

HITACHI
Inspire the Next

VeinID

Finger Vein Authentication Technology



Reality Check

Identity theft is more prevalent and potentially damaging than ever, posing a genuine threat to continued security and profitability.

Hitachi Finger Vein Authentication is a quick, non-invasive means of making sure people really are who they claim to be. It could save you far more than face.

It's estimated that identity theft is costing the UK economy alone in the region of £1.7 billion a year. And it's growing fast. Unsurprisingly, the need to verify who's who efficiently and cost-effectively has become an urgent priority for governments and businesses.

Hitachi Systems Solutions has responded to the widespread problem by developing a fast, fail-safe system for identity authentication. Already widely used in Japan, Finger Vein Authentication Technology is setting new standards for safeguarding sensitive information.



Who's using your name in vain?

One in four people in the UK are reported to have been affected by identity theft.

This relatively recent form of crime manifests itself in many different ways, but generally starts with the unlawful appropriation of personal details or secure data.

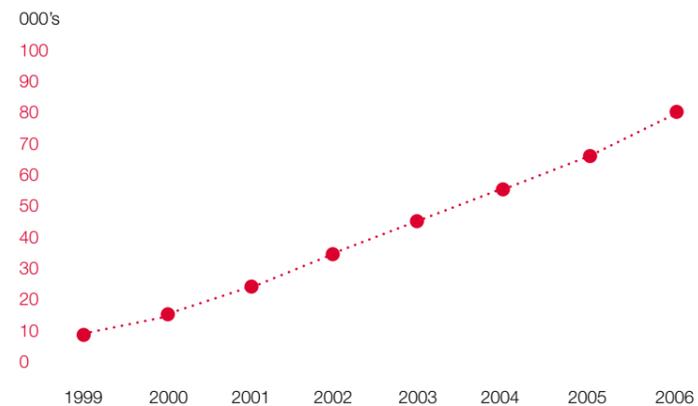
The increasing use of electronic systems in day-to-day life has vastly extended the scope for identity fraud, which can affect individuals, organisations and entire national economies. Bona fide companies can see their hard-earned profits disappear overnight. Unsuspecting law-abiding families can suddenly be thrown into catastrophic financial turmoil from which it takes months to recover.

Credit and debit card fraud is the most common abuse, but more serious cases include mortgage, social security benefit, loan and hire-purchase scams. Further up the scale, identity theft provides the foundation for illegal immigration, money laundering, commercial and political espionage, and ultimately, terrorism.

As has been widely reported, passwords, personal identification numbers and security questions provide scant protection from the determined identity thief, who has devised endless means of obtaining or side-stepping them altogether. Consequently, a more rigorous, scientific approach to everyday data security is called for, one that can be simply implemented and managed, but is impossible to compromise.

Identity theft is increasing and the impact on society is growing.

For example, in the UK, ID fraud currently costs the economy around 1.7 bn per year with cases of stolen identity rising from just 9,000 in 1999 to over 80,000 in 2006*



* www.cifas.org.uk - research to 2006

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Every body's unique

Most security experts agree that the most effective means of combating identity theft is 'biometrics'. This works on the basis that we all have unique personal features which set us apart from even our closest relatives. Everything from the timbre of your voice to the contours of your face can distinguish the real you from an impostor. They come with the added advantage that you have them with you at all times, you don't have to remember anything, and they can't be stolen.

The key with 'biometrics' is pin-pointing personal characteristics that are easily measured and compared, and processing the information in ways that are accurate, convenient and don't cause undue embarrassment.

Finger printing, iris scans, hand geometry and voice recognition systems are already in use, and each has its own particular set of advantages and disadvantages. Some are easier to forge, others are more expensive or cumbersome. Some are affected by the surrounding environment, others make users feel uncomfortable. These pros and cons need to be assessed before deciding to install such a critical piece of equipment.



