Power spectrum density based analysis of photoplethysmographic signal for different physiological conditions

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Abstract
This paper investigates and analyzes the photoplethysmographic (PPG) signal on the basis of the Power Spectral Density (PSD) as a parameter for the varying physiological conditions. An infrared optical sensing device is placed on the finger tip to sense the blood volume measurement and generates the PPG signal as output. Easy-Pulse Sensor module is used to condition this signal by passing it through a series of low pass, high pass filters and Op-Amp to produce the final PPG signal. The programs are developed for a multichannel processing board which is used as a linking device between Easy Pulse Sensor module and PC. The obtained PPG signal waveforms and data are then analyzed by using LabView software. The PPG samples under the four volumes are collected in four different physiological conditions, that is, sitting, standing, lying, and jogging and then these data items are analyzed for the PSD representation under each condition. The results show PSD representation of each physiological condition.

Author keywords
PPG, PPG signal, PPG analysis

References (1)

Cited by 2 documents
Spectrum analysis of physiological signals of human activities
Regulatory rates (RR) based analysis of PPG signal for different physiological conditions