

ABSTRACT

Audio signal is one of the most widely used signals, especially in the development of communication technology. Technological developments at this time make some activities must be carried out online and connected with voice, such as outdoor interviews. One common audio signal is a recording of the human voice. Voice recording is usually done to record sound that has information and will be conveyed to the recipient. However, there are some problems when recording sound, such as noise from environmental sounds. This study proposes to simulate audio noise reduction with a low pass filter using the Bessel method. This Bessel method has advantages in terms of linear phase response. The basic objective of this research is to focus on noise recovery and reduce unwanted sound with 3 different cut-off frequencies of 4 KHz, 10 KHz and 20 KHz. The performance of this study was analyzed using the frequency response, and the results of the sound waveform graphics before and after filtering using 3 cut-off frequencies. In assessing sound quality, this study was measured using the Subjective Difference Grade (SDG). The results of the analysis of this study indicate that the Low pass filter using the Bessel method has a frequency response that tends to be flat (sloping), this is a characteristic of the Bessel filter. The result of the 4 KHz frequency is the best filtering. The smaller the cut-off frequency in the low pass filter, the better the sound will be.

Keywords: *Bessel, low pass filter, Matlab, audio*