

A Comparative Analysis on QRS Peak Detection Using BIOPAC and MATLAB Software

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Abstract : The present paper is a representation of the work done in the field of ECG signal analysis using MATLAB 7.1 Platform. An accurate and simple ECG feature extraction algorithm is presented in this paper and developed algorithm is validated using BIOPAC software. To detect the QRS peak, ECG signal is processed by following mentioned stages- First Derivative, Second Derivative and then squaring of that second derivative. Efficiency of developed algorithm is tested on ECG samples from different database and real time ECG signals acquired using BIOPAC system. Firstly we have lead wise specified threshold value the samples above that value is marked and in the original signal, where these marked samples face change of slope are spotted as R-peak. On the left and right side of the R-peak, faces change of slope identified as Q and S peak, respectively. Now the inbuilt Detection algorithm of BIOPAC software is performed on same output sample and both outputs are compared. ECG baseline modulation correction is done after detecting characteristics points. The efficiency of the algorithm is tested using some validation parameters like Sensitivity, Positive Predictivity and we got satisfied value of these parameters.

Keywords : first derivative, variable threshold, slope reversal, baseline modulation correction

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