

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the study**

Electricity supply is one of the economic infrastructural facilities that are indispensable to a nation's economic development. The efficiency of the supply of electricity will not only influence returns on investment on existing enterprises, it also plays a major role in the creation of an economic environment which influences decisions on potential investment.

The electricity which is the main source of power for our domestic consumption, industrial development, center of learning and medical centers should really be rehabilitated into enhancement of productivity.

However, power failure has resulted in people buying generators for their own daily activity. Other businesses are also not functioning due to absence of constant power supply. These are the reasons that necessitate the designing and construction of inverter and other standby system that can deliver maximum output power to the load. As society grows from simple to complex, mankind began to spread all over the earth and so it becomes necessary to enjoy power using inverter.

Statistics have shown that the number of businesses that have been closed simply because of power problem and cannot be over emphasized, so mankind need inverter seriously in order to restore technology development, businesses, communications, learning center and medical centers. However, the background of the study lies within the reason why and the construction of inverter should be forwarded and a factor that enhance inverter marketability.

Finally, the success of this study will be beneficial to the society at large. Mass production of inverters will lead to improve standard of living of the populace and the nation will move forward in its pursuit of technological development.

### **1.2 Problem Statement**

As a result of continuous power failure and fluctuation in power supply by Power Holding Company of Nigeria (PHCN), sensitive appliances and systems are affected by interruption of power supply. Then, this project is to provide a back-up and reliable power supply of 5000kva to power a standard five bedroom flat.

### **1.3 Aim and objective**

The aim of this project is to design and construct a circuit that will take a 24v dc input from battery and provide a 5000VA output that will be able to supply a standard five bedroom flat. The objectives are:-

v To design a circuit that will convert dc to ac power for various appliances used in domestic home.

v To provide a noiseless source of electricity generation.

v To have a source of generating electricity that has no negative effect on the environment (i.e. no greenhouse effect).

v To provide a source of electricity power with low maintenance cost and zero fuel cost.

#### **1.4 Scope of the Project**

The Scope of this project is to design and construct an inverter with output power rating of 5kVA, maximum output current of 22.72A, output voltage of 220V AC from a 24V DC input. This project is basically designed for single phase domestic loads. The project is to be realized using simple and relatively cheap components available in the local markets.

#### **1.5 Methodology**

v To achieve the aim and objectives of this work, the following are the steps involved.

v Study of the previous work on the project so as to improve its efficiency.

v Draw a block diagram.

v Design and calculation for charge controller and inverter.

v Studying of various component charge controller and inverter circuit.

v Construct a charge controller and an inverter circuit.

#### **1.6 Motivation**

Inverters are the best when it comes to back-up since they can come up very fast and they generate little or no noise unlike a generator. Even in an area with constant power supply, power outage due to natural causes and faults are usually unannounced. It is therefore very important to prevent casualties and loss of goodwill by having a reliable back-up power installed.

#### **1.7 Report Outline**

This report is made up of five chapters. The first chapter gives an introduction to the general concept of power and gives the motivation and objectives which the project report seeks to achieve. It also explains the scope of the project and the problem statement. The second chapter discusses the critical review of the technical and academic literature on previous works, methodology and it also identifies modifications made.

The third chapter discusses the principle of operation of the power inverter, design and calculation of all the basic stages. Chapter four of this project report contains the final construction and design process, soldering, maintenance, etc. testing and test results were also compiled. The fifth chapter contains the conclusion and recommendation of this report.

## **DESIGN AND CONSTRUCTION OF A 5KVA INVERTER**

**The complete project material is available and ready for download. All what you need to do is to order for the complete material. The price for the material is NGN 3,000.00.**

**Make payment via bank transfer to Bank: Guaranteed Trust Bank, Account name: Emi-Aware technology, Account Number: 0424875728**

**Bank: Zenith Bank, Account name: Emi-Aware technology, Account Number: 1222004869**

**or visit the website and pay online. For more info: Visit <https://researchcub.info/payment-instruct.html>**

**After payment send your depositor's name, amount paid, project topic, email address or your phone number (in which instructions will sent to you to download the material) to +234 70 6329 8784 via text message/ whatsapp or Email address: [info@allprojectmaterials.com](mailto:info@allprojectmaterials.com).**

**Once payment is confirmed, the material will be sent to you immediately.**

**It takes 5min to 30min to confirm and send the material to you.**

**For more project topics and materials visit: <https://researchcub.info/> or For enquiries: [info@allprojectmaterials.com](mailto:info@allprojectmaterials.com) or call/whatsapp: +234 70 6329 8784**

**Regards!!!**