

Mobile app turns iPhone into a biologically inspired hearing aid

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Researchers at the University of Essex have developed a free mobile app that turns an iPhone or iPod into a hearing aid that could revolutionise the future for people with hearing loss.

Unlike standard [hearing aids](#) that simply amplify all sounds, the BioAid app is inspired by biology and replicates the [complexities](#) of the [human ear](#). It puts the user in control, is available to anyone, anywhere without the need for a hearing test, and potentially holds the key to a future where tiny, phone-based hearing aids can be dispensed and adjusted remotely.

BioAid, which is available on iTunes has been developed by Professor Ray Meddis of Essex's Department of Psychology with Nick Clark, formerly a Research Officer in the Department and Dr Wendy Lecluyse of University Campus Suffolk. Unlike standard aids that have a single setting, BioAid has six fixed settings each of which has four fine-tuning settings allowing the user to find the perfect match for their impairment.

Professor Meddis said: "We are very excited about the potential of BioAid which could genuinely change lives. People with [hearing impairment](#) very often withdraw from public life. Even if they have a hearing aid, the technology is not sophisticated enough to offer a tailor-made solution to their impairment and in many cases people simply stop using them.

"Sounds are a complicated mixture of different frequencies and hearing loss is usually a loss of sensitivity to some but not all frequencies. Standard hearing aids amplify some frequencies more than others but BioAid is different because it also compresses the very loud sounds that can make [social situations](#) like going to the pub, cinema or a birthday party intolerable."

Nick Clark added: "The mobile phone is a great platform for rapidly transferring hearing aid technology from the laboratory to the hands of the public. Standard hearing aids, which can cost thousands of pounds, are only dispensed by a professional after a hearing test. BioAid offers a simple alternative accessible to anyone with an [iPhone](#) or iPod. The hearing test is replaced by an exploratory process, allowing users to find which setting works best for them. In the short term, people unsure about visiting a hearing care professional might be swayed to do so by BioAid, which can only be a good thing."

As phones get smaller and technology continues to advance, the researchers believe the BioAid project has the potential to radically change the future of hearing devices. Professor Meddis explained: "It's not inconceivable that we'll wear phones on our wrist in the near future, or even as tiny devices behind the ear. With the BioAid algorithm and wi-fi technology, we could see dispensers able to remotely adjust the settings on a phone-based aid and even monitor use to ensure the user is getting the most out of it."

Wendy Lecluyse added: "This new device opens up many intriguing research possibilities allowing scientists to explore new ideas in hearing aid design and how they work in everyday settings. At the moment, we are particularly interested to find out how the preferred setting of each user corresponds with their hearing problem."

The development of BioAid, which has been funded by the Engineering

and Physical Sciences Research Council and Phonak, is part of a research project to influence the future of hearing aids. The researchers want to hear about people's experiences using BioAid so that they can continue to perfect the technology. Users can get in touch, and find further information at: bioaid.org.uk/.

Download BioAid, the biologically inspired [hearing](#) aid, at iTunes: itunes.apple.com/gb/app/bioaid/id577764716

Provided by University of Essex

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