ABSTRACT

Operation of the lamp using the manual method is that we must press on or off to turn on or turn it off. This of course would be inconvenient if the switch is located far away. Therefore, at this final project will be a system that can be used to activate, and deactivate the lights dim automatically, ie, with the word "flame", "next", "back" and "off". This system consists of several blocks of the system, including the microphone as a transducer of sound signals into electrical signals. Then outputs the analog signal to be input to the laptop through the microphone. Furthermore, matching of the database by matlab. If a suitable database, and then will instruct the microcontroller to light through serial communication.

This system has been created using Fast Fourier Transform method and sliding window as a feature extraction and classification using KNN (K Nearest Neighbor). So that the system used to match the input to the database, which is based on the minimization of the distance which the sound input in the database for the specified value near.

In this Final testing has been performed FFT analysis of feature extraction test results showed that the highest percentage found in the use of FFT and the sliding window with 128 points and the sampling point window length = 128, K = 3 on KNN, with three sample sound for each word in the database. And obtained an accuracy of 80% to 100%.

Key words: Microphone, Database, ADC, FFT, KNN.