

## STUDENT SECURITY INFORMATION SYSTEM USING SMS GATEWAY

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### ABSTRACT

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*Over the years the methods adopted by security officers in tertiary institutions to record and manage crime information has not been so efficient. The current method is relatively prone to errors and there is no means where students can report, capture and send crime scene to security officers, no platform where material evidence can be uploaded or recorded, inability to locate past history of student criminal activities easily. This paper presents a semi-automated approach to monitor report and manage security or crime information in institutions. The proposed security information system uses SMS portal and a chart room where students can actually logon to the system in order to forward crime information to security personnel's mobile numbers capture and upload evident of crime scene and make uses the chart room to actually communicate with the administrator that is online at that particular time. The system was developed using Hypertext Pre-processor (PHP) for the scripting, JavaScript for validation, SMS application program interface (API) for sending SMS and My Structure Query Language (MYSQL) for database.*

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**KEYWORDS:** Security, SMS Gateway, Crime, Material evidence, Security officers

### 1.0. INTRODUCTION

Crime has been the major setback of every institutions, organization, state and even a country because its eliminate peace and brings fear, individuals will not be at peace and when that happens there will be setback. The aim of this paper is to present an interactive platform that enables students report crime and security threat at real time to security agencies or bodies along side with capturing and sending the image of the crime scene to the security personnel. The objectives are as follows:

- i. to develop a central database for taking and managing record of crime information reported.
- ii. to create a module that will make use of SMS portal to report crime to security personnel
- iii. to create a chart room where an administrator can chart with the student reporting the information at real time; and
- iv. to create a module where the reporter can take a snapshot of the crime scene and forward to the security personnel.

The scope of this study is limited to developing a student security information system for reporting crimes, security threats, or managing of information as well as retrieval of history of crimes committed using web based platform for the development of the overall system. This paper covers SMS portal for sending information to the security personnel and a chatroom for conversation. For crime to be properly

managed quality information about crime, the environment the crime occurs and the social demographic data of the victims of crime and the perpetrators of crime are necessary for crime analysis.

### 2.0 REVIEW OF RELATED WORKS

School is supposed to be a safe haven where young people can go to learn the basics of mathematics, literature, science, and other subjects, without fearing for their safety, feeling intimidated, or being harassed (Abdullahi, 2018). Even though school administrators and teachers work toward making the environment safe and secure, crime and violence do find their way into the hallways and classrooms and onto the school grounds. Despite media emphasis on topics such as school shootings, fatal violence at schools is relatively low. Non-fatal crime, however, occurs in far greater numbers, sometimes even more frequently at school than away from school (Aquinas, 2017).

Information is very important in crime management and analysis. Arguably, the important weapon in law enforcement has been information management especially having day to day account of crimes committed at given intervals. The location of crime and criminal records of individual is vital information for a law enforcement officer, the police service, the public and the Government. The correct use of information is highly dependent on the available information system (Baninyi, 2019).

Occurrence of crime has varied factors such as social class, income level, unemployment levels and other demographic factors. These social factors and crime data are overlaid to determine a pattern between crime and location. Equally, with crime information system, traditional statistical information used in crime analysis is made available in a map format that shows specific crime patterns and geographic relationship among multiple factor associated with crime event (Heap, 2019).

The development in technology has created opportunities for the development of optimal crime information systems and the improvement of existing ones. Law enforcement agencies, like any other organizations have to adapt to the new challenges of the environment agencies have also to move with the trend or they will be unable to meet the demands of society (John, 2001). A number of methods for developing system are available. These methods help in developing an information system which answers the information needs of the users. The structured system methodology is among the methodologies available and will be used in this research (Boba, 2017).

Rules and regulations are paramount to all aspects of life and it accommodates both how one wishes to live, and how others should accommodate one's lifestyle. (Katantamalundu, 2019) Certain proponents have asserted that crime which is a violation against laws of the society is integral to the human nature and hence the society can never be completely free from it. Modern society is characterized by increasing levels of risk posed by internal and external security threats. Within this context, security driven by technology is increasingly used by government, corporate bodies and individuals to monitor and reduce risk (Ngwobo, 2018).

Documentation of crime committed by an individual involves handwriting into case files the information of the person and the crime committed. Prior to the advent of computers, these files were kept in wooden or metal wardrobes under lock and key. This was susceptible to damage by pest and unfavorable environmental conditions.

In recent years, (Jega, and Abubakar, 2018) as a result of the global rise in application of computers in various aspects of life, desktop applications such as Microsoft Excel were adopted, thereby causing the approach to become both manual and slightly computerized in Nigeria. However, this method of record keeping results in inconsistencies, wastage of disk space and poor control and coordination of data. The correct use and availability of a security information system is a very crucial success factor for optimum functioning of an organization or security agency. There exists a positive correlation between the qualities of decision making and information systems, one of the qualities of decision making is an expert system while information system

is a system where information is disseminated (Nelson, Deess , and Allen, 2017).

