

**BUS BOOKING SYSTEM:**

**A CASE STUDY OF WARENG SACCO**

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**DECLARATION**

I declare that this work our my original work and has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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**ABSTRACT**

Online Bus Ticket Booking System is a Web based application that works within a centralized network. Bus Ticket Booking System is a facility that will enable a customer reserve seats, cancel bookings and make different types of route enquiries used on securing quick reservations. The system is built for managing and computerizing the traditional database, ticket booking and tracking bus and travel made. It maintains all customer details, bus details, reservation details. In order to achieve the design, Wareng Sacco was chosen as a case study because of its strategic importance to Transport Sector. Structured Systems Analysis and Design Methodology (SSADM) was adopted. (Dennis et al. 2015) In addition, PHP Hypertext Preprocessor (PHP) language was used for the front- end of the software while the back end was designed using MySQL. The software achieved is capable of improving the customer hand and relationship management in Wareng Sacco operations. It is recommended that despite the present functionality of the designed system, an additional functionality such as the use of E-mail to send tickets and notifications to the customer and an online payment using credit cards/debit cards should be implemented into the system.

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**LIST OF ABBREVIATIONS**

ERD Entity Relationship Diagram

DFD Data Flow Diagram

PHP Hypertext Pre-processor

SQL Structured Query Language

HTML Hypertext Markup Language

CSS Cascading Style Sheet

SSADM Structured Systems Analysis and Design Methodology RAM Random Access Memory.

SDLC Software Development Life Cycle

**LIST OF FIGURES**

[Figure 1 The waterfall development Methodology 17](#_bookmark16)

**CHAPTER ONE**

**1.0 Introduction**

The process of bus booking is a frequent and important activity for any transport company. But the process becomes very tiresome and time consuming when there is

no proper and convenient system. To deal with this problem a bus online booking system will be very necessary. Online bus ticket booking system is accessed on internet by using devices which have internet connection at any time. Online bus booking system is a convenient and an efficient way to deal with this problem. The booking process in Wareng Sacco is manual file system which is quite inconvenient. The system will have all the necessary information on travel details of every customer on one single website which accessible by anyone who wants to book

**1.1 Background of study**

IOT (Internet of things) has become much popular around the world. Almost all the devices, which are known as smart device, can connect to the internet and access data from any corner of the world. There was a time when people used to waste their valuable times just to get a piece of information. Now the technology is more advance then compare to any previous times. One of the blessings of technology is web application. It allows users to interact with the system from anywhere as long as they are connected to the internet. (Madakam et al. 2015)

WARENG is a bus service company located in the heart of Eldoret town. Usually they do paper works for keep their customer’s details and booking reservation records. If any

customer need to reserve seat he or she need to call them or walk in to their counter which is consider as wasting their valuable times. Sometimes the phone line also keeps busy and

customers unable to reserve seats for them. Besides, WARENG needs to keep records of the payments made by customers in papers and quite impossible for them to keep track on payment issues. Currently WARENG is planning to replace their old booking system with new system which is online based. So they want to implement an online web based bus ticketing system which will be easier for customers to book from home and abroad as well as for them to manage their overall business smoothly.

Here the system I will be discussing is "Online Ticket Booking System" which is completely a web application. As we already discussed above that internet has made the user’s interaction through the system easier, so this web application can connect to respective servers for accessing data which will surely help users to purchase the bus ticket or reserve their seats online without waiting on queue. Moreover, in recent decays peoples are like to travel to get some relief from their monotonous life. So, they want to travel without any hesitations. In this modern tech era they want a system that will enhance the portability, accessibility as well as user friendly. (Mohammed, 2015) So here, we are going to implement a web system, which we already stated above, having all the features that will

make it more user friendly and accessible.

**1.2 Statement of problem**

Currently, staffs at the ticket counter are using the manual system to sell tickets and manage the bus seat booking. The customers of WARENG always complain on how they hate to queue up to buy the bus tickets. Most of them preferred the booking system. However, the booking system of bus tickets is manually done which is just by calling the ticket counter and the staff there will record the booking on their specific booking book. Besides, the telephone line is sometimes too busy to reach since it has only one official contact number. Sometimes customer needs to call the counter many times. This brings a lot of inconvenience to the customer. As for the bus counter staff, it is very inconvenient to refer the booking book to check for the available bus ticket for customer every time they asked. Therefore, the web based online ticket booking system will be developed to make it easier for their customer to reserve their ticket. The user can simply reserve book the ticket anywhere they are at any time, all what they will need is a computer or a mobile phone. In addition, customer can check the availability of the bus ticket before they reserve the ticket.

There are several problem statements that I have figured in developing this system.

