PROJECT MANAGEMENT SYSTEM

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Abstract— **The Project Management System (PMS) is a web-based platform designed for students, project coordinators, and project guides to simplify and improve project coordination and monitoring. Traditional notice boards are no longer effective at communicating essential project-related information to students, resulting in missed updates and project management concerns. This issue is addressed by PMS, which provides a user-friendly online interface with unique login information for each module, ensuring data security. Project instructors can successfully assign work to students using the PMS, enabling improved organization and responsibility sharing. Project coordinators, project mentors, and students may readily connect and collaborate, allowing for effective project progress tracking. PMS allows students to focus on project development by reducing the stress of manual project management by leveraging a user-friendly interface and helping to complete designated tasks within a timeframe.**

Keywords— **Project Management System (PMS), web-based platform, students, project coordination.**

I.   INTRODUCTION

A project is a task that must be completed, and efficient project management is essential to accomplishing project goals and objectives. Project management includes planning, scheduling, resource management, requirement analysis, design, and testing.

Without professional project management, completing projects within stated timeframes becomes challenging. As a result, project management is crucial for removing impediments and attaining certain targets. The suggested Project Management System (PMS) provides an easy-to-use platform for project administration and monitoring. Using a user-friendly web interface, the system seeks to increase project collaboration, communication, and overall productivity. PMS can be used by students, project coordinators, and project guides to ensure that projects are finished effectively and that certain objectives and goals are met.

Our project management system in higher education streamlines collaboration between students and guides, providing structured organization, time management tools, and transparent progress tracking. It empowers students to navigate projects effectively while enabling guides to monitor progress and offer assistance.

The primary goal of the Project Management System (PMS) is to provide students, project coordinators, and project guides with an easy-to-use web interface for managing and monitoring project activity. The system will provide each module with secured access via individual login credentials and receive updated notifications, ensuring data security and privacy.

II.   LITERATURE SURVEY

Table 1 shows literature survey comparison table for project management system provides a comprehensive overview of existing literature related to project management systems, highlighting key features, functionalities, benefits, and gaps identified.

Table -1 Literature Survey Comparison

Paper Title	Idea Presented	Gaps Identified
Student Project Management System[1]	SPMS provides a central hub for project creation, mentor guidance, task assignments, collaborative learning and progress tracking.	User adoption resistance, technical glitches, data security risks, and communication breakdowns.
Student Project Management System[2]	Web-based Project Management System (PMS) to automate tasks, enhance collaboration, track progress, and simplify documentation. Aims to improve project outcomes and streamline the entire project process.	Needs improvements in security, user experience, data validation, error handling.
Survey On Student Project Management System[3]	Addresses manual final year project management challenges and provides a web-based portal for streamlined approval, benefiting students and staff.	SPMS can run into issues with resource allocation, progress monitoring, user acceptance, security, technology integration.
Project Management System[4]	Usage of a Work Breakdown Structure i.e. a chart to keep track of the student's progress.	Assignment of Guides is unpredictable, hash-map collisions impacting performance and, high memory consumption.
Web-based Project Management System[5]	This paper presents Atma Groupware, a web application designed to streamline project management by facilitating communication, management, knowledge sharing, and progress tracking.	Limited exploration of scalability issues and potential integration with emerging technologies for enhanced functionality.
A Web- Based Project Management System[6]	This project introduces a web-based project management system to enhance communication, task allocation, and progress tracking, addressing challenges of incomplete requirements elicitation and communication gaps among stakeholders.	Identified gaps include limited exploration of scalability issues and potential integration with emerging technologies for enhanced functionality.
Web Base Project Management System for Development of ICT Project Outsourced by Iranian Government[7]	The proposed project aims to implement a web-based project management system for the Iranian government, enhancing efficiency and decision-making in ICT projects.	Fragmented traditional methods, slow information flow, and lack of transparency in project management processes.
4COLLABORATIVE Web Based Project Management Software[8]	The project involves developing a web-based Project Management Software (PMS) aimed at enhancing communication and efficiency among distributed	Need for further investigation into specific features and functionalities to optimize project

	teams in software development.	management processes.
WEB-BASED PROJECT MANAGEMENT[9]	This paper discusses the impact of internet and new technologies on project management, emphasizing the shift towards web-based project management systems (WBPMS). The paper explores the evolution from traditional project management to web-based systems, highlighting challenges, benefits, and limitations of WBPMS.	The paper provides a comprehensive overview but lacks detailed analysis of specific case studies or empirical evidence supporting the claims made about WBPMS effectiveness and limitations.
Cloud-based Project Management System[10]	Project Management Application: A cloud-based solution facilitating efficient project management by centralizing project details, resource allocation, and client information, enhancing collaboration and productivity.	Security vulnerabilities in existing systems and scalability issues, addressed through advanced technology integration and optimization techniques.

