

A Mini Project Synopsis on
Electrical Billing System

S.E. - I.T Engineering

Submitted By

Amogh Parulekar	21104001
Riya Patel	21104141
Kaushik Prabhu Nerurkar	21104016

Under The Guidance Of

Prof.Sneha Dalvi



DEPARTMENT OF INFORMATION TECHNOLOGY

A.P.SHAH INSTITUTE OF TECHNOLOGY

G.B. Road, Kasarvadavali, Thane (W), Mumbai-400615

UNIVERSITY OF MUMBAI

Academic year: 2022-23

CERTIFICATE

This to certify that the Mini Project report on **Electrical Billing System** has been submitted by Kaushik Prabhu Nerurkar (21104016), Riya Patel (21104141) and Amogh Parulekar (21104001) who are a Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfilment of the requirement for the degree in **Information Technology**, during the academic year **2022-2023** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

Prof. Sneha Dalvi

Guide

Dr. Kiran Deshpande

Head Department of Information Technology

Dr. Uttam D.Kolekar

Principal

External Examiner(s)

- 1.
- 2.

Place: A.P. Shah Institute of Technology, Thane

Date:

ACKNOWLEDGEMENT

This project would not have come to fruition without the invaluable help of our guide, **Senha Dalvi**. Expressing gratitude towards our HoD, **Dr. Kiran Deshpande**, and the Department of Information Technology for providing us with the opportunity as well as the support required to pursue this project. We would also like to thank our teacher Ms. Rujata Chaudhari who gave us her valuable suggestions and ideas when we were in need of them. We would also like to thank our peers for their helpful suggestions.

TABLE OF CONTENTS

❖ Introduction.....	1
1.1.Purpose.....	1
1.2.Objectives.....	1
1.3.Scope.....	2
2. Problem Definition.....	3
3. Proposed System.....	4
3.1. Features and Functionality.....	4
4. Project Outcomes.....	7
5. Software Requirements	8
6. Project Design.....	9
7. Conclusion.....	15

References

Chapter 1:

Introduction

The project is a web based application where users can get instant electricity bill and pay them online via credit card. The system automates the conventional process of paying electricity bill by visiting the place. Users have to stand in queue for paying bill and wait for their turn. The process is tiresome and time consuming. They even have to wait for the bill being delivered to their place which sometimes can be delivered late by the delivery boy. Hence the system is developed to automate the electricity bill calculation and payment for user convenience.

The system would be having two logins admin and user login. Admin can view user account details and can even add or updates things in their account. Admin has to feed the system with electricity usage data into respective users account. The system then calculates the electricity bill for every user and updates the information into their account every month. User can then view their electricity bill and pay on the spot before month end.

Purpose

The main need of the system is to satisfy customer by saving their time by payment Process, maintaining records, and allowing the customer to view his/her records and Permitting them to update their details. The firm handles all the work manually, which is very tedious and mismatched.

Objectives

This project is an innovation, which makes the paying electricity bills simple compared to other existing projects.

It maintains error free database and easily incorporates the future developments and changes. To develop and well-designed database to store employee information. Provides full functional reports to manage of electricity bill .

The major goal of our projects to please customer by saving them time via payment process, maintaining records , and allowing them to see their information. User friendly describes hardware device or software interface that is easy to use. Too have an secure environment. To increase efficiency. To keep track on customer.

Scope of the project.

Electricity Billing System will enable the customer and billing department staff to make things faster and can get information quickly. We can generate Bills and access it quickly

The scope of billing software solution services from simple invoice production to comprehensive business management.

Detailed information stored by these systems enables them to calculate and provide reports on various financial measures such as cash flow, profitability and payments errors in addition to use the regular billing software.

It will be useful to the suppliers of electricity.
The system will store the data efficiently

Chapter 2:

Problem Definition

The manual system is suffering from a series of drawbacks. Since whole of the bills is to be maintained with hands the process of keeping and maintaining the information is very tedious and lengthy to customer. It is very time consuming and laborious process because, staff need to be visited the customers place every month to give the bills and to receive the payments. For this reason, we have provided features present system is partially automated(computerized), existing system is quite laborious as one must enter same information at different places.

