

Development Of A System For Detection Of Suspicious Terrorism Communication On Social Forum

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Abstract

Terrorism, in its broadest sense, is the use of intentional violence and fear to achieve political or ideological aims. Over the years terrorist have been planning their attack by means of communication through either phone call or social media but the challenge is that after using this means, they will get away with it without them been apprehended because no means to capture their conversations and their plans. This challenge led to the development of a system for detecting suspicious terrorism communication on social forum, the developed system was able to capture terrorist conversations through any registered keyword on the system like bomb, kill, kidnap, assonate and so on whenever the system detect this keyword it will automatically capture the conversation, time, date and the photograph of the two parties and send to security personnel for further action to be taken. Object Oriented Analysis and Design methodology was adopted. The system was implemented using XAMPP, PHP, Bootstrap, Fireworks, Sublime text and SMS Application Program Interface (API) from kudisms.net. The developed system was able to capture terrorist conversation which include the photograph of both parties on the developed customize social forum and send to registered security personnel and administrator.

Keywords: *Terrorism, Detection, Suspicious, Social Forum, Conversation*

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I. Introduction

Insecurity is the major concern in the society today, terrorism, in its broadest sense, is the use of intentional violence and fear to achieve political or ideological aims. The term is used in this regard primarily to refer to intentional violence during peacetime or in the context of war against non-combatants. In any event, many terrorist activities that have occurred during the post-1945 era have not been associated with self-determination debates at all. Identified causes of terrorism have instead ranged through the entire spectrum of human discontent, including the economic, political, social, psychological, ideological, etc., with short or long-term goals, both objective and subjective, becoming the object of violence (Whittaker, 2020). In response, some in the international community, especially academics, have sought to label terrorist groups according to their motivational goals or ideologies rather than in terms of criminal acts, as is the approach within the United Nations system. Consequently, students may come across the categorization of such groups within scholarship as “revolutionary”, “separatist”, “ethnocentric”, “nationalist” or “religious”. In terms of the use of violence and force by terrorists, this also ranges across a wide spectrum, from individuals with military training and experience, to what Whittaker has termed “throw away” operatives, who are effectively sent untrained on suicide missions. Their use of violence also illustrates the slow evolution of terrorist tactics and strategies, including traditional assassination, bombings, arson, hostage-taking, hijacking, kidnapping, sabotage, the perpetration of hoaxes and suicide bombings, to name but a few (see, for example, Global Terrorism Index 2017). More recent tactics can include unconventional forms of terrorism, including nuclear terrorism (for example, fabricating a dirty bomb, attacking a nuclear reactor, etc.), high-tech terrorism involving cyber-attacks, ecological terrorism (for instance, the threat of destruction to the environment) and terrorist attacks aiming at destroying cultural heritage, as perpetrated by ISIL (see, for example, the Executive Committee of the Commonwealth of Independent States, 1999, article 1)

The use of violence with the aim of creating fear in a wider audience in order to prevent various parties from doing something, or, on the contrary, to coerce them into a certain behavior, is as old as mankind. Such use of violence has served states and various regimes over a long period of time. The word ‘terrorism’ comes from a Latin word ‘terrere’ which means ‘to be frightened’. It achieved the new name ‘terrorism’ during the Reign of Terror in France which lasted from 1793–1794 (Paresi & Mitra, 2021).

Crime is an act that is harmful to both individual and the community or state that is been perpetrated. Crime actually goes a long way beyond the definition we all know. Crime is normally defined as bad behavior that contradicts the laws and norms of a place or community. In the simplest term, Crime generally can be defined as any action that goes against the law (Aquinas & Geber, 2020). Crime management involves the types of crimes in Nigeria, the associated punishment, national check fraud center, types and schemes of white collar crime, social control and order. Crime Management also comprises of the first response by the police officers, such as the questioning and detention of suspects/offenders, prior investigations, investigations and commencing prosecutions on major crimes. Over the decade, a lot of research work had been carried out and many computer programs had been written in order to detect terror messages on social forum.

Defensibly, Information has always been the most important tool or weapon in the hands of the law enforcement operatives. The appropriate utilization of the information gotten is actually based on the source of the information available. Local law enforcement uses different types of application in data collection and also co-ordinate the flow of data from one department to the other in responding to the needs of the citizens of a particular society (Bridges, 2021).

