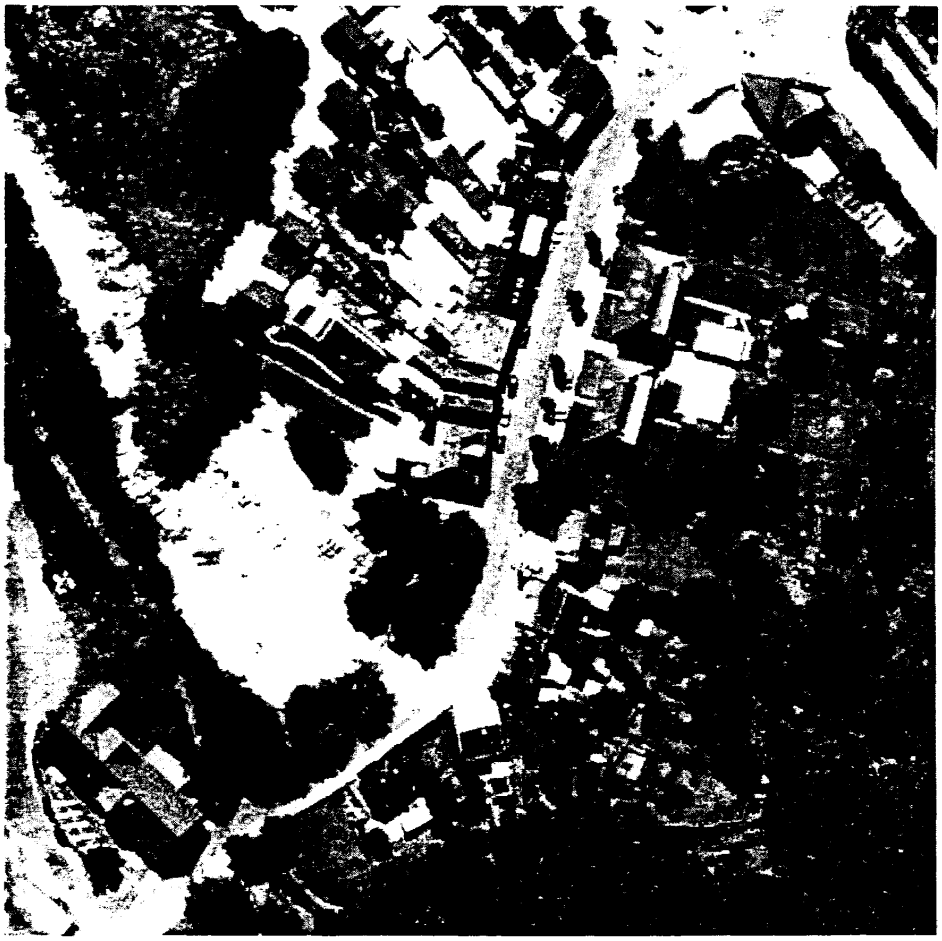
11. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß jeweils vor einer Übertragung von Daten über Datenübertragungsleitungen eine Datenkompression vorgenommen wird.

12. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß vor der Berechnung des objektspezifischen drei-dimensionalen Objektdatensatzes eine Sicherheitsabfrage vorgeschaltet wird.

13. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß dem objektspezifischen drei-dimensionalen Objektdatensatz weitere externe Sachdaten hinzugefügt werden.

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Fig.1



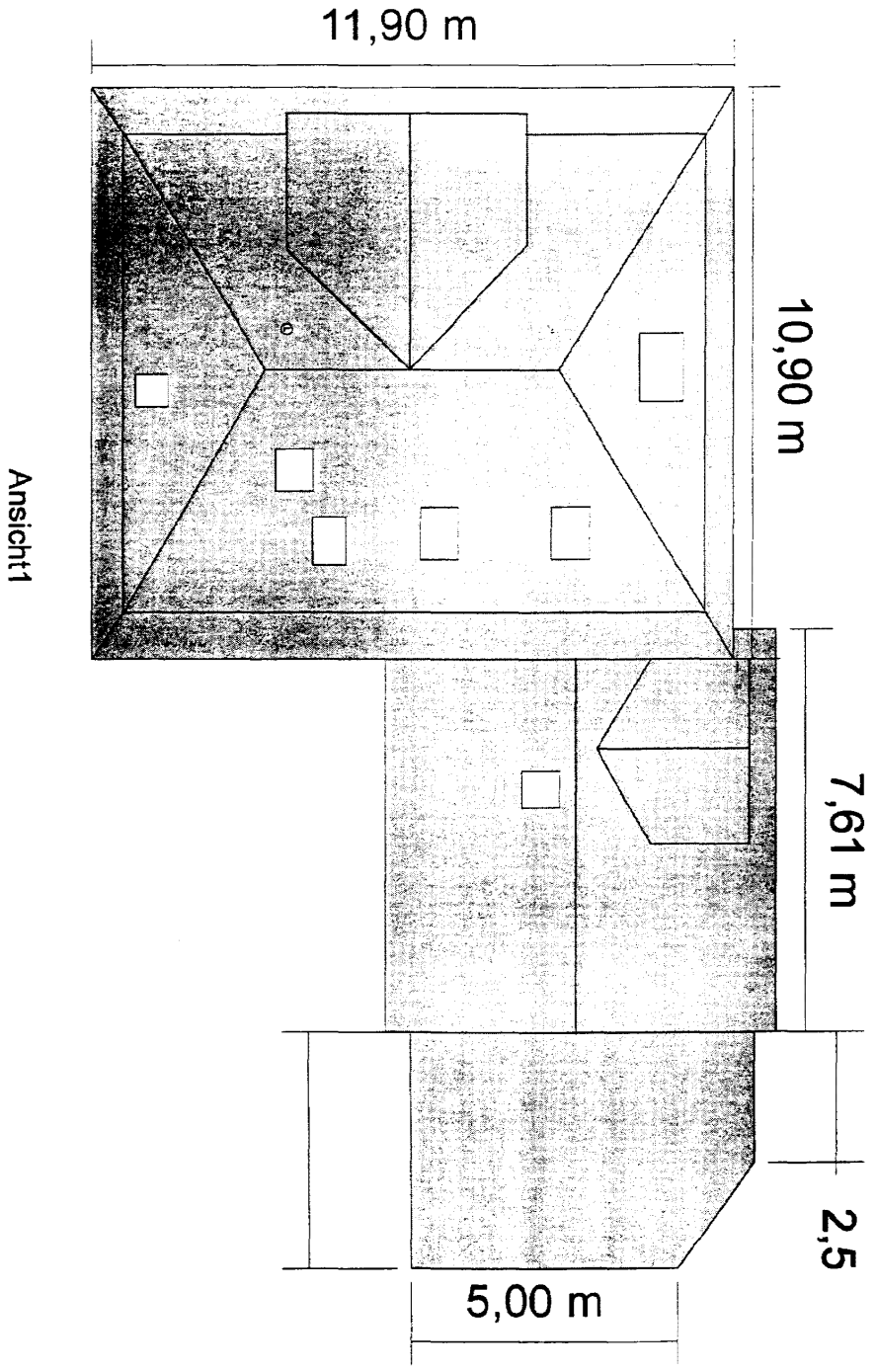
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Fig.2



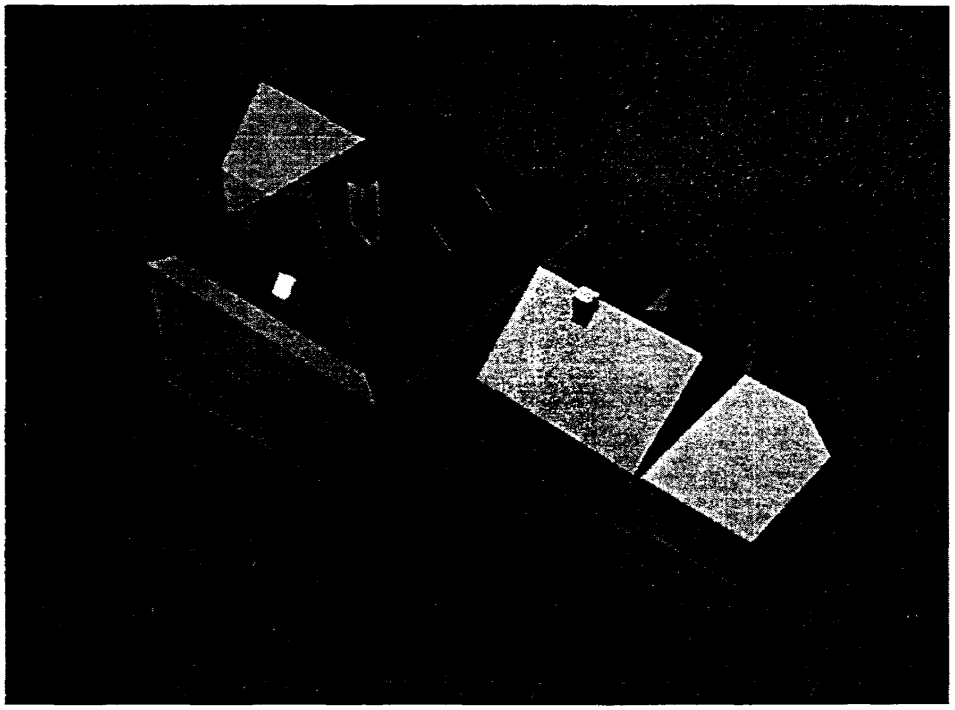
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Fig.3



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Fig.4



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Europäisches Patentamt

EUROPÄISCHER RECHERCHENBERICHT

Nummer der Anmeldung
EP 99 12 3877

EINSCHLÄGIGE DOKUMENTE

Kategorie	Kennzeichnung des Dokuments mit Angabe, soweit erforderlich, der maßgeblichen Teile	Betrifft Anspruch	KLASSIFIKATION DER ANMELDUNG (Int.Cl.7)
D,Y	DE 44 19 359 A (KIRCHNER WOLFRAM DIPL ING) 7. Dezember 1995 (1995-12-07) * das ganze Dokument *	1-13	G01C11/06
Y	DE 197 19 620 A (ANGERMANN CHRISTIAN) 12. November 1998 (1998-11-12) * das ganze Dokument *	1-13	

RECHERCHIERTE SACHGEBIETE (Int.Cl.7)

G01C

Der vorliegende Recherchenbericht wurde für alle Patentansprüche erstellt

Recherchenort	Abschlußdatum der Recherche	Prüfer
DEN HAAG	22. März 2000	Hoekstra, F

KATEGORIE DER GENANNTEN DOKUMENTE

X : von besonderer Bedeutung allein betrachtet
Y : von besonderer Bedeutung in Verbindung mit einer anderen Veröffentlichung derselben Kategorie
A : technologischer Hintergrund
O : nichtschriftliche Offenbarung
P : Zwischenliteratur

T : der Erfindung zugrunde liegende Theorien oder Grundsätze
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D : in der Anmeldung angeführtes Dokument
L : aus anderen Gründen angeführtes Dokument

& : Mitglied der gleichen Patentfamilie, übereinstimmendes Dokument

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ANHANG ZUM EUROPÄISCHEN RECHERCHENBERICHT ÜBER DIE EUROPÄISCHE PATENTANMELDUNG NR. EP 99 12 3877

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten europäischen Recherchenbericht angeführten Patentdokumente angegeben.
Die Angaben über die Familienmitglieder entsprechen dem Stand der Datei des Europäischen Patentamts am
Diese Angaben dienen nur zur Unterrichtung und erfolgen ohne Gewähr.

22-03-2000

Im Recherchenbericht angeführtes Patentdokument	Datum der Veröffentlichung	Mitglied(er) der Patentfamilie	Datum der Veröffentlichung
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Electronic Patent Application Fee Transmittal

Application Number:	13791032
Filing Date:	08-Mar-2013
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Filer:	Marc Alan Brockhaus/Lori Radford
Attorney Docket Number:	6338.213

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
Submission- Information Disclosure Stmt	2806	1	90	90
		Total in USD ($)		**690**

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EFS ID:	19553826
Application Number:	13791032
International Application Number:	
Confirmation Number:	9486
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First Named Inventor/Applicant Name:	Stephen L. Schultz
Customer Number:	30589
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Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Transmittal Letter	6338213_Transmittal07112014.pdf	69492 788a124b799d1e54099955cc9ac2effe666a015e	no	1
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	6338213_RCE.pdf	81521 33ee0b986ce25c9d424bea7a92a557fafb0f11b5	no	1
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3	Transmittal Letter	6338213_IDSltr.pdf	82233 46706dd61fcd285e49f614a4723f3e3a1ad71943	no	3
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4	Information Disclosure Statement (IDS) Form (SB08)	6338213_IDS.pdf	174735 8fbff9e345115809b205955da48e6809abf626e3	no	3
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5	Non Patent Literature	263.pdf	1011174 466d038252140777a394f7b68ee2b5db259e32e2	no	13
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6	Non Patent Literature	264.pdf	1808523 9561babe4c4934bf00484f8b243717c582b23665	no	32
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8	Non Patent Literature	266.pdf	279846 288d06a852620bde130735aca332da362d76725b	no	4
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9	Non Patent Literature	267.pdf	12202180 c7df8731736f217549b964f1eb7dc96fb01022fa	no	142
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10	Non Patent Literature	268.pdf	754269 893732bdd26aabc67c06bb7128bd170fceae1e55	no	8
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11	Non Patent Literature	269.pdf	403779 fcffc35197e83211a2fe3ee41645f759068c4c9e	no	12
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12	Non Patent Literature	270.pdf	4832618 015c1adcc940148a97de28365c65e998b6e0c50f	no	28
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13	Non Patent Literature	AutomaticExtractionofGenericHouseRoofs.pdf	1236874 f52989aa58d1aec8f278f6975bafcb135552084f	no	12
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14	Foreign Reference	EP1010966A1.pdf	875420 160188db57e94ebec7f3983842be873d51c6e7f9	no	12
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15	Non Patent Literature	Geospan2007jobproposal.pdf	3821935 142855636699b04a196faf8d7f39a646850a540e	no	28
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16	Non Patent Literature	PictometryUserGuideEFSv2_3Apr22001.pdf	8458203 e3b16daad7cf6d02aa05b2a3a0cb38d78e47a520	no	118
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17	Non Patent Literature	PictometryUserGuideEFSv2_4.pdf	8592647 f7db80d41865725a338dc799147699357fe3e5aa	no	114
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18	Non Patent Literature	GeospanAmendedPriorArtStatement.pdf	18182320 2a555a03969bbe9c72f2b638d066eed9daf2f82a	no	200
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19	Non Patent Literature	GeospanAmendedPriorArtStatement2.pdf	18887225 83df4373324e5ff0355a9fb5c341a235fe27e4b7	no	201
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20	Non Patent Literature	PictometryvGeospanFeb142014GeospansPreliminaryPriorArtStatement.pdf	10963124 ce827eb74f86bf2c1fcf22aae0a3b1b96ac241dc	no	108
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21	Fee Worksheet (SB06)	fee-info.pdf	32219 7cf81af899f875e838a2611f8a9f5c95fcef1caa	no	2
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<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket Number	6338.213

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☑ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
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- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):
  See Remarks

Remarks

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2. Request for Cont'd Exam (1 pg);
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DUNLAP CODDING, P.C.		
Signature	Marc Brockhaus		
Printed name	Marc A. Brockhaus		
Date	07/11/2014	Reg. No.	40,923

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I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Marc Brockhaus		
Typed or printed name	Marc A. Brockhaus	Date	07/11/2014

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

30589 7590 07/30/2014

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EXAMINER	
CARTER, AARON W	
ART UNIT	PAPER NUMBER
2665	

NOTIFICATION DATE	DELIVERY MODE
07/30/2014	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dsorocco@dunlapcodding.com

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00252

Office Action Summary	Application No. 13/791,032	Applicant(s) SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/11/14*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-4,6,10-20,23-28 and 30-35* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-4,6,10-20,23-28 and 30-35* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00253

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 7/11/14 has been entered. Claims 1-4, 6, 10-20, 23-28 and 30-35 are currently pending.

Allowable Subject Matter

The indicated allowability of claims 1-4, 6, 10-20, 23-28 and 30-35 is withdrawn in view of the newly discovered reference(s) to US 2003/0164962 to Nims et al. Rejections based on the newly cited reference(s) follow.

Information Disclosure Statement

The information disclosure statement filed 7/11/14 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that

portion which caused it to be listed. It has considered except where lined through. Copies not provided for NPL documents numbered 14 and 15.

