



INTERACTIVE ONLINE SHOPPING SYSTEM

^{1*} **Frankline Limo**

kimutai frankline62@gmail.com

^{2**} **Josephat Karani Mwai**

jkaraniw@gmail.com

^{3***} **Rose Mutheu Munyao**

mutherosam@gmail.com

¹ Student, BSc – IT, Kirinyaga University

^{2, 3} Tutorial Fellows and Researchers, Kirinyaga University- Kenya

Abstract: *The 21st century has seen huge advancements in technology that continues to render many manual applications ineffective. In a bid to leverage on technology, business must strive to leverage technologies for value addition. In this project, an online shopping system has been developed that allows businesses to sell products online to the vast customers on the internet. The virtual marketplace takes advantage of advancements in payment systems as well as help options which has been lacking in existing systems. The context-based FAQs will be helpful in providing shopping assistance to user. The project uses waterfall methodology. The model allows for early design changes as well as a milestone focused approach. Technology is ever evolving and future works will focus on chatbot integration, advanced payment options such as bitcoins as well as development of a mobile application.*

Keywords: *shopping system, integration*

INTRODUCTION

We are living in the age of technological advances. Development in our society began to happen post the world wars where the advent of the industrial revolution started changing the face of technologies. The internet has made significant impact on our lives and continues to do so. Nowadays, millions of user's access and use the internet for various purposes throughout the day. They use the internet for searching, browsing, writing and communication, discussions and the list is ever expanding. With the millions of users actively looking for various products, information and services, there is a huge opportunity for businesses to jump onto the internet bandwagon and cash in on the business opportunity that is presenting itself every minute. Technology has helped build a platform that has enabled the business to cash in on the huge population and market that is now accessible over the internet and sell to them. Currently, no business be it B2B or B2C can ignore the huge online market that exist on the internet.

1.1 BACKGROUND INFORMATION

The advantages provided by Internet commerce are self-evident, and explain the enthusiasm shared by companies and customers for trading in this manner. For the supplier, there is greater potential to compete on a global scale, and cost savings can be attained in terms of staff and real estate by removing the need for public-facing premises. For the consumer, a means is provided to browse and search for products, and compare the prices of different suppliers, more quickly and easily than was previously possible. The only constant thing in the ecommerce realm is change. Sometimes it comes in the form of passing fads, and at other times as a seismic

shift. The sporadic growth of online shopping has revolutionized this tech savvy society and it will only continue to flourish as time goes on. This new element to buying and selling allows a wide variety of industries and businesses to enhance their appeal and the way they market themselves.

By definition, Electronic Commerce or e-commerce is business transactions that take place by communication networks [1]. It is a process of buying and selling products, services, and information over computer network. E-commerce is a set of dynamic technologies, applications and business process that link organizations, customers, suppliers and communities through electronic transactions and the electronic exchange of information products and services.

1.2 PROBLEM STATEMENT

As an industry born out of the Internet revolution, the edges of using technology to fuel business operations are well known. With the internet fostering the birth of many newcomers threatening reputed players, the need for differentiating on service has become as critical as the product. The proliferation of smartphones and tablets has resulted to exponential increase in e-commerce volumes year-on-year, but so has shopping abandonments. The challenge has been occasioned by poorly designed platforms that has little regards to the customer experience which has led to low customer retention. To address this challenge, emphasis will be placed on designing and developing an integrated system that makes it easy for customers to seamlessly interact with the system.

1.4 DEVELOPED SYSTEM

The system is a web-based system which can manage and handle all the transaction of online shopping such as customer login/registration, provide an option to search for products and place orders online. The system has an interactive FAQs to help customers find information about the various products anytime on the go. It is part of a wider transition to automated business processes and systems that support customer service. Additionally, the system will be able to provide a seamless transition between the disparate systems. This will make it easy for customers to browse the site, place orders, make payments and request for delivery effortlessly. The delivery option will have Google map API integrated to help with location tracking easing the process of delivery.

Consequently, the tedious process of adding products into the system will be made easy by implementing a parser that will make it easy to import in an excel file format. In this model, product categories can be prepared in an excel format then using the parser, the site can be updated with the products by a simple import option. Real time notification will be incorporated into the system. It will come in the form of emails SMS based notifications. Upon successful placement of an order, a customer will receive an SMS with the details of the order in addition to the delivery information if he/she had requested. The system will support a number of payment options that is PayPal, Skrill, Payoneer as well as M-pesa. The system will also incorporate an administration portal where the admin can be able to view the flow of products along the chain. The administration end will also be crucial when responding to the FAQs from customers. By doing this, the business can be able to adjust to any emerging issues as they occur.

1.5 MAIN OBJECTIVE OF THE SYSTEM

The main objective of the project is to develop an online shopping system which will help with the selling of products online that is easy to use and improve system interactivity.

1.5.1 SPECIFIC OBJECTIVES OF THE SYSTEM

- To analyze existing online shopping systems
- To design and develop an interactive E-commerce system by integrating the different system modules.
- Improving interaction with customers through the use of notifications and context-sensitive FAQs.

1.6 CONCEPTUAL FRAMEWORK

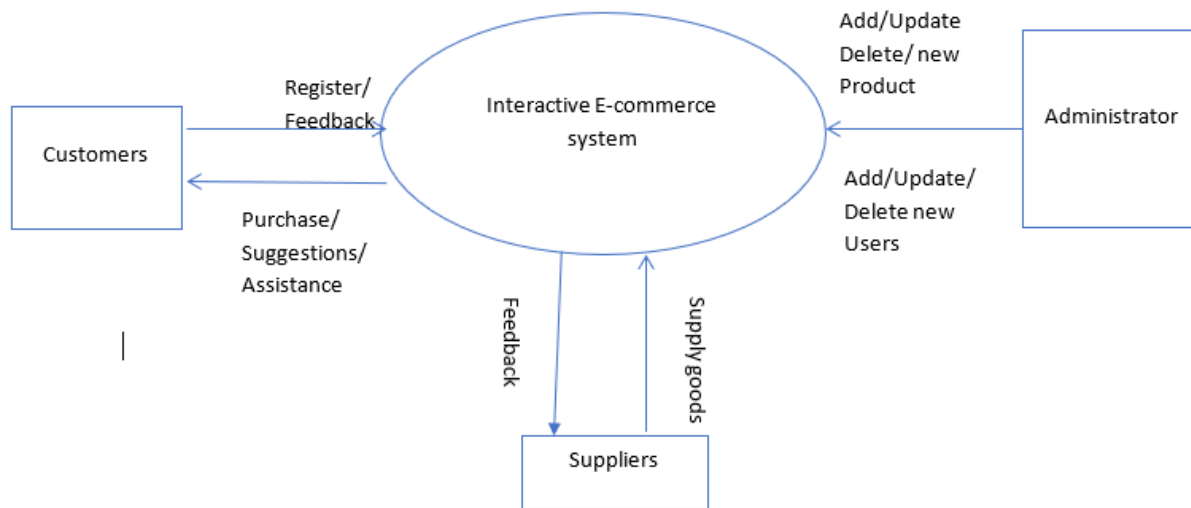


Figure 1: Conceptual framework

1.7 SCOPE

The scope of this project is to develop a web-based E-commerce platform that enables customers to browse, view, order, and review products and services over the internet. The administrator will have access to a visual dashboard allowing them to perform basic CRUD operations on accounts, products and users. The administrator will also be able to access statistics and reports on the status of platform activities. Emphasis will be placed on seamless system transition as well as interactivity through the use of automated context-based FAQ's.

