Star TECH

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startech@thedailystar.n

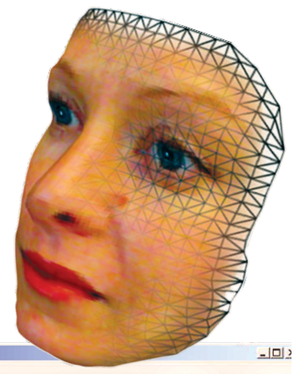
GNU Project

The GNU Project is a free software project, announced in 1983 by Richard Stallman. It initiated the GNU operating system, software development for which began in January 1984. GNU is a recursive acronym that stands for "GNU's Not Unix". The first milestone was to make a free software operating system. To make this happen, the GNU project began working on an operating system called the GNU system. This goal of making a free software operating system was achieved in 1992 when the last gap in the GNU system, a kernel, was filled by a

TECHFOCUS

Facial Recognition System

Buttressing security



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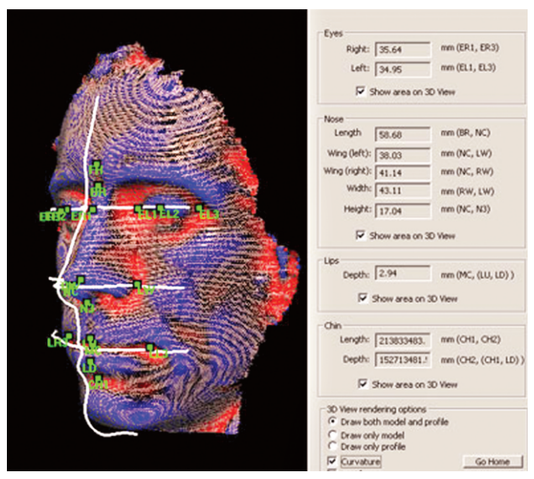

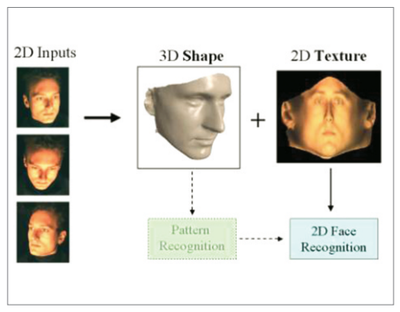

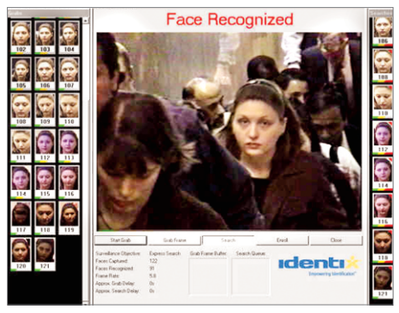

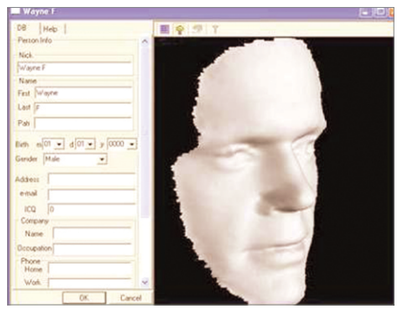

Nowadays you probably come across different security measures, which are in place to guard against potential security threats. These arrangements might seem agreeable to you or an intrusion on your privacy. These traditional systems, however, have become a piece of cake to the interloper. This is why more an advanced approach is warranted to eliminate the loophole.

Facial Recognition System (FRS) is such an advanced technology. FRS application automatically identifies a person from a digital image. It is the ability to recognise a person by his facial characteristics. The technology is based on Eigenface (standardised faced ingredients) algorithm, which maps the characteristics of a person's face into a multi-dimensional face shape. An emerging trend in FRS is three-dimensional face recognition.

In the mid-1960s researches started their mission to recognise human face by developing special purpose software. Since then facial recognition software have survived several technical drawbacks to reach its present standard.

At its early stage, facial recognition software was capable of working with 2D images only. In order to generate an accurate result, the image of a person has to resemble all facial orientation of the stored image in a database with slight variance of light.

This scheme in many circumstances produced unwarranted results. As a result, 3D facial recognition has come into reality. Currently, nearly all facial recognition software utilise 3D model, which promises more accuracy to detect any image.

3D facial recognition system depends on some parameters to find out the desired person at any real time condition. Form the captured image the software looks at where rigid tissues and bones are most apparent: the curves of the eye socket, nose and chin. These areas remain unchanged over time.