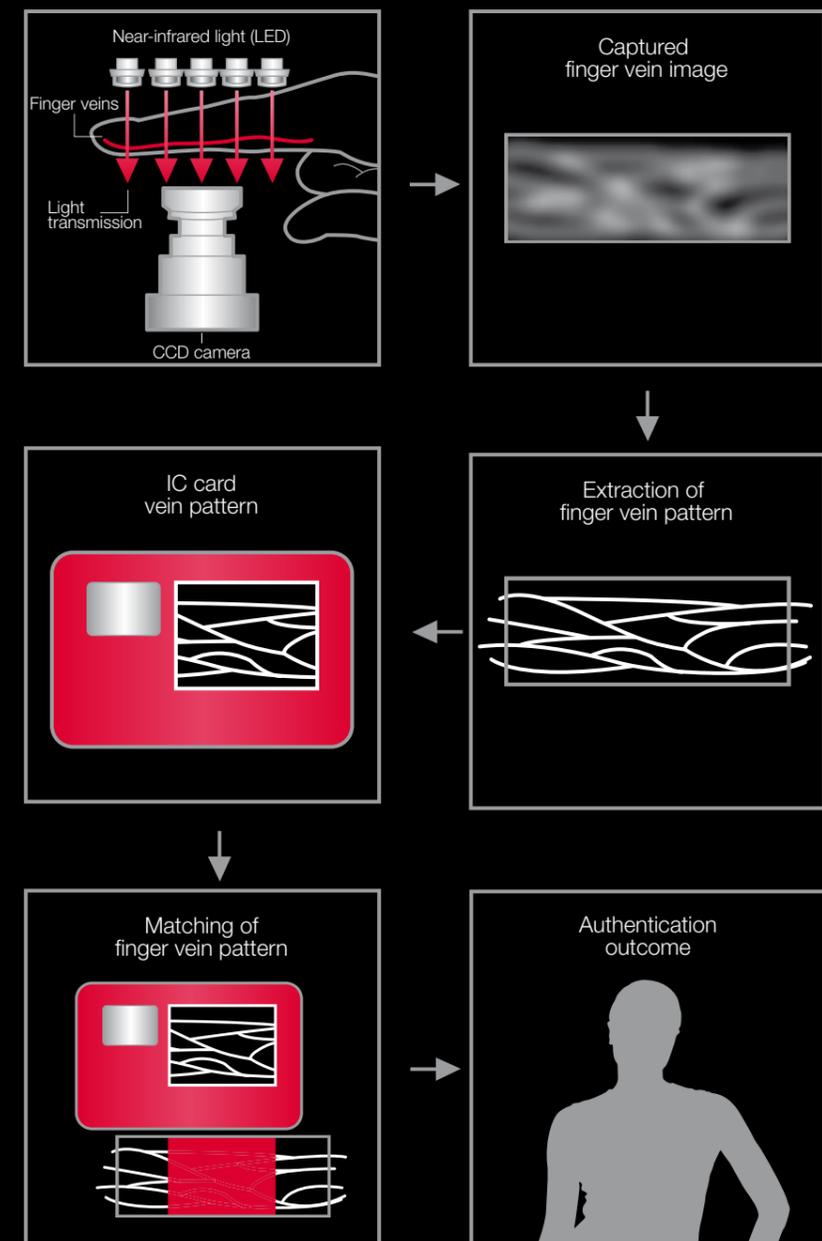
BIOMETRIC INFORMATION	METHOD	SECURITY	ACCURACY	COST	SPEED	SIZE
1 Finger Vein	Infra red light	High	High	Low	Fast	Small
2 Palm Vein	Scan	Medium	High	Medium	Medium	Medium
3 Fingerprint	Ink print	Medium	Medium	Low	Medium	Small
4 Face	Facial contours position of eyes and nose	Medium	Medium	Low	Medium	Large
5 Iris	Pattern and radial features of iris	High	High	High	Medium	Large

Finger vein authentication

Hitachi's Finger Vein Authentication System captures images of the vein patterns inside your finger. These, like other biometric patterns are unique – but significantly, because they are inside your body, they are virtually impossible to replicate. The method works by passing near-infrared light through the finger. This is partially absorbed by the haemoglobin in the veins, allowing an image to be recorded on a CCD camera underneath.

Then, it takes around 0.5 of a second to match your vein patterns to those previously digitised, compressed and captured on a smart card. The process is remarkably accurate – there's only a 0.0001% chance of someone passing off their vein patterns as yours, as accurate as established iris systems. And, of course, for additional security, you can always record the vein patterns in more than one finger.

