



Detection of document fraud using mobile solution

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Main limitations for mobile solution

- IR and UV capabilities are usually missing for mobile devices.
- Most of Document visual security elements can't be verified.
- Less than optimal light conditions for capture of data page and MRZ.
- NFC/RFID reading capability.
- Trustworthy source for Verification App and updates.
- Cross-verifications of datapage/Chip/MRZ can easily fail (datapage OCR low reliability).
- Document database size for Document identification.

General approach for mobile solution

- Main verification target is Document chip.
- Critical to verify: authenticity of chip, chip content and issuer.
- Because chip itself can be removed and implanted to other Document, biometric matching of person and chip data (face, fingerprints or both) is very important.
- Documents can be verified offline but all critical data for verification (Document database, Masterlist) must be up-to-date.
- EAC implementation for offline is very difficult and recommended to avoid. Mobile devices usually not capable to fulfil BSI TR-03139 requirements for IS.
- If possible to use online solution, adding central documents database as additional data source for Document data and biometrics is highly recommended.

Risks related to mobile solution



- Insecure mobile device. Possible mitigation – using MDM solution for mobile devices and applying corresponding security policy.
- Verification App authenticity (replacement with faked one and invisible crippling of verification results). Possible mitigation – using trustworthy source for App like Managed Google Play.
- Masterlist replacement. Possible mitigation – ML must be part of App (digitally signed) and must updated using trustworthy source.
- Chip/MRZ replacement. Possible mitigation – ML verification must be mandatory, 1:1 biometric matching (manual or algorithm based), using online Document database.

Objective



Mobile Document verification solution for migration control officers.

- Fast.
- Easy to use.
- Based on common hardware platform (mobile phone).
- Works well in the open.
- Expandable.

Our solution- Android App



Initial functionality:

- Recognize Document model (internal Regula database).
- Capture TD1-TD2 size Document data page (incl. two-sided TD1 cards).
- OCR data page data.
- Read/OCR MRZ.
- Read chip data.
- Validate MRZ/BAC/SAC/PA/AA/CA.
- Show results in one page together with document/chip face image.
- Read bar and QR codes.

Future developments



- MasterList implementation.
- Online EAC.
- Integration with wireless fingerprint scanner, 10 finger enrollment flat and rolled.
- 1:1 face matching with chip image.
- 1:1 fingerprint matching with chip fingerprint image.
- Integration with migration control applications (VIS, EURODAC).
- Integration with National ABIS.
- Template based offline watchlist (face, fingerprint).

Screenshots of App



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photo from data page photo from chip

FIELD	MRZ	DATA	CHIP
Code of issuing state	EST	EST	EST
Document No.	KS1234567	KS1234567	KS1234567
Surname	MAENNIK	MÄNNIK	MAENNIK
Given name	MARI LIIS	MARHJIS	MARI LIIS
Gender	F		F
Date of birth	22/01/1975		22/01/1975
Personal number	47501220010		47501220010
Nationality	EST		EST
Date of issue			
Date of expiry	01/11/2019		01/11/2019
Authority			

TD2/TD3 SIZE MRTD

TD1 SIZE MRTD

OTHER DOCUMENT

BARCODE

VALIDATIONS

MRZ BAC SAC PA AA CA

RE-CAPTURE COPY DOC.NR CLOSE

https://www2.politsei.ee

Republic of Estonia
Document Validity check
10/22/2018

Dokument KS1234567 on näidisdokument.

The document KS1234567 is a specimen.