ONLINE SUGGESTION BOX

Student No: 100504

Group: A

An Information Systems Project Proposal Submitted to the Faculty of Information Technology in partial fulfilment of the requirements for the award of a Degree in Business Information Technology

Date of Submission: January 2021

DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the research proposal contains no material previously published or written by another person except where due reference is made in the research proposal itself.

Student Signature:

Sign: _____ Date: _____

Supervisor's Signature ……. Date……..

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

AMS Academic-Module System

HTML Hypertext Mark-up Language

ICT Information and Communication Technology

IDE Integrated Development Environment

IOS Apple Operating System

MySQL My Structured Query Language

PDF Portable Document Format

PHP Hypertext Pre-processor

QR Quick Response

XAMPP Cross Platform Apache Maria DB PHP and Perl

LIST OF FIGURES AND TABLES

ABSTRACT

The background of this research is to assess how Monitoring and evaluation systems plays a crucial role in Sustainability of community based projects and how a correctly designed and implemented community monitoring and evaluation is a valuable management tool, that has been in practice globally and regionally for the communities to efficiently organize their resources and take a well informed decisions for planning their future interventions, which eventually lead to sustainability of the Community Based Projects after the offset of the implementing agency. Performance and Monitoring System is a proposed system is a public system that allows the county government to monitor and access their services rendered to the County Community.

Online suggestion box contains two sub-system integrated within its framework. One of the sub-systems allows the public to participate by connecting and passing their complains, inquiries or opinions anonymously while the other, gives access to the county administration, managerial committees and involved parties to monitor and assess their progress in terms of project performance, progress and planning.

Along with other integrated county management systems like Integrated Financial Management information System) and LAIFOMS (Local Authority Integrated Financial Operations Management System) Online suggestion box can work hand in hand with to provide both the county and its citizens a transparent overview of the on-going county activities

CHAPTER 1: INTRODUCTION

1.1 Background information

In the current years, institutions, organizations and even the government offices have being using the suggestion box to assess their services and Quality of management to their employee and more so to their customers. In any Communication channel, feedback is an important Aspect in order to access the reliability and venerability of the message. Effective feedback, both positive and negative, is very helpful. Feedback is valuable information that will be used to make important decisions Top performing companies are top performing companies because they consistently search for ways to make their best even better. For top performing companies 'continuous improvement' is not just a showy catchphrase. It's a true focus based on feedback from across the entire organization – customers, clients, employees, suppliers, vendors, and stakeholders. Top performing companies are not only good at accepting feedback, they deliberately ask for feedback. And they know that feedback is helpful only when it highlights weaknesses as well as strengths. It's from this baseline that the proposed system is to be developed. There were many channels that feedback was acquired i.e. cards, mails, telephone and Suggestion boxes which have being in use since the 18th century in the USA. With the introduction and adaptation of technology by many firms based on the advantages it provided, suggestion boxes have also advance technologically. These days' many companies, institutions, organizations and government entities have adopted the online suggestion system to acquire feedback.

1.2 problem statement

Most institutions, Government offices and companies have implemented the suggestion system to get feedback from their employees or their customers, in a government level, the existing suggestion system entails of a suggestion box placed at strategic positions normally under lock and key. For an employee or customer to pass his/her feedback becomes so hard the sorting process entailed categorizing the feedbacks according to frequency of the agenda topic and there were no guarantees the any one's feedback may be viewed as important or neglected.

There is no way of an employee or a customer knowing if his/her feedback was accepted or neglected and moreover it could get one in trouble for everyone has their own views when it comes

to change, in cases where the feedback included a complain to someone within the company, payoff would be done and the all issue would be forgotten

1.3 Research Objectives

1.3.1 General Objectives

The objective of this system is to create transparency between the county and its citizens. From a citizen's point of view, one can have an overview of the ongoing projects and activities within the county and how the tax payer's money is spend. This gives and creates confidence to the citizen to his/her county government. It allows the citizens to participate by passing their thought and views on going developments by the county. On the other hand the county government can pinpoint on the critical issues that are affecting its citizens, it helps the county executives evaluate their progress and audits their performance within the county thus creating a clear scheduling portfolio the tasks and activities

1.3.2 Specific objectives of the proposed system

I. To Increase accessibility to county government services and information.
II. To Provide The county with an internal automated system
III. To Increase citizen participation by providing a platform for collaboration
IV. To cut down on cost and time used in the current suggestion box system
V. To Become more proficient with handling county member issues

1.5 justification

Development of is of essential to the county for it will act as an upgrade to the existing Suggestion system. Online suggestion box is an encapsulated system that contains two modules integrated in its framework, developed in accordance to the **ISO 9001:2008** standards, it will enable integrity and increase citizen county relationship. It will allow the county government to do its own evaluation and more so increase citizen's participation at a county level.

One will be Speed of Implementation it is quicker to buy physical suggestion boxes and place them around the office? This is possibly true, especially in the short-term – but some of the online suggestion box software can be set up in just a few hours. Also, keep in mind that when you're

launching an employee suggestion program, most of your time will be spent obtaining buy-in; and communicating and promoting your program to employees. As a result, physical suggestion boxes may not save you much time, if any.

Secondly will be Transparency what happens to suggestions written on a sheet of paper and dropped into your suggestion box? Employees may think that the physical suggestion boxes are not checked often, or that their ideas may end up in limbo. This may discourage them from submitting a lot of ideas. On the other hand, an online suggestion box makes your idea management process much more transparent. Employees can view the status of ideas online and they can be notified of ideas that have been accepted for implementation. That will make your employees much more likely to submit a lot of ideas.

Thirdly will be Collaboration Online suggestion boxes allow employees to collaborate and comment on ideas. There's also the ability to give the "thumbs up" for ideas they like or to give the "thumbs down" to ideas they don't like so much. Most suggestion box software packages also allow employees to vote for ideas. You can give employees a number of votes each month or each quarter. This encourages participation in the program and helps employees feel empowered and valued. As a result, online suggestion boxes tend to encourage much more collaboration.

Fourthly is Visibility, Physical idea boxes are more visible than online idea boxes – unless they're hidden away rather than placed in a central position like reception area or cafeteria. Visibility alone won't ensure employees will submit a lot of new ideas. No matter whether you use traditional or online suggestion boxes, you need to promote your employee suggestion program to keep employees involved.

Fifth is Costs The costs of your employee suggestion program including investment in physical boxes or software plus the amount of time you spend communicating the program and evaluating ideas. Although physical boxes are cheaper to install, in the long run suggestion box software can save you a lot of time as it makes processing ideas and communicating so much easier.

Sixth is the Idea Challenges, Idea challenges focus on generating ideas on one specific issue within a time limit. Challenges usually take between one and four weeks. By adding urgency and focus they stimulate idea generation and motivate employees to submit their ideas. Online suggestion boxes facilitate running idea challenges. They help you communicate new challenges to all employees. You can easily invite employees by email to submit ideas plus send out reminders just before a challenge finishes.

1.6 scope/limitation

The study will be carried out in The County Government of Kericho. It will cover the area of how the suggestion box work and also if there is an internal auditing system in place within the County. It seeks to discover on how the existing suggestion box system work, its integrity, its reliability and confidence to both the citizens and the county executives. Moreover, it tends to check and evaluate of the existing internal auditing system, how efficient it is in evaluation of the county's performance, in terms of speed, time and money which are the quality measure of performance. In addition to performance, it evaluates ICT integration in the county especially in the sense of citizen participation and if there exists a channel of communication between the county government and its citizens

CHAPTER 2: LITERATURE REVIEW

2.1 introduction

Essentially, there is a big gap between the government and its citizens that's why with the new constitution, the central government underwent devolution. The Constitution of Kenya, 2010 creates a decentralized system of government wherein two of the three arms of government; namely the Legislature and the Executive are devolved to the 47 Political and Administrative Counties as provided for under Article 6 and specified in the First Schedule.

2.2 county government devolution

The primary objective of decentralization is to devolve power, resources and representation down to the local level. To this end, various laws have been enacted by Parliament to create strategies for the implementation framework and the adoption on which objectives of devolution can be achieved. It's from the essence that we create the baseline on the importance of feedback to Governance. In recent times, many transparency initiatives have fallen short of being useful for citizens. In chapter 1 the importance of the proposed system is stated and justified to meet the needs the will gear towards increasing the transparency to close the loop, as an important accountability gap remains at this level of the change process

2.2.1 Challenges faced by online citizen participation system

ICT (information and communications technology - or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries. It's a convenient term for including both telephony and computer technology in the same word. It is the technology that is driving what has often been called "the information revolution". Keen(1980) defined Management Information System (MIS) is a planned system of connecting storing and disseminating data inform of information needed to carry out functions of management. Online suggestion box is a type of MIS that provides information to both the Citizens and the county. It broadly refers to a computer-based system that provides county Executives with the tools to manage organize and efficiently evaluate departments within the county. In order to provide past, present and prediction information, online suggestion box include

modules that provide information for decision making, data resources such as databases, the hardware resources of a system support systems, personnel involvement and management and any computerised processes that will enable online suggestion box meet its needs.