1.8 LIMITATIONS

The project will have the following limitations;

- i. The location feature must be on to allow location tracking within the delivery system.
- ii. Basic internet knowledge is required.

1.9 JUSTIFICATION

- **Provide real time support** – The interactive FAQs will help provide users with answers when they need it.
- **Wider customer reach** – Eighty percent of the web population make their purchases online. With an E-commerce system, one doesn't need multiple storefronts to be seen across the entire world.

- **Increase revenues** – This will be achieved through reducing cart abandonment product conversion and lessened transaction friction.
- **Increased agility** – The business is able to respond to changes happening in the market place and the business environment in near real-time.

LITERATURE REVIEW

2.0 INTRODUCTION

E-commerce is not a relatively new concept in the market. The idea of selling goods and services online as opposed to brick and mortar establishment has reshaped the modern market place in recent years. In this section, focus will be placed on analyzing existing E-commerce systems in a bid to identify gaps that should be addressed. The purpose of this review is to link between existing E-commerce with the future dynamics of such platforms in taking advantage of virtual markets.

2.1 KILIMALL

Kilimallis one among Kenya's largest online shopping mall. It was launched in July 2014 and its mission is to become No.1 E-commerce platform in Africa [4]. It serves a retail customer base that continues to grow exponentially, offering products that span various categories including Phones, Computers, Clothing, Shoes, Home Appliances, Books, healthcare, Baby Products, personal care and much more [4]. Its range of services are designed to ensure optimum levels of convenience and customer satisfaction with the retail process; order delivery-tracking, dedicated customer service support and many other premium services [4]. As they continue to expand the mall, their scope of offerings will increase in variety, simplicity and convenience. They are a highly customer-centric and are committed towards finding innovative ways of improving their customers' shopping experience. The platform has a home page that allows one to register and login. After login, a user has the ability to browse the site for products and services and add them to cart. After adding them to cart, the customer is allowed to proceed to payment and checkout and other delivery options details. The FAQs section is a static page with links to the answers of possible questions.



Figure 2 : Kilimall

2.2 JUMIA

Jumia Kenya is an Online Shopping site. You can purchase mobile phones, tablets, computers & laptops, women's fashion, men's fashion and more online and have them delivered to you. Jumia has payment options that suit everyone, and it has a payment-on-delivery option for extra convenience [5]. Jumia Fashion and Style is also another module with top brands such as The Arrow, Nike, top quality shirts. Additionally, you can get classy women shoes from H&S and other amazing options. In Jumia online shop you are even able to pre-order the phones you want. Computing products are also available i.e. laptops, printers and other storage devices such as hard drives at affordable prices. The platform has a home page that allows one to register and login. After login, a user has the ability to browse the site for products and services and add them to cart. After adding them to cart, the customer is allowed to proceed to payment and checkout and other delivery options details. The FAQs section is a static page with links to the answers of possible questions.

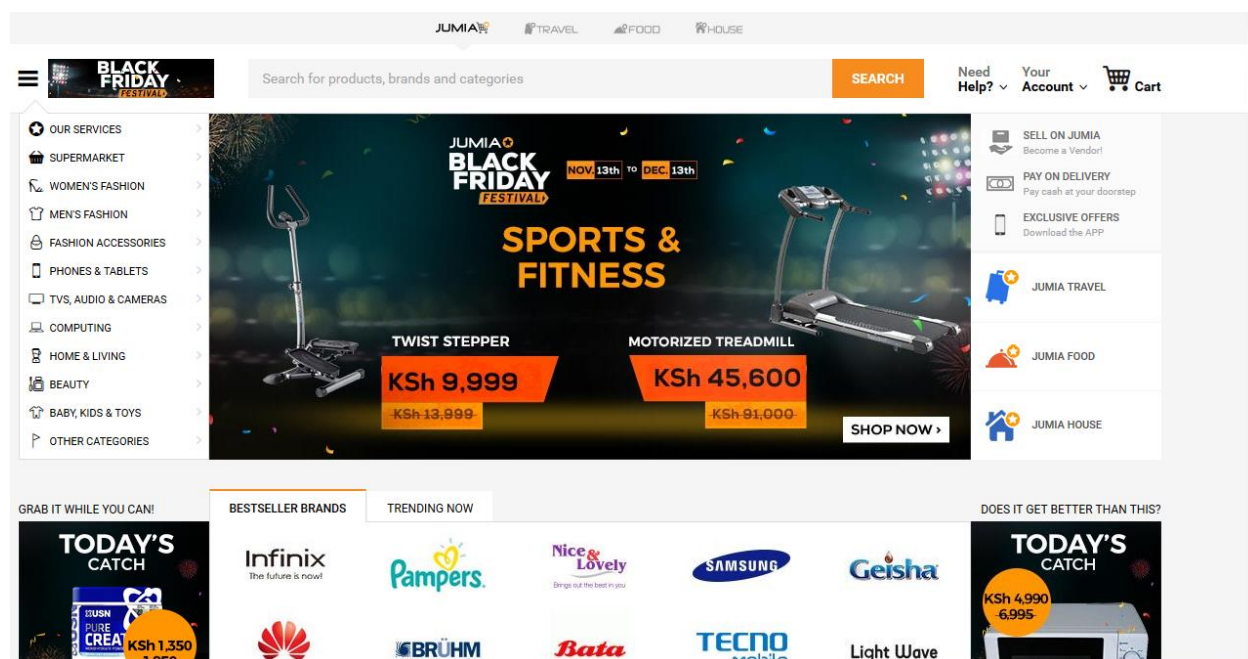


Figure 3: Jumia

2.3 OLX

OLX is a classifieds platform which provides local communities in high-growth markets with vibrant online marketplaces: OLX connects local people to buy, sell or exchange used goods and services by making it fast and easy for anyone to post a listing through their mobile phone or on the web [7]. Every month, hundreds of millions of people in local markets around the world are already using OLX's online marketplace to find and sell a wide range of products, including computers, cell phones, furniture, sporting goods, services, cars, real estate, and many more [7]. Just like Jumia, Killimall and other platforms, OLX is no different when it comes to FAQs. They have a single page dedicated to this feature. It consists of possible questions and their respective answers.