Proposed solution

1. This project system excludes the need of maintaining paper electricity bill as all the electricity bill records are managed electronically.
2. Administrator doesn't have to keep a manual track of the users. The system automatically calculates fine.
3. Users don't have to visit to the office for bill payment.
4. There is no need of delivery boy for delivery bills to user's place.
5. Thus, it saves human efforts and resources.

Chapter 3:

Proposed System

The conventional system of electricity billing is not so effective; one staff must visit each customer's house to note the meter readings and collect the data. Then, another staff must compute the consumed units and calculate the money to be paid. Again, the bills prepared are to be delivered to customers. Finally, individual customer must go to electricity office to pay their dues. Hence, the conventional electricity billing system is uneconomical, requires many staffs to do simple jobs and is a lengthy process overall. In order to solve this lengthy process of billing, a web based computerized system is essential.

This proposed electricity billing system project overcomes all these drawbacks with the features. It is beneficial to both consumers and the company which provides electricity. With the new system, there is reduction in the number of staffs to be employed by the company. The working speed and performance of the software is faster with high performance which saves times.

Features / Functionality

- It can store the data to help process it for later uses of developing bill
- Provides the searching facilities such as Electricity, Connection, Store Record , etc
- It's track all the information of bill, Electricity board , store record , etc .
- It deals with monitoring the information and transaction of store record.
- Editing of records is improved which proper in results resources management of electric data.
- It has high performance speed along with accuracy.
- It is protected by high – security measure and controls.
- Readings will generate directly to the system so no need to generate bills Door-to Door and no need to enter the data in the database manually.
- It allows the seamless sharing between the Electricity office and customer.
- It is a fully secured software.

Chapter 4

Project outcomes

- User can access the features are provided. Consumers electricity bills can be uploaded for viewing by the consumers.
- User can efficiently generate bills with no errors. Consumers can pay their bills without stress.
- User can view latest updates concerning the power supply. They can securely use the system.
- It's help you to minimize your repeated works and take care of the complete functionality of billing department.
- The company's contact details can be posted for the public to see and contact easily.
- Both customer and staff(System administrator) can log into the system through a secure and validated login portal

Chapter 5

Software Requirements

Development :Netbeans IDE

NetBeans IDE 12.6 is used for development of application

Frontend: Java JDK 1.7

Java Swing and AWT is used for design of the Frontend

Backend: MySQL

MySQL is used for storing data

Chapter 6:

Project Design

The given below table is a snapshot of backend view of the localhost and the structures of the tables present in Electricity Billing System.

The tables present are login, customer, tax, bill, meter_info.

- The login is used to store the details of login's admin and customer with meter_no.
- The customer is used to store details of customer.
- The tax is used to store tax values.
- The rent is used to store rent values.
- The bill is used to store details of bill of meter.
- The meter_info is used to store information of meter placed.

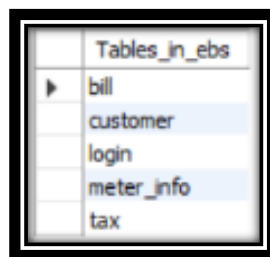


Fig1.1 List of tables in database

	Field	Type	Null	Key	Default	Extra
▶	meter_no	varchar(20)	YES		HULL	
	username	varchar(30)	YES		HULL	
	name	varchar(30)	YES		HULL	
	password	varchar(20)	YES		HULL	
	user	varchar(20)	YES		HULL	

Fig 1.2 Login table

	Field	Type	Null	Key	Default	Extra
►	name	varchar(20)	YES		NULL	
	meter_no	varchar(20)	YES		NULL	
	address	varchar(50)	YES		NULL	
	city	varchar(30)	YES		NULL	
	state	varchar(30)	YES		NULL	
	email	varchar(40)	YES		NULL	
	phone	varchar(20)	YES		NULL	

Fig 1.3 Customer table

	Field	Type	Null	Key	Default	Extra
►	cost_per_unit	varchar(20)	YES		NULL	
	meter_rent	varchar(20)	YES		NULL	
	service_charge	varchar(20)	YES		NULL	
	service_tax	varchar(20)	YES		NULL	
	swacch_bharat_cess	varchar(20)	YES		NULL	
	fixed_tax	varchar(20)	YES		NULL	

