Autonomous Detection of Heartbeats and  
Categorizing them by using Supp

1. **Preprocessing: Filtering & Segmentation**

In this paper we use the combination of moving average filter, Butterworth filter and DWT (Discrete Wavelet Transform) in order to remove noise and omitting of baseline drift from the signal

In this paper we have used a new method for deriving the exact location of R-peak on the time axis that can lead to better accuracy and precision respect to the other methods used before .. For deriving the exact location of S on the time axis a method based on slope and gradient and  
for derivation of Q location we have used thresholding method on the slope

1. **Feature Extraction**

we have used DWT (Di Transform), using Daubechies 2 as the mother wavelet , to decompose the signal into 4 levels

1. **Classification & Classifier**

The classification system based on Support Vector Machines

1. **Accuracy**

Our method could gain the precision of 96.97% for 5 class

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

Normal (N) ,LeftBundle Branch Block (LBBB), Right Bundle BranchBlock (LBBB), Premature Ventricular Contraction (PVC) andAtrial Premature Contraction (APC).