

ABSTRACT

The sound of a car engine is one of the indicators in the process of checking the condition of the car. By hearing the sound of a car engine, the mechanic can often diagnose the condition of a car. Therefore, in this modern era of technology development that required a four-wheeled vehicle every user is able to determine the condition of the car, if in perfect condition, well, pretty (unfit for use), severely damaged or even broken. Thus, in this thesis, designed a system that can detect the condition of the car through the acoustic characteristics that are implemented on devices based on android.

Detection system in this thesis will work by using a wavelet transform of the car engine sound. With the wavelet transform, we will get a different acoustic features based on the circumstances of each car. Acoustic features used for classification include the value of ZCR (Zero Crossing Rate), the average energy produced (Average Energy), and energy- bandwidth ratio, for the purposes of the analysis of the spectrum of each state machine images can be displayed car. After passing through the process of feature extraction, classification process is carried out using euclidean distance..

With the car engine sound detection system, people who do not work as a mechanic would be able to detect the level of damage to the car and the mechanic was able to work more efficiently and reliably, because of the presence of the sound signal processing and classification, obtained an accuracy of 62.69 % to be able to classify the condition cars tested. In addition, the implementation of which is used on android -based devices will make it easier for everyone to apply.

Keywords: *detection, wavelet transformation, classification, euclidean distance, android.*