ABSTRACT

Discontinuous Transmission (DTX) is a method of transmission that can make the power and bitrate of transmission become more efficient. In audio data transmission, DTX will only transmit the data when the activie period detected. When the passive period detected, the transmitter won’t transmit anything but a small data packet as an announcement for the receiver that the transmitter don’t transmit the data audio so the receiver will generate comfort noise to fill the unsent passive period. Voice Activity Detection (VAD) has an important role in DTX, VAD will detect activity of voice for every frame hence DTX can be implemented.

VAD is done for every frame. It means that in every frame, VAD will detect wether there is activity of voice or not. For identification, the feature which is used is Short Term Energy (STE). If a frame has higher STE than the defined threshold than it’s classified into active frame, if the STE is lower, than it’s classified into passive frame. In this Final Project, the system of VAD is built in simulation (using MatLab) and implementation on TMS320C6455 (using Code Composer Studio).

From the system test and analysis, in summary the optimum threshold of STE depends on the noise influence. The bigger noise, then the optimum STE will be bigger too. When SNR is 5 dB, the optimum threshold is 15 dB which results SDER 5,2674%, NDER 0,1810%, dan DAPR 99,38%. When SNR is 0 dB, the optimum threshold is 18 dB which results SDER 4,2823%, NDER 1,9633%, dan DAPR 97,87%. From the test of directly acquisition from Codec AIC23 on TMS320C6455 DSK, the system got DAPR 100%.

Keywords: DTX, VAD, STE, Noise, SDER, NDER, DAPR, TMS320C6455 DSK