* The main problem that my project attempts to solve is the management system of WARENG SACCO which is not systematic as it has to be manually records the ticket booking by using handwriting.
* The booking system is done manually by the staffs using the booking book. It will take quite some time to complete this process. Therefore, it results in long queue to buy bus ticket. This issue makes the bus company services is inconvenient to customer and wasting the customer’s time.
* In addition, the issue of bus telephone line needs to be solved. Since there is only one official contact number to make booking, customer often finds the telephone line is busy. It will take quite some cost for customer when the line is not reached.

**1.3 Objectives**

**1.3.1 General Objective**

The Bus ticket booking system is currently maintaining the project Transport Company’s process manually which is a very time consuming process. It deals with transport industry’s ticket booking and transport maintenance, so it becomes a very tedious job for the ticket booking transporter to look after these particulars to complete the task at right time. The bus ticket booking system not only deals with transporters owned vehicles but also takes into consideration about the other types project of system transport vehicles available with other transporters.

**1.3.2 Specific objectives**

The specific objectives of the system will be:

* To develop a software application that supports Specific to the project Travel Agency Automation that can solve all tedious tasks related to ticket booking in a travel agency.
* To analyse the current bus booking system being used by Wareng Sacco.
* To make the ticket booking system as user friendly as possible so that anyone can use it with little knowledge of system computers.
* To make easy the bus ticket booking as well as making it simple, reliable, user friendly, and corrective. Moreover, less time consuming as compared to manual work.
* To implement the system.
* To test and validate the system.

**1.4 Significance of the Study**

This study will enhance the efficiency and effectiveness of online bus booking process. This will improve the booking system and make it more technologically convenient. Customers can check availability of the bus ticket, buy bus ticket, and pay the bus ticket online. The system will ease off stress of queuing at the counter. The profit the bus will be increased because the online system will attract more customers and there will be no need to hire many staffs at the counter to sell bus ticket because ticket cans be sold efficiently online. (Mohammed, 2017)

**1.5 Scope of the study**

The main scope of this project will be to develop a web based system for bus ticket booking for Wareng Sacco. The other scopes of this project are:

* The main users of this project are the company director, the bus counter staffs and customers.
* The bus counter staffs act as the admin where they can add, edit and delete the bus information and schedule and generate bus ticket sales report daily, monthly, and yearly to assist their daily work through the web-based management system.
* The customer will be able to use the system to perform their ticket booking transaction anywhere and at any time.

**1.6 Assumptions**

It is assumed that everybody will be able to access a computer or a mobile device with internet connection in order to use the system. Again, it will be assumed that users of the system will be able to interact with the system with minimal support. Customers will be satisfied upon using the system for the first time.

**1.7 Limitation of the study**

* The time allocated to research work for this study might be greatly constrained due to intense academic activities involving the researcher.
* The major constraints for this study may occur in the form of inadequate funds. The present high cost of material, access to a personal computer unit for running and debugging of the application program, transportation expenses to and fro the site of computer etc. are against the smooth and easy advancement of the work.

**1.8 Definition of Terms**

During the course of carrying out the study, some words that need explanation are as follows: • **Bus Number** – This uniquely identifies a Bus.

* **Administrator** – Refers to an authorized official of the Bus company who has the authority to change and update the databases.
* **Booking** - The written record or promise of an arrangement by which bus tickets are secured in advance.
* **System** - This is any collection of component elements that work together to perform a task.
* **Module** – One of a set of separate parts which, when combined, form a complete whole.

**CHAPTER TWO**

**2.0 Introduction**

An online bus booking system is a system on the internet where users can book products or services. (Bilgihan et al 2015) Usually customers are required to fill out web-forms with details such as their name, address and telephone number and are also required to provide payment details. This chapter will dive into more of comparing the existing system and the proposed system and finding out if there are many set back to the either systems. The chapter will justify as to why the online ticket booking system necessary for Kinatwa Sacco.

**2.1 Existing systems**

The booking system of bus tickets is manually done which is just by calling the ticket counter and the staff there will record the booking on their specific booking book. Besides, the telephone line is sometimes too busy to reach since it has only one official contact number. Sometimes customer needs to call the counter many times. This brings a lot of inconvenience to the customer. As for the bus counter staff, it is very inconvenient to refer the booking book to check for the available bus ticket for customer every time they asked. (Ahmed, 2018)

**2.2 Limitations of existing systems**

The exiting systems includes problems like:

* Time consuming. Customers take a lot of time while booking for the bus of choice. Long queues are normally witnessed every day when booking.
* Low level of accuracy. Any system being used should ensure accuracy. Some occasions customers will complain of wrong transactions being performed or simply human errors at the counter.
* Security is also a problem. With the manual way of reserving ticket for a customer there is little assurance, to the owner, that the money is being handling securely. Customers can book a bus only to find that the bus was full.
* Manual storing. Wareng office manual way of keeping booking records. That is, through paper work, however information stored is likely to suffer from destruction in the event of calamities such as fire. The book records can get lost and hence cause the company incur cost.
* Manual errors which makes information be insufficient and meaningless.
* Maintaining and managing data is very costly and time consuming, because there many documents to be maintained by each branch and copies have to be transferred to relative branches.

