

# **VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

"Jnana Sangama", Belagavi-590 018



A Mini -Project Work on

## **"CONSTRUCTION MANAGEMENT SYSTEM"**

A Dissertation work submitted in partial fulfillment of the requirement  
for the award of the degree

**Bachelor of Engineering**  
In  
**Information Science & Engineering**

Submitted by

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Under the guidance of  
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**DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING**

**ACHARYA INSTITUTE OF TECHNOLOGY**

(AFFILIATED TO VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI APPROVED BY AICTE, NEW DELHI)

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**Certificate**

This is to Certify that the Mini-Project work entitled "**CONSTRUCTION MANAGEMENT SYSTEM**" is a bonafide work carried out by **Vinayak P Nimbaragi (1AY16IS117)**, in partial fulfillment for the award of the degree of **Bachelor of Engineering in Information Science and Engineering** of the **Visvesvaraya Technological University**, Belagavi during the year 2018-19. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the Report deposited in the departmental library. The Project has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

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2. \_\_\_\_\_

**Signature with date**

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**VINAYAK P NIMBARAGI**

1AY16IS117

## **ABSTRACT**

The purpose of the Construction Management System is to automate the existing manual system by the help of computerized equipments and full-fledged computer software, fulfilling their requirements, so that valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required hardware and software are easily available and easy to work with.

Construction Management System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their activities rather than to concentrate on record keeping. Thus it will help organization in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

The aim is to automate its existing manual system. This project assists the Construction System keeper on the usage of databases required by the store. It can be used to make and hold databases of Site and employee, Engineer, project details . Basically the project describes how to manage for good performance and better services for the customer.

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## CHAPTER 1

### INTRODUCTION

The Construction Management System is Web Application to manage day to day operation related to events for an organization. The web application which is keep track of site details, owner details , employee and engineer etc, records and its provide easy to use web based interface for customers. Construction management system application focused in the area of adding editing deleting the details of the site, employee, projects etc. Admin can add a new site to the menu and also all it specification. Admin can check about the one building details easily.

#### **Project Modules/ Features:-**

**Customer Login Page:** This module is designed to authenticate customer before he/she enters into the system. The customer can log in and see through the details of the truck he/she has purchased.

**Admin Login Page:** Administrator has full permission to access this web site. Here administrator can add new site details or modify the existing related details, he can add his employees and also project details.

**View Page:** This module is used to add new Site , employee ,etc and to update site details and to delete site. Admin/employee can see details of over all information of details one construction.

#### **Purpose & Scope:-**

It provides following facilities:

- Storing of constructing site details.
- Storing of employee details and displaying details of the site.

## 1.1 Introduction to DBMS

DBMS stands for **D**atabase **M**anagement **S**ystem. We can break it like this DBMS = Database + Management System. Database is a collection of data and Management System is a set of programs to store and retrieve those data. Basically DBMS is a software tool to organize (create, retrieve, update and manage) data in a database.

The main aim of a DBMS is to supply a way to store up and retrieve database information that is both convenient and efficient. By data, we mean known facts that can be recorded and that have embedded meaning. Normally people use software such as DBASE IV or V, Microsoft ACCESS, or EXCEL to store data in the form of database. A datum is a unit of data. Meaningful data combined to form information. Hence, information is interpreted data – data provided with semantics. MS. ACCESS is one of the most common examples of database management software.

Database systems are meant to handle large collection of information. Management of data involves both defining structures for storage of information and providing mechanisms that can do the manipulation of those stored information. Moreover, the database system must ensure the safety of the information stored, despite system crashes or attempts at unauthorized access.

### 1.1.1 Why DBMS?

- To develop software applications in less time.
- Data Independence and efficient use of data.
- For uniform data administration.
- For data integrity and security.
- For concurrent access of data, and data recovery from crashes.
- To use user-friendly declarative query language.

### 1.1.2 Database applications

- **Telecom:** There is a database to keep track of the information regarding calls made, network usage, customer details etc. Without the database systems it is hard to maintain that huge amount of data that keeps updating every millisecond.

- **Industry:** Where it is a manufacturing unit, warehouse or distribution centre, each one needs a database to keep the records of ins and outs. For example distribution centre should keep a track of the product units that supplied into the centre as well as the products that got delivered out from the distribution centre on each day; this is where DBMS comes into picture.
- **Education sector:** Database systems are frequently used in schools and colleges to store and retrieve the data regarding student details, staff details, course details, exam details, payroll data, attendance details, fees details etc. There is a hell lot amount of inter-related data that needs to be stored and retrieved in an efficient manner.
- **Online shopping:** You must be aware of the online shopping websites such as Amazon, Flipkart etc. These sites store the product information, your addresses and preferences, credit details and provide you the relevant list of products based on your query. All this involves a Database management system.
- **Banking system:** For storing customer info, tracking day to day credit and debit transactions, generating bank statements etc. All this work has been done with the help of Database management systems.

