VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"JNANA SANGAMA", BELAGAVI - 590 018

A MINI PROJECT REPORT

on

"CONSTRUCTION MANAGEMENT SYSTEM"

Submitted by

Anand S B Patil	4SF22IS402
Pavitra Shankar Naik	4SF22IS407

In partial fulfillment of the requirements for the V semester

DBMS LABORATORY WITH MINI PROJECT

of

BACHELOR OF ENGINEERING

in

INFORMATION SCIENCE & ENGINEERING

Under the Guidance of

Mrs. SUKETHA

Assistant Professor

Department of CSE

at

SAHYADRI

College of Engineering & Management

Mangaluru - 575 007

2023 - 24

SAHYADRI

College of Engineering & Management
Mangaluru - 575 007

Department of Information Science & Engineering

CERTIFICATE

This is to certify that the **Mini Project** entitled **" CONSTRUCTION MANAGE-MENT SYSTEM"** has been carried out by **Anand S B Patil (4SF22IS402)** and **Pavitra Shankar Naik (4SF22IS407)**, the bonafide students of Sahyadri College of Engineering & Management in partial fulfillment of the requirements for the V semester **DBMS Laboratory with Mini Project (21CSL55)** of **Bachelor of Engineering in Information Science & Engineering** of Visvesvaraya Technological University, Belagavi during the year 2022 - 23. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The mini project report has been approved as it satisfies the academic requirements in respect of mini project work.

————————————————   ————————————————
Mr. Suketha   **Dr.Rithesh Pakkala P**
Assistant Professor   Associated Professor , Head
Dept. of CSE, SCEM   Dept. ISE and (DS), SCEM

External Practical Examination:

Examiner's Name   Signature with Date

1. ....

2. ....

SAHYADRI
College of Engineering & Management
Adyar, Mangaluru - 575 007

Department of Information Science & Engineering

DECLARATION

We hereby declare that the entire work embodied in this Mini Project Report titled
"CONSTRUCTION MANAGEMENT SYSTEM" has been carried out by us at
Sahyadri College of Engineering and Management, Mangaluru under the supervision of
Mrs. SUKETHA as the part of the V semester **DBMS Laboratory with Mini
Project (21CSL55)** of **Bachelor of Engineering** in **Information Science & Engineering**. This report has not been submitted to this or any other University.

Anand S B Patil (4SF22IS402)

Pavitra Shankar Naik (4SF22IS402)

SCEM, Mangaluru

Abstract

The Construction Management System (CMS) is a comprehensive software solution designed to streamline and optimize the management of construction projects from inception to completion. It integrates various tools and modules to facilitate efficient communication, collaboration, scheduling, budgeting, resource allocation, and documentation management throughout the project lifecycle.The CMS enables users to create detailed project plans, define tasks, allocate resources, and establish timelines. It offers Gantt charts, critical path analysis, and milestone tracking functionalities to ensure projects stay on schedule.Users can efficiently allocate labor, equipment, and materials to different tasks and projects. The system provides real-time visibility into resource availability, utilization, and allocation, enabling better decision-making and resource optimization. Users can generate customizable reports and dashboards to track project progress, performance metrics, and key performance indicators (KPIs). The CMS provides insights into project health, risks, and trends, enabling informed decision-making and continuous improvement.The CMS facilitates seamless communication and collaboration among project teams, stakeholders, and subcontractors. It offers features such as messaging, notifications, file sharing, and task assignments to improve teamwork and productivity.

Acknowledgement

Table of Contents

List of Figures

Chapter 1

Introduction

In the dynamic landscape of construction projects, efficient management is paramount for success. Traditional methods of project management often fall short of addressing the complexities inherent in construction endeavors, leading to delays, cost overruns, and communication gaps. However, with the advent of technology, there arises an opportunity to revolutionize construction project management through the implementation of a comprehensive Construction Management System (CMS).

