

Whistle-Blowing System: A Recipe for Monitoring Corrupt Activities in Nigerian Universities.

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Abstract: Whistle blowing is an act aimed at unveiling or exposing gross misdeed associated with services rendered in public or private institutions. These acts which constitutes diverse dimensions of crimes popularly referred to as corruption has obviously eaten deep into the fabrics of virtually every sector of our economy including university education system. It is pathetic but frankly to remark that this imbroglio characterizing the society has remained unabated due to absence of secure reporting line. Hence, the development of Whistle-Blowing System with secure electronic avenue for reporting every act or conduct that contradicts and compromises ethical provisions. It creates seamless link to enroll prospective whistle-blowers, accepts documented reports with verifiable evidence, allows communication with investigators, protects whistle-blower's identity and interfaces them for due rewards. The system development process adopted the object-oriented methodology with its tools such as use-case diagram, sequence diagram and flowcharts. Implementation protocol utilized a combination of Javascript/php/HTML at the front-end while MySQL was engaged at the back-end for appropriate data documentation. It is suited with enormous prospects for assisting management trap down most of the sharp practices and inconsequentialities inherent in most Nigerian universities by accepting user identity, the reports and processes same to specifications.

Keywords: anonymity, content rendering, information-intensive, knowledge-base, TOR, whistle-blowing.

I. Introduction

At the moment, we are face-to-face with the realities of information age where the world is at the finger-tip of anyone holding the right kind of technology. Present day information-intensive society is a knowledge-base society – an emerging digital world resulting from the adoption and integration of information and communication technologies at home, work, education and recreation. Technological innovations adopt enhanced approaches to problem solving across wide range of sectors. To the intent computer advent became critical driving force and the basis for doing things in virtually every aspect of our daily operations.

Whistle-blowing has been aptly defined as “the disclosure by organization members (former or current) of illegal, immoral, or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action”[1]. This definition acknowledged that Whistle-blowing about organizational wrongdoings can either be made internally or externally. One of the tools often suggested to combat corruption include expanded use of whistle-blowing in terms of incentives to encourage it and laws to protect whistleblowers. While whistle-blowing alone is not a solution to corrupt practices, it is one of the tools that can improve governance and create ethically and legally healthy organizations and governments.

Looking at our country Nigerian for instance, a national daily Vanguard News [2], in its publication on April 16, 2017 reads “Since the unveiling of the whistle-blowing policy by Buhari on December 22, 2016, the federal government has grossed at least ₦73 billion in its kitty and the prospect of adding to it gets brighter by the day.” The Whistle-Blowing System for university activities is primarily targeted at creating conducive atmosphere that upholds lay down ethical working standard within the community. Generally, the system enables prospective whistle-blowers to forward tips for investigation, creates interactive modules where users monitor/track the tips and investigating agency(ies) manages the tips and provides incentive to reward whistle-blowers.

II. Historical Perspectives

While corruption persists, so do efforts to root it out or eliminate it. As a phenomenon, whistle-blowing has been studied since the 1980s, but research and debates on the topic have especially been fostered in the last decade with the emergence of major corporate frauds. Nonetheless, the field is still fragmented, restricted and plagued with inconsistent findings, so that little is known about many aspects of the decision to blow the whistle [3]. It may not be out of place to aver that individuals' characteristics are relevant in influencing their whistle-blowing decisions. According to a piece [4], no two individual whistleblowers are alike as their Whistle-blowing decisions were driven by complex psychological and sociological factors. A previous study emphasized that further Whistle-blowing research is required to examine how individuals within organizations form their Whistle-blowing intentions [5] [6].

[7] Observed that any whistle-blowing activity reported to outsiders like media reporters, public interest groups, or regulatory agencies is an external initiative. Current whistle-blowing laws protect government employees who utilize their agency's internal grievance procedure or other human resource office to convey complain. But, existing laws typically do not protect employees who leak information to the press [8]. If an offence is being committed within an organization without the knowledge of senior management, then senior managers can be made the recipients of the whistleblowers disclosures[8]. However, the whistleblower must be aware that they are being disloyal to colleagues and that the senior managers may recognize the disloyalty as a greater offence than the behavior being complained of [9]. Where the whistleblower fears such an internal response they are more likely to blow the whistle externally and this may cause much more damage to the organization.