The existence of crime has different factor that affects it, such as: income level, unemployment level, and other societal factor etc. The factors of crime and the data gotten from crime are superimposed to determine a clear pattern between the location of the crime and the crime itself. Fairly, with crime information system and the traditional statistical information system used in crime analysis is made accessible in a map format to show a definite crime patterns or diagrams and a geographical relationship between different factors that deals with crime (Remo, 2017).

Over the years different applications have been developed for the purpose of detecting terror conversations or messages on social media but have still been facing different challenges. This research looks at the development of a system for detecting suspicious terrorism communication on social forum where some key words will be captured from terrorist conversation including their photograph and automatically sent to registered security personnel for further action.

The existing social forum lack means of monitoring the criminal conversations and alerting the security agencies, Delay in contacting the security agencies whenever there is crime, and Lack of platform where users can report any form of crime, also no means where an administrator can confirm a report from a user before it can be published to the public.

This research developed a system for detecting suspicious terrorism communication on social forum using terrorist related keyword to identify their conversations, capture, text, images and send to security agencies. It also created a table relationship in the database between keyword table and chat table so that whenever a keyword is detected the system extracts the conversion and send to security agencies. It has a platform where users report any form of crime. Also the administrator can confirm a report from a user before it can be published to the public.

II. Previous Works

Extremist and terrorist businesses use the net for a myriad of functions, such as the dissemination of propaganda, the recruitment of latest contributors and the development of operational planning. Online hobby is a crucial part of nearly every country wide protection research (McCarthy, 2019). In 1999 almost all known terrorist organizations had mounted a presence at the net. Nevertheless, the quantity to which the internet affects radicalization into violence is contested. Social media structures are /believed to have helped enlarge the hate organizations extra extensively. According to Christopher Wolf, the online world has grown to be an era embraced by racists, anti-Semites, homophobes and bigots of all kinds to spread their message of hate'. No study was found that comprehensively measures the quantity of hate speech that occurs online. Bogomolov & Ratcliffe, (2018) developed the SOCMINT to test terrorist communication which covers a huge range of programs, techniques and skills to be had through the gathering and use of social media statistics. The term was first composed by the writer in 2017 record. Some analysts have cautioned SOCMINT to be a department of open supply intelligence (OSINT), which has been described as records that can be publicly and be lawfully acquired by way of request, buy or remark'. SOCMINT is described, now not via the openness of the facts on which it is based totally, but by way of its existence on a social media platform. As either open or closed intelligence, SOCMINT calls for very specific concerns of validity and interpretation. Extremist and terrorist businesses use the net for a myriad of functions, such as the dissemination of propaganda, the recruitment of latest contributors and the development of operational planning. Online hobby is a crucial part of nearly every country wide protection research (McCarthy, 2019). In 1999 almost all known terrorist organizations had mounted a presence at the net. Nevertheless, the quantity to which the internet affects radicalization into violence is contested. Social media structures are /believed to have helped enlarge the hate organizations extra extensively. According to Christopher Wolf, the online world has grown to be an era embraced by racists, anti-Semites, homophobes and bigots of all kinds to spread their message of hate'. Bogomolov & Ratcliffe, (2018)

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III. Methodology

The Methodology adopted to carry out this project is Object Oriented Analysis and Design methodology (OOADM), because it provides re-usability, it reduces the development time and cost, and it improves the quality of the system due to program reuse.

Terrorism has been major insecurity in the country today, various measures have been put in place to curb insecurity in the country, also different existing applications have been reviewed in respect of reporting crime to the police but no platform that detect crime messages on social forum, a lot of social network exist where users chat with one another including group chat forum to discuss on a subject freely without restriction, sometimes to discuss about a crime they are about to commit which might be kidnapping, rubbing a bank, assassinations and so. There is no means where these conversations can be detected, captures and send to security agencies so they can be apprehended before they commit the crime. Therefore there is need to develop a means where terrorist conversations can be detected and captured then send to registered security personnel for further action to be done.

The flowchart in figure 1 is the diagram of the existing system that describes the complete processes and how it works.

