IN PLANE TERMS

Special Edition: Smart Gate of the Future

Smart Gate has revolutionised passport control in Australia. Now the Airports of the Future Project (AoTF) is helping create the next phase, a Smart Gate of the Future or ‘multi-biometric walkthrough portal’.

Biometrics, or physical traits, are being used to automatically verify a person’s identity for a variety of applications including border control. Current automatic facilitation systems such as Smart Gate are limited by reliance on passengers stopping to wait while their image is captured, slowing facilitation performance. Furthermore, the reliance of this single biometric means that the system does not work well for all subjects, frustrating passengers and creating further delays.

Your Problem
Current biometric systems are slow to verify people and prone to false rejections.

Our Solution
The AoTF is developing a walkthrough biometrics portal, which will combine multiple biometric traits (face, iris at a distance and gait) to recognise people as they walk.

Instead of requiring people to stop and pause while a camera takes their photo and verifies them, this system will verify identity while on the move, improving throughput and facilitation performance.

Using multiple biometrics, we can ensure that more people can get through the system successfully, and ensure that if one biometric trait cannot be captured correctly, others can be used to verify the person.

An ‘adaptive fusion’ scheme has been developed, which combines traits based on the quality of the data acquired, so that if acquisition for one is poor, it can be disregarded without having an adverse impact on the system.

Furthermore, a biometric such as gait, which is based on the way a person walks, needs to be captured as they walk, making it ideal for such a facilitation process.

The portal will make use of multiple sensors to capture the biometrics.

Multiple depth sensors will be used to capture high fidelity gait information, while high resolution cameras mounted on a pan-tilt head will be used to capture face and iris as the subject walks through.

An additional camera will be used to monitor the entire scene, and provide positioning information to the face and iris cameras.
Depth sensors (such as a Microsoft Kinect) are placed either side of the portal; the fixed scene camera and pan-tilt head with the iris and face camera are mounted at the top.

From these cameras three biometric traits are acquired, which are combined and verified against a claimed identity, obtained from the passenger having their credentials (i.e. passport) scanned as they approach the gate.

**What next?**
The portal is currently under construction.

Methods to capture and verify individual traits, and to fuse the biometrics based on their quality, have been completed, and development and testing of the portal will continue in 2014.

**Want more information?**
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