Abstract

Photoplethysmography (PPG) is a noninvasive, low-cost technique used to detect skin blood volume pulsations in the microvasculature of the skin using optical methods. Blood-pressure waves that are generated by the heart propagate along the skin arteries, locally increasing and decreasing the tissue blood volume with the periodicity of heartbeats. Heart rate, respiratory rate, and tissue blood perfusion, as well as indicators of cardiac disorders and peripheral vascular diseases, can be extracted from the analysis of a single PPG trace, however, there are many factors that can interfere with the robustness and reliability of obtaining a PPG signal. A method of obtaining a reliable PPG signal with the ability to be used at various locations on the body, therefore, has the potential to be useful in clinical applications, as well as self-monitoring.

Boise State University has developed a reliable PPG Optical Monitoring and Computing Device for both clinical use and self-monitoring. This device shows a high sensitivity while using un-amplified data. This quantifiable data has the potential to provide useful diagnostic information beyond heart rate and oxygen saturation.

Advantages

- Noninvasive
- Low-cost
- Well suited for Clinical use
- Ease of use allows for consumer self-monitoring

Boise State is looking for a Licensee or development partner for this technology.

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