HACKNAUTS

- TITLE: SMART NOTES AND RESOURCE FINDER
- TRACK: EDTECH AND LEARNING
- COLLEGE NAME: GURU NANAK DEV ENGINEERING COLLEGE LUDHIANA
- TEAM MEMBER DETAILS

CLUSTERS OF TECH

GURKIRAT SINGH

GAGANDEEP SINGH

GAGANPREET KAUR

GURLEEN KAUR

PROBLEM STATEMENT

During exams, many students struggle because their **study materials** are **scattered and unorganized**. As a result, they **waste time** studying less important topics while **missing** the **key concepts** that actually appear in the exam**.**

Target Audience

Students

Colleges & institutes

Validity of Problem

- Students **waste the time** searching for the right notes instead of **actually studying.**
- The existing **handwritten** notes **can’t be searched** based on their content.
- No **unified platform** exists to search and **access notes in one place.**

PROPOSED SOLUTION

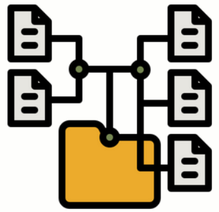
Idea Description

- A **smart web app** to search, upload, and share study materials (notes, PYQs, etc.).
- Searches content by **understanding the PDF's meaning**, not just keywords.
- Students can **upload notes, highly rated** content appears first.
- **Resource recommendations** according to the individual's search history.

How it solves the problem

Saves Time by showing only relevant materials

Rating system ensures quality content



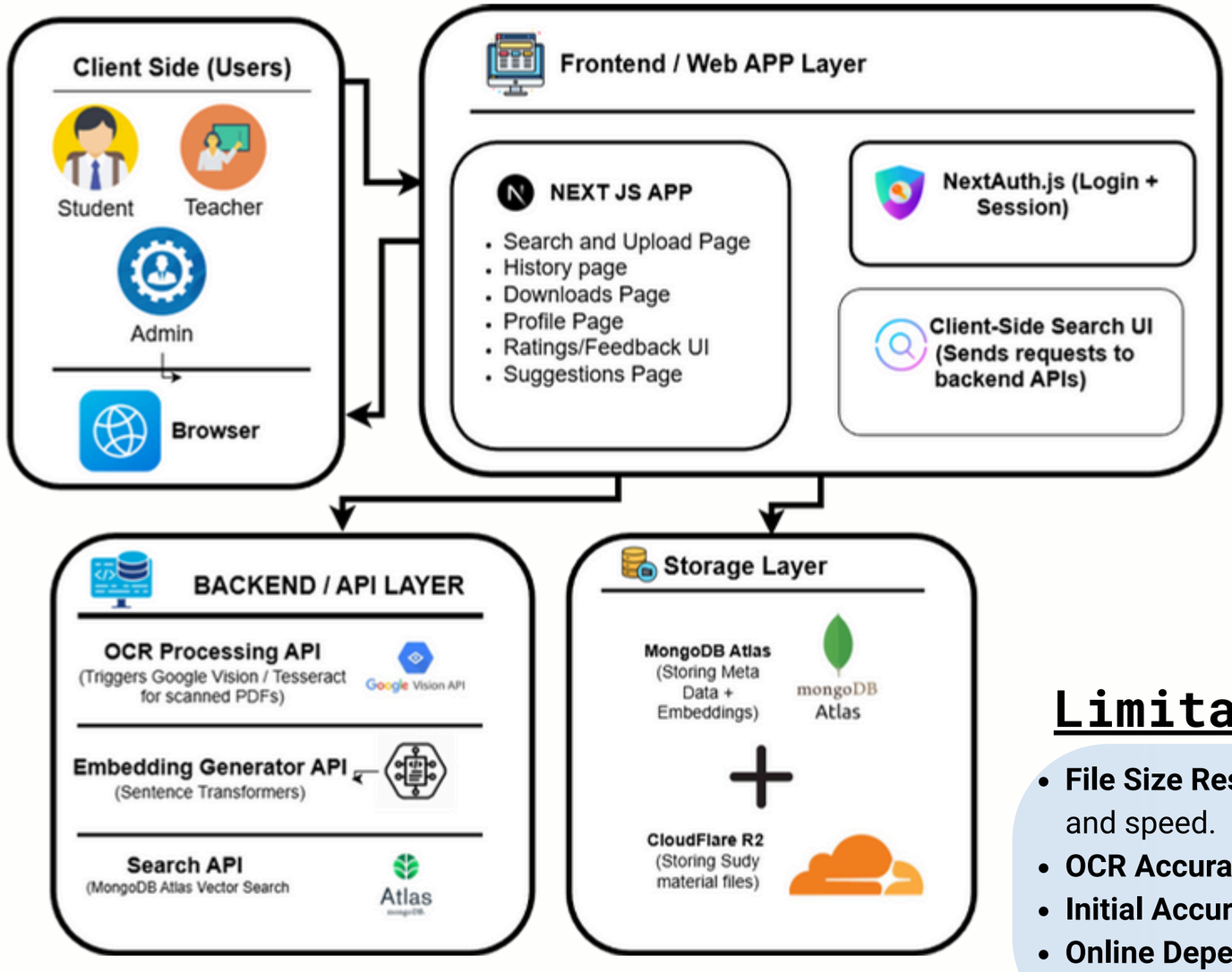
Content is well organized by class, subject and branch

