The European Union approach to Biometrics

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The Biometric Consortium Conference 2003
Sensor - basic technologies
SABRINA, FINGER_CARD, VIPBOB

Technology improvement and validation in applications
BANCA, U-FACE

Applications (e-polling, e-government, travel)
E-POLL, FASME, S_TRAVEL

Socio-economic aspects
BEE

Shaping the Future
BIOVISION => European Biometrics Forum, Dublin
To identify open issues and propose solutions for the technological, societal, business and legal aspects of biometrics and to define a viable business environment for these promising technologies.

Supported by BIOWORK advisory committee
User friendly access control systems and healthcare applications
http://uface.netsmart.gr/

U-FACE

Develop working access control systems using advanced face recognition technologies
Novel techniques for explicit modelling of expression, pose change, etc. to improve system reliability

Secure access to healthcare applications and medical workstations
Novel use of technology in privacy sensitive area

Perform usability trials
Control physical access to office
Control access to medical data/applications
Test performance of face recognition in realistic scenarios
Biometric Access Control for Networked and e-Commerce Applications

http://falbala.ibermatica.com/banca

Complete secured system with enhanced identification, authentication and access control schemas (tele-working and web-banking services)

A multi-modal and multi-lingual realistic condition database

Basic security services: biometrics authentication, security protocols, secured storage on Smart Cards

Security management: Public Key Infrastructure, certificates mgnt, biometric profiles mgnt

Legal framework

Scalable and robust multimodal (face & speech) verification

Scalable classifier combination techniques (fusion)
Secure Authentication by a Biometric Rationale and Integration into Network Applications
http://www.ma.rz.uni-karlsruhe.de/~ae44/sabrina/

SABRINA

To develop a high secure new sensor based on the epidermis of a finger and using ultrasonic echo

Objectives:
- all individual data inside the chip
- solution for offline and online authentication
  result is: person identified yes or no
- less computing performance needed
- avoiding attacks with artificial objects
- avoiding “big brother” effect
- high security while using the individual characteristic of the finger and the chip
Virtual Pin Based On Biometrics
http://vipbob.gi-de.com

A new approach to gain a unique number out of a biometric trait

• To encode private data with the individual biometric data extracted from a trait (fingerprint, face, iris)

• To correct the difference between the data acquired in the enrolment step and the verification step (this replaces the matching step)

• Use for different purposes: PIN authentication and offline user authentication (e.g., in combination with an ID document)

• Storage of the encoded private data does not allow attackers to obtain the private data or the biometric trait data => storage in central databases is possible without privacy concerns
## FINGERCARD

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http://www.finger-card.org/index.htm
Facilitating Administrative Services for Mobile Europeans
http://www.fasme.org

Facilitating the exchange of electronic data between different administrations

Prototype: administrative processes (changing the place of residence or car registration,…)

The citizens transport all required data to the offices on the card

The data are read via the card terminal and processed according to the requirements

User authenticity is secured by fingerprint
E-Poll Electronic Polling system for remote voting operations
http://www.e-poll-project.net/

E-POLL

Innovative organisation of voting processes

• European Virtual Ballot Network
• Information flows between administrative authorities at different levels
• Pilots: real elections in Italy and in France
• Based on UMTS (bandwidth and security) - kiosks anywhere, within a private, reliable and protected network
• Innovative smart card with an embedded biometric fingerprint reader
• Ergonomic kiosk facilitates use by disabled people
BIOVISION

Responds to increased potential of biometrics
IDC report predicts annual growth rate of 57% in Europe

Recognises fragmentation of sector
Response: European Biometrics Forum

Identifies gaps in knowledge & experience:
Response: pointers to work in Integrated Projects in new EU funded Research and Technological Development Programme
Urgent need for stronger air transport security since the 11/9 events

Biometrics and smartcards as part of a global system to streamline the passenger process in an airport from check-in until the ultimate boarding phase

Defining Industry security solutions, interoperable across borders and with airports infrastructure & airlines Departure Control Systems (DCS)

Standardisation:

Set-up with IATA a biometrics enrolment procedure that would be recognised by all Airline & Airport parties and could be proposed to ICAO for standardisation

Interoperability with Airline check-in / boarding / DCS infrastructure and Airport operational systems
AIMS: 
- EU Competitiveness or solve major societal problems
- CRITICAL MASS
- CLEAR OBJECTIVE

SIZE:
- 10-20 M €

DURATION: 
- 3-5 years

NETWORK OF EXCELLENCE

AIMS:
- VIRTUAL CENTER OF EXCELLENCE
- INTEGRATION OF EXCELLENCE CAPACITY FOR CRITICAL MASS
- PRECISE RESEARCH THEMES AND TOPICS

SIZE:
- several 8-15 M €

INTEGRATED PROJECT

NATIONAL RTD PROGRAMMES (Art 169)

MEMBER STATES INITIATIVES
Are Biometric Technologies Mature for Public Applications?

- **Interoperability** - not yet supported by standards nor technology

- **Performance** - in the 1-2 digit range

- **Scalability** - no experience of large scale field trials

- **Data Control** - need of effective safeguards and remedial actions with respect to the risk of misuse
AVAILABLE OPTIONS

- **Digitised and partially compressed images** - as the data format for interoperability
- **Facial scan** - as the preferred biometric technology/identifier for authentication
- **Fingerprint scan** - as the preferred biometric identifier for database search

These options should prevail in the short term for large scale and multi-jurisdictional deployment systems.

Standards/guidelines are missing on how to produce good quality pictures in real-field environments.
THE EUROPEAN ROADMAP

- Collaborative R&D (technology innovation and application innovation)
- International standardisation (ICAO, ISO/IEC,…)
- Open dialogue and “concertation”
- Assessment and certification
- Development and exchange of good practice
Data Protection Directive (95/46/EC)
Harmonisation in the Member States

Status of the implementation

The content of the Directive directly linked to biometrics:

- Article 6: Limitation principle - Proportionality
- Article 8: Sensitive data
- Article 10: Transparency
- Article 17: Technical means to protect unauthorized access

ART 29 - Working Party on the Protection of Individuals with regard to the Processing of Personal Data
Advisory status and act independently
Opinion 10/2001 on the need for a balanced approach in the fight against terrorism Adopted on 14 December 2001
DG JUSTICE & HOME AFFAIRS

Goal: Deliver co-operative measures required for the establishment of a European area of Freedom, Security and Justice.

Immigration - asylum - free movement
- Visa - “A coherent approach is needed in the EU on biometric identifiers or biometric data for documents for third country nationals, EU citizens’ passports and information systems (VIS and SIS II)” (Thessaloniki European Council of 19/20 June 2003).
  Two legislative proposals for Regulations (uniform format for visa, uniform residence permit for third country nationals).
- Travel documents - A legislative proposal in relation to documents of EU citizens is in preparation.

Public order and law enforcement
Public safety, criminal investigation, e-Justice, e-Government, etc.

Civil society applications
Exploring overlapping interests with law enforcement applications.
EU Regulation (2320/2002) establishing common rules in the field of civil aviation security
Adopted Dec. 16th, 2002, applicable in all MS since Jan. 19th, 2003

Areas of application for biometrics:
• Access Control
• Passenger boarding re-conciliation

Commission Regulation No 622/2003 laying down measures for the implementation of the common basic standards on aviation security
Holds additional operational details to aviation security measures
Thank you for your attention

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http://www.cordis.lu/ist/
http://europa.eu.int/information_society