The construction industry faces unique challenges ranging from resource allocation and scheduling to communication and documentation. A construction managerial time system offers a holistic solution to these challenges by providing a centralized platform where all project stakeholders can collaborate, plan, execute, and monitor project activities in real time.

This project aims to develop and implement a robust CMS tailored to the specific needs of construction projects. By leveraging advanced software technologies, such as cloud computing, data analytics, and mobile applications, the CMS will streamline project workflows, improve decision-making processes, and enhance overall project efficiency.

By implementing a comprehensive Construction Management System, this project aims to address the inherent challenges of construction project management, leading to improved efficiency, reduced costs, and timely project delivery. Through collaboration and innovation, the construction industry can embrace digital transformation and pave the way for future success.

1.1   Purpose

The main purpose of this project is to Construction projects involve numerous stakeholders, including architects, engineers, contractors, subcontractors, suppliers, and clients. The CMS aims to improve communication and collaboration among these stakeholders by providing a centralized platform for sharing information, exchanging updates, and coordinating activities.

1.2   Scope

To provide user-friendly and quick solutions for managing sites through an online web application that can collaborate between site engineers and managers from different sites In the present system, all the refineries are not in single pieces. The Existing System for the construction process is having the human work. If the Company wants to check the day-to-day human resources and equipment management logs is a difficult task for human capabilities from all the construction sites the user must go to every and check for the products so to overcome all these disadvantages, a new system developed where in the user will get all the details of the product at one place.

1.3   Overview

Here user signs up for the application, once he is registered then he can directly log into the application with a valid user ID and password and keep information seamlessly. Where one can manage documents and cash protected. Users can access information also request information, and upload information regarding their usage, all receipts, and bills can be uploaded electronically.

