

DSPC Technology Report Description

Title

An Investigation into Fingerprint Scanning and Voice Recognition Technologies for Security Purposes

The Technology

The technology we will be investigating for this report is Biometric Recognition technology. Specifically, we will be looking into fingerprint scanning and voice recognition for security purposes.

Team Members

Our team is comprised of Andrew Norman (u3956226) and Monisha Samuel (u3957343). The responsibility will be equally distributed amongst the team members.

Context

Biometric Recognition Technology is being used in a wide variety of applications. These include security, identification and, more recently, for personal use. More specifically, examples of biometric technologies applications are:

- Voice recognition software for word processors
- Finger print ID for authorised login (similar to swipe cards)
- Retina and/or Iris scanning for high security systems

Combinations of the aforementioned applications are also implemented in certain environments. This report will be focusing on the security applications of this technology.

Key Technical Features and Relevant Theory

For the purposes of this report, we will be exploring fingerprint scanning and voice recognition technology as they encompass the two basic recognition methods, these being audio and image scanning.

Image scanning involves taking an image, and identifying the patterns and any distinguishing features. Pattern matching is then used to compare the image with previously stored image scans within a database.

Speech recognition attempts to match a speaker's voice to pre-recorded speech kept in a database. A pre-processor converts the speaker's voice to a waveform and then uses a feature vector and pattern matcher to identify the speaker. There is frequently a large variation between the ways a speaker says the same phrase, making voice detection difficult.

Aims

To investigate:

- The history of fingerprint scanning and voice recognition
- The current applications of this technology
- The theories used to implement this technology
- The future of biometric scanning