Paper Title

(38)el-saadawy2016.pdf

1. **Preprocessing: Filtering & Segmentation**

* applying the Butterworth Band pass filter 0.5Hz-45Hz .
* a fixed segmentation has been considered by taking a definite number of samples before and after each R-peak.
* a new beat segmentation is introduced where the number of samples considered before and after each R peak is counted according to the duration between the current R peak and the previous R ( RR previous) and the duration between the current R peak and the next R ( RR next).

1. **Feature Extraction**

* Wavelet transform (WT).

1. **Classification & Classifier**

🡪 SVM is a binary classifier described by Vapnik that separates the classes by building a hyper plan between them.

🡪SVM has been used to classify 15 classes mapped to 5 main categories.

1. **Accuracy**

🡪Overall Accuracy :- 99.5%.

🡪Average Accuracy :- 96.35% .

1. **Two Leads or One Lead ? In case of two leads .. how classification of two leads is merged to have final decision ?**

🡪Two Leads , using the rejection method .

🡪The rejection method is as follows: If the classification result of the same beat from lead1 and lead2 are not the same, the rejection method neglects this beat for a further classification that is be done manually by the doctor but if the classification result is the same in both lead1 and lead2, the rejection method will take this beat into consideration. The penalty of this method is in the percentage of the rejected beats which should be minimized as much as possible.

1. **Classes**

15 classes mapped to 5 main categories .