Chapter 2

Requirements Specification

2.1   Software Specification

- Database : MySQL 5.6.17

- Markup Language : HTML

- Scripting Language: PHP 5.5.12

- IDE :NetBeans 8.0.2

2.2   Hardware Specification

- Processor : Intel

- RAM : 8GB

- Input device: Standard keyboard and Mouse

- Hard disk : 1TB

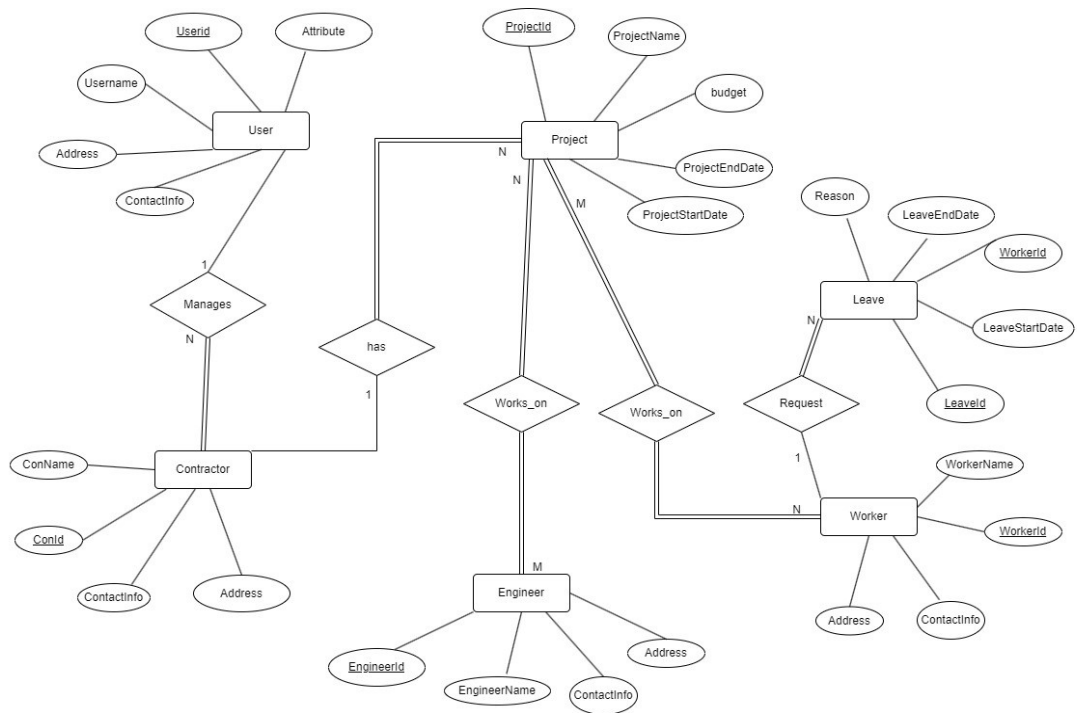# Chapter 3

System Design

3.1 ER Diagram

Figure 3.1: ER Diagram for Construction Management System

Provides a basic representation of how different entities within the construction management system are related and interact with each other. It helps in understanding the structure of the database and how data flows between different components of the system.

3.2   Mapping From ER Diagram to Schema Diagram

3.3   Schema Diagram

A schema diagram for a Construction Management System (CMS) provides a visual representation of the database structure and relationships between various entities involved in construction projects. This table represents individual construction projects. It typically includes fields such as ProjectID (a unique identifier for each project), ProjectName, StartDate, EndDate, Budget, and ClientID (a foreign key referencing the Clients table).The "Constructor" table in a Construction Management System (CMS) database would typically stores information about construction companies or contractors involved in various projects. In a Construction Management System (CMS) database, the "Worker" table would store information about individual workers or laborers involved in construction projects.
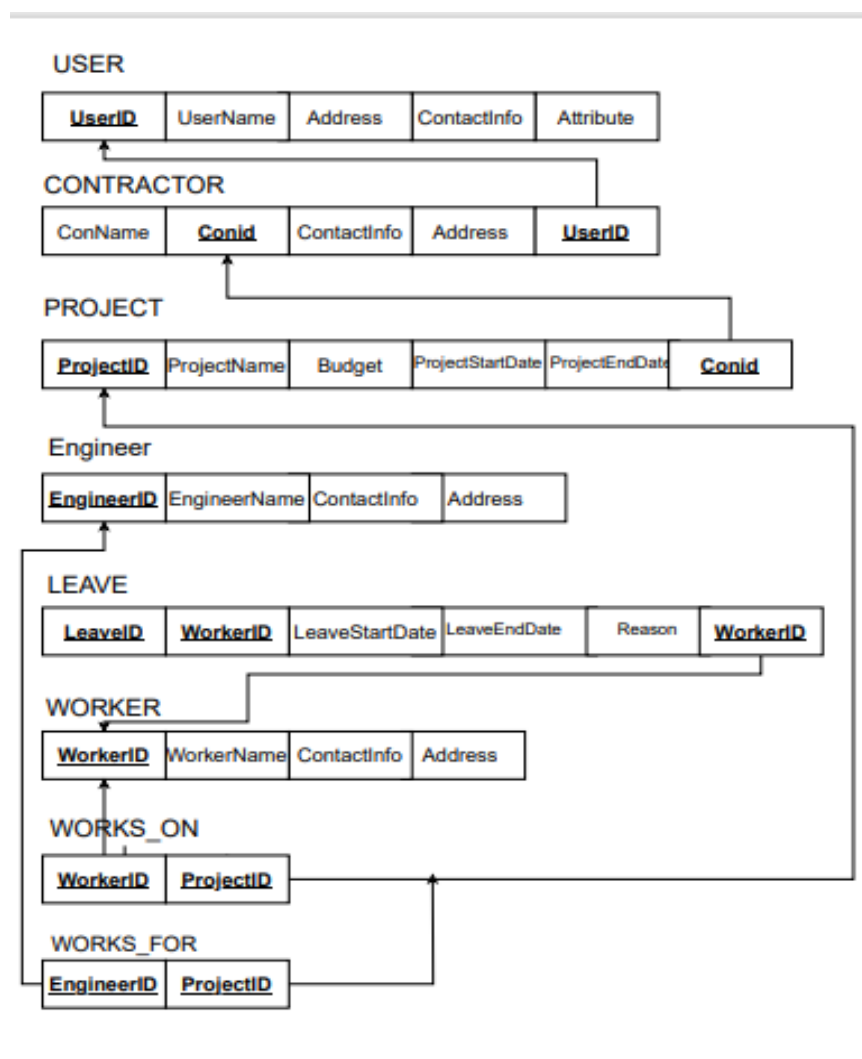

