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- (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, 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.

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WO 2015/142719 A3

(54) Title: METHOD AND APPARATUS FOR ESTABLISHING CONNECTION BETWEEN ELECTRONIC DEVICES

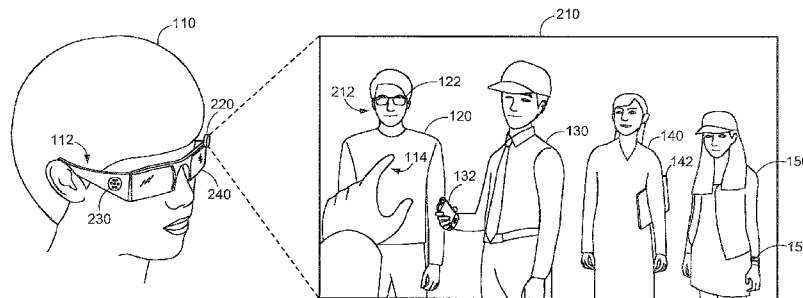


FIG. 2

(57) Abstract: A method, performed in an electronic device, for connecting to a target device is disclosed. The method includes capturing an image including a face of a target person associated with the target device and recognizing an indication of the target person. The indication of the target person may be a pointing object, a speech command, and/or any suitable input command. The face of the target person in the image is detected based on the indication and at least one facial feature of the face in the image is extracted. Based on the at least one facial feature, the electronic device is connected to the target device.

INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2015/020710

A. CLASSIFICATION OF SUBJECT MATTER  
INV. G06K9/00  
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)  
G06K  
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

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2014/031652 A1 (QUALCOMM INC [US]) 27 February 2014 (2014-02-27)	1,2,4,6, 11,12, 14,16, 21,22, 26,27
Y	paragraph [0003] - paragraph [0003] paragraph [0057] - paragraph [0057] paragraph [0031] - paragraph [0031] paragraph [0059] - paragraph [0059] -----	3,5,13, 15,23,28
X	SHANAKA RANSIRI ET AL: "SmartFinger", 20130307; 20130307 - 20130308, 7 March 2013 (2013-03-07), pages 5-8, XP058014361, DOI: 10.1145/2459236.2459238 ISBN: 978-1-4503-1904-1 page 1 - page 1 page 3 - page 3 ----- -/--	1,6,11, 16,21,26

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  3 December 2015	Date of mailing of the international search report  11/12/2015
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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  Mitzel, Dennis
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2015/020710

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PAVLOVIC V I ET AL: "VISUAL INTERPRETATION OF HAND GESTURES FOR HUMAN-COMPUTER INTERACTION: A REVIEW", IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, IEEE COMPUTER SOCIETY, USA, vol. 19, no. 7, 1 July 1997 (1997-07-01), pages 677-695, XP000698168, ISSN: 0162-8828, DOI: 10.1109/34.598226 the whole document</p> <p>-----</p>	1-6, 11-16, 21-23, 26-28
Y	<p>US 6 339 706 B1 (TILLGREN MAGNUS [SE] ET AL) 15 January 2002 (2002-01-15) figure 5</p> <p>-----</p>	3,5,13, 15,23,28
A	<p>Osamu Sugiyama ET AL: "An Attention Sharing Model utilizing Pointing Gesture and Reference Term", 1 January 2006 (2006-01-01), XP055232898, Retrieved from the Internet: URL:http://www.irc.atr.jp/ieice_nwr/pdf/NR-TG-2-08.pdf [retrieved on 2015-12-02] the whole document</p> <p>-----</p>	1-6, 11-16, 21-23, 26-28
A	<p>LUBOMIR BOURDEV ET AL: "Describing people: A poselet-based approach to attribute classification", COMPUTER VISION (ICCV), 2011 IEEE INTERNATIONAL CONFERENCE ON, IEEE, 6 November 2011 (2011-11-06), pages 1543-1550, XP032101366, DOI: 10.1109/ICCV.2011.6126413 ISBN: 978-1-4577-1101-5 the whole document</p> <p>-----</p>	1-6, 11-16, 21-23, 26-28
A	<p>JOO JUNGSEOCK ET AL: "Human Attribute Recognition by Rich Appearance Dictionary", 2013 IEEE INTERNATIONAL CONFERENCE ON COMPUTER VISION, IEEE, 1 December 2013 (2013-12-01), pages 721-728, XP032572760, ISSN: 1550-5499, DOI: 10.1109/ICCV.2013.95 [retrieved on 2014-02-28] the whole document</p> <p>-----</p>	1-6, 11-16, 21-23, 26-28

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2015/020710

## 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.:  
  
3, 5, 6, 13, 15, 16, 23, 28
  
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.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2015/020710
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2014031652	A1	27-02-2014	CN 104584539 A 29-04-2015
			EP 2888874 A1 01-07-2015
			US 2014055553 A1 27-02-2014
			WO 2014031652 A1 27-02-2014
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US 6339706	B1	15-01-2002	AT 363709 T 15-06-2007
			AU 1393601 A 30-05-2001
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			DE 60035061 T2 24-01-2008
			EP 1232493 A1 21-08-2002
			ES 2284541 T3 16-11-2007
			JP 4955170 B2 20-06-2012
			JP 2003514472 A 15-04-2003
			US 6339706 B1 15-01-2002
			WO 0137262 A1 25-05-2001
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**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, 2, 4, 11, 12, 14, 21, 22, 26, 27

Invention 1 - 1part , 2, 4, 11part, 12, 14, 21part , 22, 26part , 27

6.1 The closest prior art is considered to be D1. The following special technical features (STF), see Rule 13(2) PCT and PCT Guidelines III - 10.01 and 10.02, with respect to D1 and associated objective technical problems (OTP) have been identified for each invention as follows.

Invention 1 : STF: no special technical features identified. OTP: no problem to be solved.

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2. claims: 3, 5, 6, 13, 15, 16, 23, 28

Invention 2 - 1part , 3, 5, 6, 11part , 13, 15, 16, 21part , 23, 26part , 28

6.1 The closest prior art is considered to be D1. The following special technical features (STF), see Rule 13(2) PCT and PCT Guidelines III - 10.01 and 10.02, with respect to D1 and associated objective technical problems (OTP) have been identified for each invention as follows.

Invention 2 : STF: recognition of indication of a target person by speech. OTP: how to detect the object of interest from a sound signal.

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3. claims: 7-10, 17-20, 24, 25, 29, 30

Invention 3 - 7-10 / 17-20 / 24, 25, 29, 30.

6.1 The closest prior art is considered to be D1. The following special technical features (STF), see Rule 13(2) PCT and PCT Guidelines III - 10.01 and 10.02, with respect to D1 and associated objective technical problems (OTP) have been identified for each invention as follows.

Invention 3: STF: establish and secure the initial communication / pairing of devices using environmental sound and facial data. OTP: how to implement and secure a connection protocol for pairing of devices.

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