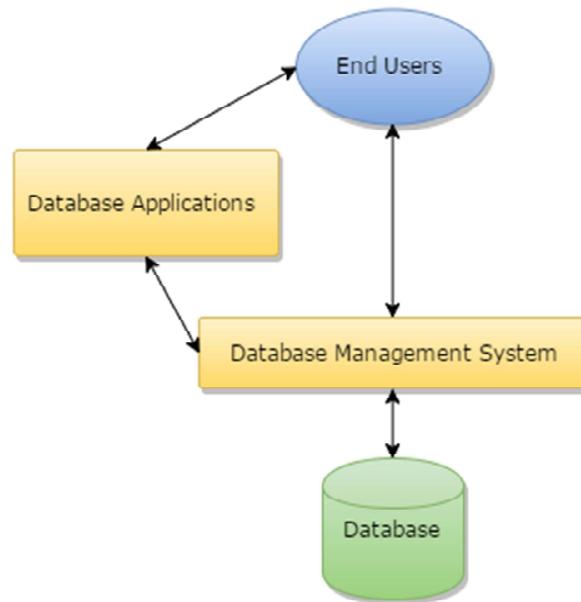
### 1.1.3 Advantages of DBMS

A DBMS manage data and has many advantages.

- **Data Independence:** Application programs should be as free or independent as possible from details of data representation and storage. DBMS can supply an abstract view of the data for insulating application code from such facts.
- **Efficient data access:** DBMS utilizes a mixture of sophisticated concepts and techniques for storing and retrieving data competently and this feature becomes important in cases where the data is stored on external storage devices.
- **Data integrity and security:** If data is accessed through the DBMS, the DBMS can enforce integrity constraints on the data.

- **Data administration:** When several users share the data, integrating the administration of data can offer major improvements. Experienced professionals understand the nature of the data being managed and can be responsible for organizing the data representation to reduce redundancy and make the data to retrieve efficiently.
- **Providing backup and recovery:** A DBMS must provide facilities for recovering from hardware or software failures. The backup and recovery subsystem of the DBMS is responsible for recovery.
- **Permitting inferencing and actions using rules:** Some database systems provide capabilities for defining deduction rules for inferring new information from the stored database facts.

#### 1.1.4 Components of DBMS

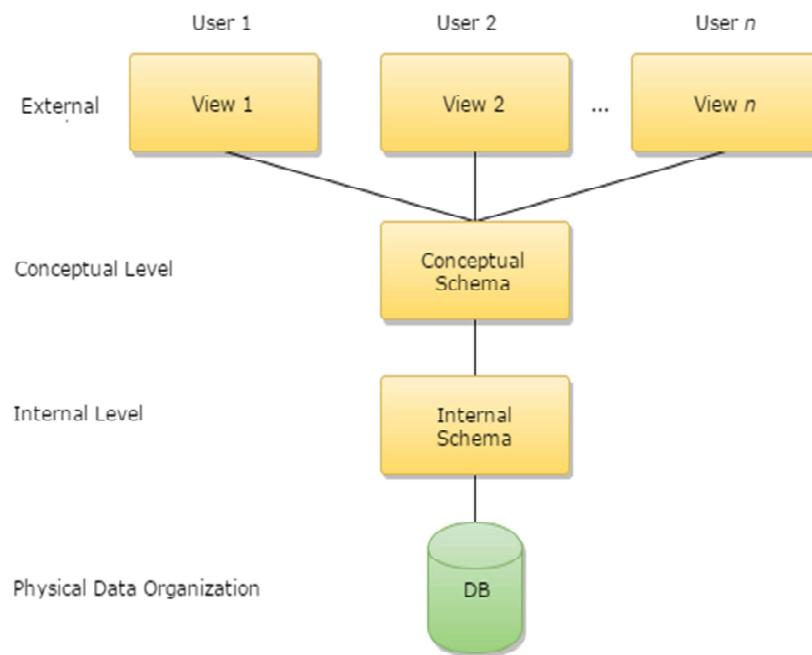


**Fig-1.1: Components of a Database Management System**

- **Users:** Users may be of any kind such as DB administrator, System developer or database users.

