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**Project title: Noninvasive method of measuring of crayfish cardiac activity**

The crayfish emerges as a crucial aquatic organism, serving as a valuable biological model for both behavioral and physiological studies of invertebrates. Moreover, it functions as a reliable biological indicator of water quality. While crayfish cannot pinpoint specific substances causing water quality deterioration, they exhibit acute changes in cardiac activities within seconds, thus promptly alerting humans to such deterioration. The implementation of a noninvasive method, characterized by simplicity and reliability, makes it adaptable to diverse conditions. This innovative approach, incorporating biological organisms into environmental evaluation processes, offers a dependable and timely alarm system for detecting and preventing acute water deterioration in ambient environments. Hence, the noninvasive system, utilizing crayfish physiological and ethological parameter recordings, presents a compelling avenue for investigating changes in aquatic environments. Initially employed at a local brewery to control water quality for beverage production, this system holds potential for application in any water treatment and supply facility. It facilitates continuous, real-time water quality evaluation and periodic laboratory investigations into crayfish cardiac physiology and behavior. The system's advantages include affordability, a minimal number of required components, and the ability to monitor cardiac signal shapes. Calculating and analyzing parameters defining the shape of the double peak cardiac activity not only reduces incorrect peak detections, enhancing system accuracy, but also provides additional insights into crayfish states. To address existing knowledge gaps, we propose a project aimed at investigating the dynamics of cardiac activity of signal crayfish reactions to changes.

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