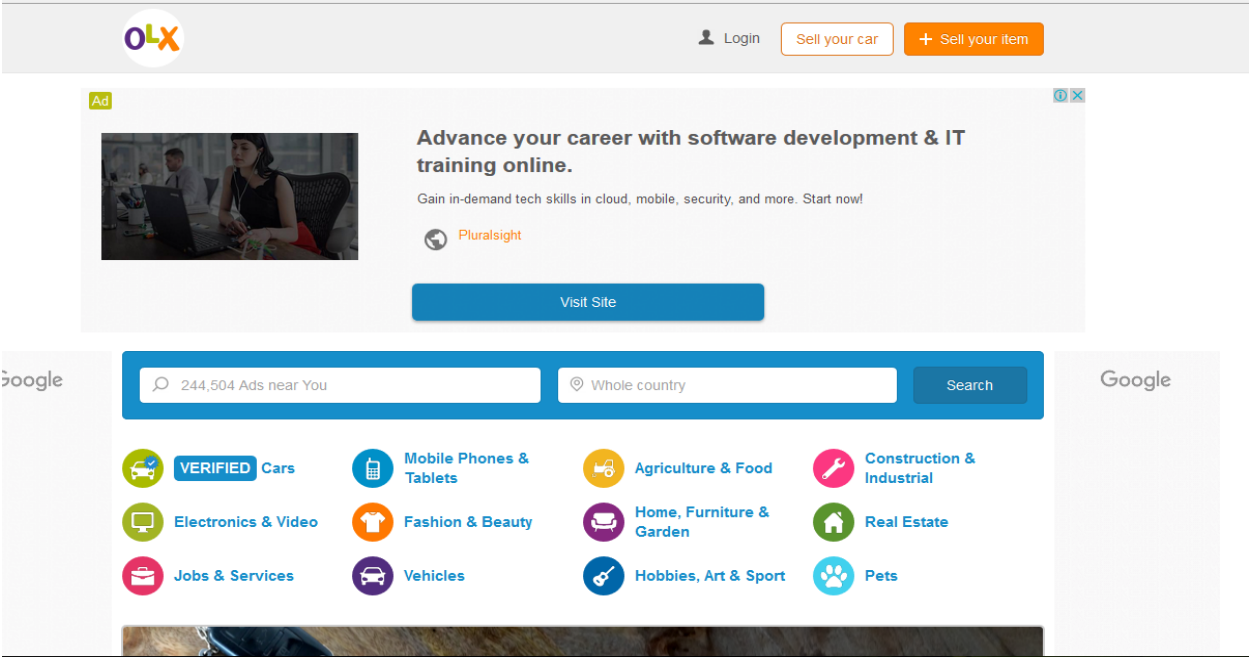


Figure 4: Olx

2.4 RUPU

Rupu Kenya is a daily deals and discounts website that started operations in December, 2010 and is based in Nairobi, Kenya. It provides online marketing resources for small and large businesses, helping them to reach the millions of Kenyans taking to the internet, in a cost-effective manner. Its focus in Kenya is exclusively in building web and mobile platforms, focusing on getting authentic Kenyan content on the internet [6]. The platform does not have an FAQs section and support is only provided through phone, email, physical visits as well as a blog that tries to answer many of the questions users might have concerning the system and the products.

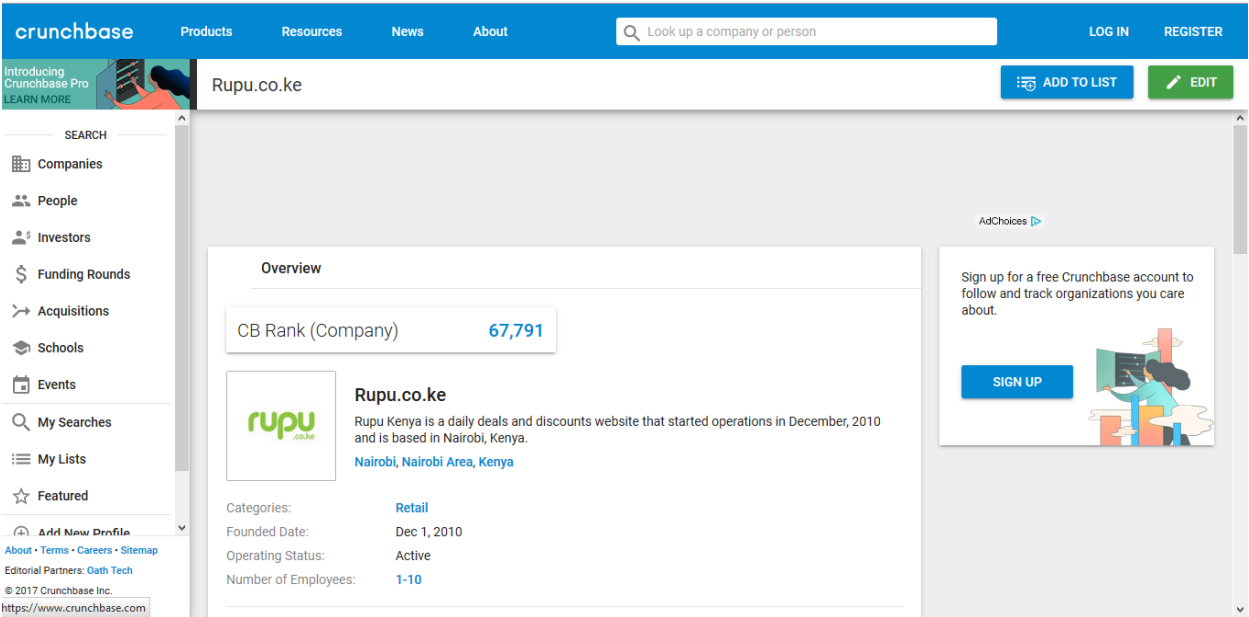


Figure 5: Rupu

2.5 PIGIAME

PigiaMe is an online classifieds platform that offers buyers and sellers a unique opportunity to effectively reach their target audience. It basically offers E-commerce as a service. PigiaMe is all about safety for both buyers and sellers. Automated checks allow them to early identify fraudulent users [8]. More importantly, it ensures that everything on PigiaMe is thoroughly reviewed by our team and passes our high-quality standards. It offers free listings to advertisers allowing them unlimited and direct contact to their potential markets. PigiaMe does the hard work of ensuring your advertisements reach greater target audiences at a touch of a button by leveraging on the PigiaMe network of associates and partner sites [8]. The platform has a home page that allows one to register and login. After login, a user has the ability to browse the site for products and services and add them to cart. After adding them to cart, the customer is allowed to proceed to payment and checkout and other delivery options details. The FAQs section is a static page with links to the answers of possible questions [8]. On the other hand, sellers can create an account and select their items based on the relevant category. They are then allowed to fill in all the details of the products as well as an option of uploading photos. The admin will then approve the post and then start selling on the platform.

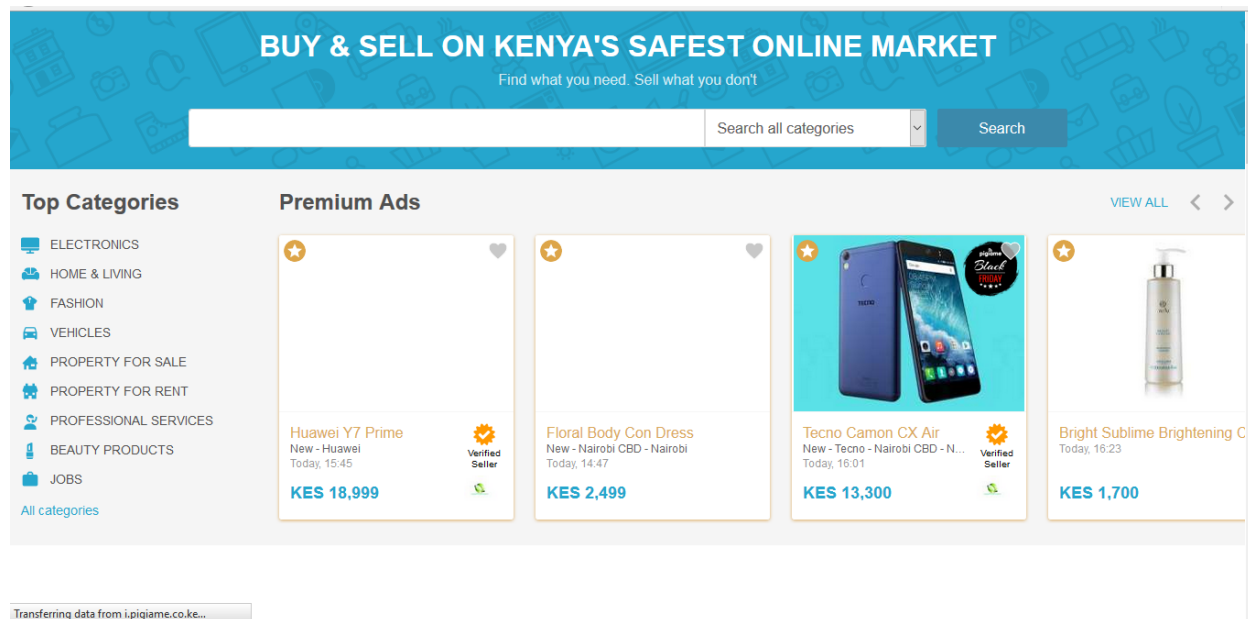


Figure 6: PigiaMe

2.6 EXISTING GAPS

- i. Poor user interface design – The existing systems have a very complicated user interface that makes it difficult for users for follow through while shopping. According to Baymard institute, a web research company in the UK, 67.45% of online carts are abandoned as a result of poorly designed interfaces which is difficult to navigate.
- ii. Static FAQs pages – FAQs exists to provide answers to frequently asked question. In the current systems, this section is a static page with others such as Kilimall having sub-links to the answers