As 3D facial recognition requires mathematical measurements, different lighting condition does not hamper its processing to a precise output. The software depends on cumulative steps such as detection, alignment, measurement, representation, matching, verification and surface texture analysis to verify the identity of an individual.

Detection tactics include scanning image or direct photograph from the camera. This is basically the input part of the entire system. After face detection, the software determines the position, size and pose of the head. The next stage is measuring the curves of the face on a sub-millimetre scale to create a template. The template then converts into a unique code. This coding gives each template a set of numbers to represent the features on a subject's face.

If both the captured and stored images are 3D then matching will go on without further modification. But problem arises in case of 2D images. At present database contains 2D images whereas cameras capture real-time 3D images. For this, 3D images need some modifications so that they can be compared with flat and stable 2D images. For example, when a 3D image is taken, the system identifies different points in it and an algorithm will be applied to convert it to a 2D image. The software will then compare the image with the 2D images stored in the database to find an exact match.

A Minnesota based company, Identix, developed a product named FaceIt@Argus that uses skin biometrics to identify any individual. This software is able to capture any image from a messy situation and compare it to a database of stored images. This matching technology combines facial geometry and skin texture for maximum accuracy.

In this process, an image of a patch of skin is captured and then segmented into smaller blocks. It is called skin print. Then an algorithm is applied to transform the patch into a mathematical, measurable space. The system then distinguishes any lines, pores and actual skin texture. This process helps doctors to identify differences between identical twins, which is not yet possible using facial recognition software. Identix claims that this combination of facial recognition and surface texture analysis increases accuracy by 20 to 25 percent.

FaceIt currently uses three different templates such as vector, local feature analysis and surface texture analysis to confirm or identify the subject. This combination gives huge advantage to FaceIt over other systems in case of some facial changes.

Applications of facial recognition systems are very diversified. Currently ATM employs it to determine a customer's face. When a client attempts to withdraw cash, the inbuilt camera in ATM machine captures their image. The FaceIt software then generates a face print of the photograph to protect customers against identity theft and fraudulent transactions. In this process a customer does not require submitting their personal details as they do in traditional process.

Recently, the US government initiated a scheme called US-VISIT (United States Visitor and Immigrant Status Indicator Technology) to verify that travellers are who they say they are and do not pose a threat to the United States. According to this policy, certain non-US citizens who wish to enter the United States have their two index fingers digitally scanned and a digital photograph taken at the US port of entry. Immigration officials have the ability to instantly check the criminal background of the person seeking entry. Banks are also using this technology to avoid unforeseen consequences.

So far the performance of facial recognition system is quite impressive although it has got some drawbacks. But continuous research on this technology will enhance its accuracy and capacity in the near future.

Reference: howstuffworks.com

TECHNEWS

Virtual gig bazaar

RAJA ALI HASAN

RAJIB bought a high-end Nokia N95 cellphone with his own money. Wow! His buddies are amazed. How could he do it as a student without having even a part-time job?

'rentacoder.com'--Rajib reveals the name of his secret employer. Yes, dear reader, there are many websites through which you can make money by investing your various coding and designing skills. rentacoder.com is just one of the busiest and most famous of them. These sites are better known as the freelancing sites where one party posts the problem and the other party sells the solution to the first one.

In this computer savvy society more and more students are employing themselves in software development in or outside their educational institutions. But, the general practice in our country is that students look for private tuition to earn some pocket money; some do this for their everyday living. Some job-holders also seek out some extra cash for a better life. In this fast-changing age, freelancing is offering a new vista of opportunities to make money over the Internet for anyone with coding and designing skills.

Many sites nowadays facilitate freelance jobs for both parties--the buyer and the coder or seller. Buyers are the ones who need some help to get solution to their software/web/graphics designing projects. They are willing to pay the coder or seller for getting the job done. We can mention, for example, rentacoder.com, which has two sections: one for the buyer and the other for the seller. Both parties first get registered and upload their lucrative profiles. Buyers from around the world post their problems including the requirements, lead time (time to hand over the job) and the maximum price they intend to pay. The coders or developers, on the other hand, bid a price much lower than the maximum. The buyer will then evaluate the developers by their experience and approach, and bid a price in return. If everything is OK, they will contact the chosen one through email to strike the deal.

What about money? Well, the transaction of money goes through a process called escrow. It means the buyer will not send the money directly to the coder. They will rather escrow it to rentacoder.com. Rentacoder will pay the money to the coder after charging 15% as facility fee. The site will also ensure that the completed work is handed over to the buyer. Very interestingly, you can put your profile for free and can choose from different payment methods at your convenience.

