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12173580.7 26 June 2012 (26.06.2012) EP(71) Applicant: **ULTRA-D COÖPERATIEF U.A.** [NL/NL];
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6, NL-5611 LZ Eindhoven (NL).(74) Agent: **DELTAPATENTS B.V.**; Fellenoord 370, NL-
5611 ZL Eindhoven (NL).(81) Designated States (*unless otherwise indicated, for every
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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR,KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
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OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC,
SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.(84) Designated States (*unless otherwise indicated, for every
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UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
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EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).**Declarations under Rule 4.17:**— *as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))***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:

24 April 2014

(54) Title: DEVICE FOR GENERATING A DEPTH MAP

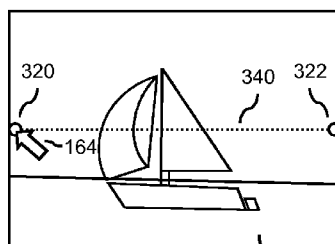


Fig. 4d 144

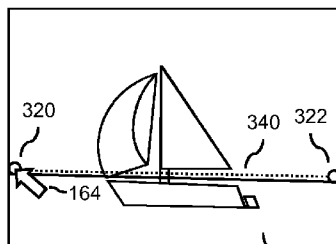


Fig. 4e 144

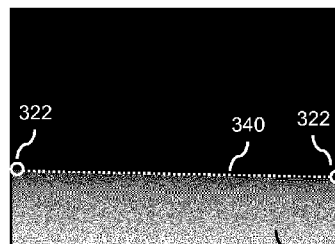


Fig. 4f 142

(57) Abstract: Device (100) for generating a depth map (142) based on a two-dimensional [2D] image (144) for enabling three-dimensional [3D] rendering of the 2D image, comprising: - a display output (160) for displaying a marker (320) in the 2D image, the marker corresponding to a component of a geometric template (300), the geometric template comprising depth information for defining a global depth profile (360) of a reference scene; - a user input (120) for enabling a user to position the marker in the 2D image so as to enable the user to match the geometric template to an actual scene shown in the 2D image by positioning the component with respect to the 2D image; and - a depth map generator (140) for establishing the global depth profile as the depth map (142) based on a position (122) of the marker in the 2D image.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/061798

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06T7/00
ADD.

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)
G06T

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 184 713 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]) 12 May 2010 (2010-05-12) paragraph [0034]; figure 4	1-3,5-8, 14,15
X	SEBASTIANO BATTIATO ET AL: "Depth map generation by image classification", PROCEEDINGS OF SPIE - INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, S P I E - INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, US, vol. 5302, 1 January 2004 (2004-01-01), pages 95-104, XP002527303, ISSN: 0277-786X	1,4,9
Y	section 4 ----- -/-	10-13



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 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

25 February 2014

Date of mailing of the international search report

04/03/2014

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/061798

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2006/003577 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; REDERT PETER-ANDRE [NL]; VAN GEES) 12 January 2006 (2006-01-12) abstract page 7, line 4 - line 11 page 7, line 23 - line 28 claims 5,7; figures 1,2 -----	10-13
A	US 2012/007950 A1 (YANG JEONGHYU [KR] ET AL) 12 January 2012 (2012-01-12) paragraphs [0105] - [0120] -----	1-9,14, 15
A	BEN WARD ET AL: "Depth Director: A System for Adding Depth to Movies", IEEE COMPUTER GRAPHICS AND APPLICATIONS, IEEE SERVICE CENTER, NEW YORK, NY, US, vol. 31, no. 1, 1 January 2011 (2011-01-01), pages 36-48, XP011341201, ISSN: 0272-1716, DOI: 10.1109/MCG.2010.103 cited in the application page 41, paragraph 3 - page 44, paragraph 2 -----	1-9,14, 15
A	US 2010/046837 A1 (BOUGHORBEL FAYCAL [NL]) 25 February 2010 (2010-02-25) abstract paragraph [0089] -----	10-13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2013/061798

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9, 14, 15

Alternative background depth map generation

2. claims: 10-13

Foreground object depth map generation based on a background depth map

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/061798

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2184713	A1	12-05-2010	CN 102203829 A 28-09-2011
			EP 2184713 A1 12-05-2010
			EP 2347386 A1 27-07-2011
			JP 2012507907 A 29-03-2012
			KR 20110093829 A 18-08-2011
			TW 201029443 A 01-08-2010
			US 2011210969 A1 01-09-2011
			WO 2010052632 A1 14-05-2010

WO 2006003577	A1	12-01-2006	NONE

US 2012007950	A1	12-01-2012	NONE

US 2010046837	A1	25-02-2010	CN 101542529 A 23-09-2009
			EP 2087466 A1 12-08-2009
			JP 2010510600 A 02-04-2010
			US 2010046837 A1 25-02-2010
			WO 2008062351 A1 29-05-2008
