

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 March 2006 (09.03.2006)

PCT

(10) International Publication Number
WO 2006/025872 A3

(51) International Patent Classification:
G09G 5/00 (2006.01)

(21) International Application Number:
PCT/US2005/013041

(22) International Filing Date: 15 April 2005 (15.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/605,115 27 August 2004 (27.08.2004) US
10/981,151 3 November 2004 (03.11.2004) US

(71) Applicant (for all designated States except US): **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk, NY 10504 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PINHANEZ, Claudio** [BR/US]; 520W 218th Street, Apt. 1A, New York, NY 10034 (US). **PINGALI, Gopal** [IN/US]; 1497 Florida road, Mohegan Lake, NY 10547 (US). **KJELDSEN, Frederik, C.** [US/US]; 68 Dutchess Hill Road, Poughkeepsie, NY 12601 (US). **LEVAS, Anthony** [US/US];

461 Jill Court, Yorktown Heights, NY 10598 (US). **PODLASECK, Mark, Edward** [US/US]; 80 Valley Road, New Preston, CT 06777 (US).

(74) Agents: **SMITH, Harry, F.** et al.; Harrington & Smith, LLP, 4 Research Drive, Shelton, CT 06484-6212 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

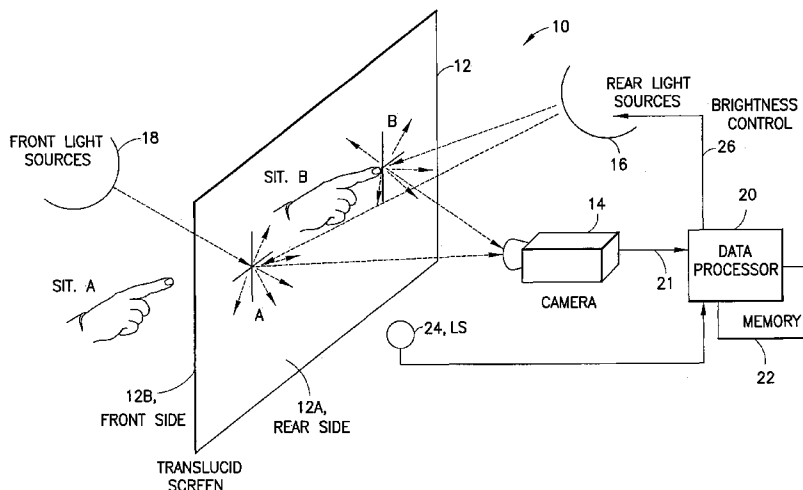
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: USER INPUT APPARATUS, SYSTEM, METHOD AND COMPUTER PROGRAM FOR USE WITH A SCREEN HAVING A TRANSLUCENT SURFACE



(57) Abstract: A user interface input apparatus (10) and method allows the detection of when and where a user touches a surface of a translucent screen (12) by the processing of imagery generated by a camera that views an opposite surface of the screen. An input device (10) and system includes a translucent screen (12); an image capture device (14) located for imaging a first side of the screen opposite a second side where user interaction occurs; and an image processor (20) coupled to the output of the image capture device to determine at least one of where and when a person touches an area on the second side of the screen by a change in intensity of light emanating from the touched area relative to a surrounding area.

WO 2006/025872 A3



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

20 November 2008

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/13041

A. CLASSIFICATION OF SUBJECT MATTER IPC: G09G 5/00 USPC: 345/156,173,179 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) U.S. : 345/156,173,179 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPG-PUB, USPAT, JPO, EPO, DERWENT, IBM_TDB		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,545,670 B1 (PRYOR) 08 April 2003 (08.04.2003), Figures 2,3 and 7, column 4, line 37-67, column 9, lines 53-67, column 10, lines 1-40.	1-35
A	US 6,414,672 B2 (REKIMOTO et al.) 02 July 2002 (02.07.2002), the whole document.	1-35
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> 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	"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
"E"	earlier application or patent published on or after the international filing date	"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
"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)	"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
"O"	document referring to an oral disclosure, use, exhibition or other means	"Z" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search 27 April 2007 (27.04.2007)		Date of mailing of the international search report 12 DEC 2007
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) 273-3201		Authorized officer DUC DINH Telephone No. (571) 272-7688