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**FACULTY OF ENGINEERING**

DEPARTMENT OF COMPUTER ENGINEERING

PROJECT PROPOSAL REPORT ON

DESIGN AND CONSTRUCTION OF A LOW COST POWER INVERTER  
WITH AN OUTPUT VOLTAGE RANGE FROM 220V – 240V.

BY

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PROJECT WORK SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE AWARD OF DIPLOMA IN INDUSTRIAL  
ELECTRONICS AND ELECTRICAL ENGINEERING

## **CERTIFICATION**

This is to certify that this project was our hand work (written and construction) by the students listed above and has been prepared in accordance with the regulations governing the writing and presentation of project at BUSITEMA UNIVERSITY, FACULTY OF ENGINEERING, DEPARTMENT OF COMPUTER ENGINEERING

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**DECLARATION**

We declare that this project is our own hand work. It is being submitted in partial fulfilment of the requirements for the award of a Diploma in Industrial Electronics and electrical Engineering in Busitema university.

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**SUPERVISOR'S DECLARATION**

I, **Mr MUGWANYA PARTRIC**, hereby certifies that this project work has been supervised and accessed in accordance with the laid down rules and regulations by BUSITEMA UNIVERSITY, DEPARTMENT OF COMPUTER ENGINEERING.

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## **ABSTRACT**

Power inverter is an electrical appliance that can be used with DC battery as an alternative source of energy supply in the event of power failures and energy crisis. It is cheap, clean, very conducive and silent when in operation and a very reliable source of power supply as to generator. Modern research and technologies have shown that inverter is one of the cheapest forms of energy generation. Throughout the world, it is readily available and can be partner to solar energy particularly using photo-voltaic cells (PVC) or solar panel arrays, with a battery bank as a reservoir to collect and store solar energy in large scale power generation/production for rural and very remote areas' electrification project in the Nation. Sine wave, modified sine wave, square wave, cotek and power master from <http://www.inverter.html>

Most domestic appliances such as personal computers, television sets and lighting systems among others, operation has largely been controlled by hydro-electric power supply [National Grid]. This is not much a reliable source of energy due to the persistent power failure from our only reliable Nation Grid in the country, which has been the result of low water level in the dam(s) during dry seasons, faulty underground cables and transformer failures. the current energy crisis that is happening in Uganda

and such experiences are seriously estimated worldwide in the near forthcoming as a result of unfavourable climatic change.

This development therefore seeks to use inverter with the help of 12V DC battery as an alternative source of energy in the wake up of these challenges to power household appliances.

# TABLE OF CONTENTS

## PAGE

Abstract .....

Table of content.....

Acknowledgement .....

List of Abbreviation .....

CHAPTER ONE .....

### **INTRODUCTION TO DC/AC POWER INVERTER**

1.1 Introduction

1.2 Problem statement

1.3 Aims of the study

1.4 Objective of the study

1.5 Significance/importance of the study

1.6 Limitation/scope of the study

1.7 Tools and components used for the construction

CHAPTER TWO.....

### **LITERATURE REVIEW ON A DC/AC POWER INVERTER**

2.1 Background

2.2 Inverter and Application

2.3 Methodology

2.3.1 Block diagram of an inverter

2.4 Sine wave generator

2.5 circuit diagram

CHAPTER THREE.....

Methodology

3.1 Introduction

3.2 Components of a DC – AC Power Inverter

3.2.1 NE 555 IC

3.2.2 100K Trim pot

3.2.3 0.22 MFD CAP

3.2.4 0.01 MFD CAP

3.2.5 Resistors (4)

3.2.6 BC 547

3.2.7 Circuit or Breadboard

3.2.8 12V-0-12V/230 -3 AMPS Transformer

3.2.9 2N 6292\*2

3.3 conductors

3.4 The 12V DC Battery

CHAPTER FOUR.....22-25

**MODE OF OPERATION, SERVICING AND ANALYSIS**

4.1 Circuit operation

4.2 Switching Times

4.3 Switching time against Output voltage

4.4 Servicing

5 Time frame

6 Budget

REFERENCE.....

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## LIST OF ABBREVIATIONS

MOSFET	Metal Oxide Semiconductor Field Effect Transistor
$V_{DS}$	Drain Source Voltage
$V_{GS}$	Gate Source Voltage
$I_D$	Continuous Drain Current
$I_{DM}$	Pulsed Drain Current
$BV_{DSS}$	Drain source Breakdown Voltage
$V_{GS}$	Gate threshold Voltage
$R_{DS)}$	Drain Source On State Resistance.
AC	Alternating Current
PVC	Photo – Voltaic Cells
DC	Direct Current
V	Voltage
PWM	Pulse – Width Mod