Abstract

Voice recognition technology is one of the biometric technology that does not requires a huge cost and special equipment. Voice is one of the unique parts of the human body and can be distinguished easily. The system built on this research is the speaker verification system to verify / prove the claimed identity based on the speech given. Then, based on the result of voice feature extraction, cryptographic keys will be generated to be used for encryption / decryption process using AES 128-bit algorithm.

The system is built using the MFCC (*Mel Frequency cepstrum Coefficients*) as the feature extraction process and VQ (*Vector Quantization*) as the process of feature matching. MFCC process will convert the voice signal into a useful vector for the recognition. Results of the MFCC feature vector will then be compared with the characteristic vectors stored in a database through the VQ based identity claimed by a user. Good or bad accuracy in recognizing the characteristic in the speaker verification system is affected by the number of parameters filterbank in the MFCC and the number of parameters centroid in the VQ.

Tests performed to see the accuracy of speaker verification system and the accuracy of the key generation process based on the voice of a user who has succeeded in doing the verification process. The test results showed an error rate of incorporation of MFCC and VQ method reaches 7.5% for false rejection rate (FRR) and 5.7% for the false acceptance rate (FAR). As for the key generation error rate for a user who has successfully verified reached 38.5%.

Keywords: speaker verification, cryptographic key generator, MFCC, VQ.