Device translates spoken Japanese and English
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A handheld device that enables a user to chat in another language - without having to learn any words or phrases for themselves - has been developed by Japanese electronics firm NEC.
The system is about the size of a handheld PDA and converts spoken Japanese to English and vice versa. It is planned for launch in Japan in the next few months.
It consists of three components - a speech recognition engine, translation software and a voice generator. Spoken English or Japanese is recognised and converted into text by the speech recognition engine. The text is then converted from Japanese to English or the other way by translation software and the resulting text is vocalised by a voice synthesiser. The entire process takes about one second.
The system will initially be aimed at Japanese tourists and business travellers and be available only in Japan. But Akitoshi Okumura, the NEC researcher behind the system, says there is no reason why it cannot be adapted for other languages.

Multi-lingual
Okumura told **New Scientist** that NEC has started working on a version that translates between Japanese and Chinese. In order to work for another language the system must be trained to recognise native speakers. About 100 different voices are required to train the system, he says.
The translator developed by NEC uses a conventional PC processor, running at 400 megahertz. Okumura says it would be possible to create a translator for mobile phones providing they are powerful enough.
But Okumura admits that work must be done to improve the functionality of the device. Distinguishing a voice from background noise and recognising different accents are important challenges, he says.
Alan Black, from Carnegie Mellon University in Pittsburgh, US, helped develop a similar technology for the US government. The system developed by Black and colleagues is designed to help US troops communicate in Arabic-speaking countries by translating simple spoken phrases. Black agrees that current devices are far from perfect, but believes they will improve.
Audio quality
"Such devices will always find it hard to deal with poor quality audio," Black told **New Scientist**. "This is both a hard engineering problem and an interface design problem. But, ultimately it will be solvable."
Alex Rudnicky, another expert in machine translation at Carnegie Mellon University, Pittsburgh, US, says the NEC system has definite potential but should not be thought of as a substitute for proper verbal communication. "It's better to think of these as communication devices that enable two people to communicate across a language barrier," he says.
Rudnicky also believes the device will only be useful in certain situations. "For the user, it's a question of value," he says. "If you're having a medical emergency in a foreign country you'll be very happy to have the device. If you're trying to buy something from a street vendor, pointing at what you want works just fine."

Will Knight, Tokyo