



- (51) International Patent Classification:
G06F 3/041 (2006.01) *G06F 3/0488* (2013.01)
- (21) International Application Number:
PCT/US2013/030258
- (22) International Filing Date:
11 March 2013 (11.03.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
13/441,489 6 April 2012 (06.04.2012) US
- (71) Applicant: **GOOGLE INC.** [US/US]; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US).
- (72) Inventors: **ZHANG, Xincheng**; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US). **PENG, Ye-fei**; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US).
- (74) Agents: **ROGERS, Jennifer M. K.** et al.; Shumaker & Sieffert, P.A., 1625 Radio Drive, Suite 300, Woodbury, Minnesota 55125 (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, 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, 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 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, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: SMART USER-CUSTOMIZED VIRTUAL KEYBOARD

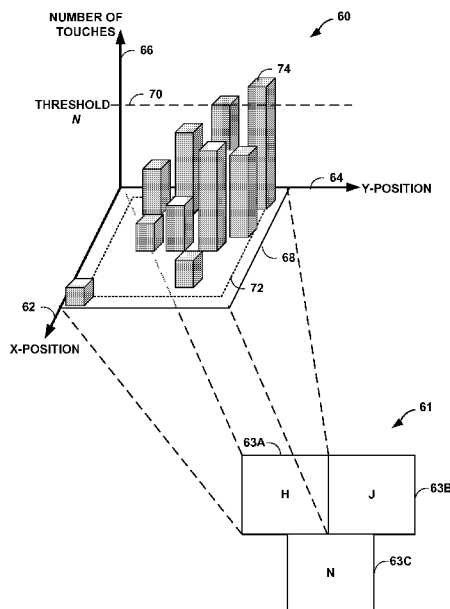


FIG. 5

(57) Abstract: A computing device automatically customizes attributes of a graphical keyboard based on user inputs to the graphical keyboard. For example, the computing device can display a first graphical keyboard arrangement that includes a first representation of a key associated with a target region of an input-sensitive display. The computing device receives a plurality of user inputs, each associated with a respective touch region of the input-sensitive display. Subsequent to determining that one or more touch regions is not substantially aligned with the target region, the computing device displays a second graphical keyboard arrangement that includes a second representation of the key, wherein at least one attribute of the second representation of the key is graphically modified relative to the first representation of the key so as to substantially align one or more of the touch regions with a target region associated with the second representation of the key.



Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *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:
16 January 2014

Published:

- *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/030258

A. CLASSIFICATION OF SUBJECT MATTER
 INV. G06F3/041 G06F3/0488
 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)
 G06F

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	US 2004/178994 A1 (KAIRLS RICHARD J [US] KAIRIS JR RICHARD J [US]) 16 September 2004 (2004-09-16)	1-3,5-8, 12-15, 17-21
Y	the whole document	4,9-11
Y	----- JP H11 53093 A (HITACHI LTD) 26 February 1999 (1999-02-26)	4
A	abstract paragraph [0023] - paragraph [0025]; figure 9 ----- -/--	1,18,20

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
---	---

Date of the actual completion of the international search 22 November 2013	Date of mailing of the international search report 29/11/2013
---	--

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 Valin, Steven
--	---

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/030258

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/315266 A1 (GUNAWARDANA ASELA J	1-8,
Y	[US] ET AL) 16 December 2010 (2010-12-16)	12-21
	abstract	9-11
	paragraphs [0002], [0013], [0014],	
	[0020]; figure 2	
	paragraphs [0043], [0051] - [0055]	
	paragraph [0088] - paragraph [0135];	
	figures 4-8	

A	EP 1 457 864 A1 (IBM [US])	1,18,21
	15 September 2004 (2004-09-15)	
	the whole document	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2013/030258

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004178994	A1	16-09-2004	NONE
JP H1153093	A	26-02-1999	NONE
US 2010315266	A1	16-12-2010	NONE
EP 1457864	A1	15-09-2004	CA 2462058 A1 03-04-2003
		CN 1556947 A	22-12-2004
		EP 1457864 A1	15-09-2004
		JP 4176017 B2	05-11-2008
		US 2005030291 A1	10-02-2005
		WO 03027826 A1	03-04-2003