2.7 CONCLUSION

The review of literature in this section has focused on Kenyan E-commerce systems with special emphasis on interactivity and usability. Despite the enormous strides made in making E-commerce systems usable and more

interactive, there still exists areas that needs improvement. It is important to point out that having reviewed the five existing systems, two system functionalities stand out that is user interface and support option. This project will thus strive to address these two critical areas for success in E-commerce

RESEARCH METHODOLOGY

3.0 INTRODUCTION

This section, focus will be placed on explaining the system methodology to be used when developing the interactive E-commerce system.

3.1 SYSTEM DEVELOPMENT METHODOLOGY

The process of system development should be broken down into small and distinct sections to ease the process of development. In this project, waterfall model of system development will be used.

3.1.1 WATERFALL

Waterfall model is a technique used in system development. This linear sequential life cycle model is very easy to understand and use since each phase must be completed before the next phase can begin and no overlapping in the various phases. It is comprised of six phases that is requirements analysis, system design, implementation, testing, deployment and finally maintenance. It is important to note that during each phase of the life cycle, a set of well-defined activities will be carried out.

Below is a diagram representing the waterfall system development life cycle model.

The sequential phases in Waterfall model are:

1. **Requirement Gathering and analysis:** In this step, emphasis will be placed on understanding the system requirements. This is in recognition of the fact that poorly defined requirements will affect the entire system development process. The analysis will involve understanding the feasibility of the project in terms of its workability.
2. **System Design** – System design is the second step in the waterfall system development life cycle. In this phase, emphasis has been placed on the designing of the various aspects of the system that is the user interface, the database as well as the application logic. Additionally, in this phase, the system architecture, configuration as well as the hardware will be defined to support the system being developed.
3. **Implementation** – This phase involved putting the design in the second phase into computer code. Since the project is a web-based system, then web programming languages has been extensively used in achieving the objectives of this project. Web based technologies such as PHP, MySQL as well as Frontend languages such as Bootstrap, JavaScript, HTML5 and CSS3 will be used. There will also be integration with third party APIs for Google map as well as for the payment options such as PayPal.
4. **Integration and testing** – Once the development process is complete, the project entered the integration and testing phase. Focus in this step is on ensuring that each of the units and components developed are working as earlier anticipated.
5. **Deployment** – After successful testing, the system goes into deployment phase. At this stage, the system will have undergone extensive testing and all bugs and errors fixed. The project will be live

ready to be used by the end users in the process of doing shopping. Additionally, a choice will have to be made on the best strategy to use when doing the deployment.

6. **Maintenance** – Systems are prone to changes due to the dynamic nature of technology. In this phase, emphasis will be placed to fine tuning the system to meet the ever-changing customer demands and improve performance.

3.1.2 JUSTIFICATION FOR USING WATERFALL

1. The model allows for early design changes – The model places huge emphasis on requirement and design before writing any single line of code which ensures minimal time wastage and effort in design changes
2. This is a milestone focused project which works well with waterfall model. It offers an inherent linear structure with a date-focused paradigm.

4.0 SYSTEM DESIGN

4.1 INTRODUCTION

This section will focus on the system requirements, input form, process design and the output of the system. The contents of this section will form the basis of the project implementation

4.2 SYSTEM REQUIREMENTS

4.2.1 HARDWARE REQUIREMENTS

Consist of hardware requirements to be met in order to successfully run the web based online electronics shopping system for example:

Desktop Computer

To be used for design and development of the system. The computer had these specifications:

- Intel® Pentium® processor (or equivalent) with a speed of 2.50GHz or greater
- At least 2GB RAM
- 30 GB (or larger) Hard Disk Drive

4.2.2 SOFTWARE REQUIREMENTS

To successfully run the web based online Electronics Shopping system, there are a number of software requirements had to be met which were:

- **Operating System: Windows 7 or higher versions of OS (either x86 or x64)**
- **Microsoft Office 2007, 2010, 2013 or higher**
 - This tool will be used to do the documentation.
- **Antivirus: Kaspersky, SMADAV, or NOD 32**
 - Was used to avoid virus attack that can lead to data loss or corruption.
- **Database Management System: MySQL**
 - A database to store the details of various products, customers, suppliers and other details.

- **Wamp Server 2.1**
 - It will be used as a web server.
- **Programming languages**
 - PHP, HTML, JavaScript, C#, CSS

