Visualizing Sound Decibels

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In the case of an emergency, such as a fire or earthquake, one of the main sources to become aware of the situation is a sound alarm or siren to indicate the security measures to be taken. The hearing impaired must rely on other techniques, rather than hearing sense, to maintain awareness of their ambient, specifically in an emergency, such as sensing vibrations or visualizing an information source. The main purpose of this investigation is to design and test a device that provides awareness through the visual sense of a hearing-impaired citizen. The device developed was an audio spectrum analyzer using a computer, electrical components and a programming language. After the development of the device, a statistical analysis, using data from the device and tests with the hearing-impaired community, was done to determine the reliability and accuracy of the audio spectrum analyzer. The data analysis provided accurate and reliable results in the device's recognition of the sound's decibel patterns and proved functional for the hearing-impaired citizen.

Awards Won: