AN E-COMPLAINT SYSTEM FOR THE NIGERIAN POLICE USING ANDROID APPLICATION

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Abstract

Most people cannot report a case on time or so easily until they go to the police station which might not be situated nearby. Also, filing a complaint doesn't ensure a prompt response from the police department as they receive many complaints and are using a paper-based record system. This project is aimed at developing an android e-complaint (police) system that provide a platform for Nigerian citizens to make instantaneous complaints, supports querying of records and reduce the chances of losing record when disasters occur. The system is implemented using Java, XML, MySQL, PHP, JSON and Volley Network Library. This project will be of immense benefit to the public as it will provide a more accurate and faster way of delivering complaints to the police force.

Keywords : Component, Complaint, Android application.

INTRODUCTION

Generally, most police departments in the developed nations such as United Kingdom, United States, Germany, etc. have recorded substantial progress in the use of ICT for management and service delivery whereas their counter parts in the less developed nations have not (Mughai, 2003). People have the right to complaint or give comments on (public)

services and facilities provided including reporting crimes to police using their mobile devices.

However, ICT has not yet been fully utilized by the police departments in developing nations thus resulting to poor service delivery to the public (Mughai, 2003).

If a crime is committed, the victim (or a witness) must go to the police department, and report the crime to the duty officer in the stations which is then said to be registered. People cannot report a case on time or so easily until they go to the police station which might not be situated nearby and also filing a complaint doesn't ensure a prompt response from the police department. The police departments receive many complaints and use a paper-based process to keep records. As such these records are easily manipulated, not maintained, very difficult to query and could be lost due to disasters e.g. fire outbreak.

RELATED WORKS

Nafisa (2016), developed a computerized crime management system that can assist the Nigerian Police Force, in Fagge, Kano to overcome the traditional methods of crime management. This system uses a centralized database which holds information about criminals, crimes and users of the system. It allows users to store police department's case details, most wanted suspects and missing persons' details, officers' enlistment record, and also allowed the upload of criminal photos and scanned documents. The system tends to be more user friendly, graphical-user-interface oriented, reliable, efficient and secured (Idris, 2016).

In 2014, an E-police Record Management System was developed to the public of India, to lay their complaints online. The online complaint system solved the fear of the public to report complaints online without going to the police department. The system provided a database including criminals, innocents and any other information that will help the police department in catching criminals and it also helped the higher authorities of the police to have an overview about the progress of investigations (Farsole, 2014).

In 2013, an E-complaint System for Internal Customer was developed to the internal customer of the Royal Malaysian Police Force (PDRM). The system adopted Formal Method (automata) which improves the complaints process handling. The system enables and assists citizens to lodge complaints effectively (Abbas et al, 2013).

In 2013, Joseph proposed an online crime reporting and management system which was easily accessible to the public, the police department and the administrative department in Kiambu County, Kenya. The normal publics in Kiambu County and majority of Kenyans are afraid to lodge a complaint or even report a crime to the police stations because they are filled with fear of the harassment by the police officials. The software provides facility for

reporting crimes, making complaints, reporting missing persons, showing most wanted persons' details, showing lost and found persons and properties, reporting theft and manage reported crimes (Mughai, 2003).

In 2004, an E-complaints System for Komunikasin Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM) Hostel was developed to enable students lodge their complaints without any specified time frame. This system helps to recognize the complaints that occur in the KUTKM hostel and it improves data capturing using query statement in order to avoid form redundancy and duplication aspect (Adam, 2004).

Even though there are quite a number of complaint management systems as seen from the review, there is need for implementation of such e- complaint system using android application. Looking at how Africa is considered as mobile front in world's fastest growing mobile market.
(Voxxi., 2016) and how people find android phones easy to use nowadays.

METHODOLOGY

This software was developed using prototyping. In prototyping, errors and omission in functional and non-functional requirements would be revealed much earlier. So also instead of freezing the requirement before designing and coding, a prototype which is based on currently known requirement will be built, to enable us understand if there is a need for other requirements (Sommerville, 2009). It includes five phases as shown in the figure below;
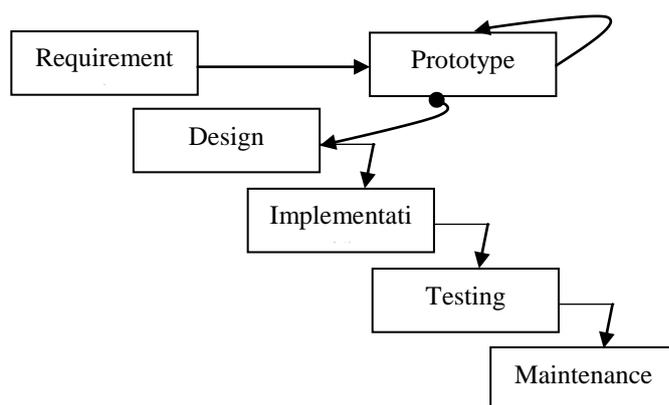