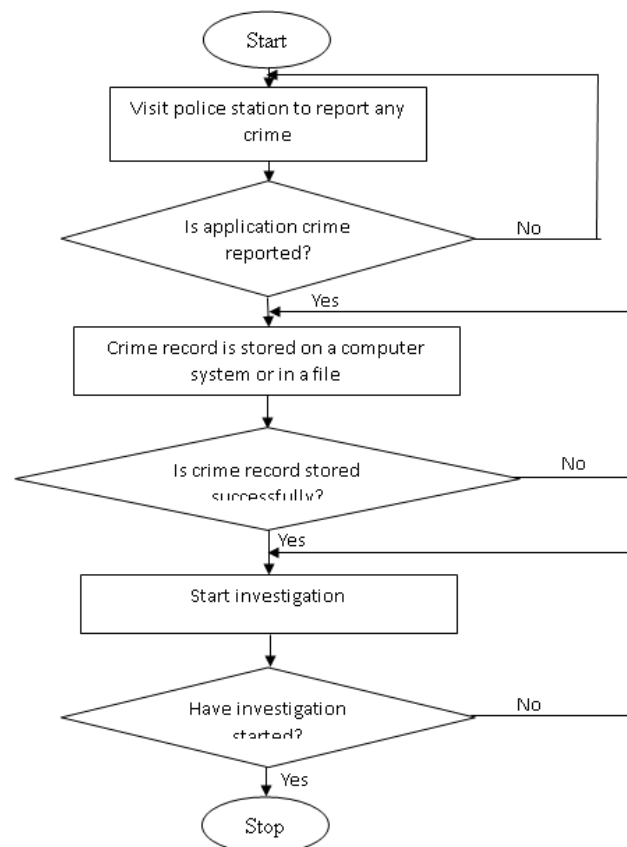


Figure 1: Flowchart of the Existing System

Figure 1 is the flowchart of the existing system. Here reporters will visit the police station to report any cases of crimes while the reporter will be ask to write a statement which will then be stored in a computer system or file for future reference and for investigation process.

How the New System Works

The New system is designed to accommodate three users, the general public, security agencies and the administrator. There will be social forum platform where general public will create an account to acquire username and password which they will be using to gain access to the platform. General users will login to find friends online before chatting with them, and also send message in a forum chat. The administrator registered the keywords which include kill, bomb, assassinate, steal, murder etc. while the system exclude or filter out those registered keywords from group of sentences from a table that was created in the database to store the registered keywords and users' conversation. Once terrorist related message is detected from a forum the application send the message to all registered security agency phone number via SMS and also to the web portal which include the profile details of the users involved with their photograph.

The general users' dashboard consists of Inbox, Outbox and Sent. The inbox indicate to users that he or she has a message, the Outbox indicate all the messages sent out, while the sent enable users to send a message to an existing user, edit profile the user can update his or her profile, here users is able to report any cases of terrorism once report is made by any user the system automatically send an SMS to all the registered security personnel phone number.

The administrator will be able to view the messages captured by the system from two terrorist conversations. The administrator will be able to register security agencies which include their phone numbers, view all registered users and also have the ability to delete a user.

The major constituent of the use case is the Actor (User and Admin): They make up the things outside the system. The use case diagram in figure 2 is used to show interaction between the users and the system.

