

Turning up the volume on hearables

Tech companies with the right combination of products, patents and brand loyalty are hoping to cash in on high demand for intelligent hearing devices

By Bruce Berman

A group of leading technology companies familiar with consumer lifestyle preferences are helping to reshape the emerging hearables industry. A cross between a tiny wearable and smart prosthetic, these devices are tiny but powerful information processors which, programmed to individual users' needs, can do far more than merely amplify speech.

Companies vying for leadership in the field include Samsung, Apple, Qualcomm and Google, as well as those already in the business – the so-called 'big six'. Hearables are as much about the Internet of Things as they are about improved hearing and illustrate the shape of convergence to come. It will not be easy for small businesses to defend against the bigger players. However, dedicated manufacturers are better acquainted with hearing-impaired consumers and have experience negotiating with regulators, such as the Food and Drug Administration and insurance providers.

Seamless sync

Hearing loss affects 360 million people worldwide. Users want a product that does more than merely correct and amplify sound. They want to be able to sync seamlessly with wireless devices such as smartphones for telephone calls, music, games and much more. Commercial electronics companies (eg, headphone manufacturers) are realising the potential of so-called 'bionics' – in-ear buds that measure biometric output to provide better-sounding music, as well as sound amplification.

"Both groups will eventually converge," reports Wesley Banks in "The Complete Guide to Hearable Technology" (see www.everydayhearing.com/hearing-technology/articles/hearables/), "but it's really a matter of who will get there first. The Big 6 have the biggest advantage because they have been dealing with this technology for decades, and already have the required approval from the FDA to label their devices as actual hearing aids (something most consumer electronics companies can't do by law)."

Making simple smarter

Making simple products smarter is the future of technology. Apple has teamed up with Starkey Hearing Technologies to provide support for the company's advanced Halo 2 smart device. For its part, Google is working on commercialising a high-end in-ear computer, according to press reports based on patent filings. The technology is reportedly part of its secretive new wearable tech initiative, known as Project Aura.

"If hearables reach their market potential, vision, memory and other human-assist devices will not be far behind"



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Multiple benefits

Hearables with advanced chip set design can achieve incredible things quietly. Benefits of the new hearing devices include the following:

- More accurate vital signs – instant measurement of heart rate, body temperature, blood pressure, pulse oximetry, electrocardiogram, electro-encephalogram signals and more;
- Activity tracking – this could range from a pedometer to improved caloric output based on movement;
- Biometric personal identification – NEC Corporation recently announced a technology that utilises sound waves to acoustically recognise and identify a person (ie, the owner of the hearing device) based on the size and shape of his or her ear;
- Invisibility – while the stigma of wearing hearing aids is falling, manufacturers are still striving to create less obtrusive technology;
- Augmented hearing – companies such as Doppler Labs are working on technology that will not only aid hearing, but also improve it above normal levels;
- Intelligent capabilities – these allow hearables to sync seamlessly to an iPhone or smart home device;
- Face-to-face communication – people with hearing loss are often discouraged from interaction, but hearables can help to erase the stigma of wearing an in-ear device and facilitate communication; and
- Translation – hearables will eventually be able to perform real-time translations of a foreign language; Waverly Labs appears to be close to introducing a product with its Pilot.

Patent race

Not everyone believes that consumer electronics companies should be poking around the hearing industry, especially if they plan to use patents to dominate it.

In "Do or Die for the Hearing Aid Industry", in *The Hearing Journal* (see http://journals.lww.com/thehearingjournal/fulltext/2015/12000/Do_or_Die_for_Hearing_Aid_Industry.8.aspx), Dr Fan-Gang Zeng – professor of biomedical engineering and otolaryngology at the University of California – writes: "The hearing aid industry is facing stiff competition from consumer electronics companies [more interested in sales than hearing science]. As an example, a Google search for hearing-aid-related patents by Apple, Samsung, and Qualcomm showed zero patents 20 years ago but 816 in 2015—slightly more than half of the total patent activities by the Big Six in the same period."

If hearables reach their market potential, vision, memory and other human-assist devices will not be far behind. Forgot what you stated for entertainment on last year's tax returns? An assistant far smarter than today's Alexa, Siri or Cortana (Microsoft), and swifter than Google, will be able to find what you need. Yesterday's iPod is today's iHear and tomorrow's iKnow. **iam**