Abstract

Our ear can differentiate some kind of voice. For example motorcylce's exhaust sound. We can recognize some motorcycle's sound while some can't. This can be influenced by low or high it's tone. Some Muffler can have a very characteristic tone and that make it easier for us to recognize the type of motorcycle. Same thing goes with system, if our ear can recognise some kind of voices then system can also do the same but with different level of accuration.

Using 4 kinds of motorcycle with different manufacturer, where there will be possibility to have difference in audio signal. Audio signal processing using muffler's sound as system's input can differentiate one motorcycle with others. Using *Fast Fourier Transform* as method for feature extraction and *Euclidean distance* as method to classify type of sound and compare data we had at database with one we will test. This system will be made using android based operating system.

This thesis will discuss influence from FFT point, noise influence, and the size of the RPM's motor cycle to system accuracy. With this application we can classify 4 kinds of motorcylces with level of accuracy up to 75% when system works in non real time and without noise, when noise is added as big as 10 dB the level of accuracy decrease to 42,5%, and level of accuracy become 32,5% if noise added as big as 40 dB, while 30% is the level of accuracy while system is working real time.

Keywords :   *Fast Fourier Transformation*, Android, *motorcycle, Euclidean distance,*

voice recognition, RPM.