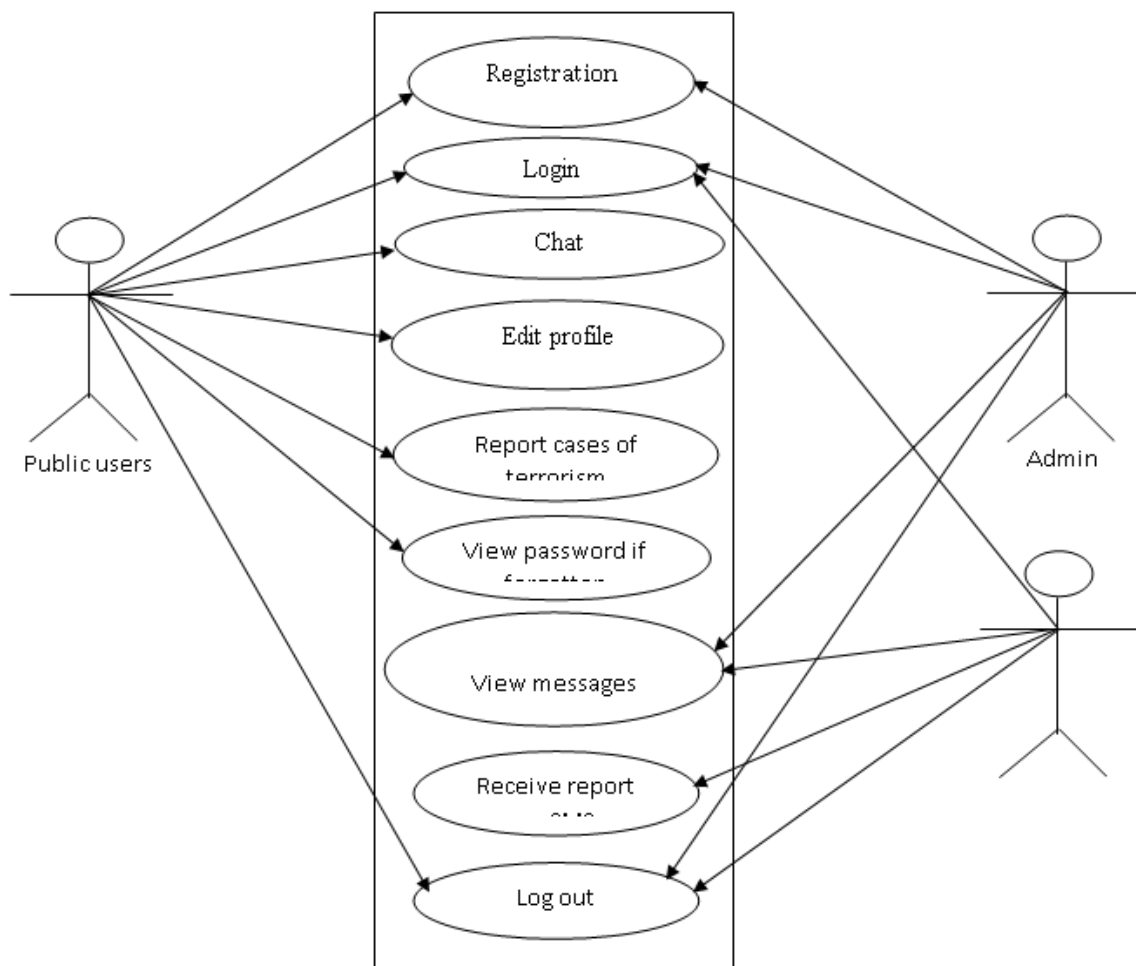


Figure 2: Use Case of the New System

Figure 2 is the use case diagram of the new system, here there are three users to the system which are public users, admin and security agent. Users will register, login and find friends if any friend accept their request then they can now start chatting. The security agent will login to view captured images and messages of detected terrorist messages on social forum. While the administrator will login to register keywords to the system and view all registered users.

The system consist of different menu which include register, login, edit profile, chat with friends, report cases of terrorism, view messages captured from terrorist, register security personnel, and receive report on SMS.

The summary of the general functionality of the system is that public users will first of all register to acquire username and password then login to start chatting with friends, the system will monitor the chat to extract terrorist related messages and send to the security personnel web page which include the profile pictures of both parties and also receive SMS notification concerning that. Public users can report crime which the security personnel can as well receive. The administrator will register security personnel which include their phone numbers and also view messages from users. The security personnel will login to the application to view all captured messages from terrorist, receive SMS notification and logout.

IV. Result And Discussion

The main menu design is use to show the design structure of the main menu. The main menu is designed with links and buttons such that once clicked would navigate the user from one page to another or once a button is clicked, it performs a specific function. The main menu implementation is show in figure 6:

