

ABSTRACT

Stethoscope is one of the medical instrument that every doctor have to owned. Stethoscope is used to determine the condition of a patient, which as the object of the examination are the heart voice and lung voice. This technic is called auscultation. The problems that appear in using a stethoscope as heart and lung auscultation are environmental noise, ear sensitivity, frequency, and amplitudo. So that, the utilizing of stethoscope as a diagnosis instrument can be very sensitive.

This last project was bringing about an electronic stethoscope as an auscultation media for heart and lung. This prototype was using membrane, condenser elektret, pre-amplifier, wide band pass filter, selector mode, four modes of auscultation (consist of one buffer and three filters), audio power strengthener, and dynamic speaker. These modes are formed by using LF 347 to produce four specific frequencies which are : normal mode (20 Hz – 2 kHz), respiratory mode (150 Hz – 2 kHz), cardiac mode (20 Hz – 660 Hz), and wheeze mode (60 Hz – 2 kHz). Speaker as a transducer will produce a voice signal that have been processed.

An experiment had been done for counting the maximum gain of the instrument. From this experiment, the maximum gain is 3000 times (or 69,5 dB). The frequency from each auscultation mode : normal mode (20 Hz – 2,130 kHz), respiratory mode (145 Hz – 2, 130 kHz), cardiac mode (20 Hz – 650 Hz), and wheeze mode (55 Hz – 2, 130 kHz). These frequencies are nearly as the same as the spesification frequencies (the differencies are about 0 % - 8,33 % from the spesification). The heart voice and respiration can be listened well through the speaker which the volume can be adjusted.