



(51) International Patent Classification:

H04N 7/18 (2006.01) *G05B 11/00* (2006.01)
G06K 9/00 (2006.01)

(21) International Application Number:

PCT/US2009/052803

(22) International Filing Date:

5 August 2009 (05.08.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/086,290 5 August 2008 (05.08.2008) US

(71) Applicant (for all designated States except US): **UNIVERSITY OF FLORIDA RESEARCH FOUNDATION, INC.** [US/US]; 223 Grinter Hall, Gainesville, FL 32611 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GANS, Nicholas, R.** [US/US]; 4653 SW 44th Lane, Gainesville, FL 32698 (US). **DIXON, Warren** [US/US]; 8681 SW 89th Lane, Gainesville, FL 32698 (US).

(74) Agent: **RISLEY, David**; Thomas, Kayden, Horstemeyer & Risley, LLP, 600 Galleria Parkway, Suite 1500, Atlanta, GA 30339 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

10 September 2010

(54) Title: SYSTEMS AND METHODS FOR MAINTAINING MULTIPLE OBJECTS WITHIN A CAMERA FIELD-OF-VIEW

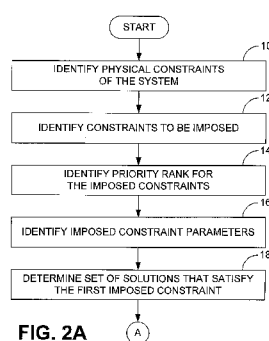


FIG. 2A

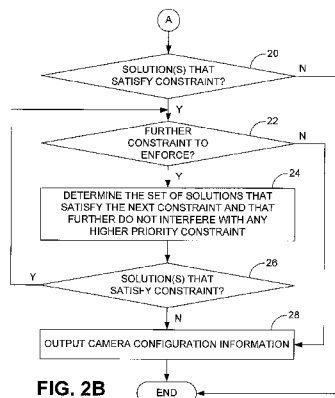


FIG. 2B

(57) Abstract: In one embodiment, a system and method for maintaining objects within a camera field of view include identifying constraints to be enforced, each constraint relating to an attribute of the viewed objects, identifying a priority rank for the constraints such that more important constraints have a higher priority than less important constraints, and determining the set of solutions that satisfy the constraints relative to the order of their priority rank such that solutions that satisfy lower ranking constraints are only considered viable if they also satisfy any higher ranking constraints, each solution providing an indication as to how to control the camera to maintain the objects within the camera field of view.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/052803**A. CLASSIFICATION OF SUBJECT MATTER****H04N 7/18(2006.01)i, G06K 9/00(2006.01)i, G05B 11/00(2006.01)i**

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)

H04N 7/18; G06K 9/46; H04N 7/14

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: "image", "pick-up", "object", "camera", "field of view", "multi", "zoom", "distance", "location", "PTZ", "control"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007-0291104 A1 (BARRY LEE PETERSEN et al.) 20 December 2007. See abstract; paragraphs [0040]-[0044]; figures 1, 3; claims 1,2,5,7-12.	1-30
A	US 2006-0120606 A1 (YUKIHIITO FURUHASHI et al.) 08 June 2006. See abstract; paragraphs [0041]-[0083]; figures 1-6; claims 1,2,4.	1-30
A	US 7385626 B2 (AGGARWAL MANOJ et al.) 10 June 2008 See abstract; column 3, line 16 - column 4, line 36; figure 1; claims 1,3,4.	1-30



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"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

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

14 JULY 2010 (14.07.2010)

Date of mailing of the international search report

14 JULY 2010 (14.07.2010)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Kim, Seong Woo

Telephone No. 82-42-481-8590



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/052803

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007-0291104 A1	20.12.2007	US 2007-291104 A1	20.12.2007
US 2006-0120606 A1	08.06.2006	CN 1820282 A	16.08.2006
		CN 1820282 C0	30.01.2008
		EP 1650704 A1	26.04.2006
		JP W020-050108 17A1	03.02.2005
		KR 10-0816589 B1	24.03.2008
		KR20060030120A	07.04.2006
		US 7424174 B2	09.09.2008
		WO 2005-010817 A1	03.02.2005
US 7385626 B2	10.06.2008	EP 1554693 A2	20.07.2005
		EP 1554693 A4	04.02.2009
		JP 2006-523043 A	05.10.2006
		JP 2006-523043 T	05.10.2006
		JP 2006-523043 T	05.10.2006
		US 2004-0119819 A1	24.06.2004
		US 2004-119819 A1	24.06.2004
		WO 2004-038659 A2	06.05.2004
		WO 2004-038659 A2	06.05.2004
		WO 2004-038659 A3	03.06.2004
		WO 2004-038659 A3	06.05.2004
		WO 2004-038659 A3	03.06.2004