Coleman has argued that innovation in ICTs Are changing the communicative relationship between the governed and the Governors (weisman, 1960). ICTs can be instrumental for creating a vibrant community of participants and enabling a broad range of citizens to make their voice heard in policy debates. The continuous lack of access to ICTs and information capabilities by the most excluded and marginalized groups threatens to undermine the "inclusive-ness" of the programs and thus from being sustainable in the long term. Participatory approaches frequently stands in stark contrast to existing bureaucratic traditions and cultures of government agencies. As such, they represent only the beginning of a much deeper and more meaningful process of civic engagement and empowerment.

2.2.2 A review of the online citizen participation module

Online suggestion box is a quality management system. At a county level, it will be able to provide the county with a quality management system. It will require the development be based on a quality management measures. In this case the **ISO 9001:2008.** Essentially, ISO 9001:2008 contain a number of requirements which should be met by such a quality system. The requirements of the standards can be grouped into three sets, (Bell, 2003) general requirements of a quality system, the need to maintain documented procedures on the key processes of the organization and implement activities according to the procedures; specific quality assurance mechanisms, including test and inspection, keeping quality records, dealing with non-conformance, keeping documents up-to-date, conducting internal audits and holding regular management reviews in this case the citizens feedback. Meeting most of these requirements is not a serious obstacle in a well-run organization.

Meeting some of the more specific quality assurance requirements, however, almost inevitably requires extra work. This includes the introduction of new activities and processes, particularly document control, internal audits and systematic corrective action. ISO 9001:2008 is system standards. The certificates awarded indicate that the organization is well able to meet the needs and demands of its customers in a planned and controlled way. But the label does not guarantee that the products or outputs of the organization are of the highest possible quality level (although this is often suggested for publicity purposes).

2.3 Gaps in the existing system

In the long run the ISO 9001:2008 standards will provide viable insight in the development of underlying framework and guidelines for the Internal auditing module of in the online suggestion box, feedback is of essence here. Suggestion boxes have being in use for (Okong'o, 2005) centuries, especially in America. **"SUGGESTION BOX"** has become a common feature of American enterprise. An employee writes an idea on a blank form conveniently made available in his work area and drops his suggestion into a box provided for such suggestions. The employee with an idea for improvement of the complex productive or commercial process is encouraged by the prospect of objectively determined awards to submit his idea to management through the impersonal medium of a suggestion box. The suggestion forms are collected periodically from the various departments, and decisions on the suggestions are made by management. Essentially a suggestion system is a continuing offer to a class of persons for the submission of ideas. The immediate duty to pay is conditioned on the usefulness of the idea. The transaction comes within all the rules of unilateral contract." Once accepted, the terms and conditions control the legal relations of the employer and employee. These are specified either on the suggestion form itself or in the literature in the plant covering the rules and conditions of the suggestion system. Once the employee has submitted his suggestion the employer may not revoke his offer. He may only revoke his offer to those who have not yet accepted. After acceptance by an employee the employer cannot change any of the rules unless agreed to by the submitting employee. And if he does revoke or change any of the rules it must be with as much notice as when announcing the suggestion system. Online suggestion box were will be built on this model. The fact that technology has a major influence today makes an online suggestion box to be more effective.

2.4 A review of possible development technologies

The way forward is to exploit the full interactivity of the technology, which allows rapid feedback and change to constantly mound data material into valuable knowledge

Meta-analysis is a statistical technique for merging the results from autonomous studies. This analysis is most often used to assess the clinical effectiveness of healthcare involvements; it usually analyses by merging data from more than one randomized control trials Meta-Analysis advantages include: to increment the statistical power by increasing the number of observations, and to improve the estimations of the outcome size of an association or an intervention. Another

advantage of Meta-analysis is it now offers the chance to disparagingly gauge and statistically pool results of comparable studies or trials. One of the challenges of using meta-analysis is bias when Literature Review is unsystematic with only a portion of it relevant to the stud

CHAPTER 3: SYSTEM DEVELOPMENT METHODOLOGY

3.1 Introduction

The project and the process of designing the system will apply the Structured System Analysis and Design (SSAD). This meaning that a predecessor step must be first complete before going to the next step. This in the project, will help reduce incompletion of tasks. The breaking of steps into processes will help the designer of the system understand the system even more and know on where mistakes may have been encountered in case it occurs. The completion of small processes adds up to the completion of the major process in a well-defined manner. SSAD is also easier to work with when designing both a complex system and a regular type of system for the users.

3.2 Research Design

The research Design to be selected will help in the collection and gathering of information that will be necessary and useful for the formation of the system. When selecting the research design, we may use the qualitative or quantitative study design. For the purpose of the designing the system we seek to use both qualitative and quantitative research design. This is so due to the fact that, by using both we will get better and credible results other that using one and having loops holes at the end. Quantitative research design will help us greatly because by using this research design, we will be able to get specific and well-structured results at the end. Research done by the use of quantitative study design has been proved to be best in terms of viability and reliability. By using quantitative research design, one will be able to classify the research done and thus means that the information gathered will demand that the research design be more structured, rigid and fixed for the purpose of accuracy in measurement and accuracy. On the other hand, qualitative research design will be important due to the fact that by the use of this the researcher will be able understand, explain, explore and clarify situations and experiences of the desired group of people in our case being the county and the people within the county. Qualitative will also help in the distinction between the study designs and methods of data collection. In addition, when it comes to how clear one wants the issue at hand to be addressed, we will use the quantitative design for this purpose. By using this study designs it will mostly entail the selection of study group from whom the information through and open frame of enquiry is explored and gathered.

3.2.1 Specification of the SDLC to be applied

To design a system there are series of steps that are to be followed to mark the phases of development of the information system which is the SDLC. The methodologies will help in the structure plan and control of the information system development. These methodologies include waterfall, V-shaped, spiral and the agile methodologies. During the lifecycle of the project the spiral methodology is to be of great use. This is so because to begin with, spiral methodology is risk driven. During the development of the system the spiral methodology facilitates the assessing and minimization of risks that can lead to the system being a failure even after its completion when it is too late. Spiral model is an incremental model for it places more emphasis on risk analysis. This places minimum risk for the customer and as well as the development firm. Spiral will help avoid things that can go wrong while forming a system. This helps deal with problems in the early phases of the system development before they take effect in the later stages which may be very vital. It helps choose the appropriate tools to use while coming up with a system. Tools to be used in this case include the programming language to use and compilers to use that will produce reliable and efficient code. Spiral model will help in the identification of functionalities that will be very beneficial to the users of a system. This is identified in the last stages of system development. It will help in facilitating the transparency of the project. Spiral model was a major consideration for it is a combination of the sequential and prototyping model. Through the assessment of risks, it helps the developer and the system user understand the requirement of the system easily. The engineering phase provides a detailed analysis of the project as it progresses for it also contains subsections. This brings in the sequential approach whereby the system requirements are well understood. The spiral model has four major phases which are planning phase, risk assessment phase, engineering phase and the evaluation phase. Therefore, requirements are well understood in the risk analysis phase. Prototyping is included in the risk assessment phase where prototypes of the system is in several cases are presented. This being subsections of the major system. This phase also gives the system developer a chance of evaluating proposals that will be brought before him and try them out. User requirement are also understood through prototyping. Spiral facilitates the separation of project into several parts and the riskier ones dealt with earlier which helps in management difficulties. There is also controlled documentation in the use of spiral model.

3.2.1.1 Detailed specification of the SDLC to be used

The spiral model has four major phases which are the planning, risk analysis, engineering and the evaluation phase. The planning phase which comes first involves gathering of necessary information that will be essential in the development of the system. Requirements need to be well defined in this phase that is the business requirements and the system requirements. The business requirements will be integrated by the system.

For the performance and monitoring system (online suggestion box), the requirements are that the system should allow the users to view the options which they can give their suggestion or feedback in the required manner. System should also enable the users give their opinions about the system and whether it's useful to them or if it was easy for them to use. They can also view the last comments or complains given by the last users. The system can also enable New users who are the county officials be able to register and be approved if they can be advanced users in the system, if the they meet the requirements. In the risk analysis phase, the risks that may occur in the system is assessed and if possible, solutions arrived at. This phase also involves the presentation of prototypes of the main system. Solutions arrived at this phase also involves the presentation of prototypes of the main system. During the development of the online suggestion box prototypes of the system such as the number of pages in the system will be presented and analyzed if they are credible and realistic as well. The function that will be in the various pages will be observed in this phase. The forms that will be viewed here and if there needs to be changes it will be implemented before the presentation of the next prototype. Risks are resolved in this phase and not carried to the next phase. This will help in the operation process of the system. For the Engineering phase, it will greatly involve the development of the system. Here the prototypes are brought together to form the system as a whole. Once the system is arrived at there needs to be testing to ensure that the system works and runs as expected. If objectives are achieved by the system, the spiral methodology shows that the designer moves to the next model. Acceptance of the system is also done in this phase. Verification and validation of the design in the system will be observed and analyzed in this stage as well. Service to the system is carried out at this stage to improve the functionalities of the system. There is also some coding integrated in this phase. There is the evaluation stage whereby the customer is involved in this phase. This phase gives the county members the chance of evaluating the output of the project before proceeding to the next stage in

the spiral. They evaluate if the output is the required one and on whether it gives the right output of data. In this phase, we also have the planning of the next phase. Planning in this case involves the development of the system the test plan of the system and the proposed project. Requirements plan is also done here in that, ways in which requirements are going to be achieved is assessed and set.

