ABSTRACT

Voice signal is a signal that generally composed of two periods, that are speech (voice) and non-speech (silent) periods. To identify the period, Voice Activity Detection (VAD) system is used. VAD can be used to facilitate the scheme of discontinuous transmission (DTX). The DTX is a transmission mode that only transmit a little bit when a signal in silent condition or with background noise. The more accurate detection result of the VAD, the performance and efficiency of bits delivery are improved. This Final Project aims to analyze the ability of the voice signal identification based on power spectral analysis.

Sound signals that are processed is a voice signal with background noise that recorded in 5 seconds. The method used in this final project is the speech power spectral analysis. The steps that used in this system are pre-processing, feature extraction and classification. The pre-processing stages are denoise the mixed signal and calculate the power spectral by utilizing the Fast Fourier Transform function. And for the classification of voice activity, threshold camparation of power spectral is used.

Voice Activity Detection system based on speech power spectral, obtain SDER (*Speech Detection Error Rate*) and NDER (*Noise Detection Error Rate*) that affect the OVER (*Overall Detection Error Rate*) parameter below 9% and it can conclude that speech power spectral analysis can be used as one method of Voice Activity Detection because it has a quite good performance up to 91%.

Key words : DTX, *Voice Activity Detection* (VAD), *Power Spectral*, SDER, NDER, OVER