©IDOSR Publication
International Digital Organization for Scientific Research ISSN: 2579-079X
IDOSR JOURNAL OF SCIENCE AND TECHNOLOGY 9(2):74-82, 2023.
https://doi.org/10.59298/IDOSR/JST/03.1.12006

An Online Mobile Shopping Application for Uchumi Supermarket in Uganda

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ABSTRACT

Supermarkets in Uganda simplify the life of many Ugandans by providing easy and quick shopping day and night; some even operate 24 hours a day. This has prompted the supermarkets in Uganda to provide and improve shopping. The purpose of the study was to design an online mobile shopping application that is used by people to shop using their mobile phones at any time of their convenience. The online mobile application was designed to focus on improving shopping services to avoid congestion in supermarkets in Uganda. Uchumi supermarket Kabalagala branch was taken as a case study where both the user and the clients were interviewed for the purpose of requirement elicitation. The online mobile shopping application system at Uchumi supermarket in Uganda has been designed to work with the Information technology unit or department (IT) to manage clients' accounts and details, and the databases of the supermarket. Operating system (xp service pack 2 onwards) DBMS that will manage the database activities. Php and Java, to allow program access to data in the database.

Keywords: Supermarkets, Quick shopping, Mobile phones, Mobile shopping, Information technology.

INTRODUCTION

At Uchumi supermarket there are two forms of shopping that are used which are manual and web-based online shopping. Supermarkets in Uganda have recognized the importance of online mobile shopping applications which should help to control online shopping within the supermarket stated by [1-5]. An online mobile shopping application can be defined as an Online shopping process whereby consumers directly buy goods or services from a seller in real-time, without an intermediary on an online mobile shopping application [6-8]. Due to the excellence of Uchumi supermarket in the past few years, there has been a steady increase in sales of products the current Uchumi supermarket system can handle but with difficulty in the emerging increase of customers. It should be noted that a good online mobile application of a supermarket should have an influence on the database and customer details or clients [9-12]. By the time and congestion in which supermarket services are provided. Uchumi supermarket is an international supermarket that may use this kind of online mobile application for daily shopping online. The online mobile application is being managed by system administrators and system analysts [13-15]. Some of the advantages of online mobile shopping applications are the following:

- Infinite choice: Shelf space in the shopping cart of Uchumi supermarket is limited, which means that your variety of goods is limited. This is not common with an Online Store, if you don't see what you want in one store online, you can simply move on to the next one using the search button.
- Easy access to consumer reviews: It's easy to access consumer reviews for pretty much any

product you can think of online, which makes for more informed purchases.

- Incredible convenience: In comparison to Chum's supermarket sales with fixed hours, online shoppers can choose any time of the day or night to get and shop using their online mobile application. This is especially useful for moms with small children, people that are home-bound, or simply in times of inclement weather.
- Price comparisons: When you visit a store, you most likely have to settle for whatever price the vendor has placed on a particular item. Not so with online shopping - you have the ability to compare prices from hundreds of different vendors.

Statement of Problem

Uchumi supermarket has experienced steady growth in sales. This coupled with a high of turn over becomes cumbersome and demands an online mobile shopping application which can ensure proper online shopping in the supermarket [7]. Due to the steady growth in the number of sales in supermarkets, the costs have tremendously increased and the current system should be replaced by an online mobile shopping application as a solution, so as to accommodate the increasing number of sales. Online mobile shopping application in which shopping can be done online. Online mobile shopping also solves the problem of congestion of customers during paying for goods.

Aim of the Study

The general objective of the study is to design and develop a mobile shopping application that allows people to add items of their choice to the shopping cart and deducts money from their chum's accounts, using their mobile phones at any time of their convenience since goods are delivered within 24 hours.

Specific objectives

- To analyze the current system so as to determine requirements.
- To design and develop a prototype for an online mobile shopping application.
- To implement and test the mobile shopping application.

Significances of Study

The study findings of both Uchumi supermarket and its customers are useful in the following ways. Uchumi supermarket has used the application to improve their sales, Future researchers will use the application to the already existing application, and the application will help the scheme to reduce the rate of lining up for payments since the application has got an online payment, The application will make work first and quick for chums supermarket since users can shop from anyway they are at any time, The application will increase the response of clients in the delivery of goods and services [8-11].

METHODOLOGY

System Design

System design is the creator of the information system which is the solution to the problem. It is concerned with the coordination of activities in order to achieve system goals. It deals with the general specification, detailed design specification, output, input, file and procedure. It also deals with the program construction, testing and user acceptance. It provides technical specifications and reports with which the problem can tackle.

Area of Study

The study was conducted at Uchumi Supermarket Kabalagala branch in Uganda.

Prototype

It is a system that provides a minimal amount of futures that is designed and

developed for the end user with the main purpose of identifying user requirements. It is also called a trial and error method that designs your system, tests the system and implements it. In case it fails, you design a new system.

Design a Prototype Provides the Following Advantages.

- Increased end-user morale and support, because it required end-user participation.
- If end user tends to change their mind prototyping best suit them
- Since the end user does not fully know their requirements until they see them implemented, if so prototyping endorses the philosophy.
- Prototypes are active no passive modules that end users can see touch fill and expensive.
- Can increase creativity because it allows for quicker feedback.

Interview

An interview is a conversation between two people (the interviewer and the interviewee) where questions are asked by the interviewer to obtain information from the interviewee [12]. The researcher interviewed the IT specialist at Uchumi Supermarket Uganda. In order to obtain the required information about the proposed online shopping application.

