

**FACULTY OF TECHNOLOGY**

**BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

**UNIT: PROJECT PROGRAMMING**

**UNIT CODE:**

**PROJECT TITLE: LIBRARY MANAGEMENT SYSTEM FOR WAGBERI HIGH SCHOOL**

**DOCUMENT: PROPOSAL FOR A LIBRARY MANAGEMENT SYSTEM FOR WAGBERI HIGH SCHOOL**

**NAME: YUSSUF AHMED YASSIN**

**REG NO: 21/05125**

**SUPERVISOR: DR SIMON N. MWENDIA**

**DATE: 22/09/2023**

# ABSTRACT

In the current times technology has digitized processes, less paper work, efficient and effective communication to name but a few. Technology is developing and changing in every moment that all domains are incomplete without it. Therefore, it is necessary for institutions like universities to take up this opportunity and use it for great benefits that come with it.

In this paper I propose the development of the Library Management system. The students are the fundamental members of a high school and are the target of this project. The Library management system is meant to help in bridging the gap of accessing books automatically without actually visiting the library between students, lecturers and the administration with help of information technology, specifically website technology. The web Library management system will have features like; a platform to post books, delete books, edit books, offer links to other institutional services among others. The web platform has majority of users in Kenya and consecutively majority of students use the web platform. Also it helps when students are at home and they are unable to access library books, this system will give them an opportunity to access library services even when they are on a holiday. Basically, the application will integrate a server with a central database to be accessed by the Web application.

Contents

[1.0 INTRODUCTION 3](#_Toc115693901)

[1.1 Background 3](#_Toc115693902)

[1.2 Problem statement 4](#_Toc115693903)

[1.3 Proposed solution 4](#_Toc115693904)

[1.4 System objectives 4](#_Toc115693905)

[1.5 Research objectives 4](#_Toc115693906)

[2.0 LITERATURE REVIEW. 5](#_Toc115693907)

[2.1 Significance of this project 7](#_Toc115693908)

[3.0 METHODOLOGY 7](#_Toc115693909)

[3.1 Introduction 7](#_Toc115693910)

[3.2 Research methodology 8](#_Toc115693911)

[3.2.1 Data collection methods 8](#_Toc115693912)

[3.3 Development Methodology 8](#_Toc115693913)

[3.4. BUDGET AND RESOURCES 11](#_Toc115693914)

[3.5. PROJECT SCHEDULE 12](#_Toc115693915)

[References 13](#_Toc115693916)

# 1.0 INTRODUCTION

## 1.1 Background

Nestled in township sub-county of Wajir county in the north eastern region of kenya, Wagberi high school stands as a symbol of educational excellence. Our school has a rich history of nurturing young minds, fostering a love for learning and achieving remarkable results in producing great minds in our country.

Currently, book borrowing in Wagberi high school is done primarily through the librarian inside the library. This is a designated place where books from the administration and advertisers are posted. Books posted here range from school course work books, research books, art books, extracurricular books etc. The mode of posting is by physically place the books in the library for the students to access.

The other means is through representatives who are given information to transmit to their respective representation groups. The class representatives have various channels to do this namely; physically announcing books to the class, where the class has a group, individually informing all the class members physically.

Books are also posted on the official school website where a visitor can see what books are available but to access the books they are required to form an account.

## 1.2 Problem statement

The current books communication channels are flawed on several levels. However, the problem this research focuses on is the efficiency of the current system. The traditional library is inefficient because it doesn’t achieve its intended purposes as expected such as it doesn’t reach intended conveniently, books are subject to verification questions, it is untimely.

## 1.3 Proposed solution

I hereby propose the creation of the Library Management system. This web application will do the following;

* Digital posting of books.
* Provide a log in account to access the library management system.
* On the go notification services.
* A Library management system admin will be responsible for the posting, edition and deletion of books making the books verified.
* Outdated books deletion, to ensure the Library management system is updated.
* Archiving of the books in the database for record keeping purposes.

## 1.4 System objectives

To solve the current system’s shortcomings by doing the following;

* To bridge the communication gap between students, lecturers, administration and other stake holders.
* To ensure efficient communication of books/ information.
* To assure users that the information is verified.
* To indulge students more in their study life.

## 1.5 Research objectives

* To investigate the current system; the processes, people involved, activities, its shortcomings, the organizational expectations of a new system.
* To design a new system from the acquired findings above that will solve the current problems.
* To develop the new system according to the design created.
* To test whether the new system meets the requirements and whether it is functional.
* To implement the system developed to streamline the communication, the Library Management system.

