

E - SUGGESTION SYSTEM

CASE STUDY: SAM IGA MEMORIAL COLLEGE – MAGANJO

BY

MUHEHE GODFREY

BU/UP/2021/1657

SEPTEMBER, 2024

A PROJECT REPORT

SUBMITTED TO THE FACULTY OF SCIENCE AND EDUCATION
FOR THE STUDY LEADING TO A PROJECT IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE
OF BACHELOR OF SCIENCE WITH EDUCATION OF BUSITEMA UNIVERSITY

SUPERVISOR

MR. OBOH ANDREW

DEPARTMENT OF COMPUTER STUDIES

FACULTY OF SCIENCE AND EDUCATION BUSITEMA UNIVERSITY

DECLARATION

DECLARATION

I Muhehe Godfrey Reg. No BU/UP/2021/1657 do hereby declare that this project report is original and has to been published and/or submitted for any other degree award to any other university before.

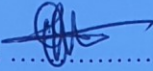
DATE: 

APPROVAL

APPROVAL

This project report has been submitted for examination with the approval of the following supervisor.

SIGNED:



DATE:

17th / Sept / 2024

2024

MR. OBOTH ANDREW OKOTH

DEPARTMENT OF COMPUTER STUDIES

FACULTY OF SCIENCE AND EDUCATION

DEDICATION

Firstly, I thank God who has successfully guided me to complete my project without health issues and has been my guide in writing this report.

I dedicate my report to my dear parents, Mr. Ndooli David and Mrs. Oyella Alice who have supported me in my education, have never failed to give me moral and financial support. Thank you so much for all your support and May the good Lord bless you.

I would like to extend special thanks to my supervisor MR. OBOOTH ANDREW OKOTH who has guided me throughout the course of my final year project and that has turned out to be a success.

I also like to thank my dear colleagues Okello Maxwell, Mudimbu Dan, Etyono Isaac, Kirabo Yvonne Janet and Bukenya Simon who have been of much help throughout my course and helped me in cases where I needed more explanations and clarifications.

ACKNOWLEDGEMENT

First and foremost, I would like to thank the Almighty God who has walked with me and guided me throughout my studies despite all the challenges I have faced. I have taken efforts in this project; however, it would have not been possible without the kind support and help from many people. I would like to extend my sincere thanks to all of them.

With utmost gratitude, I would like to thank my supervisor MR. Oboth Andrew Okoth for guiding me through my final year project from the start up to the end of writing my project report. No matter all the challenges I faced, he was of great support and help in completing the project.

Furthermore, I would like to thank the students of Busitema University who have helped me in gathering information that I needed for my research which was used in making and completing my final year project.

Lastly, I would like to thank my fellow students whom I have studied with till the end for they have been of great help in testing my final year project and giving feedback about it.

TABLE OF CONTENTS

DECLARATION	i
APPROVAL	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF FIGURES	viii
LIST OF ACRONYMS	ix
ABSTRACT.....	x
CHARPTEr ONE:	1
1.0. Introduction.....	1
1.1. Background.....	1
1.2. Problem Statement.....	2
1.3.1. Main Objective.....	2
1.3.2. Specific Objectives.	2
1.4. Significance Of The Study.....	3
1.5. Scope Of The Study.....	3
CHARPTEr TWO:	4
LITERATURE REVIEW	4
2.1. Introduction.....	4
2.2. Information System.....	4
2.3. Management Information System (MIS)	4
2.4. Educational Information System (EMIS)	5
2.5. Current E- Suggestion System.	6
2.6. Challenges Of The Current E- Suggestion System.	6
2.7. Benefits Of The E- Suggestion System.....	7
CHAPTER THREE:	8
METHODOLOGY	8
3.1. Introduction	8
3.2. Area Of Study	8
3.3. Sampling.	8
3.4. Data Collection.	8
3.4.1. Sampling Methods.	8
3.4.2. Interviews	8

3.5.0. Systems Analysis.....	8
3.5.1. Rapid Application Development (RAD).....	8
3.5.2. System Design.....	9
3.5.3. Use-Case Diagram.....	9
3.5.4. Entity-Relationship Diagram.....	9
3.5.5. Context Diagram.....	9
3.6. System Implementation Tools.....	9
3.6.1. The back end.....	9
3.6.2. The front end.....	9
3.7. Testing And Validation.....	10
CHAPTER FOUR:.....	11
SYSTEM ANALYSIS AND DESIGN.....	11
4.0 Introduction.....	11
4.1 Current System Study.....	11
4.2. Strength Of The Current System.....	11
4.3. Weakness Of The Current System.....	12
4.4. System Analysis.....	12
4.5. Functional Requirements.....	12
4.6. Non-Functional Requirements.....	13
4.7. Hardware/ Software Requirements.....	13
4.7.1. Hardware Requirements.....	13
4.7.2. Software Requirements.....	14
4.8. System Design.....	14
4.8.1. System Architecture.....	14
4.8.2. Context Diagram.....	15
4.8.3. Use-Case Diagram.....	15
4.8.4. Entity Relationship Diagram.....	16
CHAPTER FIVE:.....	17
IMPLEMENTATION AND TESTING.....	17
5.0. Introduction.....	17
5.1. System Implementation.....	17
5.1.1. Login Page.....	17
5.1.2. Dashboard.....	18

5.1.3. Adding and Managing Staff Members.....	18
5.1.4. Checking Suggestions and Comments of Staff Members.....	18
5.1.5. Staff Dashboard.....	19
CHAPTER SIX:.....	20
DISCUSSION, CONCLUSION, RECOMMENDATION AND FUTURE WORK.	20
6.0 Introduction.....	20
6.1. Discussion of Results.....	20
6.2. Conclusion.	21
6.3. Recommendations.....	21
6.4. Limitations.....	21
6.4.1. Financial Constraint.	21
6.4.2. Time Constraint.	21
APPENDIX:.....	22
REFERENCES	24

TABLE OF FIGURES

Figure 1: Context Diagram	15
Figure 2: Use-Case Diagram.....	16
Figure 3: Login Page.....	17
Figure 4: Dashboard.....	18
Figure 5: Adding Staff	18
Figure 6: Checking Suggestions	19
Figure 7: Staff Dashboard.....	19

LIST OF ACRONYMS

MOMS	Merchandise Order Management System
RAD	Rapid Application Development
RAM	Random Access Memory
DFD	Data Flow Diagram
ERD	Entity Relationship Diagram
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
SAD	System Analysis and Design
PHP	Hyper Text Pre-Processor
GUI	Graphical User Interface
ROM	Read Only Memory

ABSTRACT

Today, information has become rapidly accessible because of technological advancements. It is inevitable for the educatory institutions, where the basis of information is formed, to pioneer at the point of presenting information. An E - suggestion system is part of this trend.

