Health

Pre-holiday jabs urged

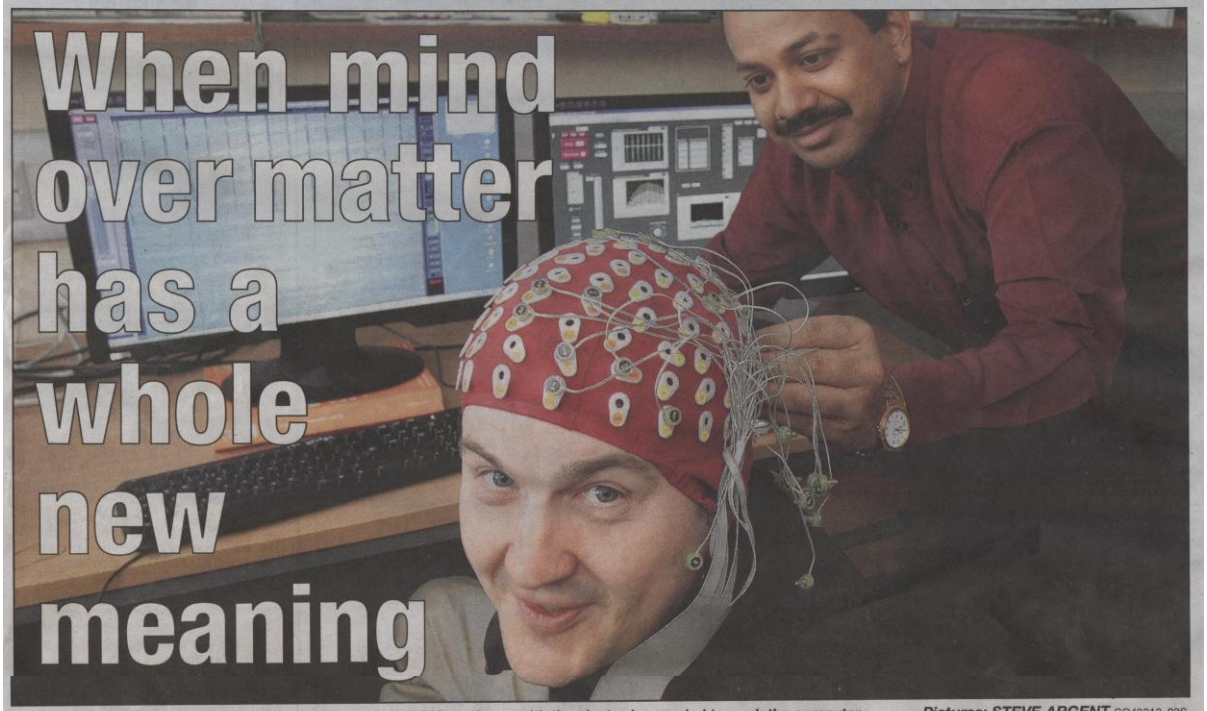
FAMILIES flying to European destinations over Easter have been urged to vaccinate children against measles before they go.

Several countries, including Denmark, France, Germany, the Netherlands and Turkey, have seen sharp increases in cases of the virus this year. The Health Protection Agency says overseas travel is a major factor in the international spread of the virus.

It recommends children are fully immunised with two doses of MMR, while adults who have only had one dose should have a second jab.

online at gazette-news.co.uk/health

When mind over matter has a whole new meaning



■ Thinking cap on – Dr Ramaswamy fits the Gazette's Neil D'Arcy-Jones with the electrodes needed to work the computer *Pictures: STEVE ARGENT* CO43312_03S

By NEIL D'ARCY-JONES
neil.darcy-jones@nqe.com

University boffins are employing brainpower to control computers

IF you thought controlling a computer using nothing more than the power of the mind was still the preserve of sci-fi stories, then think again.

That's exactly what Dr Palani Ramaswamy and PhD student John Wilson have managed to achieve at the University of Essex's School of Computer Science and Electronic Engineering.

The pair made national headlines when it was revealed they had tried their brainwave experiments on a woman, paralysed by a stroke.

She was only able to make eye, facial and slight head movements and the academics were astounded by her response to the trial.

By linking the technology to a computer, the woman was able to make music, using only her mind.

Dr Ramaswamy says: "Helping people like her has always been the motivation for this technology.

"I've been doing this for ten years and John for three, and to see it in action with precisely the kind of person we wanted to help was quite a moment for us."

Mr Wilson says: "What made it even more special was we'd only ever tried it on able-bodied people before, and she was our best subject by far. She got it straight away – way beyond our expectations."

The system was designed for people unable to speak or move – something known as locked-in syndrome – using electroencephalography. The subject wears a skullcap with holes in it, to which electrodes are attached.

> **Potentially, it has a lot of applications, because it enables people to do something by simply moving their eyes**

Mr Wilson explains: "Signals from the eye go to the back of the brain, so we measure that activity with an electrode at the back, with a top one acting as a reference."

The electrodes pick up different patterns in the brainwaves, depending on what the patient is looking at on the screen, in this case, objects flickering at different frequencies.

These differing frequencies are then translated into control information, as the computer recognises what the patient is looking at.

As well as medical applications, Dr Ramaswamy has been involved with the European Space Agency to see if astronauts might be able to use the technology in space.

There are also huge possibilities in the computer gaming industry and military fields.

Dr Ramaswamy adds: "Potentially, it has a lot of applications, because it enables people to do something by simply moving their eyes."

OUR MAN GIVES IT A TRY

I CAN honestly say the simple experiment set up for me by John and Dr Ramaswamy was one of the most amazing things I've ever experienced.

Looking at a black computer screen, the cursor has four blocks of flashing squares, left, right, up and down.

Then you look at the corresponding block to make the cursor move the way you want it to. It's a very odd, astonishing, sensation to will something to move with your eyes and see it go where you want it to.

Dr Ramaswamy says: "At the moment, it requires a fair degree of eye movement, but we are looking into ways of developing the system so you can use peripheral vision, too."

Funnily enough, I found my peripheral vision slightly hindered my progress. Because the blocks flash at different rates, it can be a little distracting, but once you get used to concentrating on just one, it really does fly across the screen.

■ Amazing – Neil was astonished

Again, the boffins have a solution. Mr Wilson says: "We're developing it all the time. With the new organic LED technology coming in for TV screens, each pixel can be flashed at much higher rates, not perceivable to the naked eye. That would mean you could stare at, say, the start button on your computer and it would start up programs for you."