4.3 High Level Requirements

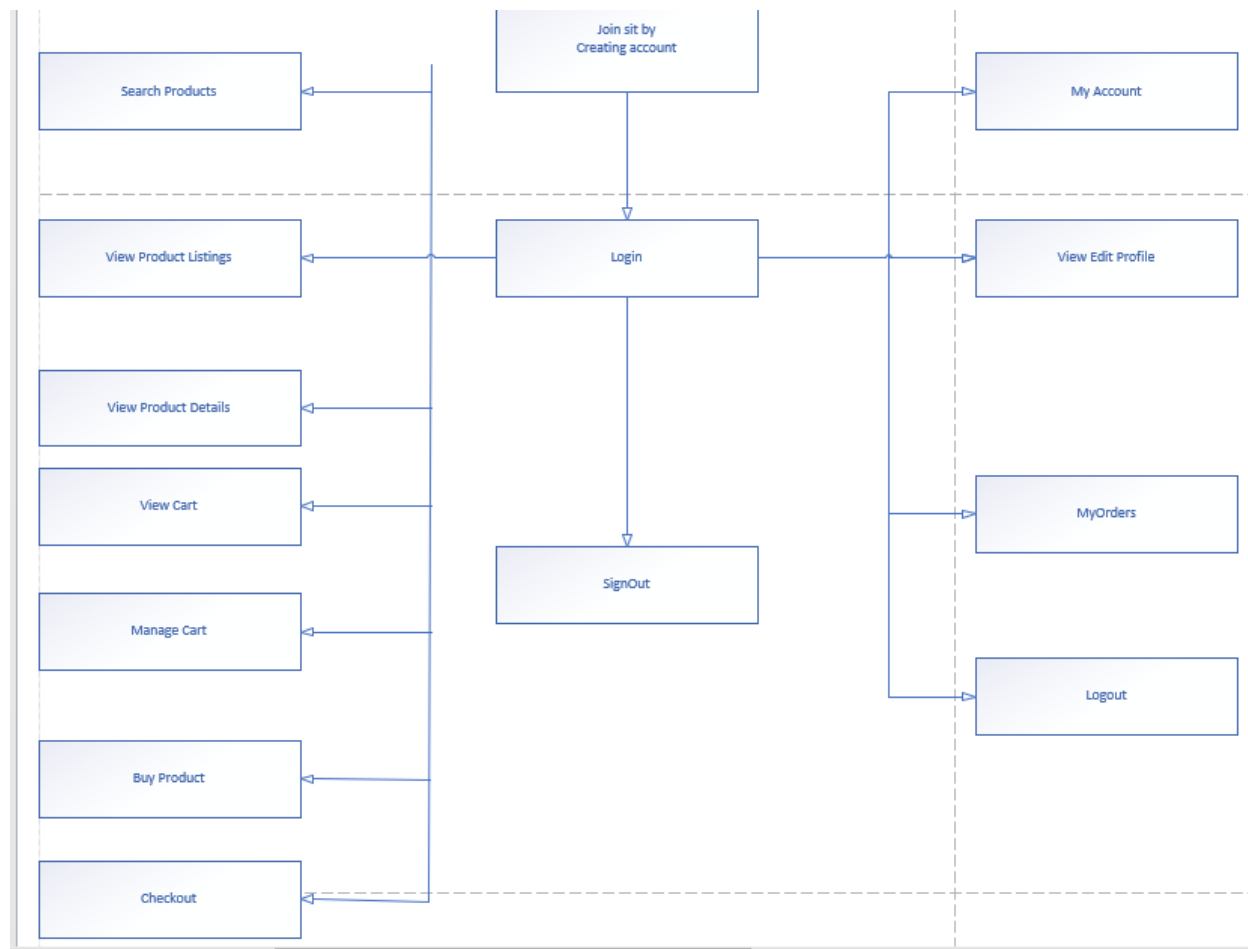


Figure 7: High Level Requirements

Design Modules

Online electronic shopping consists of the following modules:

Visitors Module

In this module visitor are able to view the available products. It consists of the following features

Visitor Features

View Home Banners or Slide Show Gallery

Browse Products

View General FAQs

Become a Member through Registration process

User Module

At this module User can view and purchase products. It consists of the following features:

Registered Member Panel

Login to site

Manage Account

My Profile

My Orders

Buy Product (Checkout)

Logout

Admin Module

The Admin have some extra privilege including all privilege of visitor and user. The Admin is able to add products edit product information and add/remove product. He has the ability to add user, edit user information and can remove user. Admin will have the ability to ship order to user based on order placed by sending confirmation mail or SMS. The Admin module will have the following features:

