

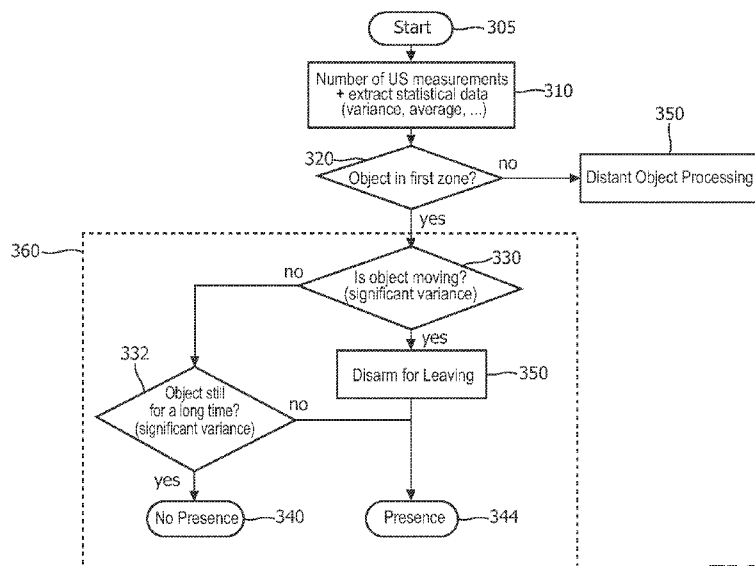


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[Continued on next page]

(54) Title: METHOD FOR ROBUST AND FAST PRESENCE DETECTION WITH A SENSOR



(57) Abstract: A method is presented for detecting the presence of objects. The method differentiates animate objects within a presence detector detection area from inanimate objects within the detection area. Moving objects passing nearby the detection area are further distinguished from objects entering or leaving the detection area. The method distinguishes inanimate objects from dormant animate objects within the detection area.

FIG. 3

WO 2012/176101 A3



Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *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))*

Published:

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

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7 March 2013

INTERNATIONAL SEARCH REPORT

International application No PCT/IB2012/053024

A. CLASSIFICATION OF SUBJECT MATTER INV. G01S15/04 G01S15/88 H05B37/02 ADD.				
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) G01S H05B				
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 practicable, 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 3 997 866 A (TAYLOR WILLIAM R ET AL) 14 December 1976 (1976-12-14)	1,2,9, 10,17		
Y	the whole document	3-8,11, 18-21		
Y	----- WO 2010/029463 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; PHILIPS CORP [US]; PASVEER WILLEM) 18 March 2010 (2010-03-18) page 1, line 1 - page 10, line 20	3-8,11, 18-21		
Y	----- US 5 043 705 A (ROOZ ELKANA [IL] ET AL) 27 August 1991 (1991-08-27) abstract	3-8,11, 18-21		
A	----- US 2005/146429 A1 (SPOLTRE MICHAEL T [US] ET AL) 7 July 2005 (2005-07-07) paragraph [0012] - paragraphs [0017], [0023], [0026]	1-11, 17-21		
----- -/--				
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.				
* Special categories of cited documents : <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent 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 </td> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent 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
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent 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	Date of mailing of the international search report			
14 September 2012	11/01/2013			
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Rudolf, Hans			

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/053024

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98/00730 A1 (DUSKEDGE PTY LTD [AU]; MANCLARK BARRY [AU]) 8 January 1998 (1998-01-08) page 2, line 30 - page 3, line 24 -----	1-11, 17-21
A	US 3 986 182 A (HACKETT KENNETH R) 12 October 1976 (1976-10-12) abstract; figure 1 -----	1-11, 17-21

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2012/053024

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.:

1-11, 17-21

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2012/053024

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3997866	A	14-12-1976	NONE	

WO 2010029463	A1	18-03-2010	CN 102150061 A	10-08-2011
			EP 2324370 A1	25-05-2011
			JP 2012502270 A	26-01-2012
			KR 20110074523 A	30-06-2011
			RU 2011113834 A	20-10-2012
			TW 201015099 A	16-04-2010
			US 2011163872 A1	07-07-2011
			WO 2010029463 A1	18-03-2010

US 5043705	A	27-08-1991	NONE	

US 2005146429	A1	07-07-2005	NONE	

WO 9800730	A1	08-01-1998	NONE	

US 3986182	A	12-10-1976	NONE	

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-11, 17-21

A method for detecting the presence of animate objects with a sensor

2. claims: 12-16

A method for detecting objects within a detection area of a time-of flight sensor;
