Beat the Heat: A Novel AI-Based Approach to Save Lives From Heat Exhaustion

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In the US, over 65,000 heat-related deaths occur annually. Athletes/workers exposed to hot temperatures face the risk of heat exhaustion and heat stroke. There are watches/straps that monitor heart rate and some body temperature monitors on the market, but none that allow real-time monitoring simultaneously to prevent heat-related illness. Additionally, there are subjective symptoms that are associated with the onset of heat exhaustion that current devices on the market cannot monitor. Real-time monitoring of vital signs and symptoms can help individuals detect signs of heat exhaustion and seek care early. "Beat the Heat" takes on a novel approach by providing a monitor that can be worn when performing activities in the heat and combines quantitative and qualitative real-time data to detect the onset of heat exhaustion symptoms. This allows for timely intervention that can be life saving. The design includes a wearable chest strap with sensors to collect an individual's body temperature and heart rate data that is connected to a monitoring software running on a mini-computer. Our design plans also include leveraging AI models to interpret qualitative data on a user's reported symptoms. Our testing has shown that our device can accurately capture data when a person is exerting themselves at high temperatures which allows detection if vital signs are rising to a concerning level. Trainers/Users of the product can monitor the health status of individuals while engaged in sports or activities in hot temperatures to detect and prevent heat exhaustion and heat stroke.

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