Figure 3.1: Prototype Model

The e-complaint (police) system was implemented using Android studio Integrated development environment (IDE). Java, XML, PHP, CSS, HTML are selected for development

of the android application. Java was chosen because it is a full-featured, general-purpose programing language that is concurrent Extended Markup language (XML) was selected as the mark-up language used in designing the entire android application i.e. it defines the interface and it's also simple and easy to debug. PHP was selected as the primary language tool to be used for scripting the entire deployment of the web application. Hypertext Processor (PHP) was used to query the database i.e. java cannot interact with MySQL directly. Hypertext Mark-up Language (HTML) is the standard mark-up language used for creating the web application (Gupta et al, 2003). It is responsible for laying out documents, and bringing images, sound and video alive. The Cascading Style Sheets (CSS) was used so as to describe how the Html elements are displayed on the screen. It defines the layouts of the web pages i.e. text and background colors.

RESULT AND DISCUSSION

The android application system and its subsystems are presented in this section. The system is designed using Extended Markup language (XML) and coded using Java, such that each button has its attributes and methods saved inside it

A user is required to create an account in order to lodge his/her complaint using the android application. In order to register, a user clicks on the "Register" and fill in his details, upon successful validation of the identity; the user is registered onto the system. The frame below shows a sample of new user registration and beside it demonstrates a user logging in.
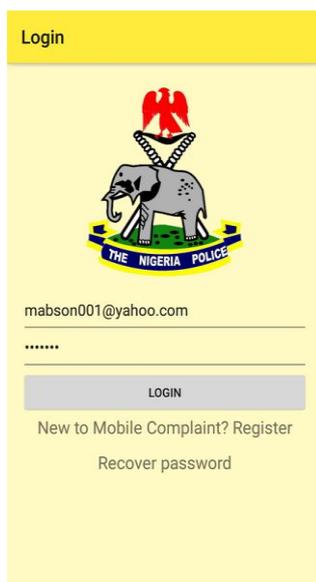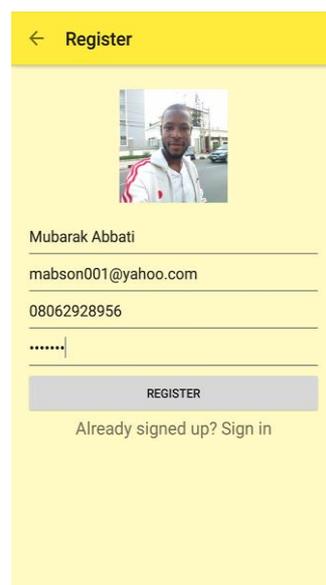

Figure 4.2: Registration activity

Figure 4.3: Login activity

After a successful login, the user can choose to go Home, Contact, About activities and can also Logout by tapping the navigation bar and sample code for the navigation bar as shown below;
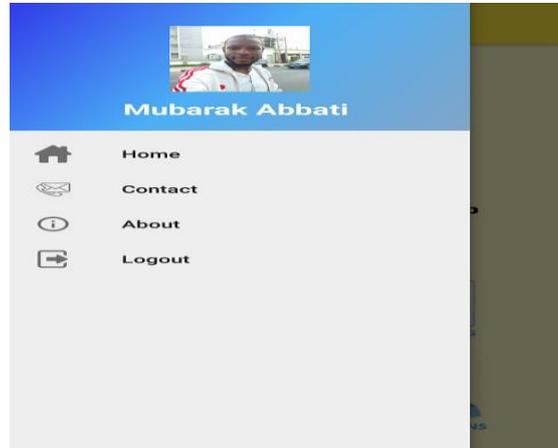