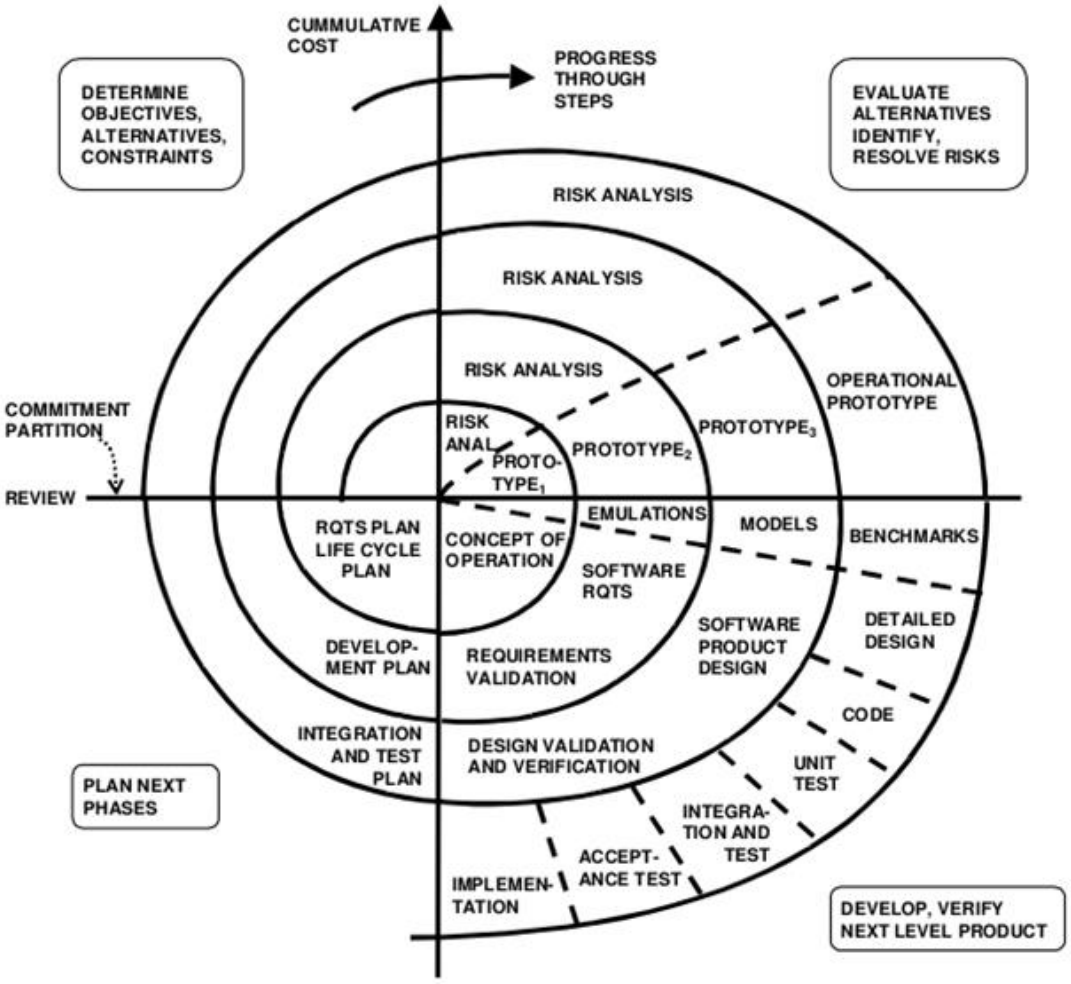


Figure 3. 1 : Methodology 1

3.2.1.2 List of Design Diagrams that will be drawn in Chapter 4

The design and development will be through the structured analysis and design. By using SSAD, it will involve the use of DFDs, ERDs and flowcharts. By using DFDs, processes that are to be involved in the system will be captured here. The DFDs will be used to show the county members process from accessing the system to finally giving his opinion or suggestion and also for the advanced user functionality to access the full services provided by the system. For an already

existing advanced user of the system, they will only have to login to view the services of the system.

The DFD will help show how there is communication within the system as it is being used. Processes involved here are the log in, giving a feedback, complaining about a certain issue, making an inquiry on certain issues, reporting on disaster, viewing saved details and log out from the system. The System itself will undergo processes of log in, approval of user details, approval of new users, viewing of user issues and giving the feedbacks then log out from the system. The system will show the users issues in the system for the governor/admin to see. The ERDs are meant to show how data will flow through the system and how the system will interact within itself. It will also show the data requirements needed to support the business processes. There are several entities that will be involved in the system. The human entities are the county members and the advanced users. Events in the system will be the raising the issues affecting the people , giving opinions on certain issues, filling of forms, getting feedback from the county officials , input of new user credentials and viewing of details by admin then approving them. For the flow chart, it will help in the case where particular steps go contrary to what was expected. In the case of failure to login there will be a process for one who has forgotten the password of their accounts. Or in the case of failure because the client is new, they will be given a chance of signing in. A mock-up in this case will be very effective for it will be used to present the use of the system at 80% level. It will show all the processes involved in the system, the users of the system and how they will at certain times interact.

3.2.2. Specification and justification of domain of execution

A system must be executed in a domain. Domain I this case means mobile based, web based or a desktop. For this online suggestion box system, it will be accessed through a web-based 15 domain. It will be web based for it will be easier to update the services of the system as a website. The website can only be accessed through desktop devices and also through user phones. By the system being web based this means that it will be cost effective for the county and its members. In that they will not spend a lot of money while using the system as compared to it being a mobile application. What will be required will be internet and a desktop machine. This also means that it will be accessible anywhere provided one has internet to access it. In terms of maintenance it will be easy for the county to maintain a web-based application. It also easy to install it for it requires

little fund to do so. Web based application are typically deployed to dedicated servers making them highly secure. This also helps in the monitoring and maintenance of the system in future.

3.2.3 Development Tools

Tools that may be used in the development of the web-based system will be sublime text or Atom that will be the IDE to be used. This are the preferred IDEs for they are easy to use and helps in easy identification of errors and mistakes while coding or where a code is not applicable one is able to know. Languages that will be applicable in this IDE is HTML, PHP, JavaScript and bootstrap. This is so because they can be easily implemented in the said IDEs. The DBMS to be used for the system will be MySQL. This is preferred because it is easy to use as compared to oracle. It also gives one, more understanding of the tables while forming them. It is an open source type of DBMS in that there are no charges of using it and thus is convenient for the development of a system. MySQL also provides support for those that are using it and thus is highly preferred for it helps identify mistakes and correct them. In terms of its performance it is high given the fact that it is inexpensive. This makes it highly reliable by many system developers. This also adaptable to any computer operating system. Normalization of the database will also be done through MySQL and will also be done before the tables are put into the Database. This will help improve on the security of the system, it being a very vital think for the smooth functionality of the system.

3.2.3.1 System Testing

A system cannot be developed and installed without it being tested to make sure that it is according to its expectations. For the testing of the online suggestion box system we will test it through system testing phase. System testing is done by putting the system in different environments even the most unfavorable of environments to find out if it still works accordingly. This type of testing is very applicable for the system is meant to be used by different people all over the country. By performing system testing it will be easier for the developer to now on what to improve in the system so that it can adapt to the different types of environment. System testing will also improve on the reliability of the system. The county members and officials will be involved in the system testing. Different environments in this case will also include the less remote areas. All this will be done for the purposes of testing on the functionalities of the system. This will involve the testing of the different pages available in the system as a whole and how they interact with each other.

Testing to see on whether the forms will be fully functional in terms of also moving data to the database.

3.2.3.2 Description of proposed modules to be included in the CBIS

Being a web-based application, this means that it will have different pages each where it will contain a home page that will have the different forms required to be selected. There will also be advanced user page users will sign in in order to communicate with the issues that have been raised. Users will also be allowed to give their opinions of the system and ho they found their interaction with it.

