

Bye bye bifocals, hello electronic spectacles

Traditional bifocals could become a thing of the past with the invention of electronic glasses that automatically adjust to let their wearer view objects at different distances.

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The electronic glasses, developed by US firm PixelOptics, can be adjusted manually to view objects at different distances by pressing a button on the side of the frames

The spectacles, which are due to be launched in the US this year and the UK next year, use lenses that change their strength when a small electrical current passes through them.

A layer of liquid crystal sandwiched inside each lens alters its refractive properties according to the current applied, adapting the focal length according to where the wearer is looking.

Traditional bifocals, which use two lenses of different strengths in front of each eye, have been used by people who struggle to focus on both near and far objects ever since they were believed to have been invented by Benjamin Franklin, the American statesman, in the 1780s.

But some users complain of headaches and dizziness while the small field of view forces them to move their heads while reading.

The electronic glasses, which have been developed by US firm PixelOptics, can be adjusted manually to view objects at different distances by pressing a button on the side of the frames.

Unlike traditional bifocals, which only allow the wearer to focus "near" or "far", the electronic lenses have a range of in-between settings.

The focal length can also change automatically when motion sensors embedded in the frames detect that the wearer is looking down – to read a book, for example.

Trials are under way in the US and the developer hopes to launch the glasses by the end of 2010 before bringing them to the UK by the middle of next year.

Peter Zieman, director of European sales for PixelOptics, said: "We have been developing these glasses for the past 10 years.

"Liquid crystals can change their refractive index when an electrical charge is put through them, so wearers can switch between distance and reading in the time it takes to blink.

"Putting in the kind of motion sensors that are used in the iPhone also allows the glasses to sense when someone is reading a book or a newspaper and so change the focal distance of the lenses automatically.

"In essence, glasses haven't changed all that much since they were first invented. The most recent development was transition lenses that tint in sunlight, but even that was 15 years ago.

"Our glasses bring modern technology to an old solution."