

# THE WORLD WILL NEVER LOOK THE SAME AGAIN

Augmented reality glasses take what you can see and add what you want to see. Mark Harris, right, has an exclusive trial — and can't believe his eyes



If all your sunglasses do is protect your eyes and make you look cool, get ready to upgrade them. New hi-tech shades are coming that will combine the power of today's cleverest smartphones with the ability to deliver information and entertainment where you can't fail to notice it — right in front of your eyes.

You no longer have to fish out your mobile and navigate a tiny touchscreen. Instead, these shades, connected to a smartphone or tablet, will deliver messages, navigation updates, Twitter feeds — whatever you request. The technology, made available for The Sunday Times to test in prototype form, uses the principle of augmented reality (AR) to overlay words and images on the real world that you see through the glasses.

If you are jogging you may want your route superimposed on the view ahead, with speed and distance information in one corner and information about cafes highlighted as you pass. The glasses can also show characters and scenes from computer games, bringing fantasy into the real world. In the future, Vuzix glasses will be able to translate foreign-language posters into English.

Early models will be expensive — the Vuzix Star 1200 glasses due to go on sale later this year will cost \$5,000 (£3,100) — but the manufacturer is betting their use will quickly become widespread and that the price will come down.

"This is the product people have been waiting for," says Paul Travers, president of Vuzix. "Imagine a role-playing game in which you are being stalked through real streets by a life-size fire-breathing monster. Dungeons & Dragons will never be the same again. We already have over 3,000 developers working on creating apps for our glasses."

The glasses receive data from an iPhone, tablet or laptop connected by a short cable. It's this device that's finding the location-based information, graphics and messages that will be overlaid on your view of the world — a technology already working on smartphone apps. Vuzix is already in talks with AR companies such as Layar and Wikitude to make their virtual worlds available on its sunglasses. Users will be able to choose from thousands of AR layers to view — ones where the streets are tagged with virtual computer art, ones that highlight high-street bargains and even ones that show only the location of parties.

Sitting between your eyes and the dark lenses are a pair of transparent lenses called beam splitters (see panel, left). Video images are projected down through these, which use optical coatings to redirect polarised light into your eyes. The resulting images look crisp, solid and colourful and hover in mid-air at a comfortable distance.

The experience jars a little at first. It takes some effort to divide your attention between high-resolution graphics and the real world, but it soon starts to feel natural — especially when the images line up with reality.

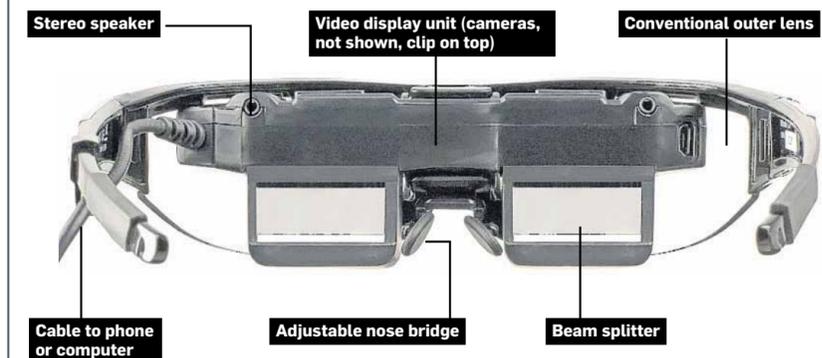
The Star 1200s can also work as video glasses for watching films streamed from a phone or media player. They use a built-in accelerometer and gyro sensors to compensate for movements of your head. Quality is not quite high-definition (that's coming soon,

says Travers). The beam splitters make the experience equivalent to watching a 75in widescreen TV from 10ft away. The images are bright enough to see indoors and out.