III. EXISTING SYSTEM

A. COLLEGE SYSTEM

The present project management system at our college takes a physical approach to project creation and collaboration.

The system is comprised of many main components:

Group Formation and Categorization: Students organize project groups using a shared Excel sheet. Groups are organized based on CGPA to ensure diversity and balanced teams.

1. Physical Presentations and Monitoring: Students deliver regular in-person presentations to highlight project progress. These presentations allow students to showcase their work, receive comments, and enhance project monitoring. After each presentation, project leaders evaluate projects and assign ratings.

2. Meeting Attendance: Attendance is gathered during physical meetings between project guides and students. This strategy ensures involvement and participation in project-related conversations.

3. Digital Integration Potential: While the current approach fosters direct connection and responsibility, experimenting with digital technologies for tasks such as group creation, remote presentations, and attendance monitoring might improve efficiency and accessibility.

B. DRAWBACK

While the college's current project management system encourages direct involvement and collaboration, it may also present certain obstacles. The use of physical processes, such as Excel sheets for group formation and in-person presentations, may result in inefficiencies, especially in large projects or when distant participation is required. Furthermore, only monitoring and evaluating projects in person may limit continuous assessment and feedback. Additionally, the system's reliance on actual presence for meetings may limit flexibility for students with limited time. To address these concerns, adopting digital integration could increase project management procedures' accessibility, efficiency, and adaptability.

IV. PROPOSED ALGORITHM

The proposed system recommends the usage of a web portal for project management systems (PMS), in which students progress can be seen by the project mentors and coordinators as well as by the students. All kinds of project activities, such as presentation of projects, submission of projects, validation of projects, conduct of meetings, tracking of attendance, updating notifications, etc., can be done on a single platform so that it becomes easier for the students to access their corresponding projects from a single location.

Additionally, it provides a chat feature that enables one-to-one communication between students and the project mentors and coordinator(s) so that the students can share their problems or obstacles currently being faced by them, and it also gets into mentor's scrutiny, which helps them impart appropriate guidance to the students, which helps them easily progress through their project, which inculcates a highly efficient project management system.

The PMS aims to address the challenges associated with project completion within specified time-frames by providing a user-friendly web interface that promotes efficient project

administration and monitoring. The key components within the scope of the PMS include:

1. Planning and Scheduling: The system will facilitate the creation and management of project plans and schedules, ensuring a systematic approach to task allocation and timeline adherence.

2. Resource Management: Efficient utilization and allocation of resources, including personnel, materials, and tools, will be a focal point to enhance overall project productivity.

3. Requirement Analysis: The PMS will support the thorough analysis of project requirements, ensuring a clear understanding of project objectives and deliverables.

4. Design and Testing: The system will aid in the coordination of design activities and testing processes, providing a platform for collaborative efforts among project stakeholders.

5. Collaboration and Communication: A user-friendly interface will foster enhanced collaboration and communication among project team members, students, project coordinators, and project guides.

6. Productivity Enhancement: The PMS seeks to increase overall productivity by streamlining project management tasks, removing impediments, and promoting effective workflows. The intended users of the system include students engaged in project work, project coordinators overseeing multiple projects, and project guides providing guidance and mentorship. The scope emphasizes the adaptability of the PMS across diverse project types and its contribution to the successful and timely completion of projects.

A. HARDWARE REQUIREMENTS
 1. CPU: Quad-core processor or higher (Pentium V).

2. RAM: 8 GB RAM.
3. Storage: 256 GB SSD.
4.Operating System: Windows/Linux-based server   preferred.

B. SOFTWARE REQUIREMENTS
FRONTEND: - HTML/CSS, JS.
DATABASE: - XAMPP.
BACKEND: -   NODE JS, LARAVEL.

TEXT-EDITOR: - VSCODE

V.   DESIGN OF THE SYSTEM

The Project Management System (PMS) caters to three distinct roles: students, project coordinators, and project guides, each with specific functions and access to tailored dashboards. Here is the design of PMS according to the user roles
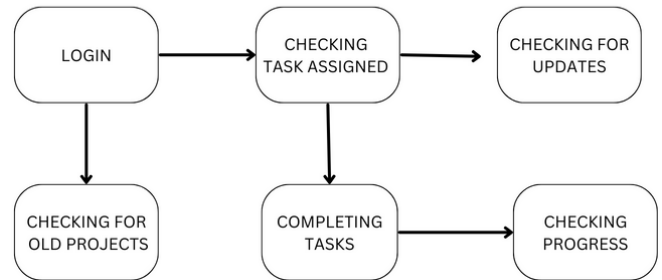
STUDENT BLOCK DIAGRAM

Fig. 1.   Block Diagram in Project Management System.

