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Crime Incidents Reporting Mobile Application for the Nigerian Police Force

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ABSTRACT
An incident report is a written account of an accident, injury, or near miss in the workplace. The purpose of an incident report is to capture the specific circumstances of the incident while they are still fresh in the minds of people who witnessed it. Several researches have been carried out on security incident reporting, but results argue that individuals, organizations and government agencies find it difficult to learn from the incidents. One factor contributing to this knowledge gap is because industry-specific methods to security incident response often give no practical information regarding tools or procedures for extracting lessons gained from an investigation. Scientific research and investigation into the causes of incidents are made possible through the systematic collection of incident data. To address the challenge of insecurity and incomplete data gathering of security incidents in Nigeria, this research work proposes the design and implementation of an incident reporting system (IRS) to capture and collate data for the Nigerian Police Force (NPF). The mobile application can be used by agents of the NPF, supporting security agencies of the state or any eyewitness around the scene of the incident. With this application, incidents can be captured and reported using pictures, text or audio notes from your mobile device. The IRS also incorporates a web-based application developed in PHP and JavaScript languages to supplement its functionality; by enabling the NPF keep track of incidents reported and use this data in analyzing the root causes of such incidents. This mobile based IRS is designed and developed to empower security operatives of Ekiti State. The model of this IRS was implemented using modern mobile application development frameworks such as Flutter to give a friendly user interface (U.I).
Keywords: incident reporting, workplace, mobile application

INTRODUCTION

System for tracking thefts, losses, and other sorts of security incidents that occur are known as security incident reporting systems (SIRS). Any good security management software keeps complete records of security incidents (Silva Consultants, 2021). They normally contain the date and time of the event, the place of the incident, including the address, the kind of incident, and a full narrative of what occurred. A well-designed security incident reporting system enables early detection of patterns, such as an increase in a sort of crime. This enables security resources to be directed to the most critical places. Additionally, a security incident reporting system may indicate if the security enhancements you've deployed are

effective or whether additional fine-tuning is necessary. In today's world, a nation's security is primarily determined by the adequacy of its security event reporting system.

National security can be defined as the absence of everything and anything that could pose a threat to a society's peace, progress, development, and tranquillity. The Nigerian Police Force (NPF) in several instances have been playing major roles that have been contributing to the internal security. They have been authorized as trained officials of the government to protect lives and property, maintain order and guarantee the safety and security of citizens and members of the society. The NPF are trained for crime detection, prevention or control and overall process of law enforcement.

In Nigeria, due to population density and her high volumes of economic activities, security crimes especially on the high ways during traffic gridlocks have become a common phenomenon. Insecurity has grown to hit its highest levels since the civil war ended in 1970. Although the presence of the NPF is still noticeable in some parts of the nation, they seem to have performed below expectations in carrying out their obligations in ensuring the peace and security in the country.

As a consequence of Boko Haram insurgents' actions in the northern part of the country, which have jeopardized the Nigerian state's survival; Niger Delta militants' activities in the southern part of the country, which have almost crippled the nation's economic lifeblood (oil production); and the activities of killer Herdsmen, who have wreaked havoc on the whole nation (Nnaji, Ejike Sylvester, Ojiego and Chinemerem Winifred, 2019)

In recent years, the Nigerian government has been deeply concerned about the danger to national security. Nigeria has lately been marked by several uprisings, involving kidnappings, and political mayhem, terrorism, and bomb assaults. Various governments have used a variety of measures to combat these threats, but all have been ineffective. According to Philip Zelikow, a Professor at the University of Virginia, and ex-Executive Director of 9/11 Commission, he noted that on one of the lessons learnt from the 9/11 catastrophe is that "The United States of America would have done the majority of the activities (i.e., reactionary measures taken) that we did post-9/11 had it not been for the 9/11 saga!" A valid example is the establishment of the Homeland Security Institutional framework, which includes a complex, colossal, multidimensional, and mission-critical information infrastructure, as well as expansive Database systems on Cyber security and Terrorism. (Yakubu, 2006).