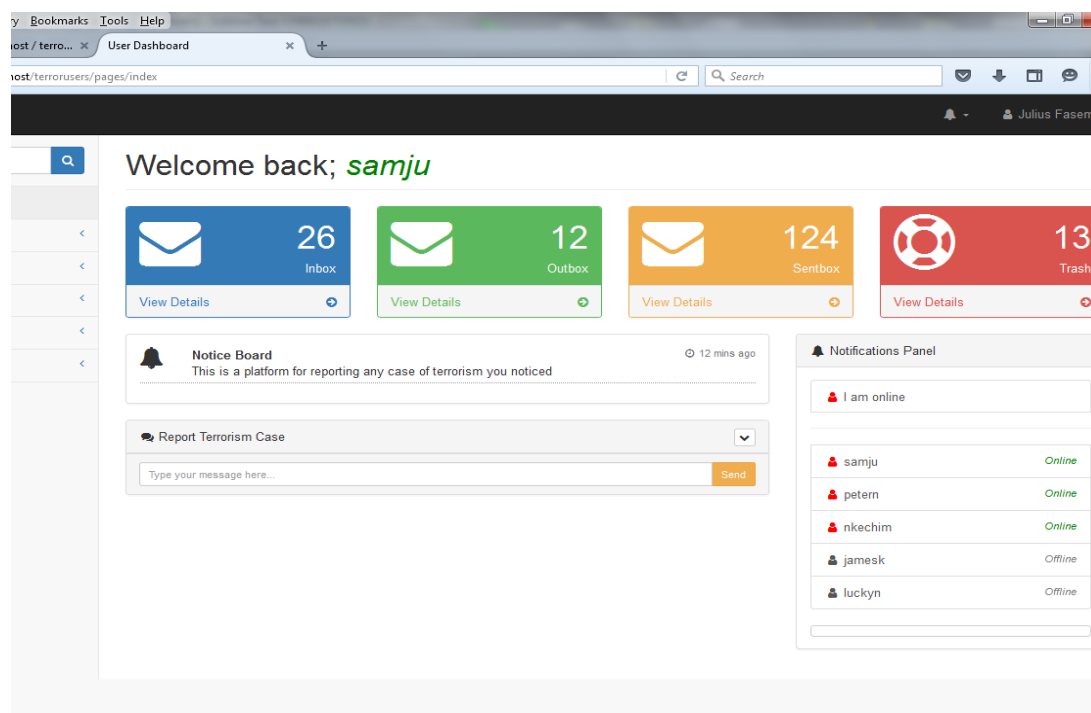


Figure 6: Main Menu Implementation

Figure 6 is the main menu implementation of the system where the user can navigate from one menu to another, this interface displays immediately users enter the correct login details.

The word input entails the various data supplied to the system which are processed to give out an output. The figures below displays some of the input form used in the design of the new system.

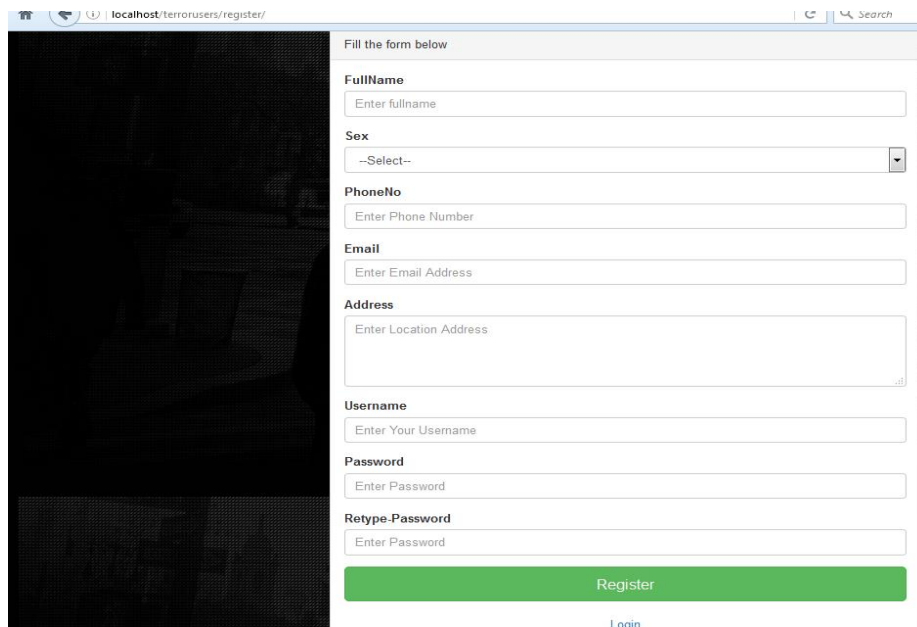


Figure 7: Input Implementation Interface for User Registration.

