CHAPTER ONE

INTRODUCTION

1.1Preface

An electric power system comprises of generation, transmission anddistribution of electric energy. Growth in power systems has lead to very complex networks extended across large areas. A power system, most of the time, operates in a steady state but disturbances, temporary and permanent, occur occasionally by the presence of large number of components which are susceptible to failures caused due to natural calamities, human errors and aging. Faults cause large amounts of currents to flow in the components that would burn out if current flows are not promptly interrupted. Faults, if not detected and eliminated quickly, may cause severe reduction in system voltage, loss of synchronism, loss of revenue and may damage the equipment permanently. Faults can be minimized by proper power system planning and using sophisticated equipment but the occurrence of faults cannot be eliminated fully. It is, therefore, necessary to protect power systems from faults.[1]

Electricity is the main source for the operation of all the supplies that we use in our daily life which is developing all the work carried out by human.

The idea of this project is doing or invent a way to control the electricity and reduce the duration [2]. Where the device is located at each station automatically fixes the problem . it then sends an alert to the party

responsible for the damage . each column contains the power to the transmitter to send information to the electricity centre which contains a specific address .[3]

1.2 Problem Statement

The current mechanism used to detect the fault in power transmission lines approximated by the calculation of the impedance obtained from voltage and current data.

However, by this method it's difficult to determine the location where the interruption occurred. In addition, it would take long time to be repaired, also the presence of the proportion of error in determining the location of fault.

1.3 Proposed Solution

Proposed work has made an attempt to find solution to the problem of fault detection and location by using power sensor which sensed the power in the transmission line , microcontroller (processing unit) that send the signal to GPS alert to happen the fault in the transmission line , the GPS and GSM While this technique based to determines the location of fault accurately and quickly.

1.4 Research Objective:-

The main objective of this research is to design circuit that capable of finding the location of fault exactly without any present of the proportion of error in location by using Global Positioning System.

The detailed objectives include

- Design a circuit utilizing Microcontroller, GPS and GSM transceiver.
- Simulate the designed circuit using proteus .
- Hardware implementation using the above mentioned equipments.
- Performance Evaluation of the synthesis circuit through six different scenarios.

- Sensed the transmission line and detect when the fault occur by using power sensor.
- Address the location of the damage in quick time and sending in message to supervisor by using global system for mobile communication .

1.5 Methodology

This thesis is largely focused on detect the location of fault and sent message to supervisor . The input of the circuit are three lines coming from the electricity column in forms of AC ,then converted to DC ,which used AC to DC bridge converter. The output of bridge are input to microcontroller ,when fault occur in any one of three line the microcontroller understood the problem by disconnecting of current input . The global positioning system detected the location of interruption and global system for mobile communication send message to supervisor this message include the details of location and number of line .

1.6 Thesis Outline

this thesis composed of five chapters, their details are as follows :

- Chapter one is an introduction: This chapter includes preface, problemStatement , proposed solution ,objectives and methodology .
- Chapter two is a literature review : This chapter gives an idea about related works ,analysis of the related works.
- Chapter three is system design : This chapter contains general description of microcontroller , global positioning system , global system for mobile communication liquid crystal display , power supply circuit , RS232 ,MAX232 and solar charger.
- Chapter four is simulation and hardware implementation: This chapter describes the work of hardware implementation and result of the testing circuit .
- Chapter five is a conclusion and recommendation : This chapter presents the conclusion that derived from the thesis with some recommendation for future work.