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(71) **Applicant** *(for all designated States except US)*: **MICROSOFT INTERNATIONAL HOLDINGS B.V.**; Naritaweg 165, NL-1043 BW, Amsterdam (NL).

(72) **Inventors; and**

(75) **Inventors/Applicants** *(for US only)*: **KLIER, Zvika** [IL/IL]; 16 Shamgar Street, 69938 Tel Aviv (IL). **KATZ, Sagi** [IL/IL]; 61 HaHermon Street, 20692 Yokneam (IL). **MARDER, Mattias** [IL/IL]; 28 Berl Kazenelson, 32768 Haifa (IL). **YAHAV, Giora** [IL/IL]; 11 Beiliss Street, 34814 Haifa (IL).

(74) **Agents**: **ENTIS, Allan, C.** et al.; Intellectual Property Ltd., 6 Raoul Wallenberg Street, Tel Aviv 69719 (IL).

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Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

[Continued on next page]

(54) **Title**: 3D POINTING SYSTEM

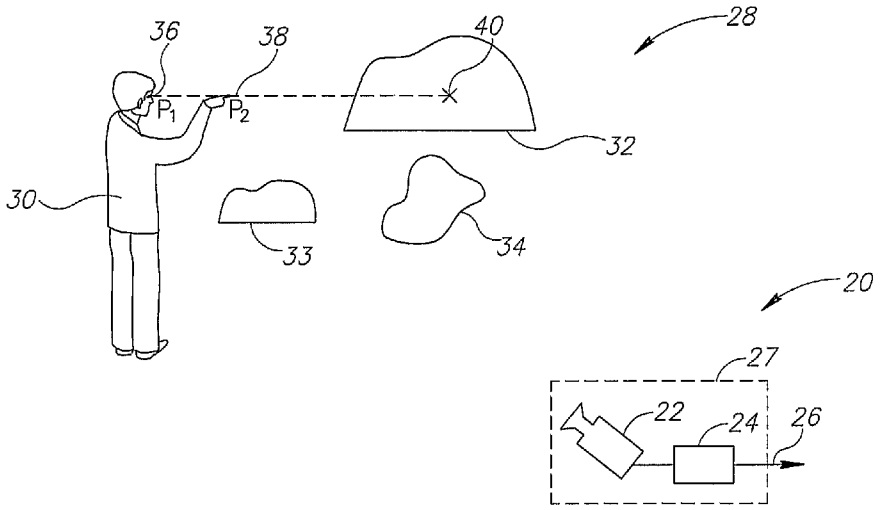


FIG.1

(57) **Abstract**: A method of determining a direction in which a person is pointing comprising: acquiring a 3D image of the person; determining a first set of spatial coordinates for a location of an eye of the person responsive to the 3D image; determining a second set of spatial coordinates for a location of a pointing region of a body part or an instrument that the person orients to indicate a pointing direction; determining a line responsive to the spatial coordinates; and determining a pointing direction for the person responsive to the line.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. G06F3/01

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 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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	YI-PING HUNG ET AL: "Free-hand pointer by use of an active stereo vision system" PATTERN RECOGNITION, 1998. PROCEEDINGS. FOURTEENTH INTERNATIONAL CONFE RENCE ON BRISBANE, QLD., AUSTRALIA 16-20 AUG. 1998, LOS ALAMITOS, CA, USA,IEEE COMPUT. SOC, US, vol. 2, 16 August 1998 (1998-08-16), pages 1244-1246, XP010297853 ISBN: 978-0-8186-8512-5 the whole document ----- -/--	1-7,14, 25,28, 29,37

[X] Further documents are listed in the continuation of Box C.

[X] 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

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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

"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	Date of mailing of the international search report
31 March 2009	26/06/2009

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Legrand, J

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	MICHAEL VAN DEN BERGH ET AL: "Perceptive User Interface, a Generic Approach" COMPUTER VISION IN HUMAN-COMPUTER INTERACTION LECTURE NOTES IN COMPUTER SCIENCE;;LNCS, SPRINGER, BERLIN, DE, vol. 3766, 1 January 2005 (2005-01-01), pages 60-69, XP019022557 ISBN: 978-3-540-29620-1 the whole document	1-7,14, 25,28, 29,37
A	KELVIN CHENG, MASAHIRO TAKATSUKA: "Estimating Pointing Direction in 3D using Monocular Tracking for Direct Interaction with Large Screens - Report 599" October 2006 (2006-10), VISLAB SCHOOL OF INFORMATION TECHNOLOGIES THE UNIVERSITY OF SYDNEY , XP002521763 the whole document	1-7,14, 25,28, 29,37
A	US 2007/024579 A1 (ROSENBERG LOUIS B [US] ROSENBERG LOUIS BARRY [US]) 1 February 2007 (2007-02-01) paragraphs [0066], [0067]; figure 1	3,4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL2008/001703

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 allsearchable 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 reportcovers 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.:

1-7, 14, 25, 28, 29, 37

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: 1-7, 14, 25, 28, 29, 37

   method for determining the position of the eye of the user.

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2. claims: 8, 12, 13

   method for improving the visibility of the region of interest.

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3. claims: 9, 30, 31

   method and apparatus for selecting an item in a vending machine.

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4. claims: 10-11

   method for improving the aiming accuracy of a fire hose.

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5. claims: 15-24, 26, 27, 32-36

   input method and input device for a virtual environment.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IL2008/001703

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007024579 A1	01-02-2007	NONE	