U.S. PATENT DOCUMENTS

6,815,657	B2 *	11/2004	Toyoshima et al.	250/214 R
2003/0067449	A1	4/2003	Yoshikawa et al.	
2004/0104887	A1	6/2004	Tsukamoto et al.	
2004/0192423	A1 *	9/2004	Nevermann	455/575.6
2004/0220485	A1 *	11/2004	Rytky	600/509
2005/0030166	A1	2/2005	Kraus et al.	
2005/0057528	A1 *	3/2005	Kleen	345/173
2008/0143693	A1	6/2008	Schena	
2008/0174415	A1	7/2008	Tanida et al.	
2009/0109007	A1	4/2009	Makinen et al.	
2011/0074733	A1	3/2011	Mäkinen et al.	

FOREIGN PATENT DOCUMENTS

EP	1939712	A1	7/2008
FI	20080213		11/2008
JP	3543097	B2	7/2004
WO	WO-02/073587	A1	9/2002
WO	WO-02073587		9/2002
WO	WO-2004051451	A2	6/2004
WO	WO-2007/111909	A2	10/2007
WO	WO-2009037379		3/2009
WO	WO-2009141502	A1	11/2009
WO	WO-2010037894	A1	4/2010

OTHER PUBLICATIONS

Kajimoto et al., "Psychophysical evaluation of receptor selectivity in electro-tactile display".

Kajimoto et al., Tactile Feeling Display using Functional Electrical Stimulation, ICAT '99.

Eric Gunther, Skincape, A Tool for composition in the Tactile Modality.

Kajimoto, et al., "Psychophysical evaluation of receptor selectivity in electro-tactile display", 13th International Symposium on Measurement and Control in Robotics (ISMCR), Madrid, Spain. http://files.tachilab.org/intconf2000/kajimoto200312ISMCR.pdf, (2003), 4 pgs.

Kajimoto, et al., "Tactile Feeling Display using Functional Electrical Stimulation", 9th International Conference on Artificial Reality and Tele-Existence (ICAT'99), Tokyo, Japan. http://files.tachilab.org/intconf1900/kajimoto1999ICAT.pdf, (1999), 8 pgs.

Kuroki, S., et al., "Proposal for tactile sense presentation that combines electrical and mechanical stimulus", Second Joint EuroHaptics Conference, 2007 and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems (WHC 2007). IEEE, (2007), 6 pgs.

Kaczmarek et al., "Polarity Effect in Electrovibration for Tactile Display", IEEE Transactions on Biomedical Engineering, vol. 53, No. 10, Oct. 2006, pp. 2047-2054.

Yamamoto et al., "Electrostatic Tactile Display with Thin Film Slider and Its Application to Tactile Telepresentation Systems", IEEE Transactions on Visualization and Computer Graphics, vol. 12, No. 12, Mar./Apr. 2006, pp. 168-177.

Agarwal et al., "A Hybrid Natural/Artificial Electrostatic Actuator for Tactile Stimulation" 2nd Annual International IEEE-EMBS Special Topic Conference on Microtechnologies in Medicine & Biology, May 2-4, 2002, pp. 341-345.

Beebe et al., "A Polyimide-on-silicon Electrostatic Fingertip Tactile Display", IEEE-EMBC and CMBEC, vol. 2, 1995, pp. 1545-1546.

Kaczmarek et al., "Electrotactile and Vibrotactile Displays for Sensory Substitution Systems", Transactions on Biomedical Engineering, vol. 38, No. 1, Jan. 1, 1991, pp. 1-16.

Reilly et al., "Electrocutaneous Stimulation with High Voltage Capacitive Discharges", IEEE Transactions on Biomedical Engineering, vol. BME-30, No. 10, Oct. 1983, pp. 631-641.

Kajimoto et al., "Electro-Tactile Display with Tactile Primary Color Approach", Proceedings of International Conference on Intelligent Robots and Systems, 2004.

Pfeiffer E. A., "Electrical Stimulation of Sensory Nerves With Skin Electrodes for Research, Diagnosis, Communication and Behavioral Conditioning: A Survey", Med. & biol. Engng. vol. 6, Pergamon Press, 1968, pp. 637-651.

"U.S. Appl. No. 12/232,536, Non Final Office Action mailed Dec. 14, 2010", 7 pgs.

"U.S. Appl. No. 12/232,536, Notice of Allowance mailed Feb. 22, 2011", 5 pgs.

"U.S. Appl. No. 12/232,536. Response filed Feb. 8, 2011 to Non Final Office Action mailed Dec. 14, 2010", 9 pgs.

"U.S. Appl. No. 12/232,548, Response filed Apr. 4, 2011 to Non-Final Office Action Received Jan. 7, 2011", 12 pgs.

"U.S. Appl. No. 12/993,784, Preliminary Amendment filed Nov. 19, 2010", 9 pgs.

"U.S. Appl. No. 12/993,784, Supplemental Preliminary Amendment filed Dec, 7, 2010", 4 pgs.

"U.S. Appl. No. 13/122,113, Preliminary Amendment filed Mar. 31, 2011", 7 pgs.

"International Application Serial No. PCT/FI2008/050550, PCT Search Report mailed Jun. 12, 2009", 3 pgs.

Agarwal, A. K, et al., "A hybrid natural/artificial electrostatic actuator for tactile stimulation", 2nd Annual International IEEE-EMB Special Topic Conference on Microtechnologies in Medicine & Biology, Abstract; sections II.A, II.B and III.A; figures 1-2, (2002), 341-345.

Fukumoto, M., et al., "Active Click: Tactile Feedback for Touch Panels", New York: ACM, ISBN 1-58113-340-5, Whole document, (2001), 121-122.

Linjama, Jukka, et al., "E-Sense screen: Novel haptic display with Capacitive Electrosensory Interface", Demo paper Submitted for HAID 09, 4thWorkshop for Haptic and Audio Interaction Design, Dresden, Germany, (Sep. 10-11, 2009), 1-2.

Poupyrev, I., et al., "Ambient touch: designing tactile interfaces for handheld devices", UIST '02 Proceedings of the 15th annual ACM symposium on User interface software and technology, XP 001171567, abstract; section 'TouchEngine display', (2002), 51-60.

Rekimoto, J, et al., "SmartSkin: An Infrastructure for Freehand Manipulation on Interactive Surfaces.", CHI '02 Proceedings of the SIGCHI conference on Human factors in computing systems: Changing our world, changing ourselves, XP 001099406, abstract; figure 2; section 'SmartSkin sensor architecture'; firgures 12-14; sections 'Interactions by using fingers and hand gestures' and 'Combination with tactile feedback', (2002), 113-120.

Tang, H., et al., "A Microfabricated Electrostatic Haptic Display for Persons with Visual Impairments", IEEE Transactions on Rehabilitation Engineering, ISSN 1063-6528, vol. 6, No. 3,, XP 011053920, abstract; Figure 1; sections II.A, II.B and II.D, (Sep. 1998), 241-248.

* cited by examiner