

You are here: [Home](#) / [Innovation](#) / [Prototype Device Aims to Reduce Noise Pollution via Open Windows](#)

Prototype Device Aims to Reduce Noise Pollution via Open Windows

May 1, 2018



Researchers from NTU Singapore have created a new noise cancelling device that reduces noise pollution entering buildings even with their windows wide open.

According to the researchers, the window grill-mounted device could eventually reduce up to 50 per cent of noise coming from nearby environments such as busy roads, train tracks or from construction activities.

The device which has been adapted to work in a large open area, stems from the 'active noise control' technology found in many high-end headphones that cancels external noise.

According to the researchers, the device's benefits are two-fold: first, windows can be left open for fresh air without disturbance from external noise pollution; and secondly, it reduces the need for air-conditioning to keep the interiors of buildings and homes cool.

"Compared to noise cancellation headphones, what we have achieved is far more technically challenging as we needed to control the noise in a large open area, instead of just around the ear," says team lead and Director for NTU's Centre for Infocomm Technology (INFINITUS), Professor Gan Woon Seng

The prototype device uses 8 watts of power, similar to a small portable Bluetooth speaker. Several units are placed together to form a grid-like array on a window grille to reduce external noise.

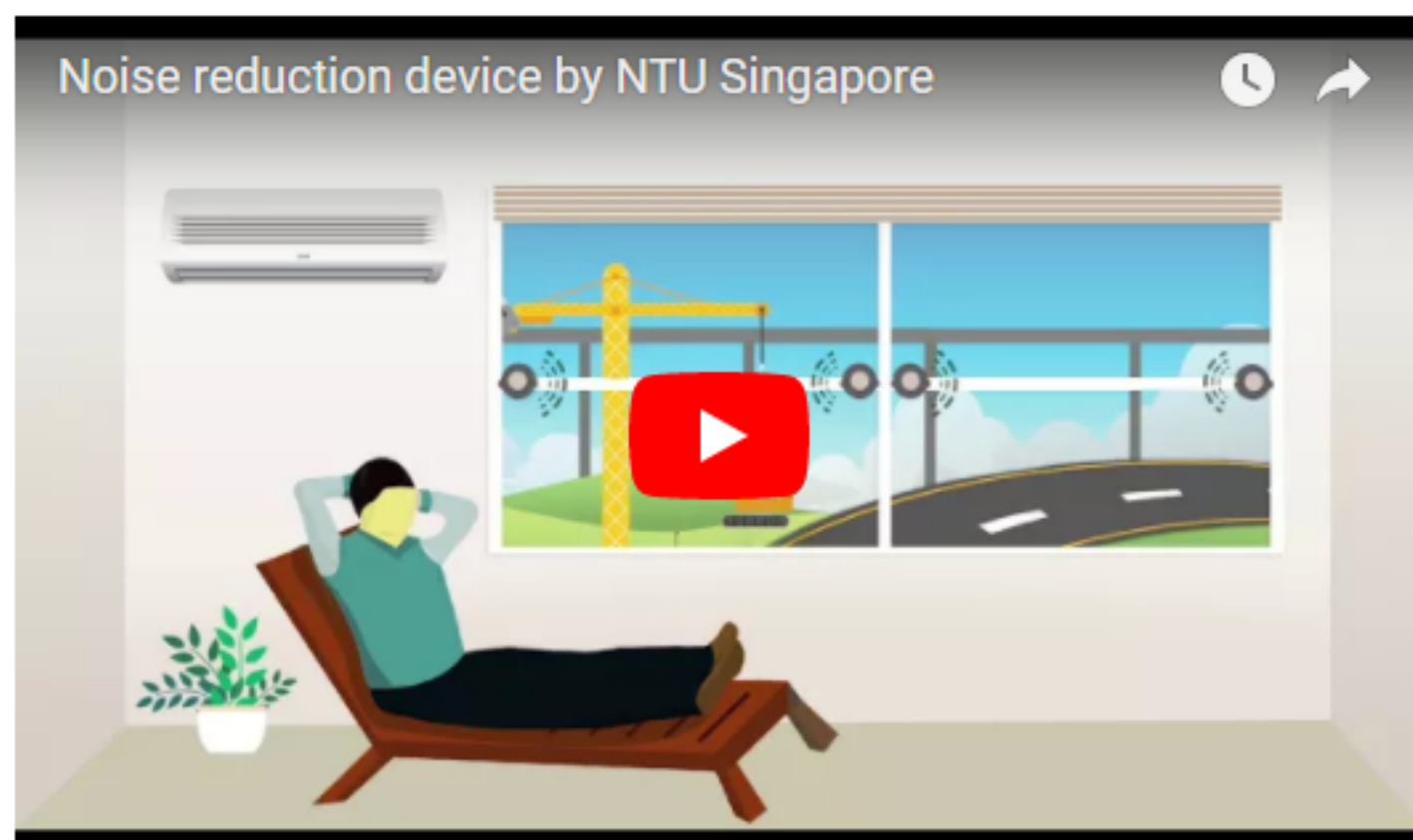
It uses a special sound emitting mechanism which works like a speaker and is hooked up to a processing unit. Equipped with a microphone, the device can detect noise even before it reaches the window and computes the attributes of the incoming noise in real-time.

This done, the device quickly emits a countering sound or 'anti-noise' that has the same waveform characteristics of the invading noise but with one difference: it is inverted or 'flipped.'

When both outside noise and anti-noise converge, they cancel each other out, resulting in a softer ambient sound entering living spaces.

The device jointly developed with UK's University of Southampton, and Japan's Tottori University, will be further optimized to improve its noise cancellation efficiency, made smaller, and more cost-effective to produce.

Image, video and content: Nanyang Technological University, Singapore



Share on



Filed Under: [Innovation](#)

[Revolutionary Photo-Electrode could Pave Way for Affordable Solar Fuel](#)

[Bosch Breakthrough Aims to Reduce Diesel Engine Emissions](#)