



Florida International University

Summer 2024 Senior Design Project

Material Atlas

Students: Thuong Nguyen

Mentor: Lyla Wu, Florida International University

Instructor/Faculty: Masoud Sadjadi, Florida International University

PROBLEM

Continuing from previous development, I am focusing on the persistent challenge of limited collaboration between material scientists and AI. While previous iterations have made progress in this direction, there remains a critical need for enhancements in key areas such as data extraction, file upload and deletion, and user interface design. By leveraging advancements in artificial intelligence, I aim to bridge the gap between material science and AI, developing an efficient workflow.

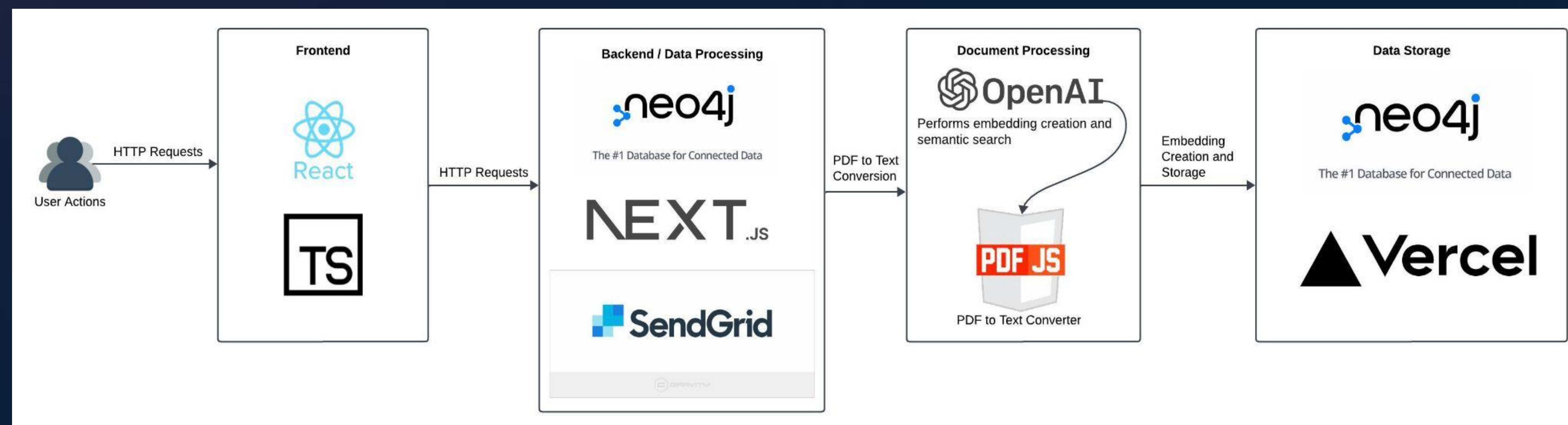
CURRENT SYSTEM

The project was delivered in the early stages of development with a clear structure for further development, focusing on expanding the database, refining the user interface, and enhancing the system's overall capabilities for future research and application in the field of coastal construction. The team established the first generation of a system designed to innovate and define research direction in coastal construction materials.

REQUIREMENTS

- Data Extraction and Analysis: Implement AI models to extract material data from research papers, including mix tables, properties, and strength.
- File Upload and Deletion: Implement a way to upload and store Files for future uses, in addition to deleting them if needed.
- User Interface Design: Build on current UI for the Material Atlas website, ensuring ease of navigation and accessibility for all users.

SYSTEM DESIGN



SUMMARY

Building upon the initial framework of the "Material Atlas for Coastal Construction," our team at the Knight Foundation School of Computing and Information Sciences, Florida International University, has taken significant step in enhancing the collaboration between material scientists and engineers. Our current iteration focuses on the advancement of a comprehensive knowledge-sharing platform. We have placed particular emphasis on data extraction and analysis, harnessing artificial intelligence to extract material data from research papers effectively. Additionally, we have prioritized user experience and security, ensuring that user data is safeguarded. Through these enhancements, we aim to bridge the gap between material science and practical application, cultivating a culture of knowledge sharing that is pivotal for the sustainable development of coastal communities.

ACKNOWLEDGEMENT

The material presented in this poster is based upon the work supported by XXXXX (name of the project sponsor: federal, state or local government, or corporate partners, where applicable). We/I thank XXXX for his/her/their assistance and mentorship that I/we received throughout the senior design project.