

### **Abstract**

*The Indonesian language is an agglutinative language which has complex suffixes and affixes attached on its root. For this reason there is a high possibility to recognize Indonesian speech based on its syllables. The syllable-based Indonesian speech recognition could reduce the database and recognize new Indonesian vocabularies which evolve as the result of language development. MFCC and WPT daubechies 3<sup>rd</sup> (DB3) and 7<sup>th</sup> (DB7) order methods are used in feature extraction process and HMM with Euclidean distance probability is applied for classification. The results shows that the best recognition rate is 75% and 70.8% for MFCC and WPT method respectively, which come from the testing using training data test. Meanwhile, for testing using external data test WPT method excel the MFCC method, where the best recognition rate is 53.1% for WPT and 47% for MFCC. For MFCC the accuracy increased as the data length and the frame length increased. In WPT, the increase in accuracy is influenced by the length of data, type of the wavelet and decomposition level. It is also found that as the variation of state increased the recognition for both methods decreased.*

**Keywords :** Indonesian Automatic Speech Recognition, Syllables, Mel Frequency Cepstral Coefficient (MFCC), Wavelet Packet Transform (WPT).