

A computer chip which mimics human brain

Scenarios have often been created in films like Robocop where parts of the brain are replaced by electronic circuits. And we can imagine the implications of this becoming a real possibility.

Now scientists have taken a major step towards making this a reality. MIT researchers have developed a computer chip, which mimics the way neurons in the brain adapt and respond when they come across new information.

This phenomenon is known as plasticity, and underlies various brain functions including learning and memory.

The researchers anticipate the chip, which is made of about 400 transistors, will help neuroscientists learn much more about how the brain works, and could also be used in neural prosthetic devices such as artificial retinas.

Artificial retinas could provide a solution for some age related eye conditions such as macular degeneration, which results in loss of vision in the macula because of damage to the retina.

For more information please visit:

<http://web.mit.edu/newsoffice/2011/brain-chip-1115.html>

Steering wheel with health sensors

As the population of the UK and worldwide ages, there are rapidly increasing numbers of older drivers.

As a result many car manufacturers have been investing in research and development looking at new solutions to keep older people behind the wheel, safer and for longer.

Recently BMW, in collaboration with researchers at the Technische Universitaet Muenchen (TUM), developed a sensor system integrated into the steering wheel. This can monitor the driver's state of health while driving.

When behind the wheel the driver can get a quick health check. Sensors on the steering wheel check the driver's blood pressure, stress levels, heart rate and oxygen saturation. The device might also recognise the onset of fainting spells or a heart attack.

By integrating sensors into the steering wheel this removes the need for wiring of the driver. The data collected is radioed to a microcontroller, which can also show the results on the vehicle information display.

The aim of the project is to go beyond vital sign monitoring. The vision is to get vehicles to detect when the driver is no longer feeling well and to initiate appropriate responses.

For more information please visit:

http://portal.mytum.de/pressestelle/pressemitteilungen/NewsArticle_20111103_104018?searchterm=bmw

The world's first robot system that learns to cloth elderly and physically disabled people

Independent living is one of the key asks for an ageing population and it is often the basic activities such as cooking, bathing, and dressing, that people need help with on a day-to-day basis.

At present many older people are dependent on friends, family and caregivers to fulfil their basic demands.

However, scientists from the Nara Institute of Science and Technology (NAIST) in Japan are trying to address some of these issues with robotics. They have developed the world's first robotic system that can learn to dress elderly and physically disabled people. Taking clothes on and off are essential activities in daily life, but for elderly and disabled people with mobility limitations this can be challenging.

The robotic arms, which are being manufactured by Barrett Technology, can learn to dress people of all different shapes and sizes within minutes.

For more information visit:

<http://www.barrett.com/robot/news.htm>

The first GPS-Enabled walking shoes

For many dementia sufferers going out and about, even in their neighbourhood, can pose hazards. Sufferers will often forget where they are going or have been and will be unable to find their way home.

Now an American company called Aetrex have developed GPS shoes, with the help of GTX Corp. – maker of miniaturized GPS person finder technology. The shoes are designed to track dementia sufferers who wonder off.

A caretaker or family member can download a smartphone app that allows them to track the person wearing the shoes. The caretaker can map out a 'safe zone' within which the patient can walk freely without sparking worry. When the person wanders outwith this zone, the shoes will trigger an alert.

The aim is to help patients with Alzheimer's disease stay in their homes and live autonomously for longer.

The shoes are already on sale in the US.

For more information visit:

<http://www.aetrex.com/aetrex-gps/>

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