


TextEvolve

Turn Ink into Intelligence

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Theme: Artificial Intelligence

Problem Statement:

How might we develop an AI or OCR solution to digitize and convert handwritten, old registered documents into a readable and accessible format in regional languages, improving public access and readability of historical records? The solution should allow the output to be downloaded in various formats such as PDF and Word, enabling wider distribution and accessibility.

Abstract

TextEvolve is an AI-powered platform designed to digitize historical handwritten documents into editable formats. It overcomes the limitations of manual transcription and basic OCR tools by combining a custom ML-based OCR model with commercial APIs for high-accuracy text extraction. Enhanced with grammar correction, translation, and multi-format export, the system supports academic research and cultural preservation. With future plans for a collaborative community feature, TextEvolve offers a complete solution for historical document digitization and analysis.

Overview:

- Historical documents are invaluable cultural assets.
- Many such documents are handwritten exist in regional languages,making them hard to access.

Purpose:

- To preserve cultural heritage by converting these documents into accessible digital formats.

Context:

- Growing demand for digitization in libraries, museums, and academic research.

- Manual Transcription (Human effort)
- Google Vision OCR API
- Microsoft Azure Computer Vision OCR
- Amazon Textract
- Tesseract OCR (commonly used open-source OCR engine)

Drawbacks of Existing System

- Existing manual transcription methods are slow, costly, and error-prone.
- Standard OCR models often struggle with accuracy for handwritten text, regional languages, and historical scripts.
- Physical document degradation and limited accessibility are significant challenges.

- **Dual OCR Approach:**

  Custom ML model for script-specific recognition

  Google Vision API, Amazon Textract and Azure AI Vision for improved accuracy
- **Smart Language Tools:**

