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Data Collection in Smartwatches: A Practical Approach for Detection of Changes in Heartbeat in Medical Applications*

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Abstract

Thanks to the benefits of the popularisation of the Internet of Things (IoT) and the increased number of owners of devices such as smartwatches, among others, it is possible to monitor people's vital signs in real time. This also makes it possible to continuously monitor deviations from standard human body behaviour. However, the use of these devices poses many challenges and enormous opportunities for medicine to acquire new information. Based on a literature analysis, the aim of this paper is to describe the possibility of using machine learning techniques to analyse the user's emotional state as well as detection of disease states at an early stage based on data acquired from a smartwatch. The author's application implemented on the Samsung Galaxy Watch (TIZEN operating system) for collecting data is also described, and a basic analysis of heart rate data performed by the authors based on data obtained using the author's application is presented. Preliminary results demonstrate that even simple heart rate analysis, such as finding peaks, can be a good starting point for future research in healthcare.

Keywords: Smartwatch Data Acquisition, Smartwatch Data Analysis, Heartbeat Analysis

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