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LIFETOUCH: A PORTABLE LIGHTWEIGHT VITAL SIGN MONITOR FOR AUSTERE
ENVIRONMENTS

Abstract

Vital signs offer key insights into a subject's health and physiological status, and are therefore imperative for subject monitoring when working in an austere environment. In this paper, we describe our experiences testing the ISANSYS Lifetouch, a portable lightweight wireless Bluetooth biosensor in an underwater dive complex, parabolic flight, and a simulated Mars mission. The wireless physiological monitoring capabilities include heart rate, ECG, respiration rate, accelerometry and heart rate variability (HRV) in real-time, with additional wireless Bluetooth add-on components for pulse oximetry, temperature and blood-pressure monitoring. We also examine environment considerations driving future designs, concluding with looking at next steps and deployment in the evolution of the Lifetouch.