This research looks at the development of a web based student security information system, wherein the project is focused on making information of security threat or crime available at real time to security agents in tertiary institutions, and also to enhance police efficiency in responding to crime and designing crime preventing strategies (M.C Kemmish,S etal(eds) 2005).

### **3.0 METHODOLOGY**

Object Oriented Analysis and Design Methodology was adopted in this paper because it enable code reusability and is easy to understand. Students register with the system and they are provided with user name and password so as to access the system and report any form of security breach or crime at any period of time. Once crime is reported, a message is sent via SMS (short messaging service) to registered numbers of security agencies. Once the message is received, all the information will also be resident in a central system managed by a general administrator.

The system automatically searches for that particular record and displays it on the screen. The system as a web based information enables ease of access to information, as users do not necessarily need to go to any designated place to make reports. The administrator is responsible for registration of security personnel which will be recording student criminal records which include uploading the material evident of the crime for proper documentation, viewing all registered users, and registering a sub administrator. The security personnel will also be able to document a student as suspect and also record witness information. The proposed system is set to reduce the problems associated with the existing system used in recording crimes.

### **4.0 ALGORITHM DESIGNS:**

Step1: Start the process.

Step2: Run the web application on a browser.

Step3: Student registers with the system

Step4: If registration is successful the system directs the student to login page where he or she will provide username and password to gain access to the main menu.

Step5: If the student successfully gains access to the main menu, the student will report and upload crime evidence.

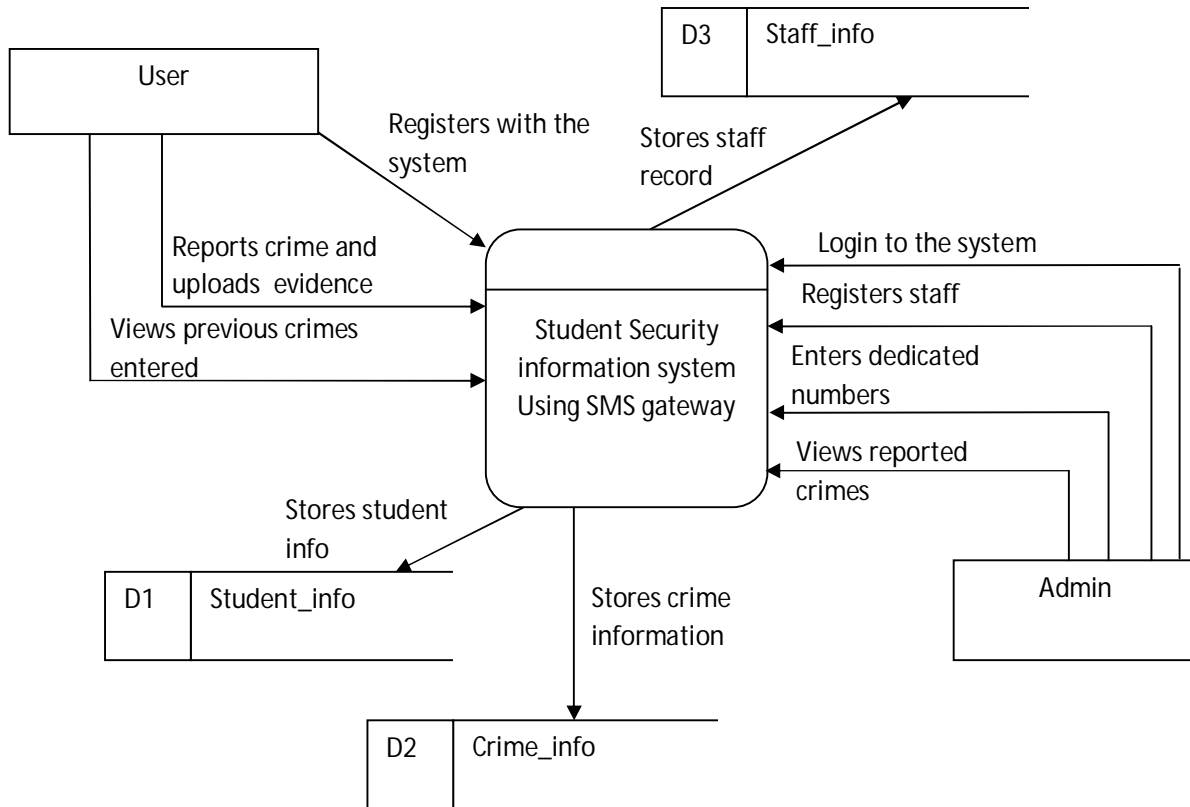
Step6: If reporting is successful the system will automatically send the reports to registered security personnel's phone numbers in the database.

### **5.0 RESEARCH RESULT/FINDING**

The general achievements at the completion of this project work are as follows:

- i. The developed system allowed student to report crime which the system send SMS to security personnel phone number.

