

ABSTRACT

Nowadays, the speech recognition is widely used for controlling either computer applications or electronic devices. Most of the speech recognition systems recognize the human speech by determining either words or syllables, which are previously learned and stored in the system. Moreover, many mathematical functions are also used for calculating and analyzing to find the result. Thus, those methodologies are time consuming and they do not provide the ability to learn more words and syllables.

On the other hand, developing speech recognition system by using “Learning Phonemes” method provides us more ability and flexibility to learn or to recognize more words and syllables of any languages. Since a phoneme is the smallest unit of a human speech, it can be easily and accurately learned, remembered, and applied to any applications. To recognize phonemes, some existing systems are using Neural Network. Unfortunately, there is no existing methodology that can be applied to recognize all the phonemes of Thai language.

According to this foundation, we propose a new framework that provides a way to analyze Thai speech by recognizing the syllable sounds in real-time mode. Instead of using mathematical functions, the proposed real-time speech recognition system applies fuzzy set theory and Neural Network theory with phoneme-based learning method. Therefore, it can provide faster output and more accuracy.