- **Database application:** Database application may be Departmental, Personal, organization's and / or Internal.
- **DBMS:** Software that allow users to create and manipulate database access.
- **Database:** Collection of logical data as a single unit.
- **Database access language:** This is used to access the data to and from the database, to enter new data, update existing data, or retrieve required data from databases. The user writes a set of appropriate commands in a database access language, submits these to the DBMS, which then processes the data and generates and displays a set of results into a user readable form.

### 1.1.5 Three-Schema architecture



**Fig-1.2: Architecture of database system**

The levels form a three-level architecture that includes an external, a conceptual, and an internal level. The way users recognize the data is called the external level. The way the DBMS and the operating system distinguish the data is the internal level, where the data is actually stored using the data structures and file. The conceptual level offers both the mapping and the desired independence between the external and internal levels.

## CHAPTER 2

# SYSTEM REQUIREMENTS

### 2.1 Software requirements

- Operating System: Windows 8/8.1/10
- XAMP Server 3.1.0 with following services:
  - Apache 2.4.27
  - MySQL 5.7.19
  - PHP 5.6.31
- HTML,CSS,PHP,JAVA SCRIPT text editor: Sublime text 3,Notepad
- Browser: Chrome/Firefox/Internet Explorer
- Full administrator access.

### 2.2 Hardware requirements

- RAM: 512MB Min
- Hard Disk: 500MB
- Processor: i5

## CHAPTER 3

# DESIGN

### 3.1 ER Diagram

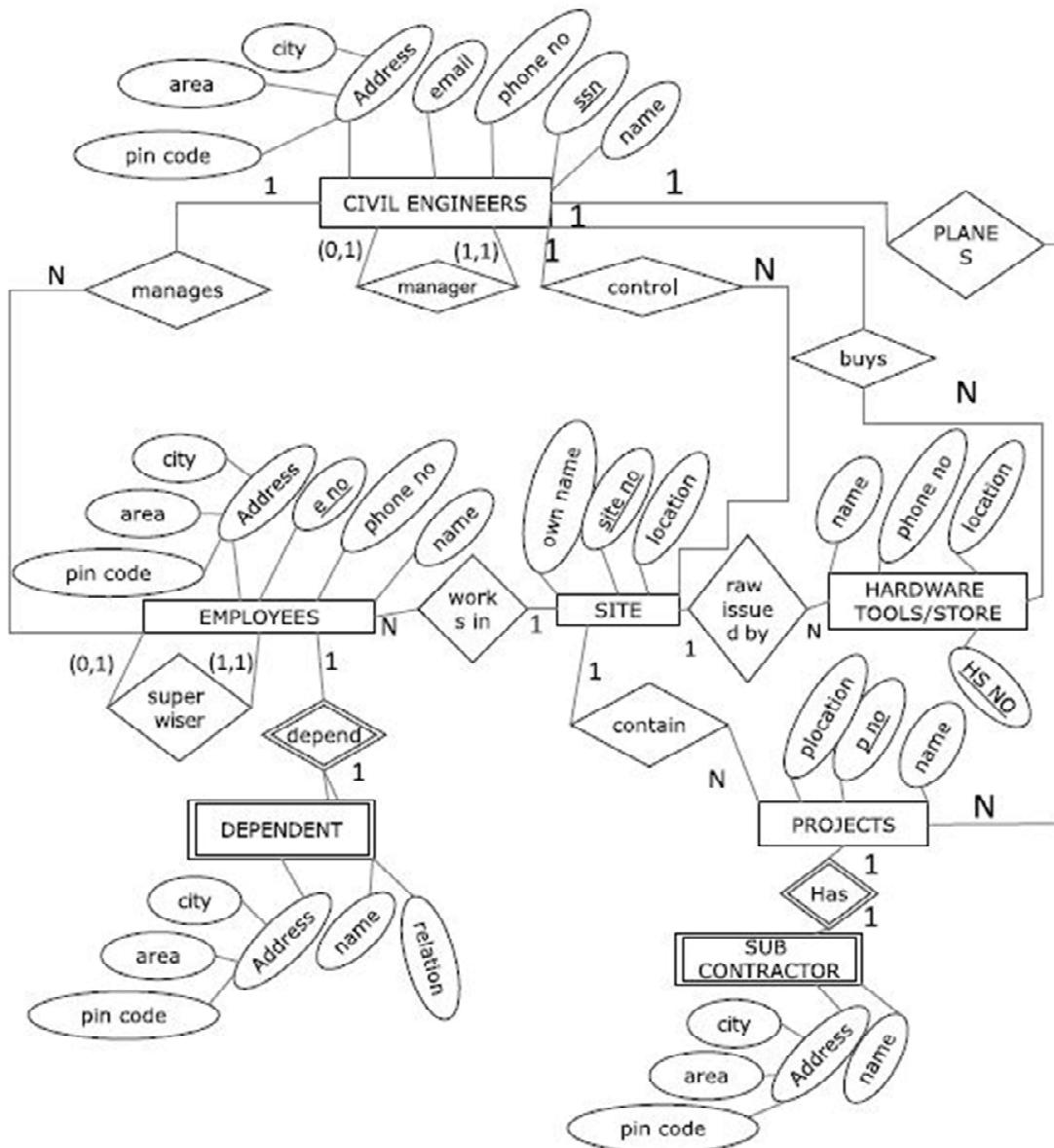


Fig-3.1: Entity Relationship Diagram

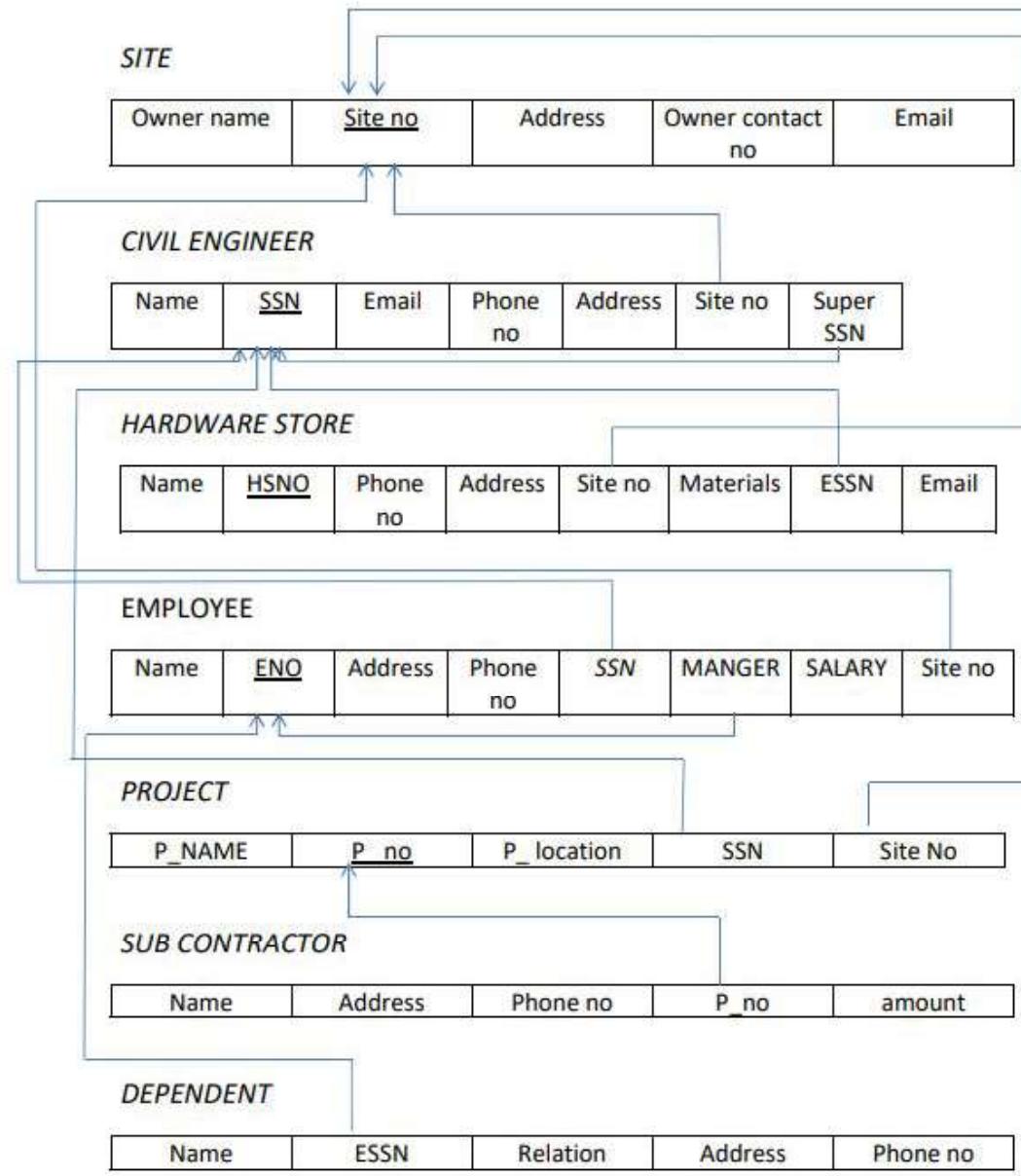
**1:N**

- One engineer manages many employee.
- One engineer plans many projects.
- One engineer handle many sites.
- Many employee works for one site.
- One site contain many projects.