Claim Rejections - 35 USC § 112(4th)

Claim 20 is rejected under 35 U.S.C. 112(d) or pre-AIA 35 U.S.C. 112, 4th paragraph, as being of improper dependent form for failing to further limit the subject matter of the claim upon which it depends, or for failing to include all the limitations of the claim upon which it depends. All the limitations of claim 20 are already found in claim 1 from which it depends. Applicant may cancel the claim(s), amend the claim(s) to place the claim(s) in proper dependent form, rewrite the claim(s) in independent form, or present a sufficient showing that the dependent claim(s) complies with the statutory requirements.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 6, 10, 11, 13, 16-20, 23, 24, 26-28, 30, 31 and 33-35 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over USPN 7,184,072 to Loewen et al. ("Loewen") (already of record) in view of US 2003/0164962 to Nims et al. ("Nims").

As to claim 1, Loewen discloses a system for capturing images and geo-location data corresponding thereto, comprising:

A first image-capturing device (***Fig. 8, element 34, 36, 38 or 40***), said image-capturing device capturing oblique aerial images at image-capturing events (***column 7, line 62 – column 8, line 7***), said first image-capturing device issuing first image-data signals corresponding to captured images (***column 5, line 62 – column 6, line 58***);

a second image-capturing device, said second image-capturing device capturing images at image-capturing events, said second image capturing device issuing image-data signals corresponding to captured images (***Fig. 8, element 34, 36, 38 or 40***).

at least one geo-locating device, each said at least one geo-locating device issuing a corresponding at least one geo-locating signal, each said at least one geo-locating signal being indicative at least in part of a geo-location of said first image-capturing device during each first image capturing event (***column 7, lines 13-55***);

a computer system receiving and storing said first and second image-data signals and said at least one geo-locating signal (***column 6, lines 11-15, 45-51 and column 7, lines 13-31***);

the computer system executing image and data acquiring software reading said first and second image-data signals and said at least one geo-locating signal, said image and data acquiring software associating each said first or second image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event (***column 8, line 35 – column 9, line 31***); and

wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device to cause the first and second image-capturing devices to capture images (***column 7, lines 13-20***).

Loewen does not disclose expressly wherein the computer system controls the first and second image capturing devices separately.

Nims discloses a system for capturing images comprising:

A first image-capturing device (***Fig. 2, element 16 or 20***), said image-capturing device capturing oblique aerial images at image-capturing events (***paragraphs 33 and 39***), said first image-capturing device issuing first image-data signals corresponding to captured images (***paragraphs 33 and 39***);

a second image-capturing device, said second image-capturing device capturing images at image-capturing events, said second image capturing device issuing image-data signals corresponding to captured images (***Fig. 2, element 16, 18 or 20 and paragraphs 33 and 39***).

a computer system receiving and storing said first and second image-data (***paragraphs 40 and 41***); and

wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device to cause the first and second image-capturing devices to capture images and wherein the computer system controls the first and second image capturing devices separately (***paragraphs 36-39, wherein first and second cameras are separately controlled in order to capture images when the cameras are determined to be at different positions represented by 12a, 12b or 12c***).

Loewen & Nims are combinable because they are from the same art of aerial imaging.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the multiple camera setup and the technique of controlling first and second image-capturing devices separately, as taught by Nims, in to the system for capturing images and geo-location data disclosed by Loewen.

The suggestion/motivation for doing so would have been to provide stereoscopic views of a ground area of interest (***Nims, paragraphs 5-12***).

Further, Nims' known technique of multiple camera setup and controlling first and second image-capturing devices separately to provide stereoscopic views would have been recognized by one skilled in the art as applicable to the "base" process of Loewen and the results would have been predictable.

Therefore, it would have been obvious to combine Loewen with Nims to obtain the invention as specified in claim 1.

As to claim 2, the combination of Loewen and Nims discloses, the system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise at least one of:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event (***Loewen, column 6, lines 11-15, column 8, lines 54-64 and column 9, lines 14-31***);

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of

said first or second image-capturing device at each said image-capturing event (***Loewen, column 7, lines 13-55 and column 9, lines 14-31***);

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said first or second image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said first or second image-capturing device at each said image-capturing event;

a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said first or second image-capturing device at each said image-capturing event; and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said first or second image-capturing device at each said image-capturing event (***Loewen, column 8, lines 15-34***).

As to claim 4, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 1, where the first or second image-capturing device captures community level oblique aerial images (***Loewen, Fig. 3 and Nims, Fig. 2, elements 16 and 20, and Fig. 4***).

As to claim 6, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 1, wherein the second image-

capturing device captures orthogonal images at image-capturing events (***Loewen, column 7, line 62 – column 8, line 14 or Nims, Fig. 2, element 18 and paragraphs 33, 39***).

As to claim 10, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 1, wherein the computer system transmits image capture signals to the first and second image capturing devices to capture images at different instants of time (***Nims, paragraphs 36-39, wherein first and second cameras are separately controlled in order to capture images when the cameras are at different positions 12a, 12b or 12c, corresponding to different instants of time***).

As to claim 11, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 1, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different intervals (***Nims, paragraphs 36-39, wherein first and second cameras are separately controlled in order to capture images when the cameras are at different positions 12a, 12b or 12c, corresponding to different intervals***).

As to claim 13, please refer to the rejection of claim 2 above.

As to claim 16, please refer to the rejection of claim 2 above.

As to claim 17, please refer to the rejection of claim 2 above.

As to claim 18, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 1, further comprising a platform carrying the first and second image-capturing devices through a controlled flight (***Loewen, Fig. 2 and column 5, lines 42-54***).

As to claim 19, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding hereto of claim 18, wherein the first and second image-capturing devices capture the oblique aerial images at predetermined image capture intervals, the predetermined image capture intervals dependent at least in part upon velocity of the platform (***Loewen, column 7, line 62 – column 8, line 14 and column 9, lines 14-31 and Nims, Fig. 2, paragraphs 33 and 39***).

As to claim 20, please refer to the rejection of claim 1 above.

As to claim 23, please refer to the rejection of claim 10 above.

As to claim 24, please refer to the rejection of claim 11 above.

As to claim 26, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 18, wherein the first and second image-capturing devices have different angles of declination (***Loewen, column 7, line 62 – column 8, line 14 and Nims, Fig. 2, paragraphs 33 and 39***).

As to claim 27, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 18, further comprising a third image-capturing device, wherein the first and second image-capturing devices are capturing oblique aerial images and the third image-capturing device is capturing orthogonal aerial images (***Loewen, Fig. 8, element 34, 36, 38 and 40, Fig. 5 and 6, and column 7, line 62 – column 8, line 14 and Nims, Fig. 2, elements 16, 18 and 20, paragraphs 33 and 39***).

As to claim 28, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device and the third image-capturing device to cause the first, second, and third image-capturing devices to capture images (***Loewen, column 6, lines 3-30 and column 7, lines 13-20 and Nims, Fig. 2, paragraphs 36-39***).

As to claim 30, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image capture signals to the first, second, and third image-capturing devices to capture images at different instants of time, wherein the image capture signals are common to the first, second, and third image-capturing devices (***Nims, paragraphs 36-39, wherein first, second and third cameras are separately controlled in order to capture images when the cameras are at different positions 12a, 12b and 12c, corresponding to different instants of time***).

As to claim 31, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image capture signals to the first, second, and third image-capturing devices to capture images at different intervals (***Nims, paragraphs 36-39, wherein first, second and third cameras are separately controlled in order to capture images when the cameras are at different positions 12a, 12b and 12c, corresponding to different instants of time***).

As to claim 33, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the first and second image-capturing devices have characteristics for capturing the oblique aerial images (***Loewen, column 7, line 62 – column 8, line 14 and Nims, Fig. 2, elements 16, 18 and 20, paragraphs 33 and 39***).

As to claim 34, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the first and second image-capturing devices capture community level oblique aerial images (***Loewen, Fig. 3 and column 7, line 62 – column 8, line 14***).

As to claim 35, the combination of Loewen and Nims discloses the system for capturing images and geo-location data corresponding thereto of claim 27, wherein the image-capturing devices capture neighborhood level oblique aerial images (***Loewen, Fig. 3 and column 7, line 62 – column 8, line 14***).

Claims 3, 12, 14, 15, 25 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 7,184,072 to Loewen et al. ("Loewen") (already of record) in view of US 2003/0164962 to Nims et al. ("Nims") (of record above) and in further view of WO 99/18732 to Ciampa (already of record) and USPN 5,894,323 to Kain et al. ("Kain") (already of record).

As to claim 3, the combination of Loewen and Nims discloses the system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event (***Loewen, column 6, lines 11-15, column 8, lines 54-64 and column 9, lines 14-31***);

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said first or second image-capturing devices at each said image-capturing event (***Loewen, column 7, lines 13-55 and column 9, lines 14-31***);

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said first or second image-capturing devices at each said image-capturing event (***Loewen, column 8, lines 15-34***).

The combination of Loewen and Nims does not disclose expressly wherein said at least one geo-locating device and said at least one geo-locating signal comprising:

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said first or second image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said first or second image-capturing device at each said image-capturing event; and

a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said first or second image-capturing device at each said image-capturing event.

Ciampa discloses a system for capturing images and geo-location data corresponding thereto, comprising:

an image-capturing device (***Fig. 1, element 11***), said image-capturing device capturing oblique aerial images at image-capturing events (***page 1, lines 4-10***), said image-capturing device issuing image-data signals corresponding to captured images (***Fig. 2, elements 101 and 102***);

at least one geo-locating device (***Fig. 1, elements 15a, 15b, 12, 14 and 16***), each said at least one geo-locating device issuing a corresponding at least one geo-locating signal (***Fig. 2, element 103***), each said at least one geo-locating signal being indicative at least in part of a geo-location of said image-capturing device during each image capturing event (***page 8, lines 9-24***);

a computer system receiving and storing said image-data signals and said at least one geo-locating signal (***Fig. 1, element 28 and page 7, lines 23-28***); and

the computer system executing image and data acquiring software reading said image-data signals and said at least one geo-locating signal, said image and data acquiring software associating each said image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event (***page 8, line 25 – page 9, line 13 and Fig. 2, element 105***),

wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event (***Fig. 1, page 5, line 13, page 7, lines 17-28, page 9, lines 6-8***);

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said first and second image-capturing devices at each said image-capturing event (***Fig. 1, elements 15a, 15b and page 7, line 17 – page 8, line 8 and lines 14-16***);

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said first and second image-capturing devices at each said image-capturing event (***Fig. 1, element 12 and page 8, lines 16-17, wherein inclinometer corresponds to gyroscope***);

a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said first and second image-capturing devices at each said image-capturing event (***Fig. 1, element 14 and page 8, lines 13-14***); and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said first and second image-capturing devices at each said image-capturing event (***Fig. 1, element 16 and page 8, lines 17-18***).

Kain discloses an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event (***column 2, lines 53-60, wherein the IMU corresponds to the INU and detecting acceleration correspond to detecting changes in velocity which corresponds to velocity data signals indicative of a velocity***).

Loewen, Nims, Kain & Ciampa are combinable because they are from the same art of capturing images and geo-locating data.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the use of a gyroscope and compass for generating geo-locating data, as taught by Ciampa, and to use an INU for providing velocity data signals, as taught by Kain, in to the system for capturing images and geo-location data disclosed by the combination of Loewen and Nims.

The suggestion/motivation for doing so would have been to provide a process of obtaining precisely located, oblique, digitized land images, taking in to account diverse topography and varying camera angles, including changes in heading, roll and yaw (***Ciampa, page 1, lines 4-10***), and to use the velocity data in determining geographic data (***Kain, column 2, lines 53-60***)

Therefore, it would have been obvious to combine Ciampa and Kain with Loewen and Nims to obtain the invention as specified in claim 3.

As to claim 12, please refer to the rejection of claim 3 above.

As to claim 14, please refer to the rejection of claim 3 above.

As to claim 15, please refer to the rejection of claim 3 above.

As to claim 25, please refer to the rejection of claim 3 above.

As to claim 32, please refer to the rejection of claim 3 above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON W. CARTER whose telephone number is (571)272-7445. The examiner can normally be reached on 9am-5pm EST (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AARON W CARTER/
Primary Examiner, Art Unit 2665

Notice of References Cited	Application/Control No. 13/791,032	Applicant(s)/Patent Under Reexamination SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0164962	09-2003	Nims et al.	358/1.9
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S291	1	S289 and ((individual$4 separate$5) near3 (control$6 trigger$4) near3 (camera ccd))	US-PGPUB; USPAT	OR	ON	2014/07/22 12:38
S290	82	S289 and ((plural$6 multi$5 second first) near3 (camera ccd))	US-PGPUB; USPAT	OR	ON	2014/07/22 12:25
S289	462	S287 and @ad<"20021109"	US-PGPUB; USPAT	OR	ON	2014/07/22 12:24
S288	605	S287 and @ad<"20021109"	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 12:24
S287	1575	((aerial$4 oblique airplane) near5 (imag$4 photo photograph$4 picture)).ab.	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 12:23
S286	858	S285 and @pd>"20140401"	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 12:22
S285	23209	S282 S283 S284	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 12:22
S284	4822	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 12:22
S283	8773	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 12:22
S282	10069	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 12:22
S281	12	S277 S278 S279 S280	US-PGPUB; USPAT; USOCR	OR	ON	2014/07/22 10:19
S280	1	"20100296693".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2014/07/22 10:19
S279	1	"20110033110".pn.	US-PGPUB; USPAT;	OR	ON	2014/07/22 10:19

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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			USOCR			
S278	3	US-20090177458-$.DID. OR US-20090304227-$.DID. OR US-20090208095-$.DID.	US-PGPUB; USPAT; USOCR	OR	ON	2014/07/22 10:18
S277	7	S273 S274	US-PGPUB; USPAT	OR	ON	2014/07/22 10:18
S276	6	S274 S275	US-PGPUB; USPAT	OR	ON	2014/07/22 10:18
S275	1	"7728833".PN.	US-PGPUB; USPAT	OR	ON	2014/07/22 10:18
S274	6	US-8078396-$.DID. OR US-7133551-$.DID. OR US-7728833-$.DID. OR US-7832267-$.DID. OR US-7844499-$.DID. OR US-7184072-$.DID.	US-PGPUB; USPAT; USOCR	OR	ON	2014/07/22 10:17
S273	6	("7133551" | "7184072" | "7509241" | "7832267" | "7844499" | "8078396").PN.	US-PGPUB; USPAT	OR	ON	2014/07/22 10:16
S272	858	S271 and @pd>"20140401"	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 10:14
S271	23209	S268 S269 S270	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 10:14
S270	4822	356/3-3.09,601-613.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 10:14
S269	8773	348/113-118,143-148.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 10:14
S268	10069	382/106,154,284,294.ccls.	US-PGPUB; USPAT; EPO	OR	ON	2014/07/22 10:14

EAST Search History (Interference)

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	Art Unit
	AARON W CARTER	2665

CPC- SEARCHED		
Symbol	Date	Examiner
G01C 11/02	12/9/13	awc
G06K 9/0063, 9/00664	12/9/13	awc
G06T 2207/10032	12/9/13	awc

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
382	106, 154, 284, 294	12/9/13	awc
348	113-118, 143-148	12/9/13	awc
356	3-3.09, 601-613	12/9/13	awc
Updated Above		4/23/14	awc
Updated Above		7/23/14	awc

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Text Search (PGPUB, USPAT, DERWENT), See Search History Printout	12/9/13	awc
Inventor Name Search	12/9/13	awc
Google Patent/Scholar/Inventor Search	12/9/13	awc
Interference Search History Printout	4/23/14	awc
Updated EAST Text Search, See Search History Printout	7/23/14	awc
Updated Inventor Name Search	7/23/14	awc

INTERFERENCE SEARCH

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US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
PGPUB and UPAD Text Search		4/23/14	awc

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Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

U. S. PATENT APPLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Patent Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Issue Date MM/DD/YYYY	
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.C./

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

Examiner Signature: /Aaron Carter/ Date Considered: 07/22/2014

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [2] Enter Office that issued the document, by the two-letter code (WIPO Standard St.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St. 16 if possible. [5] Applicant is to place a check mark here if English language Translation is attached.