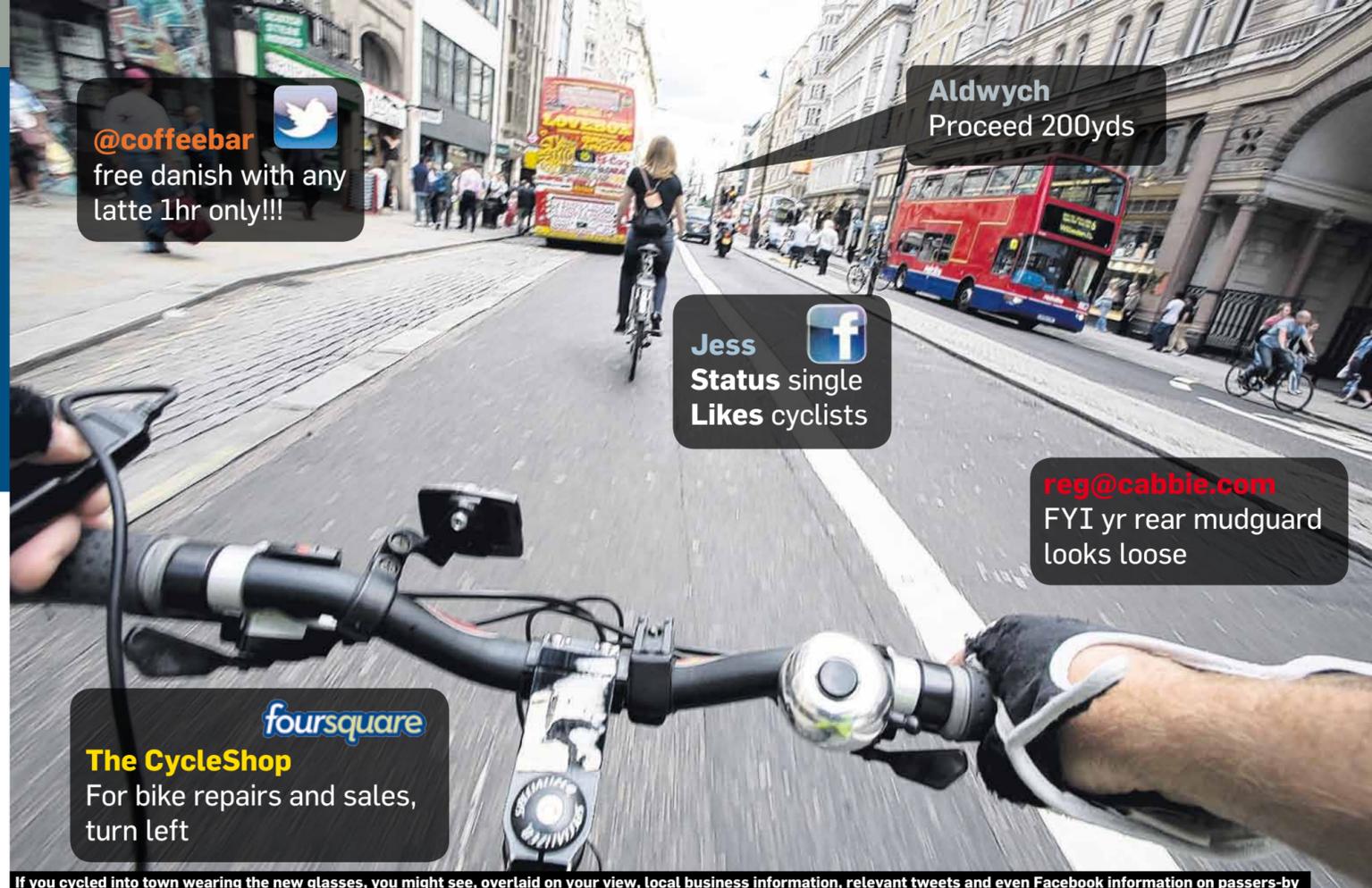
"We started out selling head-up displays for the defence industry and we still make a number of systems for the US military," Travers says. "Our glasses are used to control drones and direct bomb-disposal robots and for making video calls over radio in the most hostile conditions."

Add the pair of miniature detachable cameras that clip on to the bridge of the glasses, just above your sightline, and even more possibilities open up. The cameras work with apps running on the computer or smartphone to recognise certain symbols. When the cameras pick up an image — say a barcode or an advertising hoarding with a particular shape or pattern — the app can overlay a virtual reality image. To demonstrate, Travers hands me a cardboard paddle to hold in front of my face. In the real world, it shows just a plain black and white design. Through my glasses, though, I see a fully-formed 3-D robot moving and dancing on it. I'm sitting

