

Noise-cancelling windows could be the next boom industry

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The technology can cut outdoor noise by up to 50 per cent, although the Notting Hill carnival could pose a challenge
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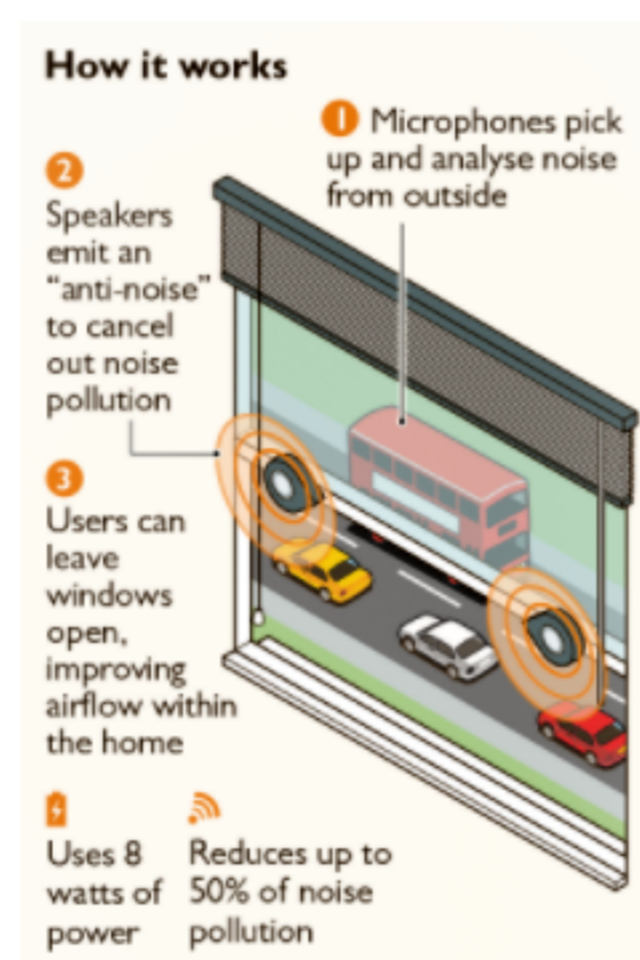


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Summer evenings ruined by loud neighbours could become a thing of the past after scientists developed noise-cancelling windows.

Using technology used in headphones, the prototype device can halve the level of outdoor noise, even when the windows are wide open.



Researchers at Nanyang Technological University in Singapore have adapted the noise-cancelling technology to work in large open areas. The device quietens noise from busy roads, flight paths, railway tracks and building work.

Using a small microphone it is able to detect noise before it reaches the window and then generate a matching "anti-noise" in real time. When the two converge they cancel each other out, resulting in a softer ambient sound entering living spaces.

Gan Woon Seng, the director of the university's centre for infocomm technology, said: "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."

He also said that because the device would reduce the noise from outside with the windows open, it would also reduce the need for air conditioning to keep home and building interiors cool.

In the test several of the devices were mounted on to window grilles in a grid formation. Each uses a similar amount of power to a small portable Bluetooth speaker.

"Our innovation not only computes the right amount and type of anti-noise to emit, but also does it faster than the detected noise can reach inside the building," Mr Gan said.

The device was tested using a soundproof chamber in a room with windows and doors, resembling a typical room in a home. The researchers are developing the technology by improving its noise-cancellation efficiency and making it more cost-effective.

Mr Gan said: "We are currently finding ways to improve the technology further so that it can be used not only at window grilles with large openings, but also provide a cost-effective solution that can be easily installed and replaced. We aim to integrate this technology into window grilles that can help mitigate urban noise pollution."

Noise-cancelling technology has existed for decades, but has more recently been used in commercial headphones. The project was developed with the University of Southampton and Tottori University in Japan.