ProjektHouse: A Web Platform

Shailendra Singh[1], Aditi Negi[2], Aditi Garg[3], Akanksha Sharma[4], Anamika Yadav[5]

Assistant Professor, Inderprastha Engineering College[1]

Student, Inderprastha Engineering College[2-3-4-5]

ABSTRACT

ProjektHouse is a platform designed for managing and organizing data for final year teams, including to facilitate collaboration between students and professors in a university setting, allowing students to share their projects, team details, and project files.

This research paper aims to explore the concept and functionality of ProjektHouse, its potential benefits for students and professors, and its impact on collaborative project management in higher education. The paper will also discuss the challenges and opportunities of implementing ProjektHouse in a university setting, as well as potential future expansions to other zones and states.

We in our student life make a lot of projects that just stay in our local devices and never reach to others for reviews and real time usage. The motive of this project is to build a system that would create an easy and comfortable link for students to showcase their projects to their teachers.

This project also makes it easy for teachers to maintain records of students, sorting students on the basis project submission. This project helps teachers to analyze, who has submitted the work and who has not. The project creates a database for every student and their work.

This research paper also explores the functionalities of ProjektHouse, including authentication, social media features, and project management capabilities. The paper discusses the importance of authentication for secure and reliable platform usage, as well as the social media features that allow users to create a profile, share project updates, and connect with team members. The research paper also highlights the functionality of project documentation, including file uploads and comment sections, and the recognition of top creators based on their activity on the platform.

The main aim of this research paper is to maintain a proper system for collaboration such that proper exchange of information regarding project is made. The paper concludes by discussing the potential benefits of using ProjektHouse for collaborative project management in higher education.

Keywords*: ProjektHouse, collaboration, research, guidance, authentication, social media features*

1. INTRODUCTION

Project collaboration is important in higher education, as it fosters innovation, creativity, and critical thinking skills among students. However, traditional methods of project management, such as face-to-face meetings and email communication, may not always be efficient or effective in facilitating collaboration among students and professors. This is where a dedicated platform like ProjektHouse can play a crucial role. ProjektHouse is designed to be a user- friendly and collaborative platform that provides a space for students to showcase their projects, seek guidance from professors, and receive feedback from peers. The platform also enables professors to track students' progress, provide timely feedback, and assess the quality of their work. This creates an effective and smooth system for students and professors to work collectively.

It is a platform for all the students and the professors of a university (later can move to zones and states), where students can share their latest projects, ideas & their recent works and professors can have access to their project work to track down their progress. The professors can also guide the students on their work as they can access the student's projects from their end. The professors guidance and support can be a great help to students. Thus, students will learn new things and build something great and showcase their projects too and get reviews. Whereas, this project helps teachers to maintain record of every student's performance. This will help them to analyze every student's work and their progress. Hence, the project does good to both students and the professors.

With the help of our project, students and professors can coordinate well and the flow of the process is maintained. Students will be motivated to submit their work on time as teachers will be tracking their progress. This project also helps teachers to reduce their tedious work and maintains a proper database of student's work for them.

Students can upload their work from their respective login page whereas teachers can view student's work from their end and can also download student's work on their local drives.

2. FUNCTIONALITIES

ProjektHouse is a platform designed to streamline collaborative project management in a university setting, providing students and professors with a user-friendly and efficient tool for sharing project updates, collaborating with team members, and documenting project progress. One of the key functionalities of ProjektHouse is authentication, which ensures that users have secure access to the platform. Additionally, the platform includes social media features that allow users to create profiles, share project updates, and connect with team members. The platform also provides functionality for project documentation, including file uploads and comment sections for feedback. Furthermore, ProjektHouse recognizes top creators based on their activity on the platform, promoting engagement and competition among users. The functionalities of ProjectHouse are:

2.1 Authentication:
Authentication is a critical functionality of ProjektHouse, as it ensures that only authorized users have access to the platform. Users are required to register with their name, email id, password, and upload a photo to create an account. The authentication process helps in maintaining the security and reliability of the platform, ensuring that only legitimate users can access the features and functionalities of ProjektHouse.

2.2 Social Media Features:
ProjektHouse includes social media features that allow users to create profiles, share project updates, and connect with team members. Users can create their team with details, such as team name, area of the project, and total members. They can post project updates, including team members' details, project documentation files, and project link. The app allows users to view and interact with project updates from other users, promoting collaboration and knowledge sharing among teams. Furthermore, the platform provides a comment section for every project, allowing mentors and other teams to provide feedback and suggestions to improve the projects.

2.3 Project Team Management:
ProjektHouse enables users to manage their project teams efficiently. Users can create project teams, and keep track of the total number of members in a team. They can also view the section and mobile number of team members, facilitating communication and coordination among team members. The platform provides a dedicated section for each project team, where team members can upload files related to project documentation, ensuring that all project materials are organized and accessible in one place.

