

RESEARCH TRACKING SYSTEM

Michael Mazenge Software Engineering Department

1.0 abstract

The current method of managing research information at our university is heavily reliant on physical hard files and paper-based documentation, leading to inefficiencies and challenges in organization, accessibility, security, and sustainability. This project aims to transition from a manual and paper-driven system to an automated digital solution for storing, retrieving, and managing research data conducted by students and faculty. The proposed digital platform will centralize research information, making it easily accessible and secure, while significantly reducing the environmental impact associated with paper use. By leveraging advanced technologies, this project will enhance data management efficiency, ensure robust data security through encryption and access controls, and promote sustainability.

2.0 Introduction

In today's digital age, the academic environment at our university is hindered by an outdated and inefficient system for managing research information. The current reliance on physical hard files and paper-based documentation has created a bottleneck in accessing and managing research data conducted by both students and faculty. This manual system is not only time-consuming but also poses significant challenges in terms of organization, accessibility, security, and sustainability.

Physical files are often stored in various locations across the campus, making it difficult for researchers to quickly locate and retrieve the information they need. The decentralized nature of this storage system results in a lack of standardization, leading to potential inconsistencies and errors in data management.

3.0 Problem definition

In the academic environment of our university, accessing and managing research information conducted by students and faculty has been a time-consuming and cumbersome process due to the reliance on physical hard files and paper-based documentation. These hard files, often stored in various locations, pose significant challenges in terms of organization, accessibility, security, and sustainability. To address this issue, there is a pressing

need to transition from a manual and paper-driven system to an automated digital solution that streamlines the storage, retrieval, and management of research data, thereby enhancing efficiency, data security, and accessibility.

4.0 Overview of developed system

The Research Tracking System offers a comprehensive solution for organizations seeking to streamline the management of their research documents. Through seamless integration with MongoDB, a powerful document-oriented database, we provide a scalable and flexible platform capable of handling vast amounts of unstructured data with ease.

Upon document upload, the system employs sophisticated indexing algorithms to automatically categorize and tag each document based on its content, ensuring swift and accurate retrieval. This automated categorization not only accelerates the document management process but also enhances the discoverability of relevant information.

Central to the system is a robust search engine powered by advanced search algorithms. Users can effortlessly query the database using keywords or phrases, and our search engine promptly retrieves the most pertinent documents, ranked based on relevance. need, thereby boosting productivity and efficiency.

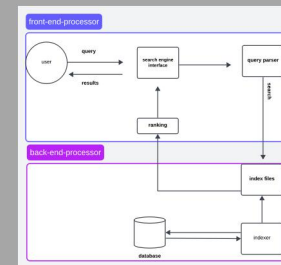
5.0 Objectives

-To develop a robust document indexing and search functionality that enables the system to automatically index and categorize research documents upon upload to a NoSQL database system.

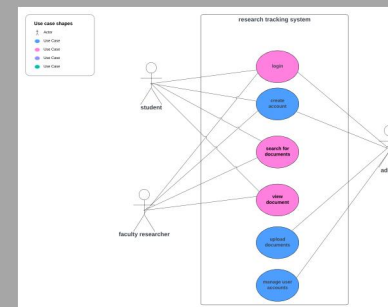
-To develop a search algorithm that efficiently retrieves relevant documents and ranks them based on relevance to the user's query.

-To design a web-based user interface to provide an intuitive and userfriendly experience of the system

6.0 System Overview

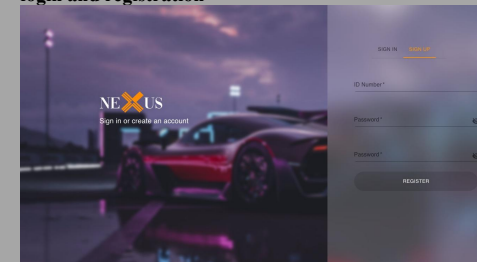


7.0 Use Case Diagram

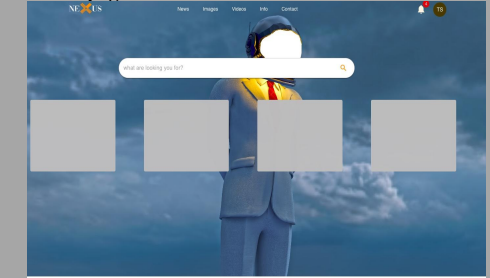


User Interface Screen Shorts

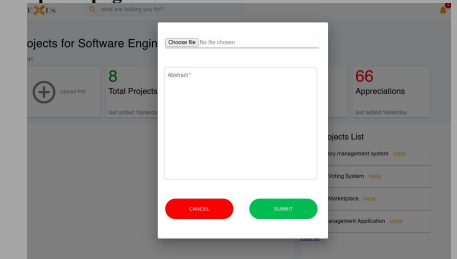
login and registration



search page



upload page



8.0 Conclusion

In conclusion, the development of the document indexing and search functionality project has resulted in the successful implementation of a robust system for managing and retrieving research documents. Through rigorous analysis and design, several key accomplishments have been achieved:

Effective Document Indexing and Categorization: By implementing advanced techniques for extracting metadata and content analysis, the system is capable of automatically indexing and categorizing research documents upon upload. This ensures efficient organization and retrieval of documents based on user queries.

Supervisor MRS CHIBAYA