The main Objective of this project was to develop an E-Suggestion System.

The methodologies used were Rapid Application Development (RAD) which was easy and helped a lot in delivering a working system in a very short period of time. The Model View Presenter (MVP) architecture was also used in designing the application in order to handle requests and provide data to the user. I used visual studio code as the IDE and code and layout editor to develop the system plus using PHP programming language as a technology to develop the system. The operating system that was used was windows 10.

In conclusion, from the various tests carried out, the designed E-Suggestion system was found to be reliable and practical thus meeting the intended objectives of the researcher.

CHAPTER ONE:

1.0. Introduction.

Most Schools and Organizations used to conduct Staff evaluations of School traditionally using suggestion boxes, where the data was collected and then summarized manually in suggestion boxes **(Layne, Decristoforo and McGinty 1999)**. This caused so many challenges like taking up a lot of time while carrying out the suggestion and feedback process, misplacement or omission of data during the analyzation process.

Today, information has become rapidly accessible because of technological advancements. It is inevitable for the educatory institutions, where the basis of information is formed, to pioneer at the point of presenting information **(Chrisman 2002)**. Computers and electronic communication stand out as important components in terms of making information available **(Geymen, Besdok et al. 2008)**. Computer environment is employed so as to ensure faster flow of information in the rapidly developing world **(DURKAYA and DURKAYA 2003)**. An E - suggestion system is part of this trend.

An E - suggestion system is a system in which staff members provide anonymous and constructive feedback, teaching methods, content, and delivery, allowing educational institutions to identify strengths, areas for improvement, and promote a culture of continuous improvement in teaching and learning. The system includes staff members providing their ratings, opinions and comments or suggestions about different departments of the School.

Manual suggestion boxes which are paper-based are associated with a lot of problems such as misplacing or omission of the data collected from the staff members, a long period of time required to analyze the collected data and group it.

1.1. Background.

Sam Iga Memorial College, located in Kawempe Division, Wakiso district, is a government aided secondary school which has both Ordinary and Advanced levels for both girls and boys.

However, like many other secondary schools, Sam Iga Memorial College has outdated methods of staff suggestions leading to various challenges

At Sam Iga Memorial College, the prevalent reliance on suggestion boxes poses significant challenges in manual processes, including complicated data retrieval, storage, maintenance, contribute to an overall time-consuming administrative burden. Moreover, the extended time

required for data analysis further hinders the School's ability to derive timely insights from staff suggestions.

Teachers write their suggestions on small papers and drop them in the Staff suggestion box from where the Director of Studies (DOS) picks them and sorts together with the Deputy Head teacher. The selected suggestions are then presented to the Head teacher who chooses what has talked about in the next Staff meeting indicated on the School programme for final conclusions. This old-fashioned system not only affects the efficiency of the administrative tasks but also delays the institution's speed and ease in responding to dynamic educational needs.

Therefore, there was need to develop and implement an E-Suggestion System which would digitalize the suggestion process, as well also ensure the swift data management and analysis to foster a more responsive and efficient educational environment and as well eliminate the usage of paper work and Suggestion boxes.

1.2. Problem Statement.

E-Suggestion systems have been developed and tested in most developed countries; however, many developing countries are still grappling with such systems.

In Uganda, some systems have been developed though there is still an open area of research due to paper-based record keeping and manual processes. Moreover, the extended time required for data analysis further hinders the school's ability to derive timely insights from staff members. This old-fashioned system not only compromises the efficiency of the administrative tasks but also delays the school's speed and ease in responding to dynamic school needs.

Therefore, there was need to develop and implement an online E-Suggestion system application which would digitalize the school's suggestion process, as well also to ensure the swift data management and analysis to foster a more responsive and efficient school environment and as well eliminate the usage of paperwork from manual suggestion boxes.

1.3.1. Main Objective.

The main objective of this project was to design and develop An E-Suggestion System with a feedback mechanism to the Staff members.

1.3.2. Specific Objectives.

- i. To review literature and determine the requirements for system.
- ii. To analyse the requirements and design the system.

- iii. To implement the E - suggestion system.
- iv. To test and validate the E - suggestion system.

1.4. Significance Of The Study.

The study was noted to have had a significant impact on both the institution and the broader educational community. The implementation of the Electronic Suggestion System (E-Suggestion System) reportedly streamlined processes that were previously time-consuming and cumbersome, leading to a more efficient management of suggestions and feedback within Sam Iga Memorial College.

It was observed that this digital system reduced the administrative burden by facilitating quicker data retrieval and more secure storage, which was particularly beneficial in improving decision-making processes.

1.5. Scope Of The Study.

The E-Suggestion System was designed for Sam Iga Memorial College located at Maganjo Town in Kawempe, Wakiso district 500 Meters off Kampala – Gulu highway.

The application provided a security module with two levels of access including staff and administrators. It enabled the administrators to register staff members and also edit staff information and also monitor suggestions and feedback received from the staff members. It also enabled staff members to evaluate and provide feedback about the School.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction.

This chapter comprises of a comprehensive analysis of information on theoretical and practical views of other research projects conducted in schools and colleges for the E - suggestion system both manually and electronically. This research study combines factors that other researchers have done that would result in the better staff suggestion system at Sam Iga Memorial College - Kampala.

This chapter is subdivided into different sections for example information systems, management information systems, education information system, E - suggestion system, current suggestion box, challenges of the current suggestion box and the benefits of the E - suggestion system.

2.2. Information System.

Information System is the software and hardware systems that support data-intensive applications and this system is composed of people and computers that process or interpret information. Any Information system aims to support operations, management and Decision making (Longdom n.d). Information systems allow users to collect, store, organize and distribute data in companies. Many businesses use their information systems to manage resources and improve efficiency.

An information system is composed of the following parts; people who interact with the system, hardware which are the physical devices such as computers, servers, routers, and storage devices, software which are programs and applications that process and manage data, data which are raw facts and figures that are processed and turned into useful information and procedures which are rules, guidelines, and protocols for operating and maintaining the system. Information systems are of different types namely transaction processing systems, management information systems, decision support systems, and executive information systems among others.

2.3. Management Information System (MIS)

Management information systems (MIS) provide information in the form of reports and displays to managers and many business professionals. For example, sales managers may use their networked computers and Web browsers to receive instantaneous displays about the sales results of their products and access their corporate intranet for daily sales analysis reports that evaluate sales made by each salesperson(O'Brien). MIS is a system that provides the information necessary

to manage an organization effectively. MIS should have a clearly defined framework of guidelines, policies or practices, standards and procedures for the organization. Management Information System is basically concerned with processing data into information which is then communicated to the various Departments in an organization for appropriate decision-making. MIS provides information to the decision makers in the form of reports, are usually generated through accumulation of transaction processing data. Examples of MIS include the Bank Information System, Railways Information System, and Educational Information System among others.

