

Sentence-Based Sundanese Accent Detection using Mel-Frequency Cepstral Coefficient (MFCC) and Hidden Markov Model (HMM)

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Abstract

Accent is a manner of pronunciation peculiar to a particular individual, location, or nation. Accent may vary in within regions due to adaptation in each region. Due to evolution in accents that develop through social aspects, thus this final project proposed and implemented accent detection system. Accent detection system that proposed uses Mel-Frequency Cepstral Coefficient (MFCC) method to do feature extraction where the result of Mel-Frequency Cepstral Coefficient (MFCC) feature extraction can be reduced to certain value using librosa MFCC python package and classified with Hidden Markov Model (HMM) method. The reduction of the result in Mel-Frequency Cepstral Coefficient (MFCC) feature extraction is applied due to the MFCC feature in each audio data is different value of feature one to another audio data. Hidden Markov Model (HMM) method is applied due to Hidden Markov Model (HMM) method is commonly used method in voice recognition field. The result of the system can predict Sundanese accent from volunteer of 11 sentences originating from Sundanese with precision result of 55%, Recall result of 64.71%, F1 Score resulted in 59.461% and system accuracy of 44.73%.

Keyword: Sundanese accent, accent detection, Mel-Frequency Cepstral Coefficient (MFCC), Hidden Markov Model (HMM)
