

## **ABSTRACT**

*Human is a creature that spends 1/3 of his age to rest, in other words sleep. However, it turns out there is a danger that many unknown by human even ignore it. Sleep is the time for human muscles for relaxation, including the pharyngeal muscles. Pharyngeal muscles that are too relaxed (loose) can cause narrowing of the airways, so that the air entering the lungs is reduced. It is the cause of snoring. Even narrowing can cause the air does not enter at all into the lungs, it is called a pause breathing during sleep (sleep apnea), this situation can occur for 10 seconds and repeatedly during sleep. The most fatal impact caused by sleep apnea is death.*

*In this final project, the author analyzes the snoring sounds to detect sleep apnea in patients who snore. In the snoring sound identification system consists of feature extraction and classification. Through feature extraction of an audio signal can be known types, properties, and characteristics in time and frequency domains. Feature extraction method used is Mel Frequency Cepstrum Coefficient (MFCC), while the classification method used is the K Nearest Neighbor (K-NN).*

*Results obtained from tests performed on this final project shows the system can identify the type of snoring using signal speech processing. After analyzing the calculation, the highest accuracy for sleep apnea is 80% by using the parameter function Window Hanning, Distance Manhattan, and  $K = 1$ . As for snoring, obtained the highest accuracy was 96%, using the parameter function  $K = 7$  for functions Window Hamming with Distance Minkowsky and Distance Euclidean, and for functions Window Hanning with Distance Minkowsky, Distance Euclidean and Distance Manhattan.*

**Keywords :** *snoring, sleep apnea, Mel frequency Cepstrum Coefficient, K Nearest Neighbor*