2.4. Educational Information System (EMIS)

It is a system of people, technology, models, methods, processes, procedures, rules and regulations that function together to provide comprehensive, integrated set of relevant and timely education data to planners, decision makers and managers of education at all levels (**Malawi 2009**). It is an education database that aims at ensuring timely, accurate and appropriate education data and information are available for decision making. It is a global concept for educational management that encompasses the application of modern information and communication technology in collection, storage and analysis of education data.

The EMIS was established in 1998 by the Ministry of Education and Sports (MoES) in Uganda to improve the planning, management, and monitoring of the education system. EMIS was thus conceived to enable MoES headquarters to collect, capture and process data to generate management information that could help in planning and evidence-based decision making at all levels. EMIS examples include; **School-MIS** is an EMIS that is used by schools and districts to track student progress, monitor teacher performance, and evaluate the effectiveness of educational programs, Key features and components of an EMIS include; Student Information System, Teacher Information System, School Infrastructure and Facilities, Curriculum and Course Management, Assessment and Examination Data, Finance and Budget Management, Enrollment and Admissions, Education Policies and Planning, Education Indicators and Reporting, Monitoring and Evaluation among the others.

Under the EMIS, several systems and tools are built to support different aspects of the education sector based on the key components and features. Some of the systems include; an Online Student Registration System, Digital Learning Management System, Admissions and Application

Tracking System among the others. An E-suggestion system is among the many systems built to support the education sector.

2.5. Current E- Suggestion System.

Benefits of effective E-Suggestion System include advancing the teaching and learning, as well as improving the functionality and innovation of courses, curriculum, departments, and ultimately the broader community (**Glassick, Huber and Maeroff 1997**). The primary goal of this system is to assess and enhance the overall quality of education provided by the School. It involves suggestions on various aspects of teaching, learning, and the school's overall performance to identify areas for improvement and to ensure the school meets its educational objectives.

Despite a broad acceptance that effective Suggestion tools should be developed for and with the School, to date, School suggestion systems have been largely insufficient (**Arreola 2000**). In Uganda today, some schools use the manual suggestion boxes where as other schools lack one whereby most of the schools use suggestion boxes. A suggestion box is a device for obtaining additional comments, questions, and requests (**Educalingo n.d**). A suggestion box is a physical box where students can submit anonymous feedback about their courses or instructors and the feedback is typically collected by a staff member who then reviews it and forwards it to the appropriate person.

The current suggestion system is more paper-based in schools where it is used and in schools where it is not applied, traditional suggestion boxes are used which are also paper-based and time-consuming where man-power is needed to analyze the comments, suggestions.

2.6. Challenges Of The Current E- Suggestion System.

Although many education institutions enjoy the benefits of E-Suggestion system, the following barriers are there in full functioning of the system; insufficient financial resources to invest in improved technology, lack of time and human resources to use the system and anticipated problems in attempting to an integrated system.

Paper-based suggestion systems require considerable administrative effort for data collection, analysis, archiving and dissemination of results to faculty in a timely manner. The current system requires more paper for the teachers to write their suggestions, comments or provide their feedback about the staff members and the overall school performance. On addition, analyzing the data

collected requires more time and man power to do so hence some data might be misplaced or omitted.

In an effort to overcome these shortcomings, many training programs have implemented electronic systems for communication purposes and evaluation of staff, school and programs (**Rosenberg, Watson et al. 2001**).

2.7. Benefits Of The E- Suggestion System.

Although many scholars have written about E-Suggestion systems as an urgent requirement and a lot of research has been carried out, implementation is still insufficient. However, according to the literature available, there are numerous benefits that accrue from E-Suggestion systems when compared with manual systems.

For example; there will be no duplication of records, the problem of missing or misplaced records is reduced. Staff members prefer E-Suggestion because it is fast and easy to use whereby teachers in remote areas can learn and assess in their locations with flexibility and ease (**Alruwais, Wills and Wald 2018**). Manual suggestion boxes require considerable administrative effort for data collection, analysis, archiving and dissemination of results to administration in a timely manner.

CHAPTER THREE: METHODOLOGY

3.1. Introduction.

This chapter described and presented the system design, data collection techniques and sampling strategies that were used in the study.

3.2. Area Of Study.

The study was conducted at Sam Iga Memorial College – Maganjo because of the ease in collection of data and due to the problem identified by the system. The study covered most of the departments of the School for example; academics, sports, facilities among the others.

3.3. Sampling.

This study involved 20 respondents from whom the data was collected from namely, 18 teachers and 2 administrators. Simple-random sampling was used since it involved randomly selecting the respondents without grouping them.

3.4. Data Collection.

3.4.1. Sampling Methods.

The study considered simple-random sampling as it involved randomly selecting the respondents without grouping or categorizing them according to a specific topic. Henceforth interviews were used for data collection.

3.4.2. Interviews.

This involves face-to-face interaction between the interviewer and the respondent. These were used to help explain more about the research subject and understand it better and also explore more of the opinions that were provided.

3.5.0. Systems Analysis.

Systems Analysis involves analyzing the system or process to identify requirements and create a solution that meets the needs.

3.5.1. Rapid Application Development (RAD).

RAD is a software development approach which does not follow a strict plan, focuses more on user feedback hence emphasizing rapid prototyping compared to System Development Life Cycle (SDLC) which follows a strict plan involving planning, designing, developing, testing and delivering software systems. The researcher opted for RAD because it was fast and less costly.

3.5.2. System Design.

This describes how the functions of the system could be realized through the use of tools like context diagrams, data flow diagrams, and use-case diagrams among others. The system used a Model View Presenter Architecture in order to handle requests and present data to the user. The model stored data for the application, the view acted as the user interface and it was used by the user to input data into the application and the presenter sent the data from the view to the model and also sent data from the model to the view.

3.5.3. Use-Case Diagram.

This represents the activities of the users with the special functionalities of the system. The use-case diagram was used to identify the different users of the systems and the different use cases.

3.5.4. Entity-Relationship Diagram.

This is a graphical representation between entities and attributes within a proposed database of the system. The ERD was used to show the different entities in the system with their different attributes and how they are related.

3.5.5. Context Diagram.

This shows the basic interaction of the system with its environment. The context diagram showed the flow of data in the system.

3.6. System Implementation Tools.

The tools employed in the implementation of the E- Suggestion System were as follows;

3.6.1. The back end.

The back end was implemented using MySQL database server. • MySQL was very useful in constructing the database of the E-Suggestion System. A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. Database was used in order to make data access easy, quick, inexpensive and flexible for the user.