FOREIGN PATENT DOCUMENTS

EXAM INIT.	Cite No. [1]	Foreign Document No.[3] Country Code[2]- Kind Code[4] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYY	T[5]
	13	EP1010966	Aerowest GmbH	02/12/1999	

Examiner Signature: /Aaron Carter/ Date Considered: 07/22/2014

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EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	14	~~Aerowest Pricelist of Geodata as of October 21, 2005 and translations~~ to English 3 pages.
	15	www.archive.org Web site showing archive of German AeroDach Web ~~Site http://www.aerodach.de from June 13, 2004~~ (retrieved September 20, 2012) and translations to English 4 pages.
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.C./

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	17	Noronha et al., "Detection and Modeling of Building from Multiple Aerial Images, " Institute for Robotics and Intelligent Systems, University of Southern California, November 27, 2001, 32 pages.
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	25	PICTOMETRY INTERNATIONAL, CORP., EFS Version 2.3 User Guide, April 2, 2001.
	26	PICTOMETRY INTERNATIONAL, CORP., EFS Version 2.4 User Guide, 2002.
	27	Geospan Amended Prior Art Statement.

Examiner Signature: /Aaron Carter/ Date Considered: 07/22/2014

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Electronically Transmitted: 01/29/2015 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.:	13/791,032	Confirmation No.: 9486
First Named Inventor:	Stephen L. Schultz	
Filed:	03/08/2013	
Art Unit:	2665	
Examiner:	CARTER, AARON W.	
Title:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES	
Docket No.:	6338.213	
Customer No.:	30589	

Mail Box Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

The following is being submitted in response to the Office Action dated July 30, 2014:

Amendments to the Claims as shown in the Listing of Claims begin on page **2** of this paper.

Remarks/Arguments begin on page **12** of this paper.

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (Previously Presented) A system for capturing images and geo-location data corresponding thereto, comprising:

a first image-capturing device, said first image-capturing device capturing oblique aerial images at image-capturing events, said first image-capturing device issuing first image-data signals corresponding to captured images;

a second image-capturing device, said second image-capturing device capturing images at image-capturing events, said second image capturing device issuing second image-data signals corresponding to captured images;

at least one geo-locating device, each said at least one geo-locating device issuing a corresponding at least one geo-locating signal, each said at least one geo-locating signal being indicative at least in part of a geo-location of said first image-capturing device during each first image capturing event;

a computer system receiving and storing said first and second image-data signals and said at least one geo-locating signal;

the computer system executing image and data acquiring software reading said first and second image-data signals and said at least one geo-locating signal, said image and data acquiring software associating each said first or second image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event; and

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wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-capturing device to cause the first and second image-capturing devices to capture images, and wherein the computer system controls the first and second image-capturing devices separately.

2. (Previously Presented) The system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise at least one of:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event;

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said first or second image-capturing device at each said image-capturing event;

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said first or second image-capturing device at each said image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said first or second image-capturing device at each said image-capturing event;

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a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said first or second image-capturing device at each said image-capturing event; and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said first or second image-capturing device at each said image-capturing event.

3. (Previously Presented) The system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise:

a clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event;

a global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of a longitude and latitude of said first or second image-capturing devices at each said image-capturing event;

an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said first or second image-capturing device at each said image-capturing event;

a gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and a yaw signal respectively indicative of a pitch, roll and yaw of said first or second image-capturing device at each said image-capturing event;

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a compass issuing to said image-capturing computer system heading data signals indicative of a heading of said first or second image-capturing device at each said image-capturing event; and

an altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said first or second image-capturing device at each said image-capturing event.

4. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the first or second image-capturing device captures community level oblique aerial images.

5. (Cancelled).

6. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the second image-capturing device captures orthogonal images at image-capturing events.

7. (Cancelled).

8. (Cancelled).

9. (Cancelled).

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10. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the computer system transmits image capture signals to the first and second image capturing devices to capture images at different instants of time.

11. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different intervals.

12. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

an inertial navigation unit detecting changes in velocity of the first and second image-capturing devices and transmitting one or more velocity signal indicative of velocity of the first and second image-capturing devices to the computer system.

13. (Original) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

a clock measuring time and providing one or more time signal indicative of timing of events to the computer system.

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14. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

a gyroscope providing the computer system with one or more gyroscope signals indicative of pitch, roll, and yaw of the first and second image-capturing devices.

15. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

a compass providing the computer system with one or more heading signals indicative of heading of the first and second image-capturing devices.

16. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising:

an altimeter providing the computer system with one or more altitude signals indicative of altitude of the first and second image-capturing devices.

17. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, wherein the geo-locating device comprises a GPS receiver receiving global positioning system signals and transmitting location signals, that are dependent at least in part upon the global positioning system signals and that are indicative of the location of the first and second image-capturing devices, to the computer system.

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18. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 1, further comprising a platform carrying the first and second image-capturing devices through a controlled flight.

19. (Original) The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the first and second image-capturing devices capture the oblique aerial images at predetermined image capture intervals, the predetermined image capture intervals dependent at least in part upon velocity of the platform.

20. (Cancelled).

21. (Cancelled).

22. (Cancelled).

23. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the computer system transmits image capture signals to the first and second image-capturing devices to capture images at different instants of time.

24. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the computer system

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transmits image capture signals to the first and second image-capturing devices to capture images at different intervals.

25. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 18, further comprising:

an inertial navigation unit detecting changes in velocity of the first and second image-capturing devices and transmitting one or more velocity signal indicative of velocity of the first and second image-capturing devices to the computer system.

26. (Original) The system for capturing images and geo-location data corresponding thereto of claim 18, wherein the first and second image-capturing devices have different angles of declination.

27. (Original) The system for capturing images and geo-location data corresponding thereto of claim 18, further comprising a third image-capturing device, wherein the first and second image-capturing devices are capturing oblique aerial images and the third image-capturing device is capturing orthogonal aerial images.

28. (Original) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image-capture signals to the first image-capturing device and the second image-

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capturing device and the third image-capturing device to cause the first, second, and third image-capturing devices to capture images.

29. (Cancelled).

30. (Original) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image capture signals to the first, second, and third image-capturing devices to capture images at different instants of time, wherein the image capture signals are common to the first, second, and third image-capturing devices.

31. (Original) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the computer system transmits image capture signals to the first, second, and third image-capturing devices to capture images at different intervals.

32. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 27, further comprising:

an inertial navigation unit detecting changes in velocity of the first, second, and third image-capturing devices and transmitting one or more velocity signal indicative of velocity of the first, second, and third image-capturing devices to the computer system.

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33. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the first and second image-capturing devices have characteristics for capturing the oblique aerial images.

34. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the first and second image-capturing devices capture community level oblique aerial images.

35. (Previously Presented) The system for capturing images and geo-location data corresponding thereto of claim 27, wherein the first and second image-capturing devices capture neighborhood level oblique aerial images.

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REMARKS

This is intended to be a complete response to the Office Action mailed July 30, 2014. Claims 1-4, 6, 10-20, 23-28, and 30-35 remain pending in the application. Claims 5, 7-9, 21, 22, and 29 were previously cancelled. Claim 20 has been cancelled from the current listing of claims. In the Office Action, claims 1-4, 6, 10-20, 23-28, and 30-35 were rejected.

Based on the following remarks, Applicant respectfully requests the withdrawal of the rejections and the issuance of a timely notice of allowance for all pending claims 1-4, 6, 10-19, 23-28, and 30-35.

Information Disclosure Statement

The Examiner noted that copies were not provided for non-patent literature documents numbered 14 (Aerowest Pricelist of Geodata) and 15 (www.archive.org web site showing archive of German AeroDach web site) on the Information Disclosure Statement. This omission was inadvertent. Copies of the specified non-patent literature documents as well as a Supplemental Information Disclosure Statement Form accompany this submission.

Claim Rejection – 35 U.S.C. § 112(4th)

Dependent claim 20 was rejected under 35 U.S.C. § 112, 4th paragraph, as being of improper dependent form for failing to further limit the subject matter of the claim upon which it depends. The Examiner stated that all of the limitations of claim 20 are already found in claim 1, from which it depends. Applicant appreciates the Examiner noting this discrepancy and has cancelled claim 20.

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Claim Rejection – 35 U.S.C. § 103

Claims 1, 2, 4, 6, 10, 11, 13, 16-20, 23, 24, 26-28, 30, 31, and 33-35 were rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over USPN 7,184,072 to Loewen et al. ("Loewen") in view of US 2003/0164962 to Nims et al. ("Nims").

Applicant agrees with the Examiner that Loewen does not disclose wherein the computer system controls the first and second image capturing devices separately as recited in independent claim 1. However, Applicant respectfully submits that Nims does not make up for the deficiencies of Loewen.

The Examiner cites to Nims paragraphs 36-39 for the proposition "wherein first and second cameras are separately controlled in order to capture images when the cameras are determined to be at different positions represented by 12a, 12b or 12c."

Applicant respectfully disagrees with the Examiner's interpretation of the Nims system. Nims discloses a system for data collection in which three cameras capture overlapping images. However, Nims does not teach any manner of how the cameras are controlled. For example, it is possible that the cameras are slaved together such that the cameras are signaled together to all capture images when the satellite is in position 12a, to all capture images when the satellite is in position 12b, and then to all capture images when the satellite is in position 12c. This type of "slaving" of cameras was used in the past to simplify

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control signals and data processing, such as matching GPS signal data to camera event signal data.

The Examiner apparently presumes that the cameras are controlled separately because the three cameras take three overlapping images from three positions. However, a computer system controlling first and second image-capturing devices separately is not taught in Nims. Rather, Nims discloses the image sensing data that is collected and not the commands, etc., involved in collecting the image sensing data (see paragraph [0038] of Nims). Further, one skilled in the art would understand that each camera takes multiple images as the satellite moves in orbit (see paragraph [0037], "In actual operation a multi-view image would likely be generated of a plurality of ground areas LV and . . . such images can be obtained by repeating the FIG. 3 method.").

Nims does not teach a computer system "controls" the first and second image-capturing devices separately. Nims does not disclose any method to control the cameras 16, 18, and 20 beyond sending a signal to the satellite carrying the cameras 16, 18, and 20. Therefore, it is possible that the cameras are slaved together and signaled to take images at the same time at each position of the satellite. Unfortunately, Nims does not teach how this is accomplished.

In fact, one skilled in the art would likely understand that the Nims cameras 16, 18, and 20 were slaved together. For example, see Patent US 8,520,079 B2, "Event Multiplexer for Managing the Capture of Images," (attached as Appendix A) column 2, lines 35-42, "However, the prior POS systems only

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included one or two ports for recording the time of sensor capture and position of only one or two independent sensors. The industry standard method for solving this problem is to slave one or more cameras to another camera and then to actuate all of the cameras simultaneously. However, this does not permit independent actuation of each of the cameras."

Thus, neither Loewen nor Nims, alone or in combination, disclose "wherein the computer system controls the first and second image-capturing devices separately" as recited in independent claim 1.

Therefore, Applicant respectfully requests the withdrawal of the rejection of independent claim 1, and dependent claims 2, 4, 6, 10, 11, 13, 16-19, 23, 24, 26-28, 30, 31, and 33-35, which depend on claim 1, as being unpatentable over Loewen in view of Nims, and the timely issuance of a notice of allowance.

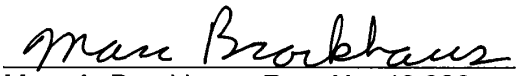
Claims 3, 12, 14, 15, 25 and 32 were rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over USPN 7,184,072 to Loewen et al. ("Loewen") in view of US 2003/0164962 to Nims et al. ("Nims") and in further view of WO 99/18732 to Ciampa and USPN 5,894,323 to Kain et al. ("Kain"). Applicant respectfully submits that the rejection is overcome in light of the previous reasons for allowability of claim 1, from which claims 3, 12, 14, 15, 25 and 32 depend.

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CONCLUSION

The foregoing is intended to be a complete response to the Office Action dated July 30, 2014. Applicant respectfully requests reconsideration and withdrawal of the rejections set forth in the Office Action and a timely notice of allowance for all of the pending claims. Should the Examiner have any questions or comments regarding the foregoing, or any other matter, the undersigned would welcome a telephonic interview with the Examiner.

Respectfully Submitted,



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APPENDIX A

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US008520079B2

(12) **United States Patent**
Schultz et al.

(10) **Patent No.: US 8,520,079 B2**
(45) **Date of Patent: Aug. 27, 2013**

(54) **EVENT MULTIPLEXER FOR MANAGING THE CAPTURE OF IMAGES**

(75) Inventors: **Stephen Schultz**, West Henrietta, NY (US); **Frank Giuffrida**, Honeoye Falls, NY (US); **Matt Kusak**, Rochester, NY (US)

(73) Assignee: **Pictometry International Corp.**, Rochester, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 962 days.

(21) Appl. No.: **12/031,576**

(22) Filed: **Feb. 14, 2008**

(65) **Prior Publication Data**

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Related U.S. Application Data

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(51) **Int. Cl.**
H04N 5/225 (2006.01)
H04N 9/04 (2006.01)

(52) **U.S. Cl.**
USPC **348/207.99**; 348/36; 348/37; 348/38

(58) **Field of Classification Search**
USPC 348/207.99
See application file for complete search history.

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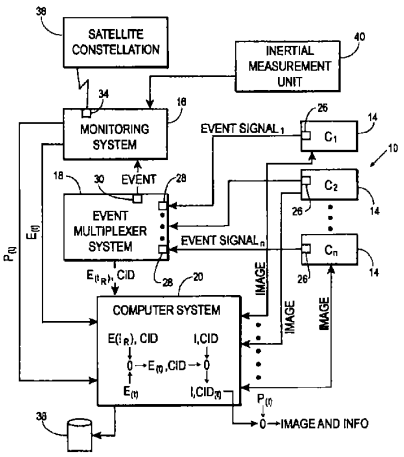
(Continued)

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(57) **ABSTRACT**

An image capture system for capturing images of an object, such as the Earth. The image capture system includes a moving platform, at least two image capture devices, a position system, an event multiplexer and a computer system. The image capture devices are mounted to the moving platform. Each image capture device has a sensor for capturing an image and an event channel providing an event signal indicating the capturing of an image by the sensor. The position system records data indicative of a position as a function of time related to the moving platform. The event multiplexer has at least two image capture inputs and at least one output port. Each image capture input receives event signals from the event channel of one of the image capture devices. The event multiplexer outputs information indicative of an order of events indicated by the event signals, and identification of image capture devices providing the event signals. The computer system receives and stores the information indicative of the order of events indicated by the event signals, and identification of image capture devices providing the event signals.