Admin Panel

Login

Dashboard

Administrator User Management

Site Member (Customer) Management

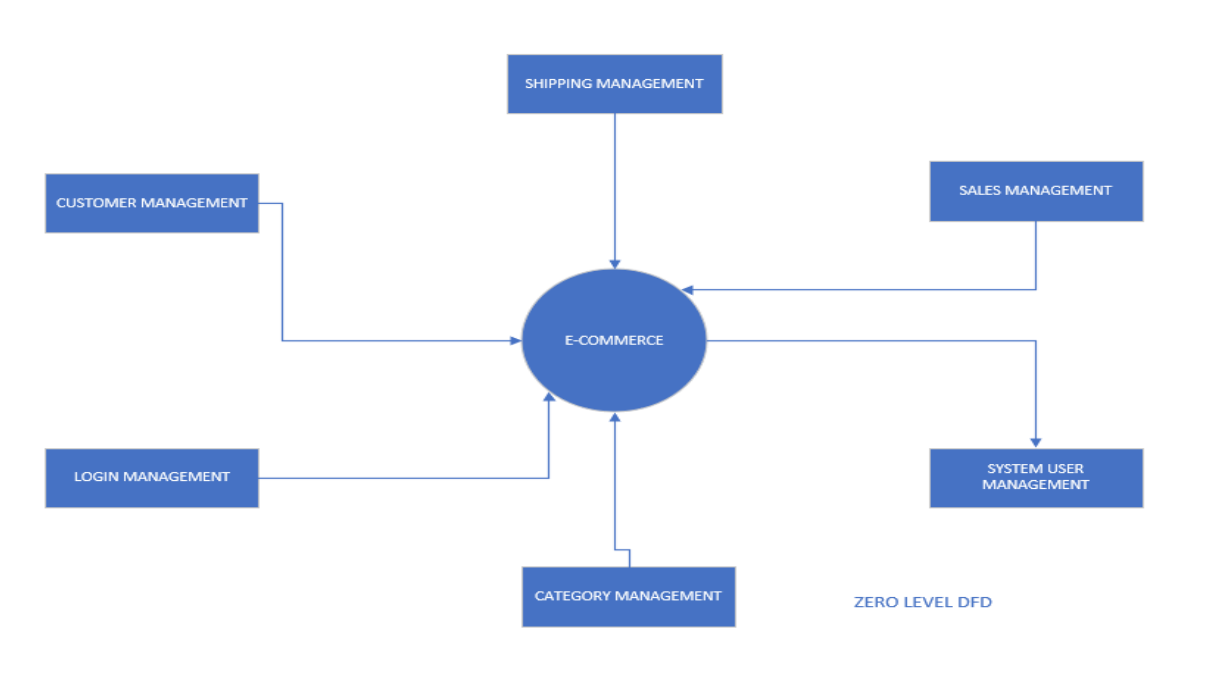
Product Attribute Management

Product Management

Order Manager

FAQs management

DATA FLOW DIAGRAM



4.4 PROCESS DESIGN

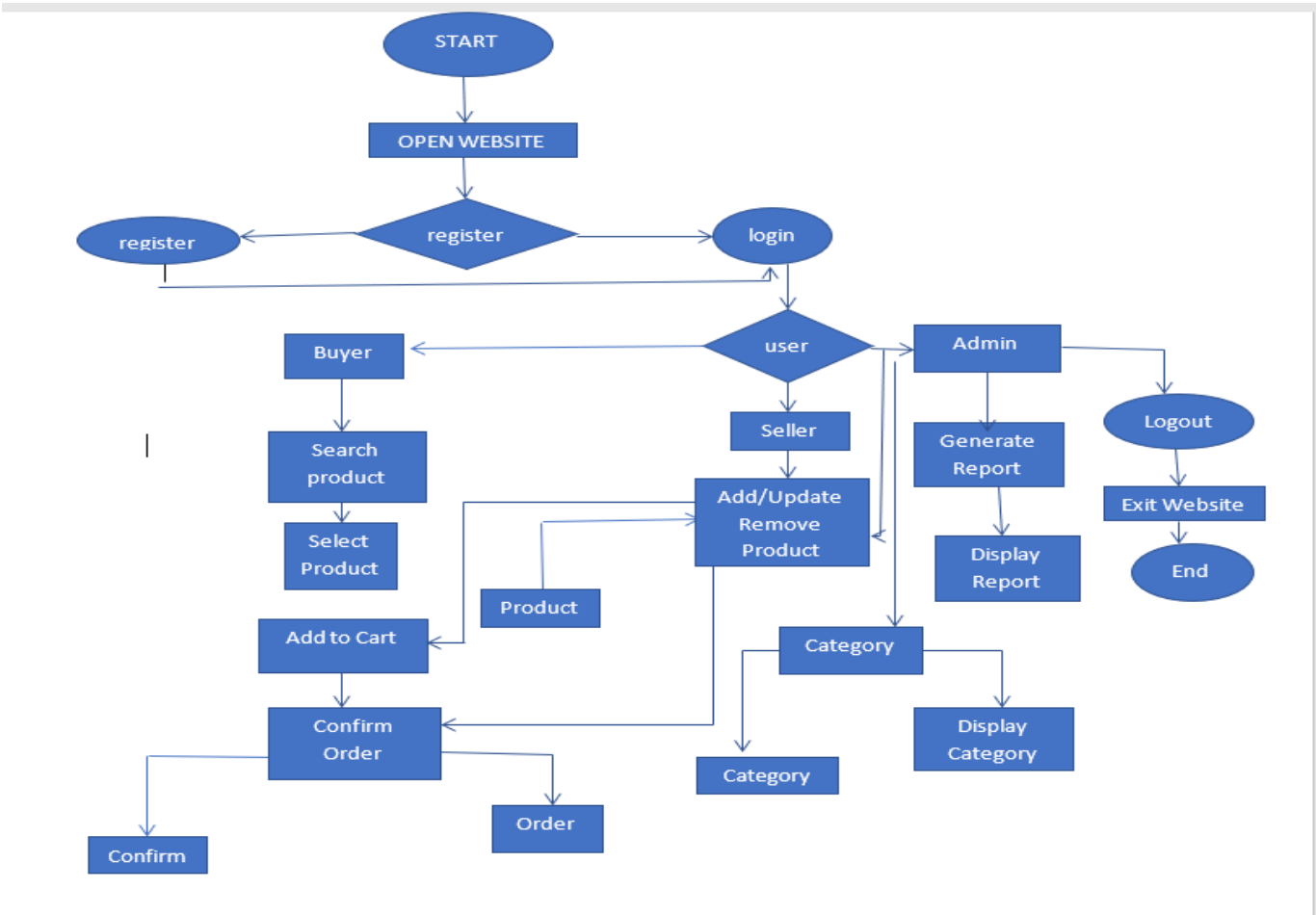


Figure 8: Process Design

4.5 Use case

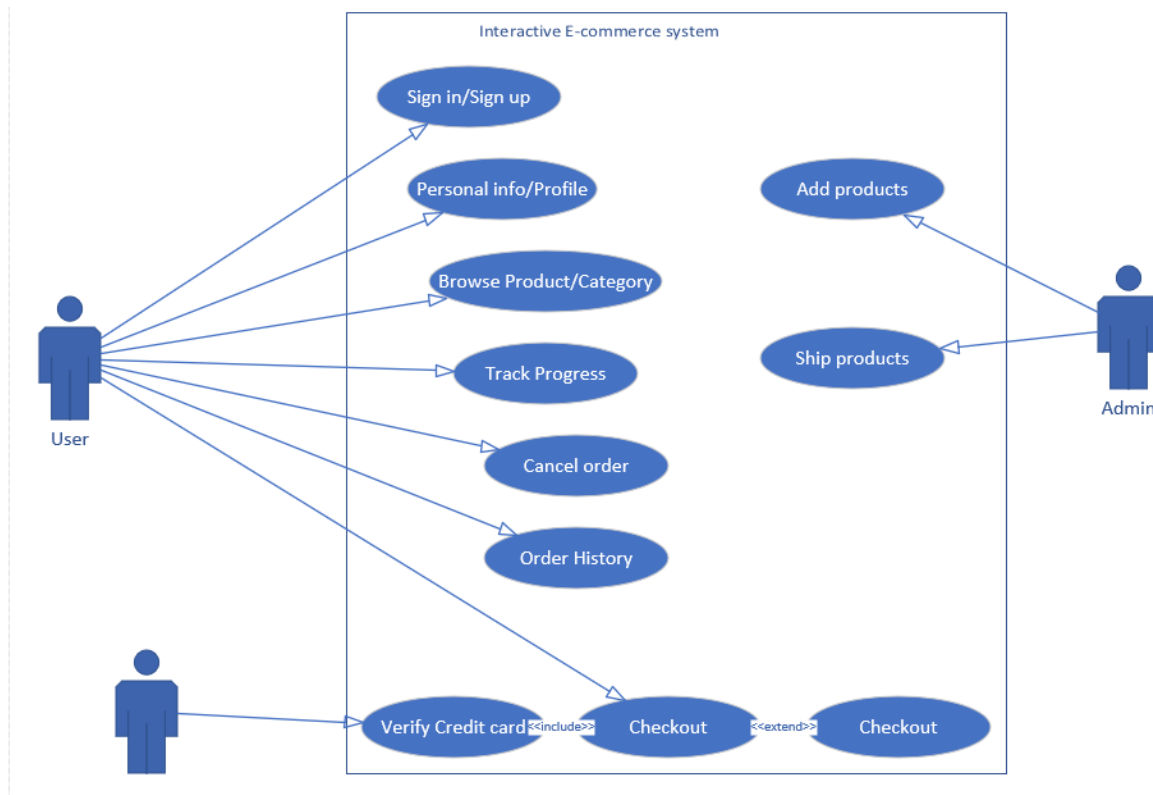


Figure 9: Use case

USE CASE EXPLANATION

Register:

If a customer is new user, he can request to register page. A register page open and asks total information about customer and also asks to customer to choose login (email address) and password.

Login:

The customer can login by enter name and password. The system verifies the name and password matches. If not matches, error messages show to the customer.

Browse products:

The customer requests to view the product in product category. The system will display the information about product of selected category.

Search product:

The customers enter the search product parameters and request a search product. The system search through products category in database and gives information. If not matches, gives fail message.

View shopping cart:

The customer request to view the shopping cart. The system returns the shopping cart to customer, the price and total price shows to customer.

Add shopping cart:

When customer finds the product he wants, add to shopping carts. The system stores and track the information about product.

Update customer info:

The customer request to update customer info about his name, address.... Etc. If updated information system stores in database which is updated. After purchase one product the payment information stores in current information.

Check out:

The customer completes the shopping he request to checkout. If the payment information exists the credit card information sends to Credit Verification Company. If credit card information not matches it shows enter valid information or cancel order. If the credit card is valid, the order form will be processed by the system and checkout is complete.

Verify credit card:

The credit verification company is validating the credit card information. If the information correct returns to admin. If not, the customer will be asked to re-input his payment information.

Update product info:

The admin request to update product info includes price, brand...etc. and system updates in database.

Update inventory:

The admin request to update inventory. The system update's in database.

Login and Registration page

Login / Register Account

Home > Account > Login / Register

Login

☒ Remember me [Forgot password?](#)

LOGIN

No Account? Register

Registration takes less than a minute but gives you full control over your orders.

Name E-Mail Address

Password Confirm Password

REGISTER

Figure 10 Login and Registration

Product Category

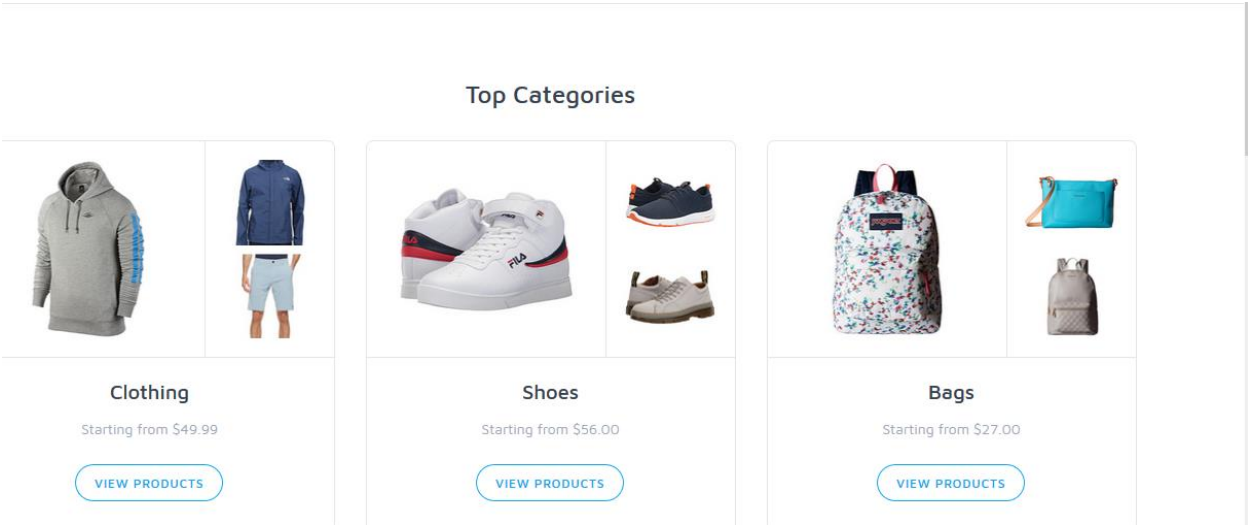


Figure 11 Product category

Add Products form

Add new Product

Select file

Name*

Category*

Description*

Price*

Kshs.

