



Taking the pain out of check-in

No one argues with the fact that airport security checks are necessary. But do they have to take so long? *Justyn Olby* reports on new technology that can make check-ins more efficient.

AIRPORT SECURITY – two words that, at the same time, comfort and annoy. Thorough security checks give travellers peace of mind, yet the inconvenience of checking in hours early and standing in line fills them with dread.

Airlines and airports know this only too well. Ever serious about customer satisfaction, they are embracing new, sophisticated technology to make security clearance more efficient and less of a chore. For the traveller, this simply means an easier time at the check-in counter.

These new security measures have become so popular that Fortune Magazine recently put InVision Technologies, which supplies new security-related technology, at No. 1 on its list of fastest-growing companies.

In Singapore, the Civil Aviation Authority of Singapore (CAAS) and the Economic Development Board (EDB) are using Changi Airport as a working laboratory of sorts to test out new

technologies and new systems under the Airport Systems Technology Research and Innovation Platform (AIRSTRIP) initiative. The CAAS says that areas that AIRSTRIP covers include passenger identification and tracking, check-in baggage handling and screening, aircraft tracking, wireless communications, and vehicle fleet management. In fact they have already tested the Boeing Gatelink System at Terminal 2. This system involves sharing data from the aircraft, baggage handlers, passenger terminals and maintenance operations, among others, over a wireless link between different systems around the airport.

All this advanced technology is helping to make things more secure, and also promises to speed things up. Various new devices and their attendant software are being tested and deployed at major airports around the world.

Let your fingers do the travelling... Many people may look alike, but there are some things about us that are totally

unique. Fingerprints were one of the first biometric identifiers used by law enforcement agencies. Today they are still valuable identifiers, and technology has made matching prints faster and easier.

Now technology is being tested in the United States that might allow us to use our fingers instead of a passport. All that is needed is a fairly simple fingerprint reader (already in use in lots of different applications today – from PDAs to door locks) and a database of passengers' fingerprints.

Place your finger on the reader and it checks whether you are who you say



Put a finger on it and the reader checks your fingerprint against a database of fingerprints.

you are and you can board the plane. The database also has records of individuals who may present a threat so it can flag them for security to deal with.

What's in a face?

Speeding things up even more is an interesting piece of technology that gets around the problem of who looks like whom. Face recognition technology is being tested and deployed at various airports – it was first used in Keflavik International in Iceland. Recognising someone by face is hardly new; immigration departments have been doing it since



Face recognition software maps your face and looks for up to 80 possible 'landmarks'.

photographs were added to passports. What is new is that the process is now automated. It works like this: As you walk past a camera, it sends a still image of your face to a central computer. The software maps your face, looking for up to 80 "landmarks". These landmarks include obvious ones like your nose, eyes and mouth, but the system looks for more subtle signs too. While there are 80 possible landmarks, Identix, one of the leading companies in this field, says that their software needs only 14 to 20 landmarks to make a match.

Once your face has been mapped, the computer compares it to its stored database of possible suspects. If no match is found, it moves on to the next one. If there is a possible match, it can alert the relevant authorities to take a closer look. Identix says its software can't be fooled if someone wears a wig or grows a beard, so disguises won't work. Growing older probably doesn't significantly change the relationship between your facial features either.

Look into my eyes

Another unique identifier in humans is the iris pattern in the eye. Quite simply, all you have to do is to look into a lens that reads the pattern of your iris and compares it to the pattern in its memory. If it matches, you are on your way.

When London's Heathrow airport did a trial of this technology last year, passengers could get through processing substantially faster than normal – the average time taken to be admitted by immigration was around 12 seconds. The trial ran for six months and included the participation of around 800 frequent fliers. It was deemed a success and the parties involved say they are studying the findings and exploring how to implement the technology.

This has the potential not only to speed up immigration formalities, but also to prevent people travelling under false names from entering the airport and boarding a plane.

Looking through your bags

Once you have established who someone is, you have to make sure that his or her baggage doesn't contain any potentially

When Heathrow Airport trialled iris recognition technology in 2002, the average time taken for a passenger to be admitted by immigration was around 12 seconds.

dangerous substances or items.

If you have flown out of Singapore's Changi Airport, you are likely to be familiar with the little device that security officers wave over bags before they are cleared for check-in. This is a

chemical "sniffer" which detects traces of chemicals commonly linked to contraband substances.

The "sniffer" is only the first step. Once a bag is checked in, it is inspected by machines that use a variety of methods to look inside without having to open the bag up. InVision supplies the latest breed of these machines, which use technology similar to that of CAT (Computed Axial Tomography) scan machines in hospitals. The scanners give your suitcases a thorough going-over before sending them on their way to the aircraft hold. They work by looking at the density of different materials. Don't pack too much chocolate – it looks too much like some explosives for comfort.

One way to resolve this is to use something called Quadropole Resonance (QR). This works by stimulating explosive materials very carefully, causing them to emit a low-level radio signal. The machine then analyses the returning signals to determine if they are emitted by anything suspicious.

Staying safe

Technology will continue to improve, security clearance will become more efficient and air travel will remain a safe way to travel. Still, travellers should follow simple rules like packing their own bags, never letting them out of sight in public, and not accepting check-in luggage from anyone else. ■

PUT TO THE TEST

With many airports around the world showing greater interest in biometrics, new security technology may soon take flight.

Major airports in the US began fingerprint checks in January 2004.

Facial recognition was implemented at Keflavik International in 2001, and many other airports have conducted trials of similar technology, including Tokyo's Narita airport, which began a four-month trial in December 2003.

A trial of iris recognition was trialled at airports such as Heathrow in November 2002 and Umea, Sweden, in November last year. And more than 4,000 passengers at Amsterdam's Schiphol have enrolled in the Schiphol Groep's Privium programme, an optional service for frequent fliers which allows them to zip through passport and security control in less than two minutes with the use of iris recognition software.