Emerging tech aims to improve life for handicapped

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An attendee walks past a message board celebrating 50 years of the Consumer Electronic Show in Las Vegas, Nevada on January 8, 2017

Emerging technology is giving new hope for the handicapped, and harnessing brainwaves for the physically disabled and helping the visually impaired with "artificial vision" are just the start.

Many systems showcased at the Consumer Electronics Show in Las Vegas are aimed at improving quality of life for people with disabilities.

BrainRobotics, a Massachusetts-based startup, showed its prosthesis that can be controlled by residual muscle strength of an amputee with better efficiency than similar devices, according to developers.

Bicheng Han, a doctoral candidate at Harvard University who founded the group, said the goal is to "provide low cost functional prosthetics" at a cost of around $3,000, or far less than the tens of thousands of dollars for similar devices.

Robotics engineer Kacper Puczydlowski said the hand, which could hit the market next year, is "the most natural to use" and gets its ability by analyzing muscle function and using a classification algorithm for specific hand functions, such as grasping objects or pointing fingers.

"An average user, with at least 50 percent of their residual muscle, should be able to be trained in under a month, within their home," he said.

Over time the group wants to use technology from its sister company BrainCo to harness brain waves for improved function.

BrainCo already markets a headband which helps identify patterns of brain waves to help improve focus and treat children with learning disabilities.

Artificial vision

Several technologies are also being developed for the visually-impaired.

The "prosthetic hand" from BrainRobotics, controlled by signals sent from the residual muscles on an amputee's limb, is demonstrated at the Consumer Electronic Show in Las Vegas, Nevada on January 7, 2017

Israeli startup Orcam showed its device called MyEye, which can be attached to arms of eyeglasses and is being marketed by French eyewear giant Essilor.

The device aims to give greater independence to those with trouble

seeing: it has a tiny camera and whispers into a user's ear, and has the ability to read texts and identify people and objects on supermarket shelves.

The company was founded by Amnon Shashua and Ziv Aviram, who are also the co-founders of auto tech firm Mobileye, which is developing systems for accident avoidance and self-driving vehicles.

Danish-based manufacturer Oticon showed its new hearing aid, which works with objects in a connected home. Using wireless Bluetooth connectivity, it can alert users to a doorbell or smoke detector—or let the wearer known when coffee is ready.

South Korean group Hyundai meanwhile showed its exoskeleton, known as H-MEX, that can offer mobility to the handicapped.

It can allow a paraplegic to stand and even walk up stairs, according to engineer Jung Kyungmo.

The exoskeleton covers the entire spine and back of the legs, attaching at the waist, thighs and knees. The company has no plans for a consumer version but is working with hospitals and researchers.

French-based startup Japet introduced its Atlas exoskeleton, or brace, which takes pressure off the vertebral column for people with chronic back pain, according to co-founder Damien Bratic.

The brace uses small motors and analytics that can help in rehabilitation.

Bratic said the device could be available in 2017 or 2018 and that the company hopes to develop similar devices for cervical support and for muscle disabilities.