**1:1**

- One employee have one dependent.
- One project has one Sub contractor.

### 3.2 Schema Diagram



**Fig-3.2: Schema Diagram**

**Schema Diagram:** An illustrative display of (most aspects of) a database schema.

**Schema Construct:** A component of the schema or an object within the schema, e.g., STUDENT, COURSE.

## CHAPTER 4

# IMPLEMENTATION

Queries:

### 4.1 Table creations

#### 4.1.1 Table structure for 'Site` table

```
CREATE TABLE SITE
(
    OWNER_AME VARCHAR(20),
    SITENO VARCHAR(20) PRIMARY KEY,
    ADDRESS VARCHAR(20),
    CONTACTNO INTEGER
);
```

#### 4.1.2 Table structure for `Engineer` table

```
CREATE TABLE CIVILENGINEER
(
    NAME VARCHAR(20),
    SSN VARCHAR(20) PRIMARY KEY,
    EMAIL VARCHAR(20),
    CONTACTNO INTEGER,
    SITENO VARCHAR(20),
    SUPERSSN VARCHAR(20),
    ADDRESS VARCHAR(20),
    FOREIGN KEY (SITENO) REFERENCES SITE(SITENO) ON DELETE SET NULL,
    FOREIGN KEY (SUPERSSN) REFERENCES CIVIL_ENGINEER(SSN) ON DELETE
    SET NULL
);
```

#### 4.1.3 Table structure for `Hardware Store` table

```
CREATE TABLE HARDWARE_STORE
(
    NAME VARCHAR(20),
    HSNO VARCHAR(20) PRIMARY KEY,
    CONTACTNO INTEGER,
```

```

    ADDRESS VARCHAR(20),
    SITENO VARCHAR(20),
    SSN VARCHAR(20),
    MATERIALS VARCHAR(20),
    FOREIGN KEY (SITENO) REFERENCES SITE(SITENO) ON DELETE SET NULL,
    FOREIGN KEY (SSN) REFERENCES CIVILENGINEER(SSN) ON DELETE SET
NULL
);

```

#### **4.1.4 Table structure for `Employee` table**

```

CREATE TABLE EMPLOYEE
(
    NAME VARCHAR(20),
    ENO VARCHAR(20) PRIMARY KEY,
    EMAIL VARCHAR(20),
    CONTACTNO INTEGER,
    SITENO VARCHAR(20),
    SSN VARCHAR(20),
    ADDRESS VARCHAR(20),
    MANGER VARCHAR(20),
    FOREIGN KEY (SITENO) REFERENCES SITE(SITENO) ON DELETE SET NULL ,
    FOREIGN KEY (MANGER) REFERENCES EMPLOYEE(ENO) ON DELETE SET
NULL
);

```

#### **4.1.5 Table structure for `Project` table**

```

CREATE TABLE PROJECT
(
    PNAME VARCHAR(20),
    P_NO VARCHAR(20) PRIMARY KEY,
    P_LOCATION VARCHAR(20),
    SSN VARCHAR(20),
    SITENO VARCHAR(20),
    FOREIGN KEY (SSN) REFERENCES CIVILENGINEER(SSN) ON DELETE SET
NULL,

```

FOREIGN KEY (SITENO) REFERENCES SITE(SITENO) ON DELETE SET NULL  
);

#### **4.1.6 Table structure for `Sub Contractor` table**

```
CREATE TABLE SUB_CONTRACTOR
(
    NAME VARCHAR(20),
    ADDRESS VARCHAR(20),
    CONTACTNO INTEGER,
    P_NO VARCHAR(20),
    FOREIGN KEY (P_NO) REFERENCES PROJECT(P_NO) ON DELETE SET NULL
);
```

#### **4.1.7 Table structure for `Employee Dependent` table**

```
CREATE TABLE DEPENDENT
(
    NAME VARCHAR(20),
    ESSN VARCHAR(20),
    RELATION VARCHAR(20),
    ADDRESS VARCHAR(20),
    CONATCTNO VARCHAR(20),
    FOREIGN KEY(ESSN) REFERENCES EMPLOYEE(ENO) ON DELETE SET NULL
);
```

