



- (51) International Patent Classification:
G06F 3/041 (2006.01)
- (21) International Application Number:
PCT/US2015/037831
- (22) International Filing Date:
25 June 2015 (25.06.2015)
- (25) Filing Language:
English
- (26) Publication Language:
English
- (30) Priority Data:

14/314,662	25 June 2014 (25.06.2014)	US
62/025,589	17 July 2014 (17.07.2014)	US
14/498,478	26 September 2014 (26.09.2014)	US
14/499,001	26 September 2014 (26.09.2014)	US
14/499,090	27 September 2014 (27.09.2014)	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, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, 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, SA, 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, ST, 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, KM, ML, MR, NE, SN, TD, TG).

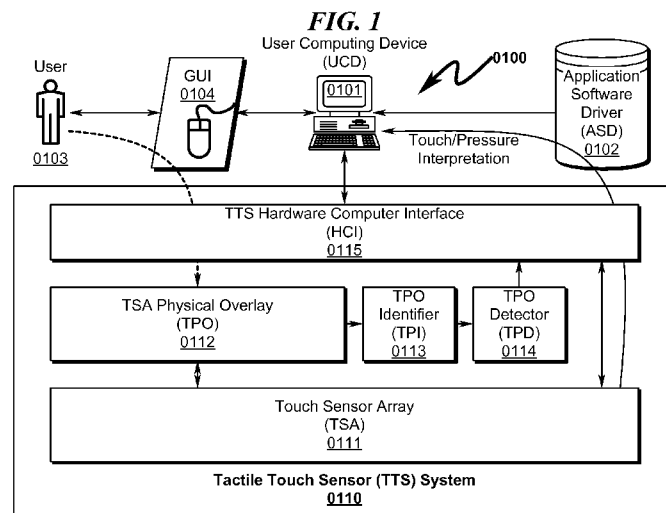
- (71) Applicant: SENSEL, INC. [US/US]; 945 Valencia Avenue, Mountain View, CA 94040 (US).
- (72) Inventors: ROSENBERG, Llya, Daniel; 945 Valencia Avenue, Mountain View, CA 94040 (US). ZARRAGA, John, Aaron; 28 Pleasant Street, San Francisco, CA 94108 (US).
- (74) Agents: KLUGHART, Kevin, M. et al.; Carstens & Cahoon, LLP, P.O. Box 802334, Dallas, TX 75380 (US).

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))
- of inventorship (Rule 4.17(iv))

[Continued on next page]

(54) Title: TACTILE TOUCH SENSOR SYSTEM AND METHOD



(57) Abstract: A tactile touch sensor (TTS) system and method allowing physical augmentation of a high-resolution touch sensor array (TSA) is disclosed. Physical augmentation is accomplished using a TSA physical overlay (TPO) placed on top of the TSA. The TPO is constructed to transmit forces to the underlying TSA. Force transmission is accomplished by either using a flexible overlay or with a rigid mechanical overlay that transmits user forces exerted on the overlay to the underlying TSA. Incorporation of TPO identifiers (TPI) within the TPO permits identification of the TPO by a TPO detector (TPD) allowing operational characteristics of the TSA to be automatically reconfigured to conform to the currently applied TPO structure by a user computing device (UCD). The UCD may be configured to automatically load an appropriate application software driver (ASD) in response to a TPI read by the TPD from the currently applied TPO.





Published:

(88) Date of publication of the international search report:

- *with international search report (Art. 21(3))*
- *with information concerning one or more priority claims considered void (Rule 26bis.2(d))*

14 April 2016

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 15/37831

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G06F 3/041 (2015.01) CPC - G06F 3/0488 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) CPC: G06F 3/0488 IPC(8): G06F 3/041 (2015.01)		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 345/174 or 345/175 or 345/173 CPC: G06F 3/0488 or G06F 3/04883 or G06F 3/044 or G06F 3/04886 or G06F 3/045		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Patbase; Google Patents; Google Scholar; Google Web Search Terms Used: Touch, pressure, force, sense, detect, magnet, latch, clamp, row, column, transparent, translucent, overlay, inductance, conductance, mouse, puck, shell, dome		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 7,659,885 B2 (KRAUS et al.) 09 February 2010 (09.02.2010), Abstract, col 6, ln 47-63, col 7, ln 11-48, col 8, ln 12-32, col 8, ln 53- col 9, ln 13, col 10, ln 3-19, col 10, ln 31-col 11, ln 49, claim 11, claim 13	1-60
Y	US 2012/0086666 A1 (BADAYE et al.) 12 April 2012 (12.04.2012), para [0050], [0055]	1-60
Y	US 6,259,044 B1 (PARATORE et al.) 10 July 2001 (10.07.2001), col 3, ln 28-58	3, 21, 33, 51
Y	US 2013/0154938 A1 (ARTHUR et al.) 20 June 2013 (20.06.2013), para [0023]-[0024], [0027], [0031], [0034]-[0035], [0057], [0061], [0069]	12-14, 16, 18, 20, 23, 25, 30, 42-44, 46, 48, 50, 53, 55, 60
Y	US 2010/0238119 A1 (DUBROVSKY et al.) 23 September 2010 (23.09.2010), para [0039]-[0041], [0099]	24, 28, 54, 58
Y	US 2004/0085716 A1 (UKE) 06 May 2004 (06.05.2004), para [0021], [0075]-[0077]	26, 56
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* 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 01 September 2015 (01.09.2015)		Date of mailing of the international search report 23 SEP 2015
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774