Nigeria is confronted with a similar challenge plagued by the degree and intricacies of several terrorist attacks and bomb blast in various parts of the northern Nigeria. Should we have taken steps that ought to have been taken much earlier - about 16 years ago? Would we have created a National Security Incident Reporting System, adequately prepared with disaster recovery plans and mastered the operational intricacies before they struck? Maybe Nigeria would not be described as a dangerous place to live. In the twenty-first century, security systems of the future will be based on dynamic knowledge architectures known as information clusters.

In various cities and towns across Nigeria, multiple cases of security incidents ranging from armed robbery, kidnapping, herdsmen or terrorist attacks, bomb blast and killings are recorded almost daily. Without an incident reporting system for collecting and analyzing incident data, security operatives are disempowered to perform their responsibilities in an effective manner. Knowing what incidents could occur and learning to prevent or avoid them in the future is a task of growing concern for security agencies.

To this end, this study tends to propose a solution to the problem of insecurity in Nigeria using Information Technology – A mobile app-based incident reporting system (IRS) readily available to operatives of security agencies and eyewitness who can capture the details of the incident and report to relevant authorities for proper recording. Therefore, the study is poised to answer the following research questions;

1. How can different security incident architectures and models be designed, reviewed, and compared to determine an effective framework for incident management in Nigeria (Ekiti State)?

2. What current technological methods can be used for reporting security incidents, and how should these be used to develop a mobile incident-reporting application for security agencies in Nigeria (Ekiti State)?
3. To what extent do security agents and eyewitnesses find the developed mobile incident-reporting application usable, effective, and reliable after testing?

METHODOLOGY

The methodology of software design employed in this research work is the Waterfall software development model. The waterfall development method has the advantage of allowing for departmentalization and control. The development process begins with the concept and continues through design, implementation, testing, installation, and troubleshooting through operation and maintenance. Each phase of development occurs in perfect sequence.