Inventory*

\$

Close

Save Product

Figure 12 Add products form

Adding products to cart

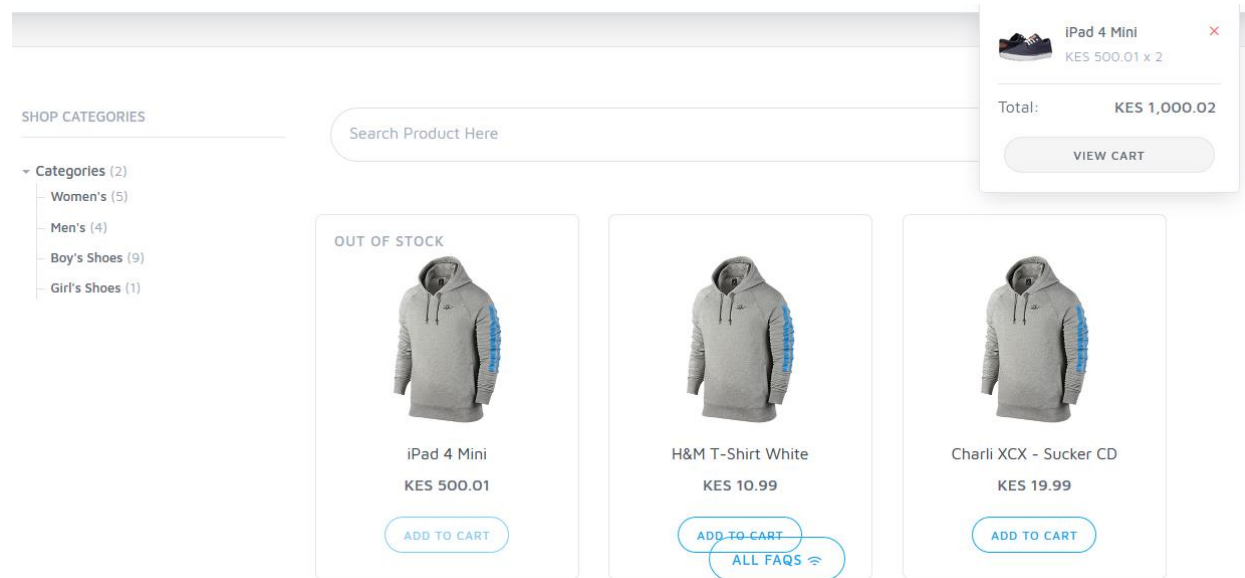


Figure 13 Add products to cart

View cart

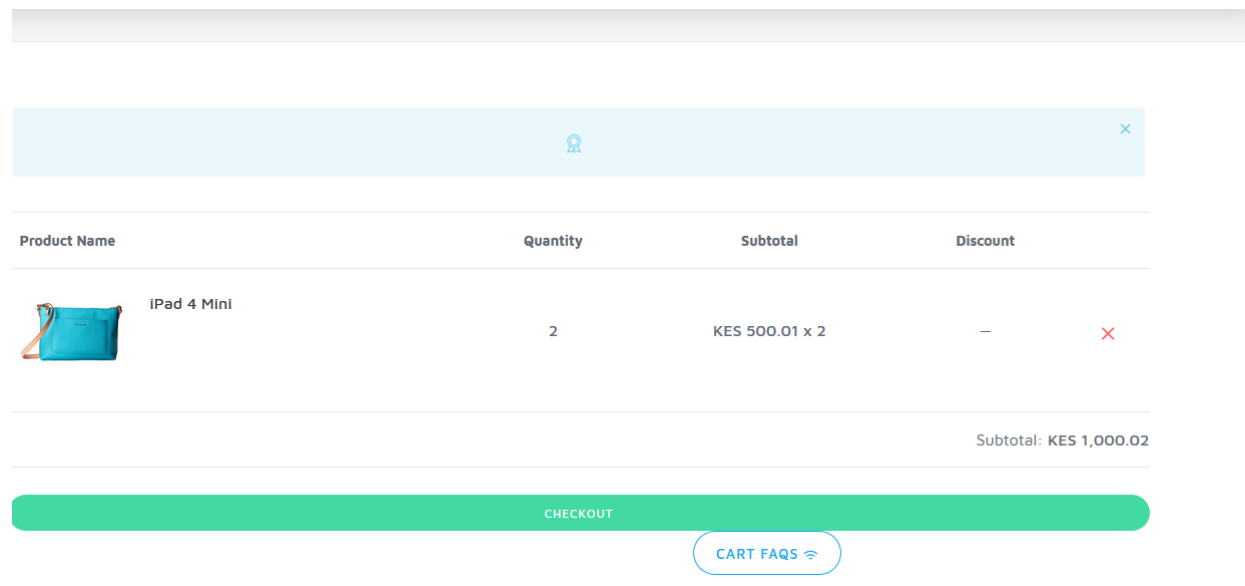


Figure 14 View cart

Delivery Details

1. Address

2. Delivery

3. Payment

4. Review

ORDER SUMMARY

Cart Subtotal: KES 1,000.02

Billing Address

First Name

Last Name

E-mail Address

Phone Number

Company

Country

City

ZIP Code

Address 1

Address 2

433 karuri

← BACK TO CART

BILLING FAQs

CONTINUE →

Figure 15 Delivery details

Context-based FAQs

ALL

Search FAQ Here

⚙️ Whats a billing question?

The one with an obvious answer, Just like that one!.

⚙️ Whats a reviewing question?

⚙️ Whats a cart question?

⚙️ Whats a delivery question?

⚙️ Whats a ordering question?