### **4.2 Triggers**

```
CREATE TABLE TRIGGER_TIME ( EXEC_TIME DATETIME NOT NULL );
CREATE TRIGGER EXICTIME
BEFORE INSERT ON SITE
FOR EACH ROW INSERT INTO TRIGTIME
VALUES (NOW());
```

### **4.3 Stored procedure**

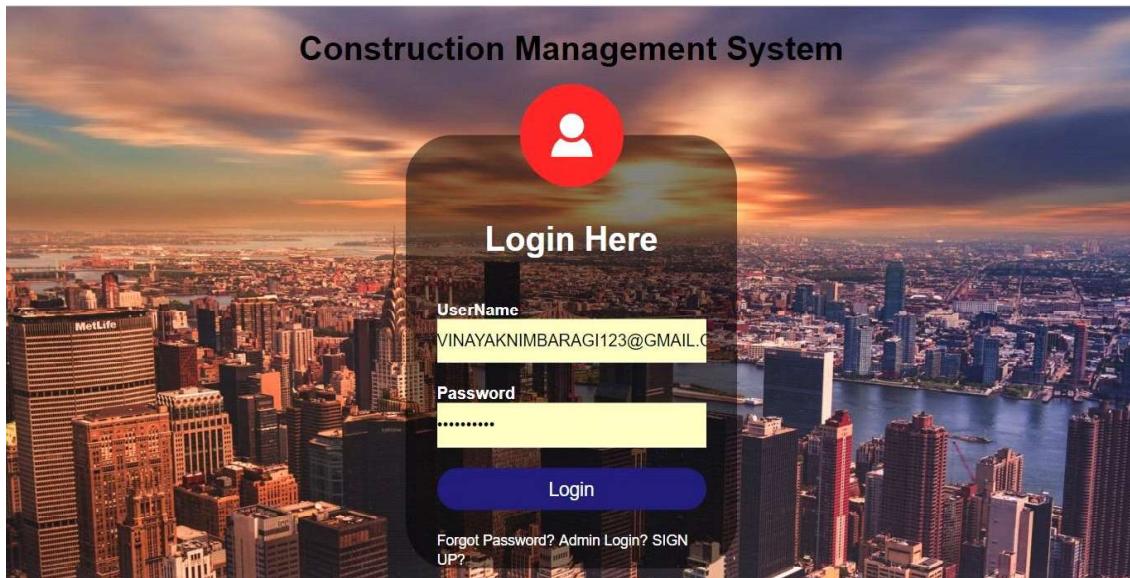
```
CREATE PROCEDURE SITE_COUNT
SELECT SITENO, NAME
FROM SITE;
```

---

## CHAPTER 5

### SNAPSHOTS

The following snapshot contains the login screen of the application where the username is **vinayaknimbaragai123@gmail.com** and password is **\*\*\*\*\***.



**Fig-5.1: Snapshot of login window**

The following snapshot contains the welcome screen of the Construction Management System.



**Fig-5.2: Snapshot of welcome screen**

The following snapshot contains the admin adding section where the details of the site will be added in the database.

Enter the Site details

Owner name

Site number

Site Address

Owner contact number

Owner Email

< Submit Home >

**Fig-5.3: Snapshot of site page**

The following snapshot contains the details of all the site which controlling the different Location.

HOME

OWNER NAME	SITE NO	ADDRESS	PHONE	EMAIL
sourabh	112/3	Bangalore	1234567	sourabh@gamil.com
sachin	112/2	Bangalore	2147483647	sachin@gamil.com
VINAYAK	112/1	javali bazar ambi galli mahal	2147483647	VINAYAKNIMBARAGI123@GMAIL.COM

**Fig-5.4: Snapshot of all the suppliers**

The following snapshot contains the details of the different site which is controlled by contractor. This window also has tabs for adding ,editing and removing a site details.

OWENR NAME	SITE NO	ADDRESS	PHONE	EMAIL	UPDATE	REMOVE
sourabh	112/3	Bangalore	1234567	sourabh@gamil.com	Edit	Delete
sachin	112/2	Bangalore	2147483647	sachin@gamil.com	Edit	Delete
VINAYAK	112/1	javali bazar ambi galli mahal	2147483647	VINAYAKNIMBARAGI123@GMAIL.COM	Edit	Delete

**Fig-5.5: Snapshot of all the sites**

The following snapshot contains the details of all the Engineer which controlling the different sites.