11 Claims, 6 Drawing Sheets



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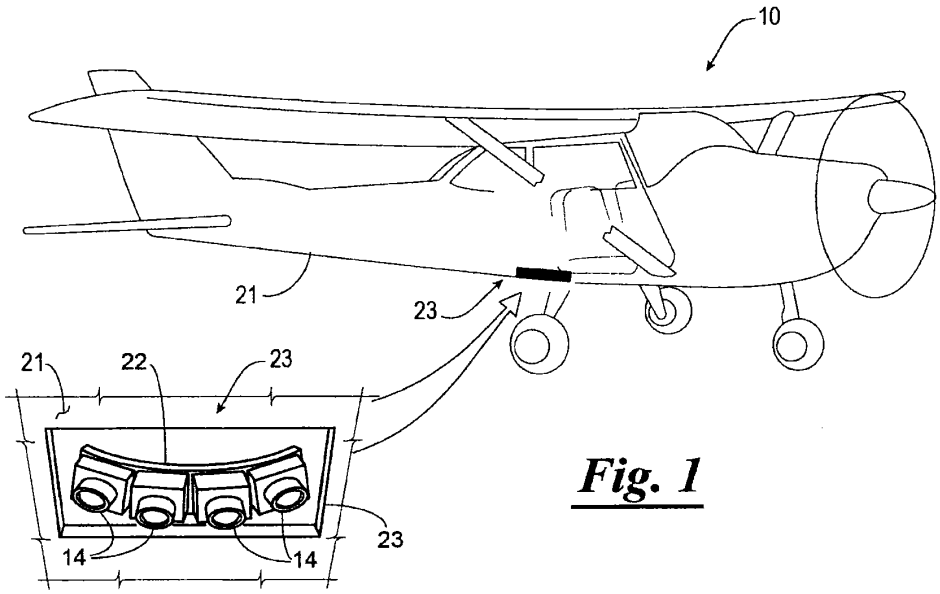


Fig. 1

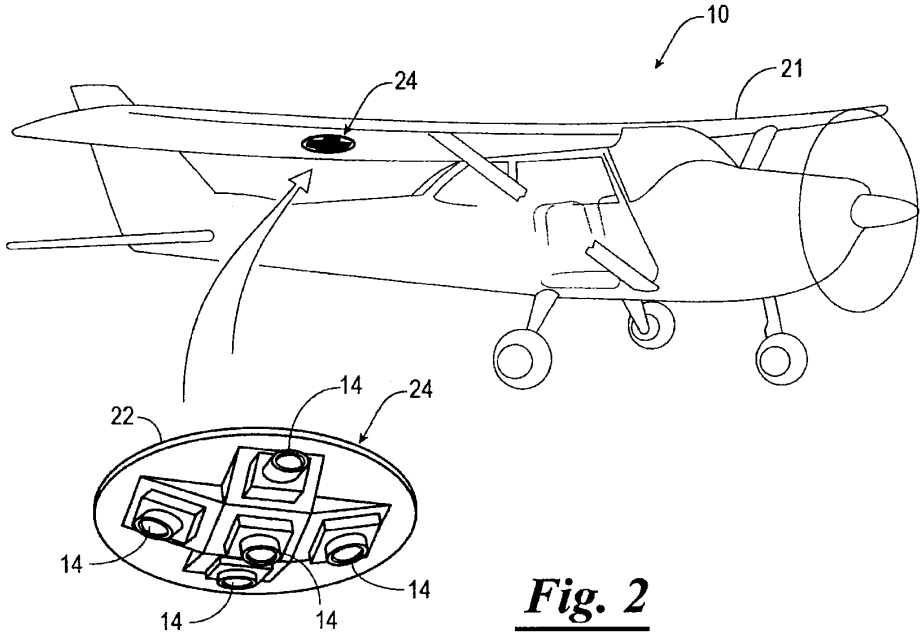


Fig. 2

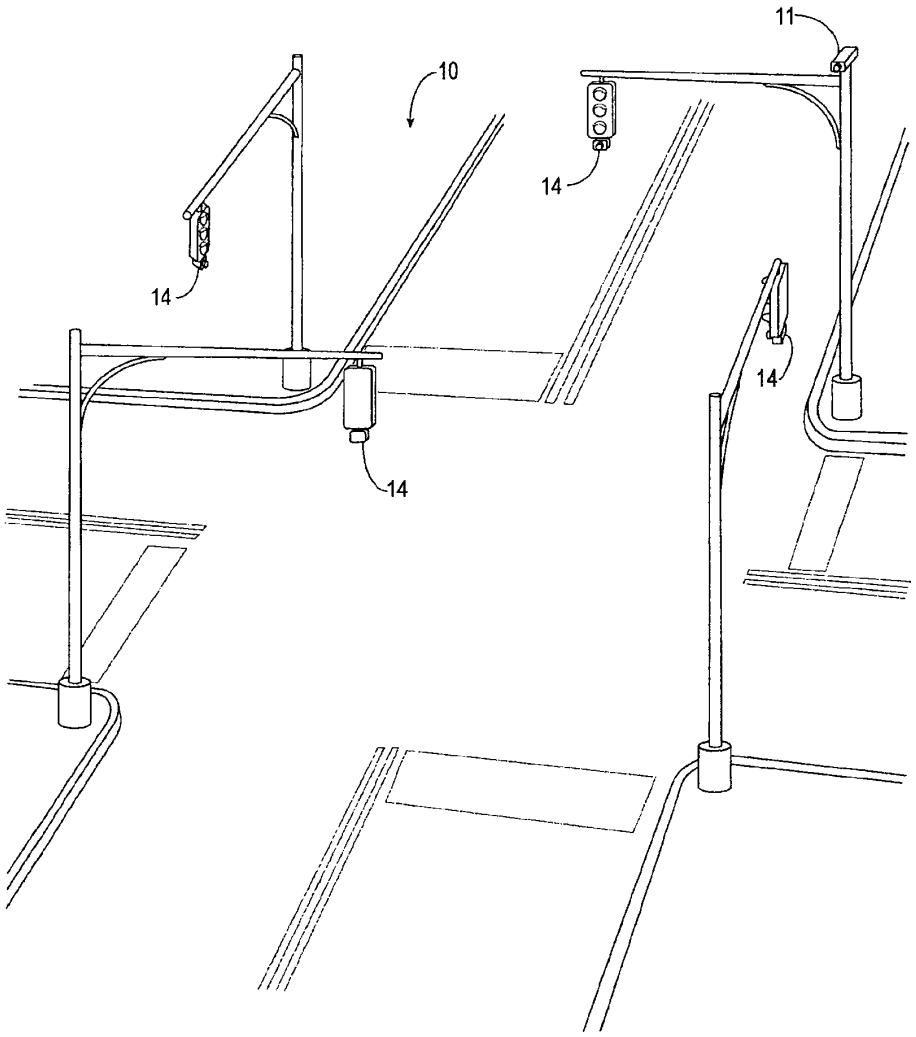


Fig. 3

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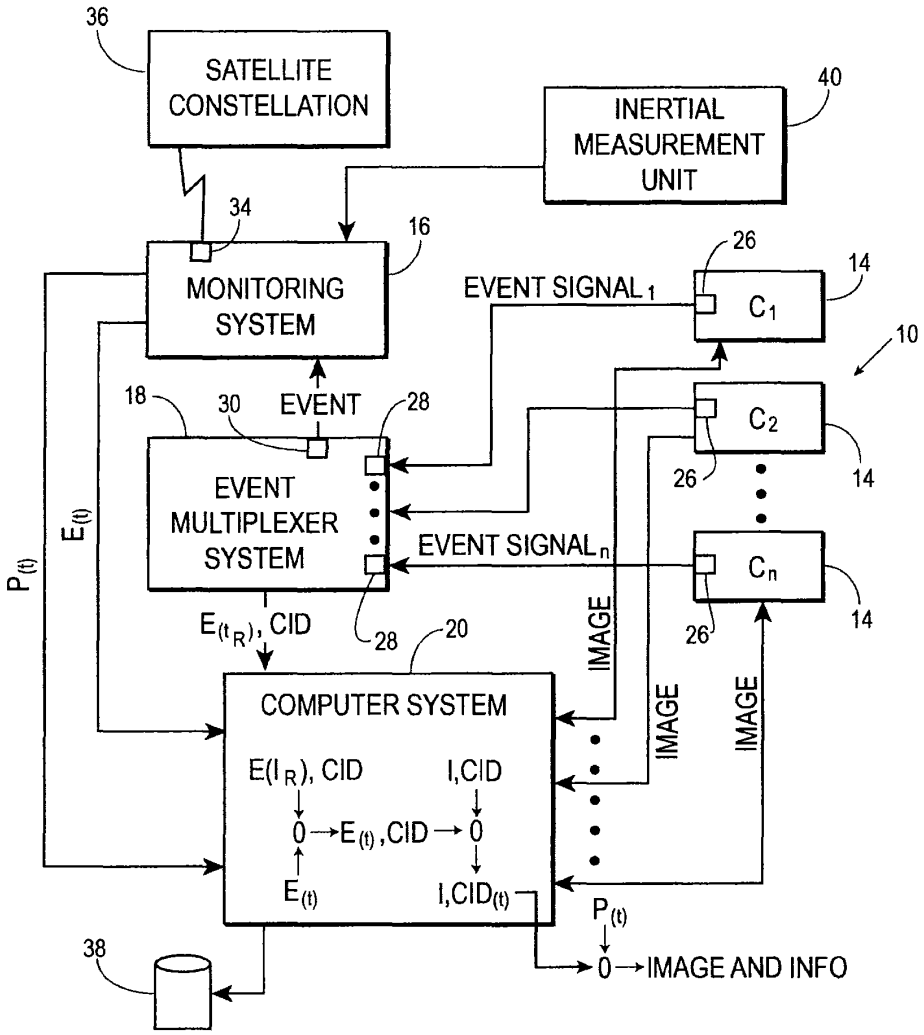

36
SATELLITE CONSTELLATION
40
INERTIAL MEASUREMENT UNIT
34
16
MONITORING SYSTEM
26
14
EVENT SIGNAL 1
C1
10
18
30
EVENT
28
C2
EVENT MULTIPLEXER SYSTEM
EVENT SIGNAL n
Cn
E(t)
P(t)
E(tR), CID
28
20
IMAGE
COMPUTER SYSTEM
E(IR), CID
I,CID
0 → E(t),CID → 0
E(t)
I,CID(t)
P(t)
0 → IMAGE AND INFO
38

Fig. 4

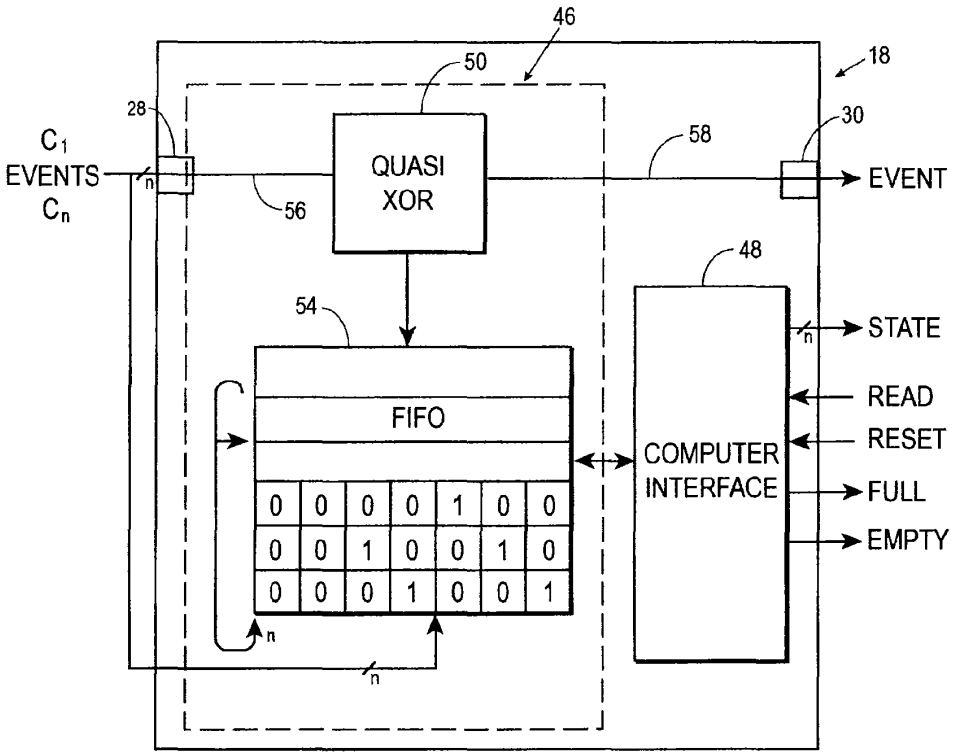

46
18
50
28
30
C1
EVENTS
Cn
n
QUASI
XOR
58
EVENT
56
48
54
STATE
n
READ
FIFO
RESET
COMPUTER
INTERFACE
FULL
EMPTY
0 0 0 0 1 0 0
0 0 1 0 0 1 0
0 0 0 1 0 0 1
n
n

Fig. 5

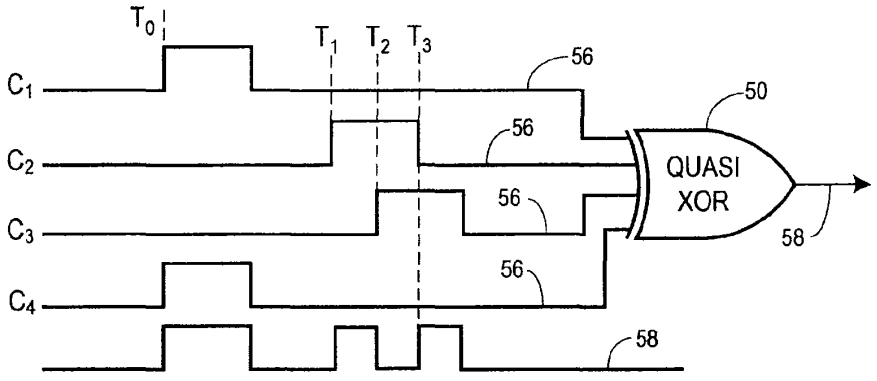

T0
T1
T2
T3
C1
C2
C3
C4
56
56
56
56
50
QUASI
XOR
58
58

Fig. 6

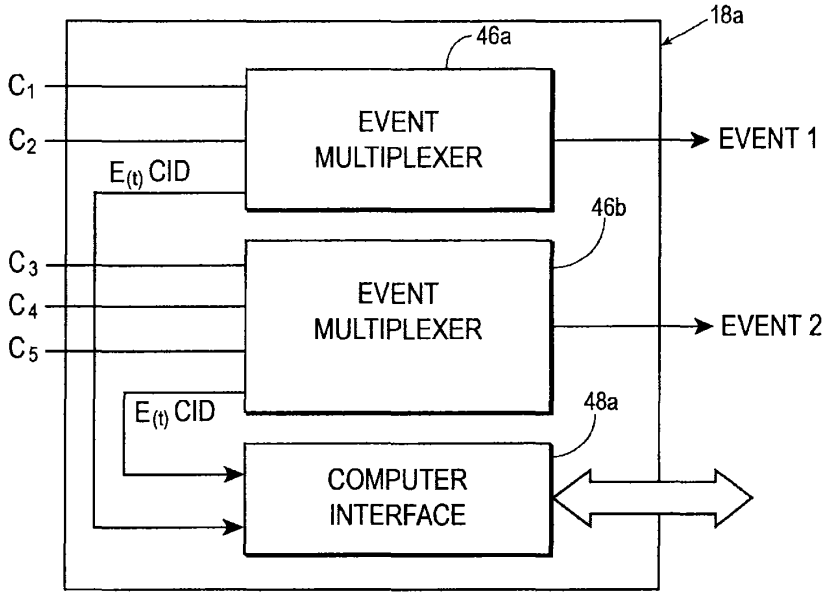


Fig. 7

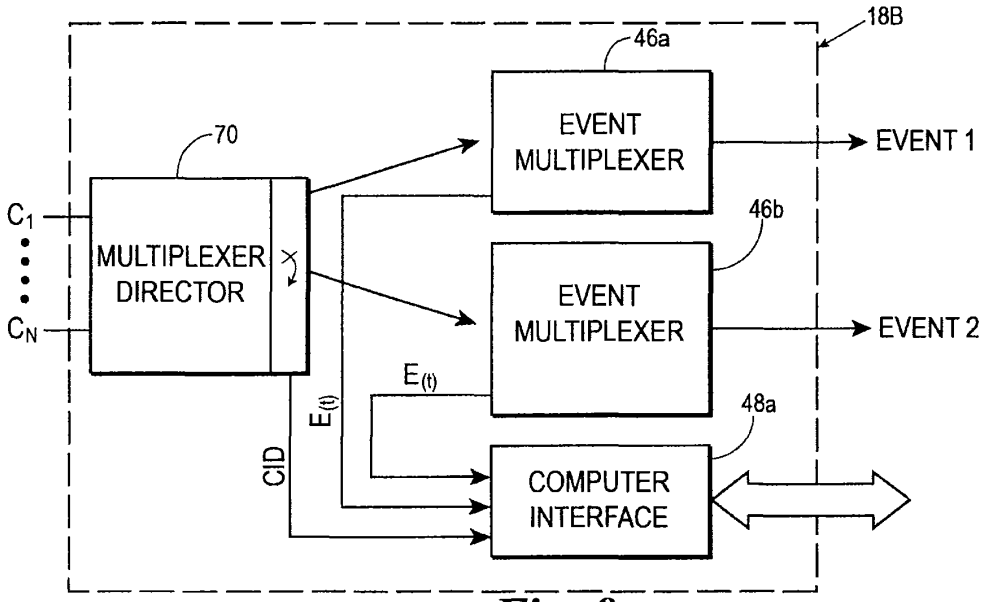


Fig. 8

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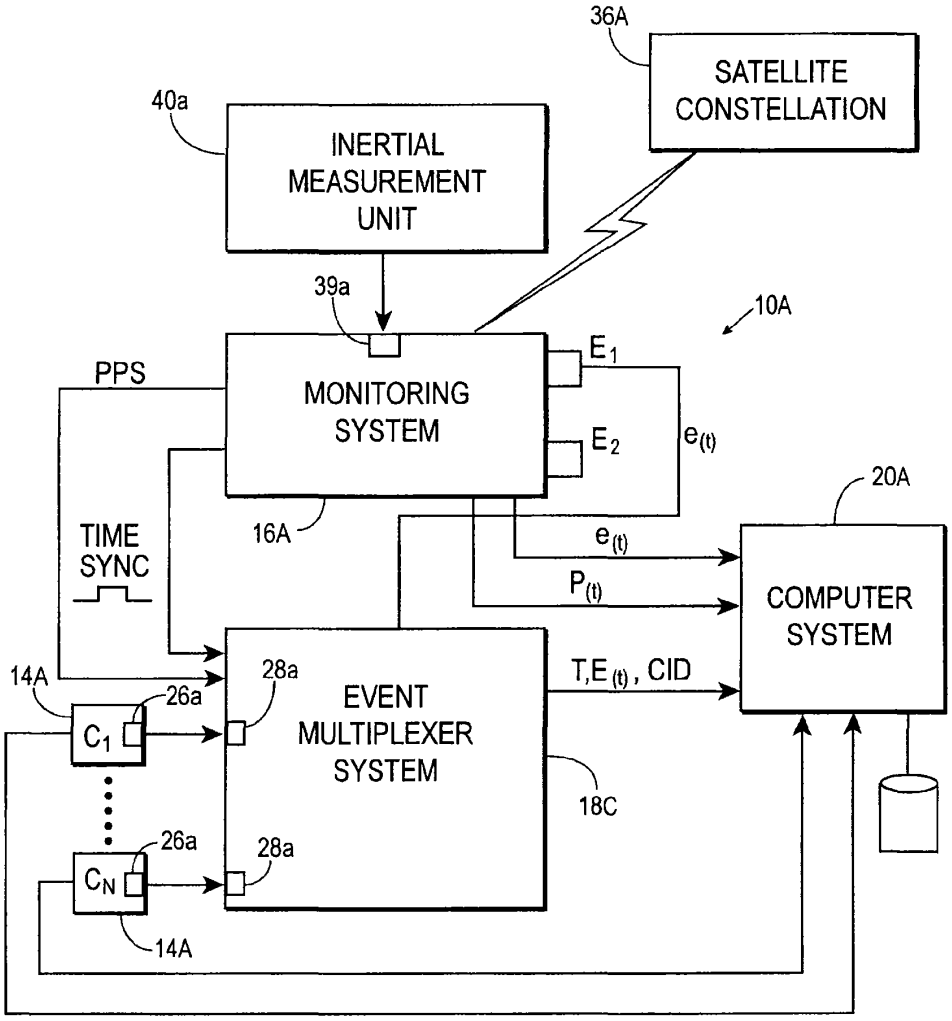