How finger vein authentication works



In the right vein

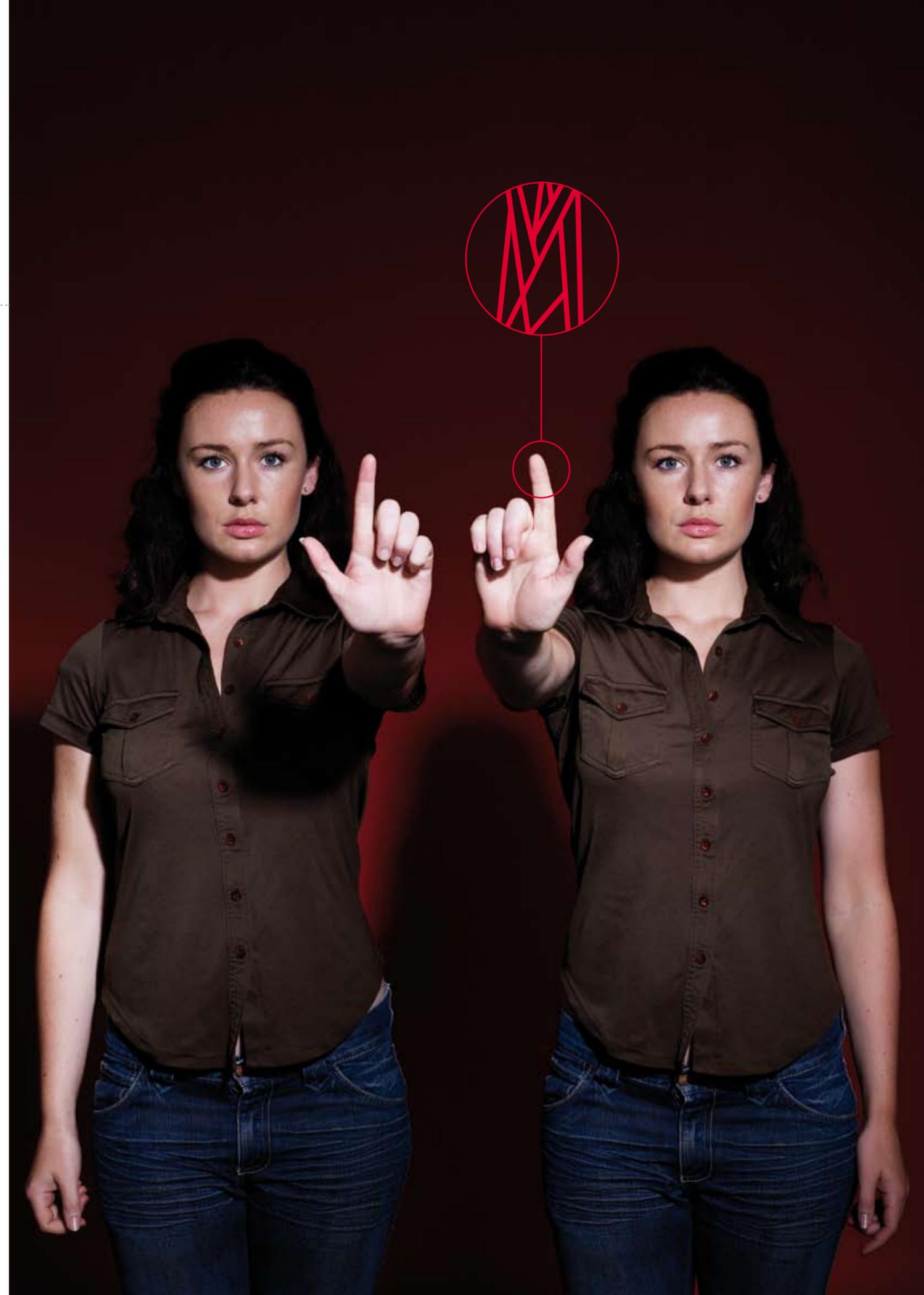
The real beauty of finger vein authentication is its versatility. Because of its small and highly manageable size, it can be used for everything from door-access control units to cash machines, car doors to PC log ins. In the future, it could even be used on portable electronic devices like mobile phones and MP3 and also be adapted for identity documents like driving licences, ID cards or passports.

Most importantly, the whole process is quick, discreet and non-invasive. Psychologically, users don't feel self-conscious or awkward offering their fingers for authentication – on the contrary they enjoy instant reassurance and empowerment.

Levels of accuracy are impressive and reliable, and because identification units can be self-contained and/or enclosed, they are less sensitive by external conditions like lighting and shadow, which can affect rival iris and face contour systems. Though sensitive, vein authentication is also remarkably robust, able to cope with sweaty, dry or aged fingers.

Given the accuracy, reliability and integrity of the technology, it can be considered to be highly cost effective, good news for those who need to apply high performance biometric technology across multiple applications within the enterprise.

VeinID



Finger on the pulse

The Hitachi VeinID system was first introduced in 2002. In Japan and the Far East, where new technologies tend to be adopted earlier, it is already gaining wide acceptance and has been taken on board by many of the major banking houses.

Units shipped to date include:

- Several 10's of thousands Physical and Logical access scanners*
- Over 40,000 ATMs in Japan*
- Several million smart cards with finger-vein 'match on card'*

Japanese banking

In Japan, up until a couple of years ago, incidents of forgery, spoofing and other financial fraud had been growing at an alarming rate. Prompted by requests from the police and the Financial Services Agency, the Japanese banking community were urged to introduce a comprehensive 'biometrics' programme to combat the problem. Special new legislation was passed by the government allowing them to do so. As a result, since 2005, over 40 of the country's leading banks fast-tracked the implementation of new biometrics-based security measures.

Japan Post, the largest financial group in Japan, along with over 40 other national and international banks, opted for Hitachi's breakthrough Finger Vein Authentication System. In total, around 80% of Japan's financial organisations, including two of the country's 'mega banks' and the Japan Post Office, have put their faith in Hitachi.

