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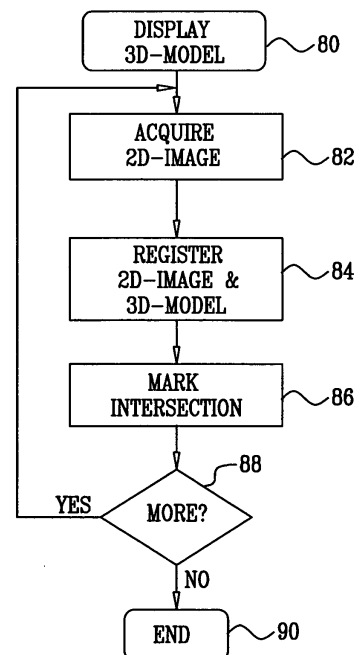
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(54) **Coloring electroanatomical maps to indicate ultrasound data acquisition**

(57) During acquisition of ultrasound data in a medical imaging procedure, three-dimensional model of a structure being imaged, e.g., an electroanatomical map, is co-displayed and visually marked, to indicate progress of data acquisition. The plane of intersection successive two-dimensional images are marked on the as a line or colored region on the three-dimensional model. This display enables the operator to determine regions where sufficient data have been captured, and guides the operator to areas where additional data collection is still needed. Various color schemes are used to indicate the relative sufficiency of data collection.

FIG. 3



Application Number

which under Rule 63 of the European Patent Convention EP 07 25 4746 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 1 720 038 A (BIOSENSE WEBSTER INC [US]) 8 November 2006 (2006-11-08)	1-9	INV. A61B8/13
X	* the whole document *	10,12,13	A61B8/12
	-----		A61B6/08
X	WO 99/60921 A (BURDETTE MEDICAL SYSTEMS [US]) 2 December 1999 (1999-12-02)	10,11	A61B5/044
	* page 8, line 5 - page 8, line 16 *		A61B19/00
	-----		ADD.
A	US 2003/231789 A1 (WILLIS N PARKER [US] ET AL) 18 December 2003 (2003-12-18)	23,24	A61B5/055
	* paragraphs [0104], [0109] *		

A	US 2006/239527 A1 (KRISHNAN SRIRAM [US] ET AL) 26 October 2006 (2006-10-26)	1-13	
	* the whole document *		

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			TECHNICAL FIELDS SEARCHED (IPC)
			A61B G01R G01N G01S G06T
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search:</p> <p>see sheet C</p>			
Place of search		Date of completion of the search	Examiner
Munich		11 April 2008	Anscombe, Marcel
CATEGORY OF CITED DOCUMENTS		<p>T : theory or principle underlying the invention</p> <p>E : earlier patent document, but published on, or after the filing date</p> <p>D : document cited in the application</p> <p>L : document cited for other reasons</p> <p>.....</p> <p>& : member of the same patent family, corresponding document</p>	
<p>X : particularly relevant if taken alone</p> <p>Y : particularly relevant if combined with another document of the same category</p> <p>A : technological background</p> <p>O : non-written disclosure</p> <p>P : intermediate document</p>			



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 07 25 4746

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<p>SERMESANT ET AL: "Simulation of cardiac pathologies using an electromechanical biventricular model and XMR interventional imaging"</p> <p>MEDICAL IMAGE ANALYSIS, OXFORD UNIVERSITY PRESS, OXOFRD, GB, vol. 9, no. 5, October 2005 (2005-10), pages 467-480, XP005040723 ISSN: 1361-8415 * the whole document *</p> <p>-----</p>		
			TECHNICAL FIELDS SEARCHED (IPC)



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**INCOMPLETE SEARCH
SHEET C**

Application Number
EP 07 25 4746

Claim(s) not searched:
14-18

Reason for the limitation of the search (non-patentable invention(s)):

The application does not comply with Art. 53(c) EPC because claims 14-18 is a method of treatment of the human or animal body by surgery. The reason is that claim 14 contains the feature "introducing a probe into a heart of said subject", where said subject is living.



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-13, 23-24

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 07 25 4746

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-13, 23-24

directed to a device and method for marking the intersection of sequential image planes with a three-dimensional model of a surface of a structure. A contribution to the art might reside in the feature of marking said three dimensional model to show intersections while acquiring/registering said image sequence, which solves the problem of real-time identification of topological features in a current two-dimensional image (description, paragraphs [0053]).

2. claims: 14-18, 19-22, 25

directed to a functional mapping probe and method. A contribution to the art might reside in the feature of marking a region of a functional map in pseudocolour and displaying it with an anatomic image, solving the problem of marking the overlap of functional information for a heart with an image of the heart, which solves the problem of indicating the sufficiency/quality of structural image data over a corresponding region of functional information (description, paragraph [0059]).

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 25 4746

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-04-2008

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 1720038	A	08-11-2006	AU	2006201451 A1	09-11-2006
			BR	PI0601508 A	26-12-2006
			CA	2544020 A1	26-10-2006
			CN	1853574 A	01-11-2006
			JP	2006305357 A	09-11-2006
			KR	20060112239 A	31-10-2006
			US	2006253031 A1	09-11-2006

WO 9960921	A	02-12-1999	AU	4318499 A	13-12-1999
			CA	2333583 A1	02-12-1999
			EP	1079730 A1	07-03-2001
			US	6129670 A	10-10-2000
			US	2003229282 A1	11-12-2003
			US	6512942 B1	28-01-2003

US 2003231789	A1	18-12-2003	AU	2003234685 A1	31-12-2003
			CA	2486718 A1	24-12-2003
			EP	1514214 A2	16-03-2005
			JP	2005529701 T	06-10-2005
			WO	03107251 A2	24-12-2003

US 2006239527	A1	26-10-2006	WO	2006115567 A1	02-11-2006

专利名称(译)	着色电解剖图以指示超声数据采集		
公开(公告)号	EP1929956A3	公开(公告)日	2008-09-10
申请号	EP2007254746	申请日	2007-12-07
[标]申请(专利权)人(译)	韦伯斯特生物官能公司		
申请(专利权)人(译)	生物传感韦伯斯特, INC.		
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IPC分类号	A61B8/13 A61B8/12 A61B6/08 A61B5/044 A61B19/00 A61B5/055		
CPC分类号	A61B5/044 A61B5/7285 A61B5/743 A61B6/08 A61B6/463 A61B6/5229 A61B6/5241 A61B8/12 A61B8/13 A61B8/4488 A61B8/463 A61B8/483 A61B8/5238 A61B8/543 A61B34/20 A61B90/36 A61B2034/105 A61B2034/2051 A61B2090/364 A61B2090/365 A61B2090/367 A61B2090/378		
优先权	11/608506 2006-12-08 US		
其他公开文献	EP1929956B1 EP1929956A2		
外部链接	Espacenet		

摘要(译)

在医学成像过程中获取超声数据期间,被成像的结构三维模型(例如,电解剖图)被共同显示并可视地标记,以指示数据获取的进展。交叉平面连续的二维图像在三维模型上标记为线或彩色区域。该显示使操作员能够确定捕获了足够数据的区域,并指导操作员到仍需要额外数据收集的区域。各种颜色方案用于指示数据收集的相对充分性。

FIG. 3