3.3 Data Collection Methods

3.3.1 Method to be used to gather the Functional and Non-Functional Requirements

Requirement specification simply means identifying the user requirements for the new system and interpreting them into the new system. Requirement need to be clear for the system developer so that the system is designed in a way that it meets the user expectations thus making it a success. Determination of the requirement can be achieved in several ways such as questioners, interviews, observation, document analysis and other ways.

3.3.3.1 Questionnaires

This requirement determination tool is effective for the system for it will help identify whether an existing problem in the county is truly a problem. This will be applied in most of the people that use online suggestion box for several reasons. It will involve close ended questions for the user and at some point, question that need further clarification from the users will also apply. This will greatly influence the development of a system for it help gather large amount of information. It will also help identify other gaps that could be solved by the online suggestion box management. It will be applied to the county and the users for they are a target for the system.

3.3.3.2 Observation

This is a data collection method where the researcher visits the site to get first-hand information. Each sub county Head office has suggestion box that is placed on all the receptions of the offices. Some of the boxes are old metallic or wooden places under a lock and key, most of them are empty

with some containing hardly any notes or envelops in them. This helped develop the first module of the system.

3.3.3.3 Interviews

This will involve a question and answer session with the users of the system. It helps to get detailed information of the existing problem and what the system needs to integrate to solve this problem. It will help get opinions on the system to be developed and what it should and should not do. In addition to these it will help observe and understand the feeling of the users towards the proposed idea and constraints of the system. This also helps the system developer set goals that need be achieved by the system. By achieving the goals, the system will largely meet customer expectations.

CHAPTER 4: SYSTEM ANALYSIS AND, DESIGN AND ARCHITECTURE

4.1 introduction

In this chapter we are going to cover more on the system itself and what the system seeks to achieve at the end of the day. It will also cover in the more detail what the actors will be able to do through the system and what entities of the system they will be interacting with on occasional basis. We will also cover on how the system will operate and the arrangement of the different modules within the system. It will also cover all the direct and indirect interactions with the system and the different entities and what is affected by these interactions with the system. The architecture will illustrate this which is basically interaction between the components and the modules.

4.2 requirement gathering

This involved the collection and the identification of the different requirements that the system was able to satisfy either functional or non-functional. It involved analyzing and interaction with the different users of the system to be able to know on what specific task will be accomplished by the system and how the user will be an actor to the different types of task putting in mind that the different users of the system will not perform the same function together but will require some indirect type of relationship for some actions to be fulfilled. There are different methods used by researchers to gather and understand the system requirement and some of these methods include use of questionnaires, observation, documentation review, interviews, brainstorming, and personal experience and among others. Some of these methods proved effective to our requirements identification. There was the use questionnaires, observation, interview and personal experience in the identification of our requirements. Questionnaires was used in the area where there was the similar experience and the areas that required improvement and advancements. This involved the use of open-ended questions to avoid some contradictions that could have occurred. By the use of observation, it was meant to get detailed and more of first-hand information on the county existing system which was the traditional suggestions box. This helped us come up with our own judgment on how a certain process would be carried out in the system without the consultation of the users. It also helped us know of what we were going to ask and the questions that would be relevant to our users while using the other methods of requirements gathering. Observation favored the whole gathering process in the through observation we avoided the risks of the users being biased while

giving answers and helped us sought the answers for ourselves. Through observation we were able to know of what processes should be improved by the use of the system to be developed. There is some requirement that may at times prove difficult to explain and through observation we were able to identify these processes. By the use of interviews, we wanted to get information from personal perspectives of the users in that they were free to speak their mind and share what they expect to be done for them without any constrains on the answers they should give. By this there was no use of open-ended questions. This involved face to face interaction with the potential users of the system of conversing with them through some wired connection. This also helped in getting first-hand information on the requirements of the system straight from the horse's mouth. Participants for the interview were randomly selected to take part in the sessions.

4.3 System requirements

4.3.1 Functional Requirements

ID	Description
FRQ 1	The system should allow advanced user to sign in.
FRQ 2	The system should allow members of the county give opinions.
FRQ 3	The system should allow admin view number of registered users.
FRQ 4	The system should allow users to give out their feedbacks on various issues and their feedbacks can be viewed by an admin.
FRQ 5	The system would enable users report on certain issues.
FRQ 6	The system should allow update of advanced user details.
FRQ 7	The system should allow manager delete other applicants from the system.
FRQ 8	The system should allow admin verify new users.
FRQ 9	The system should allow replying of user opinions or issues.

FRQ 10	The system should allow admin forward issues to the intended person on the issues.

Table 4. 1 : Functional requirement

4.3.2 Non-Functional Requirements

ID	Category	Description
NFRQ 1	Usability	The system should be easy to use.
NFRQ 2	Reliability	The system should provide security for users and Their details.
NFRQ 3	Performance	The system should be adequately fast
NFRQ 4	Supportability	The system should be device friendly
NFRQ 5	Recovery	The system should not allow permanent deletion of Users.