**2.3 The proposed system**

The Wareng Sacco customers are growing steadily every quarterly so there is an urgent need to automate the booking process to handle the data of this growing number. Online bus booking system will help Wareng Sacco to avoid more expenses and remain competitive. To thrive, such organizations must increase the quality of services they deliver to clients while lowering their operating costs, maintain privacy, and comply with regulatory compliance standards. (Brien et al. 2011) The new technological education environment lowers operating costs by integrating computer applications using real time information to reduce cycle times and to increase customer satisfaction. Besides, they provide a means for management to respond to the increasing business needs in the more effective and efficient ways. According to Lucey (2012), all organizations operations are ever changing. Management and information systems that support them have to deal with that change and adapt to their operations, systems and organizations themselves in order to survive and prosper. Therefore, Wareng Sacco needs an online booking system to solve this problem. The goals the proposed system will address are:

* Manual work has to be reduced
* Results to be received accurately and quickly
* Increase security, speed, storing and accuracy.
* Speed up the operation. Managing and maintaining data becomes easier.
* Provide convenience to travelers.

**2.4 Advantages with the proposed online bus ticket booking system**

We live in the world where time is everything, Online bus ticket booking system works as blessing for the peoples’ who remain busy with their professions. Through online bus ticket system one can book tickets in an easy, efficient & affordable manner. (Meyer, 2018)

• **Saves time**

With personal commitments and current professional schedule, people hardly get time for families and even themselves. Booking tickets from the offline agents will require your personal visit to the booking office, and most of the times, people have to stand in a queue to book their tickets. But the question here is who has that much time for this? With the online booking system, physical efforts get easily eliminated and people can book their tickets in a few minutes. All you need to do is to visit booking system online, select your source, destination, and date of journey, you will be able to book your tickets in a one go.

• **Removing the bottleneck of phone booking**

One of the major advantage of online booking is that with a phone-based booking platform, you’re introducing a huge bottleneck into your business that can prevent customers from placing their bookings with you. Most telephone booking systems rely on customers calling during office hours, but for many people, they simply don’t have the time to book whilst they’re in the middle of their work day. Not to mention the fact that only one caller can book at a time, unless your

operating multiple phone lines (which, in turn, require more staff to deal with). This will not only free up your time but also may open up a new revenue stream.

• **A modern approach to booking**

Today, customers aren’t discovering companies through telephone books, and they aren’t finding information about your products and services by sending off for a catalogue. No, they’re increasingly finding out everything they need to know about you’re offering by heading online. There is no shortage of reasons why that is the case, but you’d be missing out on a huge advantage by not making the most out of the tremendous opportunity the internet offers businesses. By integrating your booking platform with your product pages, you can go where, increasingly, all of your customers are.

• **Highly Convenient**

One of the major benefits of online bus booking is that it provides an easy-to-use and effective way to book tickets from anywhere in the world. But with the offline booking system, you need to send someone for booking the tickets for you, if you were unavailable at the point of time. But this aspect is totally avoidable in online booking portals. Furthermore, it does not matter if you are at your office, home, or even traveling, you can online book your bus tickets anytime.

• **Live Tracking**

Online bus booking system will offer an interesting feature , track the bus. Users will be able to know the location of their bus in real-time. The two most important benefits of this feature are, people are able to catch their buses at the right time. It is easier for them to keep their family and friends informed about their location

**CHAPTER THREE**

**3.0 Introduction**

This chapter will dive into more of comparing the existing system and the proposed system and finding out if there are many set back to the either systems. The chapter will justify as to why the online ticket booking system necessary for Wareng Sacco. The chapter will discuss requirement specification, the design procedures and analysis of data collection methods to be used.

**3.1 System Design**

The system will be designed using the following design approaches.

**3.1.1 Entity Relationship Diagrams (ERD)**

They will be of help to establish the entities and their relationships in the system to be designed. ERD illustrate the logical structure of databases. They will be used because they are relatively simple, user friendly and can provide a unified view of data, which is independent of any data model. (Wu, 2017).