# 2.0 LITERATURE REVIEW.

Library is regarded as the brain of any institutes, of course many institute understand the importance of the library to the growth of the institute and their esteem users which we categorically call the students. An integrated library system, also known as a library management system (Adamson et al., 2008) is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid, and users who have borrowed.

The first library management system to be reviewed is the KOHA library management system. Since the original implementation in 1999, KOHA functionality has been adopted by thousands of libraries worldwide, each adding features and functions, deepening the capability of the system. With the 3.0 release in 2005, and the integration of the powerful Zebra indexing engine, KOHA became a viable, scalable solution for libraries of all kinds. LibLime KOHA is built on this foundation. With its advanced feature set, LibLime KOHA is the most functionally advanced open source Integrated Library System in the market today. The major setback of this Library Management System is that it is a web based and as a result it is not security conscious because hackers could have the database hacked and access or modify the information of such user. (www.koha.org).

Locally a couple of universities have many web application systems such as the school management system but none with the Library management system application. They mainly act as portals and for others e-learning extensions. They perform actions such as; course units registration, view semester/ course schedule, access study.

A library management system usually comprises a relational database, software to interact with that database, and two graphical user interfaces (one for users, one for staff). Most integrated library systems, separate software functions into discrete programs called modules, each of them integrated with a unified interface. Examples of modules might include:

1. Acquisitions (ordering, receiving, and invoicing materials)
2. Circulation (lending materials to patrons and receiving them back)

A library management system usually comprises a relational database, software to interact with that database, and two graphical user interfaces (one for users, one for staff). Most Library Management System separate software functions into discrete program called modules, each of them integrated with a unified interface. Prior to computerization, library tasks were performed manually and independently from one another. Selectors ordered materials with ordering slips, cataloguers manually catalogued items and indexed them with the card cataloguing system (in which all bibliographic data was kept on a single index card), and users signed books out manually, indicating their name on cue cards which were then kept at the circulation desk. Early mechanization came in 1936, when the University of Texas began using a punch card system to manage library circulation. While the punch card system allowed for more efficient tracking of loans, library services were far from being integrated, and no other library task was affected by this change. The literature study in previous system could give more reference in system development process. All the advantages in the previous system can be implemented during the development of this proposed system. This chapter entails the literature review related to Library Management System initiatives worldwide, at national, regional and international levels. Secondary data will be searched from print and online resources. Foreign literature will be mainly used and some of these had been highlighted to peruse and emulate. The purpose of this literature review is to establish the potential topics and suggest ideas for another research, reporting published materials on existing conceptual framework, theories, techniques, processes, styles and instruments of other researchers related to the topic under investigation. It will help analyze scope of study and in determining the various variables to be included.

## 2.1 Significance of this project

1. The high school is sure to have seamless running of affairs.
2. The high school saves on time and costs associated with miscommunication issues.
3. Students are more actively involved and conscious of their study life.
4. The high school events and activities get higher attendance.
5. Easy access of Wagberi high school services.
6. Satisfaction of the students, teachers and the whole Wagberi high school fraternity.

# 3.0 METHODOLOGY

## 3.1 Introduction

A research is to be conducted to determine;

* How the current system functions i.e. its shortcomings, advantages, future scope? etc.
* What the users feel about it?
* What the users expect from a library management system?

The following are the methodologies used in the research and development of the application. The two were identified in order to achieve the best possible results.

## 3.2 Research methodology

In order to acquire data regarding the Library Management system, several tools and techniques will be used as discussed below;

**The target -** The target population for this research is Wagberi high school students and lecturers. This research will seek to identify the current system, what all stakeholders of the university think of it, how they operate, how they can best solve their problems etc. A random sample of 30 people comprising of students, academic and non-academic staff will be chosen for data collection purposes.

## 3.2.1 Data collection methods

**Questionnaires** – these are structured set of questions either in soft or hard copies that are issued to the target for them to fill in their answers. The questions are centered on the topic in question. This research will employ the use of Questionnaires to acquire their views.

**Observations –** this basically involves experiencing the system in operation. Observations shall be recorded for reference and later use in the design process.

The data collected by the three methods will be compiled for analysis of the requirements and other issues discovered in the process. This will allow the identification of issues the new system can address.

