Photo safeguards confidential information

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(PhysOrg.com) -- These days you can take a photograph with almost every mobile phone. However, using this sort of photo to protect confidential data and send it safely is something new. Ileana Buhan, a PhD student at the University of Twente, Netherlands, has been researching this new way of employing biometrics. She receives her doctorate from the Faculty of Electrical Engineering, Mathematics and Computer Science on 23 October.

In order to recognize someone from their physical characteristics, you need to make a biometric record of them, consisting of a fingerprint, photograph or iris scan. This is a much more reliable check than the simple four-digit password on most mobile phones. As the majority of mobile phones and PDAs are already fitted with a camera, face recognition using a photo is an obvious choice. Buhan's research has made various contributions to this new biometric application.

Buhan developed a mathematical method for storing biometric data securely. Using this data, a mobile device is able to recognize people

under different circumstances, so even if the user has altered his hair drastically, the system can still recognize him.

Two photos give password

Buhan wondered if you could also use such photographs or other biometric data for accomplishing secure information exchange between two mobile devices. If Bluetooth is used to do this – again with a simple four-digit password – security and privacy cannot be guaranteed. Instead, Buhan suggested constructing a password from two photos so that it would be almost impossible to decode it. To do this, two users need to save their own photos on their PDAs. They then take photos of each other. The PDA compares the two photos and generates a security code for making a safe connection. The users can then use this connection to exchange confidential information. The photos are stored as a template that contains the essential features for recognition. This safe template transfer is not just suitable for PDAs, but for every other biometric recognition system.

A firearm recognizes its owner

This idea of using biometrics for safe storage and transfer arose from the SecureGrip project. This is a project in which the grip of a policeman's firearm is biometrically protected, in this case with a 'personal grip' covered with a network of pressure sensors. These recognize the way in which the user holds the firearm. If someone else holds the weapon, it does not work. So what happens if a policeman needs to borrow a firearm from his colleague? The same as for the photos: the policemen have to hold each other's firearms for a short time, in order to create a suitable code.

Provided by University of Twente, Netherlands