Table 4. 2: Non-functional requirements

4.4 system architecture

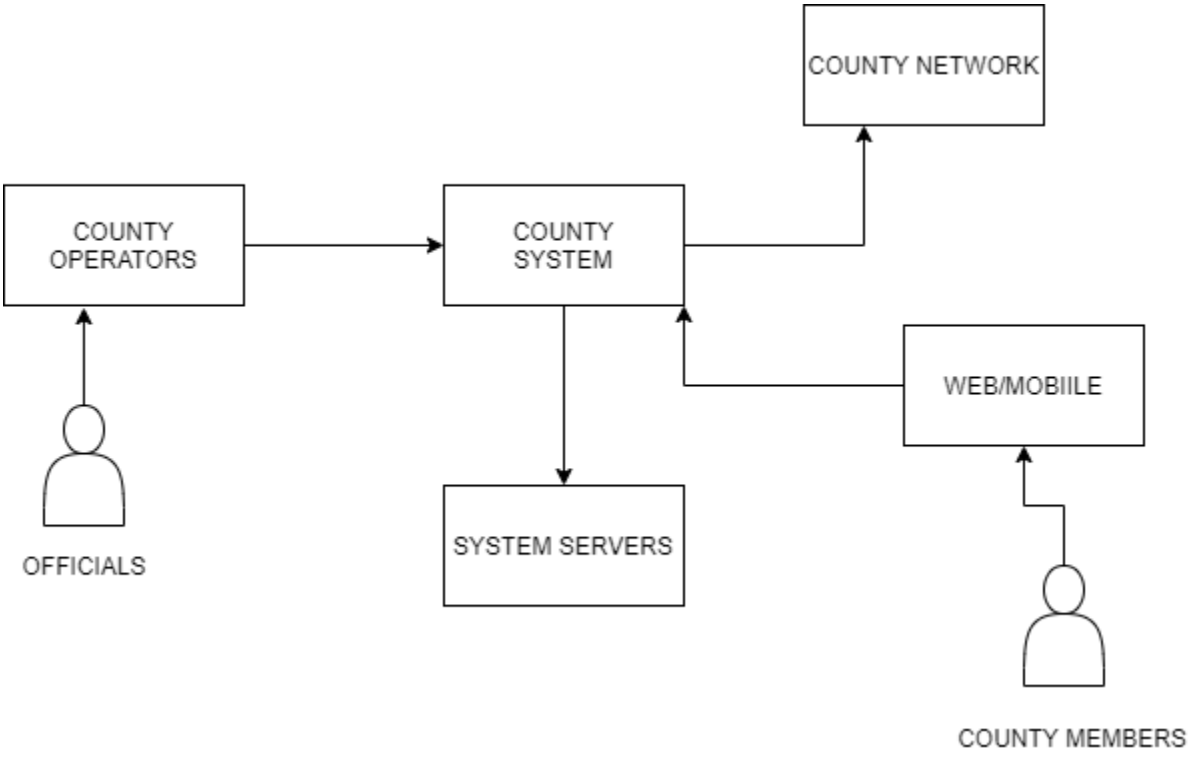


Figure 4. 1: System Architecture

4.5 system designs

4.5.1 Context diagram

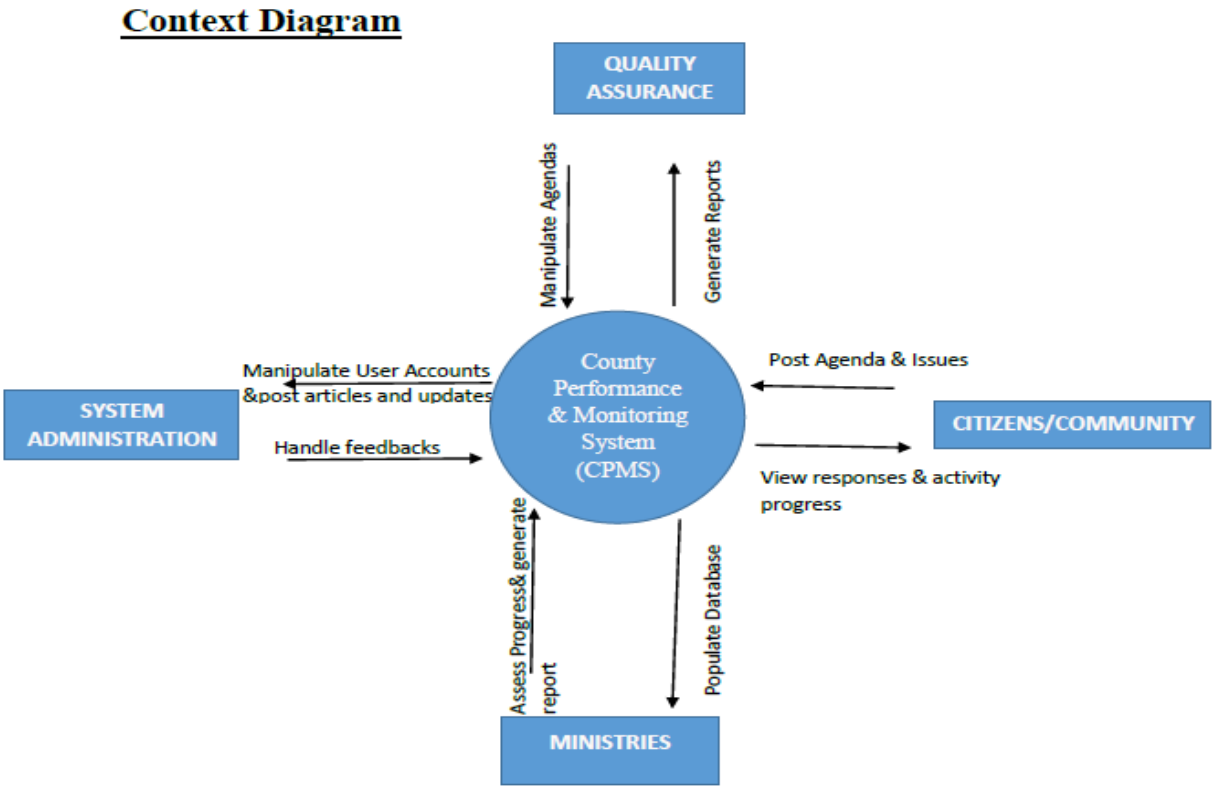


Figure 4. 2: context diagram

4.5.2 Dfd level 1

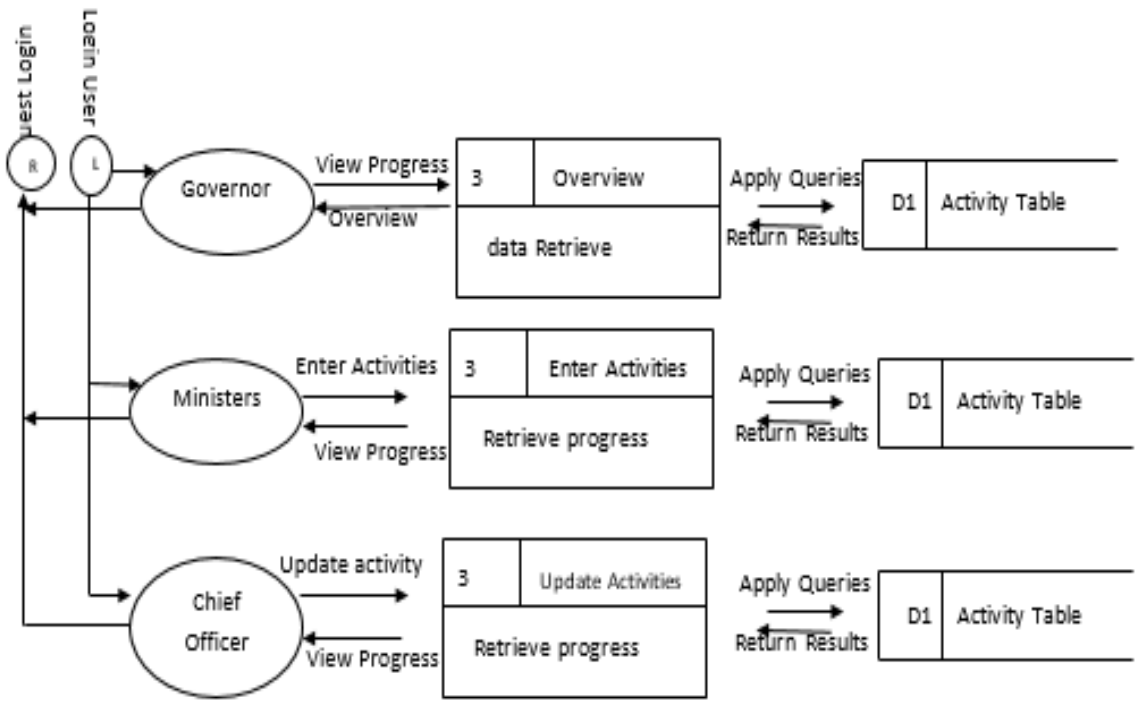


Figure 4. 3 : DFD level 1

4.5.3 Dfd level 2

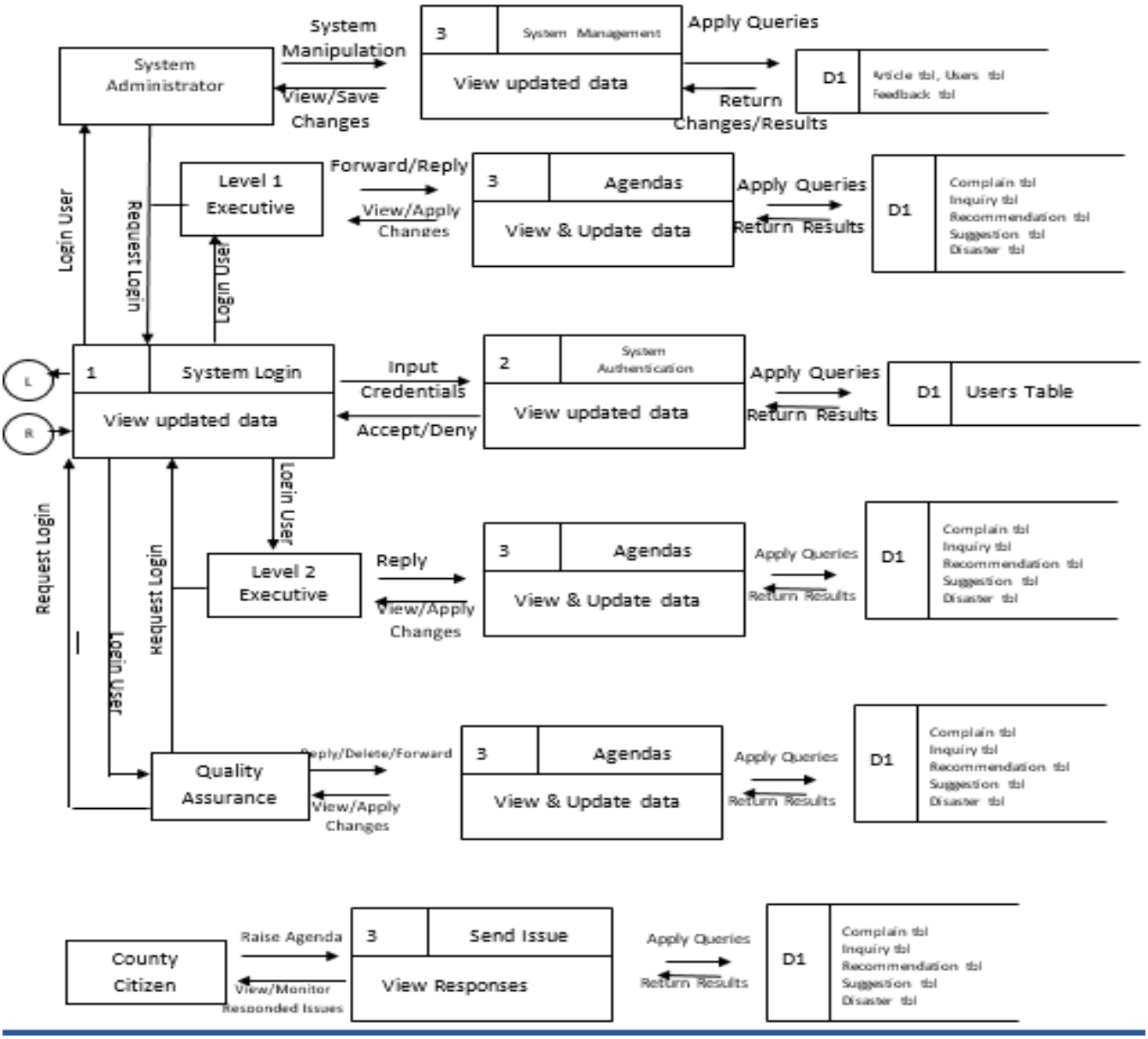


Figure 4. 4: DFD level 2

4.5.4 Erd

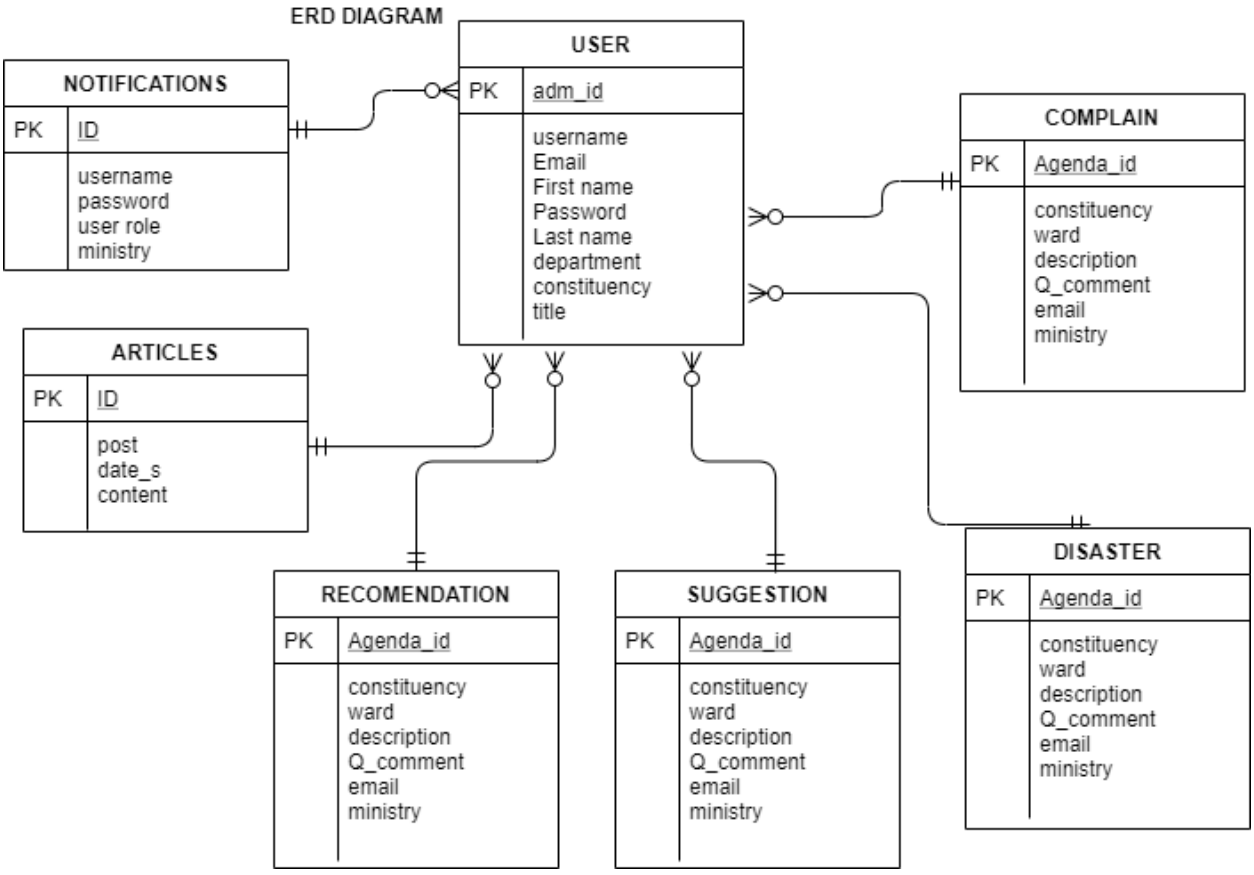


Figure 4. 5: ERD diagram

4.5.5 Database schema

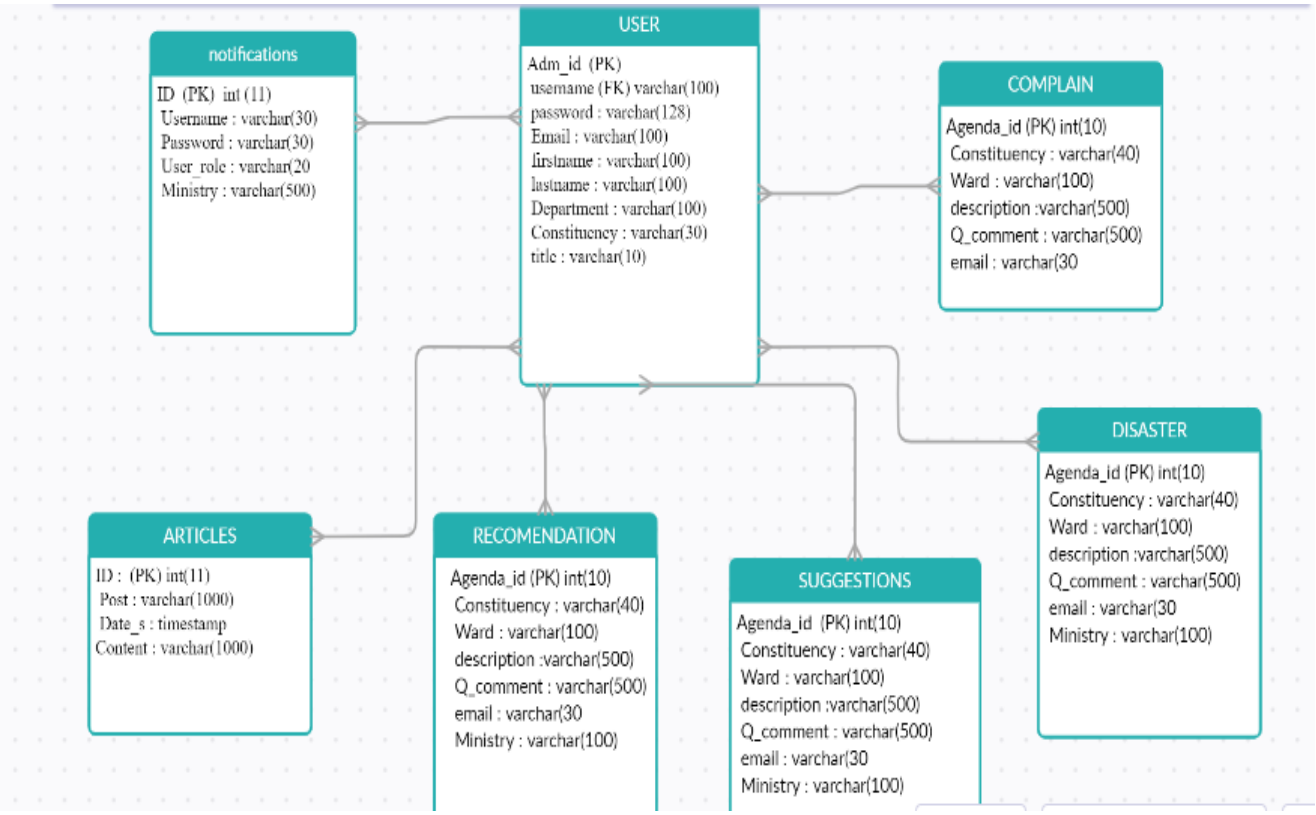


Figure 4. 6: database schema

CHAPTER 5: SYSTEM IMPLEMENTATION AND TESTING

5.1 Introduction

For the purpose of the system construction this chapter seeks to cover more on what the system entails and what is the purpose of various sections of the system. It will also focus on the system testing and where the different sections of the system have truly succeeded or not. This chapter aims at detecting system failures so that defects can be discovered before the system is fully implemented in the society. We must implement the system to know if it truly works as expected and test on whether it can handle a task no matter how it comes to the system.

5.2 System implementation

At the start of the system development, there was the observation and identification of the different actors that will take part and will be involved directly in using the system. The main actors identified at the start of the system development are the advanced user who can be able to log into the system and the county members themselves. The database admin is another actor in charge of the system as a whole and making sure that the database is under proper maintenance. The next stage of the system development was identification of the different modules that will be of greater importance to the different actors in the system and putting in mind that the two main actors will have different modules that they will fully interact with at different levels. The most important activity for the user will be getting into the system to raise his/her issues and save them. Updates and deletion user details will be done by the system admin for the purpose of maintaining the integrity of the system. The construction and development of the system was done using PHP and HTML due to the fact that it is a website and thus will be easy to come up with the system using the above mentioned languages. The different types of design diagrams make it easy to identify how the system will work and also makes it easy identify the process flow of information throughout the system thus proving very helpful to the developer. Business requirements were earlier identified and were structured into the system. Using the proposed system development methodology, it proved easy and more applicable to develop the system by prototyping and developing each module at a time. On completion of the different module development they were later linked to come up with the system as a whole. In the process of linking the different modules is was important to maintain the logic of the system in that it was of essence to make sure that modules link together in a manner that is understandable and consistent. This means that on the

click of a button the button should redirect to the next stated page and not a page that previously came before it. To begin with, there was the development of the CRUD functionality in that there was the division of the different aspects of CRUD that was to be done by the different actors of the system.

