



International Journal for Innovative Engineering and Management Research

A Peer Reviewed Open Access International Journal

www.ijiemr.org

COPY RIGHT



ELSEVIER
SSRN

2022 IJIEMR. Personal use of this material is permitted. Permission from IJIEMR must be obtained for all other uses, in any current or future media, including reprinting/republishing this material for advertising or promotional purposes, creating new collective works, for resale or redistribution to servers or lists, or reuse of any copyrighted component of this work in other works. No Reprint should be done to this paper, all copy right is authenticated to Paper Authors

IJIEMR Transactions, online available on 24th Dec 2022. Link

[:http://www.ijiemr.org/downloads.php?vol=Volume-11&issue=Issue 12](http://www.ijiemr.org/downloads.php?vol=Volume-11&issue=Issue 12)

DOI: 10.48047/IJIEMR/V11/ISSUE 12/41

Title **ELECTRICITY BILLING SYSTEM**

Volume 11, ISSUE 12, Pages: 298-303

Paper Authors

Bayya Rohith, Yadali Naga Satya Prateek, Kancharla Mukesh Reddy



USE THIS BARCODE TO ACCESS YOUR ONLINE PAPER

To Secure Your Paper As Per **UGC Guidelines** We Are Providing A Electronic Bar Code

ELECTRICITY BILLING SYSTEM

Bayya Rohith, rohithbr6@gmail.com

Yadali Naga Satya Prateek, yms.prateek@gmail.com

Kancharla Mukesh Reddy, kancharlamukesh123@gmail.com

ABSTRACT: With all of its exciting advancements, science and technology have elevated human living standards. Beyond new things, all human beings undoubtedly fall. This study is innovative because it offers a simpler way to collect power bill payments than any other study before it. The goal of our project, "Electricity Billing System," is to produce an electricity bill that includes all fees and penalties. The manual system in use is very inefficient and exceedingly labor-intensive. It merely makes the task tougher and more challenging. Our project's goal is to create a system that will allow the Power Board to computerise tasks including creating monthly electricity bills, keeping track of energy use per unit, storing customer information, and keeping track of prior unpaid bills. The prepaid payment of the power bill falls under this as well.

Keywords –Visual basic6.0

1. INTRODUCTION

There have been several stories recently of skyrocketing power costs. These expenses are mostly the result of the electrical department staff's carelessness. All customers who get incorrect invoices (for example, a bill for 7,000 but an incorrect charge for 800,000) are under pressure and compelled to pay these large sums. The electricity department disconnects the power supply to the concerned consumer's property if they don't pay the payment. The customer is thus concerned about this. Since the method for billing electricity is not entirely electronic. It has turned into a benefit for con artists who take advantage of their victims. Consequently, there has been a fraud involving power bills for several months. Despite warnings from several experts and banks, the scam keeps taking lives. This fraud uses WhatsApp or SMS to deliver its message. These communications make the receiver believe they are from the electricity department and threaten to turn off the power to his house tonight if the bill from the previous month is not corrected. As a result, we must design a system that will allow us to instal a new electrical metre in lieu of the existing one. In essence, the new metre gives information on the user's power use. The customer needs to switch to prepaid payment. There is also less likelihood of government agents interfering with the electricity. While the smart feature in the prepaid smart metering provides a near real-time identification of loss

pockets and also gives consumers the ability to manage their power use as per their own requirements and resources, the prepaid system of metering decreases collection inefficiencies. This covers issues with incorrect invoicing, getting reconnected after being disconnected for failure to pay bills, and alleged unlawful usage of power in cases when field staff merely disconnects customers on paper. We can conserve power in this way since everyone wants to consume as little electricity as possible. since the service is pre-paid. It is possible to complete this proposed project using MySQL and Java. The Electricity Billing System's main goal is to keep track of bills, clients, units, connections, and usage. It records all payments, readings, purchases, and invoices.



Fig.1: Example figure

The traditional method of billing for electricity is inefficient since one staff member must go to each customer's home to record the metre readings and gather the data. Then, a different member of staff must compute the consumed units and determine the payment amount. Once more, the prepared bills must

be delivered to the clients. Individual customers must travel to the power office to pay their fees. As a consequence of this, the conventional method of billing for power is pricey, necessitates a large number of employees to complete basic tasks, and takes a considerable amount of time. For this laborious billing procedure to be resolved, an automated web-based solution is required. The proposed power billing system project avoids all of these issues thanks to the features listed above. Both customers and the firm that delivers power gain from it. The new method reduces the number of employees that the organisation will need to hire. The programme operates more quickly and with higher performance, which saves time. Additionally, there is extremely minimal likelihood of staff corruption and computation errors.