[10] Explained that whistle-blowing has the potential to form part of a system to maintain and improve the quality of an organization's operation. The act of a whistleblower benefits their employers in proffering solutions to impeding work challenges. It would be better if whistle-blowing is well encouraged and recognized as an instrument for proposing organizational changes, rather as organizational attack to be repelled. According to the suggestion [11], whistle-blowing would not be necessary if organizations had effective systems whereby ethical concerns could be heard and dealt with. Where whistle-blowing occurs for reasons that are not to do with personal gain or malice, it implies that the whistleblower is seeking change hopefully for the best of reasons. If managers recognize this, they can create the best of environments, to inspire employees to comfortably champion suggestions for changes they deem necessary to enhance performance.

2.1 Trends in Whistle-Blowing

Currently Nigeria context, the Federal Ministry of Finance FMF-Whistle is a secure, online portal through which information bordering on violation of financial regulations, mismanagement of public funds and assets, financial malpractice or fraud and theft that contravene the laws of the land can be disclosed. The online portal also permits the person disclosing the information to perform a status check on matters that have been reported on the whistle-blowing online portal.

But apparently, there is no such specific provision for whistle-blowing in the university portal to enhance the procedure for reporting inconsistent issues observed in the university system. Absence of this scientific tool is capable of destabilize the process of investigations, thereby hamper public interest. Against this backdrop, often time the reporter does not get timely update on the investigation process for subsequent follow-up.

More so, the procedure of making complaints in the university system is not stream-lined as individuals report randomly without recourse to evidence need and no provision for anonymous reporting. In the traditional procedure, the anonymity of the reporter is not fully guaranteed which would eventually lead to witch-hunt from offenders. And potential whistle-blowers often become nervous and fearful thereby decline to report any threat observed in a system.

2.2 Technology Influence on Whistle-Blowing

There is a growing interdependence between a firm's ability to use information technology and its ability to implement corporate strategies and achieve corporate goals [12]. Computers and the Internet make it easy to disseminate information and upload leaked documents. Easy upload of documents amounts to a rise of leakages and mass release of millions of other related materials the whistleblower might not have even read. How does this change the process of Whistle-blowing? The Onion Routing (TOR) encryption and other security measures and anonymity technologies help protect whistleblowers, journalists, and anyone who wants to read leaked documents. TOR is free software for enabling anonymous communication – it conceals its users' identities and their online activities from surveillance analysis among other things. Thus, any organization willing to forward leaked document of incriminating information often does in agreement with partners in the mainstream media electronically.

Furthermore, a discovery [13] remarked the increasing dimension at which citizen journalists are been tasked with examining and writing about leaked documents. An unhealthy occurrence capable of stalling investigation of reported case of sheer undoing. Rather than interfacing directly to the mainstream media, the interested whistle-blowers can now engage the new computer driven technique to send documents containing veritable evidence of misdeed to relevant agencies. It avails certified admin officer to process the information in line with established guiding principle and can confer with media organizations around the globe to expose any misnomer.

III. Materials and Methodology

The materials used served a great deal of purpose in analyzing and designing the system functionalities. Tools such as *use-case diagram*, *sequence diagram* and *flowcharts* enabled structural analysis of the system control flow process. The system design protocol outlined all the operation modules in the initiated high level model diagram. The implementation routines utilized *Javascript/php/HTML* at the front-end while *MySQL* was engaged at the back-end for appropriate data documentation.

3.1 Methodology

The system development process adopted the object-orient methodology to enable appropriate capture of data entities representation of the system objects. It availed breaking the whole system into simplified domains of modules for a focused critical study. System analysis and design protocols are carefully carried out in this section showcasing the process flow with the aid of appropriate software engineering tools.

3.1.1 Structural Analysis

This is the process of separating a whole system into its parts known as subsystem for a closer examination of the parts purposely to gain depth understanding of their nature, function and inter-relationship [14].

It evaluates an existing system to find out how it works and how it meets user's need. The figure below shows the Use Cases illustration of the system.

