

ABSTRACT

Speech recognition is a technology that used to recognize word that human speak and convert it to digital data. In smart house application, speech recognition can be applied as interface for user to control motor or other electronic device.

In this final project, author implemented speech recognition system with MATLAB software. In this project mel frequency cepstral coefficients (MFCC) used as feature extraction method. Whereas, hidden markov model (HMM) is used as classification method. Output signal from speech recognition process transferred to microcontroller system to further be used as command to control the room lighting and air conditioning system which is part of smart house implementation.

Problem encountered at this study is the presence of interference (noise) from the room environment at the time of sound recording, the pronunciation of the command must be clear and normal in a second.the study showed result in best accuracy at 88,889% on non-realtime test and best accuracy at 70% on realtime test. The system concluded an average success because obtained accuracy showed some relatively good result.

Keywords: *Speech recognition, MFCC, HMM, digital signal processor, smart house, realtime*