2. LITERATURE REVIEW

Analysis of Electricity Billing System in Corporate Buildings in Lagos, Nigeria:

This study will investigate the electricity billing system in the AHCN Tower in Ikeja, Lagos State, with the goal of developing a long-lasting and efficient power billing system for the facilities management of multi-tenanted buildings. Design/methodology/approach: The parties responsible for the administration of the property and the residents were interviewed to acquire pertinent data for the research. Inferential statistics were used to assess the data that had been gathered. Findings/Discussion: The outcome showed that automating prepaid metres eliminates the challenges associated with the manual technique for allocating power bills among the renters. Conclusion: Because information technology is now a global phenomenon, the study advises stakeholders in the facility management practice to collaborate in order to obtain an application program that will serve for the management of commercial buildings. Commercial real estate, electricity, facility management, and Lagos are some related terms.

Automated industrial load measurement system:

For many process industries, load measurement is essential. Therefore, having a reliable system is necessary for this measuring purpose. The design and construction of an industrial load measuring system

using a personal computer (PC) are the topics of this study. In this case, the primary sensors are a commercially available load cell, special signal conditioning equipment, and a data gathering system. When compared to more conventional DAQ-based measuring systems that are frequently utilized by industry, this system clearly has an advantage. A novel load measuring system is designed, developed, and tested in this paper, along with some suggestions for future development.

Design and Implementation of an Enhanced Power Billing System for Electricity Consumers in Nigeria:

Due to flaws in reading patterns and human error, Nigerian energy users frequently deal with issues with erroneous, illogical, and delayed monthly billing. With regard to proximity, it is essential to establish an electronic platform-based system that is both efficient and effective for such goals. This essay discusses the design and practical relevance of the Power Billing System, a web-based program with online functionality (PBS). Microsoft Visual Web Development IDE was used to create PBS, a solution system; It makes use of Microsoft Access, as well as an Object Oriented Design tool from the Visual Studio.net collection and a SQL query for the back-end database. It is more cost-effective than electromechanical devices and accurately monitors the electric power used by residential or commercial buildings. Individual consumers and utility companies can directly monitor and manage their electric power supply bills without using meter readers. It displays the unit price of electricity and the power consumed per minute. From connection and performance data to management information, it provides a place to keep track of customer data. Status parameters will always be accessible at any given time thanks to this software solution, which makes use of both the Internet and the Intranet.

A privacy preserving e-payment scheme:

Electronic payment security is essential to e-commerce. Buyers aren't always eager to expose the particulars of their payment information to the possibility of abuse by sellers, but the current e-payment systems require sellers to disclose the buyer's payment information. As a result, e-

commerce adoption is hindered from reaching its full potential. Using the established e-payment infrastructure and keeping the seller's payment information private, we propose an online payment method in this research. This is done with only a slight increase in computer power.

Fair and secure mobile billing systems.:

All mobile phone users must pay a membership fee in order to take use of this technology's convenience. Subscribers only pay for the time they actually use their phones to chat. There are typically two types of billing. Prepaid service requires the customer to purchase a prepaid card and pay for the cell phone service in advance. The appropriate quantity of cellular phone service utilised is deducted from the subscriber's mobile phone account as they use airtime. Until the account is prepaid for further mobile phone service or airtime, the subscriber cannot make calls once there are no more dollars in the mobile phone account. Cellular providers charge clients for postpaid service according to the number of minutes of airtime they consume each month. Each minute the customer's active cell phone is connected during an outgoing call is recorded. The consumer is billed by cellular carriers on a monthly basis for the airtime utilised. Discussing topics like justice, non-repudiation, and non-usurpation is important. In this work, we provide a fair and secure solution for mobile billing. In order to make billing more impartial and well-liked by both cellular carriers and subscribers, we present the "observer" idea. The user cannot contest the justifiable fines under the planned method, which can identify illicit phone calls in real time.

Billing system design based on internet environment:

The construction of an online billing system that allows for electronic bill payment is the subject of this essay. This strategy is put into practise via virtual banks, where money transfers may be made. On the other side, several applications are possible, including the ability to deposit and withdraw virtual currency and check account balances. To implement authentication requirements, security, and privacy, a gate way translator is employed.

3. METHODOLOGY

The out-of-date manual system had several problems. Because the entire system had to be maintained manually, the process of storing, preserving, and retrieving the information took a lot of time and effort. There was never a systematic way to keep the records. Previously, it was quite challenging to link each transaction to a particular context. Because there was no report generation for papers, it was necessary to search the various records for information. Unwanted time is wasted each time records are entered or retrieved. Another issue was that it was extremely difficult to see errors made when the information was entered. Modifying the records after they were entered was quite challenging. At present, the power board's task is finished physically, which leads to a ton of issues for the division. This is because running a business requires storing and remembering a lot of information. We have therefore included features. Despite the fact that the current system is largely automated (computerized), entering the same information three times is still quite challenging.

Documents and reports that must be provided by the new system: There might also be a small number of reports that can help management control costs and make decisions, but because these reports don't get enough attention, similar reports and information were also found and looked at.

- Specifics regarding the data that is required for each report and document.
- Every document's mandatory distribution and frequency
- The information's most probable sources for each report and document.

The implementation of computerized systems will solve the issue of keeping records in a systematic manner. The best feature of all is the capacity to acquire knowledge with a single mouse click. As a result, the suggested method makes it easier for information to flow, saves time on various tasks, and produces insightful reports all at the same time.

