

## ABSTRACT

Now, there are many research have been done focused on human respiration system especially in development of biomedical instrument subject. With digitalization technology, research is more focused on how to eliminate the problems which are occurred cause of manual auscultation method. It can be happen because manual auscultation methods have many limitation such as ear sensitivity, sound pattern which is difficult to be distinguished, analysis based on experience and human ability, and of course environment noise.

This final project aims to discuss about design and implementation spectrograph for represent shape of color spectrogram (color frequency spectrum). Design which is planed consists of electronic stethoscope which is connected on sound card and PC as media of processing signal. Lung sound which is recorded through sound card will be processed on digitalization using Microsoft Visual C++.

The result from this implementation displays GUI (Graphic User Interface) as tool to control the output. It is also equipped of some parameters such as frequency sampling, bits per sample and points DFT. The outputs which are resulted are sound signal in time domain and frequency domain and also this system is built on a real time. Especially for frequency domain signal, the spectrum will be implemented on color shape which indicates the power of magnitude.

Keyword: biomedical instrument, auscultation, color spectrogram, GUI, real time