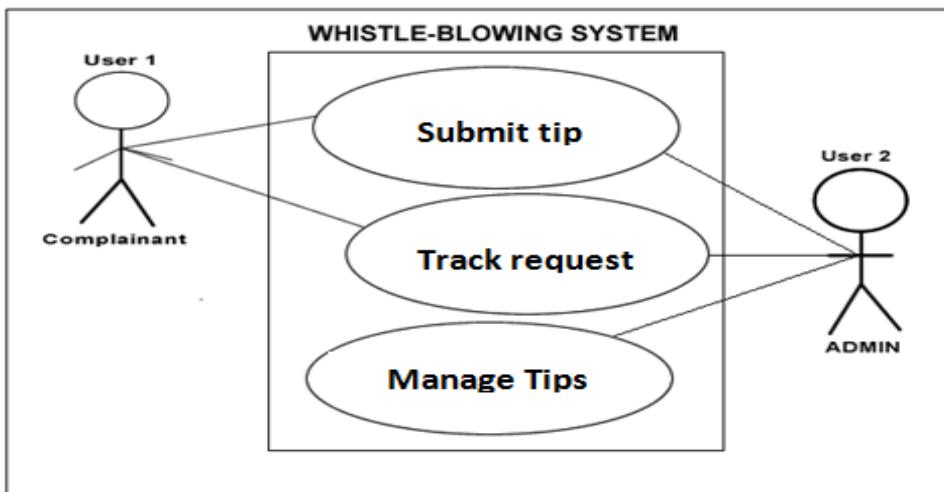


Fig.1: Shows the Use-Case Diagram of the System

There are only two principal users or a two-end of usage in the system, the admin and the reporter ends. In this arrangement, the reporter can submit tips (blow the whistle) and track the status of the tips submitted while the admin undertakes investigation based on evidence been tendered.

The process in the diagram above is explained as follows:

- Submit tips:** This explains where a staff of the university who has observed anything can make report from anywhere with a valid evidence to substantiate the claims.
- Track request:** After making a report, the whistle-blower can track the status of a report, investigation processes and give necessary response pertaining to the report made.
- Manage tips:** This case can only be accessed by the admin for investigation processes, make appropriate recommendations from the findings and award of incentives to staff who submitted valid tips.

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Similarly, the operation procedure in figure two below shows the sequence diagram of flow where a reporter initiates to blow the whistle or submit tips. A user is required to complete a form with relevant evidences that will facilitate investigation by the admin or any authorized personnel of the agency for necessary actions.

- a. **User:** The whistle-blower accesses the platform with an authentication details.
- b. **WBS Portal Interface:** This is the portals homepage from where the whistle blower can choose any action he wishes to perform. On clicking on the submit tip link, it triggers the process request activity as shown in figure 2 above.
- c. **Process Request:** This process is the main action been carried in figure 2; it is responsible for processing the whistle-blowing activity. To undertake this process, the whistle-blower login to fill the form with requisite information regarding the report and upload a valid evidence to substantiate his claims.
- d. **Database:** All processed request output of the system is forwarded to the database where all information pertaining to a case would be stored for future references.