Fig 1.4 Tax table

	Field	Type	Null	Key	Default	Extra
►	meter_no	varchar(20)	YES		NULL	
	month	varchar(30)	YES		NULL	
	units	varchar(20)	YES		NULL	
	totalbill	varchar(20)	YES		NULL	
	status	varchar(20)	YES		NULL	

Fig 1.5 Bill table

	Field	Type	Null	Key	Default	Extra
►	meter_no	varchar(20)	YES		NULL	
	meter_location	varchar(20)	YES		NULL	
	meter_type	varchar(20)	YES		NULL	
	phase_code	varchar(20)	YES		NULL	
	bill_type	varchar(20)	YES		NULL	
	days	varchar(20)	YES		NULL	

Fig 1.6 Meter info table

The Following are the snapshots of the GUI of the project:

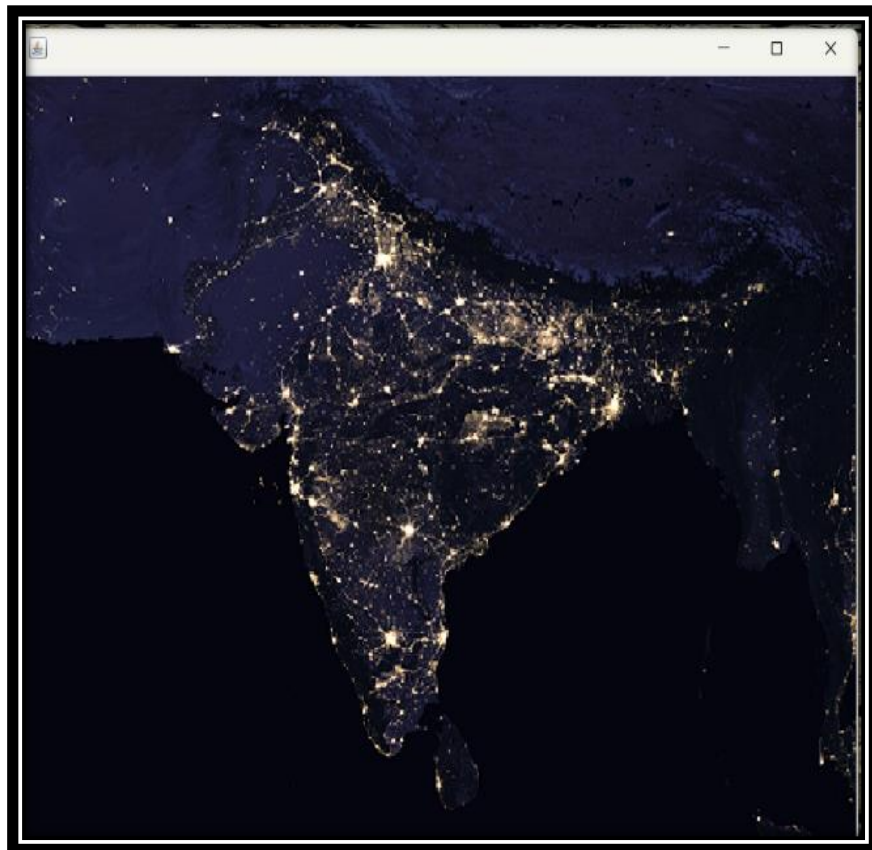


Fig 2.1 Splash.java

This is the graphic view and splash frame of our project it holds for 7 seconds and fades away



Fig 2.2 Login Page

Here Customer and Admin can login to their respective accounts. The dropdown menu allows to choose whether to login as an admin or as a customer