3.6.2. The front end.

The front end was implemented using Hypertext Pre- processor (PHP). PHP is a server-side scripting language embedded in the HTML used to manage dynamic content, databases and session tracking. It enabled the researcher to write simple scripts directly into the HTML files. PHP made it quite easier to manage the large website by placing all the components of a web page in a single HTML file. The users were not in position to see the source code, thereby maintaining security of the source code. I used tools like PHP and HTML programming languages to implement

the system interfaces in a Visual Studio Code programming environment. I also used Wamppserver64 as a server- 21 side database tool for implementing databases. Interaction with the system interface was done by clicking and typing where asked.

Visual Studio Code which enabled the researcher to write the dynamically generated pages easily and very quickly because it was used as the main text editor. Hypertext markup language (HTML) used to develop user interfaces with Cascading style sheets (CSS).

3.7. Testing And Validation.

Unit testing and integration testing were performed on the E- Suggestion System in order to reveal the possible errors. Unit testing was focused on one module at a time where a module would be tested instantly to ensure its functionality before proceeding for another module. Integration testing was performed after all the different modules had been put together to make a complete system. It aimed at the fact that all the modules of the system worked hand-in-hand to present a complete working system.

CHAPTER FOUR: SYSTEM ANALYSIS AND DESIGN

4.0 Introduction

This chapter presents the results from the system analysis as well as the strengths and weaknesses of the current system. This chapter covers the system requirements (user requirements, functional and non-functional requirements) and the design of the system.

4.1 Current System Study.

Reliance on manual suggestion box at Sam Iga Memorial College results to challenges of manual processes like complicated data retrieval, storage, maintenance that lead to an overall time-consuming administrative burden.

Hence, there was need to develop and implement an E-Suggestion System which would digitalize the suggestion process, as well also ensure the swift data management and analysis to foster a more responsive and efficient educational environment and as well eliminate the usage of paper work and Suggestion boxes. The E-Suggestion System motivates staff members to submit suggestions by providing an interactive networked forum within which they can openly debate their issues.

4.2. Strength Of The Current System.

At Sam Iga Memorial College, an exploration into the prevailing paper-based order system unveils a multi-layered discussion. This tradition system boasts inherent strengths that have shaped its role in Education.

The first strength lies in the system's ability to bridge the digital divide. In a world increasingly reliant on technology, the paper-based system becomes a conduit for inclusivity. It caters for a wide spectrum of teachers, including those who may lack access to technology or those who are not comfortable navigating digital interfaces.

Furthermore, another facet of strength lies in the system's resilience against technical challenges. Unlike their digital counterparts, the paper records are immune to system failures, cyber threats and even technical glitches. Storing the tangible records in a private location enables to preserve the authenticity of Staff feedback.

Lastly, the current system ensures independence from technological dependencies. In an era where specific devices, internet connectivity and digital literacy are prerequisites for many systems, the paper-based approach stands as evidence to simplicity and accessibility.

4.3. Weakness Of The Current System

Under the E-Suggestion System at Sam Iga Memorial College, the current system, while boasting some strength, harbors a multitude of inherent weaknesses. The flaws in this paper-based approach become apparent, casting shadows on its efficiency and effectiveness.

The spatial challenge emerges as yet another weakness in the current system. The continuous influx of papers, coupled with the sheer volume of suggestions, results in the consumption of a significant amount of physical space over time. The suggestion papers, preserved for future reference, necessitate expansive storage areas, further complicating the logistical aspect of the system.

Another most concerning weakness is the vulnerability to loss inherent in the paper-based approach. The suggestion papers, crucial for future reference, become vulnerable during the various stages of analysis, collection and storage.

4.4. System Analysis

This section focuses on the user, functional and non-functional requirements that guide the design and implementation of the E-Suggestion System.

4.5. Functional Requirements

The functional-requirements of the E-Suggestion System emerges as crucial pillars defining user experience. These requirements define the services that the system aims to deliver, catering to the diverse needs of both the Administrators and the other Staff members. At the forefront of these functional requirements lies the staff's interaction with the application. The staff experience seamless journey starts where they log into the application with their email and password. Once authenticated, staff members gain access to the platform that allows them to post their suggestions and comment on other people's suggestions.

The work of the functionalities forms the backbone of the system, providing a harmonious collaboration between the Staff members and the Administrators.

4.6. Non-Functional Requirements

When designing the E-Suggestion application, the focus extends beyond the specific functions the system performs; it encompasses a set of non-functional requirements that play a crucial role in shaping the system's overall performance and user experience. These requirements include user friendliness, performance and data integrity forming pillars upon which the application's effectiveness stands. User-friendliness emerges as a cornerstone of the non-functional requirements. The application is built to be user-friendly, ensuring that every interaction with the system is intuitive and accessible. From the easily understood icons to the user-friendly language, the design is geared towards creating an interface that resonates with users, making their journey through the application seamless and comprehensible. Performance is another non-functional requirement that steers the application's functionality. A requirement for the application's optimal performance is an active internet connection given that it relies on a cloud database for its operations. In the realm of connectivity, the application responds dynamically; with a fast connection, its performance surges, ensuring a swift and efficient user interaction. And on the contrary, with a slow connection, the application adapts, operating at a slow pace.

Lastly, there is data integrity which acts as a concern in any digital system, is part of the non-functional requirements. With the usage of the Firebase cloud database, the application has a strong and robust defense against data loss. The use of this cloud based database acts as a solution ensuring that the user-generated data is secure and retained. The resilience of the system is underscored by the fact that data loss is only a potential risk if intentionally deleted by an administrator with database access, providing a layer of control while preserving the integrity of the accumulated feedback data

In conclusion, these non-functional requirements do not just reveal technical specifications but a commitment to user-centric design, performance, adaptability and data security.

4.7. Hardware/ Software Requirements

4.7.1. Hardware Requirements

In the evolving technological advancements, the hardware requirements for E-Suggestion application emerge as a crucial component shaping of this foundation attempt. At the forefront stands the Uninterruptible Power Supply (UPS), these guards against the unpredictable whims of power fluctuations. In the dynamic realm, where continuity is paramount, the UPS acts as a sentinel, providing a seamless power backup. It ensures that the researcher still writes the codes

and works with the system even in the face of unexpected power outages. Secondly is the Random Access Memory (RAM), a reservoir for the system's immediate data needs. With a stipulated minimum of 8GB, the RAM becomes the pulse of the system facilitating swift and efficient data processing. This ample RAM capacity ensures that users experience, responsiveness and fluidity navigating the platform without any delays. Lastly is a universal hard disk that takes center stage with a minimum requirement of 100GB. This spacious digital canvas becomes the repository for the system's data, accommodating the diverse array of the customers and administrative record.

4.7.2. Software Requirements.

In the dynamic intersection of technology and business, the software requirements for the prospective E-Suggestion application emerge as keystones in the foundation of this innovative venture. These requirements, each with its unique role collectively shape the digital ecosystem that promises to revolutionize the landscape of the merchandize orders. At the forefront stands the windows 10 and higher, this provides a stable and compatible operating environment for the system. Known for its robust features and widespread compatibility, it becomes a canvas on which the application's code is written.