Figure 1 shows the students module of project management system. This figure indicates user can login and then can access the assignment which is assigned by corresponding guides, complete it, check for new updates in notification tab and also can check for old project in repositories.

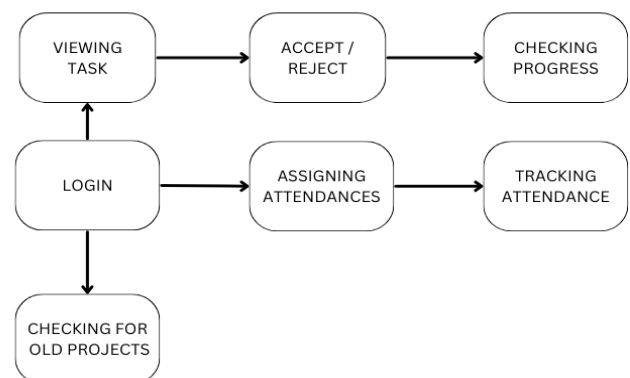**PROJECT GUIDE BLOCK DIAGRAM**

Fig. 2.   Project Guide Block Diagram in Project Management System

Figure 2 shows the Project Guide module of project management system. This figure indicates guide can login and then can view the assignment which is assigned, accept/reject it, assign attendance to his/her group students, can track project, attendance and also can check for old project in repositories.
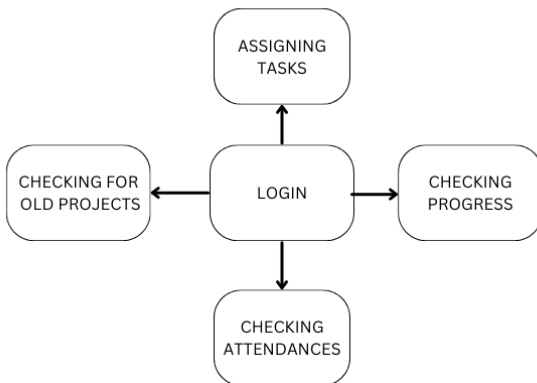
PROJECT COORDINATOR BLOCK DIAGRAM

Fig. 3. Project Coordinator Block Diagram in Project Management System.

Figure 3 shows the Project Coordinator module of project management system. This figure indicates coordinator can login and then can assign the task (assignment), checking/tracking attendance all groups, track projects and also can check for old project in repositories.

VI. RESULT AND DISCUSSION

In the results section, we'll see how well the Project Management System (PMS) works and what users think about it. We'll learn about its practical use and how it helps manage projects in college.
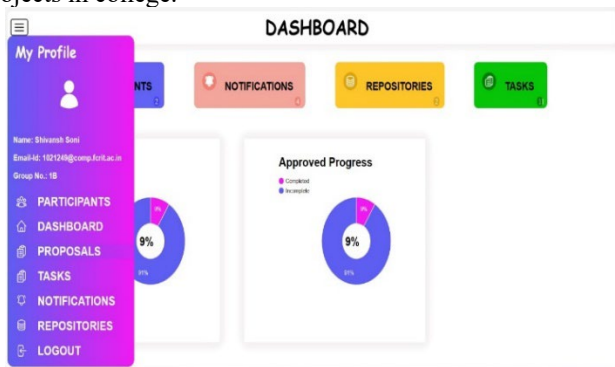
Fig. 4. Home page when user (student) login

Figure 4 shows Home page which shows how will be dashboard when user login using their credentials. This homepage contains profile of user and tabs which allow user to operations related to their role.

C. Student side

These are pages available when student user login in PMS. In this system, students will be able to view and complete tasks, communicate with guides, receive notifications, and access project repositories.

Fig. 5. Participants page when Student user login using their credentials.

Figure 5 shows Participants page when students login. This page contain a table where students will be able to view their guide name and team members name.

Fig. 6. Task page when Student user login using their credentials.

Figure 6 shows Task page when students login. This page contain a table where students will be able to view their task assigned to them, their status, due dates, submission date and can submit their documents to complete their task.