Innovation/ Unique points

- **Semantic Search:** Understands **meaning behind queries** (e.g., "3rd sem DSA notes CSE").
- **Auto Grouping:** Organizes results by branch, semester, and subject.
- **Rating System:** Ranks notes based on **user ratings.**
- **Smart Tagging:** Shows if uploaded by a teacher or student.
- **Searchable Handwritten Notes —** Handwritten notes can be **searched** by their **internal content.**

IMPLEMENTATION DETAILS

Architecture of Solution



Challenges

- **High Processing Time & Cost** — Image-based docs via Google Vision API + Tesseract take longer and cost more.
- **Scalability Issues** — As data grows, optimizing embeddings, storage, and vector search becomes tougher**.**
- **Unclean Text Extraction** — Handwritten or mixed-language notes sometimes produce messy results.
- **Personalization Needs Data** — Requires consistent user interaction to improve recommendations.

Features

- **Semantic Search Engine –** Fetches the most **relevant notes**.
- **Rating & Review System –** Highlights **best content**.
- **OCR Integration –** Reads text from uploaded notes for **better search**.
- **Content Tagging –** Identifies **teacher** or **student** uploads.

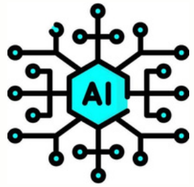
Limitations

- **File Size Restrictions** — Full books or large lecture slides aren't supported to save cost and speed.
- **OCR Accuracy Issues** — Low-quality or handwritten notes may not extract cleanly.
- **Initial Accuracy** — Less data available in initial phase
- **Online Dependence** — Requires internet for OCR, storage, and authentication (no offline mode yet).

MARKET ANALYSIS

Feasibility

Built with Existing Toosl & APIs



Use Pre-Trained AI Models

Low Cost Infrastructure

Easy Adoption

Revenue Model

- **College Licensing:** Sell full **access to institutions**.
- **Sponsored Content:** Partner with **EdTech** or **publishers**.
- **Educational Grants:** Eligible for government or **NGO funding**.
- **Clean Ads:** Only **education**-based **sponsorships** (no random ads).

