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## NEXT GENERATION HUMANOIDS

SO LIFE LIKE YOU'D NEVER GUESS THEY WEREN'T REAL

V CAMERA PHONE RECOGNISES THEIR OWNER

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V THE 5 COOLEST GADGETS FROM THE E3 EXPO





# camera phone recognises their owner

**MOBILE DEVICES ARE CARRYING INCREASINGLY PERSONAL INFORMATION, INCLUDING ADDRESS BOOKS, SCHEDULES AND PAYMENT INFORMATION. THIS TECHNOLOGY HAS BEEN DESIGNED TO PROTECT THIS INFORMATION EVEN WHEN THE MOBILE PHONE IS LOST OR STOLEN.**

Software that lets a camera phone recognise its owner's face could provide a handy new security measure, according to a Japanese company.

The digital cameras fitted to many modern cellphones already provide a nifty way to capture and share low resolution images with others. But Omron, based in Kyoto, Japan, has developed software that it hopes could turn these built-in cameras into a useful security tool.

"Functionality in mobile phones and other mobile devices is upgrading significantly," says Masato Kawade at Omron's Sensing Technology Laboratory. "Mobile devices are carrying increasingly personal information, including address books, schedules and payment information. This technology has been designed to protect this information even when the mobile phone is lost or stolen."

The OKAO Vision Face Recognition Sensor software was created for existing phones with a digital camera fitted. After taking a picture of their face for reference, a user can configure their handset to lock itself or limit its functionality until another picture is taken.

#### **IDENTITY THEFT**

The software works by measuring key parameters, such as the distance between the eyes, nose and mouth. Omron says the software takes up just 370 Kb of a cellphone's memory, and takes about one second to perform the check. In testing, it correctly recognised its owner's face in 99 out of 100 attempts, the company claims.

Mark Nixon, a computer vision expert at the University of Southampton, UK, agrees that current smart phones should be powerful enough to perform the task fairly well. He also sees a strong potential appeal for the application. "Given current concerns over identity theft, if the phone is for secure transactions such as banking, then I think people would be very interested," he says.

But Alan Robinson, a research scientist at Sheffield Hallam University, UK, says recognising a face from different positions is likely to pose a significant problem.

