

# Design And Implementation Of An Online Crime Reporting System

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## Abstract

Besides the legal infrastructure in a society are the security apparatuses that enforce the law with the interest to maintain law and order. The legal infrastructures determine the extent to which law enforcement agents can act or protect the common interests of individuals in the society. It also outlines the civic responsibilities and human rights for the members of the society. Customarily, members of the society are supposed to report any incidence of breakdown of law and order to the appropriate civil and military security apparatuses. The quest to control crime and breakdown of law-and-order increases as the society grows and diversity of human intentions and interactions abound. An ideal society is governed by laws and regulations that are collectively agreed upon and measurable consequences that will be meted out for any member of the society that is found culpable to have floated any specific component of the legal infrastructure. The methodology used in this system is Structured Systems Analysis and Design Method (SSADM) which is a systems approach to the analysis and design of information systems. Structured System Analysis and Design Method (SSADM) is a waterfall method by which an Information System design can be arrived. The programming Languages used are, Php, Html, and MySql for database management system.

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## I. Introduction

### Background to the Study

The quest to control crime and breakdown of law-and-order increases as the society grows and diversity of human intentions and interactions abound. An ideal society is governed by laws and regulations that are collectively agreed upon and measurable consequences that will be meted out for any member of the society that is found culpable to have floated any specific component of the legal infrastructure.

Besides the legal infrastructure in a society are the security apparatuses that enforce the law with the interest to maintain law and order. The legal infrastructures determine the extent to which law enforcement agents can act or protect the common interests of individuals in the society. It also outlines the civic responsibilities and human rights for the members of the society.

Customarily, members of the society are supposed to report any incidence of breakdown of law and order to the appropriate civil and military security apparatuses.

According to Tapan (2018), reported cases are also supposed to be intelligently collected, evaluated and investigated to a more conclusive and justifiable end. Evidences are collected, protected and properly examined before accused persons are charged to Law court and fairly prosecuted. Investigations are carried out without fear or favour. In fact, any attempt to prevent due process during crime investigation is in itself a crime and it is also punishable under the law.

Usman (2019) noted that the process of reporting and investigating crimes in the society has been mainly manual. Individuals who have some complaints will work into any offices of the security agents (e.g. Police, neighborhood corps) to inform and write in statement issues that may need their attention. At these offices, the security agents will raise an incidence form and ask the reporter to fill some appropriate segments. The security agents will also ask some intelligent questions from the reporter and make notes of preliminary investigations. The advent of technology has opened new fronts of opportunities of leveraging on the diverse benefits of information technology to crime reporting. There are various technology platforms that have been developed to assist how crime incidences are reported, responded to and investigated. The technological applications have gone from telegraph, special radio communication, and dedicated phone lines to a more responsive and more pervasive technological application platforms (web and mobile software applications). Majority of the members of the society nowadays have mobile devices that can easily access the internet. This makes the web approach the most economical and open approach for reporting crime with a far reaching benefits and coverage. Although there are several efforts that have been made in this area around the world, there is still no popular and responsive platform for reporting crime in Nigeria.

The few available platforms in Nigeria (e.g. Amebo, Linda Ikeji) are blogs and are not ultimately serving the goal of properly reporting, evaluating and investigating various crimes in Nigeria. A close thing to it is the respective platforms sponsored by Economic Financial Crime Commission (EFCC) and Investigation of Crime and Corrupt practices (ICPC); they provide avenues to report crime incidences but investigation and response are towards financial crimes. This platform does not include murder, battery or harassment incidences which are commonly reported at the local Police station than financial crimes reported at EFCC and ICPC combined. These institutions and their respective platforms are specialized in the area of financial crime and their activities are so secretive that processes and progress of investigations are not shared with other security agencies and the members of the public.

The available platforms are far below how technology could be harnessed to report crimes. The platforms are not popular and not very intuitive to use by common citizens. The platforms are unidirectional in the sense they do not have feedback for the members of the society. All these gaps have necessitated our interests for an ideal application that will address the limitations.