Figure 7 is the registration input interface for users, this interface is where all users will register to acquire username and password.

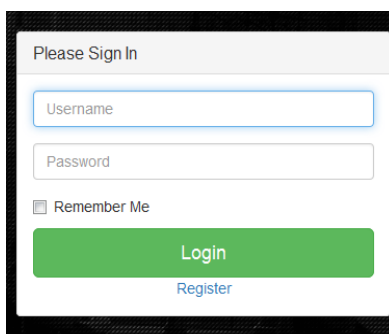


Fig. 8: Input implementation Interface for User Login.

Figure 8 is the login interface; this interface is where all users including the administrator and security personnel can login.

The output design displays result after the keyed data have been processed. The outputs to this system are the result of the chat that the system will capture and send to the administrator. The output interface is shown figure 9:

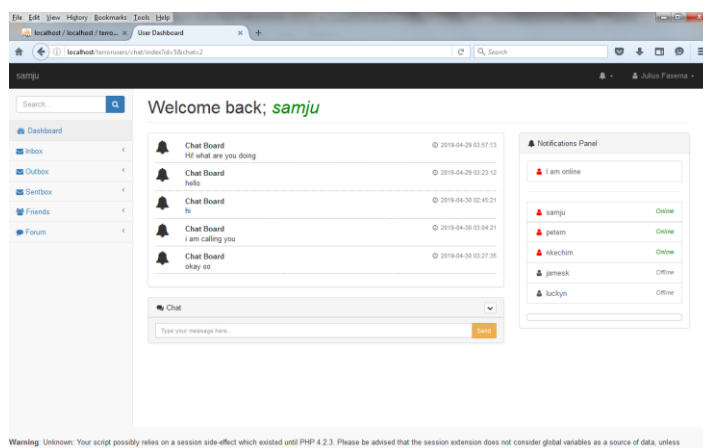


Figure 9: Output Interface for Chat

Figure 9 is the chat interface; this interface is where all users can instigate conversation with one another on the platform.

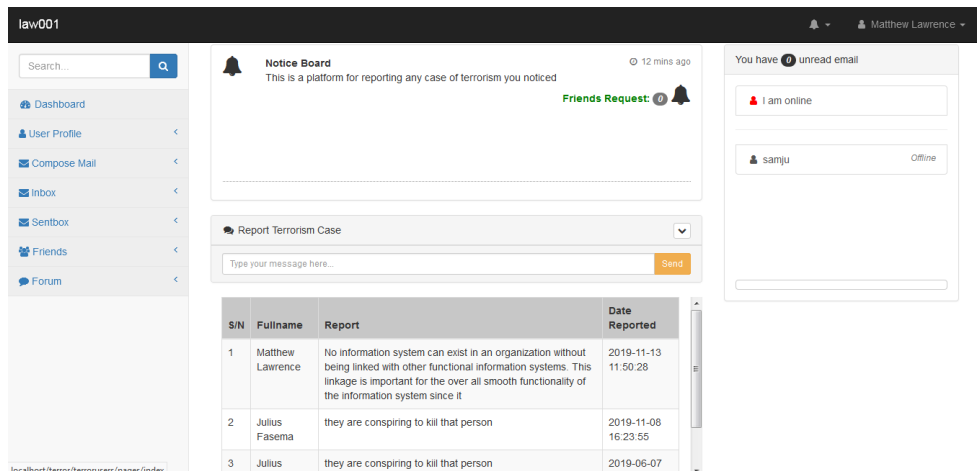


Figure 10: Conversations of two users

Figure 10 is the conversations of two users which has been captured and sent to the administrator and the security personnel.