5.3 System testing

This section aims to focus a lot on the system and what it does. It will majorly focus on the system testing and whether the system has succeeded or not. This section also aims to detecting system failures and the detection of defects that can be discovered before the system is fully implemented into its intended environment.

Test ID	**Related requirement**	**Inspection check**	**Precondition Test data**	**Priority Level**
T1	FRQ1	Does the system allow user to use the system and his issue is saved in the database.	The user of the system is a county member and he should be able to give an opinion on what he/she wants.	Medium
T2	FRQ2	Does the system allow authorized (registered) users to log in	The admin should be able to login if and only if they have ever signed up before.	High
T3	FRQ3	Does the system allow the viewing of its services to and be able to give his feedback?	After getting into the system allows one to give feedback on various issues.	Very High

T4	FRQ4	Can the user be able to get back a feedback on a certain issues raised.	The user has a choice to leave his details so that a feedback can be sent back.	Medium
T5	FRQ5	Is the admin able to sign into the system as well?	The system administrator should be able to sign up into the system.	High
T6	FRQ6	Does the admin log in to view other system services provided for him?	The admin is supposed to login into the system to be able to view services offered for him and forward the issues to the necessary official.	High
T7	FRQ7	Does the admin view the new applicants?	The manager after logging in should be able to view all the new applicants awaiting approval.	Medium
T8	FRQ8	Is the admin able to edit/update the advanced user details?	The manger should be able to edit the details of a specific user and in turn updated in the database	Very high

T9	FRQ9	Does the admin have the authority of deleting user and all his details?	The admin is able someone from the system.	High
T10	FRQ10	Is the user and the admin able to log out of the system after completion of tasks.	Both the admin and the user of the system should be able log out after completing their tasks	Medium

Table 5. 1: system testing

CHAPTER 6: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter is going to cover on the system and what the system has been able to achieve at the end of its completion. There will also be the coverage on what the system was not able to achieve and make recommendations on future works that can be achieved by similar systems that aim to

6.2 Discussion

As mentioned before this section will entail an analysis of the developed system and s scrutinization of the system as well. The developed system as of its completion can be used by the two main actors of the system in this case having two modules of the system.

The proposed system moves from manual system to automated system within the county by imposing the normal suggestion box to be assessable any way by a click. So instead of relocating to the suggestion box, the suggestion box comes to you. This will enable the county to be more effective in terms of performance, production and efficiency. It will increase citizen's participation by letting the county executives pinpoint what the common Mwananchi seem more crucial to them. Economical wise the county will be more environmentally responsible in the sense that it will move to a more paperless mode of operations within the county by implementing ICT in its development and operations. The proposed system will also enhance system integrity and the agendas passed will have a higher guarantee to be looked at as it was not the case in the existing system which has a low integrity, is slow and unreliable.

6.3 Conclusion

The proposed system moves from manual system to automated system within the county by imposing the normal suggestion box to be assessable any way by a click. So instead of relocating to the suggestion box, the suggestion box comes to you. This will enable the county to be more effective in terms of performance, production and efficiency. It will increase citizen's participation by letting the county executives pinpoint what the common Mwananchi seem more crucial to them. Economical wise the county will be more environmentally responsible in the sense that it will move to a more paperless mode of operations within the county by implementing ICT in its development and operations. The proposed system will also enhance system integrity and the

agendas passed will have a higher guarantee to be looked at as it was not the case in the existing system which has a low integrity, is slow and unreliable.

Once the proposed system has been implemented, there will be increased efficiency, thus quicker response to raised issues and also faster data retrieval with use of a database; hence leading referencing of the passed agendas and issue, which will increase the Citizens Confidence in the County Government. This design seeks to safeguard its functionality as well as cater for an average competent user and limit occurrence of peculiarities putting into consideration the complexity of the environment where the system will be operating in. Having gone through the design satisfactorily, the system is therefore expected to increase the citizen's participation in the county devolution process and practices and thus and advantage to both the county government and its citizens

6.4 Recommendation

For the system to work perfectly in the counties people would have to be educated about the system and its advantages. They need also to be educated on the advantages of participation in

6.5 Future work

Despite the research aiming to solve problems with the system the system has not really solved all the problems. Therefore, the future work would be to enhance the system to be able to bring to notice an issue that has been raised many times and give it a priority instead of waiting for other issues to be forwarded and be solved. The system should also be able to have members of the county be registered and would be able to access the system easily. The system should also be able to allow upload of photos or videos in cases of corruption where a photo or video was taken.

REFERENCES

Arima, H. M. (2018). A Web-Based Public Participation System that Supports Decision Making,. In *Journal of Asian Architecture and Building Engineering,* (pp. 77-84).

Bell, D. (2003, june 15). *introduction to unified modelling*. Retrieved from IBM.

Chandra, v. (2012, novemeber 16). *evolutionary prototype model*. Retrieved from exforsyc.inc.

El-Ghareeb, H. (2012, March 26). *Object-Oriented Analisys and Design*. Retrieved from Slide Share: https://www.slideshare.net/helghareeb/object-oriented-analysis-and-design-12164752

Kelchnej, L. (2017, september 26). *common problems in inventory*. Retrieved from bizfluent: https://bizfluent.com/info-8596246-common-problems-inventory-systems.html

kerymydas, c. (2010). *the case thesso;an port authority*. Retrieved from logistics: http://www.teicm.gr/logistics/images/logisticsdocs/icsc2010/fullabstracts/5_1_ICSC2010_032_Keramydas_et_al.pdf

Okong'o, V. (2005). The E-Government Expirience in Kenya. Nairobi.

schach.s.r, S. (2007). *object oriented and classical engineering.* New York: google scholar.

Sharma, l. (2016). waterfall model. *software testing* .

simon, M. (2012). A comparative analysis of different types of models in software development life cycle. In *international journal of Advanced Research inComputer science and Software Engineering* (pp. 285-290).

Timo, U. (2011, may 14). *automotive industry research*. Retrieved from auto motive: https://echa.europa.eu/documents/10162/13587/candidate_list_industry_unger_hyundai_en.pdf

weisman, E. (1960). suggestion box systems. In c. m. l.rev.