Guru.com, Elance.com, Pajamanation.com are some of the top freelancing websites at your service. They offer you the opportunity to work on your own, having no boss and getting the platform to whet your problem solving skills in an IT environment. If you extend the horizon a bit, you see you can add to the foreign exchange reserves of your country.

TECHNEWS

HP unveils business desktop PCs in Bangladesh

STARTECH DESK

HEWLETT Packard (HP) introduced the AMD-based HP Compaq dx2250 and dc5750 Business Desktop PCs in the local market on May 24 at a local hotel.

The HP Compaq dx2250 Business Desktop PC is a proven productivity computing solution designed to deliver reliability and performance for basic business requirements, says a press release.

The dx2250 is a full-featured PC with components designed and tested to commercial standards to help withstand the rigors of enterprise environments. This reliable Microtower PC comes with a compact chassis which offers basic expandability and flexibility.

"Businesses across Asia Pacific are constantly demanding enhancements to the price-performance delivered by their desktop PC," said Joergen Jakobsen, vice president and general manager, Commercial Systems Unit, HP Personal Systems Group, Asia-Pacific and Japan.

HP as the world's largest PC

manufacturer understands the importance of energy efficiency, from the rising cost of resources to the environmental impact. The HP Compaq dx2250 Business Desktop PC featuring AMD's Cool 'n' Quiet Technology which reduces processor heat, an overall cooler PC and quieter work environment, is yet another example of HP's continued push to proactively design, develop and incorporate energy-saving technologies into its products.

In October 2006, HP also showcased its first AMD-based dc5750 Desktop PC at Smart Office '06, New Delhi. The addition of the HP Compaq dx2250 Business Desktop PC to HP's stable of AMD-based business PCs, gives businesses an even wider choice of computing products to choose from to meet their business needs, and is available with a range of high-performance AMD Athlon 64 X2 dual-core, AMD Athlon 64 and AMD Sempron processors.

TECHNEWS

Apple-AT&T union on iPhone could rock mobile world

AFP, *San Francisco*

APPLE'S partnership with US telecom giant AT&T on eagerly-awaited iPhone devices set to ship next month promises to be an industry-changing blissful union or a history-making horrid divorce.

Industry insiders see AT&T as a clear winner from the union as Apple's iPod-driven cache' gives internet-age youthfulness to a company as old as the telephone itself.

AT&T has already received more than a million inquiries about iPhones, according to Mark Siegel, a spokesman for the company's wireless business.

Interest in iPhones and Apple's historically deft marketing tactics will drive people to AT&T stores, where prices of 499 and 599 dollars for iPhone models might result in customers opting for less expensive AT&T offerings.

"I am skeptical on price, but people are lined up to buy it," Jupiter Research analyst Neil Strother said of iPhones.

"The Apple nuts will buy it right off the bat. If you are with another carrier, that will hold you back. Buying a mobile telephone is a more complex decision than buying an MP3 player to listen to your music."

Whereever people buy iPhones, the US telecom company will be their service carrier thanks to an exclusive multi-year deal with Apple.

Neither company would reveal when the exclusivity expires, but it is believed to be five years or less.

Apple gets to learn the mobile industry from a veteran and keep tight control of the relationship between its iTunes online digital content store and iPhone handsets designed to innovatively handle calls, videos, music, and more.

"I think this partnership is going to redefine the mobile experience for people in the United States," Siegel said.

"It is one of these perfect marriages. We do wireless exceedingly well and Apple does a brilliant job of developing technology that is easy to use. This is a big opportunity for us. We get to attract new customers with the buzz."

A danger in the alliance is that Apple has a pattern of ending partnerships painfully for the other parties.

Apple's first venture into mobile telephones with Motorola's ROKR model and service by Cingular, which was recently taken over by AT&T, was abandoned by Apple almost as soon as it was unveiled.

"Apple has a history of leaving its partners bleeding or bloody in the dust," analyst Rob Enderle told AFP.

"You have the most power brand with the most powerful carrier. If it works out, you have a powerful partnership. But, this has all the earmarks of a really expensive divorce that will be historically memorable."

Pressure is on AT&T to offer iPhone service plans as innovative as the touch-screen operated device, said analyst Michael McGuire of Gartner Research.

PHOTOTECH

THE BRAIN MACHINE

Japanese electronics giant Hitachi unveils a prototype model of a portable brain-machine interface, equipped with eight pairs of lasers and optical sensors in a special headband to measure prefrontal cortex activity, at the company's headquarters in Tokyo on May 22. Hitachi made the downsized and easy to use device from medical application models, and has priced it at USD 840,000.

PHOTO: **AFP**