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Advantage technology-precision measurement of ECG parameters: A milestone in online medical diagnosis for quality healthcare delivery

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The quality healthcare delivery is a subject of how accurately the biomedical parameters particularly related to cardiovascular signals are measured and analyzed to help detect and diagnosis of the ailment properly. This presentation describes an attempt utilizing various available software tools such as lab-view and Mat-lab to extract out some of the most vulnerable biomedical parameters such as QRS complex and QT interval measurement precisely. The accuracy in peak detection of an ECG signal has always been very critical and directly responsible to affect the accuracy of overall measurements of other parameters and as a result the proper diagnosis of the problem. Hilbert transform the most powerful result providing mathematical tool has been applied on ECG signal to convert it into an analytical signal which can be subsequently used as an ideal signal for applying these tools for better understanding and analyzing the signal. The measured parameters along with the acquired ECG signal are then transmitted to the doctor online on his computer or mobile phone for further processing at his end. Apart from above several time domain measures of heart rate variability such as RR mean and standard deviation, HR mean and standard deviation, RMSSD, NN50 count and pNN50 count etc. were also measured with reasonably high degree of accuracy for several other clinical applications. The measurement strategy has been demonstrated through several front panels and snapshots for easy understanding.

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