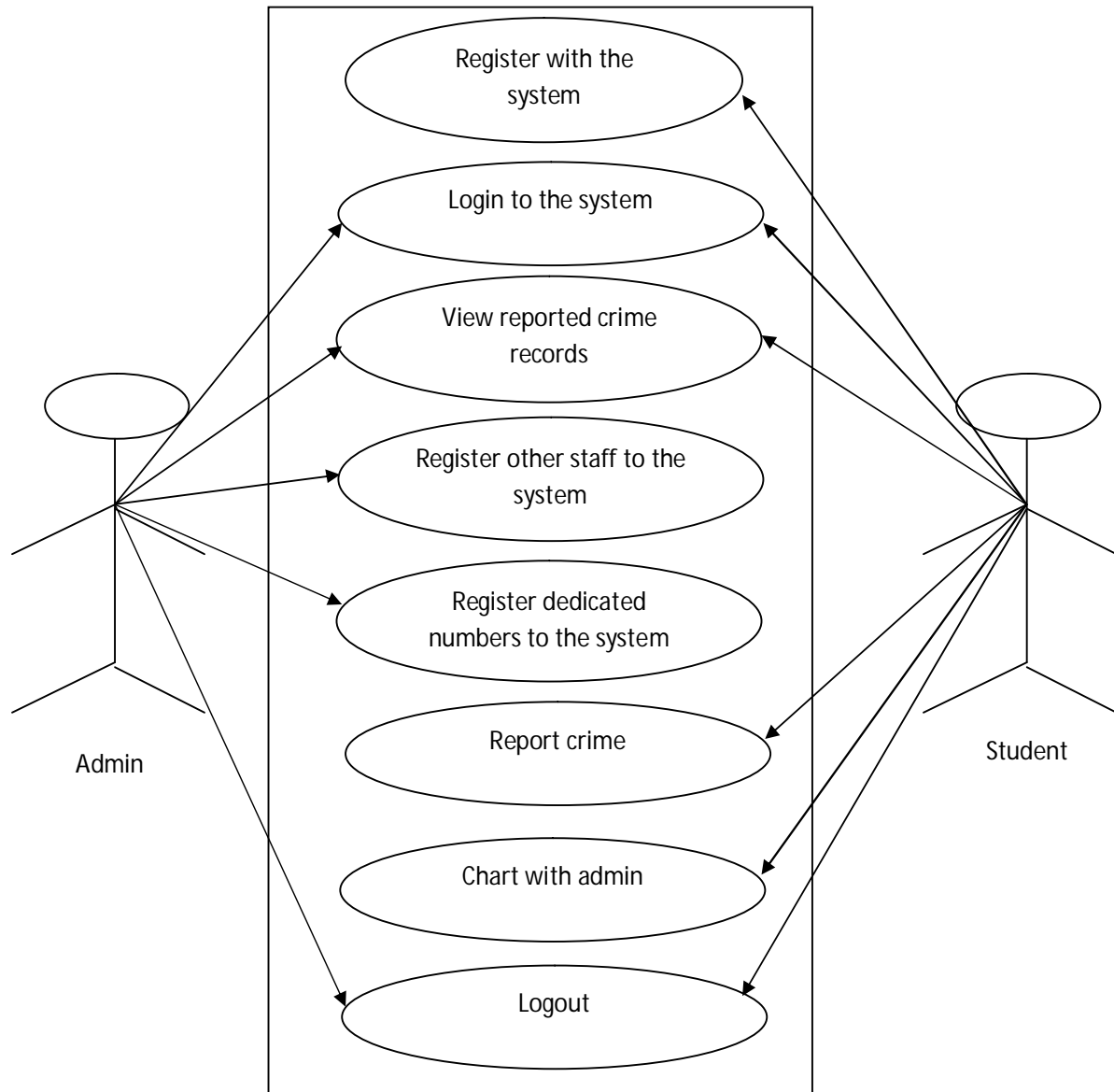
- ii. The system developed was able to register crime committed by individuals.
- iii. The system developed was able to retrieve all past crime registered in the database.
- iv. The system developed was able to register a system user in other to restrict un-authorized user to the system.
- v. Finally the system developed was able to search for crime by the person's name.



**Figure 1: Dataflow Diagram (Source Ukeje, 2019)**

A use case is a list of actions or event steps typically defining the interactions between a role (known in the Unified Modeling Language as an actor) and a system to achieve a goal. The actor can be a human

or other external system. The Use Case Model describes the proposed functionality of the new system.



**Figure 2: Use Case Diagram of the Proposed System (Source Ukeje, 2019)**

## 6.0 SUMMARY AND CONCLUSION

For crime to be properly managed quality information about crime the environment the crime occurred and the social demographic data of the victims of crime, and the perpetrators of crime are necessary for crime analysis. This paper presented a new method where student can report crimes via a web platform. The crime information is automatically sent to security personnel's phone number through SMS gateway for further processing. This platform ensures easy tracking of criminals' activities within the campuses of any tertiary institution and even in the larger society. With this platform, crimes will not only be reduced in tertiary

institutions in Nigeria, but it will be better managed in real time.

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