Secondly, android studio takes the center stage as the IDE of choice. This is where the application code and layouts are written. Android studio not only ensures compatibility 26 with Android devices but also optimal performance and responsiveness. This choice aligns with the diverse technology landscape, recognizing the prevalence of Android powered devices in the hands of both staff members and administrators.

4.8. System Design.

This is the process of defining the architecture, modules and interfaces of the system to realize the functionality of the system, it includes stages like system architecture, context diagram, data flow diagram, and system modeling using case diagrams.

4.8.1. System Architecture

When designing the E-Suggestion system, the architectural framework chosen plays a crucial role in shaping the structure and functionality of the application. In this context, the system opted for the Model-View Presenter (MVP) architecture; a sophisticated and strategic choice that not only enhances the application's efficiency but also elevates the overall user experience. At the core of the MVP architecture, the View component is a visual gateway into the application. It serves as

the user interface, an interactive canvas through which users engage with the system. Its role extends beyond mere display; it's a conduit for data presentation and user interactions. The users used this view component to seamlessly navigate, submit suggestions, view comments provided by the staff members and interact with other features of the application. Furthermore, complementing the view is the Model component emerges as the data powerhouse of the system. It serves as the repository, diligently storing and managing the vast array of data generated by the application. Beyond being a passive storage entity, the Model exposes methods that facilitate not only the retrieval of data but also its manipulation.

This bidirectional flow ensures that user interactions are not just visual changes but trigger tangible responses within the application's data structure. In adopting the MVP architecture, it became a guiding philosophy, fostering a modular and organized approach to system design. The separation of concerns between the view, model and presenter components not only enhances maintainability but also allows for flexibility in adapting to future modifications.

4.8.2. Context Diagram

This summarized how information flowed in the system. The Staff members could visit the application and make orders and provide comments or suggestions. The administrator could visit the application, add and edit Staff information, view Staff suggestions and comments.

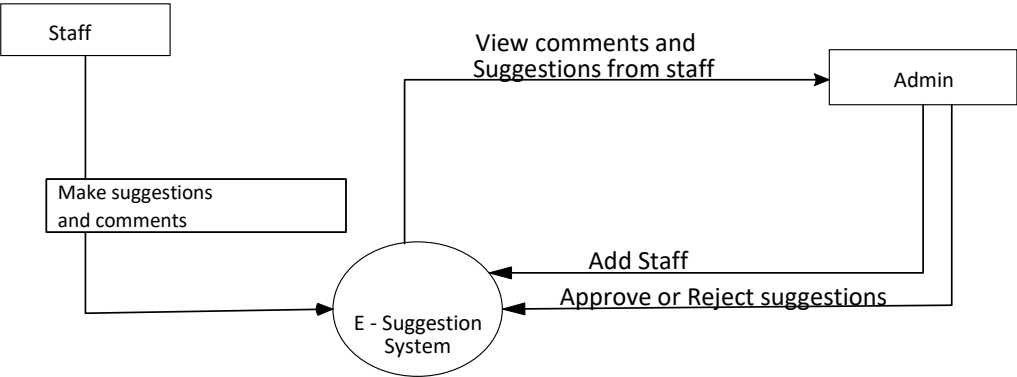


Figure 1: Context Diagram

4.8.3. Use-Case Diagram

The use case diagrams for each entity presented in the proposed system include the use case diagram for the staff members and administrator which showed the different activities performed

by the users of the system. E-Suggestion system Admin View analyzed Suggestions, Add Staff, Edit Staff Information and View Comments from Staff Members.

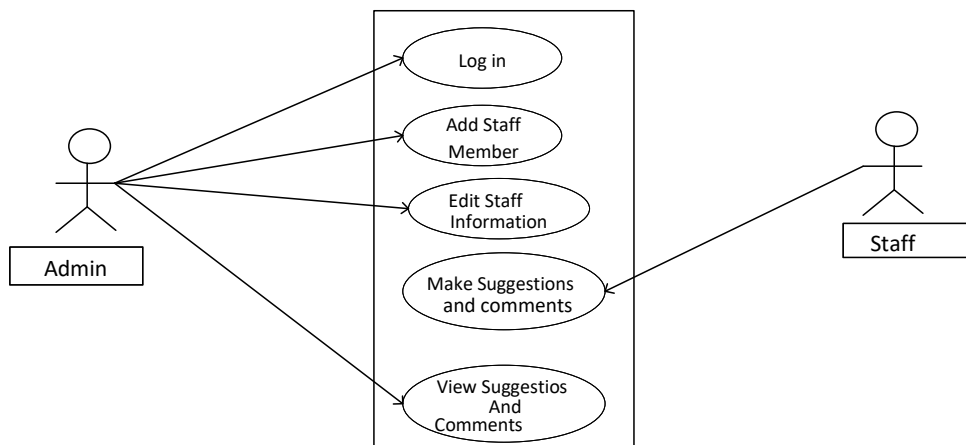
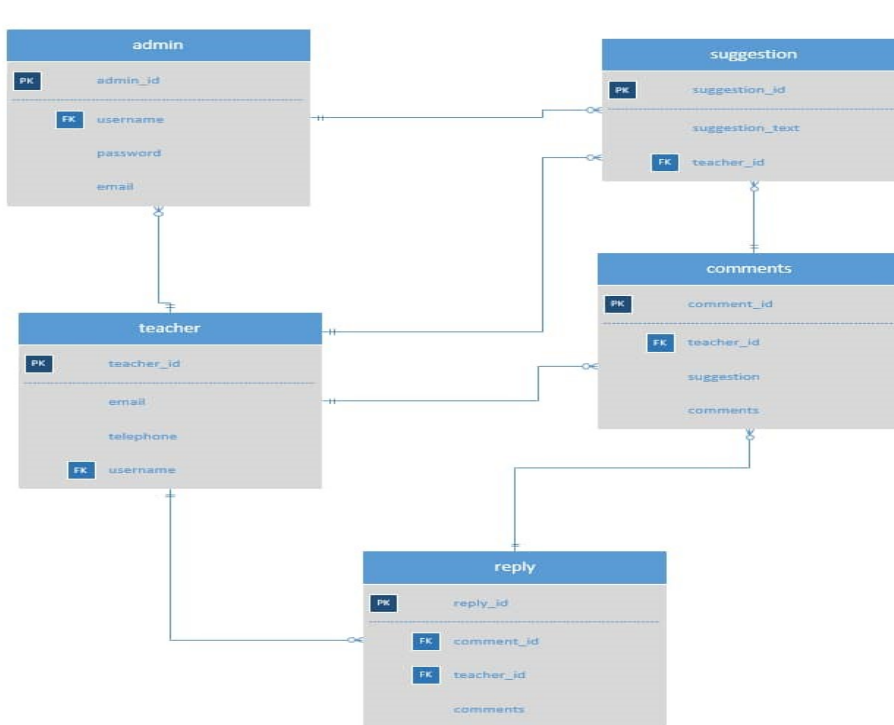


Figure 2: Use-Case Diagram

4.8.4. Entity Relationship Diagram.

This describes things of interest and is composed of entities and the relationships that exist between the entities.



