

# USound introduces patient-safe MEMS loudspeaker for MRI-compatible headphones

*The non-magnetic MEMS speakers enable the manufacture of headphones to protect patients from loud noises and relax them while inside MRI machines.*

GRAZ, STYRIA, AUSTRIA, April 6, 2022 /EINPresswire.com/ -- USound, global developer of micro-electro-mechanical systems (MEMS) loudspeakers for personal devices and wearable technology, announced its entrance into the health tech industry with its introduction of MEMS speakers that are fully compliant for MRI-compatible headphones and accessories.

Magnetic resonance imaging (MRI) is a medical imaging technique that uses strong magnetic fields to create images of the patient's body. The noises from an MRI machine can range from 65 to 130 decibels, requiring the patient to wear ear protection. Relaxing music is often a useful way to reduce patient anxiety and claustrophobia, but conventional headphones cannot be worn due to the strong magnetic fields.

Currently, the majority of headphones that are used in MRI machines are of the pneumatic type. The loudspeaker is located outside of the actual machine, with long plastic tubes connecting the transducer to the ear of the patient.

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USound MEMS loudspeakers are available without ferromagnetic materials and are fully compliant to manufacture MRI-compatible headphones.



MRI-compatible noise-canceling headphones from NordicNeuroLab, fitted with USound MEMS loudspeakers technology.

"From an acoustics perspective, the connected tube model adds a half-wave resonance with multiple harmonics to the sound, strongly reducing sound quality. That is not ideal for patient relaxation," says Ferruccio Bottoni, CEO of USound. "USound MEMS speakers are available without ferromagnetic materials and at a lower price than electrostatic transducers. As a company, we're proud to provide MRI-compatible headphones manufacturers with an easy solution to an otherwise tricky tech problem."

USound MEMS speakers have a small form factor. This is crucial in the development of slim headphones that fit inside the small receiver coils used in MR imaging of the brain, known as head coils. NordicNeuroLab is currently collaborating with USound to develop such headphones to provide communication, entertainment, and audible cues to patients undergoing MRI scans.

"We are very excited to work with the leader of MEMS loudspeakers and integrate their technology into our next-generation MRI audio system. The state-of-the-art technology and superior competence delivered by USound enables NordicNeuroLab to develop a superior and sophisticated MR-compatible audio system that fully meets the needs of our customers and partners," says CEO of NordicNeuroLab, Thomas Omdahl.

Companies such as BoomBang, SMRT Image are also benefiting from USound's technology to develop MRI-compatible audio products.

"SMRT Image is committed to creating the highest quality and easy-to-use comfort distraction systems for the medical imaging community. We believe USound MEMS speakers, when optimized in form factor and configuration, offer a new level of design flexibility", says BoomBang CEO and SMRT Image Co-Founder Tylor Garland.

#### About USound

USound is a fast-growing audio company offering high-performance silicon speakers and high-quality sound solutions based on MEMS (Micro-Electro-Mechanical Systems) technology, safeguarded by over 300 filed patents. With its offices in Graz, Vienna, San Francisco, and Shenzhen, USound serves international customers to design smart audio applications with MEMS speakers. Learn more on [www.usound.com](http://www.usound.com).

#### About NordicNeuroLab

NordicNeuroLab is the leading global producer of MRI-compatible medical equipment for functional MRI studies, used for diagnosing diseases and injuries related to brain function. The company is committed to develop and commercialize solutions for functional imaging for improved patient care and clinical efficiency. Learn more on [www.nordicneurolab.com](http://www.nordicneurolab.com).

#### About BoomBang

Boombang is a Los Angeles-based and award-winning product design firm that has developed over 500 products in a broad range of consumer, medical and industrial sectors for world-class

brands. SMRT Image is a Boombang Venture that was created in collaboration with leading MR engineers, imaging centers, and FMRI scientists. Learn more on [www.boombang.com](http://www.boombang.com) and [www.smrimage.com](http://www.smrimage.com).

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