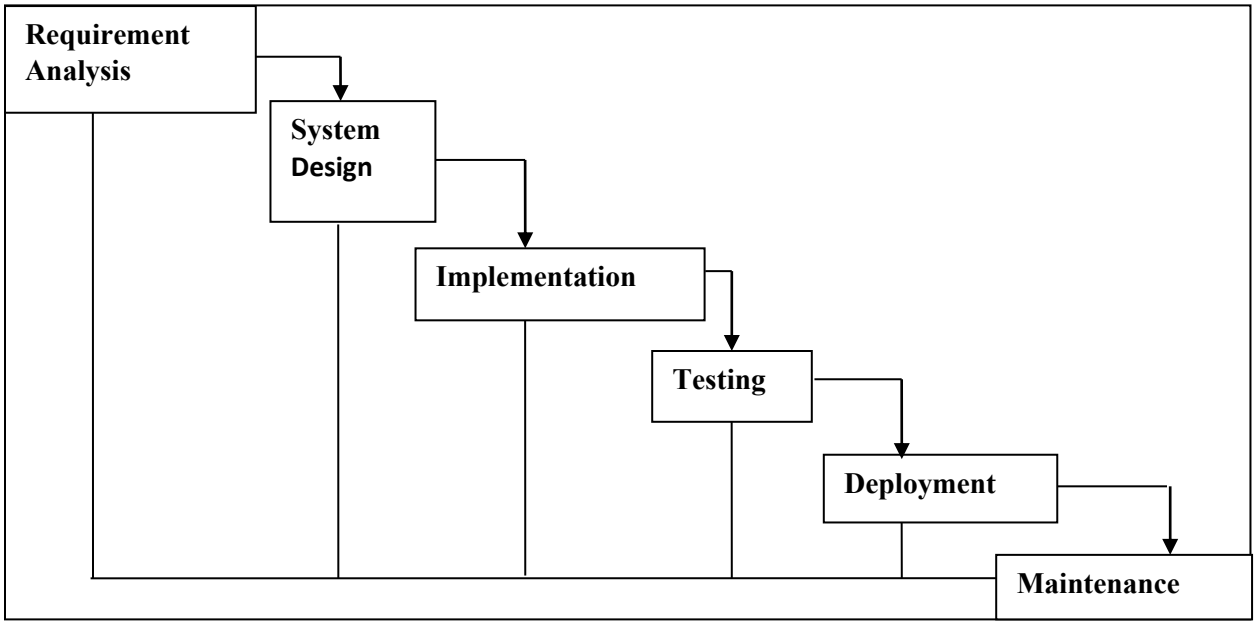

Figure 3.1: Waterfall methodology adopted for this research

RESULTS

Implementation

System architecture

The implementations of systems applications can significantly improve the efficiency of crime and incidents management; they evaluate a mobile application that allowed citizens to report crime and incidents to the police or other law enforcements agencies within a GPS location Tracking. The backend user has a wholistic view of the reported files. This back-end user is also referred to the Admin or Security Agency (NPF). This user can track reported incidents and update the status of the incident to determine if it is pending, active or closed.

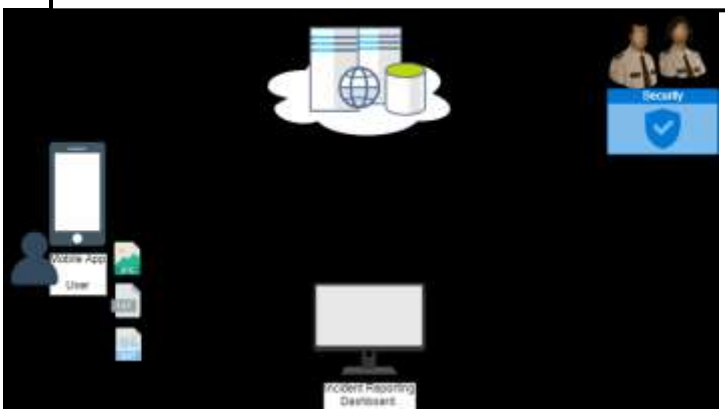

Figure 1: Architecture of the Incident Reporting System

Implementation of the System

This describes how the various components that make up the system work together with other resources to perform the appropriate operation. The system was implemented using a programming language which is JAVA and Android Studio for the mobile application and HTML, PHP, CSS, Java Script, MYSQL for the web development. The developments of the systems is a powerful tool for incidents to reports incidents crimes directions. From their mobile devices. The musts standout features of this application are its ability to nullify users' status. of reports as at the time of happening and easier modes of reporting crimes and incidents for the public at any time

Hardware Tools

The hardware that is required in the successful completion of this project include;

i. A Personal Computer (PC) (4GB RAM, 100GB HHD)
ii. An Android based mobile phone or device (2GB RAM, 100 MB Internal Storage)

Software Tools

Operating System: Android 3.2, 4.1 and recent Android Version

FUNCTIONALITY

Eye-Witness Functionality

Registration: After the software has been properly installed, the user enters information that will be used to create their user account. A user simply inputs registration information, and following completion of the required fields, the profile is generated quickly. There is a repository of registered users, and when a user registers, the data in the repository is used to verify the registration. Users who successfully register will have access to services such as reporting road accident incidents and browsing previously reported incidences.

Figure 2: Registration

Login: The user should be able to login to the application quickly at different instances. Login on the application requires the users email or username and password details.

Figure 3: Login

File Incident Report: After logging in successfully, the user would be able to report occurrences using the mobile phone's add incident page. This feature enables the user to put a location in the report they've submitted, allowing them to track the occurrence's position. Along with the incident, the user may add a brief description, a picture, a video, and an audio file. And in reporting incidents users will be able to

report an incidents or crime by selecting the types incidents or crime locations with uploading an image once the user summits the report. It will be sent to the appropriates authorities for actions. Provide a clear, objective account of what happened, be specific and avoid personal opinions or assumptions, includes details like the sequence of events contributing factors and the outcome of the incidents. Ensure that the reports reviewed by the appropriates authorities such as supervisors or managers, also the investigative teams.

