ABSTRACT

Aldo Adiputra (08220120004)

DESIGNING AUDIOMETRY TEST APPLICATION
(xi + 155 pages; 20 figures; 21 tables)

Usage of audio-producing wearables such as a pair of earphones and headphones in its maximum audio volume can cause damage to our hearing in the form of hearing loss. Hearing Loss will make it difficult to hear sound that are low in volume or intensity. A test exists, which is the audiometry test, to check a person’s auditory threshold in order to see if he/she has hearing loss. With this application, an audiometry test can be performed more easily and without the needs of particular devices, thus increasing availability and accessibility.

This application is designed by experiment and research using 3 smartphones which are Nexus 5, LG G3, and Samsung S7, and 4 pairs of earphones which are LG QuadBeat 3, Samsung HS330, Apple EarPod, and Edifier H180. Statistic testing is done using the Wilcoxon Signed-Rank Test to test the stability of test results when using different pairs of smartphones and earphones. The samples used are from audiometry test results of 30 different subjects which are taken using the convenience sampling method. The audiometry test simulated will be using Mayfield Clinic’s standard. Statistic testing is also conducted to find suitable types of hardware to be used in this application based on its availability during the course of this research.

Results of the test proved that the application can run a simulation of an audiometry test. Statistic tests results suggests that a difference of the smartphones used in this testing does not have any effect on the outcome of the audiometry test result, but in-ear earphones show higher stability rate than regular earphones.