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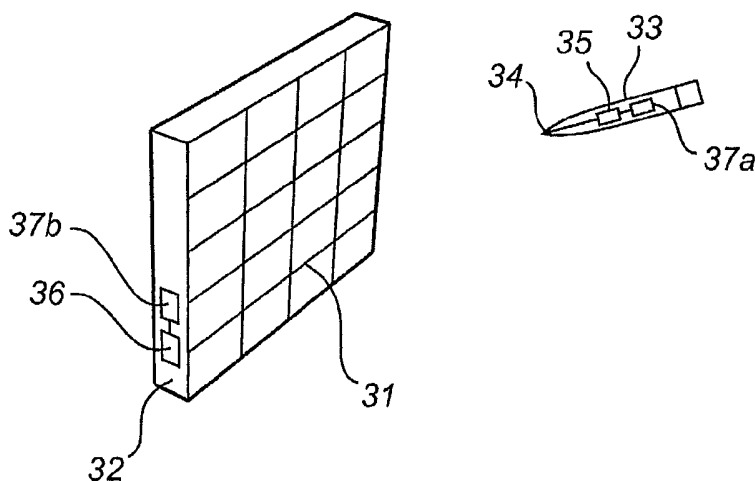
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BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,

[Continued on next page]

(54) Title: DISPLAY DEVICE



(57) Abstract: A matrix display device (32) comprising at least one structured layer, arranged on a substrate and formed so as to include a code (31), detectable by a pointing device (33) to determine a position on the display (32). Providing the pixel structure with a location code can be achieved by relatively simple modifications of the manufacturing process. Therefore, the code can be incorporated in the display device in a very cost efficient manner, typically not increasing the manufacturing cost of a conventional matrix display. It will therefore either reduce the cost price of devices where a touch screen is already present or greatly improve the functionality of many products where a touch screen is at present too expensive.

WO 2005/106638 A3



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A. CLASSIFICATION OF SUBJECT MATTER
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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

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/034961 A1 (KAO CHI-LEI) 20 February 2003 (2003-02-20) page 4, paragraph 46; claim 1; figures 1A,4c	1-14
A	----- WO 01/75781 A (ANOTO AB; ERICSON, PETER; WESTERBERG, IDA; SKANTZE, KRISTOFER; ANDERS) 11 October 2001 (2001-10-11) page 11, line 34 - page 12, line 1; claim 1; figure 1a	1-14
A	----- WO 03/007145 A (ANOTO AB; BRYBORN, MATTIAS; LYNNGAARD, STEFAN) 23 January 2003 (2003-01-23) page 17, line 20 - page 18, line 2; figure 3	1-14
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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Kirsten, K
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 525 716 B1 (MAKINO IEHARU) 25 February 2003 (2003-02-25) claim 1; figures 1,8 -----	1-14
A	US 6 164 552 A (SATO ET AL) 26 December 2000 (2000-12-26) claim 1; figures 10,11 -----	1-14
A	US 2002/179717 A1 (CUMMINGS ERIC B ET AL) 5 December 2002 (2002-12-05) claim 1; figure 5 -----	1-14
A	EP 0 665 510 A (TOMIOKA, MAKOTO; MATSUDA, MASAYUKI) 2 August 1995 (1995-08-02) claim 1; figure 12 -----	1-14
A	US 5 454 054 A (IIZUKA ET AL) 26 September 1995 (1995-09-26) claim 1; figure 2 -----	1-14
A	US 6 000 614 A (YANG ET AL) 14 December 1999 (1999-12-14) claim 1; figure 12 -----	1-14
A	US 5 471 533 A (WANG ET AL) 28 November 1995 (1995-11-28) claim 1; figure 1B -----	1-14
A	US 5 541 396 A (RENTSCH ET AL) 30 July 1996 (1996-07-30) claim 1; figures 1,9 -----	1-14

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/IB2005/051429

Patent document cited in search report	A1	Publication date	Patent family member(s)	Publication date
US 2003034961	A1	20-02-2003	NONE	
WO 0175781	A	11-10-2001	AU 4699601 A CA 2400617 A1 CN 1418350 A EP 1275081 A1 JP 2003529985 T	15-10-2001 11-10-2001 14-05-2003 15-01-2003 07-10-2003
WO 03007145	A	23-01-2003	SE 519621 C2 SE 0102502 A	18-03-2003 14-01-2003
US 6525716	B1	25-02-2003	CN 1195799 A HK 1016304 A1	14-10-1998 29-10-2004
US 6164552	A	26-12-2000	JP 2913475 B2 JP 11232369 A	28-06-1999 27-08-1999
US 2002179717	A1	05-12-2002	US 2003098357 A1	29-05-2003
EP 0665510	A	02-08-1995	CA 2114386 A1 CN 1104791 A US 5507527 A	28-07-1995 05-07-1995 16-04-1996
US 5454054	A	26-09-1995	NONE	
US 6000614	A	14-12-1999	NONE	
US 5471533	A	28-11-1995	NONE	
US 5541396	A	30-07-1996	NONE	