

Photoplethysmography-Based Device Designing for Cardiovascular System Diagnostics

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Abstract : In this paper, we report the development of the device for diagnostics of cardiovascular system state and associated automated workstation for large-scale medical measurement data collection and analysis. It was shown that optimal design for the monitoring device is wristband as it represents engineering trade-off between accuracy and usability. The monitoring device is based on the infrared reflective photoplethysmographic sensor, which allows collecting multiple physiological parameters, such as heart rate and pulsing wave characteristics. Developed device use BLE interface for medical and supplementary data transmission to the coupled mobile phone, which process it and send it to the doctor's automated workstation. Results of this experimental model approbation confirmed the applicability of the proposed approach.

Keywords : cardiovascular diseases, health monitoring systems, photoplethysmography, pulse wave, remote diagnostics

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