Construction Project Management System

A Web-Based Application for Managing Construction Projects

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# DEDICATION

We dedicate this entire work to our beloved Parents and Teachers whose endless prayers and unwavering support have been our guiding light throughout our academic journey. Their sacrifices and encouragement have enabled us to achieve this milestone.

# ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious, the Most Merciful. All praise is due to Allah for providing us with strength, patience, and perseverance to complete this project.  
  
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We are also thankful to our families and friends whose unwavering support and prayers played a significant role in the successful completion of our project.

# DECLARATION

We hereby declare that this thesis titled “Construction Project Management System” is our own work and has not been submitted previously for any degree or diploma at any university. All sources of information have been acknowledged properly.

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# Chapter # 1 INTRODUCTION

## 1.1 Introduction to the Project

Construction projects involve complex processes that require efficient management of tasks, budgets, resources, and deadlines. Poor project management often leads to delays, cost overruns, and resource wastage. To address these challenges, we developed the Construction Project Management System (CPMS), a web-based solution that allows construction companies to manage all aspects of their projects in one centralized platform.

## 1.2 Objectives of the Project

The objectives of CPMS include:  
- Optimize resource allocation and usage.  
- Monitor project progress and provide real-time updates.  
- Enable accurate budget and expense tracking.  
- Streamline communication among stakeholders.  
- Deliver a scalable and user-friendly project management tool.

## 1.3 Overview of the Project

CPMS is designed for construction companies, contractors, and project managers to manage construction operations more effectively. It features modules for task assignment, resource allocation, budgeting, progress monitoring, and reporting. Built using React and Node.js with a MySQL backend, CPMS offers real-time data insights and cloud deployment for accessibility.

## 1.4 Description of the Project

The CPMS has three primary roles:  
  
1. Project Managers: Create projects, assign tasks, allocate resources, and monitor progress.  
2. Employees: View and update their assigned tasks and log progress.  
3. Admin: Oversee the entire system, manage users, and ensure data consistency.

## 1.5 Existing System

Currently, construction projects are often managed using spreadsheets, physical documents, or outdated tools that don’t offer real-time updates or team collaboration. These methods lead to inefficiencies, errors, and miscommunication.

## 1.6 Choosing the Project

We chose to develop CPMS after consulting local construction firms and identifying their key challenges in managing resources and tracking project performance. Our goal is to provide a modern, cost-effective solution to these problems.

## 1.7 Benefits of the Project

CPMS offers several benefits:  
- Centralized data management.  
- Real-time progress and budget tracking.  
- Efficient team collaboration.  
- Reduced delays and budget overruns.  
- Scalable for various project sizes.

## 1.8 Tools and Technologies

- \*\*Frontend\*\*: React.js, Bootstrap  
- \*\*Backend\*\*: Node.js, Express.js  
- \*\*Database\*\*: MySQL  
- \*\*Hosting\*\*: Firebase or AWS  
- \*\*Version Control\*\*: Git & GitHub

## 1.9 Summary

This chapter introduced the CPMS project, its objectives, target users, and advantages. It also described the motivation behind the project and outlined the technologies that were used to develop the system.