

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 September 2008 (04.09.2008)

PCT

(10) International Publication Number
WO 2008/106275 A3

(51) International Patent Classification:

G06F 3/02 (2006.01) **G06F 3/044** (2006.01)
G06F 3/023 (2006.01)

(21) International Application Number:

PCT/US2008/052979

(22) International Filing Date: 5 February 2008 (05.02.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/891,742 27 February 2007 (27.02.2007) US
11/684,476 9 March 2007 (09.03.2007) US

(71) Applicant (for all designated States except US): **MOTOROLA INC.** [US/US]; 1303 East Algonquin Road, Schaumburg, Illinois 60196 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PIERCE, Paul M.** [US/US]; 424 Penny Lane, Grayslake, Illinois 60030 (US).
WICKS, James E. [US/US]; 111 Oak Terrace, Lake Bluff, Illinois 60044 (US).

(74) Agent: **VAAS, Randall S., Lead Pat;** 600 North US Highway 45, Libertyville, Illinois 60048 (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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, 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, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, 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
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
13 November 2008

(54) Title: MULTIMODAL ADAPTIVE USER INTERFACE FOR A PORTABLE ELECTRONIC DEVICE

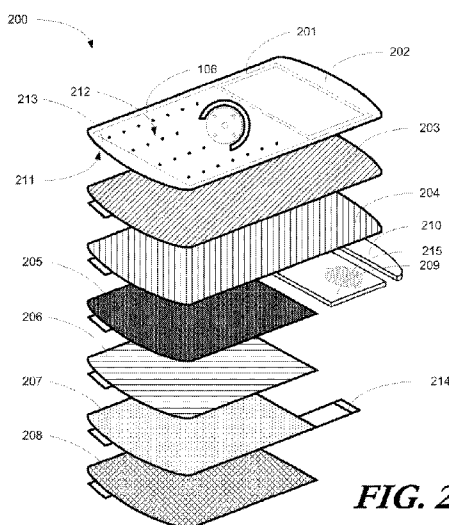


FIG. 2

(57) Abstract: A multimodal electronic device (100) includes a shutter enabled dynamic keypad for presenting one of a plurality of keypad configurations to a user. Each keypad configuration, which is presented by an optical shutter (204) that opens or closes windows or shutters that are geometrically configured as alphanumeric or device keys or symbols. Each keypad configuration, in one embodiment, is limited to those needed for the particular mode of operation of the device (100). The optical shutter (204) is a low-resolution display that presents user actuation targets to a user in a low-resolution key area. As each mode of the device changes, the corresponding keypad configuration presented changes accordingly.



WO 2008/106275 A3

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/052979

A. CLASSIFICATION OF SUBJECT MATTER

INV. G06F3/02 G06F3/023 G06F3/044

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)

H04M G06F H01H

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 728 936 A (GUSCOTT JOHN K [US] ET AL) 1 March 1988 (1988-03-01) column 1, lines 5-20 column 2, lines 21-49 column 3, line 8 - column 5, line 8; figures 1-5	1-4
X	GB 2 348 039 A (MOTOROLA INC [US]) 20 September 2000 (2000-09-20) page 3, line 8 - page 10, line 26; figures 1-5	1-4
A	US 2005/243069 A1 (YORIO RUDY [US] ET AL) 3 November 2005 (2005-11-03) paragraphs [0015] - [0028]; figures 1-8 -/--	1-4



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 document 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

18 June 2008

Date of mailing of the international search report

25/09/2008

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

Legrand, J

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/052979

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 2006/146012 A1 (ARNESON THEODORE R [US] ET AL) 6 July 2006 (2006-07-06) paragraphs [0046] - [0050]; figures 8,9 -----	1-4
A	US 2006/161871 A1 (HOTELLING STEVE P [US] ET AL) 20 July 2006 (2006-07-20) paragraphs [0038] - [0048]; figure 1 paragraphs [0088] - [0090]; figure 7 -----	4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/052979

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-4

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4

multimodal device comprising a low-resolution display configured to be blank in a first state and, in a second state, to present at least one keypad configuration to a user.

2. claims: 5-11

portable electronic device comprising a high-resolution display and a low-resolution display disposed over both the high-resolution display and a keypad region of the portable electronic device.

3. claims: 12-20

portable electronic device comprising a high-resolution display, a low-resolution display and a navigation interface disposed adjacent with the high resolution display and the low resolution display for navigating the plurality of operational modes.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/052979

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4728936	A	01-03-1988	NONE	
GB 2348039	A	20-09-2000	CN 1267838 A DE 10011433 A1 JP 2000310949 A US 6842170 B1	27-09-2000 19-10-2000 07-11-2000 11-01-2005
US 2005243069	A1	03-11-2005	NONE	
US 2006146012	A1	06-07-2006	EP 1836524 A1 JP 2008518368 T WO 2006073679 A1	26-09-2007 29-05-2008 13-07-2006
US 2006161871	A1	20-07-2006	NONE	