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Acceleration plethysmogram based biometric identification (Conference Paper)

Jaafar, N.A.L., Sidek, K.A. [✉](#), Mohd Azam, S.N.A.

Department of Electrical and Computer Engineering, Faculty of Engineering, International Islamic University Malaysia, Jalan Gombak, Kuala Lumpur, Malaysia

Abstract

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This paper presents the feasibility study of Acceleration Plethysmogram (APG) based biometric identification system. APG signals are obtained from the second derivative of the Photoplethysmogram (PPG) signal. It has been reported from previous literature that APG signals contain more information as compared to the PPG signal. Thus, in this paper, the robustness and reliability of APG signal as a biometric recognition mechanism will be proven. APG signals of 10 subjects were acquired from the Multiparameter Intelligent Monitoring in Intensive Care II Waveform Database (MIMIC2WDB) which contains PPG signals with a sampling frequency of 125 Hz. The signals were later converted into an APG waveform. Then, discriminating features are extracted from the APG morphology. Finally, these APG samples were classified using commonly known classification techniques to identify individuals. Based on the experimentation results, APG signal when using Bayes Network gives an identification rate of 97.5 percentage as compared to PPG signal of 55 percentage for the same waveform. This outcome suggests the feasibility and robustness of APG signals as a biometric modality as compared to PPG signals. © 2015 IEEE.

Author keywords

APG signal [Bayes Network](#) [Biometric](#) [MIMIC2WDB](#) [PPG signal](#)

Indexed keywords

Engineering controlled terms: [Anthropometry](#) [Bayesian networks](#) [Patient monitoring](#) [Photoplethysmography](#)
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