Figure 4.4: Navigation Items

If the home activity is selected it will be displayed. If the user needs an emergency help, the help button is tapped twice and a complaint will be successfully lodged by capturing your location. Below is the home activity, the tapped button.
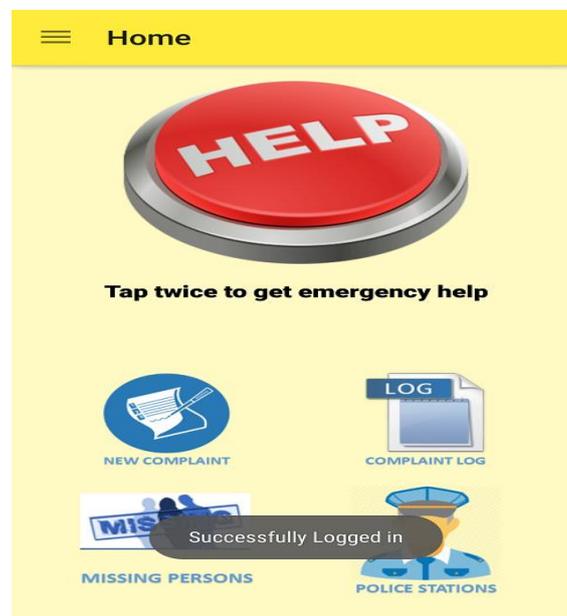

Figure 4.5: Home activity

A user can lodge complaint by clicking the new complaint button. The user selects a category of complaint and enters the details of the complaint. The complaint modules have three components that is Video, Audio and text module. The frame is shown below;
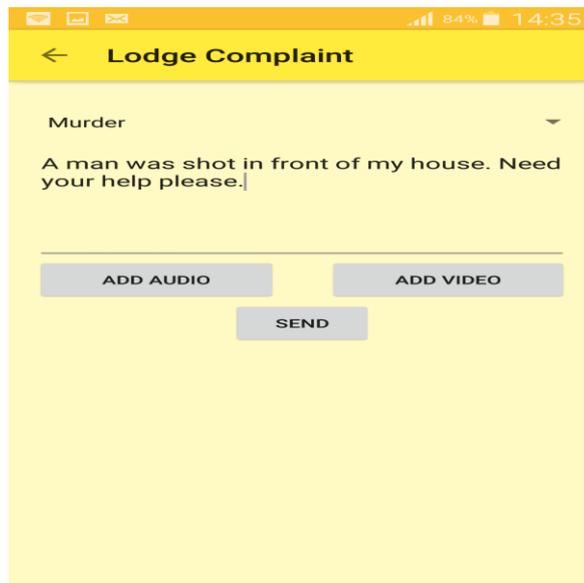
Figure 4.6: Complaint activity

The complaint log activity keeps records of all the complaints reported by the user; each record displays the category of the complaint that was selected, the date and time. It also displays the administrators' response to the user as shown in the figure;
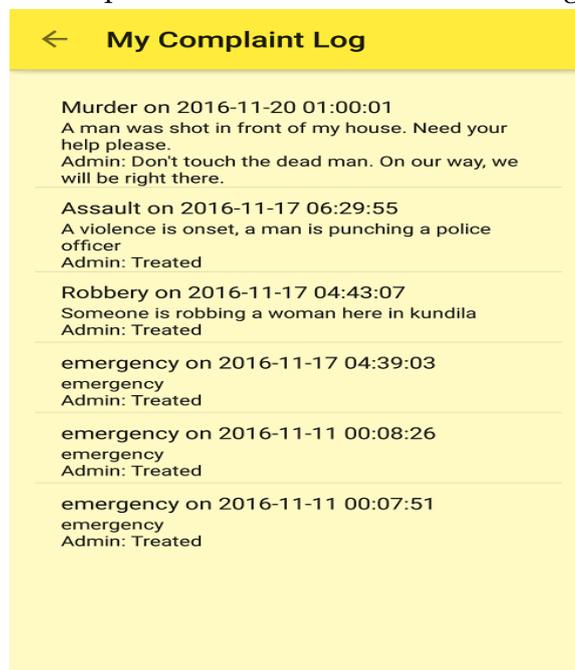
Figure 4.7: Complaint log activity

A user can report a missing person by filling all the required fields i.e. the name of the person, age, complexion, gender, a text area for brief description and can also upload image of the person as shown in the figure below;

Figure 4.8: Missing Person activity

The web application is made up of two pages. The first page authenticates the administrator while the second page is made up of several pages that provide administrative tools to the user. The frames below vividly show how the administrator will view and respond to users' complaints.

Below is the start page of the web application. The page provides the means of authenticating the administrator of the system.

Figure 4.12: Authentication page

The frame below shows all the list of users that have registered with the e-complaint (police) system. On the left side of the page, it consists of a list of menus in which the administrator can view the page of his/her choice. It includes user's list, complaints list, missing persons' list, map of the current location of the complainer and can also logout.

