ABSTRACT

Identification of the size of the evidence file conversation can be one of the tools for various purposes such as in the police world. Determining the class of the room from the recording can be an additional clue in case processing. One way for the police to identify the class of a room is by creating a room class detection system.

The class of the room can be determined by measuring the reverberation time using the LPC algorithm by extracting the characteristics of the training data in the form of audio. After obtaining the characteristics, the system will store these characteristics in the form of a dataset for testing. Then, the test data for which the room class is not yet known is inputted into the test system. KNN will classify the test data based on the previously trained dataset. The last process of the system will issue the value of accuracy and computational time from system testing.

This study uses MATLAB calculation software as a calculation and simulation process, using 63 training data and 18 test data. The accuracy of the system test for detecting room class based on reverberation time using the LPC and KNN methods has resulted in a number with the largest accuracy value of 83.33% and computation time along 4,94657 *seconds with a K value of 3, LPC order of 12, number of frames 240, and the Hanning window.*

***Keywords**: Reverberation Time, Linear Predictive Coding, K-Nearest Neighbor*