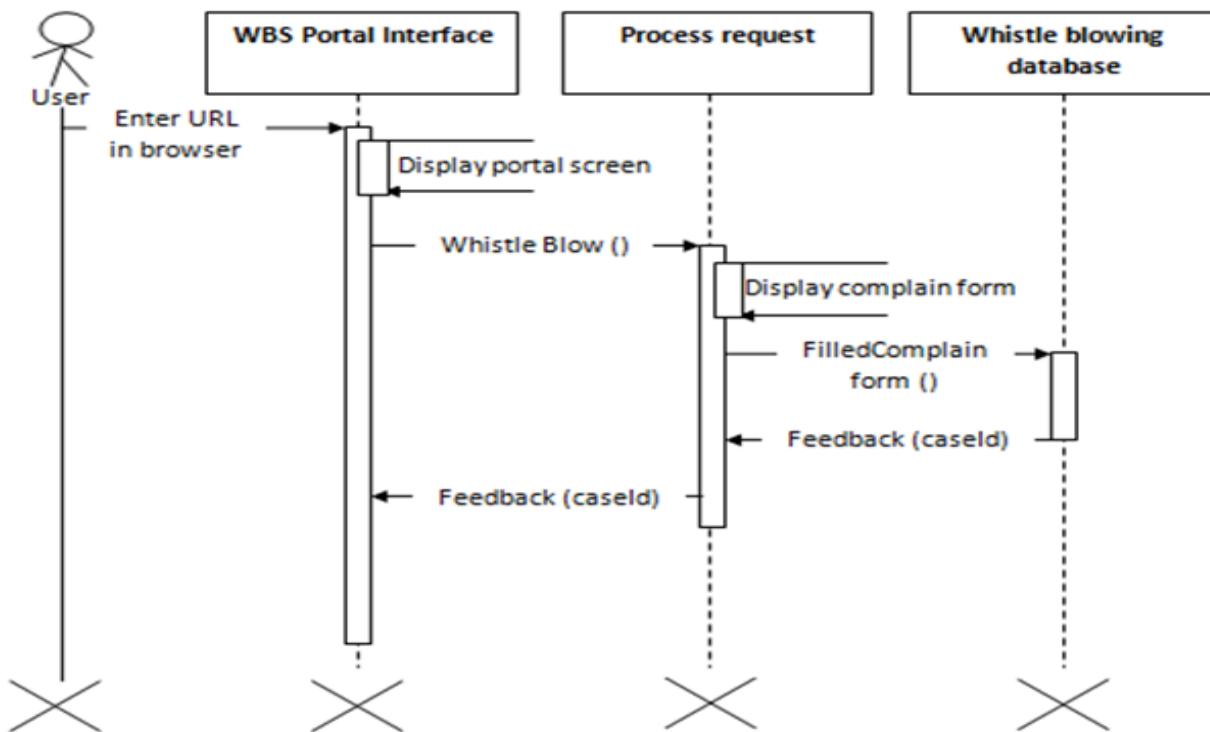


Figure 2: Sequence Diagram of Submit tip use case

3.1.2 Admin Module Operations

All the operations performed by administrative personnel is captured and clearly represented in this sequence diagram illustrated in figure below.

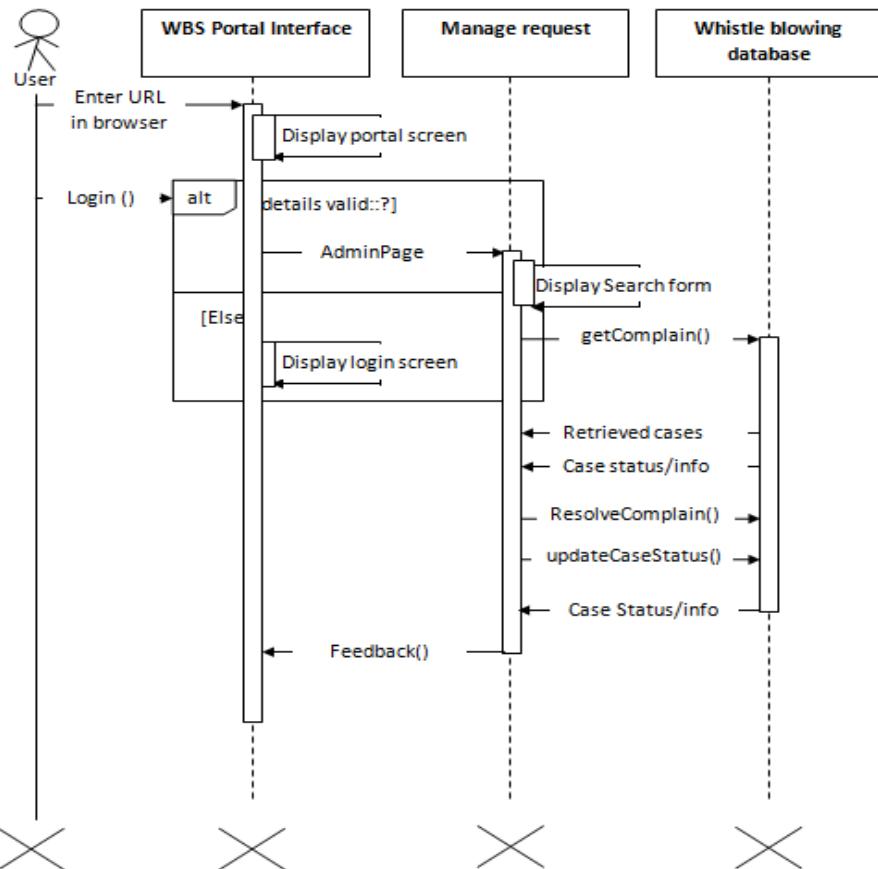


Fig.3: Sequence Diagram of Manage Complain Case

To resolving any reported issue in the whistle-blowing platform, the process outlined below as equally expressed in the figure above is followed.

