

BHARATVERIFY-AI-DRIVEN- IDENTITY-PROOF-CHECKER

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College : Srinivas University Institute of Engineering and Technology, Mukka, Mangaluru
Branch : Department of Computer Science and Engineering
Guide(s) : Prof. Varsha Gangadhar Bangera
Student(s) : Mr. Darshan D G
Mr. Vinayak Banakar
Ms. Divya S
Mr. Prajwal

Keywords:

AI, OCR, Identity Verification, Document Authentication, Fraud Detection, Digital KYC, Fast API, React.js.

Introduction:

The rapid growth of digital services, e-governance, and online banking has made **secure identity verification** essential. In India, documents such as **Aadhaar, PAN, Voter ID, and Passport** are widely used for authentication, but manual verification is often slow and error-prone, increasing fraud risks.

To address this, “**Bharat Verify – AI-Driven Identity Proof Checker**” is proposed as an automated platform that uses **OCR** to extract document details and **AI/ML** techniques to detect tampering or forged documents. Built with **React.js, FastAPI, MongoDB, and Tailwind CSS**, the system provides a **secure, scalable, and real-time verification solution** for banking, digital KYC, healthcare, and e-governance applications.

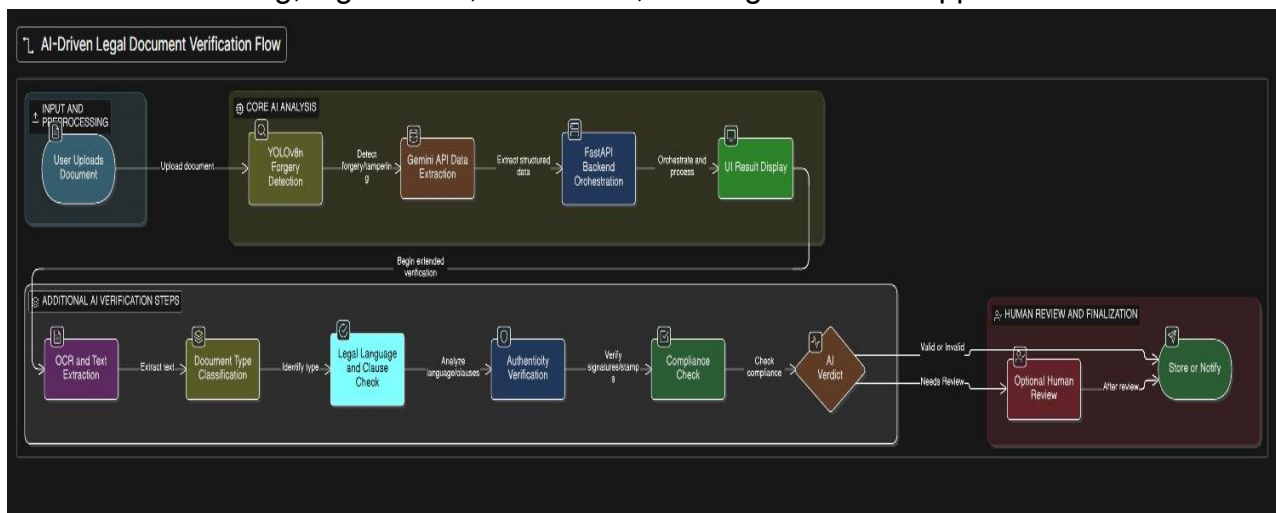


Figure 1: Work Flow

Objectives:

1. To develop an AI-driven system for automated verification of identity proof documents such as Aadhaar, PAN, and Passport.
2. To extract and validate document data using OCR techniques for fast and accurate authentication.

3. To detect forged or tampered documents using AI/ML-based anomaly detection methods.
4. To provide a secure, scalable, and user-friendly platform for real-time digital identity verification.

Methodology:

The proposed **Bharat Verify – AI Driven Identity Proof Checker** follows a systematic methodology for secure document verification.

1. **Document Upload:** The user uploads identity proof documents such as Aadhaar, PAN, Passport, or Voter ID through the web interface.
2. **Text Extraction using OCR:** The system uses **Optical Character Recognition (OCR)** to extract important details like name, ID number, and date of birth from the uploaded document.
3. **AI-Based Verification:** Extracted data is analysed using **AI/ML algorithms** to identify anomalies such as font mismatch, layout changes, image tampering, and fake document patterns.
4. **Backend Validation & Storage:** The verified details are processed through the **Fast API backend** and securely stored in **MongoDB** for further validation and record management.
5. **Result Generation:** Finally, the system provides a **real-time verification result** indicating whether the document is genuine, suspicious, or tampered.

Result and Conclusion:

The proposed **Bharat Verify – AI Driven Identity Proof Checker** successfully verifies uploaded identity documents by extracting key details through OCR and validating them using AI-based anomaly detection. The system can identify genuine and suspicious documents with improved accuracy and reduced manual effort. It provides **fast, secure, and real-time verification results**, making it suitable for digital KYC and e-governance applications.

The project presents an efficient and secure solution for **digital identity proof verification** using OCR and AI/ML techniques. It reduces fraud risks, minimizes manual errors, and improves verification speed. The system supports the vision of **trusted digital services under Digital India** by enabling reliable and scalable online identity authentication.

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Future Scope:

The future scope of this project includes:

1. **Integration with Government APIs:**
The system can be enhanced by integrating with official APIs such as Aadhaar, DigiLocker, PAN, and Passport verification services for direct real-time validation.
2. **Advanced Deepfake & Forgery Detection:**
Future versions can use deep learning and computer vision models to detect advanced image tampering, deepfake IDs, fake QR codes, and cloned templates with higher accuracy.
3. **Biometric-Based Verification:**
Adding face recognition, liveness detection, and selfie-to-ID matching can improve identity verification security and reduce impersonation attempts.
4. **Blockchain for Secure Storage:**
Verified document records can be stored using blockchain technology to ensure tamper-proof, transparent, and secure identity history.
5. **Cloud Deployment & Scalability:**
Deploying the system on AWS/Azure cloud with microservices can improve scalability, speed, and support large-scale real-time KYC verification.
6. **Multilingual OCR Support:**
Future improvement can include OCR support for multiple Indian regional languages, making the system more useful across diverse users.