36A
SATELLITE CONSTELLATION
40a
INERTIAL MEASUREMENT UNIT
39a
10A
PPS
MONITORING SYSTEM
E1
E2
e(t)
20A
TIME SYNC
16A
e(t)
P(t)
COMPUTER SYSTEM
14A
28a
26a
C1
EVENT MULTIPLEXER SYSTEM
T,E(t), CID
18C
26a
28a
CN
14A

Fig. 9

EVENT MULTIPLEXER FOR MANAGING THE CAPTURE OF IMAGES

CROSS-REFERENCE TO RELATED APPLICATIONS

The present patent application claims priority to the provisional patent application identified by U.S. Ser. No. 60/901,444, which was filed on Feb. 15, 2007, the entire content of which is hereby incorporated herein by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH AND DEVELOPMENT

Not Applicable.

BACKGROUND OF THE INVENTION

As background, in the remote sensing/aerial imaging industry, imagery is used to capture views of a geographic area and to be able to measure objects and structures within the images as well as to be able to determine geographic locations of points within the image. These are generally referred to as "geo-referenced images" and come in two basic categories:

Captured Imagery—these images have the appearance they were captured by the camera or sensor employed.

Projected Imagery—these images have been processed and converted such that they confirm to a mathematical projection.

All imagery starts as captured imagery, but as most software cannot geo-reference captured imagery, that imagery is then reprocessed to create the projected imagery. The most common form of projected imagery is the ortho-rectified image. This process aligns the image to an orthogonal or rectilinear grid (composed of rectangles). The input image used to create an ortho-rectified image is a nadir image—that is, an image captured with the camera pointing straight down. It is often quite desirable to combine multiple images into a larger composite image such that the image covers a larger geographic area on the ground. The most common form of this composite image is the "ortho-mosaic image" which is an image created from a series of overlapping or adjacent nadir images that are mathematically combined into a single ortho-rectified image.

When creating an ortho-mosaic, this same ortho-rectification process is used, however, instead of using only a single input nadir image, a collection of overlapping or adjacent nadir images are used and they are combined to form a single composite ortho-rectified image known as an ortho-mosaic. In general, the ortho-mosaic process entails the following steps:

A rectilinear grid is created, which results in an ortho-mosaic image where every grid pixel covers the same amount of area on the ground.

The location of each grid pixel is determined from the mathematical definition of the grid. Generally, this means the grid is given an X and Y starting or origin location and an X and Y size for the grid pixels. Thus, the location of any pixel is simply the origin location plus the number of pixels times the size of each pixel. In mathematical terms: Xpixel=Xorigin+XsizexColumnpixel and Ypixel=Yorigin+YsizexRowpixel.

The available nadir images are checked to see if they cover the same point on the ground as the grid pixel being filled. If so, a mathematical formula is used to determine where that point on the ground projects up onto the camera's pixel image map and that resulting pixel value is then transferred to the grid pixel.

Because the rectilinear grids used for the ortho-mosaic are generally the same grids used for creating maps, the ortho-mosaic images bear a striking similarity to maps and as such, are generally very easy to use from a direction and orientation standpoint.

In producing the geo-referenced aerial images, hardware and software systems designed for georeferencing airborne sensor data exist and are identified herein as a "POS", i.e., a position and orientation system. For example, a system produced by Applanix Corporation of Richmond Hill, Ontario, Canada and sold under the trademark "POS AV" provides a hardware and software system for directly georeferencing sensor data. Direct Georeferencing is the direct measurement of sensor position and orientation (also known as the exterior orientation parameters), without the need for additional ground information over the project area. These parameters allow data from the airborne sensor to be georeferenced to the Earth or local mapping frame. Examples of airborne sensors include: aerial cameras (digital or film-based), multi-spectral or hyper-spectral scanners, SAR, or LIDAR.

The POS system, such as the POS AV system, was mounted on a moving platform, such as an airplane, such that the airborne sensor was pointed toward the Earth. The positioning system received position signals from a satellite constellation and also received time signals from an accurate clock. The sensor was controlled by a computer running flight management software to take images. Signals indicative of the taking of an image were sent from the sensor to the positioning system to record the time and position where the image was taken.

However, the prior POS systems only included one or two ports for recording the time of sensor capture and position of only one or two independent sensors. The industry standard method for solving this problem is to slave one or more cameras to another camera and then to actuate all of the cameras simultaneously. However, this does not permit independent actuation of each of the cameras.

If more than two independent sensors are to be used with the prior positioning system, then a separate system for recording the time and position of sensor capture must be developed. It is to such a system for recording the time of sensor that the present invention is directed.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

FIG. **1** is a perspective view of an exemplary image capture system constructed in accordance with the present invention.

FIG. **2** is a perspective view of another example of an image capture system constructed in accordance with the present invention.

FIG. **3** is a perspective view of yet another example of an image capture system constructed in accordance with the present invention.

FIG. **4** is a block diagram of the image capture system depicted in FIG. **1**.

FIG. **5** is a block diagram of one version of an event multiplexer system constructed in accordance with the present invention.

FIG. **6** is a diagrammatic view of a timing/logic flow of an event multiplexer constructed in accordance with the present invention.

FIG. **7** is a block diagram of another version of an event multiplexer system constructed in accordance with the present invention.

FIG. **8** is a block diagram of yet another version of an event multiplexer system constructed in accordance with the present invention.

FIG. **9** is a block diagram of another version of an image capture system constructed in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction, experiments, exemplary data, and/or the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments or being practiced or carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein is for purposes of description and should not be regarded as limiting.

Referring to the drawings, and in particular to FIGS. **1**, **2** and **3**, shown therein and designated by a reference numeral **10** is an image capture system constructed in accordance with the present invention. The image capture system **10** is typically used for capturing aerial images as shown in FIGS. **1** and **2**. However, while the image capture system **10** is extremely useful for aerial imaging, it has numerous other applications—such as when a system has more external triggers than inputs on a device that must react to the external triggers. For instance, as shown in FIG. **3**, a municipality might have an intersection with a high occurrence of speeding. In this case, the municipality might wish to install a speed monitoring device, such as a radar gun, combined with multiple independently controlled image capture devices **14** to precisely link the time of image capture to the time of radar reading.

The images can be oblique images, orthogonal images, or nadir images, or combinations thereof.

As shown in FIG. **4**, the image capture system **10** is provided with, one or more image capture devices **14**, one or more monitoring systems **16**, one or more event multiplexer systems **18**, and one or more data storage units or computer systems **20**. In the examples depicted in FIGS. **1-3** the image capture system **10** is provided with four image capture devices **14** mounted in a sweep pattern (FIG. **1**); five image capture devices **14** mounted in a 360 pattern having image capture devices **14** pointing fore, aft, port, starboard and straight down (FIG. **2**); four image capture devices **14** mounted in separate directions generally aligned with respective parts of streets (FIG. **3**).

In certain embodiments depicted in FIGS. **1** and **2**, the image capture devices **14**, the one or more monitoring systems **16**, the one or more event multiplexer systems **18** and the computer system **20** are mounted to a moving platform **21**. The moving platform **21** can be any type of device or system that can move through space in a predetermined, or random manner. Typically, the moving platform **21** is a manned airplane, but it should be understood that the moving platform **21** can be implemented in other manners. For example, the moving platform **21** can be implemented as an unmanned airplane, a train, an automobile such as a van, a boat, a four wheeler, a motor cycle, tractor, a robotic device or the like.

The image capture devices **14** are mounted to the moving platform **21**, and once mounted are typically calibrated so that the exact position and orientation of the image capture devices **14** are known with respect to at least a portion of the moving platform **21**. For example, as shown in FIGS. **1** and **2**, the image capture devices **14** can be mounted onto a common substrate **22** and calibrated with respect to the substrate **22**. It should be noted that all of the cables, wires or other signal paths connecting the image capture devices **14**, monitoring system **16**, event multiplexer **18** and computer system **20** are not shown in FIGS. **1-3** for purposes of clarity. The substrate **22** having the image capture devices **14** mounted thereto is then mounted to the moving platform **21**. In the embodiment depicted in FIG. **1**, the image capture devices **14** are mounted internally to the moving platform **21** and the moving platform **21** has one or more opening **23** for the image capture devices **14** to sense data through. In other embodiments, one or more of the image capture devices **14** can be mounted externally to the moving platform **21**. For example, in FIG. **2** the image capture devices **14** are mounted to an under-wing pod. Alternatively, the image capture devices **14** can be mounted to a roof rack of a car.

Each of the image capture devices **14** has a sensor (not shown) for capturing sensor data, such as an image. Each of the image capture devices **14** is also provided with an event channel **26** providing an event signal indicating the capturing of an image by the sensor. The event channel **26** can be any device that provides a signal coincident with the capturing of the image, such as a flash output. The sensor can capture the image in an analog manner, digital manner, or on film. Further, it should be understood that the image can be stored electronically, optically, or provided on a film-based medium.

The event multiplexer system **18** has at least one image capture input **28** and at least one output port **30**. In a preferred embodiment the event multiplexer system **18** has at least two image capture inputs **28**. Each image capture input **28** receives signals from the event channel **26** of one of the image capture devices **14**. The event multiplexer system **18** outputs event signals indicative of an order of events indicated by the signals provided by the image capture devices **14**, and an identification (C_{ID}) of image capture devices **14** providing the event signals.

The monitoring system **16** records data indicative of the capturing of the images. For example, the monitoring system **16** can record position data as a function of time, time data and/or orientation data. In the embodiments depicted in FIGS. **1** and **2**, the monitoring system **16** records position data as a function of time, as well as time data and/or orientation data related to the moving platform **21**. In the embodiment depicted in FIG. **3**, the monitoring system **16** records time data. Preferably, the monitoring system **16** automatically and continuously reads and/or records the data. However, it should be understood that the monitoring system **16** can read and/or record the data in other manners, such as on a periodic basis, or upon receipt of a signal to actuate the monitoring system **16** to obtain and record the data. For example, the event signals produced by the event multiplexer system **18** can be provided to the monitoring system **16** to cause the monitoring system **16** to read and/or record the data indicative of position as a function of time related to the moving platform **21**.

In the embodiments depicted in FIGS. **1** and **2**, the monitoring system **16** also includes a satellite receiver **34** typically receiving position and timing signals from a satellite constellation **36**, using any appropriate protocol, such as GPS or loran, although other types of position determining systems can be used, such as cell phone triangulation, e.g., Wireless Application Protocol (WAP).

The computer system **20** receives and stores (preferably in the database **38**) the information indicative of the order of events indicated by the event signals, and identification of

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image capture devices **14** providing the event signals. The computer system **20** optionally also receives and stores the images (preferably in the database **38**) generated by the image capture devices **14**. The monitoring system **16** records the data indicative of the capturing of images by storing it internally, outputting it to the computer system **20**, or outputting such data in any other suitable manner, such as storing such data on an external magnetic or optical storage system. The position related to the moving platform **21** can be provided in any suitable coordinate system, such as an X, Y, Z coordinate system, or a WGS1984 latitude/longitude coordinate system.

Further, the image capture system **10** can be provided with an orientation system, such as an inertial measurement unit **40** for capturing other types of information with respect to the moving platform **21**, such as the orientation of the moving platform **21**. The inertial measurement unit **40** can be provided with a variety of sensors, such as accelerometers (not shown) for determining the roll, pitch and yaw related to the moving platform **21**. Further, it should be understood that the position and/or orientation information does not necessarily have to be a position and/or orientation of the moving platform **21**. The position and orientation information is simply related to the moving platform **21**, i.e. the position and/or orientation of the moving platform **21** should be able to be determined by the information recorded by the monitoring system **16**. For example, the position and orientation information can be provided for a device connected to the moving platform **21**. Then, the position and orientation for each image capture device can be determined based upon their known locations relative to the moving platform **21**.

Shown in FIG. **5** is a block diagram of an exemplary event multiplexer system **18** constructed in accordance with the present invention. The event multiplexer system **18** includes an event multiplexer **46** and a computer interface **48**. The event multiplexer **46** preferably includes one or more quasi Xor gate **50**, and a memory device **54**. The quasi Xor gate **50** has a plurality of inputs **56** forming the image capture inputs, and an output **58** forming the at least one output port **30**. The memory device **48** receives data from the image capture inputs **28** and also receives an event signal from the quasi Xor gate **50** to record the state of the image capture inputs **28** when the quasi Xor gate **50** determines an event has or is taking place. The memory device **48** can optionally also record the identity of the image capture devices **14** providing the event signals. The quasi Xor gate **50** functions as an exclusive- or gate with the exception that the quasi Xor gate produces an event signal at its output when two or more signals occur simultaneously on the image capture inputs **28**.

The memory device **54** can be formed by a first-in-first-out register or any other type of device capable of optionally recording the identity of the image capture device **14** providing the signal, and a sequential order of events based upon the order in which the signals are received.

The computer interface **48** is connected to the memory device **54** to permit the computer system **20** to read the data in the memory device **54**. The computer interface **48** can be a device capable of reading the information from the memory device **54** and providing same to the computer system **20**. For example, the computer interface **48** can be a serial port, parallel port or a USB port.

For example, FIG. **6** illustrates a diagrammatic view of a timing/logic flow of the event multiplexer **46**. In this example, four image capture devices **14** (indicated as C_1, C_2, C_3 and C_4 for purposes of clarity) are connected to the Quasi Xor gate **50**. The image capture devices C_1 and C_4 provide a signal simultaneously at time T_0; the image capture device C_2 provides a signal at T_1, and the image capture device C_3 provides a signal at T_2. The quasi Xor gate **50** outputs an event signal at time T_0 on the port **30** because the signals provided by the image capture devices C_1 and C_4 have a simultaneous leading edge. The quasi Xor gate **50** also outputs an event signal at time T_1 based on the signal received from the image capture device C_2. Although the quasi Xor gate **50** received the signal from the image capture device C_3 at time T_2, the quasi Xor gate **50** delays providing an event signal until the lagging edge of the signal provided by the image capture device C_2. The quasi Xor gate **50** can be constructed using any suitable logic device(s) capable of providing the functions described above. For example, the quasi Xor gate **50** can be constructed using a microprocessor, digital signal processor, microcontroller, field programmable gate array or a combination of logic gates.

