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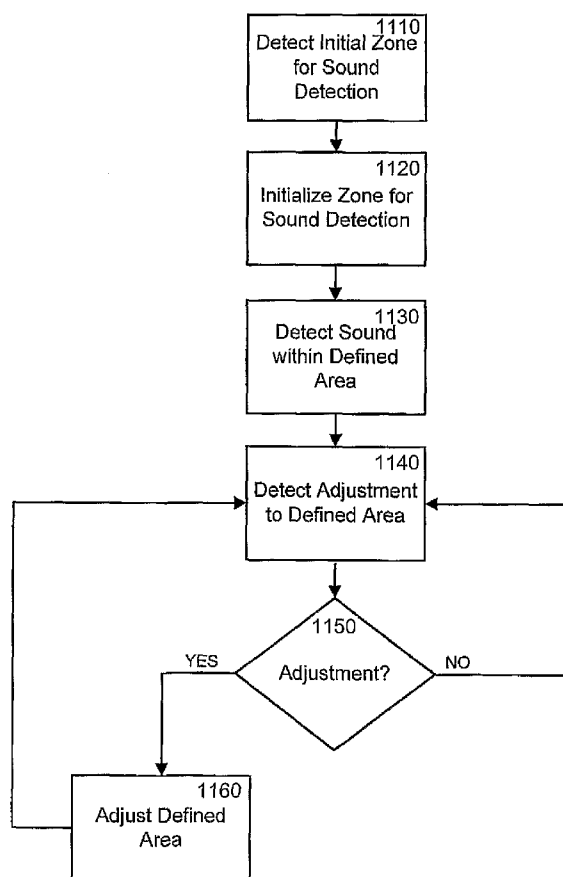
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(54) Title: MICROPHONE ARRAY BASED SELECTIVE SOUND SOURCE LISTENING AND VIDEO GAME CONTROL



(57) Abstract: A sound capture unit is configured to identify one or more sound sources. The sound capture unit generates data capable of being analyzed to determine a listening zone at which to process sound to the substantial exclusion of sounds outside the listening zone. Sound captured and processed for the listening zone may be used for interactivity with the computer program. The listening zone may be adjusted based on the location of a sound source. One or more listening zones may be pre-calibrated. The apparatus may optionally include an image capture unit configured to capture one or more image frames. The listening zone may be adjusted based on the image. A video game unit may be controlled by generating inertial, optical and/or acoustic signals with a controller and tracking a position and/or orientation of the controller using the inertial, acoustic and/or optical signal.

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

INV. G10L21/02 H04R3/00 A63F13/02 A63F13/06 H04R1/40

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)

G10L H04R A63F 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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>US 2003/160862 A1 (CHARLIER MICHAEL L ET AL) 28 August 2003 (2003-08-28)</p> <p>figure 2 paragraphs [0037], [0038], [0040], [0066] paragraphs [0068], [0069]; figure 8 ----- -/--</p>	<p>1, 19, 22, 23, 39, 46, 65, 73</p>

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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

24 April 2007

Date of mailing of the international search report

04/05/2007

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/017483

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 2004/213419 A1 (VARMA ANKUR ET AL) 28 October 2004 (2004-10-28) paragraph [0025] paragraph [0027] paragraphs [0038] - [0041]; figure 2 paragraphs [0054], [0057], [0061], [0063] paragraph [0103]	16,74, 101,133
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X	----- EP 1 489 596 A (SONY ERICSSON MOBILE COMMUNICATIONS AB) 22 December 2004 (2004-12-22) figure 1 paragraph [0025] paragraph [0042] paragraph [0039]	134,144
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Y	idem	161
Y	----- EP 1 335 338 A (MICROSOFT CORP [US]) 13 August 2003 (2003-08-13) figures 1,3 paragraphs [0027], [0029], [0031], [0034] paragraphs [0060], [0061] paragraph [0082]	161,177
X	----- EP 1 074 934 A2 (LUCENT TECHNOLOGIES INC [US]) 7 February 2001 (2001-02-07) figure 1 abstract paragraphs [0013], [0015], [0016] paragraphs [0054], [0055]	169,173
Y	idem	177
X	----- US 2005/047611 A1 (MAO XIADONG) 3 March 2005 (2005-03-03) cited in the application figure 2 figure 4 paragraphs [0033], [0041], [0044], [0045], [0053], [0056]	1,19,22, 23,39, 46,65,73
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/017483

