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(54) Title: TOUCH SENSORS WITH TACTILE FEEDBACK

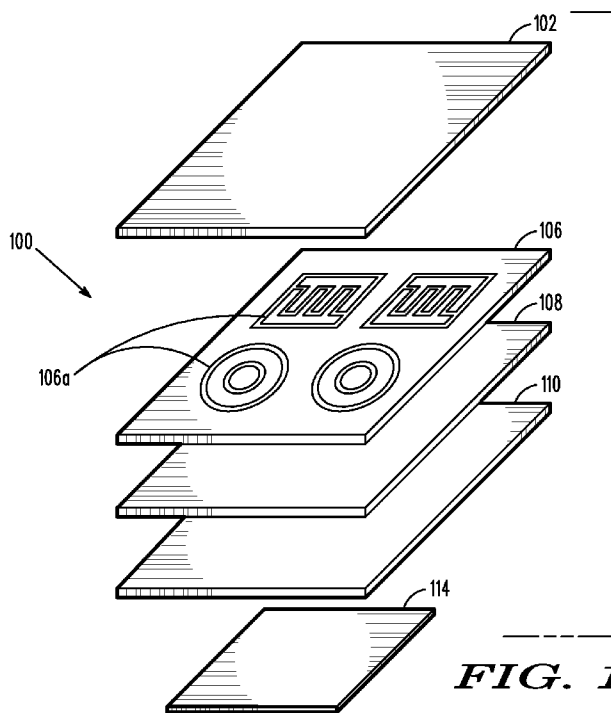


FIG. 1B

(57) Abstract: Touch sensors with one or more piezoelectric elements and devices containing such touch sensors are presented. The touch sensor contains keys that are independently actuated. Contact with a key provides tactile feedback through the piezoelectric element to the user. Each key provides an individual tactile feedback pattern that is dependent on the particular key contacted as well as the function of the key at the time of contact. Actuation of the key provides a different tactile feedback pattern. The piezoelectric element is bonded directly to a printed circuit board, on which electronic components are also mounted.

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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)

G06F 3/041; G09G 5/00; H01L 41/113; H01L 41/22; H02N 2/18

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
Japanese utility models and applications for utility models
(Chinese Patents and application for patent)

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

eKOMPASS(KIPO internal) & Keywords: touch sensor, piezoelectric, feedback

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003-0146675 A1 (DANIEL CUHAT et al.) 07 August 2003 See abstract, paragraphs [0024],[0052]-[0054], claim 1 and figs.4,9	1-20
A	US 2008-0018201 A1 (MATSUMOTO) 24 January 2008 See abstract, claim 1 and figs.1-3	1-20
A	US 2004-0020673 A1 (MAZURKIEWICZ) 05 February 2004 See abstract, paragraphs [0060], claim 1 and fig.1	1-20
A	US 2006-0209039 A1 (DESTURA et al.) 21 September 2006 See abstract, paragraph [0049], claim 1 and fig.1	1-20

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

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