

# Patent talk: Apple proposes speaker-illusion gift of enhanced audio

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What about enjoying enhanced virtual surround sound audio? That is a gift to the ears that has been proposed by inventors at Apple, in the form of a [patent](#) filing focused on a type of audio system, fundamentally,

virtual surround sound.

It *sounds* rich, but what does it all mean? "System to move a virtual sound away from a listener using a crosstalk canceler" is the name of the [patent](#), published on Dec. 31 by the US Patent and Trademark Office. The assignee is named as Apple, and the patent was first filed in August 2018.

"It gives the illusion that audio is coming from somewhere that it isn't," [said iMore](#).

Kaitlyn Kubrick in [Somag News](#): "The virtual acoustic system creates the illusion that the sound is not directly from the speaker, but from the interior or exterior."

The driving element is crosstalk canceler technology, which, if you are watching a movie, sports event or playing video games, wrote Stephen Warwick in *iMore*, is said to add to the feeling of being there.

Warwick said it was "simply a way of digitally processing audio in order to enhance the acoustic experience through virtual, digitally generated surround sound."

And, by crosstalk, said Bijan Stephen in [The Verge](#), the word was being used to refer to "the overlapping sound waves that the ears receive from the left and right channels of a speaker."

Apple's patent authors provided a discussion of the process. Ben Lovejoy in *9to5Mac* [translated](#) the patent talk: "It works by canceling crosstalk, which is a similar technique to noise-cancellation. At its simplest, Apple employs noise-cancellation on one side of the MacBook so that the sound appears to come from the other side."

[\*Business Insider\*](#) said the patent provided examples of how this technology could be used to shift sound into the foreground or the background when consuming content through a laptop,

Lisa Eadicicco in *Business Insider* had this interesting observation: "One scenario outlined in the patent's drawings shows how the system could be used to make it seem like audio emanating from a laptop could be moved to the foreground so that it sounds like it's coming from farther away. Another example illustrates the opposite effect, showing how the tech can be used to shift audio to the background to make it seem like it's coming from behind the viewer."

Lovejoy wrote that the patent described supplementing, "where microphones pick up reflected sound and the speaker output can then be adjusted to suit the acoustic characteristics of the room. In this case, adjustments are made so that the combination of direct and reflected sound can be used to fool us into thinking the sound originates from a particular position off to one side."

Not surprisingly, some tech watchers made the leap in their reports of the patent about how the inventors were doing this likely with future augmented reality products in mind. Warwick in *iMore* avoided that. He said there was "absolutely no mention of either augmented or virtual reality anywhere in the patent. In fact, the drawings accompanying the patents all exclusively show users without any of the accompanying headwear for VR or AR."

A quick scan of the patent discussion reveals the authors proposed the system for more than laptop sound benefits. The patent authors said while "FIG. 4" depicted the audio system as being a [laptop computer](#), it was possible to implement operations in a desktop computer or a television set with built-in left and right loudspeakers.

Nonetheless, *9to5Mac* used the "AR" word to say that the new patent "could be useful for both conventional games and AR applications." Lovejoy: "Apple's augmented reality focus has so far been on iPhones and iPads, but AR on MacBooks may also be in the company's sights."

Would it be that big a leap to consider Apple might have AR in mind with this new patent idea?

Eadicicco in *Business Insider*: "The use cases in the patent seem to be focused on how this technology could one day be used in Apple's laptops, but it's easy to see how it could be helpful for boosting experiences in augmented reality...Apple CEO Tim Cook has also suggested that AR is a priority for Apple moving forward...Having an audio system that could make sound feel more immersive may be crucial to those efforts."

Stephen in *The Verge* thought business uses of the patent were fairly evident, e.g., better conference calls. He also mentioned entertainment applications to make these feel more immersive.

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