

World's First Brain to Computer Interaction

In the computer world if a hard drive breaks down, there are 'technology geeks' who can retrieve all or some of the lost data and sometimes even repair the hard drive itself. But what if the same process could happen to restore a human being's damaged brain?

This theory is now being tested in reality! Scientists from Tel Aviv University in Israel have developed the technology to allow two-way brain to computer interaction.

The cerebellum is a cue ball-sized part at the back of the brain, which is responsible for controls, balance and body movement. When this part of the brain is damaged, people lose their ability to send accurate or timely messages from the brain to the body and vice versa.

The researches from Tel Aviv University have built a computerized cerebellum that recreates how the real brain - a rat's brain is being used at the moment - sends signals from the brain to the body and back.

To test the artificial device, they anaesthetised a rat and disabled its cerebellum before hooking up their synthetic version. They then tried to teach the anaesthetised animal a conditioned motor reflex - a blink - by combining an auditory tone with a puff of air on the eye, until the animal blinked on hearing the tone alone. They first tried this without the artificial device connected, and the rat was unable to learn the motor reflex. Once the artificial cerebellum was connected, the rat behaved as a normal animal would, learning to connect the sound with the need to blink.

Although this technology has not been tested on humans, the scientists are hopeful it could potentially help replace areas of brain tissue damaged by stroke and other conditions, or even enhance healthy brain activity.

For more information please visit:

<http://www.newscientist.com/article/mg21128315.700-rat-cyborg-gets-digital-cerebellum.html>

World's First Virtual Store

The virtual store is not a brand new concept. Many organisations such as Samsung TelePresence¹ or Microsoft's KincetShop² have been developing the concept of virtual shopping.

¹ <http://www.voicesatsamsungsemiconductor.com/2011/04/new-generation-3d-telepresence-virtual-technology/>

² <http://www.engadget.com/2011/06/13/kinectshop-concept-is-ready-to-televisе-your-shopping-revolution/>

But what if you could do shopping whilst you are on the move by using your mobile phone at the bus stop or train station with everything delivered to you by the time you get home?

Recently supermarket chain Tesco Homeplus in South Korea has created a virtual shop at a subway station. This allows busy commuters to shop on the go using a smart phone.

The walls of the subway station at Seonreung have been taken over by 500 popular products with barcodes. Customers can scan these using the Homeplus application on their smartphones and get their order delivered straight to their front door.

The idea is to save time for shoppers who can purchase their items on the way to work in the morning. As long as they order before 1300 they will have their items by that evening.

The supermarket says it is always looking to make shopping more convenient and easy for their customers. But perhaps this concept could be further developed to help older people who find it difficult to leave their homes, bringing the store not only to the train station but also into the home?

For more information please visit:

<http://www.tescopl.com/2718>

http://www.youtube.com/watch?feature=player_embedded&v=fGaVFRzTTP4

'Glasses Off' delays the need for reading glasses

A new smart phone application developed by scientists at Tel Aviv University claims that it could delay the need for reading glasses in older people by training the mind to process blurred images.

The app called 'Glasses off' can help people read with no glasses even when their eyesight starts to deteriorate.

GlassesOff™ is a non-invasive software solution, which boosts the brain's image processing speed and contrast sensitivity, among other things. By doing this it helps users compensate for biological deterioration improving visual acuity by an average of 80%.

To train the brain to process blurred images, the application displays groups of blurry lines at several points across the screen and the user must identify when one appears in the centre.

In trials users with an average age of 51 were able to read two lines lower on an optical chart held 40 cm away from their faces after using the app 40 times.

For more information visit:

<http://www.glassesoff.com/>

Invisible-Key

Losing your keys can be extremely frustrating, especially when you're standing outside your home and can't get in and may even end up calling a locksmith.

For an older person who may also have a failing memory this can add additional stress and concern.

A researcher from the Technology and Science Institute of Northern Taiwan has developed a novel way to unlock a door using a simple hand gesture. He has taken

advantage of Microsoft's Kinect technology to develop what he has called 'the invisible key'.

The heart of the invisible key is a combination of a special chip-and-accelerometer combo.

The chip is able to track users' hand movements in three dimensions, and store these gestures. So to open the door the user just needs to set his/her chosen hand gesture and simply repeat the same movement on front of the lock.

The invisible key has been awarded a Gold Award at the Taipei International Invention Show 2011.

This technology may become popular with anyone who shares the frustration of regularly losing their keys and could potentially form part of the thinking around the 'smart home' movement.

For more information visit:

<http://techcrunch.com/2011/10/03/invisible-key-lets-you-unlocks-doors-with-hand-gestures/>