2.4 Recognition of Top Creators:
ProjektHouse recognizes top creators based on the number of teams they follow. Users who follow other teams are recognized as top creators. This recognition encourages mentors to efficiently manage their teams' date and progress.

2.5   Create Teams:

ProjektHouse allows users to collectively document their work and share the information of their project who have worked together on the common project. The users are viewed as a single team who have worked collectively and details of every team member are stored under their team name.

2.6   File Upload:

Any team member of a particular team can upload files term-wise related to documentation of the project which include research paper, report of the project or the power point presentation of the project.

2.7   Follow:

For security and confidentiality purpose, such that data files of every team members are secured and no team could access or view files of other teams, the follow feature has been added. Here, teams can follow the profiles they wish to follow and only those particular profiles will have access to team's data and documents. Hence, the key to security will lie only in the hands of teams and their group members. Their data will only be visible to the individuals that they wish to follow. Hence, confidentiality to the student's data is secured.

3.   TECHNOLOGIES

3.1   MongoDB: MongoDB is a document-oriented, NoSQL database that uses a flexible, JSON-like format to store data. It is often used in web applications, real-time analytics, content management systems, and other data-intensive applications. MongoDB also supports horizontal scaling, making it easy to add more servers to a cluster as one application's data needs grow. It is used to store application's data.

3.2   Express.js: It is a popular open-source web application framework for Node.js. It provides a set of robust features for building web and mobile applications, including robust routing, middleware support, and easy integration with various templating engines. It is a web application framework for Node.js used to handle server-side requests.

3.3   React: React is a popular open-source JavaScript library for building user interfaces. It was created by Facebook and is now maintained by a large community of developers. React is known for its declarative and component-based approach, which makes it easy to build complex and dynamic user interfaces with reusable code. React allows developers to create modular UI components that can be used and reused across different applications, making it a time-efficient and cost-effective solution for web and mobile app development. It is a JavaScript library used to build the application's user interface.

3.4   Node.js: Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that executes JavaScript code outside of a web browser. It is built on the V8 JavaScript engine from Chrome, which compiles and executes JavaScript at lightning-fast speeds. Node.js is used for building scalable, high-performance web applications, and can handle large volumes of data and real-time communication. Node.js allows developers to write server-side applications in JavaScript, which makes it easier to build and maintain web applications, and to switch between client-side and server-side programming with ease.It is a JavaScript runtime used to build the server- side application logic.

3.5   Mongoose: Mongoose is an object data modeling (ODM) library for MongoDB and Node.js. It provides a straightforward, schema-based solution to model data for MongoDB and provides features like validation, middleware, query building, and more. Mongoose is designed to make it easy to work with MongoDB by providing a more structured and intuitive way to interact with data. It is a library that provides a schema- based solution to model the application's data and interact with the MongoDB

database.

3.6   Redux: Redux is an open-source JavaScript library for managing application state. It is commonly used in combination with React to build scalable and maintainable web applications. Redux works by maintaining a single, centralized state tree for an entire application, which allows for predictable and consistent application behavior.It is a predictable state container used to manage the application's state.

3.7   AWS: AWS stands for Amazon Web Services, which is a comprehensive and widely used cloud computing platform provided by Amazon.com. AWS offers a wide range of cloud-based services including computing, storage, databases, analytics, networking, machine learning, Internet of Things (IoT), security, and more. It is a cloud-based platform used to store project files.

4. METHODOLOGY

4.1   Requirement Gathering:

The first step in the development process was to gather requirements for the application. A comprehensive study of existing literature and software tools in the domain was conducted to identify the essential features and functionalities that must be present in the application. We also analyzed the various constraints or limitations that must be considered while developing the app.

4.2   Design:

Once the requirements were gathered, the next step was to design the application. This involved creating wireframes of the user interface, as well as designing the application architecture and data models. The design was refined based on the feedback from domain project mentors and end users.

4.3   Implementation:

The implementation phase involved building the application using the MERN Stack. The backend was developed using Node.js and Express.js, and MongoDB was used as the database. We employed Mongoose to model the application's data, Redux to manage the application's state and other necessary libraries and modules. The frontend was built using React, which provided a robust and flexible UI framework. We implemented the key features of the application, including secure authentication, file management, password reset and search.

4.4   Testing:

Testing was an important part of the development process. User acceptance testing was also conducted to ensure that the application met the requirements set at the earliest stage.

4.5   Deployment:

Once testing was completed, the application was deployed to a production environment. The application was deployed using a cloud-based platforms like Vercel and Netlify and AWS S3 was used to store files securely.

4.6   Maintenance:

After deployment, maintenance and support were provided to ensure that the application remained functional and up-to-date. Any issues or bugs were identified were addressed in a timely manner, and updates were made as needed to ensure that the application continued to meet the needs of its users.

