ABSTRACT

Biometric technology is widely used to identify a smart home device controller that has access control to the system. Sound is one of the biometric technologies that can be used, because human speech is different and unique. Generally a smart home device controller based on sound can be controlled by everyone, so that a speaker who should not have access rights to the system will still execute his voice command. The solution to this problem is a sound control system that is able to identify the voice of one speaker with other speakers registered on the system to control smart home devices and reject commands from foreign speakers who are not registered on the system, so that a secure voice control system is formed. The Mel-Frequency Cepstrum Coefficient (MFCC) method, capable of capturing the characteristics of different human voices and is unique, the output of the MFCC is modeled and classified using GMM (Gaussian Mixture Model) on each cepstrum subject, so the modeling results can identify the voice of the speaker registered on the system listed or the voice of foreign speakers not registered with the system. The results of the accuracy of the system built can identify the voice of the speaker registered on the system by 98.1% and reject the voice of the speaker who is not registered on the system by 91.6%.

Keyword: Speaker Recognition, MFCC, GMM, Raspberry Pi.