PIP4004: UNIVERSITY PROJECT

Review-0 Presentation

TITLE OF THE PROJECT/WORK ASSIGNED/DOMAIN

Batch Number:G171

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Name of the Program: **CSE**

Name of the HoD: **Dr. Asif Mohammed H B**

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Name of the School Project Coordinators: **Dr. Sampath A K / Dr. Abdul Khadar A / Mr. Md Ziaur Rahman**

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Problem Statement Number:

Organization: Ministry of Power

Category (Hardware / Software / Both) : Software

Problem Description: The manual document verification process is slow, error-prone, and inefficient. There is a need for an online platform that uses **AI and blockchain** to automate verification, ensuring security and authenticity. The solution should allow issuing authorities to generate and store digital certificates, verifying authorities to validate them, and individuals to access their documents easily. This will streamline the process, reduce fraud, and improve efficiency.

Difficulty Level: Complex

Github Link

The Github link provided should have public access permission.

Github Link

hemsk89/Automated-Document-Verification-System

Analysis of Problem Statement

Technology Stack Components:

1. Frontend (User Interface)

React.js or **Angular** – For a responsive and interactive web portal.

HTML5, CSS3, Bootstrap/Tailwind CSS – For styling and layout.

2. Backend (Server Logic & APIs)

Node.js with Express.js (JavaScript) or **Spring Boot (Java)** – For handling business logic and API requests.

Python (Django or Flask) – If AI-based verification is needed.

3. Database (Data Storage)

PostgreSQL / MySQL – For storing user and document data.

MongoDB – If a NoSQL database is preferred for flexibility.

4. Blockchain (Secure & Immutable Storage)

Ethereum (Smart Contracts with Solidity) – To secure document authenticity.

Hyperledger Fabric – For enterprise-level blockchain implementation.

Analysis of Problem Statement

5. AI for Document Verification

OpenCV & TensorFlow/PyTorch – For image-based document verification.

OCR (Tesseract OCR, Google Vision API) – To extract and verify document text.

6. Cloud & Hosting

AWS / Google Cloud / Azure – For hosting, storage, and AI services.

IPFS (InterPlanetary File System) – For decentralized document storage.

7. Security

JWT (JSON Web Tokens) / OAuth 2.0 – For authentication.

SSL/TLS Encryption – To secure communication.

Analysis of Problem Statement (contd...)

Software and Hardware Requirements:

Software Requirements

1. Operating System:
Windows 10/11, macOS, or Linux (Ubuntu/CentOS) – For development and deployment.

2. Backend Technologies:
Programming Languages: JavaScript (Node.js), Python (Django/Flask), Java (Spring Boot).
Frameworks: Express.js (Node.js), Flask/Django (Python), Spring Boot (Java).
Database: PostgreSQL, MySQL, or MongoDB for document and user data storage.
Blockchain Platform: Ethereum (Solidity for smart contracts) or Hyperledger Fabric.

3. Frontend Technologies:
React.js, Angular, or Vue.js – For an interactive UI.
HTML, CSS (Bootstrap/Tailwind CSS), JavaScript – For styling and responsiveness.

4. AI & OCR Integration:
OpenCV, TensorFlow/PyTorch – For AI-based verification.
Tesseract OCR / Google Vision API – For text extraction from documents.

Analysis of Problem Statement (contd...)

5. Security & Authentication:

JWT (JSON Web Tokens) / OAuth 2.0 – For user authentication.

SSL/TLS Encryption – To secure communication.

6. Cloud & Hosting:

AWS / Google Cloud / Azure – For cloud storage and hosting.

IPFS (InterPlanetary File System) – For decentralized document storage.

Timeline of the Project (Gantt Chart)

Hardware Requirements

For Development:
Processor: Intel Core i5/i7 or AMD Ryzen 5/7 (or higher).
RAM: Minimum 8GB (Recommended 16GB+ for AI processing).
Storage: SSD with at least 256GB (Recommended 512GB+ for better performance).
GPU: NVIDIA GTX/RTX Series (if AI-based verification is involved).

For Deployment (Server Requirements):
Processor: Intel Xeon / AMD EPYC (Multi-core for scalability).
RAM: 16GB+ (For handling multiple user requests).
Storage: SSD-based storage (512GB+ for database and document storage).
Network: High-speed internet connection for seamless blockchain and cloud integration.

References (IEEE Paper format)

1.Srivastava, A. K., Singh, R. S., & Kumar, P. (2020). Blockchain-based secure document verification system. *IEEE Access, 8*, 145072–145085. https://doi.org/10.1109/ACCESS.2020.3016767

2.Ramesh, M., Agarwal, S., & Gupta, D. (2021). Automating document authentication using artificial intelligence and blockchain. In *Proceedings of the IEEE International Conference on Blockchain and AI for Secure Applications (BASA)* (pp. 214–220).
IEEE. https://doi.org/10.1109/BASA.2021.9482673

Thank
You!