Shown in FIG. **7** is a block diagram of another version of an event multiplexer system **18***a* constructed in accordance with the present invention. The event multiplexer system **18***a* is similar in construction and function to the event multiplexer system depicted in FIG. **5** and described above, with the exception that the event multiplexer system **18***a* includes at least two event multiplexers **46***a* and **46***b* (designated by reference numerals X and Y) and a computer interface **48***a*. The computer interface **48***a* and the event multiplexers **46***a* and **46***b* can be constructed in a similar manner as the computer interface **48** and event multiplexer **46** described above. The event multiplexer **46***a* receives signals from the event channels of a subset of the image capture devices (in this case image capture devices designated by C_1 and C_2), and the event multiplexer **46***b* receives signals from the event channels of a different subset of the image capture devices (in this case image capture devices designated by C_3, C_4 and C_5). Thus, the image capture devices C_1-C_5, for example, can be divided into a variety of different subsets having different numbers of image capture devices C_1-C_5. For example, image capture devices C_1-C_3 can be connected to the event multiplexer **46***a* and the image capture devices C_4-C_5 can be connected to the event multiplexer **46***b*

Each of the event multiplexers **46***a* and **46***b* provide event signals indicative of an order of events based upon the respective signals received from the image capture devices C_1-C_5. The event signals provided by the event multiplexers **46***a* and **46***b* can be provided to different ports of the monitoring system **16**, or to different monitoring systems for causing the monitoring system(s) **16** to read and/or record the data indicative of the position as a function of time related to the moving platform **21**.

The computer interface **48***a* communicates with the event multiplexers **46***a* and **46***b* to permit the computer system **20** to read the data from the memory devices and store it on a computer readable medium accessible by the computer system **20**. The computer interface **48***a* can be a device capable of reading the information from the memory device(s) and providing same to the computer system **20**. For example, the computer interface **48***a* can be a serial port, parallel port or a USB port.

Shown in FIG. **8** is a block diagram of another version of an event multiplexer system **18***b* constructed in accordance with the present invention. The event multiplexer system **18***b* is similar in construction and function to the event multiplexer system depicted in FIG. **7** and described above, with the exception that the event multiplexer system **18***b* includes a multiplexer director **70** receiving signals from the event channels from all or a subset of the image capture devices C_1-Cn and directing each signals to one or more of at least two event multiplexers (designated by reference numerals **46***a* and **46***b*). The multiplexer director **70** provides an image capture

device identification signal C_{ID} to the computer interface **48***a* for passing on to the computer system **20**. The event multiplexers **46***a* and **46***b* receive the signals from the multiplexer director, **70** and in response thereto, provide event signals to the monitoring system **20**.

The computer interface **48***a* and the event multiplexers **46***a* and **46***b* can be constructed in a similar manner as the computer interface **48** and event multiplexer **46** described above. Each of the event multiplexers **46***a* and **46***b* provide event signals indicative of an order of events based upon the respective signals received from the image capture devices C_1-C_5 via the multiplexer director **70**. The event signals provided by the event multiplexers **46***a* and **46***b* can be provided to different ports of the monitoring system **16**, or to different monitoring systems **16** for causing the monitoring system(s) **16** to read and/or record the data indicative of the position as a function of time related to the moving platform **21**.

The computer interface **48***a* communicates with the event multiplexers **46***a* and **46***b* to permit the computer system **20** to read the data indicative of the order of events E(t) from the respective memory devices and store such data E(t) on a computer readable medium accessible by the computer system **20**.

Shown in FIG. **9** and designated by a reference numeral **10***a* is a block diagram of another image capture system constructed in accordance with the present invention. The image capture system **10***a* is similar to the image capture system **10** except as described below. In the image capture system **10** (FIG. **4**), the event multiplexer system **18**, **18***a* or **18***b* records the order of the signals from the image capture devices **14** (relative timing) correlated with an identification of the image capture device **14** producing the signal. The monitoring system **16** records an absolute timing of events that is then correlated to the relative timing. In the image capture system **10***a*, an event multiplexer system **18***c* receives a time sync signal T from an external device such as the monitoring system **16***a* and records the signals from the image capture devices **14** as a function of time and typically an identification of the image capture device **14** producing the signal. The computer system **20***a* receives the signals, T, E(t), and CID and correlates position as a function of time information P(t) recorded by the monitoring system **16**A.

Thus, the event multiplexer systems **18**, **18***a*, and **18***b* record order of event and optionally record identification of camera information. The event multiplexer systems **18**, **18***a* and **18***b* utilize an external timing device (i.e., the monitoring system **16** or the computer system **20**) to correlate event with time and thus location. The event multiplexer system **18***c*, receives and records absolute time in addition to the order of events and identification of image capture devices **14**. Thus, "order of event" could include relative or absolute time.

The image capture system **10***a* is provided with one or more image capture devices **14***a*, one or more monitoring systems **16***a*, one or more event multiplexer systems **18***c*, and one or more computer systems **20***a* and one or more inertial measurement unit **40***a*.

The image capture devices **14***a*, the monitoring system **16***a* and inertial measurement unit **40***a* are similar in construction and function as the image capture devices **14**, monitoring system **16** and inertial measurement unit **40** described above.

The event multiplexer system **18***c* is similar in construction and function as the event multiplexer system **18**, **18***a* and **18***b* described above, with the exception that the event multiplexer system **18***c* receives absolute time signals, such as a (PPS) and time sync signal from the monitoring system **16***a* (or a separate time receiver) and records the absolute time each instance in which a signal is received from one of the image capture devices **14***a*. The time signal is preferably an accurate signal received from a satellite constellation or an atomic clock. In addition, the absolute time of each event (T, E(t)), and an identification of the image capture device **14***a* for each event (C_{ID}) is passed to the computer system **20***a*.

The monitoring system **16***a* passes signals to the computer system **20***a* indicative of the position of the moving platform **21** as a function of time, and the image capture devices **14***a* pass the captured images to the computer system **20***a*. Thus, the computer system **20***a* is provided with and stores the information for correlating the data indicative of position as a function of time with particular captured images.

The event multiplexer system **18***c* can also optionally provide event signals e(t) to the monitoring system **16***a* in a similar manner as the event multiplexer systems **18**, **18***a* and **18***b* described above, for purposes of redundancy, and/or verification of the data. The event signals e(t) can also optionally be provided to the computer system **20***a* from the monitoring system **16***a* and in this instance the computer system **20***a* optionally compares e(t) with E(t) for calibration, diagnostic or feedback purposes to make sure that the time sync signal is correct.

In using the systems depicted in FIGS. **1** and **2**, the image capture devices **14** or **14***a* are mounted on the moving platform **21**, such as an airplane, such that image capture devices **14** or **14***a* are pointed toward an object, such as the Earth. The moving platform **21** is then actuated to move, and the image capture devices **14** or **14***a* capture images at pre-determined or random times or positions. Typically, the image capture devices **14** or **14***a* will be independently controlled by flight management software running on the computer system **20** or **20***a* and the taking of the images will be pre-determined. In any event, as the image capture devices **14** or **14***a* capture the images, signals are passed to the event multiplexers systems **18**, **18***a*, **18***b* or **18***c* and the order of events (relative or absolute), image capture device identification and the position as a function of time data is logged and stored by the cooperation of the event multiplexer systems **18**, **18***a*, **18***b* and **18***c*, monitoring systems **16** or **16***a* and computer systems **20** or **20***a* as described above. Then, the images are geo-referenced as described in the Background of the Invention section above utilizing the recorded data regarding the order of events (relative or absolute), image capture device identification and the position as a function of time data.

In using the system depicted in FIG. **3**, the image capture devices **14** or **14***a* are mounted adjacent to the intersection. For example, the image capture devices **14** or **14***a* can be mounted to separate traffic light poles such that the image capture devices **14** or **14***a* are pointed at the streets entering or leaving the intersection. The system depicted in FIG. **3** also includes a radar gun pointing at the intersection to sense the speed of cars moving through the intersection. When a car speeds through the intersection, one or more of the image capture devices **14** or **14***a* can be actuated (preferably by a computer controlled management system) to preferably take a picture of the driver and tag of the car, while the event multiplexer systems **18**, **18***a*, **18***b* or **18***c* capture data such as time data correlated with the data produced by the radar gun. This precisely links the time of image capture (or other sensor data) to the time of radar reading to provide evidence of the identity of the speeding car and driver in this example.

It will be understood from the foregoing description that various modifications and changes may be made in the preferred and alternative embodiments of the present invention without departing from its true spirit.

This description is intended for purposes of illustration only and should not be construed in a limiting sense. The

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scope of this invention should be determined only by the language of the claims that follow. The term "comprising" within the claims is intended to mean "including at least" such that the recited listing of elements in a claim are an open group. "A," "an" and other singular terms are intended to include the plural forms thereof unless specifically excluded.

What is claimed is:

1. An image capture system for capturing images of an object, the image capture system comprising:

a moving platform;

at least three image capture devices mounted to the moving platform, each image capture device having a sensor for capturing an image and an event channel providing an event signal indicating the capturing of an image by the sensor;

a monitoring system recording data indicative of a position and orientation as a function of time related to the moving platform, the monitoring system having fewer input ports for initiating the recording of the data indicative of the position and orientation as a function of time than the at least three image capture devices;

an event multiplexer multiplexing at least three image capture inputs to at least one output port, the event multiplexer having more image capture inputs than the input ports of the monitoring system, wherein the event channels of the at least three image capture devices are connected to the at least three image capture inputs, the event multiplexer outputting information from the image capture devices through the at least one output port to the monitoring system for correlating the data indicative of position and orientation as a function of time with particular captured images; and

a computer system independently controlling the at least three image capture devices and receiving and storing the information.

2. The image capture system of claim **1**, wherein the information stored by the computer system includes a sequential order of events based upon the order in which the event signals are received by the event multiplexer.

3. The image capture system of claim **1**, wherein the event multiplexer comprises a first-in-first out-register storing the event signals.

4. The image capture system of claim **1**, wherein the event multiplexer comprises a quasi-X or gate having inputs forming the image capture inputs, and an output forming one of the at least one output port.

5. The image capture system of claim **1**, wherein the monitoring system includes an input port receiving event signals from the output port of the event multiplexer, and wherein the monitoring system records data indicative of the time at which the event signal was received.

6. The image capture system of claim **5**, wherein the computer system stores the data indicative of the time at which the event signal was received by the monitoring system and a camera ID identifying the image capture device from which the event signal was received.

7. The image capture system of claim **1**, wherein the information output by the event multiplexer includes absolute time data.

8. The image capture system of claim **1**, wherein the information output by the event multiplexer includes relative time data.

9. The image capture system of claim **1**, wherein the computer system correlates the information indicative of the order of events indicated by the event signals, and identification of image capture devices providing the event signals to identify particular captured images.

10. The image capture system of claim **1**, wherein the at least three image capture devices are mounted to a common substrate.

11. The image capture system of claim **1**, wherein the at least three image capture devices include at least five image capture devices mounted to point fore, aft, port, starboard and straight down.

* * * * *

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

U. S. PATENT APPLICATION DOCUMENTS

EXAM INIT.	Cite No.	Patent Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Issue Date MM/DD/YYYY	
	P134	8,705,843	Lieckfeldt, Peter	04/22/2014	

U. S. PATENT APPLICATION PUBLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Publication Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Publications Date MM/DD/YYYY	

FOREIGN PATENT DOCUMENTS

EXAM INIT.	Cite No. [1]	Foreign Document No.[3] Country Code[2]- Kind Code[4] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYY	T[5]

EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL86	Aerowest Pricelist of Geodata as of October 21, 2005 and translations to English, 3 pages.
	NPL87	www.archive.org Web site showing archive of German AeroDach Web Site http://www.aerodach.de from June 13, 2004 (retrieved September 20, 2012) and translations to English, 13 pages.

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PTO/SB/08A and 08B
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Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

EXAM INIT.	Cite Number	**NON-PATENT DOCUMENTS** Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL100	Geospan Amended Answer and Counterclaims; filed July 9, 2014; U.S. District Court, District of Minnesota, Case No. 0:13-cv-02359-ADM-JJK.
	NPL101	Extended European Search Report for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 01/31/2011 from the European Patent Office.
	NPL102	Office Action for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 02/22/2012 from the European Patent Office.
	NPL103	Report Letter and Summons to Attend Oral Proceedings for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 03/24/2014 from the European Patent Office.
	NPL104	Intent to Grant for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 09/10/2014 from the European Patent Office.
	NPL105	Decision to Grant Patent for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 01/09/2015 from the European Patent Office.
	NPL106	Extended Search Report for European Patent Office patent application number 10011757.1 (attorney docket 6338.112ep2) dated 02/21/2012 from the European Patent Office.

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Page 00311

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PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

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Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

EXAM INIT.	Cite Number	**NON-PATENT DOCUMENTS** Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL107	Office Action for European Patent Office patent application number 10011757.1 (attorney docket 6338.112ep2) dated 11/19/2014 from the European Patent Office.

Examiner Signature:	Date Considered:

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

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PTO/AIA/22 (03-13)
Approved for use through 3/31/2013. OMB 0651-0031
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 6338.213

Application Number: 13/791,032

Filed: 03/08/2013

For: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

Art Unit: 2665

Examiner: Aaron W. Carter

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$200	$100	$50	$
☐	Two months (37 CFR 1.17(a)(2))	$600	$300	$150	$
☑	Three months (37 CFR 1.17(a)(3))	$1,400	$700	$350	$ 700.00
☐	Four months (37 CFR 1.17(a)(4))	$2,200	$1,100	$550	$
☐	Five months (37 CFR 1.17(a)(5))	$3,000	$1,500	$750	$

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number _____.

☑ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 40,923

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____

Marc Brockhaus — Signature

01/29/2015 — Date

Marc A. Brockhaus — Typed or printed name

405-607-8600 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT. Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Electronic Patent Application Fee Transmittal

Application Number:	13791032
Filing Date:	08-Mar-2013
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Filer:	Marc Alan Brockhaus/Lori Radford
Attorney Docket Number:	6338.213

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
Submission- Information Disclosure Stmt	2806	1	90	90
		Total in USD ($)		**790**

Electronic Acknowledgement Receipt	
EFS ID:	21346246
Application Number:	13791032
International Application Number:	
Confirmation Number:	9486
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Customer Number:	30589
Filer:	Marc Alan Brockhaus/Lori Radford
Filer Authorized By:	Marc Alan Brockhaus
Attorney Docket Number:	6338.213
Receipt Date:	29-JAN-2015
Filing Date:	08-MAR-2013
Time Stamp:	15:37:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$790
RAM confirmation Number	2220
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	6338213_Transmittal01292015.pdf	67750 49bd3b98c24a58e180cc24d4f58fee7e56d28443	no	1
Warnings:					
Information:					
2	Amendment/Req. Reconsideration-After Non-Final Reject	6338213_Response01292015.pdf	1505559 4b9fc0c5c98250f594e2c08fd9191bf209e6472a	no	32
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	6338213_IDS01292015.pdf	145550 2f880b94090d33a1d414dde6c1f534eca3f442ad	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
4	Non Patent Literature	NPL86_PricelisttakenfromAerowestwebsitedated1-1-2006Preisliste.pdf	295860 fb34b09976917cdc78de1eb99e8420256053f0d8	no	3
Warnings:					
Information:					
5	Non Patent Literature	NPL87formerly263archiveofGermanAeroDachwebandEngtrans.pdf	1011174 466d038252140777a394f7b68ee2b5db259e32e2	no	13
Warnings:					
Information:					
6	Non Patent Literature	NPL1016338066ep1searchreport013111.pdf	194609 46ef35c7f2d3df44290356ef76a1927a6e752732	no	7
Warnings:					
Information:					
7	Non Patent Literature	NPL102_6338066ep1EPOOAdated2-22-12.pdf	116454 b0cb304a38ec0a2f7643bee50df8ab77e3f12672	no	4
Warnings:					
Information:					

8	Non Patent Literature	NPL103_6338066ep1EPORptLtrandSummonsmailed3-24-14.pdf	312367 2b64672f68ff0873a9bd5631f6205ed2d68dec63	no	6
Warnings:					
Information:					
9	Non Patent Literature	NPL104_6338066ep1EPOintenttograntpatent9-10-14.pdf	1803776 1f754cbc6d740599803bf83a8c61c3cd274a0a10	no	51
Warnings:					
Information:					
10	Non Patent Literature	NPL105_6338066ep1EPODecisiontogrant1-9-15.pdf	112682 9da7fcabc4b8e293bc251cb36d71f30f57be5ff8	no	2
Warnings:					
Information:					
11	Non Patent Literature	NPL106_6338112ep2ExtendedSearchRprtwithCitations2212012.pdf	1543525 06dfb34b969216bdd9fc487e6a7a6633ad8d6dac	no	43
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
12	Non Patent Literature	NPL107_6338112ep211914OfficeAction.pdf	140170 6a63649c2f4c23c6d964a7d8ae2d215d2e560516	no	4
Warnings:					
Information:					
13	Non Patent Literature	NPL100GeoAmdAnswerandCounterclaims1.pdf	245041 18589179f54110f60a5a272787b72606d062929d	no	43
Warnings:					
Information:					
14	Extension of Time	6338213_Extension01292015.pdf	115560 8cdfaa2271356c6da3f3fda03c79b96c73ee246d	no	1
Warnings:					
Information:					
15	Fee Worksheet (SB06)	fee-info.pdf	32778 58b772d76efc948d91b76c8b6fc6ff73bc8f5b5d	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	7642855		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket Number	6338.213

