**CHAPTER ONE**

**INTRODUCTION**

* 1. **BACKGROUND OF THE STUDY**

The history of electricity development in Nigeria can be traced back to the end of the 19th Century**,** when the first generating power plant was installed in Marina, Lagos**,** in 1898, fifteen years after its introduction in England. Its total capacity was 60kW. After the amalgamation of the Northern and Southern protectorates in 1914 to form modern Nigeria, other towns in the country started to develop electric power supply system on the individual scale (Claudius, 2014).

Electricity is the basic needs of our life. We cannot imagine one moment of our life without electricity. Prevention of electricity theft and saving of electricity is required to use the electricity continuously. Since the last decades of the past century, scientists, researchers, government and people have been worried about energy conservation. People spend much more power than what they actually need and that results in a huge loss of energy. Moreover, the continuous increase in the universal energy prices has resulted in a huge economical loss.

The introduction of pre-paid electricity billing system has been a milestone transformation from the long practiced traditional post-paid system. Buying certain units of electricity credits from the government outlets, the subscribers are claimed to be free of the bill payment hassles that are experienced by the post-paid subscribers. On the other hand, the post-paid subscribers, have not experienced the convenience of paying bills through more than one option. The only option available is to visit any designated power holding outlet to make payment. (Alexander, 2012)

Electronic bill payment, also known as online bill payment or automatic bill payment, offers several advantages. Such as;

1. It remits payments almost immediately, so no need to worry about whether payments arrived on time.
2. It is environmentally friendly, eliminating paper waste. etc

Electronic bill payment is the process of making payment online or via devices that are connected to the internet and allows a customer of a financial institution to transfer money from their transaction or credit card account to a creditor or vendor such as a public utility, department store or an individual to be credited against a specific account. These payments are typically executed electronically as a direct deposit through a national payment system, operated by the banks or in conjunction with the government. Payment is typically initiated by the payer but can also be set up as a direct debit.

Akungba is a town in Ondo State, southwestern Nigeria. The town is situated close to Ikare-Akoko. The people of Akungba had occupied their current abode about a centuryago, and were under the control of Owo before the entire Akoko land of Ondo State united. The town was not popular and scarcely populated before the advent of Adekunle Ajasin University (AAUA), formally Ondo State University in the year 1999. Akungba is filled with the student of AAUA. One of the challenges the student face and the indigene of Akungba is electricity. Over the years, there have been problem with electricity not until recently when the people of Akungba started enjoying electricity. But that hasn’t resolved the challenges of paying the bills. The people of Akungba still make use of the regular post paid meter and their have been several issues attached to it such has paying excess dues for bills and meter getting faulty etc. Adopted the use of prepaid meter and a very easy means to make payment would be a great relief to the people of Akungba. The billing system would be built on a mobile platform. A mobile device varies based on their operating system. Which ranges from Android, IOS, Windows, Java etc. But in this work, we would focusing on an android operating system because of its popularity. An Android device is a device that runs on the Android operating system. Android is an array of software intended for mobile devices that features an operating system, core applications and middleware. An Android device may be a smartphone, tablet PC, e-book reader or any type of mobile device that requires an OS. It is a portable and handy device that will work perfectly for a bill payment application. (Gartner, 2018)

It is widely used across the people living in Akungba. Hence, that has brought to the development of this work. Thou their have been some similar platform that those the same thing, but they have been created by a private company who place excessive charge on the bill to be paid and there are cases where one would be on a lookout for prepaid card. In this work, there will be little or no charge for the prepaid meter bill to be paid and there would be no need for prepaid card for recharging.

**1.2     STATEMENT OF THE PROBLEM**

The issues associated with the post-paid meter is not new, that has brought to the advent of the prepaid meter which is currently over shadowing the post-paid meter. Having adopt the prepaid meter. Many users with the advent of the prepaid meters still have cause to complain on the availability of the recharge pins for the prepaid meters, long queues at the power holding company. These problems have continued to obstruct the development and effectiveness of the power sector in Nigeria.

**1.3 AIM AND OBJECTIVES OF THE STUDY**

The aim of this work is to develop an android based prepaid meter recharge application. To achieve the aim of this work, the specific objectives are;

1. To design a system where user can recharge his/her prepaid meter.
2. To design a system where user can transfer unit from his wallet to another user.
3. To design a system to alert user when the unit is low.
4. To design a system where user can check his/her transaction history
5. Implement (i - iv) on an android platform.

**1.4     SIGNIFICANCE OF THE STUDY**

The significance of this study is in the value of implementing the new system.  The system will facilitate in improved cash flow management in energy utilities and can reduces problem associated with billing consumer living in isolated area and reduces deployment of manpower for taking meter readings.

**1.5 SCOPE OF THE PROJECT**

This project is confined to the processes been conducted in Nigeria PHCN. The system would be for an admin and the user. As a user, you would be able to register and recharge your prepaid meter and also check your transaction history and also allows a user to transfer his/her unit to another person. As an admin, you would be able to view all users and block any user to perform any operations and also send a notification to a user if his/her unit is low.

**1.6 METHODOLOGY**

The waterfall model is adopted for this research work. It is a model that implements a linear-sequential life cycle model.

In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases. The model is shown in Figure 1.1 as follows:

**Requirement Analysis**

**Testing**

**Implementation**

**System Design**

**Maintenance**

**Deployment**

**Waterfall Mode**

Figure 1.1: Waterfall Model adopted for the Research

The components of the model are presented as follows:

**a. Requirement Gathering and Analysis**

All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification document. This requires the research going to the Bursary Unit to seek for necessary information need to develop the system.

**b. System Design**

The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements and helps in defining the overall system architecture.

**c. Implementation**

With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality, which is referred to as Unit Testing.

**d. Integration and Testing:**

All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration exists when the entire system is tested for any faults and failures.

**e. Deployment of System:**

Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.

**f. Maintenance:**

There are some issues which come up in the client environment. To fix those issues, patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

**1.7 DEFINITION OF TERMS**

**Electric Meter:** An electricitymeter, electricmeter, electricalmeter, or energymeter is a device that measures the amount of electric energy consumed by a residence, a business, or an electrically powered device

**Electronic Payment:** An electronicpayment is any kind of non-cash payment that doesn't involve a paper check. Methods of electronicpayments include credit cards, debit cards and the ACH (Automated Clearing House) network