

wear your camera on your sleeve

HP wants to take the strain out of recording your memories. It's developing a wearable camera that snaps away as you enjoy your day. Simon Easterman finds out more about how the company plans to redefine digital photography

The vigorous debate that regularly appears in our Readers' writes pages suggests that the growth of digital photography has divided opinion between the purists and the point-and-shooters. This rift is only likely to widen if the team at HP's blue sky research and development have anything to do with it. Their concept is a wearable camera that records your memories as you live them. If it comes to fruition, it will redefine photography for ever.

The notion of a wearable camera isn't a new one. The must-have accessory of many a hi-tech Hollywood spy thriller is now a commonplace tool for undercover TV documentary making and it has also been trialled by police forces around the world. So the idea of using such a device for casual, hands-free photography makes sense. With a camera mounted on your glasses or lapel, a lasting record of your experiences could be stored while you get on with enjoying yourself.

Capture the moment

For over 18 months HP researchers Phil Cheattle and David Slattery have been developing this idea into something resembling a viable consumer proposition. "We want a camera that can take pictures from inside the situation," says Cheattle, "and that will never miss a moment." The fact that HP is now going public suggests it thinks it's getting close.

The principle challenge in the project has been to minimise the amount of time necessary to wade through recorded images. If you carry a camera round a party or a tourist town for three hours, you'll end up with a seemingly endless supply of photos from which to choose when you sit down to review your memories.

The first thing to do is cut down on the number of picture recordings. A prototype device Cheattle and Slattery have been using takes five frames a second, storing them on a 24-frame rolling buffer. When you think you've just seen something you want to keep for posterity, just press a handheld button and the buffer is stored. Gyroscopes sensing the camera's movement and calibrated to the film's exposure time will automatically delete any blurred images, ensuring you go home with a choice selection of snapshots of the event.

Well-trained eye

But the HP team wants to push the boundaries of automation. They reckon a lot more can be done to the image stream to make it easier for you to edit. For a start, using a wide-angle lens means each image you capture is big enough to give you plenty of room for cropping. By adding some advanced compositional



algorithms the camera can do that for you, cutting away empty spaces or half-missed objects around the edge of the image.

If you spend half a minute looking at a view then push the magic button, it's fairly obvious what picture you want. So with a few handy algorithms that detect static picture groups and choose the best one (again by discounting obtrusive objects on the boundary and so on) – a few minutes' editing is saved, as is the picture you wanted. Face-recognition technology will also help capture the memories you're likely to cherish.

The most awkward issue for the development team is where to balance time-saving automation and user control. Will users want to spend less time sorting the image harvest? Or will they be happy to work at getting the cream of the crop? Automation can only go so far, since you can't program taste and artistic vision. "If we could do that," says Slattery, "we'd be immensely successful and doing lots of great things." As if redefining photography wasn't enough. ■

an end to cash

E-commerce has opened up a new world of shopping, where pounds and pennies are no longer the common currency. But will we ever be ready to buy with virtual money, asks Wendy Brewer

A cash-free alternative to notes and coins is a great idea, providing security and peace of mind for online shoppers in particular. But until banks, service providers and retailers can persuade us that e-payment systems based on smartcards, not only work, but offer real benefits over cash, we're unlikely to see their wide adoption.

Electronic-payment schemes are nothing new. Banks in France and Germany have been using them for sometime, but their efforts can hardly be hailed as a success. The main stumbling block has been convincing consumers and retailers to switch.

Cash benefits

There are two major reasons for this reluctance. Firstly, cards lack the universal nature of cold, hard cash. The whole point of money is that we can spend it anywhere and, unlike credit cards or cheques, there's no imposed minimum or maximum payment amount. Secondly, the technology has nothing to offer to make it truly tempting – to persuade people to switch, e-payments have to make spending simpler.

Going places

But there are some instances where e-payments really work, most notably with transport. In Hong Kong electronic cash is thriving thanks to the Octopus card. Launched in 1997, the Sony smartcard which offers a built-in 8bit CPU processor and antenna, can be used to purchase train, bus, underground and ferry tickets for all of the country's transport services.

Using Radio Frequency Identification (RFID), users simply pass the card near a scanner – located at all ticket barriers – to deduct payments for their trip. Octopus has almost eliminated all cash payments across the country's transport infrastructure, with 95 percent of the population using the card by the end of March this year.

Transport for London has introduced its own cashless payment card, Oyster (note the marine theme). The card runs on exactly the same system as Octopus, using technology developed by smartcard specialist EDS. After extensive staff trials, Oyster cards were released to the public in June this year and 16,000 travellers now use the card.

Available via the internet or over the telephone, users can purchase yearly and monthly travel passes for the underground, Docklands Light Railway and the capital's bus services. Unlike traditional tickets, Oyster cards do not need to be removed from wallets for scanning and last up to seven years. There are plans to introduce cashless payment schemes on all London buses in a bid to provide a safer environment for drivers and speed up the boarding process.

Text to travel

London Underground is considering its own SMS payment scheme – similar to the one used by commuters paying the £5 congestion charge – which would allow users to top up their Oyster cards.

Europe leads the way here, too with Finnish mobile users buying metro, tram



and ferry tickets via text messages. And in Estonia, drivers can pay for parking via their mobile. Elsewhere in the world, Malaysian airline AirAsia allows passengers to book flights via text.

The key to the success of these pilots is ease of use. Once people are familiar with text payments, the list of possible applications becomes limitless – just imagine, you'd never have to wait in a queue again.

Will they work?

As microchip technology develops, more and more smartcards will make their way into the marketplace offering new ways to buy goods and services. Successful implementations in other countries have shown these schemes can work. But until a large number of retailers and service providers recognises and accepts the same smartcard technology, consumers will remain unwilling to swap coins for cards. ■

E-payments: the pros and cons

Good

- Tougher to copy, steal and destroy
- Easily replaced
- Cut down on queuing

Bad

- Not as 'universal' in nature as cash
- Compatibility issues
- Security concerns