The newly developed system will encompass the web platform that reports all manners of crimes, open to all members of the public, suggestive (search for entities), interpretative and enlightening. The platform will provide a platform for various security agencies to share and gather evidences and mobilize members of the public for certain interests that will drive better policing, crime prevention and investigation.

### **Aim and Objectives of the Study**

The Aim of the work is to Design and Implement an Online Crime Reporting System

Objectives are to:

1. Design a module for reporters and Administrators to register, Login and report crimes.
2. Develop a module that will upload images or videos of crime scenes to ensure that police may act immediately.
3. Develop a module that will report emergency incidence like ongoing robbery, insurgence, vandalism etc.
4. Develop a platform for data collection, analysis and categorization for storage and retrieval when needed.
5. Develop a platform for victims to track the progress of their reported incident.

## **II. Review Of Related Literature**

### **Crime**

Well and meaningful societies in the world frown at crime and any social vices that undermine the collective safety and values that have been adopted in that society. Crime persists as long as human society exist, therefore there is a continuous effort and legitimacy to report, investigate and provide convincing evidence to prosecute individuals who perpetrate any criminal activity.

The word Crime originated from the Latin word *Crimen* dubbed charge or offence. Shodghangha (2018) projected Crime as a function of the adoption of standards by the society rather than individualistic standards, that is, the society gradually determine what is perceived as good value and bad acts and proscribe possible consequences. Tappan (2018) defined Crime as an intentional act in violation of criminal law which is without an excuse. Sampson *et.al* (2019) also defined Crime any act or omission that is forbidden by law that can be punished by imprisonment and/or fine after due hearing in a law court. Elizabeth (2020) expressed a holistic definition of Crime as an act that is not just harmful to some individuals but also to the state or general public.

The determination of what is obnoxious or sane is determined through a long and continuous complex interactions and reactions among members of a society. As society varies so what is considered as crime varies from people to people. Wilson *et.al* (2017) argued that there cannot be a general theory to define Crime for all societies because of the diversity of human society and culture. More so, Gottfredson *et.al* (2020) and Sampson *et.al* (2019) had a different view, stating that differences in cultures and societies do not really matter but the common characteristics in cultures can be identified and a general theory can be formulated to prescribe what the society should adopt as a crime, that is criminologist should not isolate crimes but to look for the commonality in crimes so as to propose a general rule to determining Crime for all societies. The dynamism of culture and unpredictability of human make it unlikely to have a general set of rules for all human societies.

No continent is left out; Ukoji *et.al* (2016) reported that Africa is considered a flash point for high crime. He noted that giants of Africa like Nigeria and South Africa now have high records of violent crimes in recent time. America also has high crime index while some places in Europe have been able to crime index by few digits.

Another important component of the justice system is the crime investigation and prosecution. The general knowledge of what Crime constitutes is not enough without ultimately punishing the offender to serve as deterrent and freeing the falsely accused persons in such occasions. The general justice system constitute the laws; which indicate what Crime is, the law apparatuses like security agencies, people and processes that are followed to implement justice. The people who are to be served by the justice system may soon begin to lose confidence and underreport or result to jungle justice to redress their anger if existing justice system continues to fail with time. Criminal justice system also constitute the system of practices and institutions of Government directed at

ensuring social control, deterring and mitigating crime or sanctioning individuals who violate laws with criminal penalties and rehabilitation efforts.

However the perception of criminal justice system in Nigeria is usually put in poor light because of rapid and failing structures of the justice system. Tosin (2018) reported that Amnesty international has always rated Nigeria justice system poorly and it is represented as a conduit for injustice from start to end. The actors in the justice system have also not helped the situation to start acting as expected by the lofty positions they hold and the important role they play in the process of dispensing justice. There is a sentiment about law makers having vested interest thereby making inadequate laws that do not really server the interest of the general public. The judicial system is also almost compromised as judges are bribed to pervert justice and that the hope of the common man. Components of the justice system vary for different societies.

