

ABSTRACT**SYSTEM AND METHOD OF PHOTOPLETHYSMOGRAPHY BASED
HEART-RATE ESTIMATION IN PRESENCE OF MOTION ARTIFACTS**

- 5 This disclosure relates to method for estimating heart rate associated with subject in
presence of plurality of motion artifacts. The method includes receiving, a
photoplethysmography signal and an acceleration signal associated with the subject;
learning, by principal component analysis, a projection matrix by projecting input
signal into n-dimensional subspaces to obtain a plurality of principal components;
10 selecting, at least one principal component by (a) matching a dominant frequency of
the principal components obtained from the PPG signal and a dominant frequency of
the principal components obtained from the accelerometer signal, by applying a
Fourier transform for a spectrum estimation; and (b) computing, at least one of (i)
percentage of energy contributed by the principal component of the PPG signal, (ii)
15 percentage of energy contributed by the principal component of the accelerometer
signal; and estimating, the heart rate of the subject based on the at least one selected
principal component.

[To be published with FIG. 2]