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 6 173 059 B1 (HUANG JIXIONG ET AL) 9 January 2001 (2001-01-09)</p> <p>column 3, line 36 - column 4, line 4 column 5, line 49 - line 64 column 6, line 6 - line 20 column 7, line 28 - line 29 column 8, line 45 - line 65</p>	<p>1,19,22, 23,39, 46,65,73</p>
A	<p>WILSON K W ET AL: "Audio-video array source localization for intelligent environments" 2002 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING. PROCEEDINGS. (ICASSP). ORLANDO, FL, MAY 13 - 17, 2002, IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING (ICASSP), NEW YORK, NY : IEEE, US, vol. VOL. 4 OF 4, 13 May 2002 (2002-05-13), pages II-2109, XP010804318 ISBN: 0-7803-7402-9 paragraph [02.1]</p>	<p>1,19,22, 23,44, 46,65,73</p>
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A	<p>FIALA M ET AL: "A panoramic video and acoustic beamforming sensor for videoconferencing" HAPTIC, AUDIO AND VISUAL ENVIRONMENTS AND THEIR APPLICATIONS, 2004. HAVE 2004. PROCEEDINGS. THE 3RD IEEE INTERNATIONAL WORKSHOP ON OTTAWA, ONT., CANADA 2-3 OCT. 2004, PISCATAWAY, NJ, USA, IEEE, US, 2 October 2004 (2004-10-02), pages 47-52, XP010765301 ISBN: 0-7803-8817-8 paragraph [0004] paragraph [0005]</p>	<p>23,39,44</p>
A	<p>EP 0 652 686 A (AT&T CORP) 10 May 1995 (1995-05-10)</p> <p>figure 2 page 3, line 13 - line 25 page 3, line 41 - line 43 page 5, line 6 - page 6, line 9</p>	<p>1,19,22, 23,39, 44,46, 65,73</p>

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/017483

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 5 335 011 A (ADDEO ET AL) 2 August 1994 (1994-08-02)</p> <p>column 3, line 12 - line 20 column 4, line 60 - line 65 column 5, line 6 - line 41</p> <p>-----</p>	<p>1, 19, 22, 23, 39, 44, 46, 65, 73</p>
X	<p>EP 1 033 882 A (SONY COMP ENTERTAINMENT INC [JP]) 6 September 2000 (2000-09-06) paragraph [0012] paragraph [0015] paragraph [0019] paragraphs [0021], [0022] paragraph [0030] paragraph [0036] figure 1</p> <p>-----</p>	<p>169, 173</p>
A	<p>EP 0 867 798 A2 (IBM [US]) 30 September 1998 (1998-09-30) abstract figure 1a</p> <p>-----</p>	<p>177</p>
A	<p>US 2003/063065 A1 (LEE SUNG-JIN [KR] ET AL) 3 April 2003 (2003-04-03) figure 2 figure 10 paragraph [0010] paragraphs [0039] - [0041]</p> <p>-----</p>	<p>177</p>

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.:

2-15, 17-18, 20-21, 24-38, 40-43, 45, 47-64, 66-72, 75-100, 102-132, 135-143, 145-151, 153-160, 162-168, 170-172, 174-176

The present application contains 177 claims, of which 20 are independent. There is no clear distinction between the independent claims because of overlapping scope. There are so many claims, and they are drafted in such a way that the claims as a whole are not in compliance with the provisions of clarity and conciseness of Article 6 PCT, as it is particularly burdensome for a skilled person to establish the subject-matter for which protection is sought. The non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search (PCT Guidelines 9.19 and 9.25).

The search was restricted to the subject-matter of the independent claims.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

International application No.
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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:
see FURTHER INFORMATION sheet PCT/ISA/210

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.:

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: 1-151

Adjusting the listening zone detected by a microphone array

1.1. claims: 1-15,19-21,22,23-38,39-43,44-45,46-64,65-72,73

Adjusting the listening zone of a microphone array

1.2. claims: 16-18,74-100,101-132,133

Definition of listening zones for a microphone array according to a user set preference

1.3. claims: 134-143,144-151

Direction based filtering of a sound source

2. claims: 152-177

Control of a video game with a game controller

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2006/017483

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