

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 September 2006 (21.09.2006)

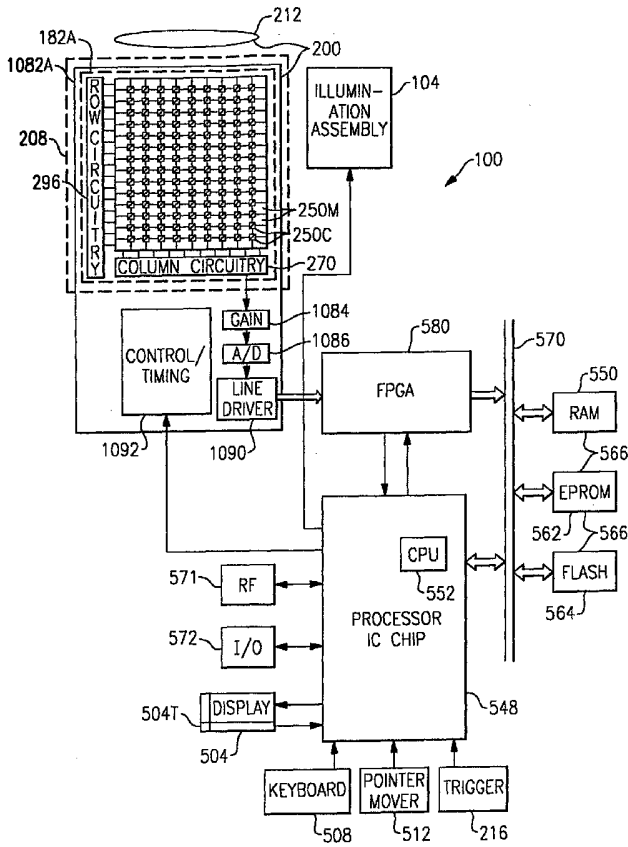
PCT

(10) International Publication Number
WO 2006/098954 A3

- (51) International Patent Classification:
G06K 7/10 (2006.01) H01L 27/146 (2006.01)
- (21) International Application Number:
PCT/US2006/008113
- (22) International Filing Date: 7 March 2006 (07.03.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
11/077,975 11 March 2005 (11.03.2005) US
11/077,976 11 March 2005 (11.03.2005) US
60/687,606 3 June 2005 (03.06.2005) US
60/690,268 14 June 2005 (14.06.2005) US
60/692,890 22 June 2005 (22.06.2005) US
60/694,371 27 June 2005 (27.06.2005) US
11/174,447 30 June 2005 (30.06.2005) US
- (71) Applicant (for all designated States except US): HAND HELD PRODUCTS, INC. [US/US]; 700 Visions Drive, Skaneateles Falls, New York 13153 (US).
- (72) Inventor; and
(75) Inventor/Applicant (for US only): WANG, Ynjiun [US/US]; 10127 Linda Ann Place, Cupertino, California 95014 (US).
- (74) Agent: BLASIAK, George B.; WALL MARJAMA & BILINSKI LLP, 101 SOUTH SALINA STREET, Suite 400, Syracuse, New York 13202 (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, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, 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,

[Continued on next page]

(54) Title: DIGITAL PICTURE TAKING OPTICAL READER HAVING HYBRID MONOCHROME AND COLOR IMAGE SENSOR ARRAY



(57) Abstract: A portable hand held optical reader having a specially constructed two-dimensional image sensor array is operational in a bar code decoding mode and in a picture taking mode. The specially constructed image sensor array is a hybrid monochrome and color image sensor pixel array, wherein a first subset of the pixels are monochrome pixels devoid of wavelength selective color filter elements and a second subset of the pixels are color sensitive pixels including wavelength selective color filter elements.

WO 2006/098954 A3



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, LV, 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).

(88) Date of publication of the international search report:
28 December 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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*

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/008113

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06K7/10 H01L27/146

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)
G06K H01L G01J

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/201328 A1 (JAM MEHRBAN ET AL) 30 October 2003 (2003-10-30)	1-7, 11, 15, 16, 33
Y	paragraphs [0001], [0011], [0023] - [0032], [0035], [0043] - [0053]; figures 5a, 5b, 6, 8	17-20, 23-26
A	-----	8, 21, 22
X	US 2005/041296 A1 (HSIAO YU-KUNG ET AL) 24 February 2005 (2005-02-24)	15
Y	paragraphs [0003], [0005], [0023], [0024], [0045]; claim 1	
Y	US 2005/001035 A1 (HAWLEY THOMAS ET AL) 6 January 2005 (2005-01-06)	17-20, 23-26
A	cited in the application the whole document	8, 21, 22

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

26 July 2006

Date of mailing of the international search report

26. 10. 2006

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

Palukova, Mila

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/008113

Box 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 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 fee, this Authority did not invite payment of any additional fee.

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.:

1-8, 11, 15-26, 33

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- 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: 1-8,11,15-26,33

optical detector with both bar code sensing and picture taking functions with a two dimensional solid state image array having monochrome and color sensitive pixels, wherein the color sensitive pixels are uniformly or substantially uniformly distributed throughout the sensor at spaced apart positions among the monochrome pixels.

2. claims: 9,27

optical detector with both bar code sensing and picture taking functions with a two dimensional solid state image array having monochrome and color sensitive pixels, wherein the monochrome pixels can be driven into reset while the color sensitive pixels are exposed for image data readout.

3. claims: 10,31 partially,32 partially

optical detector with both bar code sensing and picture taking functions with a two dimensional solid state image array having monochrome and color sensitive pixels, wherein the monochrome pixels have larger surface area than the color sensitive pixels.

4. claims: 12-14,28-30, 31 partially, 32 partially

optical detector with two dimensional solid state image array having two set of pixels, wherein the pixels of the first set have a transistor count different from the transistor count of the pixels from the second set.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/008113

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003201328	A1	30-10-2003	NONE
US 2005041296	A1	24-02-2005	US 6821810 B1 23-11-2004
US 2005001035	A1	06-01-2005	NONE