Figure 3.2: Schema Diagram For Construction Management System

Chapter 4

Implementation

Constructor table :

CREATE TABLE contractors (

id int(11) NOT NULL,

name varchar(255) NOT NULL,

email varchar(255) DEFAULT NULL,

phone varchar(20) DEFAULT NULL,

address varchar(50) NOT NULL,

password varchar(50) NOT NULL,

pro_img varchar(500) NOT NULL,

role varchar(50) NOT NULL DEFAULT 'c'

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
1	lea_ID	int(50)			No	None		AUTO_INCREMENT	Change	Drop	More
2	from_date	date			No	None			Change	Drop	More
3	to_date	date			No	None			Change	Drop	More
4	reason	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
5	Lstatus	int(50)			No	0			Change	Drop	More
6	wr_id	int(50)			No	None			Change	Drop	More
7	c_id	int(50)			No	None			Change	Drop	More
8	p_id	int(50)			No	None			Change	Drop	More

Figure 4.1: Constructor Table

Leave table:

CREATE TABLE leave (

lea_ID int(50) NOT NULL,

from_date date NOT NULL,

to_date date NOT NULL,

reason varchar(50) NOT NULL,

Lstatus int(50) NOT NULL DEFAULT '0',

wr_id int(50) NOT NULL,

c_id int(50) NOT NULL,

p_id int(50) NOT NULL

) ENGINE=InnoDB DEFAULT CHARSET=latin1; **Payment**

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	pay_id	int(50)			No	None		AUTO_INCREMENT	Change Drop More
2	amount	double			No	None			Change Drop More
3	from	varchar(50)	latin1_swedish_ci		No	None			Change Drop More
4	status	int(11)			No	0			Change Drop More
5	p_id	int(11)			No	None			Change Drop More
6	u_id	int(11)			No	None			Change Drop More
7	holder_id	int(11)			No	None			Change Drop More
8	role	varchar(50)	latin1_swedish_ci		No	None			Change Drop More

Figure 4.2: Leave Table

CREATE TABLE payment (

pay_id int(50) NOT NULL,

amount double NOT NULL,

from varchar(50) NOT NULL,

status int(11) NOT NULL DEFAULT '0',

p_id int(11) NOT NULL,

u_id int(11) NOT NULL,

holder_id int(11) NOT NULL,

role varchar(50) NOT NULL

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	name	varchar(255)	latin1_swedish_ci		No	None			Change Drop More
3	start_date	date			Yes	NULL			Change Drop More
4	end_date	date			Yes	NULL			Change Drop More
5	ebudget	int(50)			No	None			Change Drop More
6	e_id	varchar(60)	latin1_swedish_ci		No	None			Change Drop More
7	address	varchar(50)	latin1_swedish_ci		No	None			Change Drop More
8	status	int(11)			No	0			Change Drop More
9	u_id	int(11)			No	None			Change Drop More
10	up_id	int(11)			No	None			Change Drop More
11	c_id	int(50)			No	None			Change Drop More

Figure 4.3: Payment Table

Project Table

CREATE TABLE projects (

id int(11) NOT NULL,

name varchar(255) NOT NULL,

start_date date DEFAULT NULL,

end_date date DEFAULT NULL,

ebudget int(50) NOT NULL,

e_id varchar(60) NOT NULL,

address varchar(50) NOT NULL,

status int(11) NOT NULL DEFAULT '0',

u_id int(11) NOT NULL,

up_id int(11) NOT NULL,

c_id int(50) NOT NULL

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	pg_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	status	int(11)			No	None			Change Drop More
3	p_id	int(11)			No	None			Change Drop More