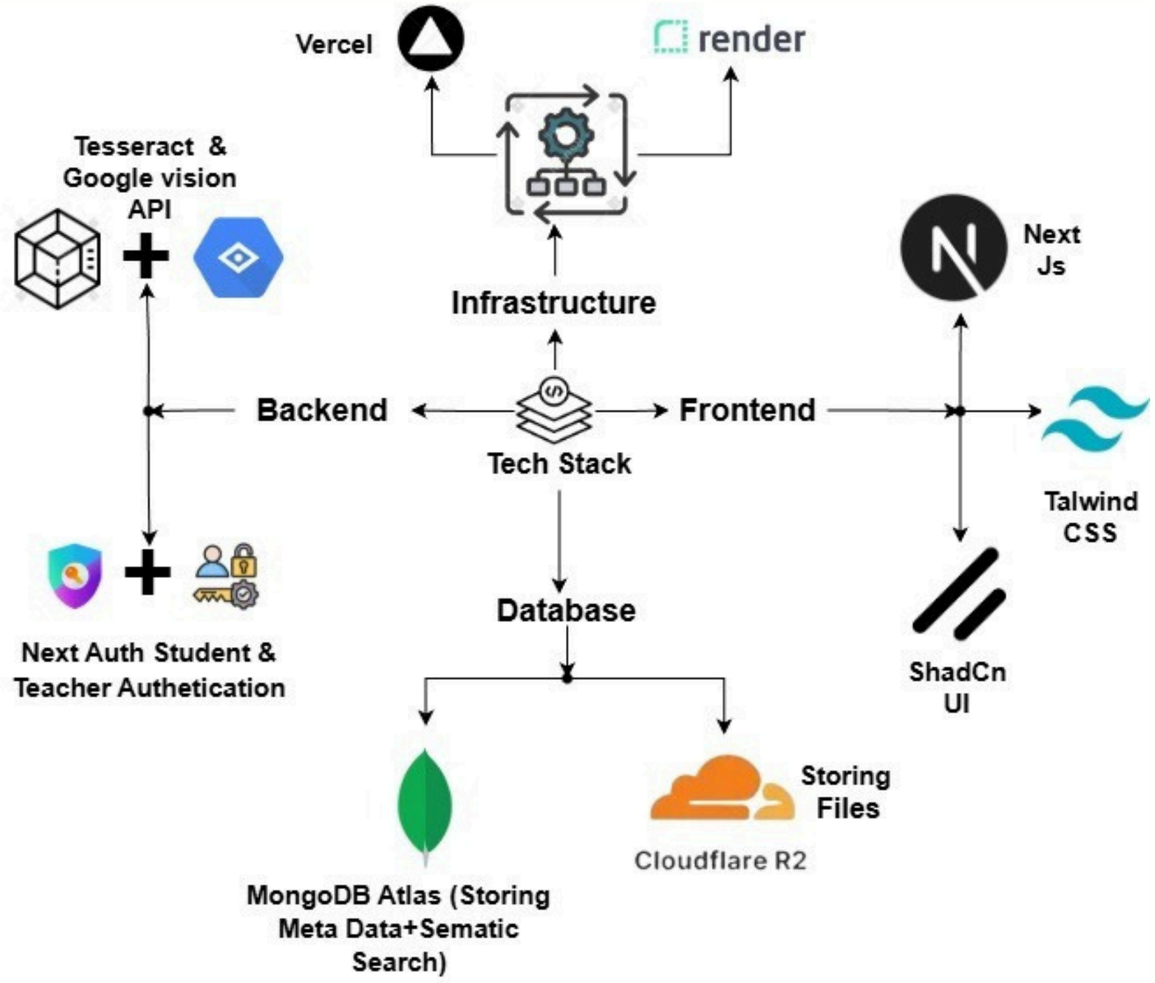
Risks

- Too many large uploads may slow or **raise costs.**
- OCR errors on **handwritten**/low-quality notes.
- Spam or **irrelevant** uploads can **affect quality.**
- **Early-stage data** may reduce recommendation **accuracy**.
- Needs internet — no **offline** mode yet.

