

Deliverable D5.1 - Evaluation of existing systems, recommendations and specifications for document verifications - Summary

The results from 5.1 are structured into three main areas:

1. evaluation of the capabilities of state-of-the-art document inspection systems (DIS) to identify counterfeited passports;
2. robustness of DIS against expectable variations in genuine documents;
3. recommendations for user interfaces of the DIS's verification software.

In the evaluation of DIS performance in detecting counterfeits, special attention was paid to the optical security part. Tested were three basic document counterfeiting strategies: (i) creating a new data page from template on a blank paper using inkjet printer, (ii) reproduction/duplication of the data page of an existing document from scans obtained by an actual DIS, and (iii) manipulation of information of the data page of a genuine document. Additionally, we performed tests for effective crosschecks between MRZ and VIZ information as well as performance evaluation using documents provided by the Austrian police containing 5 genuine and 52 counterfeited documents. The goal was to identify the strengths and weaknesses of 6 configurations of the document reading and verification software included in the study and to analyse identified discrepancies. The obtained results indicate very large differences between analysed DIS, ranging from almost flawless recognition of fakes down to inability to detect the simplest counterfeit.

The robustness of DIS against expected deviations in genuine documents was evaluated by means of a comprehensive statistical analysis over tolerance ranges of the DIS verification software (VSW) making use of a large number of generated synthetic samples derived from acquisitions of genuine documents. The literature refers to variations in genuine documents that reflect wear and tear processes, fluctuations in production, as well as possible weaknesses in the recording systems. In this analysis, an attempt was made to carry out a large variety of modifications that should mimic those expected in the class of genuine documents. As different modification types were analysed only in an individual manner, it was possible to draw clear conclusions about specific failure cases of each VSW included in the study.

The recommendations for user interfaces of DIS's verification software are grounded on general design principles for user interfaces and previous work done within this project (e.g., field studies in D3.3). We provide 33 recommendations that focus on the user interface's practicality for border guards. In this context, we pay special attention to the efficient execution of border control task in the first line by prioritising the information presented and providing suitable visual aids to facilitate learning. Our recommendations aim for a simple and concise user interface that keeps the main tasks of border guards in mind.



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