Figure 4: File Report

To properly file an incidents report, you should gather a basic information like the date, time and location of the incidents, as well as the names of those involved and any witnesses. Provide a clear, objective, narrative of what happened including any injuries, damages or other, or other impacts. Documents witness statements and note any follow -up actions taken. Incidents file are generally accidents or event that cause injuries to workers or damages to property or equipment.

View Reports: On this page, the user gets to see all the incident filled or posted by all other users.

Figure 5 View Incident

Details Screen: The gain access to this detailed screen, the user would have to click on any incident out the list of incidents been displayed. Here any user can read the full information and read the media file attached to it.

Figure 6: Details Screen

User Profile: The feature of the mobile application shows personal details of the eyewitness or agent user. The user can also modify his or her information in this section.

Figure.7: Profile Screen

ADMINISTRATION FUNCTIONALITY

Administration Functionality; incidents reports are crucial for documenting and analyzing workplace, establishing clear procedures encouraging a reporting culture and ensuring thorough investigation and follow up

Login: The admin process can be done on the web platform. The admin would have to login with his/her email address and password, the first screen to be seen is the list of all filled report.

Figure 8: Admin Login

View Report: The report is presented in a table. And can be exported into different form csv, excel and PDF. The admin can as well view the media file attached to the report.

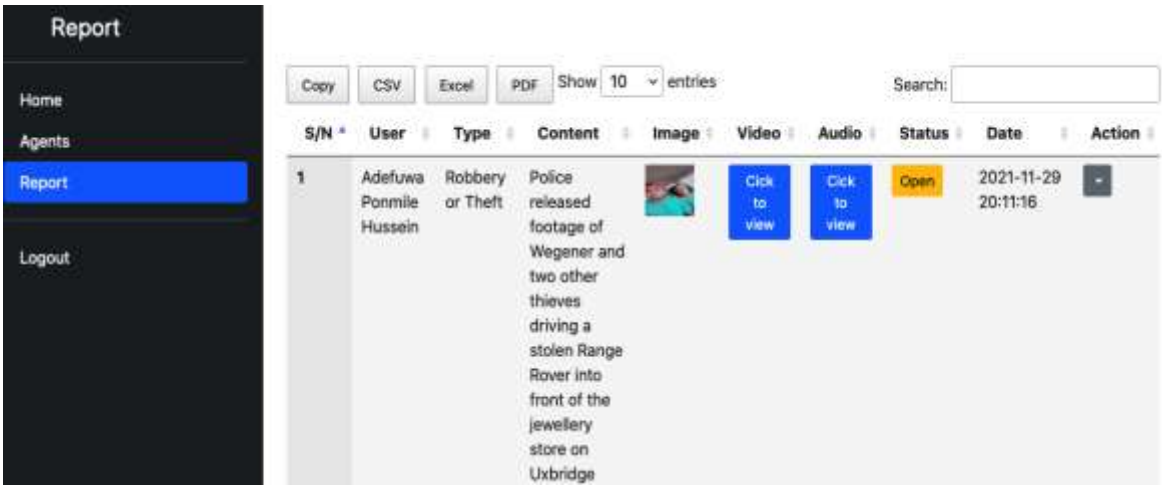

Figure 9: View Report

To view a report, log in, navigate to the incidents reporting section and used search or filtering options to locate the specific reports you are looking for, hence the specific steps will depend on the system used by your organization.

Once a report has been posted, its status by default will be pending, and report that is being attended to will become active and after it has been resolved, it becomes closed.