*Results as of August 2007



This is just the beginning

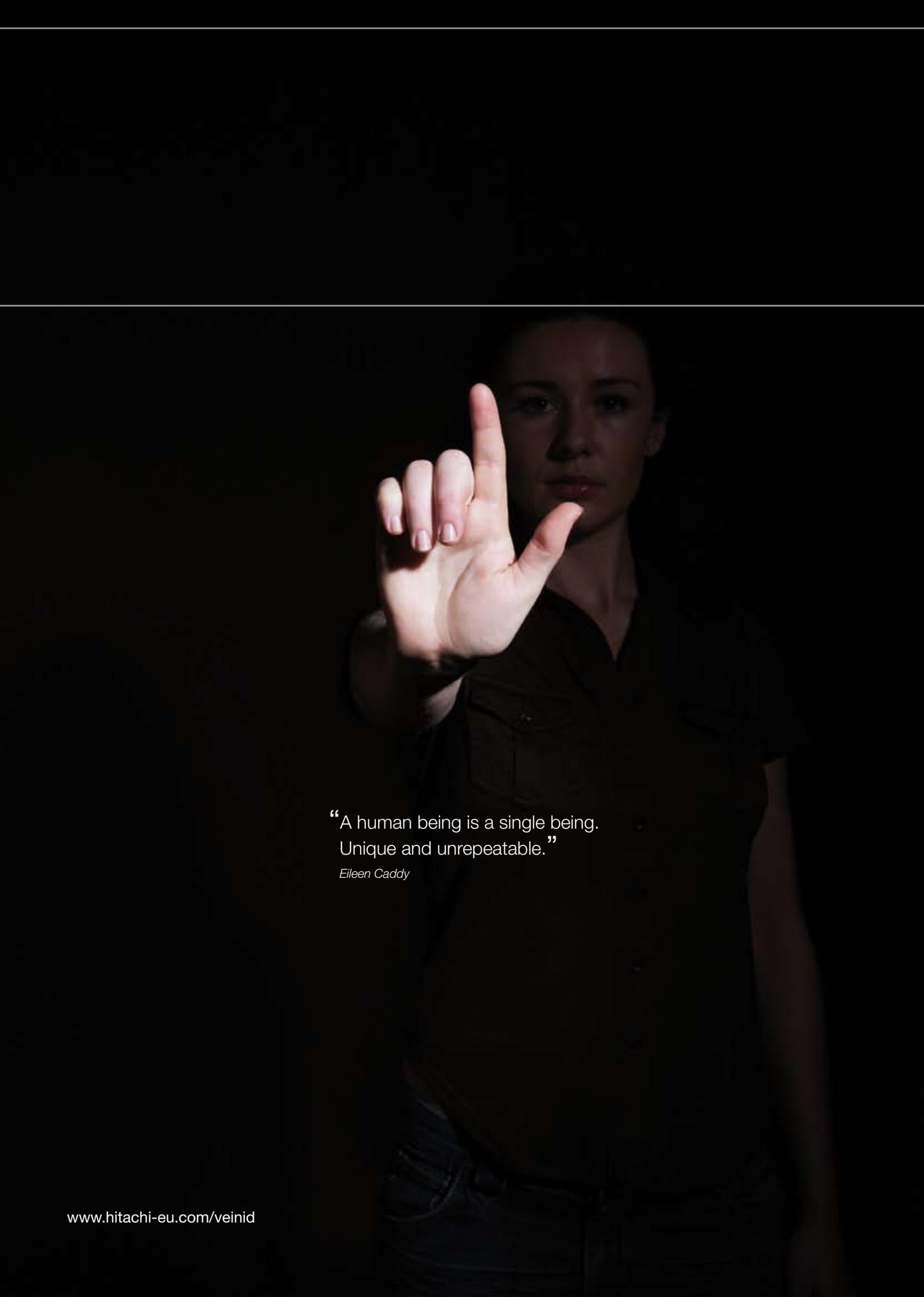
VeinID is proving so effective and secure that take-up of the system has been rapid and enthusiastic. Further applications are being developed all the time, and the potential of such a versatile, reliable means of identification has positive implications for industry and commerce, as well as government and law enforcement agencies.

In the not-too-distant future, airports, hospitals, homes and workplaces could all benefit from the security and peace of mind made possible by the next generation of finger vein technology from Hitachi. To find out more about VeinID and how it could help safeguard your business, please get in touch.

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A woman with dark hair is shown from the chest up, wearing a dark, short-sleeved button-down shirt. She is holding her right hand up, palm facing forward, with all five fingers spread. The background is almost entirely black, with a soft light source from the left illuminating her hand and the side of her face. Her expression is neutral and direct.

“A human being is a single being.
Unique and unrepeatable.”

Eileen Caddy