CHAPTER FIVE:

IMPLEMENTATION AND TESTING

5.0. Introduction.

This chapter was about the presentation and analysis of the data related to the Suggestion system. The E-Suggestion system focused on the security risks faced by the current suggestion system, lack of co-ordination and other areas of improvement.

5.1. System Implementation.

The system was created using windows environment, Microsoft visual studio code was used to create the user interfaces (front end) and MySQL was used to create a database for storing data after which a logical connection was built.

5.1.1. Login Page.

This is the first form that comes first when the program is launched. It's meant for security and authentication purposes. When loading the system, one should go to the web browser and type <http://localhost/gody> to open the login page as illustrated below.

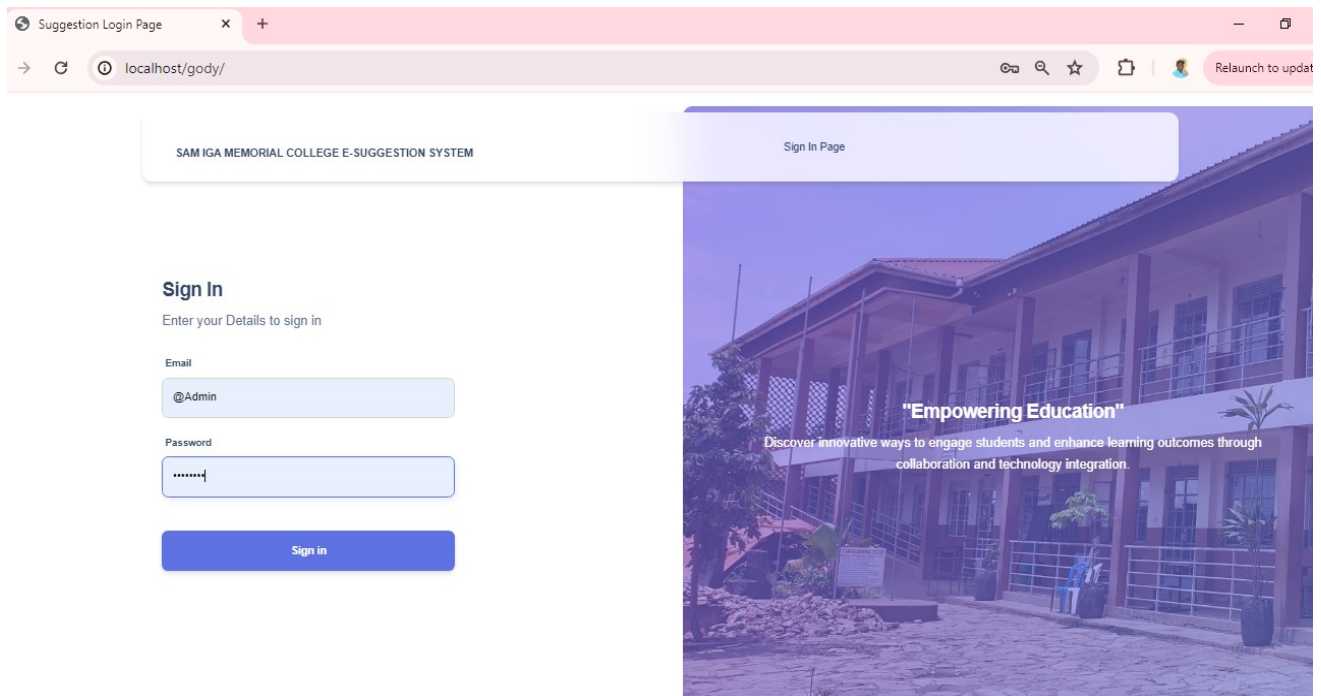


Figure 3: Login Page

5.1.2. Dashboard.

Dashboard after logging into the E-Suggestion System appears as follows, the admin who views information like Staff members, suggestions and comments of the Staff members.

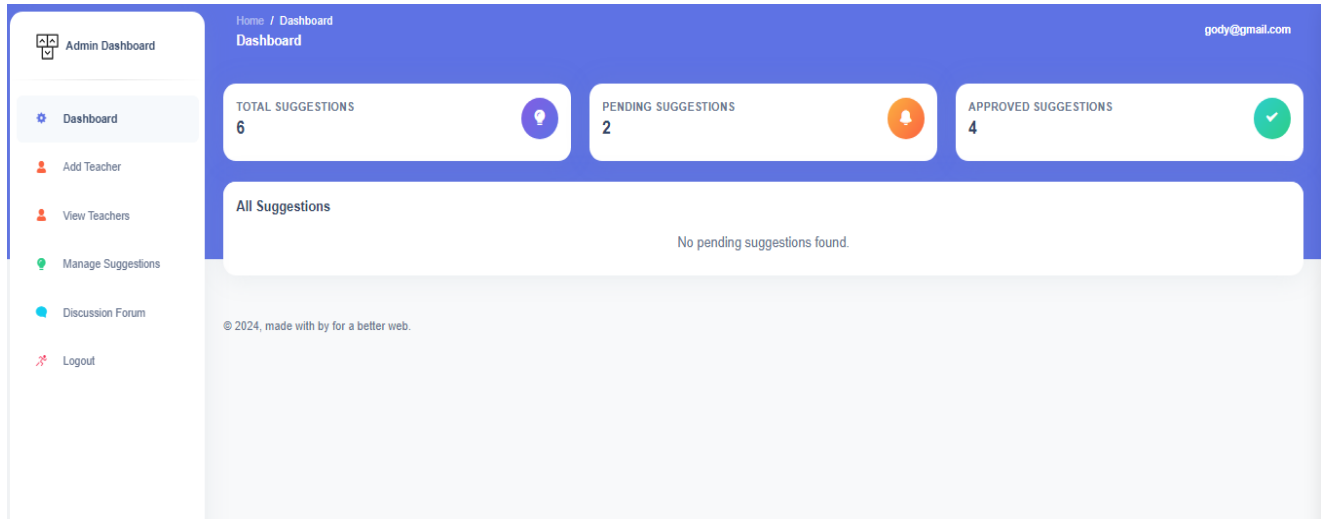


Figure 4: Dashboard

5.1.3. Adding and Managing Staff Members.

The admin is able to add new Staff members and capture their details managing their accounts, setting and encrypt their passwords and also edit their details as illustrated below.