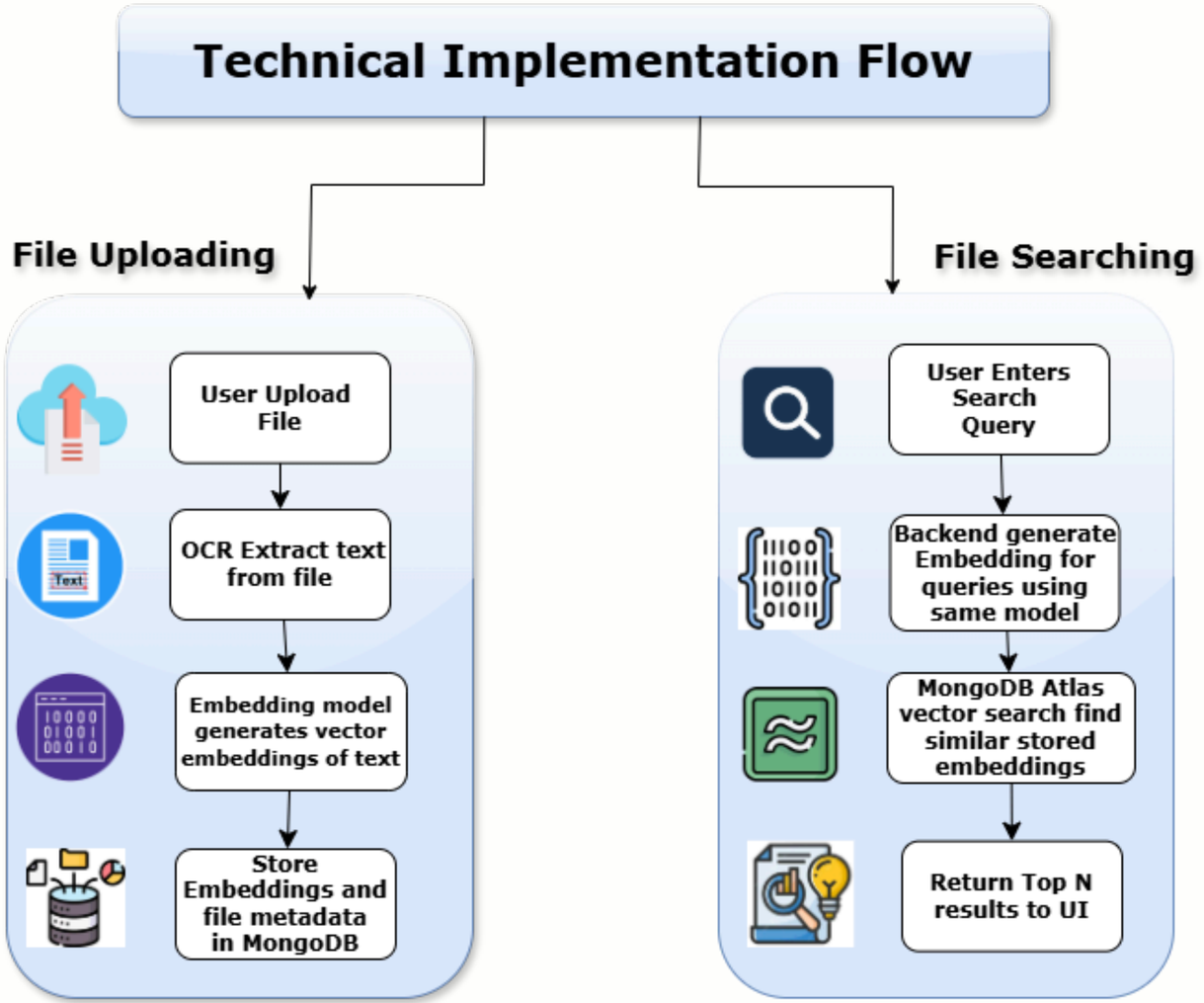
Existing Solutions

1. **College Portals**
   - Outdated content and **poor search experience.**
2. **Cloud Storage / Group Sharing**
   - Unorganized files with repeated uploads.
3. **Big EdTech Platforms**
   - Generic content, not aligned with college syllabus.
4. **Public Search Engines**
   - **Time-consuming** and not personalized or reliable.

TECHNICAL APPROACH



Tech Stack

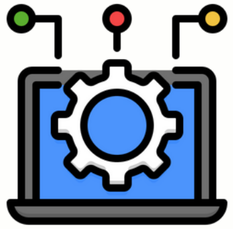


Technical Implementation

IMPACT AND BENEFITS

Impact and Benefits

Peer-to-Peer Growth



All-in-One Platform

Saves Study Time

Handwritten Notes become searchable

Equal Access to all

Future Scope

- **AI Summarization —** Auto-generate **short summaries** for quick revision.
- **Smarter Suggestions —** ML-based recommendations for **personalized learning.**
- **Community Upgrades —** Students can **refine** and **enhance shared notes.**
- **Next-Gen Search —** Use advanced LLMs for **deeper** concept **understanding**.
- **Cloud Efficiency —** Reduce storage costs with **optimized PDF compression.**
- **Mobile App Launch —** Access everything on **Android** & **iOS**, anytime.

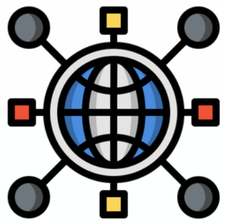
SUSTAINABLE DEVELOPMENT

Quality Education (SDG 4)

How our Project is suitable for SDG 4

- Ensures equal access to **quality notes**, **reducing academic inequality.**
- Acts as an **education equalizer** by lowering dependence on paid coaching and costly resources.
- Encourages **digital literacy** and **smart learning habits**, supporting SDG Target 4.4.
- Turns individual study efforts into **shared benefits, multiplying impact** for the whole community.
- Encourages student **ownership of learning** instead of passive dependence on institutions.
- Builds a **future-ready education** system by shifting offline notes into permanent digital access.

Contributions to SDG 4



Central Platform for verified study resources

Enables collaborative learning

Scaleable academic Ecosystem

Reduce Educational inequality