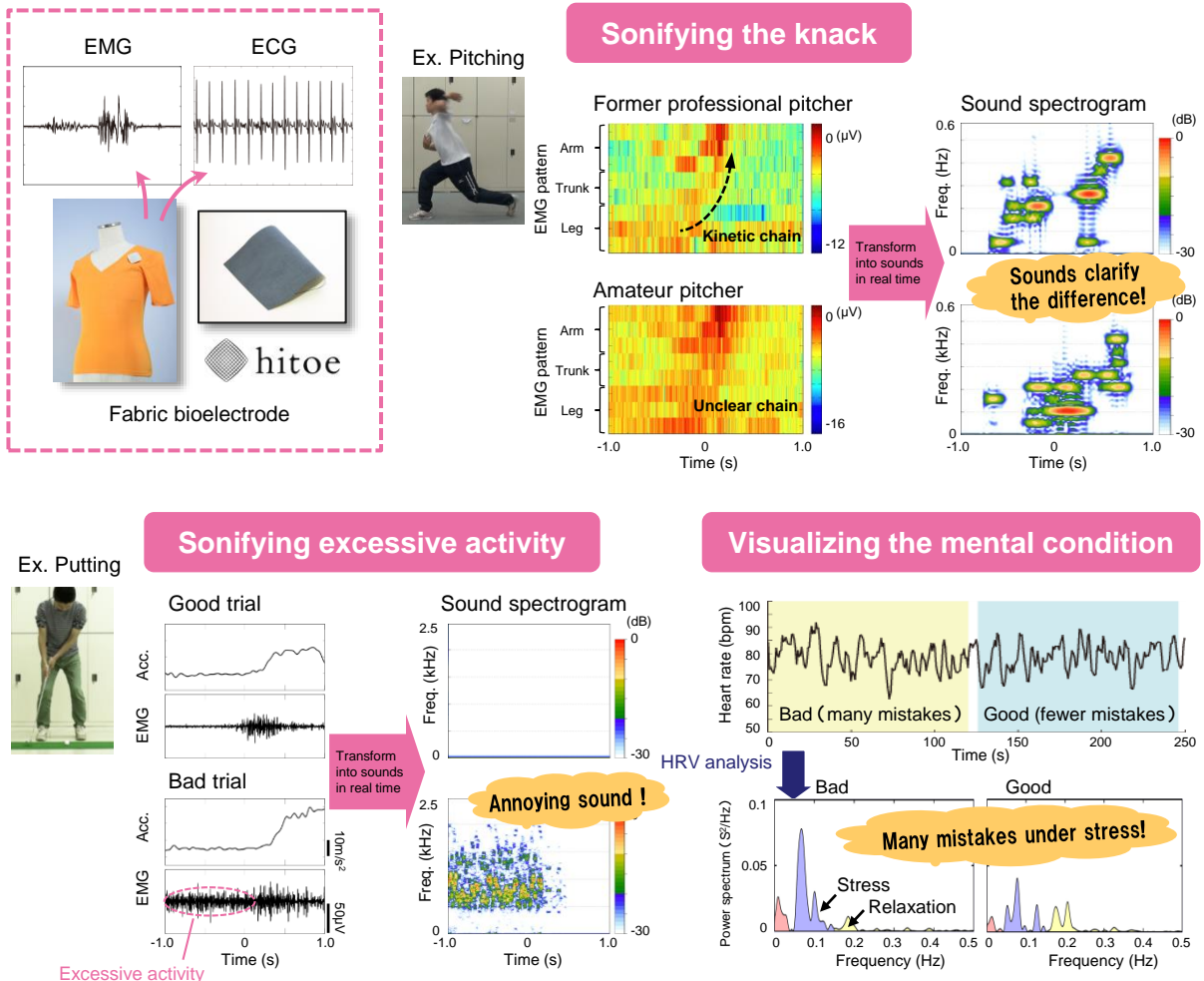


Abstract

Our wearable bioelectrodes can easily sense electromyographic (EMG) and electrocardiographic (ECG) signals produced when playing sports. We propose some feedback techniques that use these signals to sonify and visualize muscle activity and heart rate. One technique provides synthesized sounds for a muscle activity pattern in a goal-directed movement. Another provides information about physical (i.e., excessive muscle activity) and mental (i.e., sympathetic and parasympathetic activities) states in an auditory and a visual way, respectively. These techniques will help a player to learn the skill needed for a desired action and reveal a player's condition during sports. In addition, we hope to use these techniques in the rehabilitation and entertainment fields.



"hitoe" is functional material for a wearable bioelectrode that was co-developed with Toray Industries, Inc.

Related works

[1] T. Kimura, T. Mochida, T. Ijiri, M. Kashino, "Real-time sonification of motor coordination to support motor skill learning in sports," in Proc. 2nd International Congress on Sports Sciences Research and Technology Support (icSPORTS2014), 2014.

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