

Hearing Test Application

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Abstract: *Hearing loss is one of the most common sensory impairments worldwide and often remains undetected until it begins to affect communication, learning, employability and quality of life. Conventional hearing screening relies on calibrated audiometers operated by trained clinicians in controlled environments. While clinically robust, such pathways are expensive, time-consuming and geographically inaccessible for many people, especially in rural or resource-constrained settings. Modern smartphones, however, combine high-fidelity audio output, capable processors and intuitive touch interfaces, making them promising platforms for preliminary, self-administered screening. This project presents Hearing Test App, an Android application that enables users to self-assess their hearing in a structured and repeatable manner and to track results on their own device. The app is developed in Java using Android Studio, follows an activity-based MVC structure and uses SQLite for local data storage to support offline usage and privacy. A user authentication module provides registration, login and password reset so that test histories remain personalised and protected. Within the hearing assessment workflow, the app presents tones at multiple frequencies for each ear and allows users to indicate audibility via a simple interaction. Although the application is positioned as a screening tool and not a medical device, it adopts good practices from pure-tone screening to provide meaningful, relative indicators of hearing ability. Results are shown in an easy-to-understand summary and retained locally for longitudinal comparison. The design also anticipates future extensions such as device/headphone calibration, ambient-noise checks, audiogram-style visualisation, export of results and multilingual support to improve accessibility.*

Keywords: Hearing test, Smartphone-based audiometry, Android application, Pure-tone screening, Mobile health (m-Health), Assistive technology

