

Researchers develop 'SpeechJammer' gun that can quash human utterances

March 2 2012, by Bob Yirka



Overview of SpeechJammer. Image: arXiv:1202.6106v1 [cs.HC]

(PhysOrg.com) -- Imagine sitting around a conference table with several of your colleagues as you hold an important meeting. Now imagine your boss pulling out what looks like a radar gun for catching speeding motorists and aiming at any of you that speak to long, very nearly instantly causing whoever is speaking to start stuttering then mumbling and then to stop speaking at all. That's the idea behind the SpeechJammer, a gun that can be fired at people to force them to stop speaking. It's the brainchild of Koji Tsukada and Kazutaka Kurihara, science and technology researchers in Japan. They've published a paper describing how it works on the preprint server *arXiv*.

The idea is based on the fact that to speak properly, we humans need to hear what we're saying so that we can constantly adjust how we go about it, scientists call it delayed auditory feedback. It's partly why singers are able to sing better when they wear headphones that allow them to hear their own voice as they sing with music, or use feedback monitors when onstage. Trouble comes though when there is a slight delay between the time the words are spoken and the time they are heard. If that happens, people tend to get discombobulated and stop speaking, and that's the whole idea behind the SpeechJammer. It's basically just a gun that causes someone speaking to hear their own words delayed by 0.2 seconds.

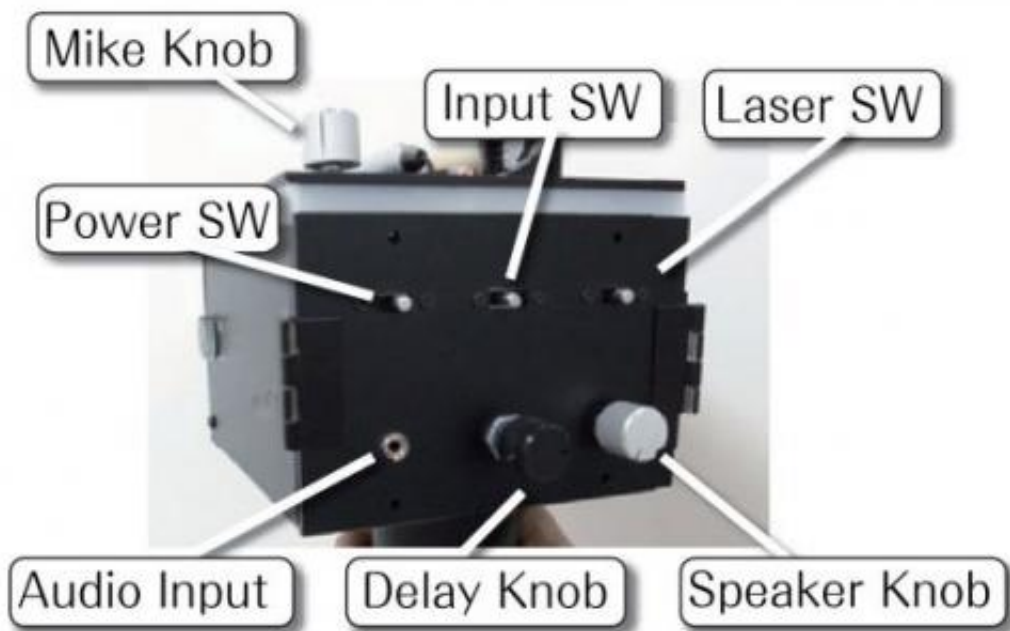


Front view of SpeechJammer prototype. Image: arXiv:1202.6106v1

To make that happen, the two attached a directional microphone and speaker to a box that also holds a laser pointer and distance sensor and of course a computer board to compute the delay time based on distance

from the speaker. To make it work, the person using it points the gun at the person talking, using the laser pointer as a guide, then pulls the trigger. It works for distances up to a hundred feet.

The two say they have no plans to market the device, but because the technology is so simple, it's doubtful they could patent it anyway. The idea though is likely to spread like wildfire. Surely it won't be long before Oscar winners are jammed instead of herded offstage by increasing the music volume. Or hecklers in a crowd silenced at a moment's notice. And just as surely human rights advocates will decry the use of such a device by politicians or government leaders, just as consumers will demand a much smaller version that will allow them to silence people that annoy them from afar, anonymously.



Back view of SpeechJammer prototype. Image: arXiv:1202.6106v1

And after that, new laws will have to be written to govern their use, of course, because no matter how much people would like to force others to shut up, they'll hate it just as much it when it's pointed at them.

More information: SpeechJammer: A System Utilizing Artificial Speech Disturbance with Delayed Auditory Feedback, Kazutaka Kurihara, Koji Tsukada, arXiv:1202.6106v1 [cs.HC]
arxiv.org/abs/1202.6106

Abstract

In this paper we report on a system, "SpeechJammer", which can be used to disturb people's speech. In general, human speech is jammed by giving back to the speakers their own utterances at a delay of a few hundred milliseconds. This effect can disturb people without any physical discomfort, and disappears immediately by stop speaking. Furthermore, this effect does not involve anyone but the speaker. We utilize this phenomenon and implemented two prototype versions by combining a direction-sensitive microphone and a direction-sensitive speaker, enabling the speech of a specific person to be disturbed. We discuss practical application scenarios of the system, such as facilitating and controlling discussions. Finally, we argue what system parameters should be examined in detail in future formal studies based on the lessons learned from our preliminary study.

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