The process of the justice system is very important as it determines if the people who are served will accept the outcome of the process and continue to support the system. An important aspect of the justice system is being able to report cases, investigate and prosecute based on laws and get sentencing. Until recently, most communities report crime incidences on papers, which make the process vulnerable to alteration, theft; mutilation and erase of evidences that could have made the system apportion justice appropriately. With the advent of information technology, crime reporting has taken a new turn, has many cases can be reported independently and security agencies can easily access them and act promptly. There are state and individual sponsored ICT platforms for reporting, investigating crime and giving feed back to the people. The manual and old process does not engage the people as anticipated which has gendered all sorts of perception about how professional and sincerely reported cases have been investigated. United States of America has a common database for reporting crime incidences which has improved policing in the US.

The few electronic platforms for reporting crimes in Nigeria are isolated and not been visited by the Nigerians majorly because of the distrust towards the process of justice, no feedback on reported cases and isolated crime reporting (mainly for financial crimes). There is a need to increase the awareness of an encompassing electronic platform that will accommodate all crime incidences, open to all and does feedback to the members of the public. This strengthens our legal infrastructure and justice system.

### **Crime Reporting Systems**

In Nigeria, there are several crime reporting systems that individuals can use to report criminal activities. Here are three key systems:

1. Nigerian Police Force Crime Reporting System: This system is operated by the Nigerian Police Force and is widely used across the country. It provides various channels for reporting crimes, including emergency phone numbers, direct visits to police stations, and online platforms. Citizens can report crimes such as robbery, assault, kidnapping, and fraud. Once a crime is reported, it will be recorded, investigated, and appropriate actions will be taken. The Nigerian Police Force also operates a toll-free number (0700-CALL-POLICE) to make reporting crimes more accessible.
2. Lagos State Police Command Crime Reporting System: Lagos State, being one of Nigeria's most populous states, has its own crime reporting system run by the Lagos State Police Command. This system focuses specifically on crimes within the jurisdiction of Lagos. It operates similarly to the national police force system, allowing citizens to report crimes through phone calls, visits to police stations, social media platforms, a dedicated website, and a mobile app. The Lagos State Police Command ensures that crimes reported within its jurisdiction are thoroughly investigated and appropriate measures are taken.
3. Crime Stoppers Nigeria: Crime Stoppers Nigeria is an independent crime reporting system operated by a non-governmental organization. It offers an anonymous reporting platform, allowing individuals to report crimes without fear of retaliation or having to disclose their identities. Crime Stoppers Nigeria operates a toll-free hotline (0800-555-TIPS) and an online reporting portal. Information submitted through these channels is reviewed and shared with law enforcement agencies for further investigation and action. This system creates a safe space for citizens to provide vital information about criminal activities without revealing their identities.

These crime reporting systems are essential in maintaining law and order, ensuring public safety, and holding criminals accountable. Citizens are encouraged to utilize these systems to report crimes promptly and contribute to creating a safer society.

### **In America, two prominent crime reporting systems are:**

1. 911 Emergency Services: The 911 emergency services system is widely used throughout the United States. It allows individuals to report crimes and emergencies by dialing the three-digit number, 911, from any phone. The system connects callers with a dispatch center in their local area, where trained professionals (dispatchers) gather information about the crime or emergency and dispatch the appropriate response units, such as law enforcement, fire departments, or medical teams. The 911 system handles a wide range of crimes, including

burglaries, assaults, robberies, and domestic violence incidents. It provides a quick and efficient way for citizens to report crimes and receive immediate assistance.

2. Crime Stoppers USA: Crime Stoppers USA is a national crime reporting system implemented by a non-profit organization. This system operates on an anonymous reporting model to encourage individuals to provide information about crimes without fear of retaliation. Citizens can submit tips or information about criminal activities using various channels, such as toll-free hotlines, mobile apps, text messages, and online reporting platforms. These tips are reviewed and forwarded to law enforcement agencies for investigation. Crime Stoppers USA often offers rewards to citizens whose tips lead to arrests or finding solutions to crimes. This system plays a crucial role in gathering community intelligence and engaging citizens in the fight against crime.