## 3.3 Development Methodology

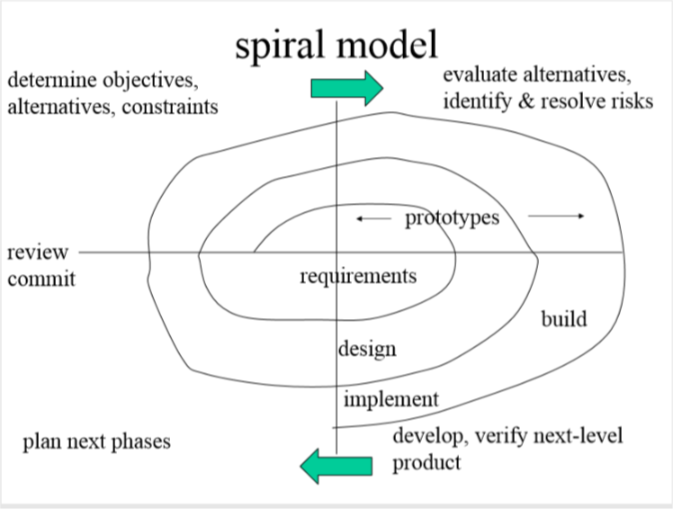
The suitable development methodology for this project I identified the spiral model. It is specifically suitable for the following reasons;

This model of development combines the features of the prototyping model and the waterfall model. The spiral model is favored for its quality projects. This model uses many of the same phases as the waterfall model, in essentially the same order, separated by planning, risk assessment, and the building of prototypes.

The spiral model could be seen as another view of waterfall model, at each stage of the development project a greater level of detail is considered. More knowledge is gathered at end of each stage review scope and risk and decides whether to commit to the next stage.

The spiral model is depicted in figure 3.1.

This project will be web based. The target population uses websites.



**Figure 3.1**

The figure above portrays how the spiral methodology works;

Stage one- involves determining objectives, alternatives and constraints.

Stage two: Evaluation of alternatives and resolving of risks.

Stage three: Development of the system.

Stage four: Plan the next phase.

The green arrows show the flow of activities from conception to implementation in a spiral way.

# 3.4. BUDGET AND RESOURCES

Listed below are the resources required for the project and their respective prices.

**Table 4.1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TYPE** | **ITEM** | **UNIT COST (@)** | **QUANTITY** | **TOTAL** |
| H/W | Asus vivobook laptop  8 GB RAM  500 GB SSD  CORE i5 | available | 1 | available |
|  | Flash disk 8 GB | available | 1 | available |
| S/W | Visual studio code | free | available | available |
| OTHERS | Internet | 1,500 | available | 1,500 |
| TOTAL |  | 1,500 |  | 1,500 |

# 3.5. PROJECT SCHEDULE

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Task**  **No.** | **Description** | **Task**  **No. of hrs** | **Planned**  **Start**  **Date** | **Actual**  **Start**  **Date** | **Planned**  **Completion**  **Date** | **Actual**  **Completion date** | **Deliverables** |
| 1. | Proposal | 48 | 18/09/2023 | 20/09/2023 | 21/09/2023 | 22/09/2023 | Proposal and presentation |
| 2. | Software requirement specification  (SRS) | 72 | 20/09/2023 | 23/09/2023 | 26/09/2023 | 25/09/2023 | (SRS) document |
| 3. | Software design  (SDS) | 120 | 25/09/2023 |  | 01/10/2023 |  | (SDS) document |
| 4. | Coding | 120 | 01/10/2023 |  | 07/10/2023 |  | Library management system |
| 5. | Test plan | 5 | 06/10/2023 |  | 08/10/2023 |  | Test result |
| 6. | Implementation plan | 180 | 10/10/2023 |  | 18/10/2023 |  | Library management system |
| 7. | User manual | 48 | 20/10/2023 |  | 28/10/2023 |  | Library management system documentation |
| 8. | Final report | 2 | 01/11/2023 |  | 09/11/2023 |  | Supervisor feedback |

Actual start and Actual completion dates will be updated on start and the completion of the task.

# References

1. Adamson and Veronica. (2008). JISC & SCONUL Library Management Systems Study. Sheffield, UK: Sero Consulting. p. 51. Retrieved on 06 August 2015.
2. D.T Ross, K.E. Jr. Schoman, “Structured Analysis for Requirements Definition” IEEE Transactions on Software Engineering, (Volume: SE-3, Issue: 1) Jan. 1977.
3. J.P.Dixion,” automated systemPro”http://www. automated systempro.com/index.html, 2011.