1. A user intending to blow the whistle will first secure access to the platform with his browser via the portal's URL.
2. At the system Interface, the whistle-blower chooses any action he wishes to perform. The click-event on the Admin block link would trigger or initiate manage request activity.
3. Manage Request: This process is responsible for managing the whistle-blowing platform as it is used to communicate with the reporter, get evidences, resolve issues and give bonus points to the whistle-blowers.
4. Whistle-blowing database: after processing the whistle-blowing request the output of the system is committed to the database where all information pertaining to a case would be stored.

3.1.3 Design Protocols

Definite task specification for every activity entails function representation of objects used in the development progression making a way to goal attainment.

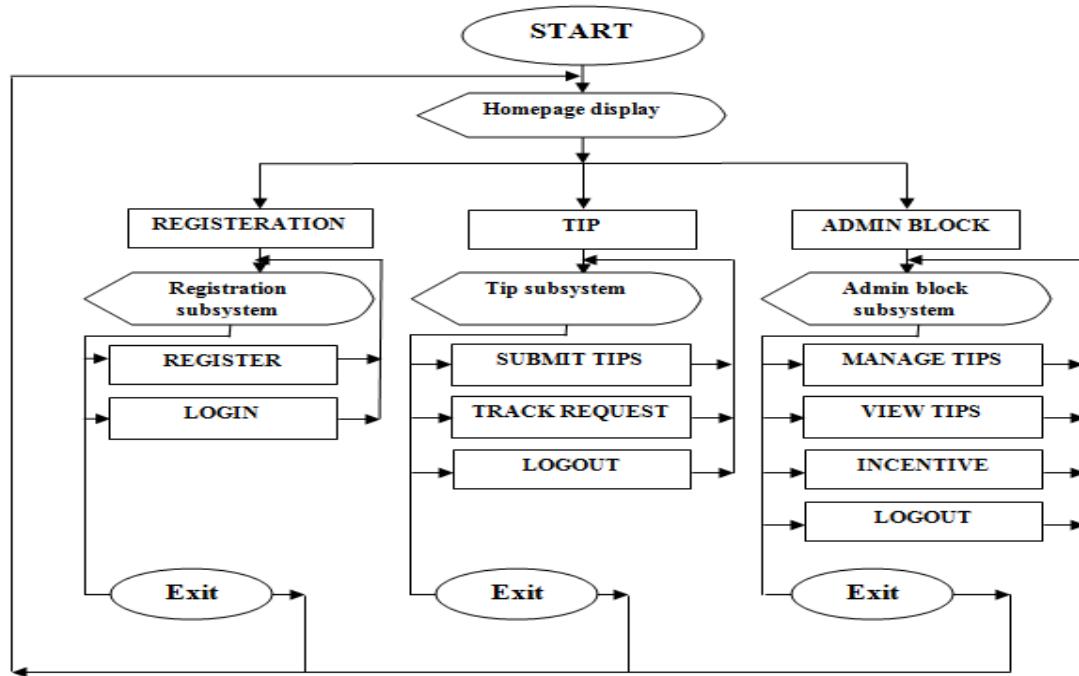


Fig.4: High Level Model of the System

The figure above shows the high level model overview of main system functions arrayed each with sub-actions domain. The provisions on each item makes for improved service accessibility using web-based computing platform. Specific main functions of the system are broken down into three modules thus: User Registration, Tips Reporting and Admin Link.

The first module affords prospective whistle-blowers opportunity to enroll for participation. The second allows users to both submit tips on identified unwholesome act and keep track of investigation process. Lastly, third module provides a designated personnel access to manage reported cases, view or retrieve details with substantiated evidence and commence investigation on same.

3.2 Results

The Whistle-Blowing System ensue software for monitoring specified actions or inactions of a university administration summarily referred to as corrupt practices. Resultant effects of the whole system have been captured as implemented for all operations defined.

3.2.1 Implementation Routines

At this segment, the system module is activated with program codes. Each module is then combined with another to build a major sub-system that establishes interactive flow among them to form the complete system function. The user interface which serves as a bridge linking user and the system is implemented using html/css/php. This is due to its proficiency in content rendering for web-based applications and the client-server architecture nature of the system.