  Google Translate API for seamless language conversion

  Gemini API for grammar & spelling correction
- **Key Features:**

  Real-time results & progress tracking

  Fast, scalable, and user-friendly

Technology Stack

Programming Languages


Database & Deployment




Frameworks & Libraries







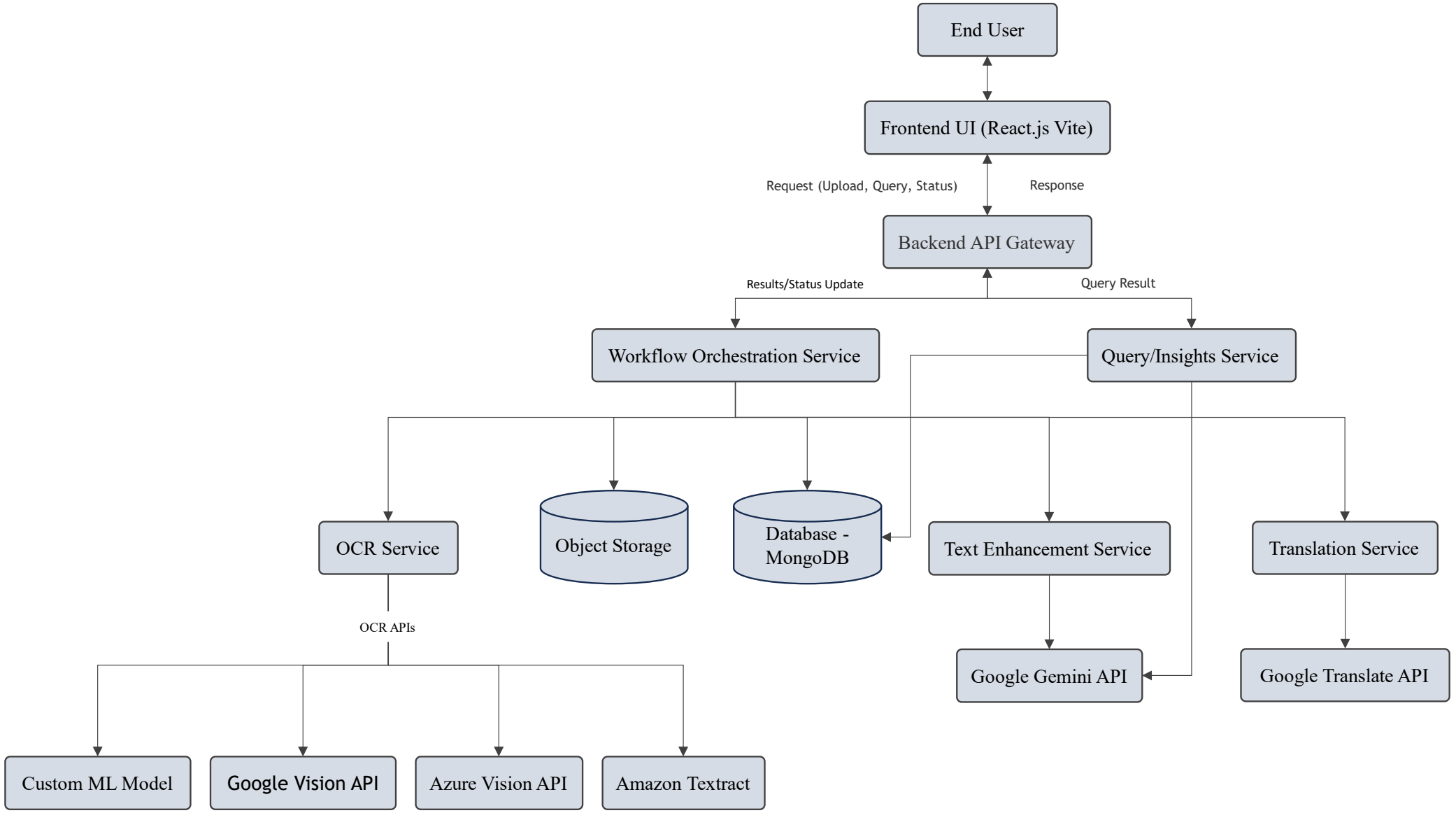

Development Tools



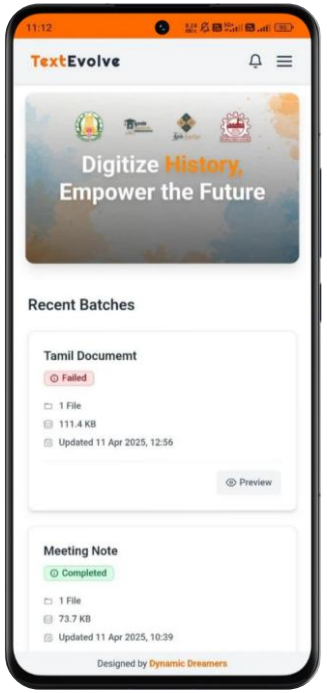


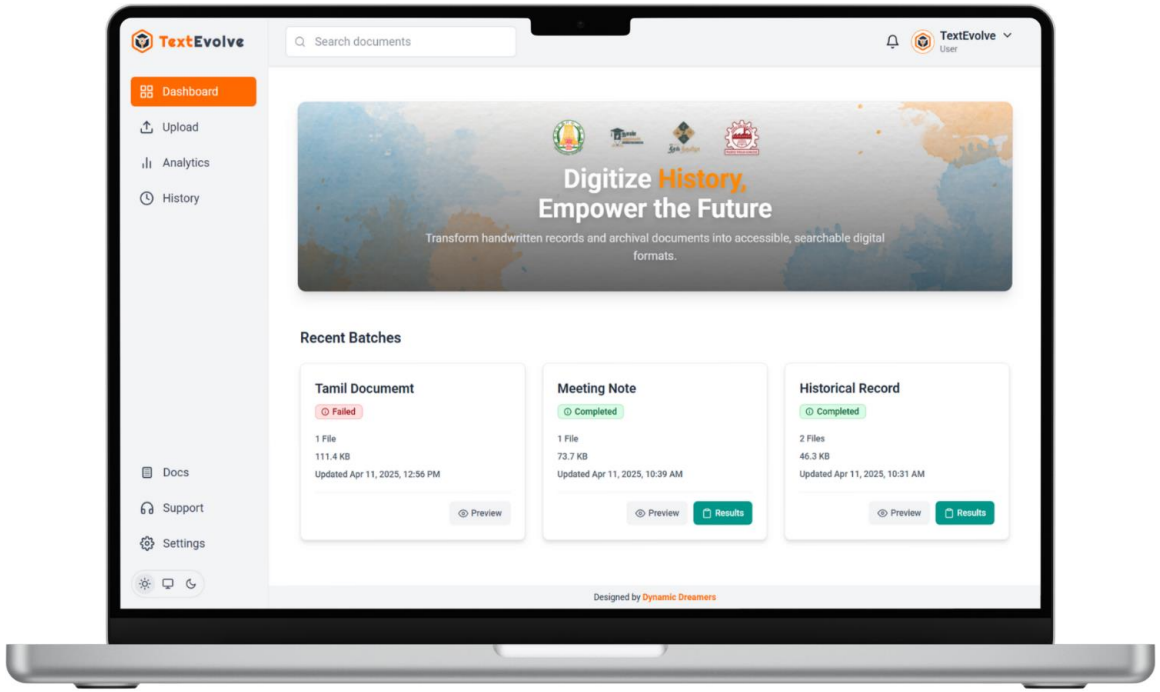


System Architecture & Workflow



Demo / Sample Results





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- **Collaborative Features** - Enable community-driven tools for shared insights, discussions, and knowledge building.
- **UI/UX Enhancements** - Improve interface design and user experience for smoother, more intuitive interactions.
- **Advanced Language Model** - Integrate a smarter, context-aware model to boost recognition accuracy across diverse documents.
- **Annotation Tools** - Introduce interactive annotation capabilities to allow deeper document engagement and research.

- **Language Expansion** - Support a broader range of regional and global languages for inclusive digitization.
- **AI-Driven Insights** - Provide intelligent analysis features to extract meaningful insights from digitized texts.
- **Public API Access** - Open the platform to developers for integration with third-party applications and tools.
- **Mobile Integration** - Develop mobile compatibility to make document digitization and access available anytime, anywhere

- **Degradation:** Physical documents deteriorate over time.
- **Inaccessibility:** Limited access to rare or regional texts.
- **Handwriting Variability:** Handwritten texts present difficulties in standard OCR processing.
- **Language Barriers:** Many OCR solutions are not optimized for regional languages.

- **Cultural Preservation:** Safeguard historical documents for future generations.
- **Enhanced Accessibility:** Allow researchers, educators, and the public to easily access digitized content.
- **Improved Research:** Facilitate the study of regional languages and historical texts.
- **Scalability:** A robust system that can grow to handle vast archives.

TextEvolve is an AI-driven solution that digitizes handwritten historical documents with high accuracy using **Dual OCR Model**.

By combining innovation with technology, it preserves cultural heritage, enhances accessibility, and supports research — ensuring valuable historical knowledge is safeguarded for future generations.

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Ask Questions

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Thank You!