



GENERALITAT
VALENCIANA



BANCO DE
PATENTES



UNIVERSITAT
POLITÀCNICA
DE VALÈNCIA

TITLE New real-time geolocation device for cardiac arrhythmias

DESCRIPTION OF THE TECHNOLOGY

Researchers from the Universitat Politècnica de València (UPV) and the Foundation for Biomedical Research at Gregorio Marañón Hospital (FIBHGM) have designed a new device that will guide physicians during cardiac ablation. The key lies in its ability to generate a mapping of cardiac activity from superficial and non-invasive intracardiac records.

Current systems are capable of recording and displaying both multiple electrical and intracardiac signals, but none of them is able to detect non-stationary cardiac activity patterns, as it is the case, for example, of atrial fibrillation.

This tool, patented by the UPV and the FIBHGM, is the first of its kind that allows characterising cardiac

electrophysiological behaviour through the combined analysis of the overall electrical information obtained by surface mapping and timely information provided by the intracardiac catheters.

Thanks to the new geolocation device for cardiac arrhythmias it is now possible to map cardiac activity of both atria in real time, without the need for a computerised tomography (CT), thereby reducing treatment costs both temporarily and economically.

The UPV is currently looking for companies in the electromedical field who might be interested in licensing the results in order to develop the final product and its subsequent marketing.

BUSINESS APPLICATIONS

The application is especially intended for companies in the electromedical field

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The new device provides several innovative features that break away from the limitations of current systems used in the detection and treatment of cardiac arrhythmias.

- It enables to perform a mapping of cardiac activity in real time in both atria.
- It uses intracardiac information combined with information obtained superficially.
- It improves the performance of the cardiac activity reconstruction method.
- It geolocates the torso's electrodes in the same coordinate system than that of intracardiac signals by using three-dimensional scanning.
- It reduces treatment costs both temporarily and economically, as it will no longer be necessary to perform a computed tomography (CT) or to segment the images generated.
- It reduces the time spent by the patient in the operating room.
- There is no dependence on commercial products.
- It does not require any investment in infrastructure.

STATE OF THE TECHNOLOGY DEVELOPMENT

Inventors have developed a preliminary design of the device in the laboratory, where basic issues such as generating atria models obtained through electroanatomic navigator have been solved.

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On 30 October 2014, the Universitat Politècnica de València (UPV) and the Foundation for Biomedical Research at Gregorio Marañón Hospital requested patent protection before the Spanish Patent and Trademark Office, with reference P201431597.

Subsequently, on 29 October 2015, the extension thereof was requested through PCT for its protection at international level, with reference PCT/ES2015/070779.

DESIRED COOPERATION

The UPV is currently looking for companies in the electromedical field, specifically those who manufacture medical and healthcare equipment and instrumentation, and might be interested in licensing the results in order to develop the final product and its subsequent marketing.

RELATED IMAGES

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