3.2.2 Fringe Benefits of the System

Whistle-Blowing System forms a critical aid to the university in varieties of ways that would strengthen her operations and enhance service delivery in terms of quality of graduates so produced. Upholding the norms and ethical integrity of our university system requires proactive measures by engaging core computer driven process. This approach in specific terms brings advancement thus:

- Provision of expedited disposal action of reported cases of wrongdoings on routine basis and removes distance barrier to accessing information with the system interfaced to the Internet channels.
- The new system provides a means of capturing multi-media evidences like photos, audio and video in the tips submission form which is better evidence than verbose statements which can controversially be manipulated or denied.
- Maintain transparency in work and boost reporters confidence on identity conceal in professional ways, and as well gives staff the consciousness that their conduct is being monitored.

- It reduces crime at work and helps the university to avert most major internal monetary and/or reputation damages.

3.3 Discussions

Various modules handle different segments of key task in the whistle-blowing operation in ordered sequence that allows seamless integration of events. This phase development process result involving key action domains has been clearly discussed thus, to ease comprehension of ideas been conveyed.

3.3.1 The Registration Process

The figure below presents a screen splash through which a prospective whistle-blower can register to participate in submitting reports of ill-operation around the university campus. It requires entry of vital details that identifies and affirms a user as legitimate member of the university community.

When the system starts, the user must first register as a member of the university, if the user's records already exist the system gives an error message showing that the user information already exist else the information is saved in the database. The window below displays the needful user profile detail that must be supplied at the point of registration so as to validate one to use the system. The registration process into main system functions is shown in the enrolment window display of figure 5 and further illustrated with the flowchart of figure 6 below:

