Using Wearable Sensors and Music to Build a Stress Intervention System

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ABSTRACT Mental stress is an issue in the lives of many people. Statistics from the American Institute of Stress from 2014 state that 77% of people regularly experience physical symptoms of stress and 33% of people feel they are living with extreme stress in the United States [1]. This is a large concern for the overall well-being of many because of the harmful effects of stress. Stress is recognized as a risk factor for serious illness, such as insomnia, eating disorders, depression, anxiety and panic attacks, circulatory problems, colds, and more illnesses [2]. In order to offer a solution for individuals to combat their stress before they must contact a healthcare professional, we are developing a stress intervention system. There is a quantitative relationship between an individual's stress level and their heart rate variability measurements. Applying this knowledge, our stress intervention system leverages an EKG sensor to detect changes in an individual's heart rate variability. To explore a methodology for detecting stress and lowering an individual's stress level, we offer corresponding music as a relaxation option.

REFERENCES

[1] "What Is Stress?" The American Institute of Stress, www.stress.org/daily-life/.

[2] T. B. VanItallie, "Stress: A risk factor for serious illness," Metabolism, vol. 51, (6), pp. 40-45, 2002.