

Action 2101

Biometrics for Identity Documents and Smart Cards



Participating countries: BG, CH, CY, DE, DK, ES, FI, FR, GR, HR, IE, IT, NL, PL, SI, TR, UK

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Biometric Data Quality and Multimodal Biometric Templates

The ability to deal with biometric data of changing quality in real-world environments has not received due attention from researchers. Acquiring biometric data of sufficient quality and suitability and using it for reliable decision making is of critical importance for automatic multimodal biometric authentication systems. This Action aims at increasing the robustness and reliability of multimodal biometric interfaces including quality and reliability measures of biometric modalities. It will assess current quality and reliability measurement capabilities and identify technologies, factors, operational paradigms and standards that can measurably improve quality and reliability of multimodal biometrics.

Human Behaviour and Unsupervised Interactive Interfaces for Multimodal Biometrics

The presentation of any biometric characteristic to the sensor introduces a behavioural component to every biometric method. Currently, existing supervised multimodal biometric interfaces (first generation) take no or little advantage of a behavioural study of the user. Interactive biometric systems can be designed to facilitate proper presentation by providing feedback to users during the presentation process. The Action will study, develop and assess unsupervised multimodal biometric authentication systems in the context of automated situation awareness, diagnosis of the quality of biometric data and decision support for efficient interaction with users of identity documents and smart cards. It is focused on the development of novel, second generation multimodal biometric systems using unsupervised, interactive interfaces and third generation multimodal biometric systems using transparent authentication.

Biometric Security Challenges

There is a need to identify the constraints that the security protocol will impose on biometric technology and logistics. Risk assessment can play a role in the analysis of the trade-off between greater security and issues such as privacy. The Action will be focused on the processes used for the delivery of identity documents, the potential points of attack and the technological (e.g. encryption) or procedural security measures to implement.

Standards and Privacy Issues for Biometrics in Identity Documents and Smart Cards

The work achieved in the Action will help establish a standard in unsupervised multimodal biometric authentication interfaces. The primary purpose of the research concerned with legal issues is to assess the need for legal instruments to counter the related new threats to privacy. The privacy issues will be tackled not only from a purely legal point of view, but also from a more technological perspective.

Objectives:

- The main objective of the Action is to investigate novel technologies for unsupervised multimodal biometric authentication systems using a new generation of biometrics-enabled identity documents and smart cards, while exploring the added-value of these technologies for large-scale applications with respect to the European requirements in relation to storage, transmission and protection of personal data.
- The secondary scientific and technological objectives of the Action address innovative research and development of new, universally applicable data-driven probabilistic models and processing techniques for unimodal and multimodal robust biometrics-based recognition integrating quality and reliability measures as well as interactive techniques.

Main Achievements:

- Organisation of the First European Workshop on Biometrics and Identity Management (BIOID 2008), Roskilde, Denmark, May 2008, and co-organisation of the Third International Conference on Biometrics (ICB 2009), Alghero, Italy, June 2009.
- Four COST 2101 focused Workshops on: "Smart Cards and Biometrics" (Lausanne, 2007), "Signature and Handwriting Analysis for Person Identification" (Canterbury, 2007), "Multibiometrics" (Limassol, 2008), "Artificial Intelligence Approaches for Biometric Template Creation and Multibiometrics Fusion" (Thessaloniki, 2009).
- Three COST 2101 Training Schools: "Biometric Identity Verification" (Lausanne, 2007), "New Technologies for Security and Privacy" (Alghero, 2008), "Multimodal Systems and Identity Management" (Alghero, 2008).
- Successful proposals of new European projects under FP7 (e.g. MOBIO, TURBINE, HIDE, i3DPost) and fruitful collaboration with the European institutions (CEN/ISSS, ESRIF).