Fig. 7. Notifications page when Student user login using their credentials.

Figure 7 shows Notifications page when students login. Students will be able to view the important information notified by coordinator in this page.
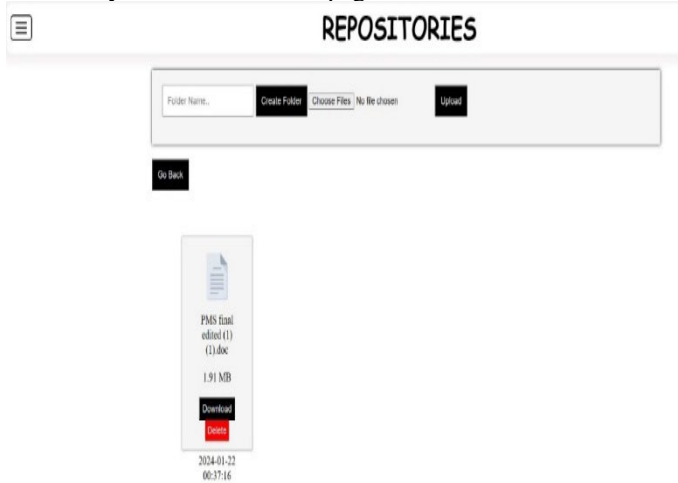

Fig. 8. Repositories page when Student user login using their credentials.

Figure 8 shows Repositories page when students login. In this page, students will be able to view the file uploaded by them and the previous projects done by their seniors.

D.   Project Guide side
These are pages available when Project guide user login in PMS. In this system, guide will be able to assign tasks, review submissions, provide feedback, track progress, manage attendance, and communicate with students.
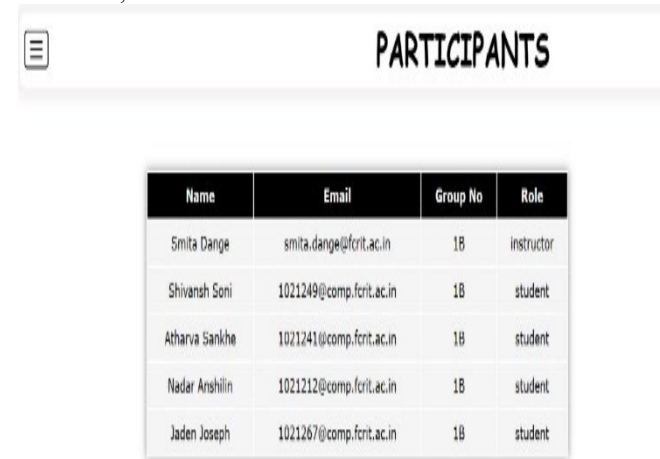

Fig. 9. Participants page when Guide user login using their credentials.

Figure 9 shows Participants page when Project guide login. This page contain a table guide will be able to view their name and team members name.

Fig. 10. Tasks page when Guide user login using their credentials.

Figure 10 shows Task page when Project guide login. This page contain a table where guide will be able to view task assigned by coordinator, their status, due dates, submission date, can view submitted documents (by student user), write review the task and accept or reject the submitted task.
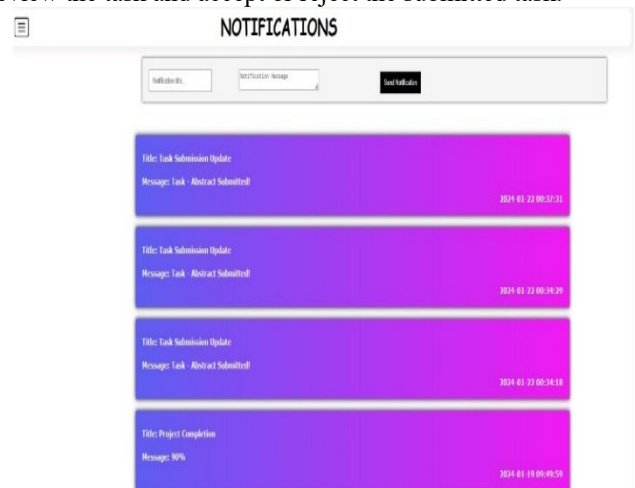

Fig. 11. Notifications page when Guide user login using their credentials.

Figure 11 shows Notifications page when Project guide login. Guide will be able to view the important information notified by coordinator in this page.

E.   Project Coordinator side
These are pages available when Project coordinator user login in PMS. In this system, coordinator will be able to assign tasks, monitor progress, provide support, manage communication, and generate notifications.

