**Abstract:**

In this paper we propose a methodology to normalize the biological signal measured by camera of various smartphone models. Our method provides the ability for different mobile camera system to capture images with color characteristic as close as possible to the same standard.

1. **Introduction:**

In recent years, smartphone has become one of the most popular device. Powerful computational power as well as high resolution camera allow their usage in very wide sphere especially in health monitoring. Blood pressure, photoplethysmogram (PPG) measurement, stress index and heart rate detection all of them are prominent medical applications for smartphone.

However, there is huge number of smartphone brands in the market equipped with cameras and flash modules with different qualities and having various camera parameters settings. This difference lead to an issue with algorithms that depends on color images such as PPG detection, which might give different results when working on images having different color profile. As showed in our test, color characteristic of image captured by smartphone is not only varies with difference smart phone models but also with difference camera parameters settings.

Although there is many research have been conducted to develop smartphone-based PPG detection system [1, 2, 3], these research typically focused on developing and testing their system on specific smartphone models. This problem is also mentioned by Kurylyak et al in their research [4], in which they proposed a robust PPG detection system could work on different smartphone models. Nonetheless, their method were developed for threshold-area based PPG detection algorithm, which obviously cannot be applied for systems that calculate PPG signal by averaging green channel values.

The idea of this paper is developing a method to normalize Smartphone Camera color image to ensure that input image for PPG detection algorithm running on different smartphone models have the same color characteristic.

The rest of the paper will be organized as following:

**References:**

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