NAME	SSN	EMAIL	CONTACT NUMBER	ADDRESS	SITENO	SUPERSSN
sachin	1235	sachin123@gmail.com	2147483647	Bangalore	112/2	1234
VINAYAK	1234	vinayaknimbargi@gmail.com	1234567	mahalingapur	112/1	1234

**Fig-5.6: Snapshot of the all Engineer details**

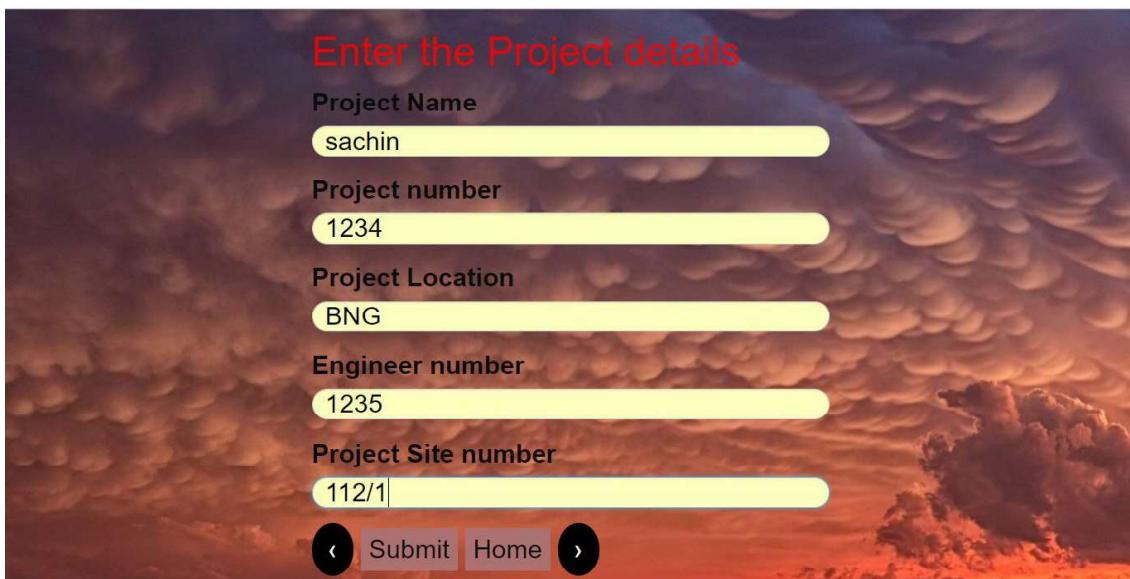
The following snapshot contains the details of the currently running projects.



PNAME	P_NO	P-LOCATION	SITENO	SSN
store	1237	mahalingpur	112/2	1234
Building	1234	Bangalore	112/1	1234

**Fig-5.7: Snapshot of Projects**

The following snapshot displays the addition of a new projects with engineer number and project site number. The insertion of the details of the new project in the database is carried by a stored procedure.