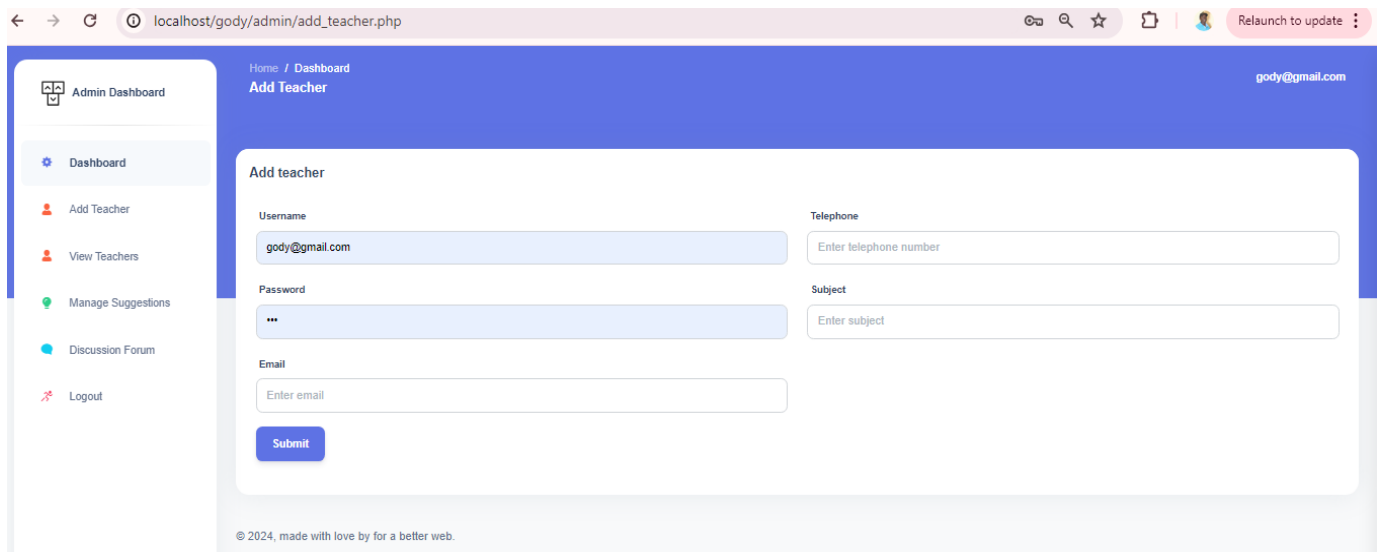


Figure 5: Adding Staff

5.1.4. Checking Suggestions and Comments of Staff Members.

The admin is able to approve or reject the suggestions of the staff members.

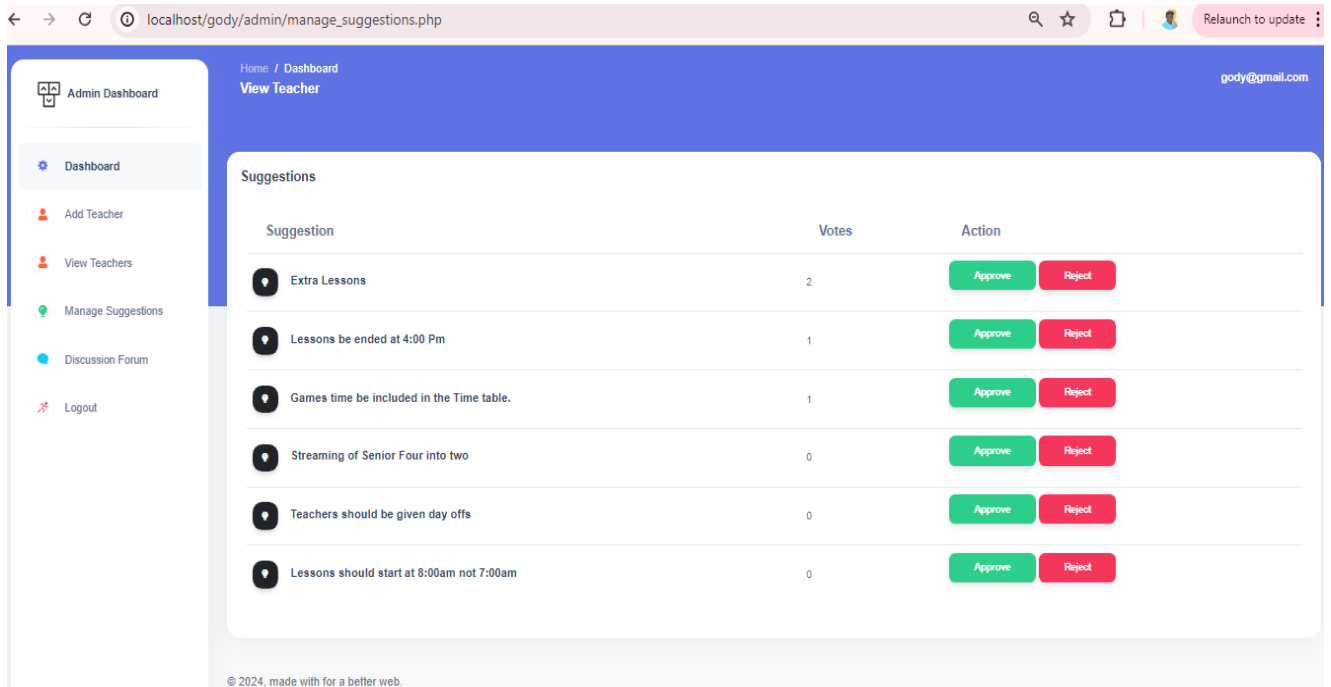


Figure 6: Checking Suggestions

5.1.5. Staff Dashboard.

This is where the staff members suggest and comment on other people's posts.

