**CHAPTER FIVE**

**CONCLUSIONS AND RECOMMENDATIONS**

## 5.1 Introduction

The aim of this dissertation is to design and implement a home security system with increased communication options using GSM and GPRS technologies, to enhance the effectiveness and accessibility of home security systems. Available materials to design a cheap, affordable, reliable, and functioning home security system are used.

## 5.2 Conclusion

The design, implementation and testing of the system were satisfactory and successfully carried out. The provision of alternative means of communication between homeowners and their home security system was successful. These was achieved by the integration of GSM/GPRS module into the home security system. The implemented system is a multitasking system, which can serve not only as a surveillance system but also a safety and automatic door control system. The results showed that, compared to the work of Olarewaju *et al.,* (2017), the system has a 25% increase in numbers of message delivery and a 0.76 reliability index was achieved.

The system was found to work effectively and operates in accordance with the design specifications.

## 5.3 Significant Contributions

The significant contributions of this research are as follows:

1. The incorporation of the additional components to provide alternate means of communication using email and phone call increased the versatility of the system. These provide effective and efficient ways of communication for better service delivery as compared to the existing work which only provides SMS only. Also, the incorporation of remote-control capability in the home security system makes it possible for the homeowner to manage situations better irrespective of the physical location when it arises. Its functionalities are not restricted to surveillance but also include safety and access control.
2. The implemented system has been able to achieve 25% increase in system performance with respect to message delivery, and 76% of reliability.

## 5.4 Recommendations

There is always room for improvement in every electronic system. There are several ways to improve the system some of which includes:

1. Incorporating additional sensors into the system, which will increase the secured coverage area of the system.
2. Introduction of an identification check system to mitigate false alarm in the aspect of surveillance in the home security system.
3. The Arduino module can be replaced with Raspberry Pi, Raspberry Pi is more dynamic, robust, and able to undertake different assignment simultaneously.
4. Also, the GSM\GPRS module used, which is of 2G mobile communication technology can be replaced with a more recent mobile communication technology module, like 4G or even 5G modules.