Enter the Project details

Project Name

Project number

Project Location

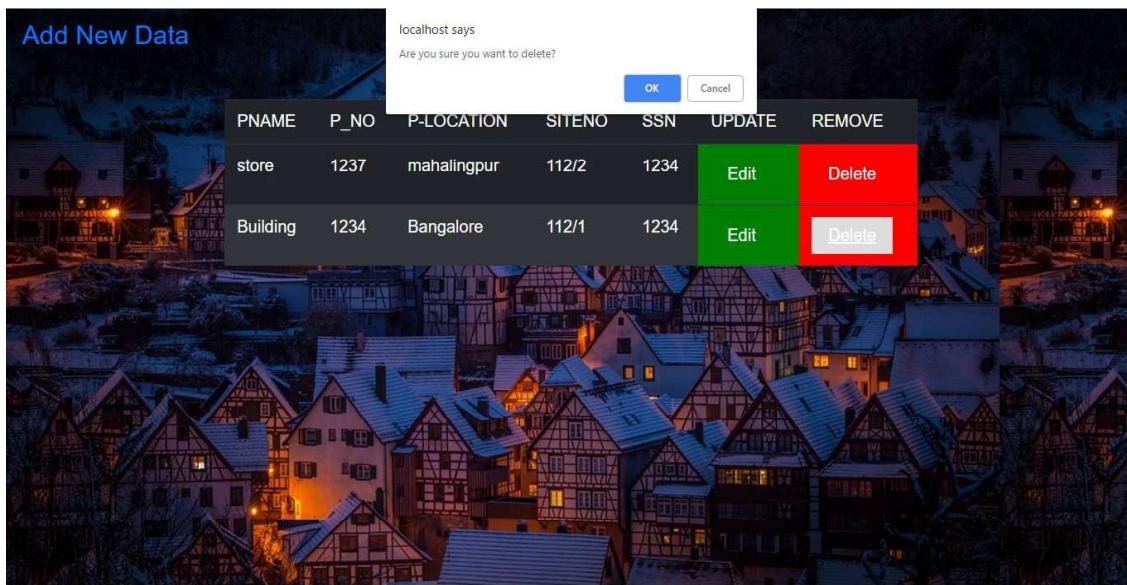
Engineer number

Project Site number

[Submit](#) [Home](#)

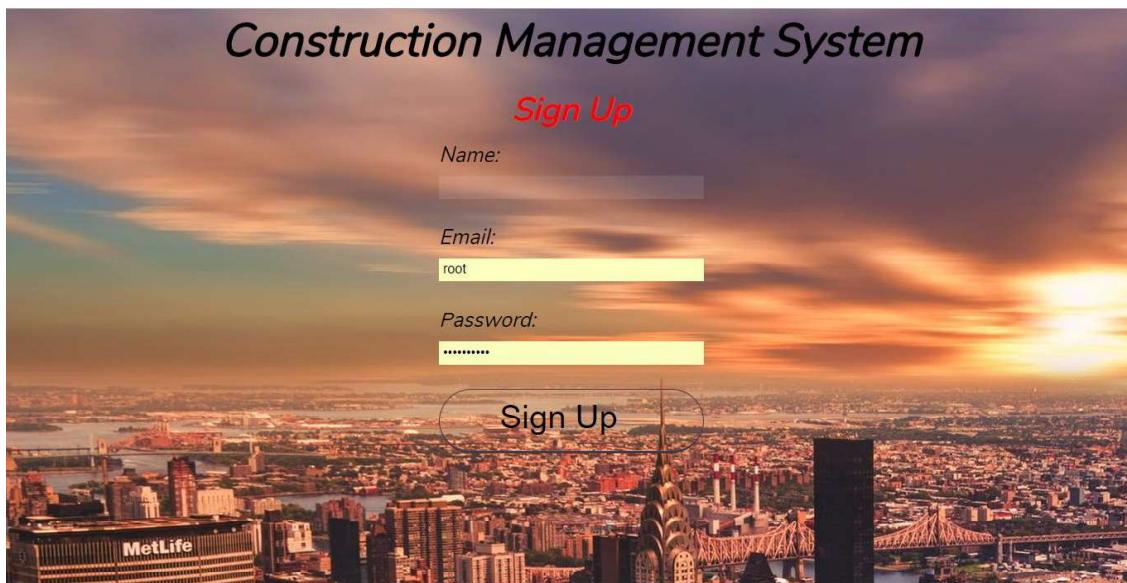
**Fig-5.8: Snapshot of adding new projects**

The following snapshot displays the conformation (Are you sure want to delete?) before deleting Project Details.



**Fig-5.9: Snapshot of Deleting Existing Project**

The following snapshot contains the login screen of the application



**Fig-5.10: Snapshot of Signup window**

## CONCLUSION & FUTURE ENHANCEMENT

### Conclusion

Construction Management System is only a humble venture to satisfy the needs to manage the work. Several user-friendly coding have also adopted. The objective of software planning is to provide a framework that enables the manager to make reasonable estimates made within a limited time frame at the beginning of the software project and should be updated regularly as the project progresses. This application can be used by any organization whether big or small that has challenges to overcome and managing the information of the site, employee, sub\_contractor, employee dependent ,engineer, projects and hardware store.

The following conclusions can be deduced from the development of the project.

- Automation of the entire system improves the efficiency
- We can provide the communication between Customer and Admin.
- Can also make Customer to Post their Comments and Feedbacks.
- The System has adequate scope for modification in future if it is necessary.
- This is the best way for customer as well as Admins to Interact with each other without much effort.

### Future Enhancement.

The project “Construction Management System” has been tried to develop a robust and fault free system. Several user friendly coding have been adopted in the software development, still enough flexibility has been provided for further enhancements and modifications. As I have mentioned earlier, the designed forms are typically reflections of the developer, so I strongly believe that the enhancement that has to be done with the design changes, coding changes. But at the same time I would like to mention that since one cannot claim himself as a master of the technology there is always some scope of technical modifications in the project that may lead to find code redundancy & storage space minimization.

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