MyPDF: AUTHENTICATION & SELF-RECOVERY SOFTWARE

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Product Background

- PDF information can be easily misunderstood due to editing and modifications.
- The modified PDF has raised concerns about the authenticity and it has potential to be used to spread false information.
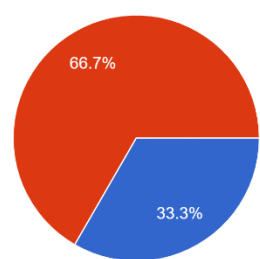
Objective

- To ensure the authenticity of PDF file and self-recover against tampering attacks.
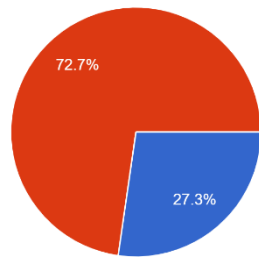
Novelty

- MyPDF can increase 2.2% of the tamper detection accuracy.
- MyPDF also can provide high-quality recovered image towards a large tampering rate.
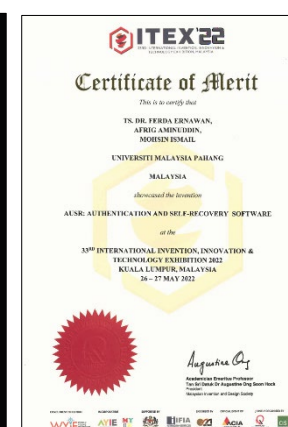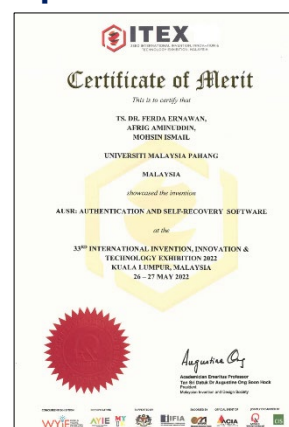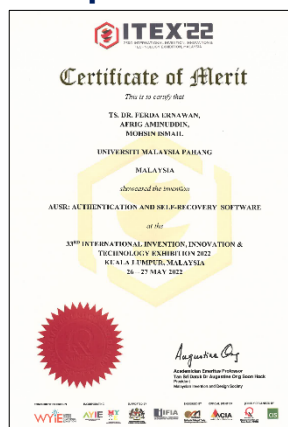
Marketability & Commercialisation

Legend: Strongly agree, Agree, Undecided, Disagree, Strongly disagree

MyPDF features: 66.7% / 33.3%

Accuracy of tamper detection: 72.7% / 27.3%

Uniqueness and Special Features

Cost Analysis

No	Software	Price	Remark
1	Adobe Acrobat Sign Identity Authentication	US$ 19.99/month	Adobe Acrobat Sign supports a full range of authentication methods based on government-issued documents.
2	Nitro- Add Multi-Factor Authentication	US$ 179.99 (One time license)	For an added level of security in eSigning workflows, users can choose to add multi-factor authentication to signature requests.
3	MyPDF	FREE for embedding and authenticating PDF. RM 19 / month for recovering PDF.	MyPDF is an application that can verify the originality of the PDF document.

Environmental Impact

- Impact to justice system, by police, prosecutor and courts. This project also has important implications for national security and defense. The fake PDF file in propaganda or disinformation campaigns can have serious consequences for national security and the safety of citizens.

Benefits/Usefulness/Applicability

- This software can help prevent the spread of misinformation and false information, which can have negative consequences for individuals and society.
- PDRM and the relevant department can proof the integrity of PDF file, detect altered PDF and self-recovery of the PDF file.

Publication

- AuSR1: Authentication and self-recovery using a new image inpainting technique with LSB shifting in fragile image watermarking, Journal of King Saud University-Computer and Information Sciences, 34(8), pp. 5822-5840, 2022 (Q1, SCIE IF: 9.000).
- AuSR2: Image watermarking technique for authentication and self-recovery with image texture preservation, Computers and Electrical Engineering, 102, pp. 108207, 2022 (Q2, SCIE IF: 4.152).
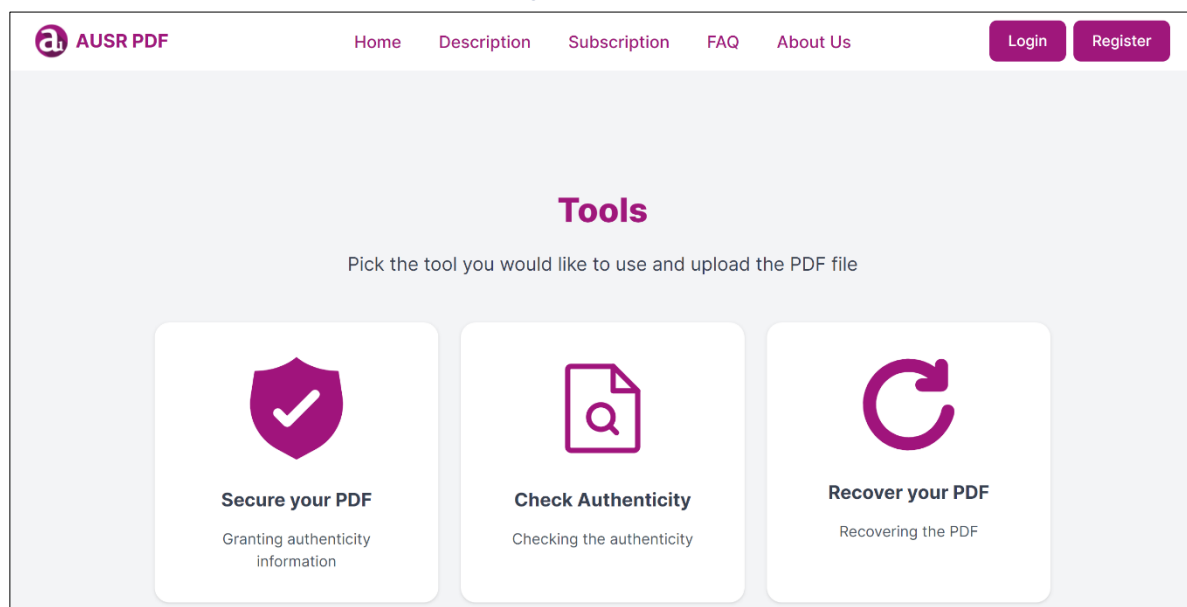
Achievement/Award

- Grants: PDU223208: RM24,260 & FRGS/1/2022/ICT04/UMP/02/2: RM 76,100
- Copyright: LY2023C00282 & LY2023C00283

Collaboration/Industrial Partner

Mahiran Digital — Digitizing Your Business

MyPDF Product

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Tools

Pick the tool you would like to use and upload the PDF file

Secure your PDF — Granting authenticity information

Check Authenticity — Checking the authenticity

Recover your PDF — Recovering the PDF

Embedding Process

PDF → Divide each channel into non-overlapping blocks of 3×3 pixels → A set of textures

Authentication bits generation → Set current block as embedding location

Secret key

Block map generation → Determine the embedding location

Find minimum and maximum pixel value → Recovery bits

Classify the texture of image block

Watermark data → Embedding with LSB shifting algorithm → Merge each block and channel → PDF