WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

AI- PROJECT MANAGEMENT SYSTEM

Ms. Kiruba[1], Mr. Nandha Kumar S[2], Mr. Praveen Kumar P[3], Mr. Purusothaman[4]

Department of Information Technology, Sri Shakthi Institute of Engineering and Technology, TamilNadu, Coimbatore-641062, India
Department of Information Technology, Sri Shakthi Institute of Engineering and Technology, TamilNadu, Coimbatore-641062, India
Department of Information Technology, Sri Shakthi Institute of Engineering and Technology, TamilNadu, Coimbatore-641062, India

A B S T R A C T :

Our Project Mind AI is an AI-powered project management system designed to simplify project planning, task management, team collaboration, and progress monitoring. Traditional project management methods often involve manual task allocation, communication difficulties, and inefficient progress tracking. This system addresses these challenges by providing a centralized platform for creating projects, assigning tasks, managing deadlines, and monitoring project activities through an interactive dashboard. The application is developed using React, TypeScript, Tailwind CSS, Node.js, Express.js, and MongoDB, with secure authentication and role-based access control to protect project information. It also incorporates AI-assisted features to support project planning, task organization, workflow optimization, and decision-making. Overall, ProjectMind AI aims to reduce manual effort, improve team coordination, enhance productivity, and support efficient project management through intelligent planning and centralized progress tracking.

Keywords: Artificial Intelligence (AI), Project Management, Task Management, Team Collaboration, React, TypeScript, Node.js, Express.js, MongoDB, Progress Tracking, Role-Based Access Control, Workflow Optimization.

1. Introduction

Project management is an essential process that helps organizations plan, organize, assign, and monitor tasks to achieve their goals efficiently. Traditional project management methods often involve manual task allocation, communication difficulties, missed deadlines, and challenges in tracking project progress. With the advancement of digital technology and Artificial Intelligence (AI), modern project management systems provide efficient solutions for improving workflow organization, team collaboration, and decision-making.

The development of an AI-powered project management system involves integrating frontend and backend technologies to provide a smooth and user-friendly experience. The proposed system, Project Mind AI, is developed using modern web technologies such as React, TypeScript, Tailwind CSS, Node.js, Express.js, and MongoDB. The frontend provides an interactive dashboard for creating projects, assigning tasks, managing deadlines, and monitoring project progress, while the backend handles application logic, data processing, and database operations.

In today's digital era, Artificial Intelligence plays an important role in improving project planning and task management. Project Mind AI integrates AI-assisted features to support task organization, project planning, and project-related insights. The system also incorporates secure authentication and role-based access control to protect project information and manage user permissions. Overall, Project Mind AI aims to reduce manual effort, improve team coordination, increase productivity, and support efficient project completion through centralized project management and intelligent assistance.

1. Literature Review

Artificial Intelligence (AI) has become an emerging technology in modern project management, transforming traditional methods of project planning, task allocation, and progress monitoring. Taboada et al. (2023) examined the applications of AI in project management and highlighted its potential to improve planning, scheduling, resource allocation, and decision-making. Similarly, research on AI in project management emphasizes the importance of intelligent technologies in improving project performance and supporting effective management decisions. Modern web technologies, including React, Node.js, Express.js, and MongoDB, enable the development of scalable applications that support centralized project management and real-time information access. Furthermore, secure authentication and role-based access control help protect sensitive project information and manage user permissions. AI-assisted planning and task organization can also help teams identify potential issues, improve workflow efficiency, and manage deadlines effectively. Based on these concepts, Project Mind AI integrates project management functionalities with AI-assisted capabilities to enhance team collaboration, simplify task management, monitor project progress, and improve overall productivity.



Fig. 1 – Dashboard Page's



Fig. 2 – AI-Assistant Page's

Methodology / System Design

Project Mind AI is designed to simplify project planning, task management, team collaboration, and progress tracking through a centralized platform. The frontend is developed using React, TypeScript, and Tailwind CSS, while Node.js and Express.js handle backend operations and API requests. **MongoDB** stores user details, project information, task assignments, deadlines, and progress records. The system incorporates secure authentication, role-based access control, and an interactive dashboard to manage projects efficiently. Additionally, AI-assisted features support project planning, task organization, and decision-making, helping improve workflow efficiency, team coordination, and overall productivity.

Acknowledgements

We sincerely thank our project guide, **Ms. Kiruba**, and the **Department of Information Technology, Sri Shakthi Institute of Engineering and Technology**, for their guidance and support throughout this project. We also extend our gratitude to our friends and family for their encouragement and motivation in completing successfully.

Implementation and Features

Project Mind AI is implemented using React, TypeScript, and Tailwind CSS for the frontend, Node.js and Express.js for backend operations, and MongoDB for database management. The system allows users to create projects, assign tasks, manage deadlines, and monitor progress through an interactive dashboard. Authentication and role-based access control help manage user permissions and protect project information. AI-assisted features support project planning, task organization, and project-related insights to improve efficiency and decision-making.

In the future, Project Mind AI can be enhanced by introducing advanced Artificial Intelligence (AI) features to improve project planning, task management, and decision-making. AI-based recommendations can help users prioritize tasks, allocate resources efficiently, predict potential project risks, and manage deadlines more effectively. The system can also include real-time notifications, team messaging, automated reminders, and advanced analytics to improve communication and collaboration among team members. Additionally, interactive reports and performance dashboards can provide detailed insights into task completion, team productivity, and overall project progress. Integration with cloud services and external project management tools can improve accessibility, scalability, and data synchronization. Furthermore, future versions can incorporate AI-powered project summaries, automatic task suggestions, workload analysis, and deadline predictions to reduce manual effort and support better planning. These enhancements can make ProjectMind AI more intelligent, reliable, and adaptable to different organizational requirements while improving team coordination and ensuring efficient project completion.

Results and discussion

ProjectMind AI provides a centralized platform for project planning, task management, team collaboration, and progress tracking through an interactive dashboard. The system uses **React, TypeScript, Node.js, Express.js, and MongoDB** to manage project information, user authentication, task assignments, and deadlines efficiently. The dashboard helps users monitor project status, track task completion, and organize team activities. Additionally, AI-assisted features support project planning and task organization, helping improve workflow efficiency and decision-making. Overall, the system aims to reduce manual effort, enhance team collaboration, and improve productivity through structured and intelligent project management.

Conclusion

The development of the e-commerce website successfully demonstrates the integration of modern web technologies to create an efficient, secure, and user-friendly online shopping platform. The system provides a seamless interface where customers can browse products, manage their cart, and complete transactions with ease. By utilizing React.js for front-end development and integrating secure payment gateways, the platform ensures both performance and safety for users. The inclusion of features such as product management, responsive design, and order tracking enhances the overall shopping experience.

REFERENCES

1. Taboada, I., Daneshpajouh, A., Toledo, N., & de Vass, T. (2023). *Artificial Intelligence Enabled Project Management: A Systematic Literature Review.*
2. Project Management Institute. (2021). *A Guide to the Project Management Body of Knowledge (PMBOK Guide)* (7th ed.). Project Management Institute.
3. Banks, A., & Porcello, E. (2020). *Learning React: Modern Patterns for Developing React Apps.* O'Reilly Media.
4. Haverbeke, M. (2024). *Eloquent JavaScript: A Modern Introduction to Programming* (4th ed.). No Starch Press.