

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2019/015011

A. CLASSIFICATION OF SUBJECT MATTER

G06F 3/01(2006.01)i, G06F 3/041(2006.01)i, G06F 3/16(2006.01)i, H05B 45/00(2020.01)i

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 3/01; A63F 13/285; B06B 1/02; G01S 15/08; G08B 6/00; H04L 12/58; H05B 37/02; G06F 3/041; G06F 3/16; H05B 45/00

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: IPC as above
Japanese utility models and applications for utility models: IPC as above

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

eKOMPASS (KIPO internal) & Keywords: haptic, pattern, lighting, time interval, intensity, touch

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-1901364 B1 (CK MATERIALS LAB CO., LTD.) 22 November 2018 See paragraphs [0033]-[0036], [0038], [0042]-[0044], [0062], [0064]-[0070]; and figures 3, 5b-6.	1-6, 11-23
Y		7-10
Y	KR 10-2017-0120473 A (CK MATERIALS LAB CO., LTD.) 31 October 2017 See paragraphs [0075]-[0080]; and figures 14-15.	7-10
A	KR 10-2018-0112137 A (REALHAPTICS INC.) 12 October 2018 See paragraphs [0034]-[0060]; and figure 1.	1-23
A	KR 10-2018-0097382 A (SAMSUNG ELECTRONICS CO., LTD.) 31 August 2018 See paragraphs [0132]-[0164]; and figures 5-7.	1-23
A	US 2018-0108225 A1 (AT&T INTELLECTUAL PROPERTY I, LP. et al.) 19 April 2018 See paragraphs [0013]-[0032]; and figures 1-2.	1-23



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

"E" earlier application or patent but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&" document member of the same patent family


Date of the actual completion of the international search

14 FEBRUARY 2020 (14.02.2020)

Date of mailing of the international search report

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Name and mailing address of the ISA/KR


 Korean Intellectual Property Office
 Government Complex Daejeon Building 4, 189, Cheongsa-ro, Seo-gu,
 Daejeon, 35208, Republic of Korea
 Facsimile No. +82-42-481-8578

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2019/015011

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-1901364 B1	22/11/2018	KR 10-2019-0032224 A WO 2019-054549 A1	27/03/2019 21/03/2019
KR 10-2017-0120473 A	31/10/2017	CN 109076009 A KR 10-2018-0133360 A US 2019-0129608 A1 WO 2017-183821 A1	21/12/2018 14/12/2018 02/05/2019 26/10/2017
KR 10-2018-0112137 A	12/10/2018	None	
KR 10-2018-0097382 A	31/08/2018	EP 3575005 A1 WO 2018-155926 A1	04/12/2019 30/08/2018
US 2018-0108225 A1	19/04/2018	US 10210723 B2 US 2019-0180576 A1	19/02/2019 13/06/2019