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(71) Applicant (for all designated States except US): **GEOSIM SYSTEMS LTD.** [IL/IL]; 21, YAGIA KAPAIM STREET, P.O. Box 3899, 49130 Petech-tikva (IL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SHENKAR, Victor** [IL/IL]; 18 Benjamin Street, 52512 Ramat-gan (IL). **HARARI, Alexander** [US/US]; 1158 26th Street #422, Santa Monica, CA 90403 (US).

(74) Agent: **SMITH FROHWEIN TEMPEL GREENLEE BLAHA, LLC**; P.O. Box 88148, Atlanta, GA 30356 (US).

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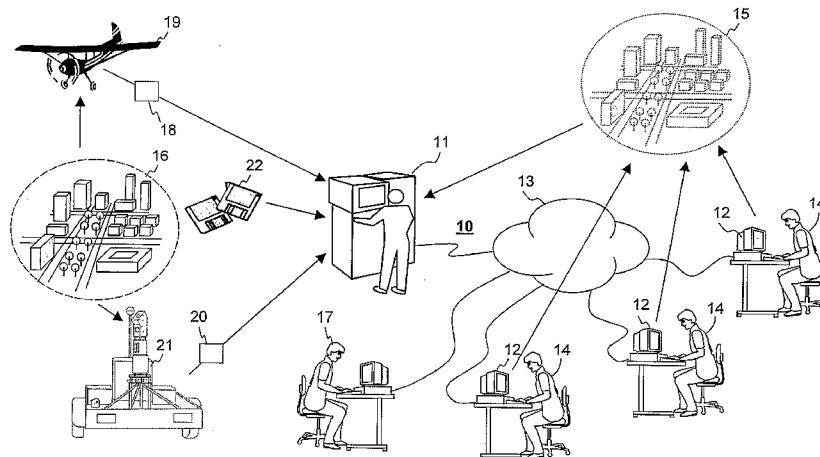
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(54) Title: SYSTEM AND METHOD FOR COST-EFFECTIVE, HIGH-FIDELITY 3D-MODELING OF LARGE-SCALE URBAN ENVIRONMENTS



(57) Abstract: A method, a system, and a program for high-fidelity three-dimensional modeling of a large-scale urban environment, performing the following steps: acquiring imagery of the urban environment, containing vertical aerial stereo-pairs, oblique aerial images; street-level imagery; and terrestrial laser scans, acquiring metadata pertaining to performance, spatial location and orientation of imaging sensors providing the imagery; identifying pixels representing ground control-points and tie-points in every instance of the imagery where the ground control-points and tie-points have been captured; co-registering the instances of the imagery using the ground control-points, the tie-points and the metadata, and referencing the co-registered imagery to a common, standard coordinate system. The referenced co-registration obtained enables: extraction of ground coordinates for each pixel located in overlapping segments of the imagery, representing a 3D-point within the urban environment; and applying data pre-processing and 3D modeling procedures; to create the high-fidelity 3D model of a large-scale urban environment.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/33966

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **G09B 29/00**(2006.01);**G01C 21/30**(2006.01),**21/32**(2006.01)

USPC: 434/150;701/208

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. : 434/150; 701/208

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y		1-2,6, 8-9, 20-23
Y	US 5,966,133 (Hoppe) 12 October 1999 (12.10.1999), column 2, lines 36-37.	1-2,6,8-9,20-23
Y	US 5,596,494 (Kuo) 21 January 1997 (21.01.1997), column 8, lines 4-46.	1-2,6,8-9
Y	US 2003/0225513 A1 (Gagvani et al.) 04 December 2003 (04.12.2003), paragraph 22.	1-2,6,8-9
A	US 5,166,878 (Poelstra) 24 November 1992 (24.11.1992).	
A	US 5,719,773 (Choate) 17 February 1998 (17.02.1998).	

Further documents are listed in the continuation of Box C.

See patent family annex.

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Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Damon Conover

Telephone No. (571) 272-5448

Jacqueline A. Whitfield
Special Project Asst.

INTERNATIONAL SEARCH REPORT

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,373,482 B1 (Migdel et al.) 16 April 2002 (16.04.2002).	
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A	US 2005/0099420 A1 (Hoppe) 12 May 2005 (12.05.2005).	
A	Leclerc et al., "TerraVision: A Terrain Visualization System," SRI International, Menlo Park, California, Tech. Note No. 540, Apr. 22, 1994.	
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