Self-training continuous blood pressure monitor

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Medical technology and devices

> Proof of concept

Problem
Blood pressure monitors are invasive and do not monitor continuously. Devices that have continuous monitoring capability have low patient compliance rates due to size and discomfort.

Solution
This technology is a self-training continuous blood pressure monitor which measures multiple medical signs continuously, including blood pressure, heartrate, heart rate variability, SpO2, perfusion index and optionally ECG.

With each cardiac cycle, blood is pumped to the body's periphery. Although the flow is damped by the flexibility of human tissue, blood flow is not constant and can be observed as a pressure wave. This pressure wave can be monitored non-invasively through photoplethysmography (PPG) sensors. PPG illuminate the skin and measure changes in light absorption induced by varying blood flow, therefore measuring blood volume changes.

The developed technology consists of the main features:

1. A provision to accurately monitor blood volume changes and timings from fused mechanical,

motion and optical sensors in multiple locations.

2. A provision to actuate blood flow in one location while observing the impact on the second

location.

3. A machine learning method fusing the information and processing it into multiple medical signs.

Intellectual Property Status
provisional patent application titled (2022901774).

Commercial Opportunity
Potential application areas include:

1. Bloodpressuremonitors

2. Pulseoximeters

3. Activitytrackers

4. Fitnesstrackers

5. Sleepoxygenmonitors

6. Heartratemonitors

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