Development of the First Ever Low-Cost Open-Source Hearing Test and Hearing Aid

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My research has focused on the development of the first ever low-cost, open-source, integrated hearing test and hearing aid. The hardware for the device consists of a Teensy 3.1 - an Arduino-based microprocessor with digital signal processing capability, an audio conversion shield, and user-input hardware. The device software was programmed in C++ and compiled using the Arduino Sketch application. The device allows users to self-administer a hearing test, and hearing aid automatically programs itself based on the results of the hearing test. This new idea dramatically increases access to auditory care by eliminating the need for an audiologist to diagnose mild and medium hearing loss. The integrated product reduces the current cost of fitting and purchasing a new hearing aid to $100 and has the potential to impact the lives of 300 million people in the developing world. By utilizing an open-source platform, this device empowers others to expand the open-source concept to a family of devices.

Awards Won:

Acoustical Society of America: Second Award of $1,500