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Portable Heart Motion Monitor

Tech ID: 33658 / UC Case 2014-988-0

ABSTRACT

Researchers at the University of California, Davis, have developed a device to monitor the heart using radiofrequency signals to improve the detection and diagnosis of various cardiovascular conditions. The device can integrate with existing mobile products, which is particularly helpful for older adults and those with limited access to adequate medical facilities.

FULL DESCRIPTION

Cardiovascular disease is the leading cause of death in the United States, resulting in more than 600,000 deaths and significantly contributing to healthcare costs. Over 28 million Americans are diagnosed with heart disease, contributing to more than \$30 billion in healthcare-related expenses. The emergence of wearable devices (e.g., smartphones & watches) and biosensors have led to new non-invasive tools for the early detection of many diseases. However, the early detection and subsequent treatment of various conditions in the heart, like irregular heartbeat, is challenging with current technologies. Researchers at the University of California, Davis, have developed a mobile device for detecting irregular heartbeat. The device is positioned on the sternum and emits radio frequency (RF) signals that are reflected off the heart and analyzed by the device. A microprocessor in the device can then determine if the user is

APPLICATIONS

- ▶ Early detection of adverse heart-related cardiovascular conditions.

FEATURES/BENEFITS

- ▶ A non-invasive wearable device for alerting the onset of a potentially severe cardiovascular event.
- ▶ Transmits data to the user's smartphone device and medical provider.
- ▶ Facilitates early treatment of heart conditions, preventing life-threatening conditions like a heart attack.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,116,416	09/14/2021	2014-988
United States Of America	Published Application	20220031187	02/03/2022	2014-988

OTHER INFORMATION

Note: While this invention is available for individual licensing, it is designed to work synergistically with two other related inventions. Licensing all three together is recommended for optimal functionality and integration.

2018-059 <https://techtransfer.universityofcalifornia.edu/NCD/33690.html>

2020-038 <https://techtransfer.universityofcalifornia.edu/NCD/33691.html>

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OTHER INFORMATION

KEYWORDS

cardiovascular, diagnosis, prevention, wearable, arrhythmia, irregular heartbeat

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Disease: Cardiovascular and Circulatory System
 - ▶ Other
 - ▶ Research Tools
 - ▶ Screening

RELATED CASES

2014-988-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Abnormal Heart Activity Monitoring Using Contact Doppler Radar](#)
- ▶ [On-Chip Platform for Single-Molecule Electrical Conductance Measurements](#)
- ▶ [Using Contact Doppler Radar to Monitor PA Pressure in Heart Failure Patients](#)
- ▶ [Absorptive Microwave Bandpass Filters](#)

- ▶ [Field Effect Bipolar Transistor](#)
- ▶ [Quarter-Rate Serial Link Receiver with Low Aperture Delay Samplers for High Data Rate Applications](#)
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