## **ABSTRACT**

Everyone is already familiar with a device called the earphones. Since a tool music player no longer need a large space (like a tape recorder) and also no longer requires a ration of electricity, then this earphone becomes the target of many music enthusiasts in the world. However, without realizing there is a bad effect on the health of the ear, which is carried by an earphone when used to hear a piece of music, when it passed the limits of the standards set by the medical world. Although established by the medical world, it is still less ignored by the users earphones. This resulted after using these earphones in the wrong way, no less than they had a health problem in the ear. And even worse, the users earphones can cause permanent hearing loss, if the mistake is done continuously. Therefore, we need a technique to be able to handle such problems. One way to handle this is to limit the time to play the music with the deadline set by the previous medical world. In this final assignment, used a way to limit the time to detect any sound signal generated by the music being played by the FFT method. By changing from the time domain to the frequency domain, it can be done readings every level of incoming sound signals in units of dB.

In this final assignment has been designed with a sound signal processing embedded into an application to platform Android. So users of Android devices can directly use this application after installing into it. By displaying a long description of the rest of the time to hear it, it will be easier for the user to monitor the length of time to listen music.

From the results of research and testing, this application has an accuracy rate of detection of the sound levels produced by 93%, when compared to other research references. Meanwhile, in order to determine the maximum time limit listening, this application has a 100% accuracy rate. But when seen from the test directly to the correspondent, then this application to get the value of 4.09 of 5 points

Keyword: earphone, decibel, FFT, Android