Your Name Here

Idea: Office and Lab “Hassler” circuit sound generator

Description: Sometimes in labs or offices, people won’t stop talking, which makes it difficult for you to get work done. Therefore, I propose to create an audible “hassler” device. It measures audio levels, and if someone speaks loudly near it, it will emit a high-pitched tone, which will decrease in frequency the louder the offending person speaks. This will cause an annoying (and possibly painful) ringing noise in the ears. As soon as the ringing is noticed and the speaker stops speaking to identify the source, the hassler stops emitting the sound. The hassler would be enclosed in a small form-factor so it is easily hidden. It would also need to be turned off remotely, in case the device’s owner wants to yell at someone. I propose to use a BLE radio so that it can be activated and deactivated using the owner's phone.

Justification: This idea is both an interesting technical challenge—measuring ambient sound levels even when the device is producing its own sound and doing it quickly enough to avoid detection—and extremely useful for improving the overall productivity of the workplace. Office noise is a serious problem in my workplace and many others, and I look forward to using this project to help us all get more done.

Challenges: Hideability presents a challenge. I don’t want any power cords running to it and I want it to be small enough to tuck into small spaces out of sight. I want it to be powered from a single coin-cell battery, so duty-cycling and other power-saving efforts will be needed.

Stretch Goal #1, Tuned Hassling: Sometimes there is just one person who is really the problem. A stretch goal would be to design the device to only hassle a single person. This would require extra filtering, in hardware and/or software to detect when the target person is speaking.

Stretch Goal #2, Detecting Annoying People: If I have time, I would like to integrate my device with an LLM or trained DNN to automatically detect who is annoying, and then target them specifically. Features to consider include volume (loudness), quantity (Tim’s not the loudest person here, but he talks the most), and favorite topics (would require speech recognition).

Stretch Goal #3, De-hassler device: Obviously, the device’s user does not want to hear the hassler tone. So, I also plan to design a “de-hassler” device that communicates with the hassler, and creates destructive audio (noise canceling) to insulate the user from the hassler’s hassling.

(Note: This is actually a famous prank device made by Bob Wilder, one of the founding members of the analog IC industry. There used to be a bunch of information about it on analogzoo.com — which has been taken down).