Figure 4.4: Project Table

Project progress

CREATE TABLE project_progress (

pg_id int(11) NOT NULL,

status int(11) NOT NULL,

p_id int(11) NOT NULL

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
1	r_id	int(50)			No	None		AUTO_INCREMENT	Change	Drop	More
2	p_id	int(50)			No	None			Change	Drop	More
3	e_id	int(50)			No	None			Change	Drop	More
4	u_id	int(50)			No	None			Change	Drop	More
5	date	date			No	None			Change	Drop	More
6	r_status	int(11)			No	0			Change	Drop	More
7	budget	int(11)			No	None			Change	Drop	More

Figure 4.5: Project Progress Table

Request Table

CREATE TABLE request (

r_id int(50) NOT NULL,

p_id int(50) NOT NULL,

e_id int(50) NOT NULL,

u_id int(50) NOT NULL,

date date NOT NULL,

r_status int(11) NOT NULL DEFAULT '0',

budget int(11) NOT NULL

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
1	ur_id	int(50)			No	None		AUTO_INCREMENT	Change	Drop	More
2	project_name	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
3	period	int(50)			No	None			Change	Drop	More
4	budget	double			No	None			Change	Drop	More
5	address	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
6	u_id	int(50)			No	None			Change	Drop	More
7	ustatus	int(11)			No	0			Change	Drop	More

Figure 4.6: Request Table

User request table

CREATE TABLE userrequest (

ur_id int(50) NOT NULL,

project_name varchar(50) NOT NULL,

period int(50) NOT NULL,

budget double NOT NULL,

address varchar(50) NOT NULL,

u_id int(50) NOT NULL,

ustatus int(11) NOT NULL DEFAULT '0'

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
1	id	int(11)			No	None		AUTO_INCREMENT	Change	Drop	More
2	username	varchar(255)	latin1_swedish_ci		No	None			Change	Drop	More
3	password	varchar(255)	latin1_swedish_ci		No	None			Change	Drop	More
4	email	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
5	phone	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
6	profile_image	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
7	address	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
8	role	varchar(50)	latin1_swedish_ci		No	u			Change	Drop	More

Figure 4.7: User Request Table

User table

CREATE TABLE users (

id int(11) NOT NULL,

username varchar(255) NOT NULL,

password varchar(255) NOT NULL,

email varchar(50) NOT NULL,

phone varchar(50) NOT NULL,

profile_image varchar(50) NOT NULL,

address varchar(50) NOT NULL,

role varchar(50) NOT NULL DEFAULT 'u'

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action		
1	ur_id	int(50)			No	None		AUTO_INCREMENT	Change	Drop	More
2	project_name	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
3	period	int(50)			No	None			Change	Drop	More
4	budget	double			No	None			Change	Drop	More
5	address	varchar(50)	latin1_swedish_ci		No	None			Change	Drop	More
6	u_id	int(50)			No	None			Change	Drop	More
7	ustatus	int(11)			No	0			Change	Drop	More

Figure 4.8: User Table

Worker table

CREATE TABLE worker (

wor_ID int(10) NOT NULL,

wor_name varchar(50) NOT NULL,

contact varchar(50) NOT NULL,

address varchar(50) NOT NULL,

email varchar(60) NOT NULL,

password varchar(60) NOT NULL,

profile_image varchar(40) NOT NULL,

role varchar(6) NOT NULL DEFAULT '',

position varchar(50) NOT NULL

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	wr_id	int(10)			No	None		AUTO_INCREMENT	Change Drop More
2	p_id	int(50)			No	None			Change Drop More
3	c_id	int(50)			No	None			Change Drop More
4	w_id	int(50)			No	None			Change Drop More
5	wstatus	int(50)			No	0			Change Drop More
6	e_id	int(10)			No	None			Change Drop More