Fig 2.3 Admin's Home Page

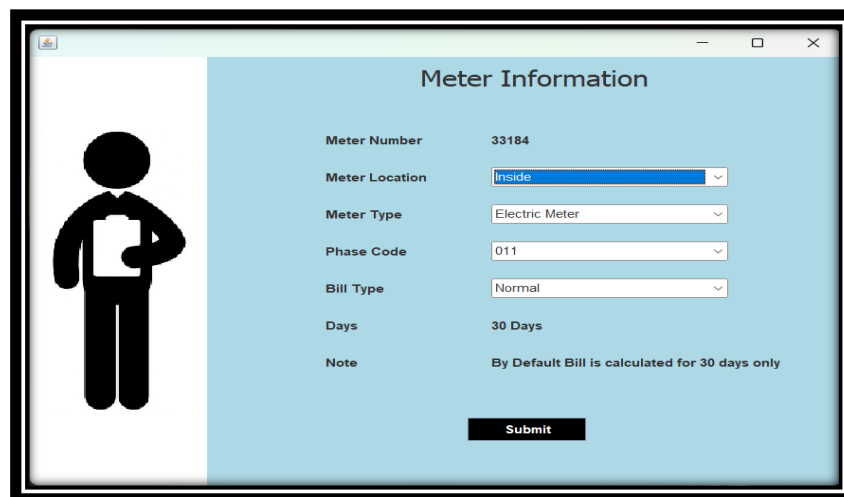
Admin lands on this page after successful login.

A screenshot of a web application window titled "New Customer". On the left is a black silhouette of a person holding a clipboard. The main area is light blue and contains a form with the following fields: "Customer Name" (text input), "Meter Number" (text input with value "619839"), "Address" (text input), "City" (text input), "State" (text input), "Email" (text input), and "Phone Number" (text input). At the bottom are two buttons: "Next" and "Cancel".

New Customer	
Customer Name	<input type="text"/>
Meter Number	619839
Address	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Email	<input type="text"/>
Phone Number	<input type="text"/>
<input type="button" value="Next"/> <input type="button" value="Cancel"/>	

Fig 2.4 New Customer Page

Here admin registers new users. Admin enters Customer's Name, Address, City, State, Email and Phone Number

A screenshot of a web application window titled "Meter Information". On the left is a black silhouette of a person holding a clipboard. The main area is light blue and contains a form with the following fields: "Meter Number" (text input with value "33184"), "Meter Location" (dropdown menu with "Inside" selected), "Meter Type" (dropdown menu with "Electric Meter" selected), "Phase Code" (dropdown menu with "011" selected), "Bill Type" (dropdown menu with "Normal" selected), "Days" (text input with value "30 Days"), and "Note" (text input with value "By Default Bill is calculated for 30 days only"). At the bottom is a "Submit" button.

Meter Information	
Meter Number	33184
Meter Location	Inside
Meter Type	Electric Meter
Phase Code	011
Bill Type	Normal
Days	30 Days
Note	By Default Bill is calculated for 30 days only
<input type="button" value="Submit"/>	

Fig 2.5 Meter Info Screen

Here Admin selects the location and type of meter installed at the customers end. Admin also selects the phase code and Bill type i.e. Residential or Commercial/ Industrial.

Create-Account

Create Account As Admin

Username

Name

Password

Fig 2.6 Add New Admin Screen

Here existing admins can add new admins to access the stored data.
New admins have to enter username, name, password.
Admin can be added only by existing admins via Admin module only.

	name	meter_no	address	city	state	email	phone
customer		020942	Ram Mandir23	Mumbai	Maharashtra	wndjwbnk@gmail.com	12131324242
no		002159	aaa	a	a	a	a

Print

Fig 2.7 Customer Details Screen

Here Admins can see the details of all registered customers. Admin can print these details in pdf format if the wish.

Deposit Details

Search By Meter Number: 626842 Search By Month: January

Search Print

meter_no	month	units	totalbill	status
511762	January	231	2229	Not Paid
511762	January	213	2067	Not Paid
398256	January	123	1257	Not Paid
511762	January	321	3039	Not Paid
511762	January	123	1257	Not Paid
398256	January	3231	29229	Not Paid
511762	January	31	429	Not Paid
511762	January	123	1257	Not Paid
548941	January	24	398	Not Paid
626842	January	34	456	Paid
302159	January	26	384	Paid

Fig 2.8 Deposit Details Screen

Here Admin can check the status whether customers have paid their bills or not. His list can be sorted according to individual user's meter number or according to month. Admin can print these details in pdf format if the wish.

Calculate Electricity Bill

Meter Number: 626842

Name: customer

Address: Ram Mandir23

Units Consumed:

Month: January

Submit Cancel

Fig 2.9 Calculate Bill Screen

Here admin calculate the bill of users by selecting appropriate meter number, units consumed and month.

