INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT (IJSREM)
VOLUME: 07 ISSUE: 05 | MAY - 2023 SJIF 2023: 8.176 ISSN: 2582-3930

Project Management System

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***Abstract*— Nowadays, web development companies are increasingly using different project management systems to enhance product efficiency. With multiple projects running simultaneously and requiring input from various individuals and teams, a reliable project management system is crucial. These systems play a significant role in ensuring the development of reliable, robust, and high-quality web applications. The purpose of a project management system is to assist organizations in planning, organizing, managing, and tracking their projects and progress. Through a user-friendly web-based application, important project information and status can be securely maintained, allowing for easy access and manipulation of records over an extended period. The data from previous projects aids in strategic planning and ensures that the organization possesses the necessary details for future goals. Additionally, sharing project progress with clients promotes transparency. The system also enables organizations to track project budgets and deadlines. Currently, many companies lack a documentation management system, resulting in project-related information being scattered across multiple locations. Consolidating all project documentation, such as specification requirements and application documents, into a single system increases efficiency and provides a holistic view of the project structure. Therefore, a project management system is a valuable tool for improving efficiency, productivity, and management in any organization. The project itself will be developed using the MERN stack, employing React.js for the front-end, Node.js with Express.js for the back-end, and a MongoDB database—a fully operational full-stack web development project.**

I. INTRODUCTION

Web-based project management systems are designed to effectively manage and store project information for web-based applications. These systems enable different groups of people, such as sales departments, programmers, and project managers, to have controlled access to information and automate the distribution of relevant data. The main objective of collaboration is to achieve faster, cost-effective, and improved outcomes by leveraging collective knowledge, combining resources, and making informed decisions. Effective collaboration with teams enhances productivity, expedites decision-making, optimizes resource utilization, and preserves valuable intellectual assets and time. Web-based project management systems can significantly enhance performance, productivity, and efficiency within an organization. As these applications can be accessed through web browsers, there is no need for desktop installations or frequent updates. Furthermore, developers can utilize the system remotely, even when geographically dispersed, enabling seamless collaboration. This paper aims to provide an overview of the system being developed, including its motivation and background, as well as the research and development process that led to the final methodology. The limitations and value of the system are also discussed.

II. Literature Review

A) Project Management Systems Overview Project management systems play a vital role in modern project management practices by providing organizations with a structured approach to planning, executing, and controlling projects. According to Smith et al, a project management system is a software tool that facilitates project scheduling, resource allocation, and collaboration among project team members. Numerous studies have highlighted the benefits of implementing project management systems in improving project success rates and overall organizational efficiency.

B) Features and Functionalities of Project Management Systems Research conducted by Johnson and Brown identifies common features and functionalities of project management systems. These include task management, Gantt charts, resource management, document sharing, and communication tools. The integration of these features within a centralized platform allows project managers to effectively monitor project progress, allocate resources, and track milestones .

III. System Design and Implementation

A) Design Principles The design of a project management system is crucial for its effectiveness and usability. Several design principles have been identified in the literature. These principles include modularity, scalability, flexibility, and user-friendliness. Modularity ensures that the system can be easily expanded or modified to accommodate changing project requirements. Scalability is essential for handling projects of

different sizes and complexities, allowing the system to grow alongside the organization. Flexibility allows for customization based on project-specific needs, enabling project managers to adapt the system to their workflows. User-friendliness ensures that the system is intuitive and easy to navigate, promoting user acceptance and adoption.

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B.) System Architecture The system architecture of a project management system defines its structure and components. A commonly adopted architecture is the client-server model, where the system consists of a central server and multiple client devices. The server stores project data, handles requests, and manages user access and permissions. The clients provide interfaces for project managers, team members, and stakeholders to interact with the system. Another emerging architecture is cloud-based, which offers the advantages of scalability, accessibility, and data synchronization across different devices. Before you begin to format your paper, first write and save the content as a separate text file. Complete all content and organizational editing before formatting. Please note sections A-D below for more information on proofreading, spelling and grammar.

C) Implementation Considerations During the implementation phase, certain considerations need to be addressed to ensure successful deployment of the project management system. These considerations include data management, security, integration with existing systems, and user training. Data management involves establishing a structured database schema to store project-related information efficiently. Security measures, such as user authentication and data encryption, should be implemented to protect sensitive project data.

D.) System Prototyping and Testing System prototyping and testing are crucial steps in the development process. Prototyping allows for early feedback and validation of the system design, helping identify any design flaws or usability issues..

IV. Case Study

A. Background

There are numerous challenges in effectively managing multiple concurrent projects. Project planning, coordination, and communication can be fragmented, leading to delays, misalignment, and resource bottlenecks. To address these issues, it is important to develop a project management system.

B. Objectives

The objectives of implementing the project management system were to improve project visibility, enhance collaboration among project teams, optimize resource allocation, and streamline project documentation and reporting processes.

C .System Features and Functionalities

The project management system provides a wide range of features and functionalities. It offered a centralized dashboard for project managers to monitor project progress, track milestones, and visualize resource allocation. Task management and scheduling capabilities allowed for efficient assignment, tracking, and prioritization of project tasks. The system facilitated seamless document sharing and collaboration among project team members. Additionally, it generated automated reports for project status updates and performance analysis.

D. Results and Benefits

Project visibility and transparency increased, allowing project managers to identify and address issues promptly. The system facilitated seamless communication and collaboration among team members, reducing delays and enhancing cross-functional coordination. Resource allocation and utilization improved, resulting in optimized project schedules and cost control. Moreover, the automated reporting capabilities provided accurate and up-to-date project performance data, enabling informed decision-making by senior management.

VI. CONCLUSION

THE AIM OF THE PROJECT WAS TO MAKE A COMPLETE, FULLY WORKING WEB BASED PROJECT

MANAGEMENT SYSTEM FOR THE COMPANY. REQUIREMENTS FROM THE ORGANIZATIONS HAS BEEN

GATHERED AND TAKEN INTO ACCOUNT. WEB BASED PROJECT MANAGEMENT SYSTEM CAN BE USED TO IMPROVE ORGANIZATION'S EVERYDAY USE AND TO INCREASE PERFORMANCE, PRODUCTIVITY AND EFFICIENCY. AS A GOOD PROJECT MANAGEMENT SYSTEM IT HAS A POSSIBILITY TO UPLOAD, DOWNLOAD AND DELETE FILES AND UNIFORMLY GIVES CHANGE FOR DEVELOPERS TO BE IN CONSTANT CONTACT WITH THE

CUSTOMER REQUIREMENTS AND EXPECTATIONS FOR THE PROJECT. USER MANAGEMENT TOOL IN

WEB BASED PROJECT MANAGEMENT SYSTEM IS A GOOD APPLIANCE FOR KEEPING EYE ON THE

PROJECT AND FOR GIVING RIGHTS TO DIFFERENT USERS BY SYSTEM ADMINISTRATOR IN

COMPANY. THIS ALL MAKES A COMPLETE AND GOOD COMMUNICATION SYSTEM INSIDE

COMPANY, ALL DATA AND MATERIAL WILL BE ACCESSIBLE FROM ONE PLACE, TO FACILITATE THE

SOLUTION OF A PROJECT AND CONTACT COMMUNICATION WITH A CLIENT. FINALLY, THE WHOLE

SYSTEM HAS BEEN TESTED TO ENSURE THAT EVERYTHING FUNCTIONS CORRECTLY BEFORE THE

SYSTEM PROCESSES ACTUAL DATA AND PRODUCES INFORMATION THAT PEOPLE WILL RELAY ON.

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