Figure 4.9: Worker Table

Worker table

CREATE TABLE worker_req (

wr_id int(10) NOT NULL,

p_id int(50) NOT NULL,

c_id int(50) NOT NULL,

w_id int(50) NOT NULL,

wstatus int(50) NOT NULL DEFAULT '0',

e_id int(10) NOT NULL

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	wr_id	int(10)			No	None		AUTO_INCREMENT	Change Drop More
2	p_id	int(50)			No	None			Change Drop More
3	c_id	int(50)			No	None			Change Drop More
4	w_id	int(50)			No	None			Change Drop More
5	wstatus	int(50)			No	0			Change Drop More
6	e_id	int(10)			No	None			Change Drop More

Figure 4.10: Worker Request Table

Engineers table

CREATE TABLE engineer (

eng_ID int(50) NOT NULL,

eng_name varchar(50) NOT NULL,

contact varchar(50) NOT NULL,

address varchar(500) NOT NULL,

proimage varchar(500) NOT NULL,

password varchar(500) NOT NULL,

email varchar(50) NOT NULL,

role varchar(50) NOT NULL

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

# Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1 id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2 name	varchar(255)	latin1_swedish_ci		No	None			Change Drop More
3 email	varchar(255)	latin1_swedish_ci		Yes	NULL			Change Drop More
4 phone	varchar(20)	latin1_swedish_ci		Yes	NULL			Change Drop More
5 address	varchar(50)	latin1_swedish_ci		No	None			Change Drop More
6 password	varchar(50)	latin1_swedish_ci		No	None			Change Drop More
7 pro_img	varchar(500)	latin1_swedish_ci		No	None			Change Drop More
8 role	varchar(50)	latin1_swedish_ci		No	c			Change Drop More

Figure 4.11: Engineer Table

Chapter 5

Results and Disscussion

Home Page

Empowering efficient and collaborative construction project management from inception to completion.

Figure 5.1: Home Page

Login Page

In construction management, users play a crucial role in leveraging technology to facilitate communication, collaboration, and coordination among project stakeholders for successful project delivery.
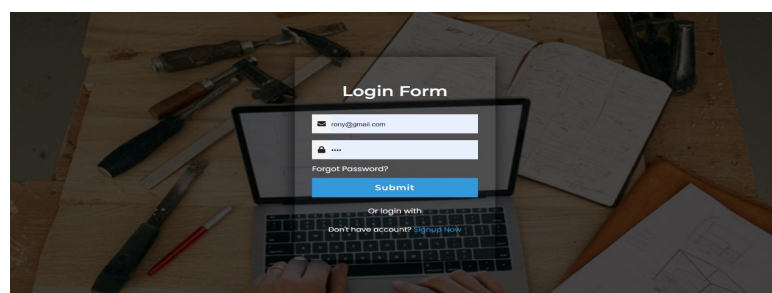

Figure 5.2: Login Page

Registration Page

To create personalized accounts, manage access, and ensure security within the construction management system.
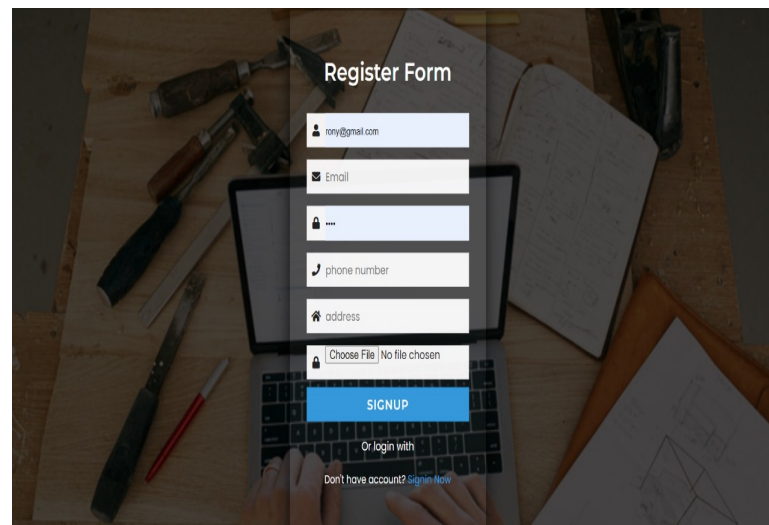

