Why your smartphone may soon start scanning your veins

May 14 2018

Manufacturers may be favouring fingerprints over passcodes to allow access to smartphones, but Edith Cowan University (ECU) researchers already see the technology as nearing obsolescence.

That's why they're developing a new biometric security system that combines your fingerprint with a simultaneous scan of the veins in your finger.

Unbeknownst to most, the layout of your veins is highly unique.

Dr. Wencheng Yang from the ECU Security Research Institute (ECUSRI) estimates the new technology could become commonplace in five to ten years.

"In the future, we'll need more security, because threats are always evolving," Dr. Yang said.

"While fingerprints are better than other existing security systems, there are problems.

"We leave fingerprints everywhere and they can be duplicated using adhesives like tape or even Play Dough.

"Facial recognition is also limited, because high-resolution imagery is easy – but there is no easy way for someone to see inside your body."

More protection at scanning and storage stages

The new technology involves a single sensor that combines image data (vein) and minutiae-based data (fingerprint) to improve recognition exponentially.

These different extraction approaches add complexity for anyone attempting to duplicate the system.

The fact that images of the vein are captured by an infrared sensor also reduces the ability of a hacker to build a spoofing device to mimic the physical attribute.

And if this weren't enough, the technology is also a cancellable system, which sees a person's original features transformed and stored in a way that is not reversible should a security breach occur.

More information: Wencheng Yang et al. A fingerprint and finger-vein based cancelable multi-biometric system, *Pattern Recognition* (2018). DOI: 10.1016/j.patcog.2018.01.026

Provided by ECU Security Research Institute