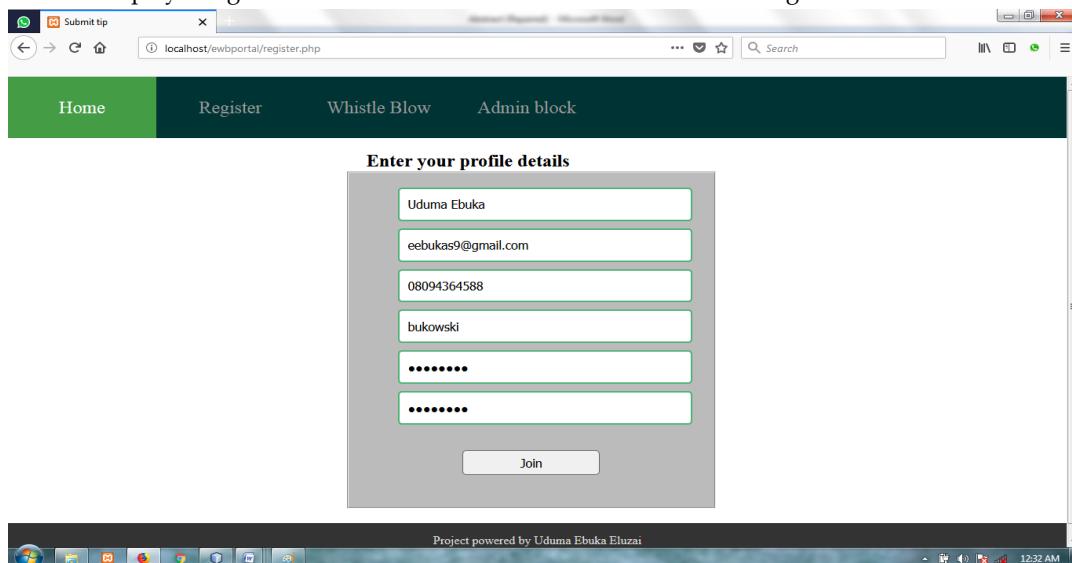


Fig.5: User Enrolment Window Display

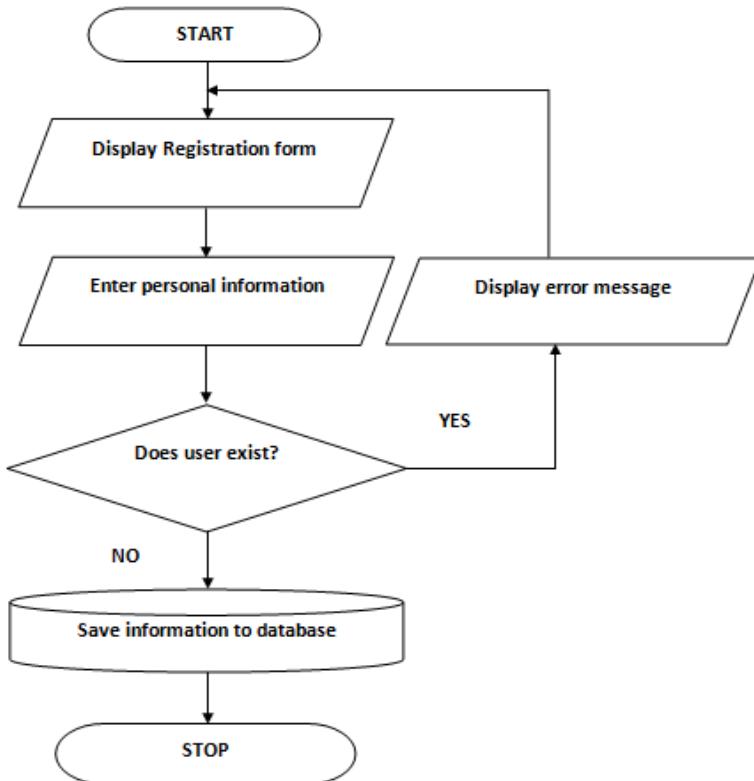


Fig.6: The Registration Process Flowchart

3.3.2 Submit Tips or Whistle-Blow Process

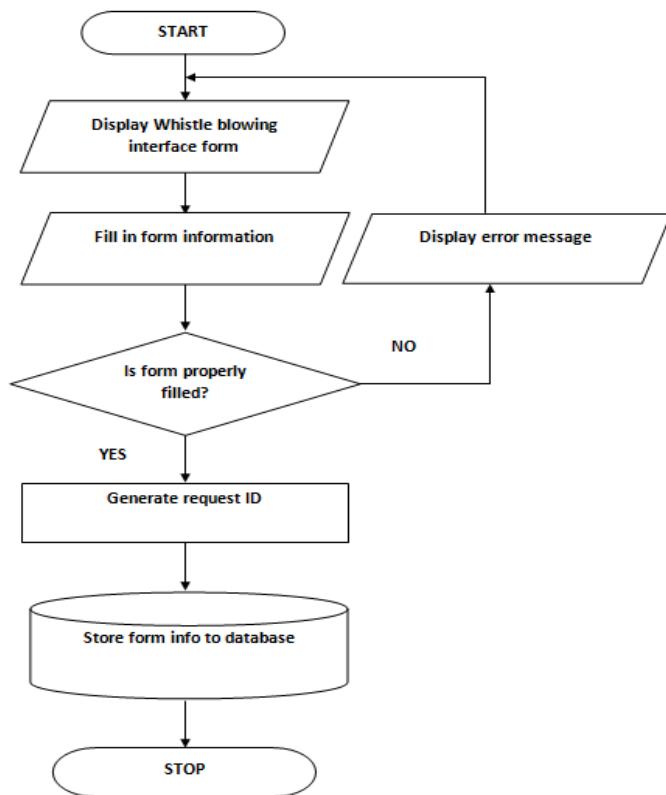
The window splash below avails prospective whistle-blowers the opportunity to adequately document a case and transmit same accordingly to designate investigation domain. It allows for inclusion of evidence to validate and substantiate the report so submitted.

A screenshot of a web browser window titled 'Submit tip | bukas'. The address bar shows 'localhost/ewbportal/subtip.php'. The page has a green header bar with 'Home', 'Register', 'Whistle Blow', and 'Admin block' buttons. A red 'log out' button is on the right. The main content area is a form for submitting a tip. It includes fields for 'Tip category' (set to 'Financial crime or fraud'), 'Culprit' (set to 'computer science dept'), 'Is the incident on going' (radio buttons for 'Yes', 'No', 'Unknown'), 'Upload evidence' (a file input field containing 'Explaining Big Data.mp4'), 'Date of incidence' (set to '2017-02-14'), and 'Additional information' (a text area containing 'He is a rouge'). A green 'Submit tip' button is at the bottom of the form. The status bar at the bottom shows '12:39 AM'.