## SEEING THINGS: HOW THE GLASSES TURN DATA INTO 'REALITY'



**VUZIX STAR 1200 AR GLASSES**  
 vuzix.com  
**Displays** Twin WVGA (852x480) LCDs with beam splitters  
**Video** 2-D or 3-D  
**Virtual screen size** 75in widescreen equivalent at 10ft distance  
**Audio** Stereo sound with removable noise-isolating earphones  
**Connects to** iPhone, PC, Mac, media player, TV  
**Weight** 85g  
**Price** \$5,000 (£3,100)  
**Available** Late summer



If you cycled into town wearing the new glasses, you might see, overlaid on your view, local business information, relevant tweets and even Facebook information on passers-by

## GAMES

New titles this week

**CHILD OF EDEN**  
 ★★★★★ (with Kinect);  
 Xbox 360; £40. Age 7

The storyline is suspect and the psychedelic graphics may seem more suited to a nightclub than a video game, but don't be put off. Child of Eden is one of the best reasons so far to invest in a Kinect. In the distant future, the Eden of the title is an electronic archive containing a record of humanity's history. It's under attack from a mysterious virus — and that's where you come in. Flying over the landscapes of geometric shapes and luminous gardens that represent this digital realm, you must blast away at strange organic forms and pulsating, neon-lit invaders using the Xbox 360's Kinect motion-sensing control system. Waving your right hand over your enemies targets them; punching forward releases beams of destruction. Pull up your left hand and you unleash a stream of bullets, knocking out deadly homing missiles. There are odd moments of panicked waving, not helped by confusing shifts of view, but overall the feeling is one of near-total immersion, as your actions change not only the visuals but also the music. With all the noise, form and colour cleverly integrated with its dance and trance soundtrack, it's a powerful mix of art and gaming. **Stuart Andrews**



**THE LEGEND OF ZELDA: OCARINA OF TIME 3D**  
 ★★★★★  
 Nintendo 3DS; £40.  
 Age 12

Thirteen years old, this classic game — now retooled for the 3DS with enhanced graphics and glasses-free 3-D — is still enchanting. You play as a character called Link, a jerk-clad hero who must navigate dungeons and fight with sword, shield and magic spells to prevent the evil Ganondorf from taking over the world. Also crucial to solving puzzles is your skill at playing the ocarina, a flute-like instrument. Sounds complicated? In fact the game is easy to pick up, thanks to the simple-to-understand controls, while good use is made of the 3DS's second screen as a way to display maps. The 3-D elements look impressive but can require some careful positioning of your head to enjoy the full effect. Even so, engrossing. **David Phelan**



SUNDAY TIMES ONLINE ▶▶  
 To see video trailers of InGear's games, go to [thesundaytimes.co.uk/ingear](http://thesundaytimes.co.uk/ingear)

## IPHONE GAMING

**Stuart Dredge reviews the best new games for the iPhone, iPod Touch and iPad**

**MEMNEON**  
 ★★★★★  
 59p

Nintendo was once the brains behind "memory gaming", thanks to its Dr Kawashima titles for the DS. Memneon is out to steal the fictional doctor's crown — and it's one of the most impressive memory games available for Apple's smartphone (and the iPad). The game is based around "memneons": patterns that you have to memorise and then rebuild from a selection of colourful circuits. Memneon is simple but thoroughly addictive and has three brain-taxing difficulty levels. True, it lacks the variety of the Kawashima games, but it's a fraction of the price.



**HANGING WITH FRIENDS**  
 ★★★★★  
 £1.19

Hanging with Friends is the sequel to a hugely popular iPhone title, Words with Friends. The latter was a Scrabble-like word game where you competed online against many players at a time. Hanging with Friends attempts the same trick, this time with hangman. You can play up to 20 games at a time with friends (or strangers) over the internet, setting up your own word and then being asked to solve one in return, with notifications popping up on the phone to let you know when it's your go. The option to indulge in in-game chat ratchets up the competitiveness level — get a few friends playing and it's riotous fun.



**POCKET GOD: JOURNEY TO URANUS**  
 ★★★★★  
 59p

Schoolboys and the immature will appreciate the title. Everyone else will simply enjoy the ingenuity of this excellent spin-off from one of the first iPhone hits, Pocket God. That game saw you playing a deity to a tribe of cartoon characters living on an island; this time round you get to take your subjects into space. The focus remains on looking after your comical charges but the format has changed into a series of mini-games, which older players will recognise as homages to classic games for defunct consoles. Additional mini-games will be released as updates. Not a giant leap for gaming, but an enjoyable one nonetheless.