Figure 4.13: Users list

All the complaints of the users were added to the database and the admin can receive the complaints. The complaint frame enables the administrator to view location of the user, complaint details and a text area for the admin to respond to the user. The frame below shows the received complaint and the updated complaints list.
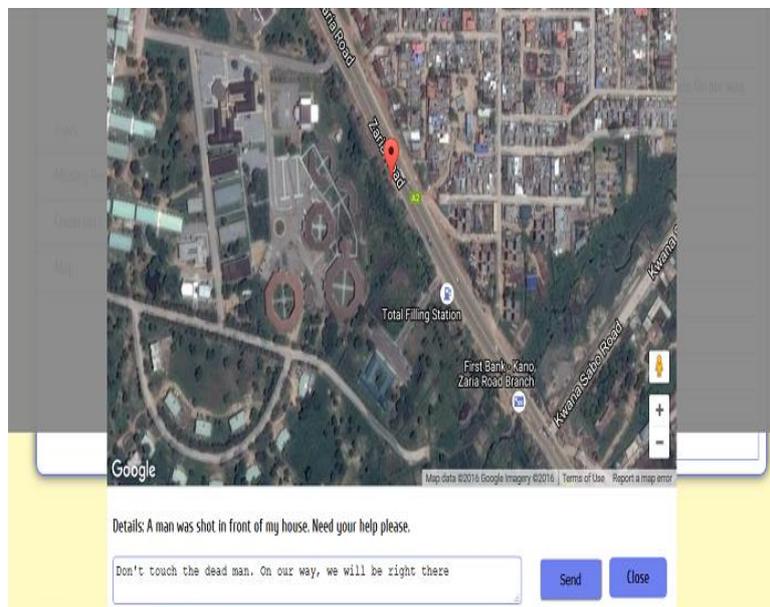

Figure 4.14: GPS location showing an incident

Figure 4.15: Complaint list

The admin can also view the list of missing people as shown in the figure below. A click on the missing person displays more information about the person as shown in the next frame;
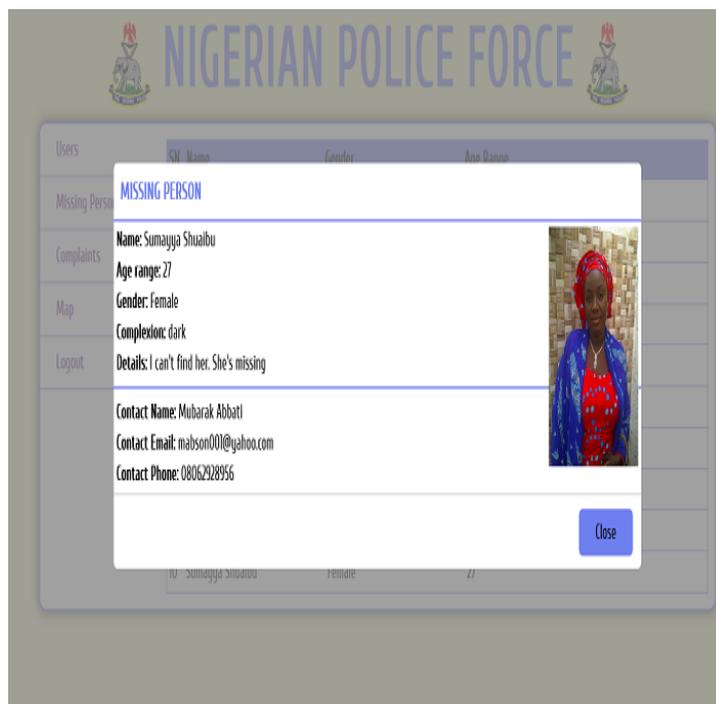

Figure 4.16: Missing people list

Figure 4.17: Missing person

SYSTEM TESTING

Software testing is an important stage for the system in order to minimize system's error and to make the system or software run smoothly. The different parts of the whole system were tested. Also, all interfaces between the integrated units were checked for any inconsistencies that might arise due to merging them into one system and everything went well.

CONCLUSION

In this research, the e-complaint (police) system for android smartphones and tablets was developed using Android Studio. It comes along with Android SDK and Android Virtual Device (AVD) or emulator used for USB debugging. The android application was implemented through the use of Markup language, programming and query languages. XML played the role of Markup language where it is used to design the graphical user interface layouts and Java served as the programming language used for handling the logic i.e. the core functionality.

This application can streamline all works by a simple click. This e-complaint (police) system has made operation much easier and more convenient. The project has provided a system with complete functionality which meets the project aim, objectives and requirements definition.

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