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☑ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☑ Extension of Time Request
- ☐ Express Abandonment Request
- ☑ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):
  See Remarks

Remarks

ELECTRONICALLY TRANSMITTED:
1. SB21 Transmittal Form (1 pg);
2. SB22 Extension of Time (1 pg);
3. Response (32 pgs);
4. Information Disclosure Statement (3 pgs);
5. Cited non patent documents.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DUNLAP CODDING, P.C.		
Signature	Marc Brockhaus		
Printed name	Marc A. Brockhaus		
Date	01/29/2015	Reg. No.	40,923

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Marc Brockhaus		
Typed or printed name	Marc A. Brockhaus	Date	01/29/2015

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/791,032	Filing Date 03/08/2013	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	01/29/2015	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 27	Minus	** 35	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/MAMYE WAGSTAFF/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

30589 7590 03/23/2015

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

EXAMINER	
CARTER, AARON W	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 03/23/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

TITLE OF INVENTION: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/23/2015

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 02/11)

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00322

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

30589 7590 03/23/2015
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

TITLE OF INVENTION: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/23/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
CARTER, AARON W	2665	382-106000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
❑ Issue Fee
❑ Publication Fee (No small entity discount permitted)
❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
❑ A check is enclosed.
❑ Payment by credit card. Form PTO-2038 is attached.
❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
❑ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
❑ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
❑ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00323

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

30589 7590 03/23/2015

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

EXAMINER	
CARTER, AARON W	
ART UNIT	**PAPER NUMBER**
2665	

DATE MAILED: 03/23/2015

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
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OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/791,032	Applicant(s) SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *papers filed on 1/29/15*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-4,6,10-19,23-28 and 30-35*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00326

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

In response to applicant's amendment received on 1/29/15, all requested changes to the claims have been entered. Claims 1-4, 6, 10-20, 23-28 and 30-35 were previously pending. Claim 20 has been cancelled. Claims 1-4, 6, 10-19, 23-28 and 30-35 are currently pending. The cancellation of claim 20 resolves the pending 35 U.S.C. 112(4th) rejection. Therefore that rejection is herein withdrawn.

Response to Arguments

Applicant's arguments, see Remarks, filed 1/29/15, with respect to claim 1 have been fully considered and are persuasive. The 35 U.S.C. 103(a) rejection of claim 1 has been withdrawn.

Allowable Subject Matter

Claims 1-4, 6, 10-19, 23-28 and 30-35 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 1, please refer to the Applicant's remarks filed on 1/29/15 for the reasons of allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON W. CARTER whose telephone number is (571)272-7445. The examiner can normally be reached on 9am-5pm EST (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AARON W CARTER/
Primary Examiner, Art Unit 2665

Notice of References Cited	Application/Control No. 13/791,032	Applicant(s)/Patent Under Reexamination SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,290,694 A	09-1981	Wehrli et al.	356/2
*	B	US-5,633,946 A	05-1997	Lachinski et al.	382/103
*	C	US-2002/0012071 A1	01-2002	Sun, Xiuhong	348/578
*	D	US-2003/0066932 A1	04-2003	Carroll, Ernest A.	244/120
*	E	US-7,015,954 B1	03-2006	Foote et al.	348/218.1
*	F	US-8,520,079 B2	08-2013	Schultz et al.	348/207.99
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Page 00330

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

U. S. PATENT APPLICATION DOCUMENTS

EXAM INIT.	Cite No.	Patent Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Issue Date MM/DD/YYYY	
	P134	8,705,843	Lieckfeldt, Peter	04/22/2014	

U. S. PATENT APPLICATION PUBLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Publication Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Publications Date MM/DD/YYYY	

FOREIGN PATENT DOCUMENTS

EXAM INIT.	Cite No. [1]	Foreign Document No.[3] Country Code[2]- Kind Code[4] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYY	T[5]

EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL86	Aerowest Pricelist of Geodata as of October 21, 2005 and translations to English, 3 pages.
	NPL87	www.archive.org Web site showing archive of German AeroDach Web Site http://www.aerodach.de from June 13, 2004 (retrieved September 20, 2012) and translations to English, 13 pages.

M:\General\6338 Pictometry\6338.213 Media Request for Continuing Application\Measuring Objects Images\6338.213 IDS 1449 Supplemental.doc

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.C./

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

EXAM INIT.	Cite Number	**NON-PATENT DOCUMENTS** Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL100	Geospan Amended Answer and Counterclaims; filed July 9, 2014; U.S. District Court, District of Minnesota, Case No. 0:13-cv-02359-ADM-JJK.
	NPL101	Extended European Search Report for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 01/31/2011 from the European Patent Office.
	NPL102	Office Action for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 02/22/2012 from the European Patent Office.
	NPL103	Report Letter and Summons to Attend Oral Proceedings for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 03/24/2014 from the European Patent Office.
	NPL104	Intent to Grant for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 09/10/2014 from the European Patent Office.
	NPL105	Decision to Grant Patent for European Patent Office patent application number 06012675.2 (attorney docket 6338.066ep1) dated 01/09/2015 from the European Patent Office.
	NPL106	Extended Search Report for European Patent Office patent application number 10011757.1 (attorney docket 6338.112ep2) dated 02/21/2012 from the European Patent Office.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.C./

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PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

EXAM INIT.	Cite Number	**NON-PATENT DOCUMENTS** Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL107	Office Action for European Patent Office patent application number 10011757.1 (attorney docket 6338.112ep2) dated 11/19/2014 from the European Patent Office.

Examiner Signature: /Aaron Carter/ Date Considered: 03/11/2015

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

M:\General\6338 Pictometry\6338.213 Method and Apparatus for Capturing Geospatial and Measuring Oblique Images\6338.213_IDS 1449 Supp1.doc

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BIB DATA SHEET

CONFIRMATION NO. 9486

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/791,032	03/08/2013 RULE	382	2665	6338.213

APPLICANTS

Pictometry International Corp., Rochester, NY

INVENTORS

Stephen L. Schultz, West Henrietta, NY;
Frank D. Giuffrida, Honeoye Falls, NY;
Robert L. Gray, Canandiagua, NY;
Charles Mondello, Pittsford, NY;

**** CONTINUING DATA ***************************

This application is a DIV of 13/534,907 06/27/2012 PAT 8634594
which is a CON of 13/217,885 08/25/2011 PAT 8233666
which is a CON of 12/950,643 11/19/2010 PAT 8068643
which is a CON of 12/853,616 08/10/2010 PAT 7995799
which is a CON of 12/186,889 08/06/2008 PAT 7787659
which is a CON of 10/701,839 11/05/2003 PAT 7424133
which claims benefit of 60/425,275 11/08/2002

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
04/18/2013

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /AARON W CARTER/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		NY	10	35	1

ADDRESS

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113
UNITED STATES

TITLE

METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

FILING FEE RECEIVED		
1068	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	Art Unit
	AARON W CARTER	2665

CPC- SEARCHED		
Symbol	Date	Examiner
G01C 11/02	12/9/13	awc
G06K 9/0063, 9/00664	12/9/13	awc
G06T 2207/10032	12/9/13	awc
Updated Above	3/11/15	awc

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
382	106, 154, 284, 294	12/9/13	awc
348	113-118, 143-148	12/9/13	awc
356	3-3.09, 601-613	12/9/13	awc
Updated Above		4/23/14	awc
Updated Above		7/23/14	awc

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Text Search (PGPUB, USPAT, DERWENT), See Search History Printout	12/9/13	awc
Inventor Name Search	12/9/13	awc
Google Patent/Scholar/Inventor Search	12/9/13	awc
Interference Search History Printout	4/23/14	awc
Updated EAST Text Search, See Search History Printout	7/23/14	awc
Updated Inventor Name Search	7/23/14	awc
Updated EAST Text Search (USPAT, PGPUB), including text search in CPC (G06T 17/00-30), (G06T 2207/10032-10044, 30181-30192), (G06T 3/4038), (G06T 7/602), (G01C 11/00-34), (G06K 9/0063-00657), (G03B 15/006), (G03B 37/02)	3/11/15	awc

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SEARCH NOTES		
Search Notes	**Date**	**Examiner**
Updated Inventor Name Search	3/11/15	awc
Interference Search History Printout	3/11/15	awc

INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
PGPUB and UPAD Text Search		4/23/14	awc
PGPUB and UPAD Text Search		3/11/15	awc

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

CPC						
Symbol					**Type**	**Version**
G03B		37	/	02	F	2013-01-01
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G06T		2207	/	10032	A	2013-01-01
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CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
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NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 27	
/AARON W CARTER/ Primary Examiner.Art Unit 2665 (Primary Examiner)	03/11/2015 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
382	106	G	0	6	K	9 / 00 (2006.0)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
382	284	294			
348	143				
356	3	601			

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	27	
/AARON W CARTER/ Primary Examiner.Art Unit 2665	03/11/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	13	17	25	33										
2	2	14	18	26	34										
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8	12	21	28												
9	13		29												
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11	15	23	31												
12	16	24	32												

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 27	
/AARON W CARTER/ Primary Examiner.Art Unit 2665 03/11/2015 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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Page 00339

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L50	27	30 and 49	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 16:45
L49	429	48 and @pd>"20131201"	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 16:45
L48	2158	44 45 46 47	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 16:45
L47	473	G01C11/02.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 16:44
L46	316	G06T2207/10032.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 16:44
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Nearmap US, Inc. v. Eagle View Techs., Inc.
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		US-20110007948-$ or US-20050031197-$ or US-20030044085-$ or US-20020149674-$ or US-20020146150-$ or US-20020060783-$ or US-20010048763-$ or US-20010015755-$ or US-20030164962-$ or US-20030066932-$ or US-20020012071-$).did. or (US-7009638-$ or US-6373522-$ or US-6256057-$ or US-6130705-$ or US-6108032-$ or US-6088055-$ or US-5844602-$ or US-5894323-$ or US-5798786-$ or US-5414462-$ or US-5247356-$ or US-4758850-$ or US-6747686-$ or US-5251037-$ or US-6731329-$ or US-5467271-$ or US-6549683-$ or US-8233666-$ or US-8204341-$ or US-8068643-$ or US-7995799-$ or US-7787659-$ or US-7424133-$ or US-7184072-$ or US-6735348-$ or US-6600553-$).did. or (US-5995681-$ or US-5625409-$ or US-4313678-$ or US-7015954-$ or US-4290694-$ or US-5633946-$ or US-8520079-$).did.	USPAT			
L40	2	38 39	US-PGPUB; USPAT	OR	ON	2015/03/11 16:22
L39	1	"20060195858".pn.	US-PGPUB; USPAT	OR	ON	2015/03/11 16:22
L38	1	"6222583".pn.	US-PGPUB; USPAT	OR	ON	2015/03/11 16:21
L37	1	"8520079".pn.	US-PGPUB; USPAT	OR	ON	2015/03/11 16:16
L35	8	31 and ((separat$4 individual$5 independent) near5 (control$6 trigger$4 actuact$4) near5 (imag$4 photo photograph$4 picture) near5 (acqui$7 captur$4 obtain$5))	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 15:45
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L31	14151	11 30	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 15:42
L30	1653	((aerial$4 oblique airplane) near5 (imag$4 photo photograph$4 picture)).ab.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 15:42
L21	34	11 and ((independent) near3 (imag$4 photo photograph$4 picture) near3 (acqui$7 captur$4 obtain$5))	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 14:02

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L20	521	11 and ((separat$4 individual$5) near3 (imag$4 photo photograph$4 picture) near3 (acqui$7 captur$4 obtain$5))	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 13:44
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L16	1	"8705843".pn.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:52
L15	1	11 and ((separat$4 individual$5) near3 trigger near3 camera)	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:50
L14	0	1 and ((separat$4 individual$5) near3 trigger near3 camera)	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:50
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L12	16	11 and ((separat$4 individual$5) near3 control$5 near3 camera)	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:38
L11	12825	2 3 4 5 6 7 8 9 10	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:37
L10	414	G03B37/02.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:37
L9	139	G03B15/006.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:37
L8	986	G06K9/0063-00657.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:36
L7	2070	G01C11/00-34.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:36
L6	877	G06T7/602.cpc.	US-PGPUB; USPAT;	OR	ON	2015/03/11 12:36

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			EPO			
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L3	523	G06T2207/10032-10044.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:35
L2	7268	G06T17/00-30.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:35
L1	1653	((aerial$4 oblique airplane) near5 (imag$4 photo photograph$4 picture)).ab.	US-PGPUB; USPAT; EPO	OR	ON	2015/03/11 12:08

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L36	1	(image same geo-location same oblique same aerial same event same software).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2015/03/11 15:47

3/11/2015 4:51:52 PM
C:\Users\acarter\Documents\EAST\Workspaces\13791032.wsp

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00343

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

U. S. PATENT APPLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Patent Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Issue Date MM/DD/YYYY	

U. S. PATENT APPLICATION PUBLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Publication Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Publications Date MM/DD/YYYY	

Examiner Signature: _____ Date Considered: _____

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [2] Enter Office that issued the document, by the two-letter code (WIPO Standard St.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St. 16 if possible. [5] Applicant is to place a check mark here if English language Translation is attached.

FOREIGN PATENT DOCUMENTS

EXAM INIT.	Cite No. [1]	**Foreign Document No.[3]** Country Code[2]- Kind Code[4] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYY	T[5]

Examiner Signature: _____ Date Considered: _____

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [2] Enter Office that issued the document, by the two-letter code (WIPO Standard St.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St. 16 if possible. [5] Applicant is to place a check mark here if English language Translation is attached.

EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL1	Applanix Corp, Robust, Precise Position and Orientation Solutions, POS/AV & POS/DG Installation & Operation Manual, Redefining the way you survey, 5/19/1999, Ontario, Canada.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00344

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL2	Applanix Corp, Robust, Precise Position and Orientation Solutions, POS/AV V4 Ethernet & Disk Logging ICD, Redefining the way you survey, Revision 3 April 18, 2001.

Examiner Signature:	Date Considered:

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00345

Electronic Patent Application Fee Transmittal

Application Number:	13791032
Filing Date:	08-Mar-2013
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Filer:	Marc Alan Brockhaus/Lori Radford
Attorney Docket Number:	6338.213

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	2806	1	90	90
RCE- 2nd and Subsequent Request	2820	1	850	850
		Total in USD ($)		**940**

Electronic Acknowledgement Receipt	
EFS ID:	22644780
Application Number:	13791032
International Application Number:	
Confirmation Number:	9486
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Customer Number:	30589
Filer:	Marc Alan Brockhaus/Lori Radford
Filer Authorized By:	Marc Alan Brockhaus
Attorney Docket Number:	6338.213
Receipt Date:	16-JUN-2015
Filing Date:	08-MAR-2013
Time Stamp:	14:15:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$940
RAM confirmation Number	559
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	6338213_Transmittal06162015.pdf	65924 9b903a89afa7cdc8293c9b2b106a5beb0df48560	no	1
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	6338213_RCE06162015.pdf	80441 50a2f61c142455f3f8ac5417f94aa70c47c9ac93	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	6338213_IDS06162015.pdf	100907 9d35b0cf9b5b33579ba106921946451005bf5c09	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
4	Non Patent Literature	EthernetDiskLoggingICD1.pdf	7730322 8369b7347b625a60ce1726858ed9033fdf6fd6a1	no	54
Warnings:					
Information:					
5	Non Patent Literature	InstallationOperationManual.pdf	8957416 d2aec16151a7f79ffdf8a3c3ae0defaf689b2eec	no	166
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	32425 f70ad7854a582a129d8c4d147a4b280bc0057abb	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	16967435		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket Number	6338.213

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☐ Amendment/Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☑ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
- ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):

See Remarks

Remarks

ELECTRONICALLY TRANSMITTED:
1. SB21 Transmittal Form (1 pg);
2. SB30 Request for Continued Exam (1 pg);
3. Information Disclosure Statement (2 pgs); and
4. Cited Non Patent documents.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DUNLAP CODDING, P.C.		
Signature	Ann M Robl		
Printed name	Ann M. Robl		
Date	06/16/2015	Reg. No.	71,541

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Ann M. Robl		
Typed or printed name	Ann M. Robl	Date	06/16/2015

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/30 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket Number	6338.213

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      Ii. ☐ Other _____

   b. ☑ Enclosed

      I. ☐ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☑ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☐ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. _____.

