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In-Ear Wearable Device (EWD) for Real-Time Monitoring of Physiological Parameters and Environmental Conditions

Background

Wearable technology has the potential to serve as a point sensor for chemical, biological, radiological, nuclear, and high-yield explosives, which provides continuous surveillance in real-time for high-stress environments including military environments, emergency and law enforcement, field maintenance, and high-performance athletics. However, most current wearable sensor technologies cannot detect all required measurements to effectively assess the health of individuals and mitigate any chemical, biological, radiological, or nuclear threats.

Invention Description

Researchers at Arizona State University and the Naval Surface Warfare Center have prototyped a novel, non-invasive in-ear wearable device (EWD) featuring a combination of sensors/electrodes that allow real-time monitoring of human physiological parameters as well as environmental conditions. Sensors include:

