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(54) Title: METHOD AND APPARATUS FOR CONTROLLING A KEYPAD OF A DEVICE

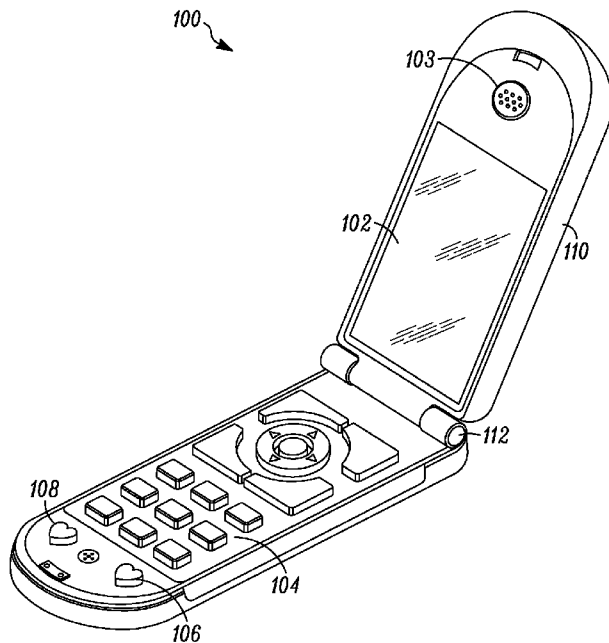


FIG. 1

(57) Abstract: A device (2600) includes a controllable skin texture (2606) defining a keypad (2610), a sensor (2602), and control logic (200). The sensor senses a proximity of a pointing element (2900) to a particular key (2800, 2808, 2902, 2908) of the keypad based on a user input. The control logic adjusts a height of the particular key with respect to another key of the keypad in response to the sensor sensing the proximity of the pointing element to the particular key. In one example, the device includes a display (2700) for displaying a plurality of keys (2612). The control logic adjusts visual characteristics of the particular key (2800, 2808, 2902, 2908) and an adjacent key (2802, 2810, 2904, 2910) with respect to each other and with respect to other keys of the plurality of keys in response to the sensor sensing the proximity of the pointing element to the particular key.

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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)

IPC 8: G06F, G09G, H04B, H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility Models and applications for Utility Models since 1975
Japanese Utility Models and applications for Utility Models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS(KIPO internal): 'keypad', 'haptic', 'tactile', 'touch', 'visual', 'height'

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003/0122779 A1 (KENNETH M. MARTIN et al.) 03 July 2003 See the abstract, figures 1-3, 7, paragraphs [0013]-[0017], [0022]-[0024], [0061].	1-20
A	US 2005/0219223 A1 (MICHAEL D. KOTZIN et al.) 06 October 2005 See the abstract, figures 1-3, paragraphs [0016]-[0027] and claims 1-26.	1-20
A	US 2007/0013677 A1 (LOUIS B. ROSENBERG et al.) 18 January 2007 See the abstract, figures 1-8, paragraphs [0007]-[0010] and claims 1-36.	1-20
A	US 2005/0184959 A1 (RALF KOMPE et al.) 25 August 2005 See the abstract, figures 1-2, paragraphs [0023]-[0027], [0035] and claims 1-14.	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date		
US 2003/0122779 A1	03.07.2003	AU 2003-267170 A1	07.06.2004		
		AU 2003-270333 A1	07.06.2004		
		GB 0509758 D0	22.06.2005		
		GB 0509761 D0	22.06.2005		
		GB 0618203 D0	25.10.2006		
		GB 2410996 A	17.08.2005		
		GB 2410997 A	17.08.2005		
		GB 2428284 A	24.01.2007		
		US 2004/012560 A1	22.01.2004		
		US 2007/229455 A1	04.10.2007		
		WO 2004-042685 A2	21.05.2004		
		WO 2004-042693 A1	21.05.2004		
		US 2005/0219223 A1	06.10.2005	KR 10-2007-0007808 A	16.01.2007
				WO 2005-101176 A2	27.10.2005
WO 2005-103862 A2	03.11.2005				
US 2007/0013677 A1	18.01.2007	AU 2001-29543 A1	31.07.2001		
		JP 2001-006829 A	17.01.2001		
		KR 10-2001-0108361 A	07.12.2001		
		KR 20-0258353 Y1	10.12.2001		
		US 6429846 B2	06.08.2002		
		US 6822635 B2	23.11.2004		
		US 7148875 B2	12.12.2006		
		US 7450110 B2	11.11.2008		
		US 2001/035854 A1	01.11.2001		
		US 2003/0038776 A1	27.02.2003		
		US 2004/075676 A1	22.04.2004		
		US 2006/0192771 A1	31.08.2006		
		US 2007/0040815 A1	22.02.2007		
		US 2007/0229478 A1	04.10.2007		
		US 2007/0229483 A1	04.10.2007		
		US 2008/0062122 A1	13.03.2008		
		US 2008/0068348 A1	20.03.2008		
		US 2008/0068349 A1	20.03.2008		
		US 2008/0068350 A1	20.03.2008		
		US 2008/0068351 A1	20.03.2008		
US 2008/0111788 A1	15.05.2008				
WO 2001-54109 A1	26.07.2001				
US 2005/0184959 A1	25.08.2005	None			