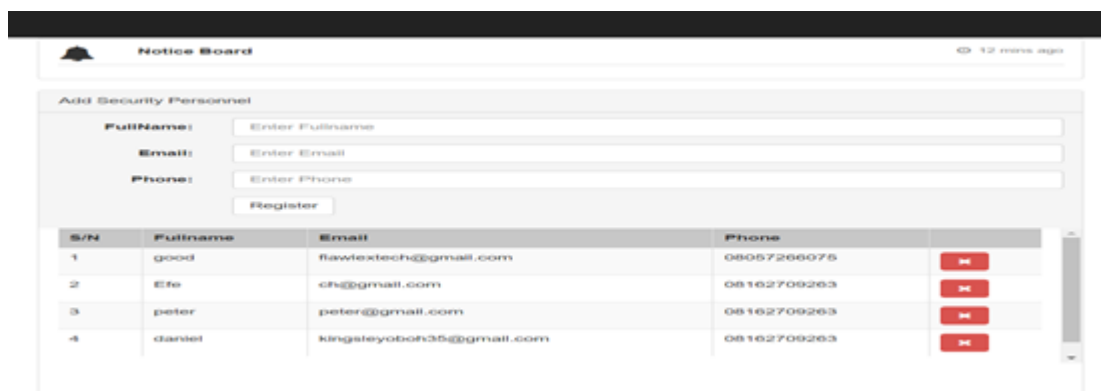


Figure 11: Module for Registration of Security Personnel

Figure 11 is the module that enables the administrator to register the security personnel to the system, after registration the security personnel can now login to access their dashboard.

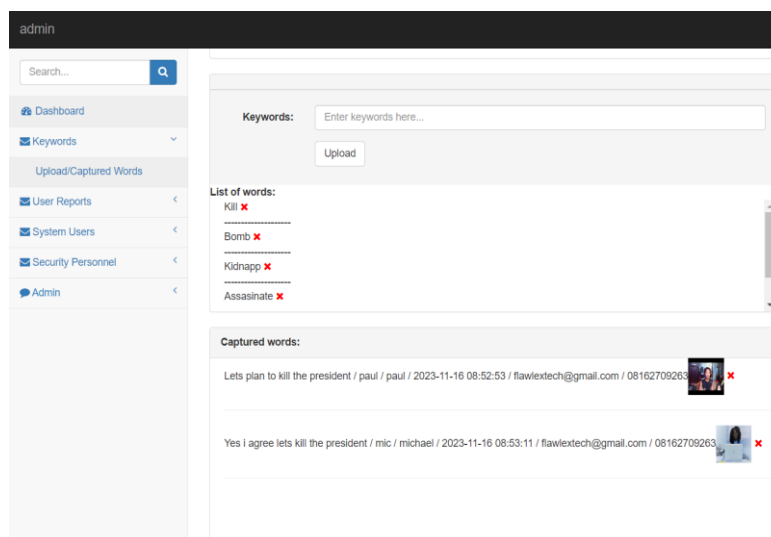


Figure 12: Module to Capture and Register Keyword

Figure 12 is the module showing the registered keywords which include kill, bomb, kidnap, assassinate etc. also this module display all the capture conversion in the system.

Table 1 is the result obtained after testing the system with the test plan and test data. During the testing, the actual and expected results were compared to ensure they produced same result or if there is a difference, it should be slight and negligible. Hence the result:

Table 1: Comparison between expected and actual results

TEST CONDUCTED	EXPECTED RESULT	ACTUAL RESULT
Register	A form should be displayed to enable users enter details	A form was displayed and users were able to enter details
Find friends	Users should be able to search for friends before chatting	Users were able to finds friends
Click view users	A form should display to the administrator to view all registered users to the system	A form was displayed and the administrator was able to view all registered users to the system.
Click detected terrorist messages	A form should be displayed to enable the administrator view all detected messages.	A form was displayed and the administrator was able to view all detected messages.
Click logout	A form should be displayed to enable the administrator logout from the system.	A form was displayed and the administrator was able to logout from the system.

V. Conclusion

This research created an application where the general public can report any criminal cases. Administrator will first of all endorse the report before its goes public. It also created a module that detect terrorist related key words online and send it through SMS notification to security agents. From the existing system there is no means where terrorist conversation or messages can be detected but the developed application was able to filter the conversation of terrorist to capture terror related keywords that administrator has registered to the system, therefore the application is using the registered keywords to detect. There wais no means where security agencies can receive SMS patterning the detected messages on the social forum, the developed application also provides a module that will send notification via email and SMS to security agency concerning any detected terror related chat and lastly there is no means where the administrator can confirm a crime report before it can be published to the public, but this research provide a platform where an administrator can confirm a report from a user before it can be published to the public.

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