A screenshot of a web application window titled "Create-Account". The window contains a form with the following fields: "Create Account As" (a dropdown menu with "Customer" selected), "Meter Number", "Username", "Name", and "Password". To the right of the form is a blue silhouette of a person with a red circular arrow pointing right. At the bottom of the form are two buttons: "Create" and "Back".

Fig 2.10 Customer Sign Up Page

After creation of customer , the customer can sign up from this page.



Fig 2.11 Customer's Home Page

Customer lands on this page after successful login.

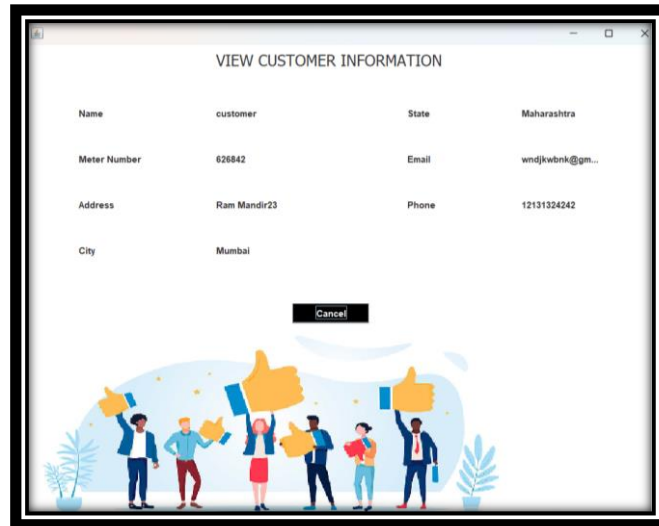


Fig 2.12 View Customer Info Screen

Here customer can see their entered information such as their name, meter number, address, city , state, email id and phone number.

UPDATE CUSTOMER INFORMATION

Name: customer

Meter Number: 626842

Address:

City:

State:

Email:

Phone:

Update Cancel

Fig 2.13 Update Customer Info Screen

Here customer can update their entered information if any correction is needed such as their address, city, state, email id and phone number.

meter_no	month	units	totalbill	status
626842	January	34	456	Paid

Fig 2.14 Bill Details Screen for Customers

Here every customer can check the status of their bills, whether they have paid the bills or not.

Electricity Bill

Meter Number: 626842

Name: customer

Month: January

Units: 34

Total Bill: 456

Status: Paid

Pay **Back**

Fig 2.15 Pay Bill Screen

Here customers pay their bills by selecting appropriate month.

Generate Bill 626842 January

Ujala Power, Inc
ELECTRICITY BILL GENERATED FOR THE MONTH OF January, 2022

Customer Name: customer
 Meter Number : 626842
 Address : Ram Mandir23
 City : Mumbai
 State : Maharashtra
 Email : wndjkwbnk@gmail.com
 Phone : 12131324242

Meter Location: Inside
 Meter Type: Electric Meter
 Phase Code: 011
 Bill Type: Normal
 Days: 30

Cost Per Unit: 9
 Meter Rent: 9
 Service Charge: 22
 Service Tax: 22
 Swacch Bharat Cess: 6
 Fixed Tax: 18

Generate Bill

Fig 2.16 Generate/ Show Bill Screen

It generates the bill for the customer

Chapter 7:

Conclusion

We can reduce the manual efforts to collect the readings from the energy meter which is cost effective solution .Our project is humble venture to satisfy needs to manage their project work Several user friendly coding have also been adopted.After all the hard work is done for electricity bill management system is here.It is a software which helps the user to work with the billing cycles, paying bills and managing different Details under which are working .Also decreases the amount of time taken to write details and other modules.

References

- [1][A Comparison of Smart Electricity Billing Systems | IEEE Conference Publication | IEEE Xplore](#)
- [2][The research and implementation of electricity bill retrieving risk evaluation model for low-voltage users | IEEE Conference Publication | IEEE Xplore](#)
- [3][Telemetry & billing system for spatially distributed electrical power clients | IEEE Conference Publication | IEEE Xplore](#)
- [4] [How to build a Web Application Using Java - Javatpoint](#)
- [5] [How To Use NetBeans IDE To Create Java Applications \(softwaretestinghelp.com\)](#)