Fig.7: Submit Tip Module Window Display

Submission of tips requires some form of user authentication through the entry of user-id and password from the main menu interface. Figure eight below displays flowchart step-by-step process involved when a user selects submit tip option from the menu; the interface form to make complain appears. A user fills the form properly as the system will validate the data and highlight any error with an “error message” and starts the process all over again. Else, if entry is valid and successful the system will generate a request ID for the report and store the information in the database.

Fig.8: Tip Submission Flowchart Process



3.3.3 Managing Submitted Reports

In this process, when reports are made to the system, each report has identifying details that enables the schedule admin personnel to view, retrieve and profile it for investigation. The status of all reported cases is clearly outlined to guide the process and provides feedback mechanism to communicate the reporter where necessary. Succinctly, once the admin personnel has login to the system, he can retrieve details of profiled case due for investigation with the evidence and engage all concerned in interrogation following lay down procedure for resolution.

After all, findings will give rise to recommendations to top management for appropriate disposal action on culprits. In the end, if the report was found to be true, the system earmarks a handsome bonus reward to the reporter who will be invited through the communication link to receive it. The window display of figure 9 below illustrates this procedure.

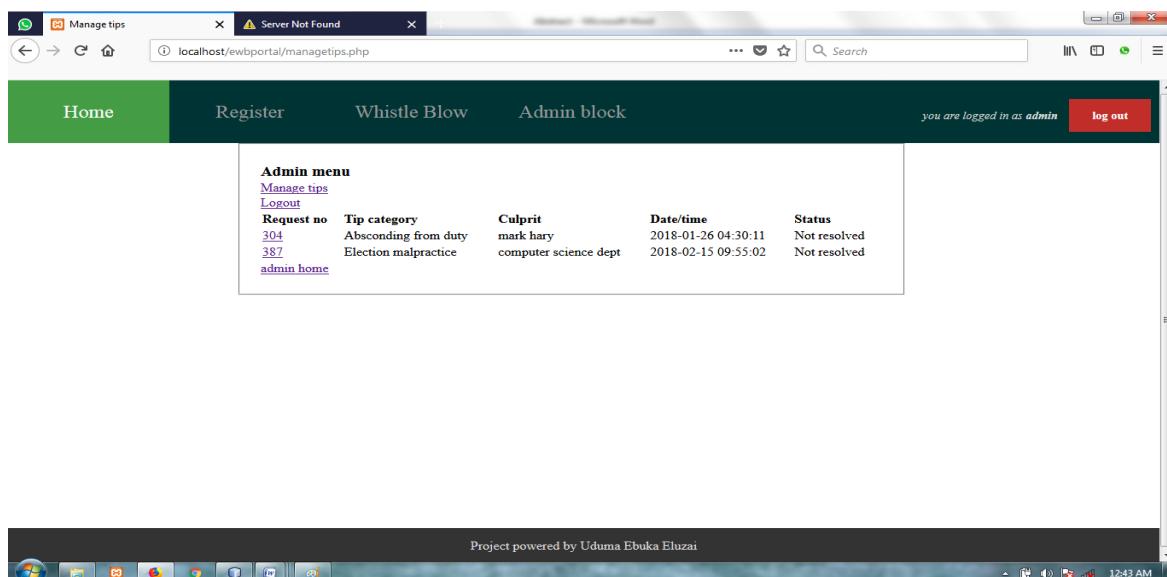


Fig.9: Manage Tips Window Display

IV. Conclusion

In modest term, this Whistle-Blowing System for monitoring university activities is a veritable tool for abating inconsequentialities inherent in most Nigerian universities. It is suited with enormous prospects for assisting management trap down most of the sharp practices summarily described as corruption. This is necessary for both the educational and other sectors in developing countries. To institute the proficiency of this Whistle-Blowing System requires policy backing that must be legislated upon. It will ideally be a testimonial for the commitment to good governance, reliable service-compatibility and a guide for the employees acknowledging their responsibility towards their organization, their clients and the nation as a whole.

Moreover, guaranteed protection mechanism for whistleblowers in the university will facilitate forestalling corrupt acts within the university. System security engineering is an increasingly vital aspect of system engineering development and evolution process that can resist malicious attacks [15]. Broadening the scope of whistle-blowing like developing online whistle-blowing platform for universities is critical to check-mating the level of moral decadence and compliance in work life.

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