# CHAPTER ONE

**INTRODUCTION**

## 1.1 Background of the Study

Everyone desires a condition of not being threatened, especially physically and psychologically. Chapter four of the Nigerian Constitution guarantees Nigerians the right to life and properties among others. One of the primary responsibilities of government or any governing body in a community is to ensure adequate security of both life and properties within her territory.

Security systems are required in our homes, offices, factories, hospitals, schools, and markets places to complement the work of the law enforcement agents and to ensure safety and security of lives and properties.

Home monitoring and security systems are becoming frequent lately. The increasing risk of burglary and robbery has led to a rise in need of a secured home. (Nwalozie *et al.,* 2014). In the succeeding the number of burglary incidences rising in various parts of the country, and the lack of an resourceful state security agency, there has been a renewed interest in the deployment of home security/alarm systems, sponsored by diverse privately own custodians to combat the increasing level of delinquency (Olanrewaju *et al.,* 2017). Artezia Security Systems Limited and Active Total Security Systems are privately owned security outfits initiated to combat high level of crime in the country.

The emerging concept of smart homes offers a relaxed, accessible, and secure environment for occupants contrasting conventional security systems which keep homes safe from trespassers by providing indication in terms of an alarm only (Hadi *et al.,* 2016). A remote home security monitoring and alarming system becomes more and more practicable today, with the application of automatic control, network technology, and information technology (Poncette *et al.,* 2019).

The improvement in expertise particularly the Global System for Mobile communication (GSM) technology, has made securing our home easier. It is now possible for users to manage and observe activities in their house with the help of their smart phones. This implementation also brings in other advantages like cost efficacy and much desired effectiveness (Olarewaju *et al.*, 2017).

## 1.2 Significance of the Research

Home security systems are usually implemented with a single communication option mostly SMS to communicate remotely to the homeowners in case of a security or safety treat. Also, homeowners are bonded by the distance over which remote communication to their home security system is possible. There is need to increase the communication options to imbibe a level of flexibility in home security systems and allow for wider remote communication through the implementation of a system synchronized with both GSM and GPRS technologies. The security system will allow for communication to and from the homeowner through calls, Short Message System (SMS) and e-mail. With these additional communication options, homeowners could remotely take swift actions in case of security treat. This justifies the reason for embarking on this research.

## 1.3 Problem Statement

Efficient two-way communication and possibility of several communication channels are of paramount importance in enhancing the effectiveness, robustness, and accessibility of security systems. There is a need for communication between security system users and security systems to be distance independent. This makes it possible for the system users to be able to exercise some level of control of their security system remotely.

Consequently, this dissertation developed and implemented a home security system with increased communication options that offers distance independent services to homeowners. It also offers call, SMS, and e-mail with unrestricted mobile communications between the homeowner and the home security system, to achieve effective and efficient management, control, and safety of a home.

## 1.4 Aims and Objectives.

This work/research is aimed at designing and implementing of a home security system with increased communication options using GSM and GPRS technologies to enhance the effectiveness and accessibility of home management and control devices by providing alternative means of communications using email, SMS, and phone call services.

To achieve this aim, the following are the objectives of the research:

1. To Design and implement a home security system based on the work of Olarewaju *et al.,* (2017)
2. To Improve the implemented home security system in (1) by incorporating additional features and alternative means of communication services into it using GSM and GPRS technologies.
3. To test, validate and evaluate the performance of the developed security system using response accuracy and reliability as performance metrics.

## 1.5 Scope of the Research

This work is limited to the design and implementation of a multitasking home security system, that increases the communication channels between the home security system and its users. It imbibes a two-way communication between the user and the home security system. The performance of the system is evaluated by conducting a comparison test on the implemented system against that of Olarewaju *et al.,* (2017). To enhance effectiveness and accessibility of the home security system, services such as SMS, e-mail and phone call are incorporated into the developed system.