

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 January 2007 (04.01.2007)

PCT

(10) International Publication Number
WO 2007/002143 A3

(51) International Patent Classification:
H04N 17/02 (2006.01) *H04N 3/22* (2006.01)

(74) Agent: **BACKOFEN, Paul, J.**; Crockett & Crockett,
24012 Calle De La Plata, Suite 400, Laguna Hills, CA
92653 (US).

(21) International Application Number:
PCT/US2006/024068

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, **BR**, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HN, **HR**, HU, **ID**, IL, IN, IS, **JP**,
KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT,
LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA,
NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC,
SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

(22) International Filing Date: 21 June 2006 (21.06.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/166,897 24 June 2005 (24.06.2005) US

(71) Applicant (for all designated States except US):
FAKESPACE LABS, INC. [US/US]; 241 Polaris
Avenue, Mountain View, CA 94043 (US).

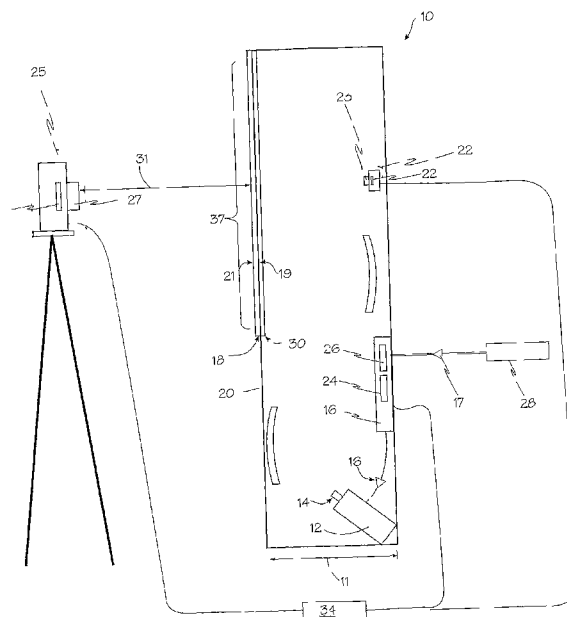
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, **BJ**, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BOLAS, Mark, T.**
[US/US]; 241 Polaris Avenue, Mountain View, CA 94043
(US). **MCDOWALL, Ian, E.** [US/US]; 241 Polaris Av-
enue, Mountain View, CA 94043 (US).

[Continued on next page]

(54) Title: DUAL CAMERA CALIBRATION TECHNIQUE FOR VIDEO PROJECTION SYSTEMS



(57) Abstract: A video projection calibration technique includes a first camera to view the video display screen from the projector side, and a second camera to view the video display screen from the viewing side. The first camera may be a lower resolution than the second camera. The combination of the two cameras permits the transfer functions of the projection system and the first camera to be characterized and reduced to a warping transform that may be stored by the control system. The presence of the warping transform would permit the lower resolution, first camera to perform image realignment after the video projection system is in use by an end user.

WO 2007/002143 A3



Published:

— *with international search report*

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

6 March 2008

INTERNATIONAL SEARCH REPORT

International application No

PCT/US06/24068

A. CLASSIFICATION OF SUBJECT MATTERIPC: **H04N 17/02(2006 01),H04N 3/22(2006 01)**

USPC 348/1 89,745

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 348/189, 744-747, 180, 345/904; 702/81, 84

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)
EAST, projection television, video projector, calibration, warping, camera**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 6,3 10,650 A (JOHNSON et al) 30 October 2001 (30.10.2001), see entire document	1 and 2

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 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 another 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 November 2007 (14. 11 2007)

Date of mailing of the international search report

20 DEC 2007

Name and mailing address of the ISA/US

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

Facsimile No. (571) 273-3201

Authorized officer

Victor R Kostak

Telephone No 703 305-3900