Abstract

Automatic Speech Recognition is a system that can identify, compare and match the voice pattern of the system's input with voice patterns that have been stored in memory automatically. The voice signal information has unique characteristics. Various studies in the processing of voice signals has been developed. One result of this research is the speech-to-text application. This application is a branch of the voice recognition application that processes the voice signal, recognizes it, and turns them into textual representation.

In this paper the author tries to explore the use of feature extraction using 2D Gabor-wavelet filter that serves to specify the parameters for the input voice pattern recognition in the voice recognition system. Feature extraction process does not use too much memory and does not make the accuracy of these systems is low. Classification method used in this final project is the Hidden Markov Model (HMM).

Results wanted to be shown is how the system can identify and compare patterns of certain sounds and has a textual representation. Testing uses feature extraction method 2-D Gabor-wavelet by conducting various experiments in changing the orientation parameter θ and the frequency level j. The experiment obtained a fairly good orientation θ is $\pi/8$ which produces 32 feature vector and four-level frequency.

Keywords: automatic speech recognition, speech-to-text, 2D Gabor-wavelets, Hidden Markov model (HMM).