ABSTRACT

Inappropriate handling of babies who are crying is still done by many parents and especially those who have new children. This is because parents do not understand the meaning of the crying baby so that the baby's wishes are not fulfilled. Dunstan Baby Language (DBL) classifies baby language into five types of conditions namely EH (meaning belching), HEH (meaning uncomfortable), NEH (meaning hungry), OWH (meaning sleepy), EAIRH (meaning colds). In this Final Project a system has been made to identify the meaning of a baby's cry automatically based on speech processing on raspberry pi.

The baby's cry sound recording will be used as an input signal which is then extracted features using Mel-Frequency Cepstral Coefficient (MFCC) and Discrete Wavelet Transform (DWT) and the results of feature extraction will be classified using K-Nearest Neighbor (KNN). System output in the form of 5 classes of baby's sound conditions namely: discomfort, hungry, belly-pain, burp or sleepy. The design of this identification system will be implemented on raspberry pi.

This system uses the amount of training data of 50, the amount of test data of 20 and 4 sounds not crying baby. The best parameters obtained using 512 frames per frame, MFCC characteristic coefficient of 39, Daubechies Wavelet type is Db1 and the threshold value for Euclidean distance is 30. The system can identify the baby's crying sound with the best accuracy of 90% with computing time for 8.707 seconds.

Keywords: Baby's Cry, DBL, MFCC, DWT, KNN, Raspberry pi.