

intel inside band-aids

Technology isn't just about powering PCs as chipmaker Intel made clear at its recent Developer Forum. Intel is setting the scene for a future that puts its processors at the heart of our homes, work and health. Ursula Seymour was there to hear its predictions



"We will use the digital home as a healthcare resource. Communication technology will assist with diagnosis and help people stay in their own homes"

Eric Dishman, head of proactive health research, Intel

Intel is a name most closely associated with the processors we find inside our PCs, but it has big ambitions to escape these parameters and get its technology into products as diverse as armchairs and socks.

In the final keynote of this year's Intel Developer Forum in San Jose, California, chief technology officer Pat Gelsinger, along with Intel's researchers into social sciences and biotechnology, set the scene for a future where humans will be surrounded by intelligent devices monitoring their every move.

Planting technology

The chipmaker plans to plant its technology throughout society, from a factory setting where sensors will track your movement around the floor, downloading context- and location-sensitive information wirelessly to your handheld, to a home environment where your TV could remind you to take an allergy pill or urge you to do more exercise.

While the technology to allow these pervasive devices may still be in the lab, the company anticipates that this type of scenario could be as little as 10 to 15 years away.

Eric Dishman, who heads up Intel's proactive health research team, outlined how such technology could aid the ageing population. The company is already testing intelligent sensors that could help older people and those with cognitive disorders live in their own houses rather than be sent to a nursing home.

"We will use the digital home as a healthcare resource," Dishman believes. "Communication technology will assist with diagnosis and help people stay in their own homes."

Ideas that Intel is working on include a phone that can detect if you collapse then automatically call the emergency services, and devices that can locate you in your home and send a message to the nearest available device, such as television screen, to remind you to take your medicine.

However, Dishman sees the technology going even further than simply aiding people deal with illness, by also helping to identify disease in its earliest stages. He suggested that sensors could analyse the way you walk in order to detect conditions like Alzheimer's disease.

The future is Cast

Dishman is chair of Cast (Centre for Aging Services Technology, www.agingtech.org), an organisation that marries technology with the expertise of healthcare agencies and academic researchers.

By working together Dishman hopes that Cast "can capture the three main problems [faced by the health service] – cardiac, cancer and cognitive decline. We want to use home technology to help with early detection and to improve care."

Intel and Cast are currently studying homes around the world to see what technologies are needed and what will be required in the future.

Dr Andy Berlin, director of biotechnology research, backed up Dishman, illustrating how this type of convergence research between silicon technology and biology could ultimately be used to create health monitors that could be built into everyday devices. A pair of socks could warn you if you are about to get a blister or a bathroom mirror could spot the early stages of skin cancer and prompt you to get treatment – or even a smart sticky plaster could track healing.

"My dream is to be able to use silicon to analyse blood and detect the early stages of cancer years before you can now," explains Berlin.

When questioned about the privacy implications of devices that allow computers to note where you move around in your house or how much exercise you take, Dishman said that he felt the benefits would outweigh the costs.

He believes the technology will allow diseases to be caught earlier and ultimately keep an ageing population out of hospital. That, he says, is worth the invasion of privacy. ■

games are good for you

Contrary to what you may believe, playing computer and video games is more likely to do us good than turn us into a nation of maladjusted outcasts. Rosemary Haworth hears the case for the gaming industry



"I love playing computer games with my children but I firmly believe they should be played together, not in isolation"

Matt Carroll, director, Disney Interactive UK and Ireland

For many years we've been fed the line that video and computer games are bad for society. As it turns out, that isn't necessarily so.

Whenever some teenage ne'er-do-well hits the headlines, their destructive behaviour often gets blamed on TV and the music they listen to or their apparently unhealthy interest in shoot-'em-up computer games. But Dr Mark Griffiths, a psychology professor at Nottingham Trent University, begs to differ with the common perception that computer games are antisocial and violence-inducing.

Educational merit

In his paper, *The Therapeutic Value of Videogames*, he puts an entirely different spin on our gaming enthusiasm. He states that games could be useful therapeutically, and lists the practical benefits of playing titles as both stimulating and fun.

Gaming can be beneficial for children too, teaching them about setting and achieving goals and receiving positive feedback when they attain them – for example, getting a high score. Griffiths says that "games are a natural part of human behaviour" and provide us with the novelty and challenges we need. All this, he says, is useful for the development of our social interactions rather than hindering them.

Other positive aspects of gameplay include developing hand-eye co-ordination and reaction speed. Plus, by enabling us to become someone else via a role-playing game, we can explore other sides of our personalities. For instance, a teenage boy can play an elderly or attractive woman and find out how other players' attitudes differ when he assumes each role.

Griffiths believes these "escapist qualities" and the ability to immerse yourself in apparently real scenarios, such as going into battle and experiencing death and destruction, also have value. What's more, he points to the fact that most of us don't play games in isolation. On the contrary, gamers play each other, albeit virtually, online or across a network.

Griffiths is particularly interested in our use of electronic media. He is currently examining online gaming in which players typically group together to solve problems thereby fostering, rather than circumventing, the development of social skills.

But despite the community aspect of online gaming, if this is your main form of social interaction then you are missing out according to Matt Carroll, Disney Interactive's UK and Ireland director.

"I love playing computer games with my children but I firmly believe they should be played together, not in isolation," he says.

Gaming therapy

While many of the points made in the report have been used in favour of gaming in the past, Griffiths does take things a little further stating that, in extreme cases, playing computer games can be used as a distraction and pain management technique for patients.

This is an extension of the methods currently used by dentists, who play movies and music to calm nervous patients. He also suggests that gaming could offer an outlet for aggression or a means to engage with adolescents suffering from attention disorders.

Carroll dismisses these ideas as a marginal use of gaming and believes that people should be careful when judging the merit of specific titles: "I don't believe all games have educational merit." He does admit, however, that when games are designed with education in mind they can be effective learning tools.

While Griffiths is clearly a gaming advocate, even he doesn't deny that gaming can have a negative effect. Gory titles can attract those people with a predisposition to violence, while vulnerable players can become obsessed with a particular game or role. However, Griffiths claims that these cases are rare.

Whatever your views on gaming, it is clear that interactive media will play an ever increasing role in the future. But the jury's out on whether this will be a force for good or evil in our society. ■