Figure 5.3: Registration Page

User Page

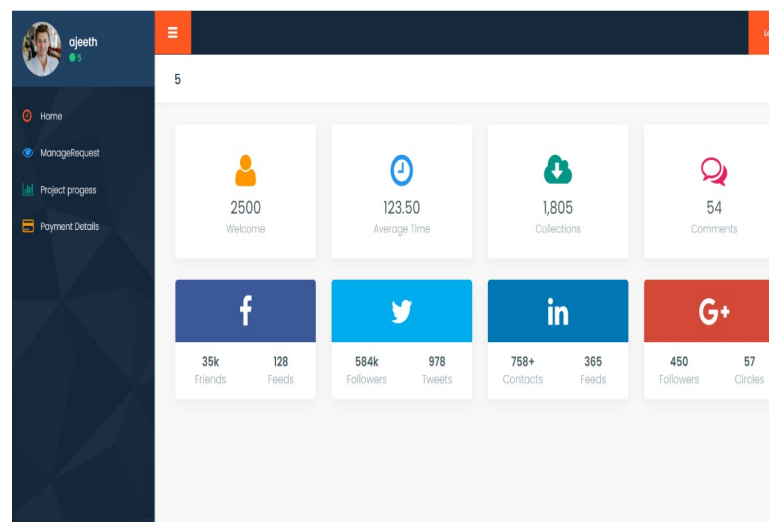To manage user profiles, permissions, and interactions within the construction management system

Figure 5.4: User Page

Engineer Page

In construction management, engineers oversee design, planning, and execution, ensuring adherence to specifications and regulations while optimizing project efficiency.
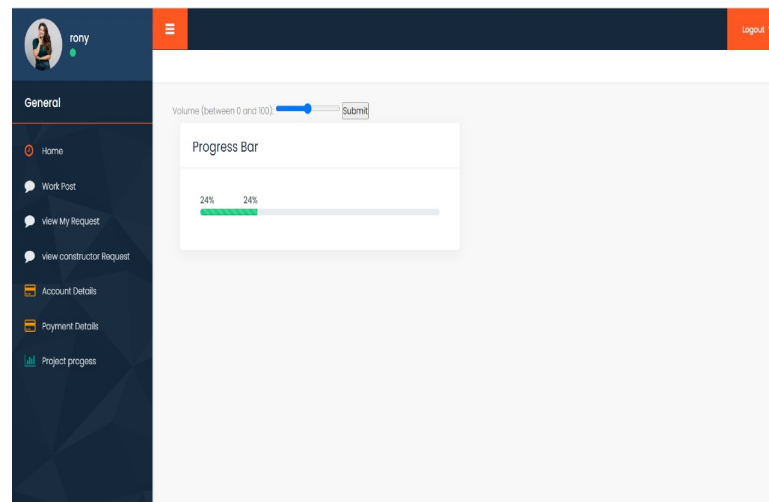

