DiSA – Digitally Stored Archive

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Abstract

DiSA offers a secure document storage solution that ensures high authenticity and integrity. It uses client-side signatures via citizen cards or mobile digital keys for identity verification and records document hashes on a blockchain for proof of existence. Users can manage and share documents through a dedicated website with whitelisting. DiSA is ideal for legal, governmental and intellectual property documents.

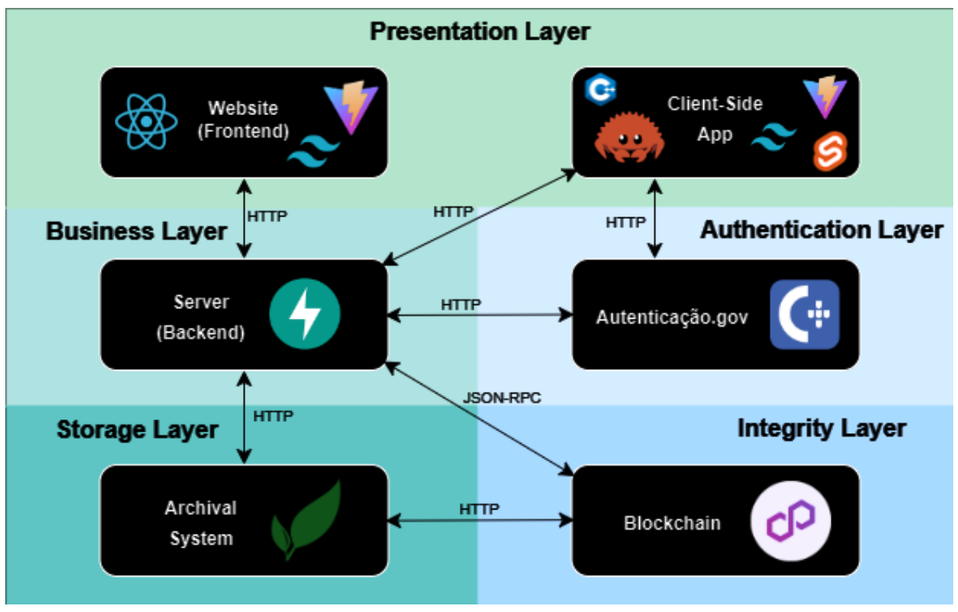

Fig. 1 - DiSA's Architecture

Methods

DiSA ensures document authenticity and integrity with client-side signatures. Signed documents are compiled into a *.tar* file, and a manifest with document hashes is generated. The manifest's hash is recorded on the Polygon PoS blockchain, providing an immutable proof of existence. To assure secure storage and retrieval, DiSA integrates an archival system, Paperless.

Features

1) Document Submission and Verification – Users securely submit and verify documents through client-side signatures and blockchain technology, ensuring integrity and proof of existence.
2) Document Management and Sharing – DiSA provides a user-friendly interface for managing and securely sharing documents, with access controlled through whitelisting.
3) Immutable Archiving – Leveraging Paperless' open-source project, DiSA ensures long-term storage and retrieval, guaranteeing document accessibility and integrity.

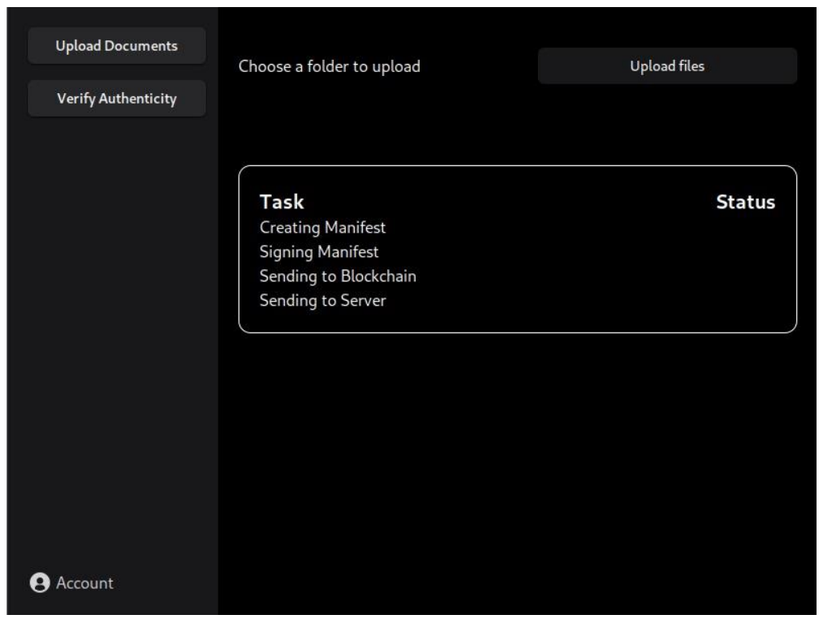

Fig. 2 - DiSA's Client-side app

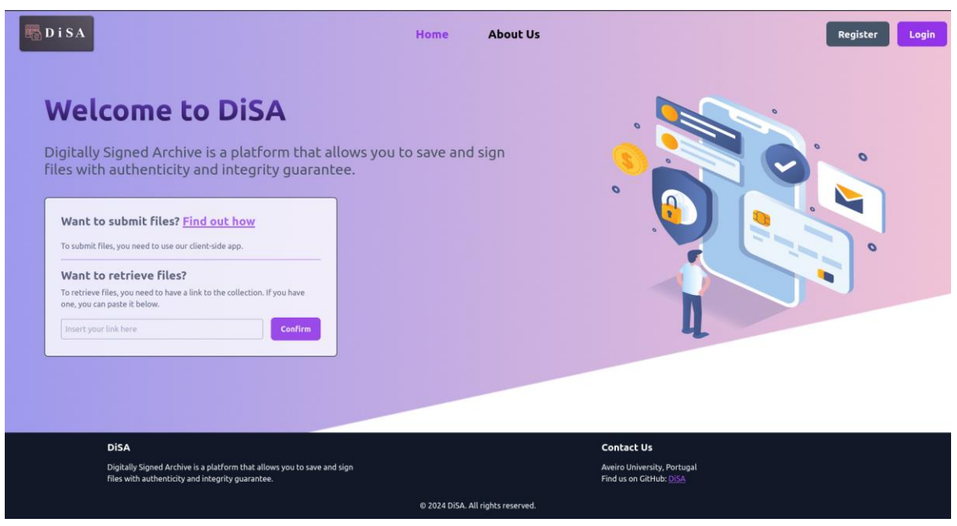

Fig. 3 - DiSA's Website

Conclusion

The development of DiSA required the application of knowledge acquired during the bachelor's degree, focusing on iterative and incremental methodologies and good software engineering practices. DiSA is expected to enhance document management in legal, governmental, and intellectual property sectors, also improving efficiency and reliability in organizational workflows.

References

Paperless: https://docs.paperless-ngx.com/
Autenticação Gov: https://www.autenticacao.gov.pt/
Polygono PoS: https://polygon.technology/polygon-pos

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