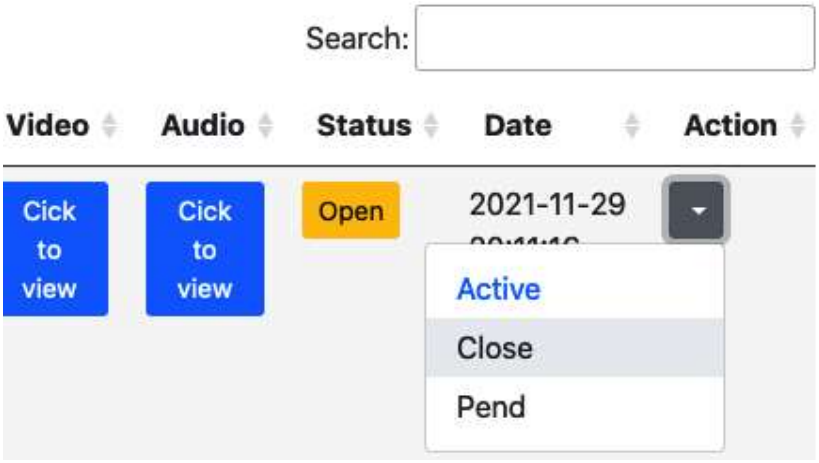

Figure 10: Update Result

Agent Management: In this environment, the admin gets to add a new agent to the application. Saved agent information can be modified as well.