**3.1.2 Data Flow Diagrams (DFD)**

DFD will be used to illustrate the flow of information in a system. They are hardware independent and do not reflect decision points. They demonstrate the information and how it flows between specific processes in a system. They provide one kind of documentation for reports. These diagrams help to show how data moves and changes through the system in a graphical top-down fashion. They also help to give graphical representation of the system’s components, processes and the interfaces between them. They will be used because they are easier to understand by technical and non-technical audiences, provide a high-level system overview, complete with boundaries and connections to other systems and provide a detailed representation of the system components. (Valacich et al. 2017)

**3.2 System Implementation**

The system will be implemented using the following programming languages. These includes for creating database and relation structures, PHP for creating codes that link the forms to the database, HTML and CSS for designing and styling the interfaces.

**3.2.1 SQL**

It is a structured query language that will help in creating database and relation structures. We will use SQL because of the following advantages. It is user friendly, open source and relatively easy. (Meloni, J. C. 2017)

**3.2.2 PHP**

PHP is a scripting language that will help us to link the HTML codes to the database. It will be used because it is speedy, simple to use, available on Microsoft windows and can run on another platform. (Meloni, J. C. 2017)

**3.2.3 HTML and CSS**

HTML will be used as the web template to design interfaces because of the following advantages:

* It has a build in functions hence easy to use.
* HTML is available for Microsoft Windows.

**3.2.4 Java Script Programming Language**

JavaScript is a programming language that can be included on web pages to make them more interactive. It will be used to check or modify the contents of forms, change images, open new windows and write dynamic page content. JavaScript will be also used with CSS to make DHTML (Dynamic HyperText Markup Language). (Wu, 2017). This will make parts of your web pages appear or disappear or move around on the page. JavaScript only execute on the page(s) that are on your browser window at any set time. When the user stops viewing that page, any scripts that were running on it are immediately stopped. The only exception is a cookie, which can be used by many pages to pass information between them, even after the pages have been closed. (Meloni, J. C. 2017)

**3.3 Requirements Specification**

The intention of the requirements analysis is to identify and evaluate the

requirements for the proposed system and then design and develop the system that

will address these. (Khan et al. 2016) The aim here is to recognize the user requirements, system requirements, functional and non-functional requirements for the ‘Online Ticket Booking System for the Wareng Sacco’. Similar systems will also be evaluated to ensure

the ticket reservation system will contain all the required functionality.

**3.3.1 User Requirements**

The target users for the Wareng is the current and

potential customers and also visually impaired individuals so it is very important to

make sure that it is designed and developed with their unique needs in mind.

The Wareng will enable users to make a booking for tickets which they can print or collect at the reception. User requirements “should only specify the external behavior of the system and should avoid, as far as possible design characteristics ”.

The user requirements are:

* To allow the online booking of bus tickets.
* To allow customers to choose seating area of their choice.
* To allow customers to choose a number of tickets to buy.

• To allow users to select the bus of their choice.

**3.3.4 System Requirements**

This section details the system requirements for the Online Bus Booking System for the Wareng Sacco. The minimal hardware and software requirements will now be outlined.

**3.3.4.1 Hardware Requirements**

The minimum hardware requirements for the Online Bus Booking System for the

Wareng Sacco are:

* A Computer.
* 1GB RAM or higher.
* 100GB Hard Disk Space
* 1 MHZ Processor or higher.

**3.3.4.2 Software Requirements**

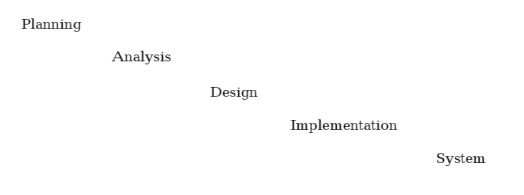
The minimum software requirements for the Online Bus Booking System for the Wareng Sacco are:

* Windows 7 or above.
* Microsoft Word.
* Xampp Server
* Text Editor (Notepad)
* Browser (Google Chrome)

**3.4 Design Methodology/procedure**

For any project to be completed, it has to go through stages called Development Life Cycles. System Development Life Cycle (SDLC) is the process of understanding how an Information System (IS) can support business needs, designing the system, building it and delivering it to users. The SDLC composes of four phases: Planning, Analysis, Design and Implementation. In order for this project to be developed, the methodology that will be used is the System Structured Analysis and Design Methodology. The SSADM is classified as a Waterfall Development. With Waterfall Development, analyst and users proceed sequentially from one phase to the next and each phase can be mapped out and evaluated. Below, in figure 3.1 is a diagram on the waterfall methodology. (Dennis et al 2016)

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*Figure 1 The waterfall development Methodology*

**3.5 Data collection and analysis**

The following methods will be used to collect data:

**3.5.1 Interview**

Wareng Sacco owners, staffs and other workers will be randomly selected and interviewed since they are the ones familiar with the current manual system of booking.

**3.5.2 Observation**

The members of Wareng Sacco that is bus owners, staff and other workers will be observed as they carry out routine duties.

**3.5.3 Library research**

Library research will help us to acquire knowledge from other relevant researchers on the same topic.