

# Device Allows Wheelchairs to Be Moved With Mouths

**Company Is Researching Ways to Use Technology with Unmanned Military Vehicles, Robots**

By ASHLEY PHILLIPS

July 2, 2007 —

An Ohio-based company has developed a surprising new way for wheelchair users to move: with their tongues.

Expected to hit stores by the end of the year, the device □ a combination of a personal mobile computer and ear bud □ detects sound waves emitted from the ear when a person moves their tongue. A microphone connected to the ear bud then transmits those waves to the computer and software, which in turn translates them to directions.

The technology could prove especially useful for quadriplegics, who don't have the use of their arms or hands.

"Once we've captured [the sound waves], we've created software to recognize what kind of a signal you're making. Then we use that pattern recognition to control something, in this case a wheelchair," said Jim Harris, president of Think-A-Move, the 5-year-old company that developed the device.

In addition to recognizing a pattern, the software also recognizes which side of the mouth a person is moving his or her tongue on, Harris said.

Developed with a grant from the National Institutes of Health, the software can also differentiate between tongue movements created by speaking and those intended for the movement.

"When you make a tongue signal, the frequency of that signal is below 100 hertz generally," Harris said, which is below the range of a normal speaking voice.

Think-A-Move envisions applications far beyond the wheelchair device, which would be compatible with every major electric wheelchair brand.

"The wheelchair & is just one application of this technology," said Jonathan Brown, vice president of sales and marketing.

According to Brown, the company is working with the U.S. military to research the possibility of integrating similar technology to work with unmanned military ground vehicles or robots that are responsible for bomb disposal. The device would allow soldiers to control the robots or vehicles without using their hands.

In the future, the device could be used as a hands-free computer mouse designed for those who do not have the use of their hands, or on a cell phone or PDA.