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Non-invasive monitoring of hemodynamic parameters

Tech ID: 33669 / UC Case 2017-200-0

CONTACT

Alvin Viray
aviray@uci.edu
tel: 949-824-3104.



OTHER INFORMATION

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BRIEF DESCRIPTION

This technology represents a breakthrough in non-invasive hemodynamic monitoring by utilizing coherent light to assess physiological parameters with high accuracy

FULL DESCRIPTION

Researchers at UCI have developed a novel method for non-invasively determining physiological information in subjects through systems that employ a coherent light source and a photo-sensitive detector to capture and analyze scattered light from biological tissue. This approach enables the calculation of various physiological parameters, including blood flow and volume, by analyzing the speckle pattern generated through light interaction with moving blood cells.

SUGGESTED USES

- » Hospital and clinical settings for patient monitoring and diagnosis.
- » Research in cardiovascular health and diseases.
- » Development of wearable devices for personal health monitoring and fitness.
- » Applications in assessing and managing patients with cardiovascular diseases, dehydration, and conditions affecting blood flow and volume.

ADVANTAGES

- » Superior signal quality compared to existing methods like Photoplethysmography (PPG), especially in challenging patient groups.
- » Capable of providing comprehensive physiological assessments including blood pressure, vascular stiffness, and cardiac output.
- » Non-contact and non-invasive, enhancing patient comfort and safety.
- » Utilizes inexpensive components, making the technology accessible and cost-effective.
- » Provides robust signals even in conditions where traditional methods fail, such as in patients with extensive cardiovascular disease or during increased vascular tone.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,813,597	10/27/2020	2017-200

STATE OF DEVELOPMENT

Prototype in development

UCI Beall
Applied Innovation

5270 California Avenue / Irvine, CA
92697-7700 / Tel: 949.824.2683