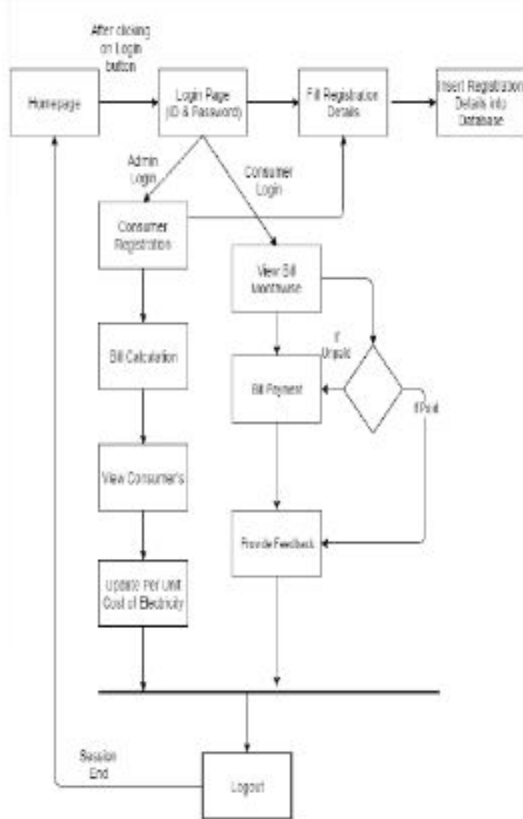


Fig.2: System model

MODULES:

In our project, there are primarily four modules. These are listed below:

1. Information module for domestic bills.
2. Information module for commercial bills.
3. A module for domestic client records.
4. The module for commercial client records.

1) Module for Information on Domestic Bills:

We may view information about the domestic bill in this module, including the customer's name, address, customer ID, service centre, and description of his electrical bill, which includes bill number, bill date, total cost, etc. In accordance with the total unit and bill fee, we may also determine the customer's total bill.

2. Commercial Bill Information Module:

The only distinction between this module and the domestic bill information module is that this module is intended for business use. Information about the business bill is available, including the customer's name, shop number, address, customer identification

number, service centre, and a description of the power bill that includes the bill number, bill date, and total amount. In accordance with the total unit and bill fee, we may also determine the customer's total bill.

3. Domestic Customer Record Module:

We may enter information about a domestic client, such as his name, address, and customer ID, in this module. Additionally, this module is capable of performing record deletion, record modification, etc.

4. Commercial Customer Record Module:

We may enter information about the client, such as his name, address, and customer ID, in this module. Additionally, this module is capable of editing and removing records. By using the next and previous buttons, we can also view the current record.

4. IMPLEMENTATION

All subscribers who wish to pay their power bill online are given access to the web application for doing so. The user will feel less pressure to wait in line to pay bills and charges thanks to this web application. A reduced model that empowers the client to finish all bill and charge installments while sitting at their work area has been created because of this limitation. Since its computation represents the precise power usage for potential customers and in monitoring the billing information of electricity users, the significance of an online electricity bill system cannot be overstated [1]. It provides a setting for managing customer data, including bill collection and payment [2]. Users can pay their bills and file complaints by simply logging into the system. To give an ID code to exchanges including power charging, a framework is expected to gather data about the customer's profile. It is comprised of various modules, including the overseer and shopper modules. When a user first logs into the online system or registers at the web portal, only the username and password they chose are used to gain access. The administrator module is managed by an authorized Electricity Board employee so that requests related to certifying each online transaction and placing orders for or confirming payments through the electronic system can be approved.



- [4]. Antoniou, G., Batten, L., Narayan, S., & Parampalli, U. (2009). A privacy preserving e-payment scheme. In *Intelligent Distributed Computing III* (pp. 197-202). Springer, Berlin, Heidelberg
- [5]. Rahul K. Sai (2016) Advanced Centralized Electricity Billing System Using (IOT). *International Journal of Advanced Research in Computer Science and Software Engineering* microsoft Developer Network (MSDN): <http://msdn2.microsoft.com/en-us/default.aspx>
- [6]. Li, S., Wang, G., Zhou, J., & Chen, K. (2009). Fair and secure mobile billing systems. *Wireless personal communications*, 51(1), 81-93.
- [7]. Al-Ani, M. S., & Noory, R. (2012). Billing system design based on internet environment. *Editorial Preface*, 3(9).
- [8]. Barreto, P. S., Amvame-Nze, G., Silva, C.V., Oliveira, J. S. S., de Carvalho, H. P., Abdalla, H., ... & Puttini, R. (2005, April). A study of billing schemes in an experimental next generation network. In *International Conference on Networking* (pp. 66-74). Springer, Berlin, Heidelberg.
- [9]. Bo, Y., Dongsu, L., & Yumin, W. (2002). An anonymity-revoking e-payment system with a smart card. *International Journal on Digital Libraries*, 3(4), 291-296.