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UPDATED: 07:42, August 18, 2006

New device designed to help blind people to "see"



A portable navigational aid that transmits soft, low-pitched beeps directly to the inner ear has been designed to help blind people navigate around cities or guide firefighters through smoke-clogged buildings, New Scientist reported on Thursday

The prototype system created by Bruce Walker and his colleague Frank Dellaert of the Georgia Institute of Technology in Atlanta, U.S.A, has been dubbed: System for Wearable Audio Navigation (SWAN).

The system guides users with beeps that appear to come from whatever direction the person needs to head in. "We have the user simply walk towards the sound," Bruce Walker was quoted as saying.

To calculate the user's position and the direction they are facing, the device uses a processor in a backpack to combine GPS location readings with data from cameras and motion and tilt sensors attached to a headband or helmet.

This information is fed into a virtual 3D model of the streetscape or building the person is navigating to calculate which direction the person should walk towards to reach their destination, according to the designers. They added that the device can then generate a series of beeps to guide them.

To make the beeps appear to come from a particular direction, the system varies the timing and intensity of the vibrations transmitted to each earpiece, they said.

The "earpieces" in fact sit just under each ear lobe and vibrate the skull directly to transmit sounds straight to the inner ear, bypassing the outer ear entirely.

The designers said that this has advantages over existing systems to help blind people navigate, which tend to use speech to impart directions.

The designers plan to recruit volunteers to test their system later this year, said the report.

They also plan to incorporate new navigation aids to help people indoors or near high-rise buildings where they may lack GPS signals.

Source: *Xinhua*

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