4.7   Conclusion:

In conclusion, ProjektHouse was developed using a rigorous methodology that ensured that all requirements were met and that the application was reliable, secure, and user-friendly. The application was built using MERN Stack and incorp[orated key features like secure authentication, project and team management, file management, password reset, and search. The app was also thoroughly tested and deployed to a production environment, and ongoing maintenance and support were provided to ensure that the application remained functional and up-to-date.

5. FUTURE DIRECTIONS

This project by the name of ProjektHouse is currently associated to a single college where all the students of the particular college can collaborate with other college mates to document their projects to the particular professors of their respective college. But soon the project is made available at the global level for better collaborations.

6. LITERATURE REVIEW

S. No.	Title of the paper	Author's Name	Review
1	GitStud: A Web-based Application for Sharing Project Files	Mohammad Bsoul, Emad E. Abdallah, Ibrahim Albarghouthi	The aim of this paper is implementing a web-based application for facilitating the communication of the members of the same project (assignment) group.
2	Developing a social platform based on MERN stack	Hau Tran	In this paper, author has focused on studying the basic components of the highly popular MERN stack and building a social platform application based on it. The MERN stack, short for MongoDB, Express.js, React.js and Node.js eases the developers with the idea of unifying web development under a single programming language: JavaScript.
3	A Review Of Authentication Methods	Mohammed Farik	It describes the importance and types of Authentication mechanisms and how to implement those authentication mechanisms to enhance security and reduce vulnerabilities.
4	Social networking feeds: Recommending items of interest	Jill Freyne, Shlomo Berkovsky, Elizabeth M. Daly, Werner Geyer	This paper discussed the detailed description about the working of feeds for social media platforms . This research paper shows how to predict best feed item relevance by combining short term interest models, exploiting previous viewing behavior of users, and long-term models, exploiting previous viewing of network actions.
5	Application using MERN Stack	Dr.Santosh KumarShukla, ShivamDubey, TarunRastogi, Nikita Srivastava	In this research paper,author proposed a method to create and design an e-commerce platform using new technology called MERN Stack technology such as:

			MongoDB, Express JS framework, ReactJS library, and NodeJS platform
6	Evaluation of NoSQL Database MongoDB with Respect to JSON Format Data Representation	Ramesh Byali, Jyothi, Megha Chidambar Shekadar	In this research paper, author outlines the key elements and traits of MongoDB technology, particularly for NoSQL as a replacement for relational databases. This essay explores many No SQL database types, such as MongoDB, CouchDB, HBase, Cassandra, etc. A document-oriented, cross-platform database called MongoDB offers excellent performance, high availability, and simple scalability.
7	The effect of Amazon Web Services (AWS) on Cloud-Computing	Taranjot Singh	This research paper focuses on how Cloud Computing has become a very famous and successful drill with the current evolution of technology. It's becoming an increasingly famous enterprise model, in which the computing resources are made obtainable to the user as they needed.
8	MERN: A Full-Stack Development	Yogesh Baiskar, Priyas Paulzagade, Krutik Koradia, Pramod Ingole, Dhiraj Shirbhate	This research paper covers the journey of a full-stack development from a frontend to deploying a site. Full-stack web development is a subset of web development that encompasses all of the responsibilities involved in creating websites for intranet or internet hosting.
9	Node.js Challenges in Implementation	Hezbullah Shah & Tariq Rahim Soomro	This research paper summarizes how Node.js gave rise to the Full Stack Developers who are now able to manage server and client side on their own. Node.js is fast and reliable for heavy files and heavy network load applications due to its event driven, non-blocking, and asynchronous approaches, where developers can also maintain complete projects in single pages (SPA) and can use it for IOT.

7. CONCLUSION

ProjektHouse offers several benefits for students and professors in a university setting. For students, it provides a platform to showcase their projects, receive feedback from peers, and seek guidance from professors, which can enhance their learning experience and improve the quality of their work. The platform also encourages collaboration among students, as they can learn from each other's projects and exchange ideas. For professors, ProjektHouse offers a convenient way to track students' progress, provide feedback, and assess the quality of their work, which can save time and effort compared to traditional methods of project management. The platform also promotes engagement and interaction between students and professors, facilitating a more dynamic learning environment.

ProjektHouse has the potential to revolutionize collaborative project management in higher education by providing a user-friendly and collaborative platform for students and professors to share, collaborate, and track project progress. Despite challenges, the benefits of implementing ProjektHouse in a university setting are significant, including improved student learning outcomes, enhanced engagement between students and professors, and streamlined project management processes. Further research and implementation efforts are needed to fully explore the potential of ProjektHouse in higher education and its expansion to other zones and states.

8. REFERENCES

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