Figure 5.5: Engineer Page

Worker Page

To manage user profiles, permissions, and interactions within the construction management system
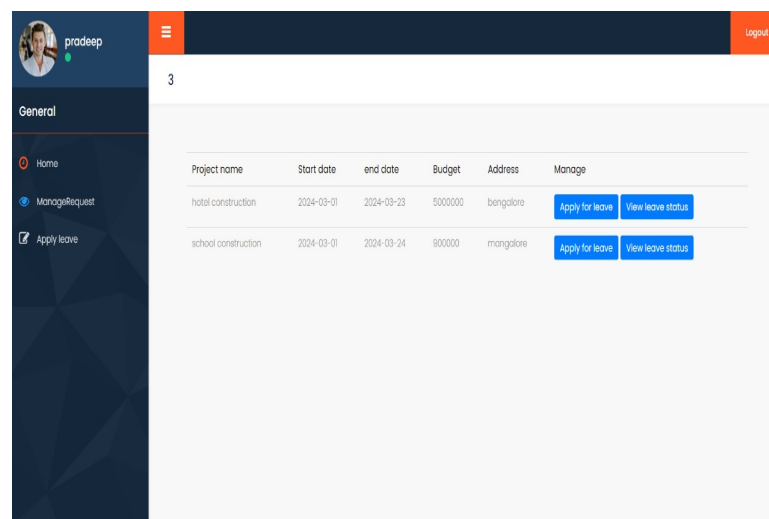

Figure 5.6: Worker Page

Progress Page

In construction management, project progress tracking provides real-time insights into the status of tasks, milestones, and overall project advancement
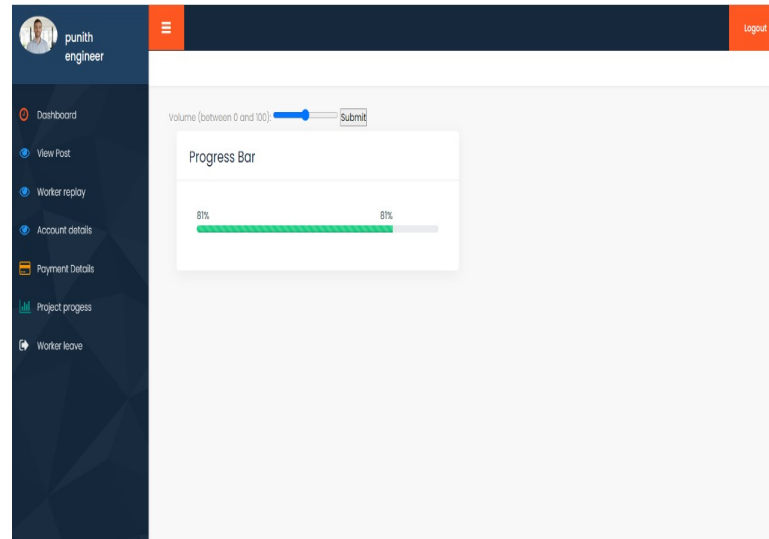

Figure 5.7: Progress Page

Chapter 6

Conclusion and Future work

The implementation of a construction management system (CMS) marks a pivotal shift in the way construction projects are planned, executed, and monitored. Through its comprehensive suite of tools and functionalities, a CMS becomes the cornerstone of project management, facilitating seamless coordination among various stakeholders and optimizing resource allocation. By centralizing project data and providing real-time updates, it fosters enhanced collaboration and transparency, thereby mitigating risks and improving decision-making processes. Moreover, the scalability and adaptability of a well-designed CMS ensure its relevance across projects of varying complexities, while its compliance features help navigate regulatory requirements effectively. Ultimately, the successful adoption of a CMS translates into tangible benefits such as cost savings, improved project outcomes, and heightened customer satisfaction. As construction firms increasingly recognize the strategic value of technology in project management, the CMS emerges as a vital asset in driving efficiency, productivity, and competitiveness in the industry.

References

[1] Ding, L. Y., Zhou, Y., Luo, H. B., Wu, X. G. (2012). Using nD technology to develop an integrated construction management system for city rail transit construction. Automation in construction, 21, 64-73.

[2] Kim, C., Park, T., Lim, H., Kim, H. (2013). On-site construction management using mobile computing technology. Automation in construction, 35, 415-423.

[3] Chan, S. L., Leung, N. N. (2004). Prototype web-based construction project management system. Journal of construction engineering and management, 130(6), 935-943.

[4] Chan, Swee-Lean, and Nga-Na Leung. "Prototype web-based construction project management system." Journal of construction engineering and management 130.6 (2004): 935-943.