Thakur College of Science and Commerce

A

PROJECT REPORT

ON

ELECTRICA (Eleclectricity Bill Management System )

By

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Submitted in partial fulfilment of Bachelors of Science (Computer Science)

**[UNIVERSITY OF MUMBAI]**

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**CERTIFICATE OF APPROVAL**

This is to certify that the project work entitled **“ELECTRICA (Electricity Bill Management System)”** is prepared by **HARIKRISHNAN SATHYAN KONGIPARAMBIL** a student of **“Third Year Bachelor of Science (Computer Science)”** course of University of Mumbai, which is conducted by our college.

This is the original study work and important sources used have been duly acknowledged in the report. The report is submitted in partial fulfilment of B.Sc. (Computer Science) course as per rules of University of Mumbai.

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**CHAPTER 1 - INTRODUCTION**

**1.1 Introduction to the Project**

Electrica is an electricity bill management system, which mainly focuses on reducing the work load on the administrator, making the billgeneration process digital and with user friendly software interface it allows the user to manage the consumers as well as generating their bills, sending the bill to consumers email id also printing at administrators end and also completing the payment and updating the information in the company database.

**1.2 Statement about the Project**

* [Digital transformation](https://perfectial.com/services/digital-transformation/) is often viewed as an implementation of digital technologies into all areas of business in order to build more sustainable relationships and better understand the needs of customers.
* Electricity consumption is increasing day by day so proper management of the bills and the payment is required.
* If there is any unexpected hike in the electricity consumption the consumer is not notified.
* Consumer does not gets a copy of the electricity bill through e-mail.
* Consumer should get Information from the Electricity board about any power outage situation.
* The fraud and the defaulter consumers should be warned.
* Bill payment should be managed properly.

**1.3 Proposed Software (What would s/w accomplish?)**

The proposed software is a desktop based application that will manage the consumer information in the Oracle database. Add or retrieve the consumer information or the billing data into the Oracle database, Calculate the bill using the Oracle stored procedure which is in contrast with the python’s Tkinter GUI .Which gives the user hassle free exprence while working on this software. New consumers can be added, their data can be edited, and deleted at any point of time. Consumers bill can be generated as well as send the bill to the consumers email id in pdf format. Warning messages and alert message can be sent to the cosumer through e-mail and even through whatsapp message

which are preloaded in the software and can also edit those messages before sending.

**1.4 Benefits & Limitations**

* **Benefits**

Electrica is a software the helps the admin the manage the consumers and their details in a database, communicate with the consumers though emails and whatsapp messages, generage their electricity bill effeciently with zero errors.

Send the generated bill to the consumers email id in pdf format. Generate the bill payment and defaulter consumer reports and also make payment for the bill.

* **Limitations**

Since Electrica runs offline and it is admin oriented software consumers cannot perform any operation in the software , only the authorized people can make use of all the benefits of the software. Consumer cannot pay their bill online it has to be through the admin of the software only

**CHAPTER 2 - METHODOLOGY**

**2.1 Objective and scope of the project**

* + The main objective of this project is to make the bill generation computerized.
  + Storing data of bill generated in the database and fetching it according to the requirement.
  + Maintaining consumers (Adding, Deleting, Updating).
  + Sending bill to the consumers through e-mail, and also printing at the admins end.
  + Sending WhatsApp alerts if any power outage is detected.
  + High power consumption alerts.
  + Power consumption report generation.
  + Generate defaulters list and send warning through e-mail.
  + Fraud customer report generation.
  + Direct bill payment for consumers.
  + Sending payment acknowledgement through e-mail.

**2.2 Methodology**

Programming language : **Python**

IDLE : **PyCharm**

Database: **Oracle**

The main approach

**The main modules of python used in the project are as follows :**

**smtplib** ( Sending email to the consumers email id )

**FPDF** ( For creating the pdf of bill which is generated)

**sendpdf** (send pdf file of bill and receipt to the consumers email id )

**cx\_Oracle** ( To connect python with the oracle database, perform CRUD operations and also for charge calculation )

**Tkinter and PIL** ( For GUI and Images)

**Steps involved in exection of software are as follows**

1) Electrica has a home window where all the operation are present like adding new consumer, Editing consumer details, Enter reading, Generate bill, Send alerts, Defaulters, Send bill, and payment

2) In add consumer section the admin can add a new user into the system and if any entry was wrong then it can be edited later in the edit consumer section

3) Admin has enter the meter readings is the enter reading section. After entering the meter readings the bill will be calculated in the generate bill seciton

4) Generating the bill by entering the consumer id in generate bill section and thereby sending bill to the consumer

5) Admin can see the defaulters list and generate report of the billing.

6) Bill payment section and sending receipt to the consumer through e-mail.

**CHAPTER 3 – CHOICE OF PLATFORMS S/W AND H/W**