ABSTRACT

Speech signals is one of the parameters that can be used to detect a person's health. This parameter is expected to be used as one of the data by the radiologist Dentistry dental health to identify the level of diver based on analysis on a sound recording. Then in the last decade have reported an increase in the incidence of barodontalgia is happening on a diver is larger. Barodontalgia is a pain on teeth due to changes of pressure at the time of the dive. In addition to changes in air pressure, inflammatory pulpitis by periapikal is the main cause of occurrence of barodontalgia from 1940 until now. In this final project research diseases that will be examined is reversible pulpitis. Reversible pulpitis is an inflammation on the pulpa are not severe. If the cause is eliminated, then the inflammation started to disappear and the pulpa will back to normal.

This final project a Matlab-based application system has been designed that can detect reversible pulpitis through a speech signal on divers. This detection system is divided into five main stages, the acquisition or the sound data retrieval, preprocessing to adjust the input signal, the extraction of the characteristics with MFCC method and making of the database using data training and test data, classifying the data with Decision tree classification, as well as analyze the performance of systems based on the accuracy of the system and computational time.

The result of this research can help and ease the radiologist dentistry to detect and minimize the occurrence of Barodontalgia in divers. The two types of classes that are the focus of this study are the class of pulpitis reversible people and the class of healthy people. Based on the results of testing using 30 sound data which includes the sound of reversible pulpitis people and healthy people, the system performance with the best accuracy was obtained by 80% using 13 MFCC coefficients and statistical parameters using variance and entropy.

Keywords : Barodontalgia, Reversible Pulpitis, Mel-Frequency Cepstral Coefficient, Desicion Tree