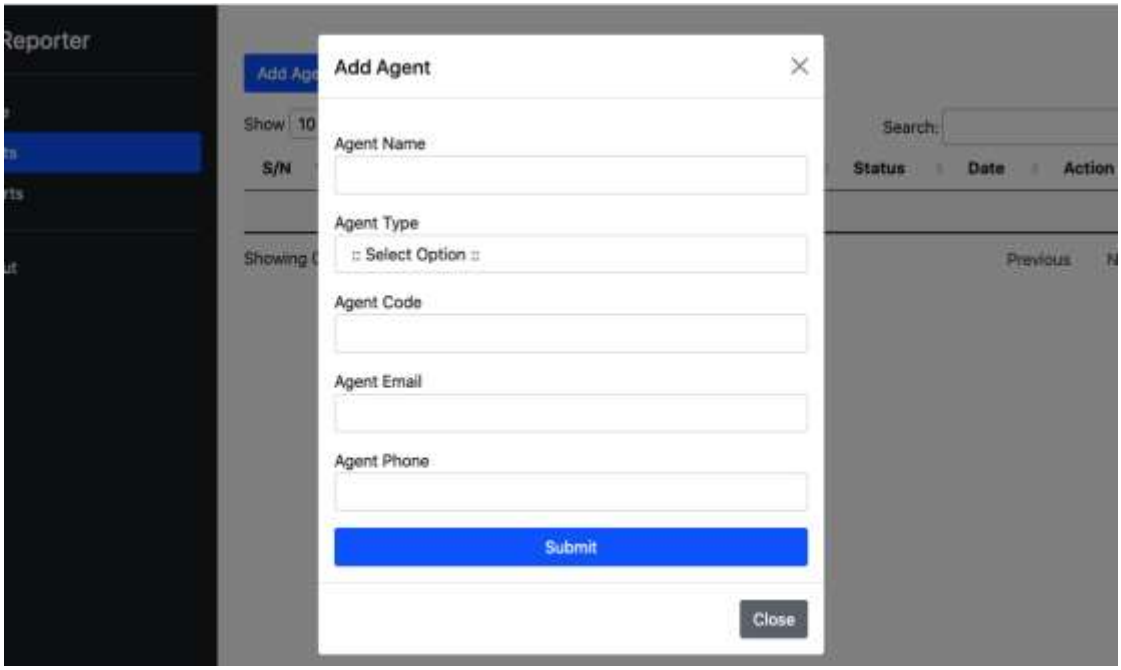

Figure 11: Add Agent Feature

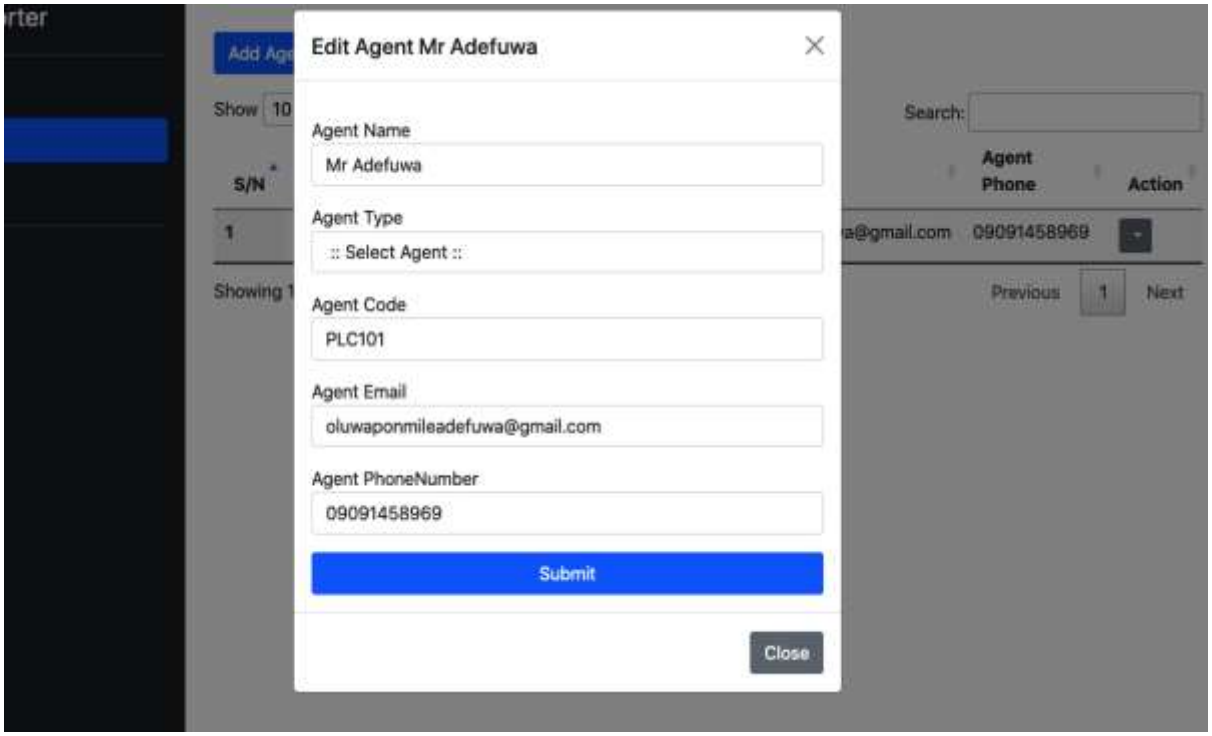

Figure 4.12: Edit Agent Details

DISCUSSION OF FINDINGS

Crime and incident reporting mobile application have gained significant attention in recent years as thy provide an easy and convenient way for citizens to reports crimes and incident to the law enforcement agencies Th primary objective here in the projects is to create a way of reporting crimes and incidents by mobile application that can enhance crime monitoring and evaluation in the community In summary, agent management in incidents reporting leverages, improve communication and collaboration which enable proactive incidents management, ultimately lading to more efficient and effective incidents response. Agent management in incidents reports refers to how incidents are tracked, and resolved by agents, often within a tricking or IT iServices management system. these reports help identify trends, areas for improvement potential problems that need to be addressed .and the agent documents, the solution and closed tickets

Conclusively, the proposed solution is an android based mobile application designed, developed and tested for use by citizen of Nigeria in Lagos and Ekiti state. The solution was designed based on the need for users to report incidents in a well-coordinated manner. The requirements were gathered and mapped using use-case diagrams, context diagrams, and database entity relationship diagrams. Using the mobile application, users will be able to report events that occur in their local surroundings. Based on the total statistics of user testing and assessment, it is reasonable to state that the application meets its requirements for simplicity and usability.

It was therefore recommended that that mobile device email addresses be utilized for login reasons, therefore eliminating the registration procedure. Also, the application can be extended to run on the Apple iOS and other operating systems based on the user base and mobile device penetration in a bit to get access to a huge audience. The mobile application should be free and available on all stores to download.

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