Fig. 12. Groups page when Coodinator user login using their credentials.

Figure 12 shows Groups page when Project coordinator login. This page contain a table coordinator will be able to view teams who are present with team number, guide name and team members name.
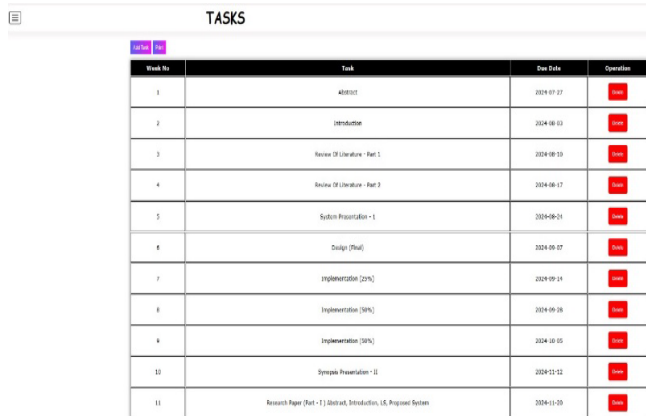

Fig. 13. Tasks page when Coodinator user login using their credentials.

Figure 13 shows Tasks page when Project coordinator login. This page contain a table where coordinator will be able to add/delete task with their due date and take print of this page.
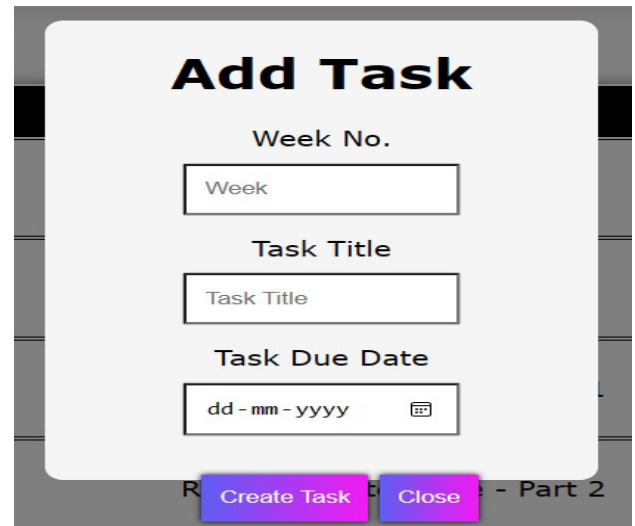

Fig. 14. Add Task dialog box when Coodinator user try to add task.

Figure 14 shows Add Task dialog box when Coodinator user try to add task. This Dialog box appears before coordinator add task which contain week no., task title and due date field.
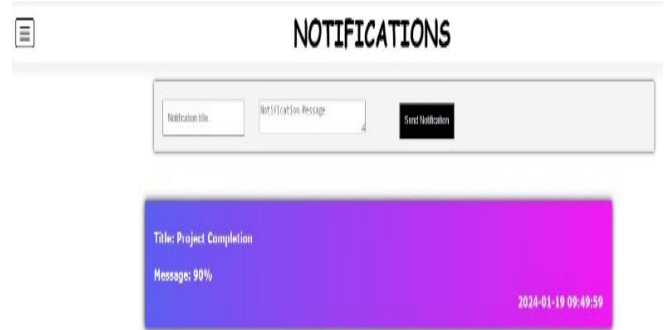

Fig. 15. Notifications page when Coodinator user login using their credentials.

Figure 15 shows Notifications page when Project coordinator login. Coordinator will be able to give notification messages to all students and guides.

VII. CONCLUSION

This project, the Project Management System (PMS), represents a pivotal advancement in project coordination and monitoring for students, project coordinators, and guides. By leveraging modern technology and discarding outdated methods, it revolutionizes the way project-related tasks are managed and communicated. Students benefit from streamlined task management, allowing them to focus on project development rather than administrative burdens. Project guides and coordinators gain enhanced visibility into project progress, enabling targeted support and efficient

oversight of multiple projects. The system's incorporation of real-time communication features fosters collaboration and problem-solving, enriching the learning experience for all stakeholders.

The PMS's scalability and adaptability ensure its relevance across diverse academic disciplines, making it a valuable asset for educational institutions seeking to optimize project management practices. As digital transformation continues to reshape higher education, the PMS emerges as a catalyst for innovation and excellence, empowering students and educators to achieve their goals with confidence and proficiency.

VIII.   REFERENCE

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