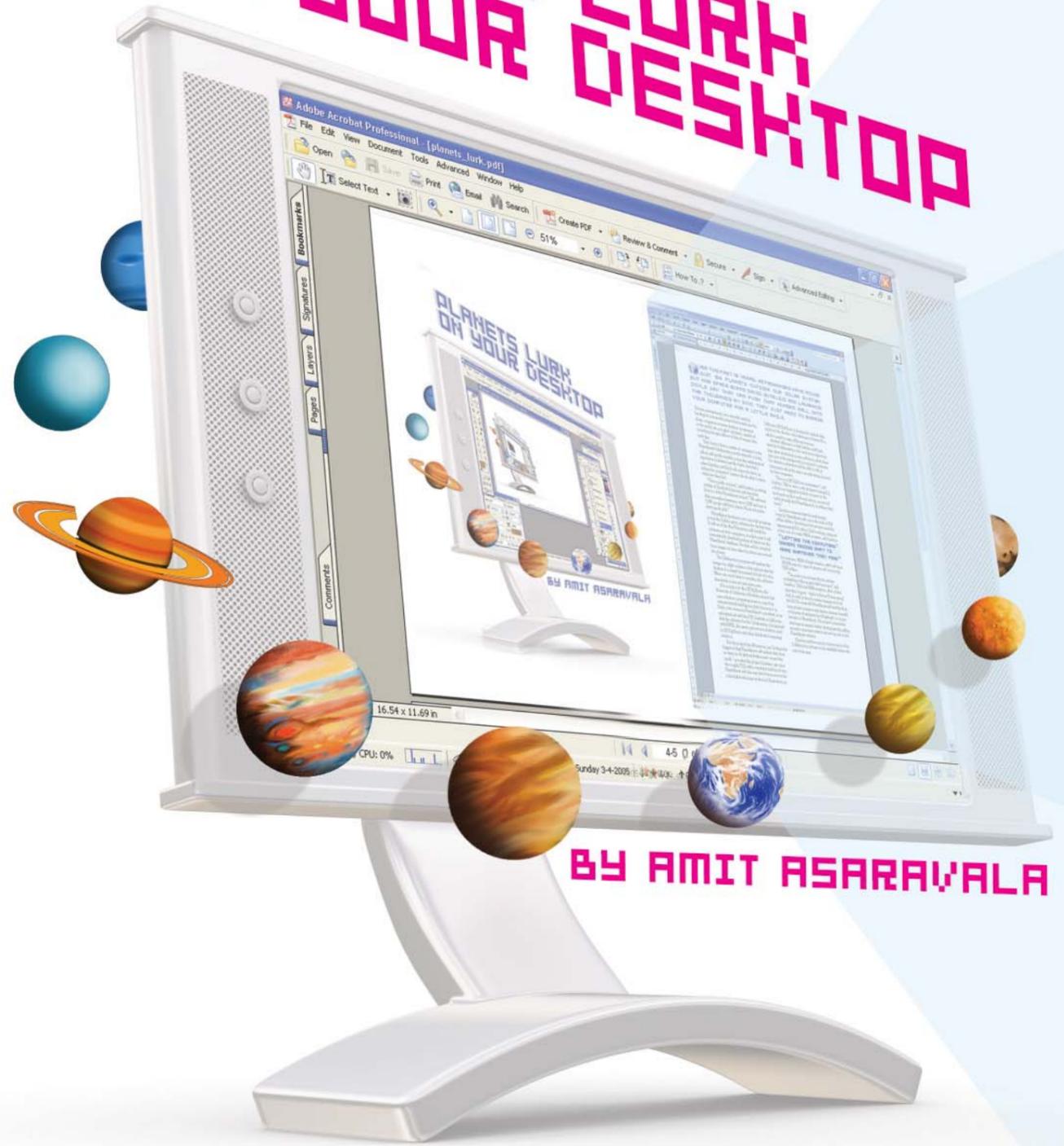
#### **DIFFERENT ANGLES**

"If the face is turned through a few degrees compared with their stored face, then the measurements will change," he told *New Scientist*. "Although it is possible to deal with this pose problem, the better solution is to use 3D methods, which will record the surface of the face irrespective of pose."

Robinson adds that without 3D face recognition it might be difficult to prevent someone from fooling the system by holding up a picture of the authorised user. But 3D face recognition requires stereo vision, so two or more cameras would need to be used simultaneously. The digital camera fitted to many modern cellphones.

The OKAO Vision Face Recognition Sensor program currently works on phones running the Symbian and Linux operating systems. It was demonstrated at the Security Show Japan 2005, which took place in Tokyo between 2 March and 4 March.

# PLANETS ON YOUR LURK DESKTOP



BY AMIT ASARAVALA

OVER THE PAST 15 YEARS, ASTRONOMERS HAVE FOUND JUST 136 PLANETS OUTSIDE OUR SOLAR SYSTEM. BUT NOW SPACE BUDDS DAVID GUTELIUS AND LAURANCE DOYLE SAY THEY CAN PUSH THAT NUMBER WELL INTO THE THOUSANDS BY 2010. THEY JUST NEED TO BORROW YOUR COMPUTER FOR A LITTLE WHILE.

The two entrepreneurs are currently seeking funding for a nonprofit project that would turn the home computers of every amateur astronomer in the world into one giant calculator, capable of crunching through millions of bits of cosmic data each day.

Their hope is that a number of computers in the PlanetQuest Collaboratory, as the network is being called, will quickly stumble across the mathematical signatures of planets just like Earth. And that's when Gutelius and Doyle will return the favor, by letting the computers' owners decide what to name whatever they find.

"This is public science," said Gutelius, a visiting scholar at Stanford University and executive director of the PlanetQuest project. "We estimate that somewhere between one in 3,000 and one in 5,000 people will find a planet. Those are pretty damn good odds."

PlanetQuest developers are currently preparing to test the Collaboratory software for the first time. It will work like this: Volunteers will install the software on their computers, at which point it will automatically download packets of data from the PlanetQuest database. The data will be compiled from images of stars taken by telescopes around the planet.

The Collaboratory program will analyze the images for slight variations that indicate that the shadow of a planet has passed in front of a star. When one set of data is complete, the software downloads a new set and starts over.

If it sounds a lot like SETI@Home, the University of California at Berkeley project that uses volunteer computing power to search for extraterrestrial intelligence, that's because it is. Doyle, who serves as PlanetQuest's president, is an astrophysicist with the SETI Institute in California. And the software for the Collaboratory is being built with BOINC, the same open-source platform used by SETI@Home and other distributed computing projects.

But the project has differences, too. Perhaps the biggest is that PlanetQuest will analyze data from as many as 10 dedicated telescopes around the world -- provided the project's backers can raise the roughly \$3.5 million needed to build each one. PlanetQuest will also use data from a soon-to-be-refurbished telescope at the Lick Observatory in

California. SETI@Home is designed to analyze data only from the Arecibo radio telescope in Puerto Rico, which is used for many different reasons.

Another difference is that Gutelius and Doyle want the Collaboratory to be much more interactive than other distributed science software, which often just runs in the background on a person's computer. For instance, volunteers will be able to call up information about the stars currently being scanned by their computers.

"This is no SETI@Home screensaver," said Gutelius. "We've seen a raft of reports saying U.S. schools are lagging far behind our peers in the developed world in math and science, so we feel really strongly that PlanetQuest try to address that issue."

Gutelius estimates that the total startup costs for PlanetQuest will run in the order of \$20 million dollars. Operating costs per year would be approximately \$10 million. That's nothing compared to the cost of a major NASA program, said Gutelius.

## "LETTING THE COMPUTERS' OWNERS DECIDE WHAT TO NAME WHATEVER THEY FIND"

For instance, NASA's Kepler mission, which will scan 100,000 stars for signs of planets, will cost nearly \$300 million.

"The point is to not have this be another multimillion-dollar project that burns out," said Gutelius. "All these NASA missions, after a finite time they're gone -- that's it. But we'll keep going." And, he said, it doesn't require taxpayers to foot the bill. The nonprofit PlanetQuest will seek funding from private investors and donors. Jeremy Crandell, co-founder of antispam firm Brightmail, is a major investor in PlanetQuest. The project's executives also hope to sustain further development by selling access to premium content and serving ads on the PlanetQuest website.

Gutelius said he expects a beta version of the Collaboratory software to be available before the end of the year.

