

ABSTRACT

Generally, respiration is the process of inhaling oxygen which spread freely in the air and then heaved a carbon dioxide out of the body. When they inhale and exhale breath will result a respiratory sounds, this is because the turbulence caused by differences in lung volume, respiratory tract and free space. Respiration could be one indication of a person's health. Someone with a good process of respiration has good vitality. Respiration is well if located at a certain rate, for adults' 12-20 respiration per minute.

This Final project entitled "Segmentation of Respiratory Sound for Quantitative Analysis in Real Time" is trying to measure the rate of respiration using a system of electronic stethoscope as a respiratory sound acquisition tool that will be connected to a PC soundcard, and monitoring software to measure the respiration rate. Software is realized by using Borland Delphi 7. Electronic stethoscope is realized by using some blocks consisting of block Microphone Supply, Pre Amplifier, Low Pass Filter and Op Amp amplifier. Each block on the electronic stethoscope are work well. There are cut-off frequency shifts in the LPF, from 2.5 KHz when the design changed to 2.3 kHz when realized, due to a change in the value at the time of realization of capacitors that are intended to adjust the capacitor values that exist in the marketplace.

Rate of respiration was measured using a system which is realized and by way of manual, and then compared in order to obtain the accuracy of the system. The system has 96.71% accuracy when used to detect respiration, 96.33 % at detecting slow respiration, and 48.72 % when detecting rapid respiration. Accuracy of the system is fall into a small when detecting rapid respiration due to the signal respiration envelope is difficult to distinguish during inspiration and expiration. Algorithm and software developed and adjusted for normal breathing slowly.

Keywords: Respiration Rate, Electronic Stethoscope, Delphi 7.