



(43) International Publication Date
11 December 2014 (11.12.2014)

(51) International Patent Classification:

A61B 3/028 (2006.01) G02B 27/01 (2006.01)
G06F 3/01 (2006.01)

(21) International Application Number:

PCT/US2014/040411

(22) International Filing Date:

30 May 2014 (30.05.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/832,845 8 June 2013 (08.06.2013) US
14/225,408 25 March 2014 (25.03.2014) US

(71) Applicant: SONY COMPUTER ENTERTAINMENT INC. [JP/JP]; 1-7-1 Konan, Minato-ku, Tokyo 108-0075 (JP).

(72) Inventor; and

(71) Applicant (for US only): STAFFORD, Jeffrey, Roger [US/US]; 2207 Bridgepointe Pkwy., San Mateo, CA 94404 (US).

(74) Agent: MINISANDRAM, Jayanthi; Martine Penilla Group, LLP, 710 Lakeway Drive, Suite 200, Sunnyvale, CA 94085 (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, BN, 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, IR, IS, JP, KE, KG, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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 kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, 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:
5 February 2015

(54) Title: HEAD MOUNTED DISPLAY BASED ON OPTICAL PRESCRIPTION OF A USER

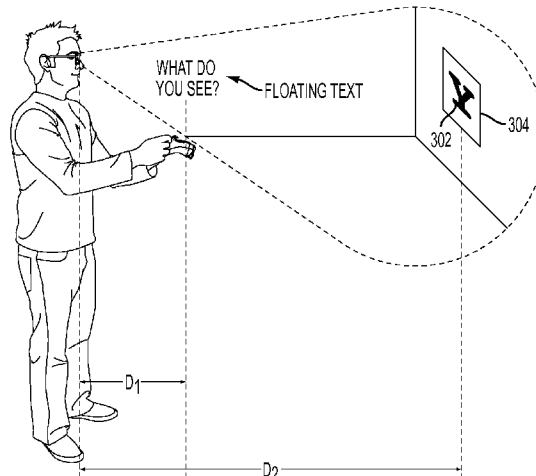
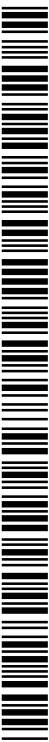


FIG. 3A

(57) Abstract: Systems and methods for operating a screen of a head mounted display includes executing a program. The execution of the program causes rendering of images on the screen of the HMD. The screen renders the images using a first optical setting. A first image is presented on the screen. The first image has a first size and is presented at a distance. Input is received identifying a clarity level for the first image. A second image is presented on the screen. The second image has a second size and the distance. Input is received identifying the clarity level for the second image. Based on the clarity level received for the first and the second images, the first optical setting for the screen is changed to a second optical setting. The optical setting adjustments may compensate for deficiencies in a user's vision. A biometric identify may be used to identify a user. The optical setting adjustments may be based on a stored user profile or a user's optical prescription.



WO 2014/197338 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/040411

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61B3/028 G06F3/01 G02B27/01
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)
A61B G06F G09G G02B
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	US 2011/157180 A1 (BURGER DOUGLAS CHRISTOPHER [US] ET AL) 30 June 2011 (2011-06-30) paragraphs [0062], [0068]; figure 15 -----	1-3
X	US 2010/091027 A1 (OYAMA KENJI [JP] ET AL) 15 April 2010 (2010-04-15) paragraphs [0145], [0156]; figure 7 paragraphs [0184] - [0198]; figure 11 paragraphs [0324], [0325], [0331] -----	1,4-6
Y	US 2010/079356 A1 (HOELLWARTH QUIN C [US]) 1 April 2010 (2010-04-01) paragraphs [0001] - [0007], [0037] - [0042]; figure 1 paragraph [0074] ----- -/--	1-6

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	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"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 10 September 2014	Date of mailing of the international search report 23/12/2014
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Ciarrocca, Marco

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/040411

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2012/254779 A1 (OLLIVIERRE ARTHUR AUSTIN [US] ET AL) 4 October 2012 (2012-10-04) paragraphs [0025] - [0031], [0047]; figures 1b,10,11 -----	1-6
Y	US 2011/169928 A1 (GASSEL JOHN [US] ET AL) 14 July 2011 (2011-07-14) abstract; figure 1 paragraph [0007] -----	1-6
Y	US 2013/127821 A1 (LEWIS JEFFREY PHILLIP [CA] ET AL) 23 May 2013 (2013-05-23) the whole document -----	1-6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/040411

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.:

1-6

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/040411

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2011157180	A1	30-06-2011	NONE

US 2010091027	A1	15-04-2010	CN 101726854 A 09-06-2010
			EP 2177941 A2 21-04-2010
			JP 5341462 B2 13-11-2013
			JP 2010096864 A 30-04-2010
			US 2010091027 A1 15-04-2010
			US 2014327604 A1 06-11-2014

US 2010079356	A1	01-04-2010	NONE

US 2012254779	A1	04-10-2012	NONE

US 2011169928	A1	14-07-2011	US 2011169928 A1 14-07-2011
			WO 2011084895 A1 14-07-2011

US 2013127821	A1	23-05-2013	NONE

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-6

Changing the screen optical setting of an HMD screen based on the user clarity level feedback received for first and second images

2. claims: 7-16, 18, 19

Method and system for operating an HMD screen comprising presenting a plurality of images and receiving clarity level feedback for each of the plurality of images to automatically adjust the optical setting

3. claims: 17, 20

Method and system for operating an HMD screen comprising adjusting the optical setting based on the detected biometric identity of the user
