

## ABSTRACT

Active Noise Control is a technology to eliminate unwanted noise sound. Its working principle is by producing wave frequency with sufficient signal strength to counteract the noise frequency wave from the sound source. Work environment that uses technology with mechanical principles, especially in the field of factory, broadcasting, and transportation, will always be involved with the high-frequency noise. Related to occupational health and safety, ANC role in dampening the noises so that the working environment (or commercial) does not cause any damage, either to humans or other objects. Active Noise Control also works on the principle of destructive interference.

Least Square Means algorithm using a special approximation that valid for adaptive linear combiner. LMS algorithm can also be said very important because of the ease and simplicity of the calculation. If the system is adaptive adaptive linear combiner, and if the input vector  $X_k$  and the desired response  $d_k$  available at each iteration, the LMS algorithm will be the best choice for a wide range of applications in adaptive signal processing.

In this final project, it produced the implementation of the Active Noise Control system with FxLMS algorithm implementation in reducing noise. Output of the system is achieved if the system can reduce ten kind of noises using either joined or separated sound file. The smallest values of MSE are generated by water pump noise cancellation, that is  $1.6453e-013$  using a separated sound file and  $1.6460e-011$  using joined sound file.

**Key Words: Least Mean Square Algorithm, Active Noise Control, FxLMS Algorithm, Finite Impuls Response**