Observation

During the research, we visited the Uchumi Supermarket Kabalagalagala branch and observed the current system which is an online web-based shopping and obtained the information and found out problems which are currently affecting their shopping, and opportunities in the current system.

System Analysis

System analysis is the examination of the current problem of the system.

The Current System

The current system that was being used at Uchumi Supermarket Uganda was a web-based online shopping system. The following are some of the problems faced by using the web-based shopping system.

Cost

The initial cost of investment in a web-based EMR system (also known as ASP – Application Service Provider or SaaS – Software as a Service) is high.

Accessibility

The disadvantage here is the slow server speed (even if you have the fastest Internet connection) that may significantly impact your charting speed and consequently the number of patients you can serve in a given period of time.

User Requirement and Specification

These were system services that were expected of the system such as the ability to computer, storage production if required information among others.

They required the user to try and find out the user requirements of the system.

- ✓ Computer to store user account details.
- ✓ Reduction in supermarket expenditure over workers
- ✓ To increase rapid selling and buying of goods online.
- ✓ Assist in decision-making at the supermarkets.
- ✓ Reliability storage of data.

Functional Requirements

This defines the core operations that the proposed system should perform such as shopping, updates and check balance among others.

Some of the Functional Requirements of the Online Mobile Shopping Application Were

- ➢ Ability to update data without any inconsistencies.
- ➢ Ability to calculate the amount of the shopping cart.
- ➢ Ability to get all customer detail and submit them to the database.

- Ability to detect errors and produce an error.
- Ability to search for commodities or items from the supermarket's database.

Non-Functional Requirements

This defines how the application will interact with the user requirements. This specified the application constraints such as security, speed, and simplicity through a graphical user interface among others.

System Requirements and Specifications

This expresses the development environment in terms of software and hardware to use some of the system requirements hardware and software requirements.

Software Requirements

- Application java eclipse IDE.
- Operating system (xp service pack 2 onwards)
- DBMS that will manage the database activities.
- Php and Java, to allow program access to data in the database.

Hardware Requirement

- Computer with dual-core onwards
- RAM for 2gb onwards
- Back up devices (CDS, FLASH DISK AND DVDS)
- Hard disk capacity of 160GB or higher

Table 1: Entities, Attributes of the Proposed System

CUSTOMER DETAILS TABLE		
Attribute	Data type	Description
First name	Text	Allow only twenty-five characters
Last name	Text	Allow only twenty-five character
Amount deposited	Numbers	Medium data
Age	Numbers	Allow both numeric and alpha characters
Gender	Text	Choose between male or female
Phone number	Number	Allow more than twenty-five character
Pin	Number	Allow only 5 character
Address	Text	Allow not more than 100 character

RESULTS

Tools Used

The implementation of the mobile online shopping system for uchumi super market was developed using eclipse, php and the documentation done in Microsoft Word 2007.

System Features

The application has the following features.

Item page

The form on the interface help to capture the order or the details of the customer that will be received by the management thus contacting him back to let him know when the goods will be delivered. When you click on the mobile online shopping application it will appear as below then you will pick what you want to shop in the shopping cu.

Figure: 1

Below is where you set the quantity of the items you have shopped to go in the shopping cart.

Figure: 2

Afterwards, you view the shopping cut and see what you have shopped and the amount that is required to be paid then they will make your delivery.

This is the order form where you have to fill in your details then your order will be received and made to only the registered members of Uchumi supermarket.

Figure: 4

The mobile online shopping application was tested to ensure that it performs the various duties it was to perform and this includes both functional and user requirements. The system was tested by both designers as well as the user. The system designer tested the system to see whether the output computation is the same as the web-based online shopping. The end user such as the IT manager provided information that the application was able to capture.

Results from Testing

After carrying out various tests on the application the following objectives were met. The database supports both required and informational retrieval. The database stores the data necessary to support information requirements defined during the design process and that may be passed by the users. The application provides data integrity that helps to guarantee that the data structures and their values are valid and accurate at all times. The application supports shopping online and supports decision-making for the board. The application leads itself to future growth due to the fact that the application is well documented and is easy to modify or expand to suit the information requirements of the supermarket. After analyzing and testing the application the mobile online shopping application fulfils

the various expectations of the various supermarkets.

DISCUSSION

The mobile online shopping application for the Uchumi supermarket in Uganda prototype was tested by the researcher and the end user at the Chums supermarket Kabalagala branch alongside GABA road. The end user of the application appreciates it as it made shopping easier compared to manual shopping and web-based system [13-21].

Limitations of the application

These are the challenges faced by the researcher during the data collection, design development as well as implementation of the system. The different limitations of mobile online shopping for Supermarkets in Uganda are as follows;

Limited sources of information

Because, People who have researched specifically on this area are few then there was a scarcity of information on the study topics.

Scarcity of time

Since this study is conducted at the same time when lectures are going on, there was a scarcity of time, however, the researcher will try to budget his time properly to see to it that. He finishes in time.

Financial constraints

The study required financial resources to carry out typing, printing, and moving looking for information; these resources are not readily available.

CONCLUSION

A mobile shopping application for Uchumi Supermarket Uganda will facilitate the importance of mobile online shopping. With its numerous advantages, it offers Uchumi's supermarkets. Especially the issue of online shopping.

RECOMMENDATION

Scheduled maintenance of the prototype needs to be carried out in order to maintain and troubleshoot the application in case of any problem or underperformance. In order to ensure steady storage and safety of information in the system effective software such as an antivirus should be put in place. Since the application is to be implemented in Uchumi Supermarket Uganda an uninterruptable power supply unit should be put in place to protect the system information from load shading. The end user of the system should adopt training on how to use the system so as to avoid information not being properly handled.

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