

Abstract

Indonesia is a country with the most populous muslim-majority country. However, National Survey in Social Economy (Susenas) by BPS in 2013 stated that 53.8% muslim in Indonesia can not read Al-Qur'an. Wrong pronunciation of an Arabic word might alter the meaning for that word, which can reduce merits for the one who read Al-Qur'an with wrong pronunciation. Therefore, a system with the capability of correcting and teaching the correct pronunciation of Al-Qur'an is needed to solve this problem.

Automatic Speech Recognition (ASR) is a technology that can help checking the wrong pronunciation. In this final task, Gaussian Mixture Model – Hidden Markov Model (GMM-HMM) is used as the method for ASR to classify hijaiyah (arabic word) with diacritics. This method is used because it can model a time series – such as speech data, decently. Mel-Frequency Cepstral Coefficients (MFCC) is used as the feature extraction method for the speech data. The F1-score performance of the system built in this final task for speaker dependent case is 81.94%.

Keywords: Gaussian Mixture Model, Hidden Markov Model, Mel-Frequency Cepstral Coefficients, Expectation-Maximization