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☑ Other IDS fee _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☑ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	Ann M. Robl	Date	06/16/2015
Name (Print/Type)	Ann M. Robl	Registration No.	71,541

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature	Ann M. Robl		
Name (Print/Type)	Ann M. Robl	Date	06/16/2015

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

30589 7590 06/25/2015

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

EXAMINER	
CARTER, AARON W	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 06/25/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

TITLE OF INVENTION: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	09/25/2015

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 02/11)

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00353

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

30589 7590 06/25/2015
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

TITLE OF INVENTION: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	09/25/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
CARTER, AARON W	2665	382-106000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
❑ Issue Fee
❑ Publication Fee (No small entity discount permitted)
❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
❑ A check is enclosed.
❑ Payment by credit card. Form PTO-2038 is attached.
❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
❑ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
❑ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
❑ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00354

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

30589 7590 06/25/2015

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

EXAMINER	
CARTER, AARON W	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 06/25/2015

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 02/11)

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/791,032	Applicant(s) SCHULTZ ET AL.	
	Examiner AARON W. CARTER	Art Unit 2665	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the RCE filed on 6/16/15*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-4,6,10-19,23-28 and 30-35*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☒ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 6/16/15 has been entered. Claims 1-4, 6, 10-19, 23-28 and 30-35 are currently pending.

Allowable Subject Matter

Claims 1-4, 6, 10-19, 23-28 and 30-35 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON W. CARTER whose telephone number is (571)272-7445. The examiner can normally be reached on 9am-5pm EST (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AARON W CARTER/
Primary Examiner, Art Unit 2665

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	Art Unit
	AARON W CARTER	2665

CPC- SEARCHED		
Symbol	Date	Examiner
G01C 11/02	12/9/13	awc
G06K 9/0063, 9/00664	12/9/13	awc
G06T 2207/10032	12/9/13	awc
Updated Above	3/11/15	awc
Updated Above	6/19/15	awc

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
382	106, 154, 284, 294	12/9/13	awc
348	113-118, 143-148	12/9/13	awc
356	3-3.09, 601-613	12/9/13	awc
Updated Above		4/23/14	awc
Updated Above		7/23/14	awc

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Text Search (PGPUB, USPAT, DERWENT), See Search History Printout	12/9/13	awc
Inventor Name Search	12/9/13	awc
Google Patent/Scholar/Inventor Search	12/9/13	awc
Interference Search History Printout	4/23/14	awc
Updated EAST Text Search, See Search History Printout	7/23/14	awc
Updated Inventor Name Search	7/23/14	awc

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Nearmap US, Inc. v. Eagle View Techs., Inc.
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SEARCH NOTES		
Search Notes	**Date**	**Examiner**
Updated EAST Text Search (USPAT, PGPUB), including text search in CPC (G06T 17/00-30), (G06T 2207/10032-10044, 30181-30192), (G06T 3/4038), (G06T 7/602), (G01C 11/00-34), (G06K 9/0063-00657), (G03B 15/006), (G03B 37/02)	3/11/15	awc
Updated Inventor Name Search	3/11/15	awc
Interference Search History Printout	3/11/15	awc
Updated EAST Text Search, See Search History Printout	6/19/15	awc
Updated Inventor Name Search	6/19/15	awc
Updated Interference Search History Printout	6/19/15	awc

INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
PGPUB and UPAD Text Search		4/23/14	awc
PGPUB and UPAD Text Search		3/11/15	awc
PGPUB, USPAT and UPAD Text Search		6/19/15	awc

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Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

U. S. PATENT APPLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Patent Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Issue Date MM/DD/YYYY	

U. S. PATENT APPLICATION PUBLICATION DOCUMENTS

EXAM INIT.	Cite No. [1]	Publication Number Number-Kind Code [1] (if known)	Name of Patentee or Applicant of Cited Document	Publications Date MM/DD/YYYY	

Examiner Signature: _____ Date Considered: _____

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [2] Enter Office that issued the document, by the two-letter code (WIPO Standard St.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St. 16 if possible. [5] Applicant is to place a check mark here if English language Translation is attached.

FOREIGN PATENT DOCUMENTS

EXAM INIT.	Cite No. [1]	**Foreign Document No.[3]** Country Code[2]- Kind Code[4] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYY	T[5]

Examiner Signature: _____ Date Considered: _____

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [2] Enter Office that issued the document, by the two-letter code (WIPO Standard St.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St. 16 if possible. [5] Applicant is to place a check mark here if English language Translation is attached.

EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL1	Applanix Corp, Robust, Precise Position and Orientation Solutions, POS/AV & POS/DG Installation & Operation Manual, Redefining the way you survey, 5/19/1999, Ontario, Canada.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.C./

Substitute for form 1449/PTO
PTO/SB/08A and 08B
Form 6-2 and Form 6-2.1

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application No.	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket No.	6338.213

EXAM INIT.	Cite Number	NON-PATENT DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	NPL2	Applanix Corp, Robust, Precise Position and Orientation Solutions, POS/AV V4 Ethernet & Disk Logging ICD, Redefining the way you survey, Revision 3 April 18, 2001.

Examiner Signature: /Aaron Carter/ Date Considered: 06/18/2015

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.C./

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S345	2	S343 S344	US-PGPUB; USPAT	OR	ON	2015/06/19 09:20
S344	1	"20060291692".pn.	US-PGPUB; USPAT	OR	ON	2015/06/19 09:20
S343	1	"6618504".pn.	US-PGPUB; USPAT	OR	ON	2015/06/19 09:19
S340	0	S339 and @ad<"20021109"	US-PGPUB; USPAT; EPO	OR	ON	2015/06/18 12:32
S339	97	S338 and @pd>"20150301"	US-PGPUB; USPAT; EPO	OR	ON	2015/06/18 12:31
S338	2285	S334 S335 S336 S337	US-PGPUB; USPAT; EPO	OR	ON	2015/06/18 12:29
S337	502	G01C11/02.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/06/18 12:29
S336	354	G06T2207/10032.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/06/18 12:29
S335	798	G06K9/0063.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/06/18 12:29
S334	745	G06K9/00664.cpc.	US-PGPUB; USPAT; EPO	OR	ON	2015/06/18 12:29

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	(image same geo-location same oblique same aerial same event same software).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2015/06/19 12:20

6/19/2015 12:20:23 PM
C:\Users\acarter\Documents\EAST\Workspaces\13791032.wsp

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

CPC						
Symbol					**Type**	**Version**
G03B		37	/	02	F	2013-01-01
G06T		17	/	05	I	2013-01-01
G06T		2207	/	10032	A	2013-01-01
G06T		3	/	4038	I	2013-01-01
G06T		7	/	602	I	2013-01-01
G06K		9	/	0063	I	2013-01-01
G03B		15	/	006	I	2013-01-01
G01C		11	/	02	I	2013-01-01
			/			
			/			
			/			
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			/			
			/			
			/			

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	27	
/AARON W CARTER/ Primary Examiner.Art Unit 2665	06/19/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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Page 00365

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
382	106	G	0	6	K	9 / 00 (2006.0)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
382	284	294			
348	143				
356	3	601			

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	27	
/AARON W CARTER/ Primary Examiner.Art Unit 2665	06/19/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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Page 00366

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13791032	SCHULTZ ET AL.
	Examiner	**Art Unit**
	AARON W CARTER	2665

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	13	17	25	33										
2	2	14	18	26	34										
3	3	15	19	27	35										
4	4		20												
	5		21												
5	6		22												
	7	16	23												
	8	17	24												
	9	18	25												
6	10	19	26												
7	11	20	27												
8	12	21	28												
9	13		29												
10	14	22	30												
11	15	23	31												
12	16	24	32												

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 27	
/AARON W CARTER/ Primary Examiner.Art Unit 2665 06/19/2015 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00367

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

30589 7590 06/25/2015
DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Marc A. Brockhaus	(Depositor's name)
Marc Brockhaus	(Signature)
09/24/2015	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	9486

TITLE OF INVENTION: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	09/25/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
CARTER, AARON W	2665	382-106000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 DUNLAP CODDING, P.C.
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Pictometry International Corp.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Rochester, New York

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
■ Issue Fee
■ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)
☐ A check is enclosed.
■ Payment by credit card. Form PTO-2038 is attached.
☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☐ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature Marc Brockhaus Date 09/24/2015
Typed or printed name Marc A. Brockhaus Registration No. 40,923

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
IPR2024-00729
Page 00368

Electronic Patent Application Fee Transmittal

Application Number:	13791032
Filing Date:	08-Mar-2013
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Filer:	Marc Alan Brockhaus/Lori Radford
Attorney Docket Number:	6338.213

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**480**

Electronic Acknowledgement Receipt	
EFS ID:	23594469
Application Number:	13791032
International Application Number:	
Confirmation Number:	9486
Title of Invention:	METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES
First Named Inventor/Applicant Name:	Stephen L. Schultz
Customer Number:	30589
Filer:	Marc Alan Brockhaus/Lori Radford
Filer Authorized By:	Marc Alan Brockhaus
Attorney Docket Number:	6338.213
Receipt Date:	24-SEP-2015
Filing Date:	08-MAR-2013
Time Stamp:	15:58:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$480
RAM confirmation Number	3581
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	6338213_Transmittal09242015.pdf	55972 1c003a700945b0ad4583b584652a079d3d3d9189	no	1
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	6338213_PartB.pdf	74340 29b8d8601ac46b3fce1549c5d51d04f9a9e015f0	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30829 686bf19b34480ac7aff6e130a9206b422998dda3	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	161141		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665
Examiner Name	Aaron W. Carter
Attorney Docket Number	6338.213

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):
  See Remarks

Remarks

ELECTRONICALLY TRANSMITTED:
1. SB21 Transmittal Form (1 pg); and
2. PTOL-85 (1 pg).

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DUNLAP CODDING, P.C.		
Signature	Marc Brockhaus		
Printed name	Marc A. Brockhaus		
Date	09/24/2015	Reg. No.	40,923

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Marc Brockhaus		
Typed or printed name	Marc A. Brockhaus	Date	09/24/2015

This collection of information is required by 37 CFR 1 5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/791,032	11/10/2015	9182657	6338.213	9486

30589 7590 10/21/2015

DUNLAP CODDING, P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Stephen L. Schultz, West Henrietta, NY;
Frank D. Giuffrida, Honeoye Falls, NY;
Robert L. Gray, Canandiagua, NY;
Charles Mondello, Pittsford, NY;
Pictometry International Corp., Rochester, NY

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY.DOCKET NO./TITLE	REQUEST ID
13/791,032	03/08/2013	Stephen L. Schultz	6338.213	66110

Acknowledgement of Loss of Entitlement to Entity Status Discount

The entity status change request below filed through Private PAIR on 06/19/2018 has been accepted.

CERTIFICATIONS:

Change of Entity Status:

X Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be notification of loss of entitlement to small or micro entity status, as applicable.

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Signature:	/marcabrockhaus/
Name:	Marc A. Brockhaus
Registration Number:	40923

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

CORRESPONDENCE ADDRESS CHANGE

APPLICATION #	FILING OR 371(C) DATE	REQUEST ID
13/791,032	03/08/2013	37737

The following fields have been changed to Customer Number 189081 on 08/10/2022 via Patent Center in view of the certification copied below that authorized the change.

- Correspondence Address

The address for Customer Number 189081 is:

189081 - EagleView
PO BOX 16370
OKLAHOMA CITY , OK 73113

I certify, in accordance with 37 CFR 1.4(d)(4), that I am :

An attorney or Agent of Record registered to practice before the Patent and Trademark Office who has been given power of attorney in this application

Signature	Name	Registration #
/Ann Robl/	ANN ROBL	71541

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

FEE ADDRESS CHANGE

APPLICATION #	FILING OR 371(C) DATE	REQUEST ID
13/791,032	03/08/2013	37737

The following fields have been changed to Customer Number 189081 on 08/10/2022 via Patent Center in view of the certification copied below that authorized the change.

- Maintenance Fee Address

The address for Customer Number 189081 is:

189081 - EagleView
PO BOX 16370
OKLAHOMA CITY, OK 73113

I certify, in accordance with 37 CFR 1.4(d)(4), that I am :

An attorney or Agent of Record registered to practice before the Patent and Trademark Office who has been given power of attorney in this application

Signature	Name	Registration #
/Ann Robl/	ANN ROBL	71541

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 189081

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

■ The address associated with Customer Number: 189081

OR

☐

Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address: Pictometry International Corp.
25 Methodist Hill Drive
Rochester, NY 14623

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	/Rebecca Unruh/	Date	August 10, 2022
Name	Rebecca Unruh	Telephone	
Title	Deputy General Counsel, IP and Transactions, Pictometry International Corp.		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Pictometry International Corp.

Application No./Patent No.: 13/791,032 Filed/Issue Date: 03/08/2013

Titled: METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

Pictometry International Corp., a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. [✓] The assignee of the entire right, title, and interest.

2. [ ] An assignee of less than the entire right, title, and interest (check applicable box):

   [ ] The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   [ ] There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. [ ] The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. [ ] The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. [✓] An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 031925, Frame 0535, or for which a copy thereof is attached.

B. [ ] A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Ann M. Robl/	August 22, 2022
Signature	Date
Ann M. Robl	71,541
Printed or Typed Name	Title or Registration Number

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	13/791,032
Filing Date	03/08/2013
First Named Inventor	Stephen L. Schultz
Art Unit	2665 (conf. no. 9486)
Examiner Name	Aaron W. Carter
Attorney Docket Number	6338.213

Total Number of Pages in This Submission

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☑ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please identify below):

Remarks

Electronically Transmitted: August 22, 2022

1) sb21 Transmittal (1 page);
2) AIA80 POA (1 page); and
3) AIA96 Statement (2 pages).

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DUNLAP CODDING, P.C.		
Signature	/Ann M. Robl/		
Printed name	Ann M. Robl		
Date	August 22, 2022	Reg. No.	71,541

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	/Ann M. Robl/		
Typed or printed name	Ann M. Robl	Date	August 22, 2022

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
13/791,032	**08/22/2022 05:10:28 PM ET**	**6338.213**

Title of Invention

METHOD AND APPARATUS FOR CAPTURING, GEOLOCATING AND MEASURING OBLIQUE IMAGES

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	9182657
CONFIRMATION #	9486	FILED BY	Anne Burns
PATENT CENTER #	60895531	FILING DATE	03/08/2013
CUSTOMER #	189081	FIRST NAMED INVENTOR	Stephen L. Schultz
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	ANN ROBL

Documents

TOTAL DOCUMENTS: 3

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
6338213_sb21_Transmittal_08222022.pdf	1	Transmittal Letter	163 KB
6338213_AIA80_POA_08222022.pdf	1	Power of Attorney	87 KB
6338213_AIA96_Statement_08222022.pdf	2	Assignee showing of ownership per 37 CFR 3.73	77 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)

6338213_sb21_Transmittal_08222022.pdf	F81A858489B92DB5E1C27BFCEE0CE26551E2A5E107E3732E488E2A7B0B5B7544CB80796829995EDADF591B12121FCC3A138294A67370AA6C3E41EE751FD553B2
6338213_AIA80_POA_08222022.pdf	F17404B9EAE1F8C00BE935C4C39E52F15FC10B1F76560DFD2185D55AB29E261DFB046FA1509055315 6E56EBF6B8B1263B828A46177786A8F2F600113D1B25145
6338213_AIA96_Statement_08222022.pdf	F528CDB97CF8C56A0251BFA984E6CA78E434A48DF73ED6D58F3590441D79FA91BF0298DD1FC80C1772E760249BF031AF0EDC80C52C81FF40F41AA9B730394FA2

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/791,032	03/08/2013	Stephen L. Schultz	6338.213

CONFIRMATION NO. 9486

189081
EagleView
PO BOX 16370
OKLAHOMA CITY, OK 73113

POA ACCEPTANCE LETTER

OC00000136040758

Date Mailed: 08/25/2022

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/22/2022.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sltorres/

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CONFIRMATION NO. 9486

189081
EagleView
PO BOX 16370
OKLAHOMA CITY, OK 73113

POWER OF ATTORNEY NOTICE

OC00000136040748

Date Mailed: 08/25/2022

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/22/2022.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sltorres/

Nearmap US Exhibit 1002
Nearmap US, Inc. v. Eagle View Techs., Inc.
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