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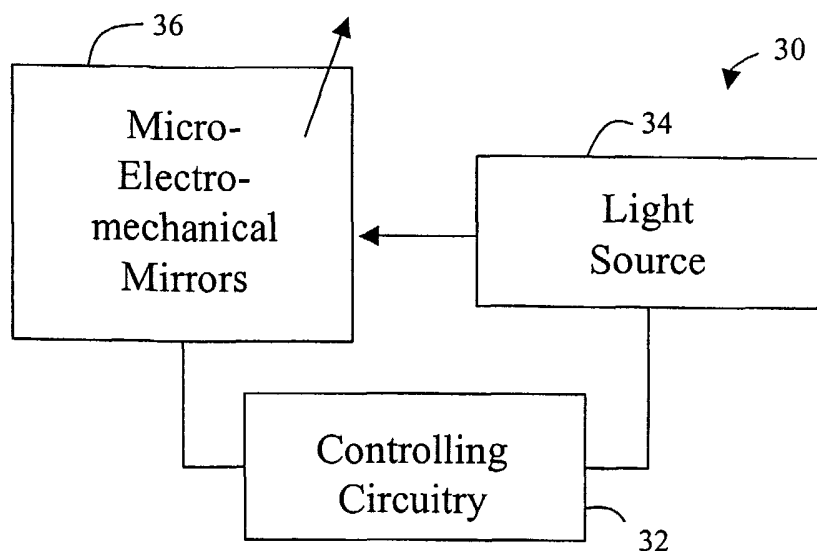
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS FOR IMAGE PROJECTION



(57) Abstract: The invention is directed to a solid-state projection device incorporating a light source, modulator, and control circuitry on a single chip. For example, projection device may include several sets of VCSELs, each associated with a set of MEMs mirrors and coupled to a control circuitry. The device may also include various Pyrex layers for sealing and angling layers. The device may further include detectors associated with the light source. These detectors may be useful in determining the shape and location of the projection surface, building a gesture interface, and determining the operability of proixels. The invention is also directed to

methods for using the device for manipulating the image, producing zoom, masking, reverse images, positioning, and keystone correction, among others. The invention may be used in projection display devices, portable display devices, heads-up displays, retinal displays, rear and front projection displays, and other display applications.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/35677

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G02B26/08 H04N9/31 G02B26/10 H04N5/74

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)
IPC 7 G02B H04N

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, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 121 983 A (CONNELL G A NEVILLE ET AL) 19 September 2000 (2000-09-19) column 10, line 60 -column 11, line 57 figure 5A	1,6,10, 14,17,20
Y		2-5,9, 15,16, 18,19, 21,22
Y		2,3,5
Y	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 20, 10 July 2001 (2001-07-10) -& JP 2001 075170 A (SONY CORP), 23 March 2001 (2001-03-23) abstract paragraphs '0021!-'0026! figures 1,2	2-5,9, 15,16, 18,19, 21,22
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Further documents are listed in the continuation of box C.

Patent family members are listed in 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)
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- "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
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- "&" document member of the same patent family

Date of the actual completion of the international search

7 May 2004

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19. 05. 2004

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/35677

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	US 6 460 999 B1 (SUZUKI TOSHIO) 8 October 2002 (2002-10-08) column 4, line 27 -column 5, line 29 figures 1,2 ---	2-5,9, 15,16, 18,19, 21,22
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Y	---	2,3,5
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INTERNATIONAL SEARCH REPORT

International Application No

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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.
X A	US 5 629 790 A (NEUKERMANS ARMAND P ET AL) 13 May 1997 (1997-05-13) column 9, line 37-60 column 11, line 35-37 figure 8 ----	10,14 15
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 02/35677

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 II Observations where unity of invention is lacking (Continuation of item 2 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.:

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: 1-5

A kiosk device comprising a display data source and a projection device comprising a plurality of "proxels"

2. Claims: 6-9,17-19

A projection apparatus comprising an image data input device and a projection device comprising a plurality of "proxels"

3. Claims: 10-13,14-16

A display apparatus comprising a passive screen and a projection device comprising a plurality of "proxels"

4. Claims: 20-23

A portable computer comprising computational circuitry and a projection device comprising a plurality of "proxels"

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/35677

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