Both of these crime reporting systems in America aim to provide accessible and efficient ways for citizens to report crimes and assist law enforcement agencies. Whether through the emergency 911 system or the anonymous reporting approach of Crime Stoppers USA, these systems seek to ensure that valuable information reaches the appropriate authorities, enabling them to take appropriate action and maintain public safety.

### **III. Methodology**

According to Land *et.al* (2019), a methodology is the underlying principles and rules that govern a system method; on the other hand it is a systematic procedure for a set of activities. Thus, from these definitions a methodology encompasses the methods used within a study. Structured Systems Analysis and Design Method (SSADM) is a systems approach to the analysis and design of information systems. Structured System Analysis and Design Method (SSADM) is a waterfall method by which an Information System design can be arrived at Reiss *et.al* (2019). Structured System Analysis and Design Method (SSADM) can be thought to represent pinnacle of the rigorous document led approach to system design, and contrasts with more contemporary Rapid Application Development methods such as DSDM Sampson *et.al* (2019). System design methods are a discipline within the software development industry which seeks to provide a framework for activity and the capture, storage, transformation and dissemination of information so as to enable the economic development of computer systems that are fit for purpose.

Tappan (2018) noted that software development methodologies play a vital part in developing software. Custom software development companies use many methodologies for their day-to-day operations. There are certain advantages and disadvantages associated with each of them. The basic purpose of these methodologies is to provide smooth software development according to the project requirements.

The software development methodology is a framework that is used to structure, plan, and control the process development of an information system. In this kind of development methodology, the only concern of this software development process is that it does not involve any technical aspect but demands proper planning for the software development lifecycle.

#### **Choice of Methodology**

The model used for this project is the Waterfall model of software development. This model follows a sequential order which ensures that a phase is completed before another phase begins. This system model emphasizes planning in early stages, is used in projects where all the system requirements are known and in addition, its intensive documentation and planning make it work well for projects in which quality control is a major concern.

The stages of the waterfall model adopted by this project include.

#### **Requirements Analysis**

This phase entails gathering of requirements from users of the system. The requirements are collected in a requirements specification document.

#### **Functional Requirements**

The functional requirements highlight the specific functions the system should be able to carry out. These include:

- i. Add users (police officers and background screening companies) and assign them their different level of privileges.
- ii. Validate user login details and ensure user-level privileges to information.
- iii. Store and retrieve information about crime and criminals.
- iv. Perform search functions based on some specified criteria.
- v. Perform crime analysis and statistics as well as to generate adequate reports.
- vi. Generate criminal's report.

#### **IV. Summary Of Findings**

We identified the gaps in crime reporting information space in Nigeria; that there is no single all-encompassing crime reporting platform in Nigeria. The few platforms are either specialized or informal. There is also not collaboration and sharing of information among security agents because of ego and desire for public praise. The existing platforms also do not allow for anonymity of reporter, summary of crime indexes based on context and feedback on the progress of investigation. All these problems make crime reporting harder and our justice system questionable.

We demonstrated anonymity of users, getting feedback on incident submitted, summarization of crime indexes and accountability on the part of reporters and security agents. The performance of the software prototype assures us that our approach to addressing current gaps in crime reporting ecosystem is viable and productive.

#### **V. Conclusion**

The researcher has successfully designed and implemented an online crime reporting system. The newly developed system will have the functionality of uploading images or videos of crime scenes to ensure that police may take action immediately. Capture missing persons, most wanted criminals and security tips for the awareness of people. The developed system will make the crime records available online to facilitate distribution to different police stations. Finally there will be a database of criminals under investigation

#### **VI. Recommendations**

I look forward to a time when names and identity of the offenders will be maintained on the application and some artificial intelligence techniques will be harnessed to predict the possibility of offenders committing the crime again or map hot spot locations and the frequency of committing a particular crime. These features will further make the application better and strengthen our security and justice system in Nigeria. Adopting our approach should bring us at par with best democracies and societies that have proper justice systems in the world.

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