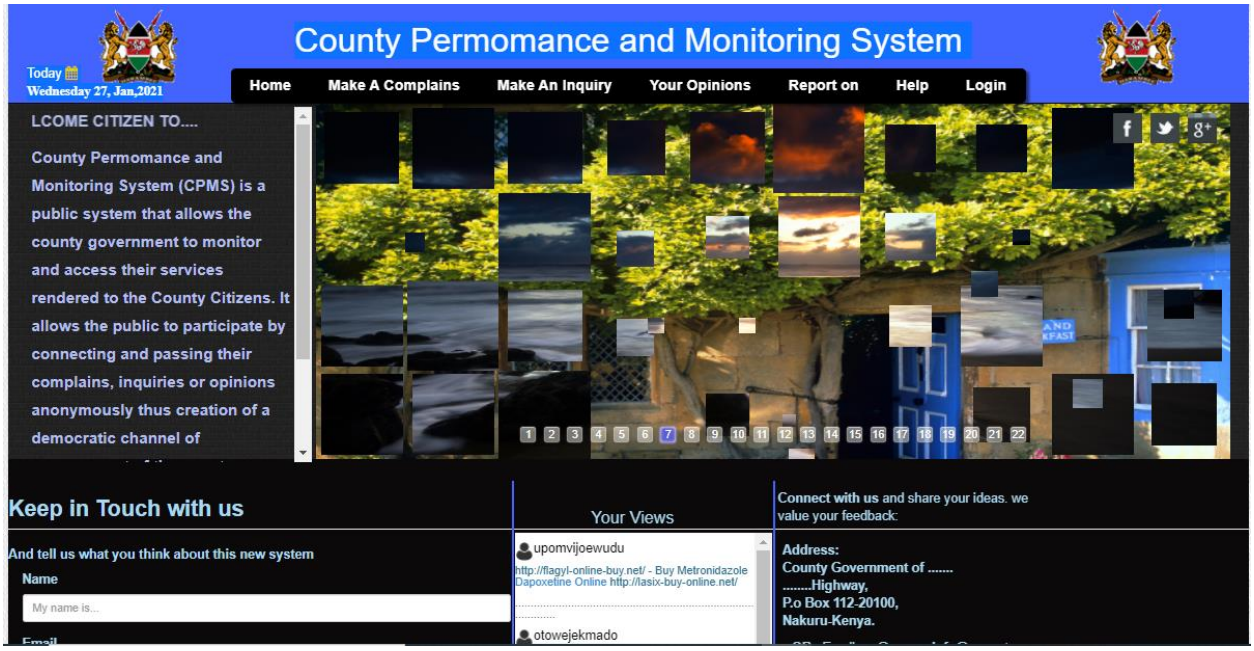
Appendix A

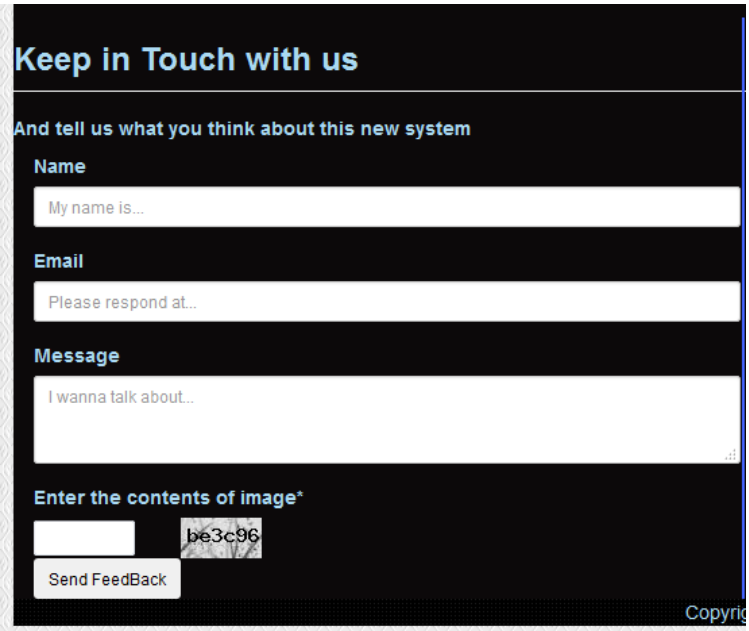
The following screen shots how the basic interface that the user will interact with.

i. The Index page

It contains a variety of features that allow the user to easily interact with the system. The simple navigation bar hovers to provide

e more selectable actions to the user. It also contains sub-sections that allow effective interaction between the user and the system administrator.





This part of the index page allows the user to submit details or issues that are concerned with the system and its functionality

This part of the index page allows the user to view submitted feedbacks and responses from the administrator

This part of the index page allows the user to view announcements that are made trough the system

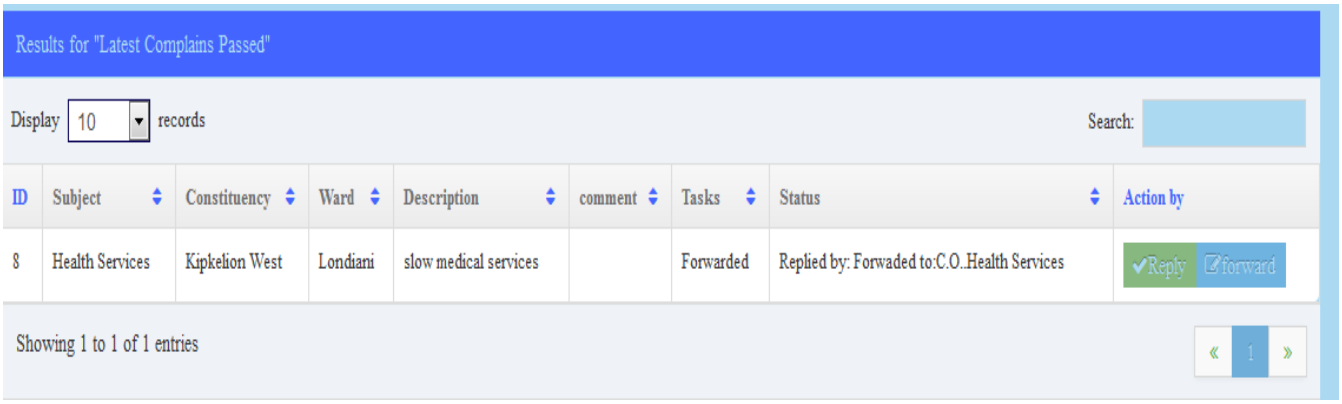
ii. The issue form

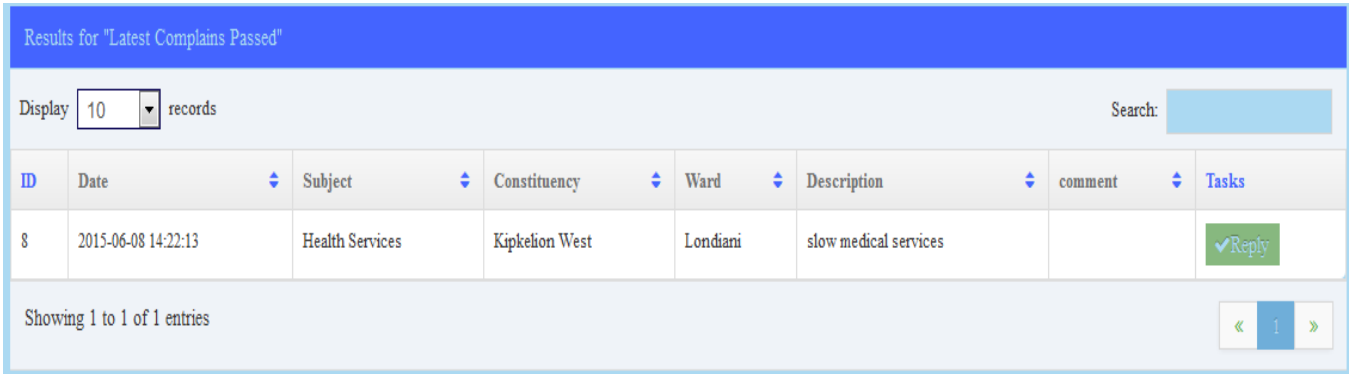
The issue form gives the user the required options to create and submit an issue. It contains three section; the action part of the form that contains selectable options and a draft area where the user drafts the issue; the response part that allows the user to view trending agendas; and the monitoring part that allow the user to compare ministry's performance.

***Note**: User guide of how to use these features are available at the help link on the index page*

iii. The Advanced user interface

The advanced user accesses the data that is filtered using the user sessions. The user sessions determine the data the user will view and the availability of the actions that can be performed on the view. The following shows the different table view for different level of access to the system.





The most advanced user is the Quality Assurance personnel who can perform all the tree basic manipulation on an issue submitted. The first level user can perform some of the action that is forward and delete while the second level user can perform only one task in this case reply.

APPENDIX B

SAMPLE OF THE QUESTIONNAIRE:

QUESTIONNAIRE.

This set of questions was issued to the respondents for fill and give appropriate answers. Questions formulated will help in the proposed project.

1. Have you ever used the suggestion box in you time in this organization?

☐ **Yes** ☐ **No**

2. How can you rate the Effectiveness of the current Suggestion Box system to the society?

☐ **Very Poo** ☐ **Poor** ☐ **Good** ☐ **Execellent**

3. How can you rate the trust of the Current Suggestion Box?

☐ **Average** ☐ **Poor** ☐ **Good** ☐ **No Comment**

4. Do you think that the proposed system will be an effective Suggestion Box?

☐ **Yes** ☐ **No** ☐ **No Comment**

5. Would you find it important if there was a system to perform inter-county auditing?

☐ **Yes** ☐ **No** ☐ **No Comment**

6. Are you a county Citizen?

☐ **Yes** ☐ **No** ☐ **No Comment**

7. Have you ever gone to any county or sub county Office?

☐ **Yes** ☐ **No**

8. How often do you access the internet?

- [ ] **Every day i am mostly online**
- [ ] **once a week to check mails**
- [ ] **No Comment**
- [ ] **am never intressted with the inter**

Thank you for your corporation.

Sample questions during the interview:

INTERVIEW

Sample questions that I asked include:

General Questions

1. What is the history of the organization and what does it deal with?
2. How does the current system work?
3. What are the limitations or disadvantages of the current system?
4. What changes would you like to see made in the current system operations?
5. What are you view about the proposed system
6. Would you prefer a manual system or a computerized system?
7. What do you like and dislike on the current system?
8. What is your expected outcome of the current system on organizational activities?

As a county executive:

1. Do you think ICT is important in your department?
2. If you can pinpoint strategic sub-departments that ICT has greatly improved your productivity as a Chief Officer?
3. How does the suggestion box work?
4. Do you think its effective especial for the citizens in the sub-counties or wards?
5. What are the challenges you face as an ICT Chief Officer in terms of citizen participation?
6. What changes would you like to see made in the current system of operations?
7. Is there an internal Auditing system in Place?

8. If there was an internal Auditing system what can you say you will benefit from it?

As a county citizen

1. Is there a way that you can participate in the county developments?
2. Is there a way that you can pass your ideas and view to the county with ease?
3. Have you ever used the suggestion box?
4. As at the moment are you satisfied with the county government way of conducting development in your area?

You have a question that you wanted to ask or get assistance with from the county offices; do you think you can get assistance remotely

APPENDIX C

GANT CHART