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Adaptable Respiratory Rate Monitoring for Commercial Fitness Devices

Low-power signal processing that enables accurate breathing rate tracking in wearables and neonatal care pouches.

Researchers at Purdue University have developed new signal processing techniques for measuring respiratory rates. Through algorithms that measure inhale and exhale frequency of patients as well as heart rate, respiratory sinus arrhythmia (RSA) can be determined. Unlike current technologies, this algorithm can be integrated into existing commercial fitness devices. The low-power, portable technology can also be implemented into Kangaroo Mother Care pouches for use in neonatal intensive care units (NICU). The system is found to operate at a rate between seven and thirteen breaths per minute, and showed improved modeling compared to other similar algorithms. The measures of baseline drift as well as QRS complex height for ventricle hypertrophy were enhanced by using the Purdue University approach.

Advantages:

-Low Power

-Portable

-Adaptable with existing devices

-Accurate

Potential Applications:

-Fitness

-Neonatal Care

-Hospitals

-Medical

TRL: 3

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Digital Health & Medtech/Wearable Health Tech & Biosensors

Authors
Orlando Sanguinette Hoilett
Jacqueline Linnes
Benjamin David Walters

Further information
Patrick Finnerty
pwfinnerty@prf.org

View online

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