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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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[Continued on next page]

(54) Title: NON-INVASIVE METHODS AND SYSTEMS FOR PRODUCING CARDIAC ELECTROGRAM CHARACTERISTIC MAPS FOR USE WITH CATHETER ABLATION OF VENTRICULAR TACHYCARDIA

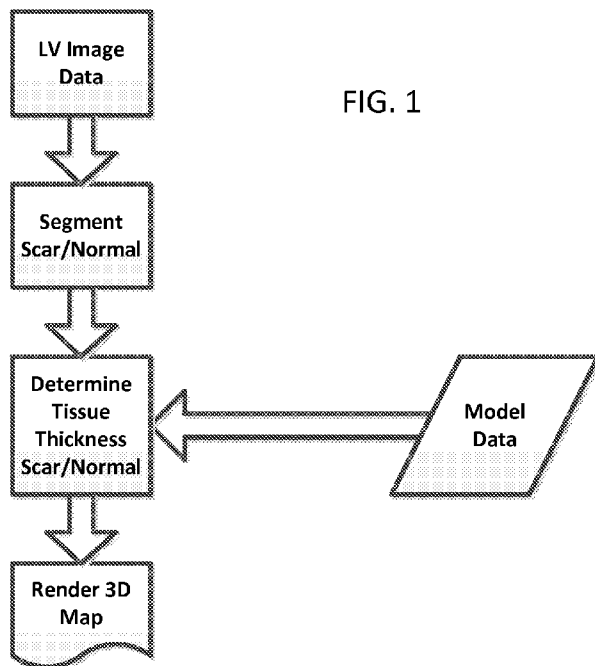


FIG. 1

(57) Abstract: A non-invasive method of producing a three-dimensional cardiac electrogram characteristic map for use in catheter ablation of ventricular tachycardia includes receiving left ventricle three-dimensional image data of a patient's heart; segmenting a left ventricle image of the patient's heart based on the left ventricle three-dimensional image data into scar tissue, normal myocardium tissue and left ventricle cavity regions; determining scar tissue thickness and normal myocardium tissue thickness for a plurality of portions of the left ventricle image of the patient's heart; receiving predetermined data that associate a value of at least one electrogram characteristic to each scar tissue thickness and each normal myocardium tissue thickness for the plurality of portions of said left ventricle image of said patient's heart; and generating the three-dimensional cardiac electrogram characteristic map of the at least one electrogram characteristic corresponding to the left ventricle image of the patient's heart based on the predetermined data

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**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

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**A. CLASSIFICATION OF SUBJECT MATTER***A61B 5/02(2006.01)i, A61B 5/055(2006.01)i*

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)

A61B 5/02; A61B 5/04; G06T 17/00; A61B 5/055; A61B 8/14; G06K 9/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; Keywords:cardiac electrogram,image,thickness,map

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010-0312096 A1 (GUTTMAN MICHAEL et al.) 09 December 2010 See abstract, paragraphs [0104]-[0110], claims 1,24, and figures 7,11.	1-27
A	US 2009-0161938 A1 (SHEKHAR RAJ et al.) 25 June 2009 See abstract, paragraphs [0022],[0037]-[0038], claims 1-5, and figure 1A.	1-27
A	US 2006-0253030 A1 (ANDRES ALTMANN et al.) 09 November 2006 See abstract, paragraphs [0089]-[0096],[0138]-[0142], claim 16, and figure 1.	1-27
A	US 2002-0087089 A1 (SHLOMO BEN-HAIM) 04 July 2002 See abstract, paragraphs [0069]-[0072],[0113]-[0118],[0187]-[0195], and figures 6,7.	1-27

 Further documents are listed in the continuation of Box C. See patent family annex.

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