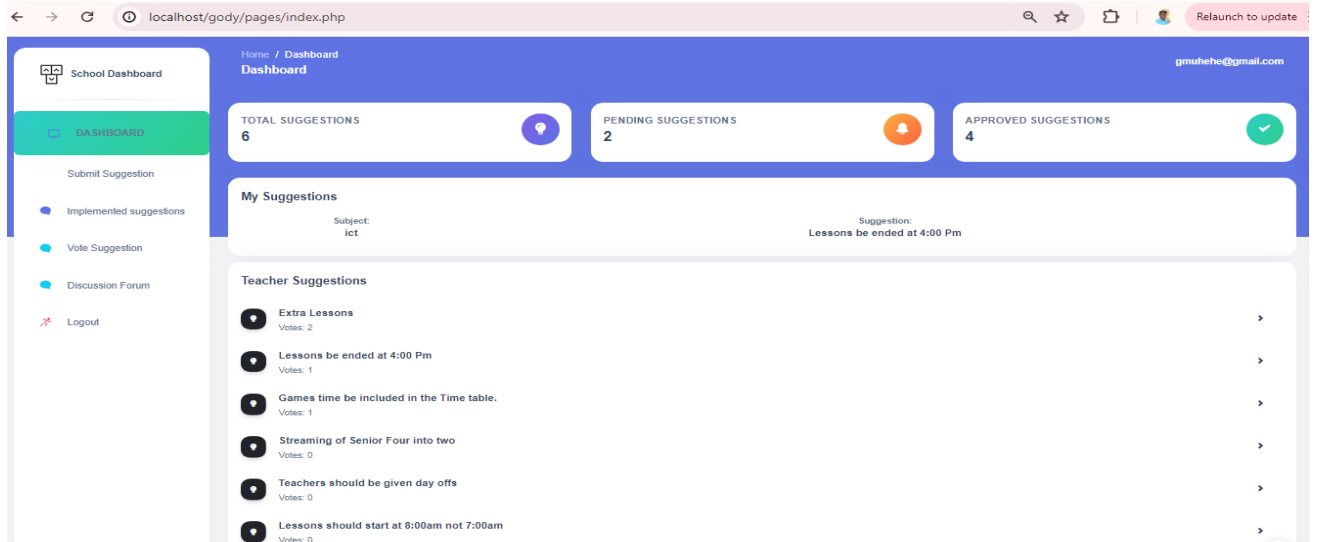


Figure 7: Staff Dashboard

CHAPTER SIX:

DISCUSSION, CONCLUSION, RECOMMENDATION AND FUTURE WORK.

6.0 Introduction.

This chapter presents the discussion, recommendation and conclusion with the research objectives of the study

6.1. Discussion of Results.

The discussion of the findings was presented with the research objectives of the study

Objective (1). To review the literature and determine the requirements for developing an e-suggestion system.

The requirement determination, data collection was got through library research and field study, carry on interviews and data got from previous work enabled me to align my project work. Library research generates more information and requirements that were being used in the system design of the DFD database design and few others that led to the fulfillment of functional and non-functional requirements, field work research enabled me to get to know how the manual system works.

Objective (2). To design web-based e-suggestion system.

The system was designed depending on the requirements by RAD from the SSADM software which included the following procedures to be followed, architecture, context diagram, entity relationship diagram and database design which enabled the flow of data and evaluation of the suggestion system.

Objective (3). To implement web-based e-suggestion system.

The implementation of the system was carried out using the following implementation tools such as visual studio code editor, Google chrome, MySQL, HTML, Xampp server for local host and laptop with windows 10 pro to succeed the implementation of the system.

Objective (4). To test and validate web-based e-suggestion system.

The system was tested during and after its implementation. Each component of the system was tested.

Unit testing was used to test individual parts of the code, every part of the interface was tested to detect if the system functions well. It involved identification of errors in specific units of the code making error detection easy.

Integration testing was done after whole parts of the system had been put together to make the system complete.

6.2. Conclusion.

The study of existing system was done and the new system designed. The need for computerized suggestion system was highly emphasized as computer could store, update and retrieve information. Computers could always process data and produce accurate reliable correct data, the use of computers in order operations solved problems encountered in the manual system. E-Suggestion system should be used by Sam Iga Memorial College and other Education institutions since it eases work and communication between the Administration and staff members.

6.3. Recommendations.

E-Suggestion system requires skilled personnel to use therefore users should be trained on how to use the computerized system to create awareness of its existence and importance, sending and receiving of notifications. This will improve the functionality of the system.

6.4. Limitations.

The researcher encountered number of constraints which hindered the success of the study like;

6.4.1. Financial Constraint.

There was a problem of financial support since the study was self-sponsored. This made some activities to delay in the study, hard work and commitment end up successfully completed.

6.4.2. Time Constraint.

The time that was allocated for the study was not enough because of course works, tests, exams and research.

APPENDIX:

Appendix I: Requirements collection interview guide.

During this interview process, interviewers will first greet and politely ask permission before they ask questions to the respondents.

Topic: ONLINE MERCHANDISE ORDER MANAGEMENT SYSTEM.

Dear Respondent;

I am Muhehe Godfrey, a student of Busitema University pursuing a Bachelor's Degree in Science education. I am carrying out a research study on E-Suggestion system at Sam Iga Memorial College.

This survey is to guide me into understanding the current way of making suggestions within the School. I kindly request for your cooperation in answering the following questions. Any information provided will be for academic purposes only and will be treated with absolute confidentiality.

I hope that my humble request may meet your kind consideration.

Thank you.

Appendix II: Questionnaire.

QUESTIONNAIRE FORM (for the administrators, and other staff members)

TOPIC: E-SUGGESTION SYSTEM

Dear Sir/Madam,

My name is Muhehe Godfrey, a student of Busitema University pursuing a Bachelor's Degree in Science Education. I am carrying out a research study on E-Suggestion system at Sam Iga Memorial College Maganjo.

I kindly request you to respond appropriately to the questions provided to enable me gather credible data for the above topic.

Your responses will be used for academic purposes only and will be treated confidentially.

Use spaces provided to answer the questions given;

1. What is your position or responsibility at Sam Iga Memorial College Maganjo? (For the staff).

.....
.....

2. How do the Staff members make suggestions the school administration?

.....
.....

3. What are the challenges faced during the making of suggestions by staff members?

.....
.....

4. How do you think an online merchandise order management system should operate so as to address some of those challenges stated above?

.....
.....

5. How do you see if I integrate this online merchandise order management system with the UNBS database?

.....
.....

THANK YOU.

REFERENCES

- Alruwais, N. G. Wills and M. Wald (2018). "Advantages and challenges of using e-assessment." International Journal of Information and Education Technology 8(1): 34-37.
- DURKAYA, B. and A. DURKAYA (2003). "ZKU BARTIN YERLESKESI KAMPUS BILGI SISTIMI." Bartın Orman Fakultesi Dergisi 5(5): 71-77.
- Conboy, K., et al. (2011). "People over process: key people challenges in agile development." Ieee Software 28(4): 48-57.
- O'Brien, J. "dan Marakas, GM 2010." Introduction to Information Systems.
- Rosenberg, M. E., et al. (2001). "Development and implementation of a web-based evaluation system for an internal medicine residency program." Academic Medicine 76(1): 92-95.
- Uttl, B., C. A. White and D. W. Gonzalez (2007). "Meta-analysis of faculty's teaching effectiveness: Student evaluation of teaching ratings and student learning are not related." Studies in Educational Evaluation 54: 22-42.
- MoES (n.d). "EMIS." from <https://www.education.go.ug/emis/>.
- Educalingo (n.d). "Suggestion box." from <https://educalingo.com/en/dic-en/suggestion-box>.