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Volume 8, Issue 12, 2016, Pages 73-77

Heart abnormality detection technique using PPG signal (Article)

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Abstract

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Cardiovascular disease (CVD) is the major cause of death in the world. Previous works have been performed to overcome this issue, however, a simple yet effective detection technique scarce. Thus, in this study, photoplethysmogram (PPG) signal which are easily acquired from the fingertip, low cost, and requires low power consumption, is used. These biosignals were obtained from MIMIC II Waveform Database, Version 3 Part 1 with sampling frequency of 200 Hz with the duration of 10 seconds each. The feature of the PPG signals were then extracted using MATLAB and the peak-to-peak intervals (PPI) of PPG signals were calculated and evaluated to differentiate between the normal and abnormal PPG signals. Based on the experimentation results, PPI values between the systolic peaks of abnormal PPG signals are larger than the normal PPG signals. The significant difference between the PPI values of normal and abnormal signals indicates the reliability of the proposed method as a technique to detect heart abnormalities.

Author keywords

Heart abnormality; Peak-to-peak interval; Photoplethysmogram

ISSN: 21801843 Source Type: Journal Original language: English

Document Type: Article

Publisher: Universiti Teknikal Malaysia Melaka

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