ABSTRACT

Voice is one of the parameters in the identification process of a person. Through the voice, the information will be obtained such as gender, age, and even the identity of the speaker. Voice detection is a method in order to narrow down crimes and frauds committed by voice. So that it will minimize the occurrence of faking one's identity.

In this final project, we design a system that can recognize the identity of the speaker based on the age range through the spoken voice. The age ranges are 5-10 years, 11-20 years, 21-30 years, and 31-50 years. The method used in this final project is the Mel-frequency Cepstrum Coefficient (MFCC) as feature extraction and Hidden Markov Models (HMM) as a classification. The data used is derived from 40 independent speakers who pronounce the 15 predetermined words with 4 repetitions. The data processed so that it produces training characteristics that are used as parameters for classification.

The results obtained from this Final Project is a system that is able to identify a person through the spoken voice. This system uses 2400 sound files. 1600 files become training data, while 800 others become testing data. This system is capable of producing varying accuracy depending on the specified class and the parameters tested. In this system, data is divided into 4 classes based on age ranges. The accuracy for the first class is 87%, the second class is 100%, the third class is 96%, and the last class is 97.5% accuracy. The highest accuracy is obtained in the second class with an age range of 11-20 years. The highest accuracy is obtained when the MFCC coefficient value is 26, frame size is 0.025, and state length is 12.

Keywords: *Voice, Speech Recognition, Mel Frequency Cepstrum Coefficient, Hidden Markov Models.*