all FaQs

ALL FAQs

Figure 16 View FAQ's

Admin side

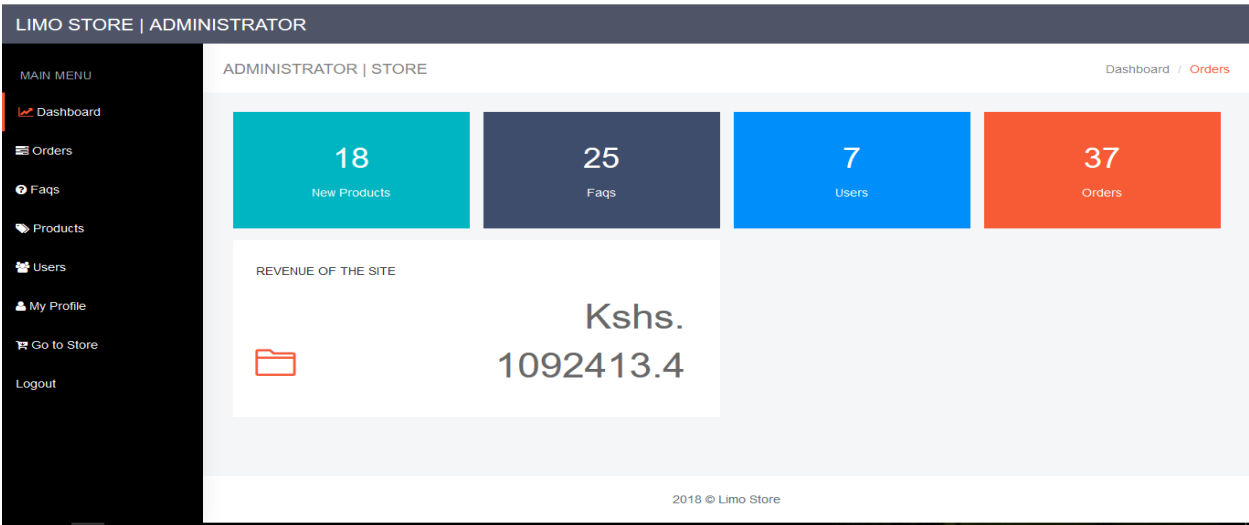


Figure 17 Admin side

Database

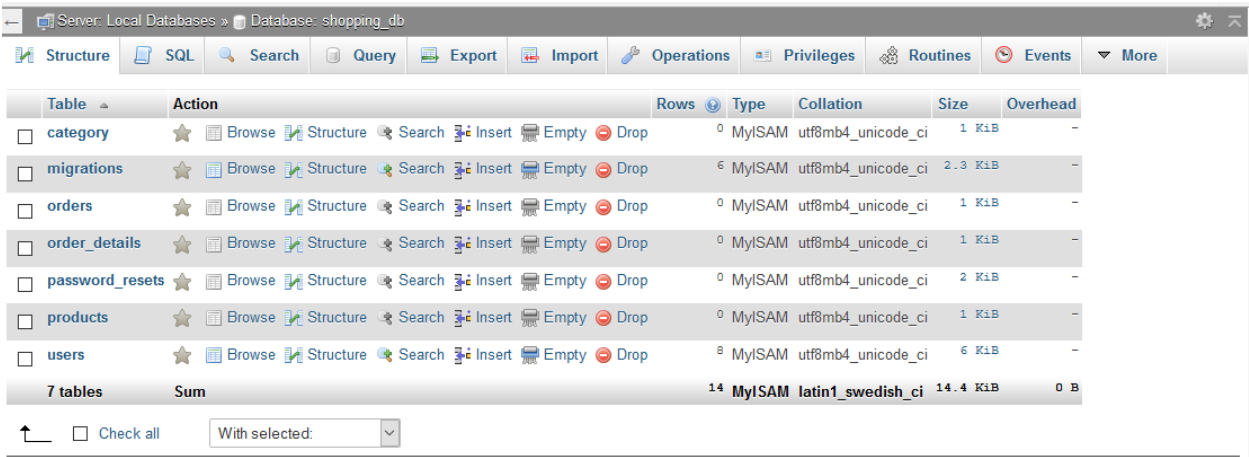


Figure 18 Database Structure

Users table

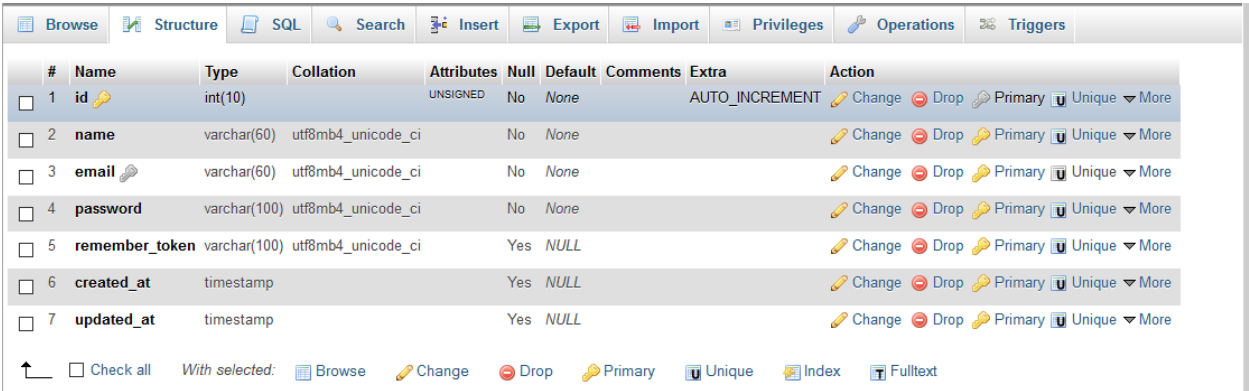


Figure 19 User table

Category table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	id	int(10)		UNSIGNED	No	None		AUTO_INCREMENT	Change Drop Primary Unique Index More
<input type="checkbox"/> 2	category_name	varchar(50)	utf8mb4_unicode_ci		No	None			Change Drop Primary Unique Index More
<input type="checkbox"/> 3	created_at	timestamp			Yes	NULL			Change Drop Primary Unique Index More
<input type="checkbox"/> 4	updated_at	timestamp			Yes	NULL			Change Drop Primary Unique Index More

☐ Check all With selected: Browse Change Drop Primary Unique Index Fulltext

Figure 20 Category table

Orders table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	id	int(10)		UNSIGNED	No	None		AUTO_INCREMENT	Change Drop Primary Unique Index More
<input type="checkbox"/> 2	user_id	varchar(40)	utf8mb4_unicode_ci		No	None			Change Drop Primary Unique Index More
<input type="checkbox"/> 3	product_id	varchar(40)	utf8mb4_unicode_ci		No	None			Change Drop Primary Unique Index More
<input type="checkbox"/> 4	price	varchar(200)	utf8mb4_unicode_ci		No	None			Change Drop Primary Unique Index More
<input type="checkbox"/> 5	created_at	timestamp			Yes	NULL			Change Drop Primary Unique Index More
<input type="checkbox"/> 6	updated_at	timestamp			Yes	NULL			Change Drop Primary Unique Index More

☐ Check all With selected: Browse Change Drop Primary Unique Index Fulltext

Figure 21 orders table

4.6 CONCLUSION

System design is an important part of any software development project. Systems design implies a systematic approach to the design of a system. It is systematic wherein it takes into account all related variables of the system that needs to be created—from the architecture, to the required hardware and software, right down to the data and how it travels and transforms throughout its travel through the system. A poorly done design phase spells doom on the success of the project. This section has conclusively tackled the various design concerns that will be crucial in the final project implementation.

5.0 SYTEM TESTING

5.1 Unit Testing

The system is composed of a number of units that will be tested independently. The administrator should be able to add products, view order list and general system maintenance. The users should be able to browse the various products and place orders.

5.2 Interface Testing

This section lists the functional requirements used for creating the test-case table, the test cases that were used to verify the interface table, and the results for the test-cases table.

Functional requirement	Description
------------------------	-------------

FR01	Authentication that is for the user and administrator
FR02	Browsing all categories
FR03	View items added to cart
FR04	CRUD categories
FR05	View all the users registered on the system
FR06	View users who have placed items on cart
FR07	No checkout with empty cart
FR08	Provide all required details in the form

Table 1 Interface Testing

Test Cases

The table below shows the various test cases and their description.

Functional Requirement (FR)	Test case (TC)	Description
FR01	TC01	Admin Authentication
FR02	TC02	User Authentication
FR03	TC03	View items added to cart
FR04	TC04	Admin CRUD options
FR05	TC05	User information by admin
FR06	TC06	Users who have orders placed
FR07	TC07	No checkout on empty cart
FR08	TC08	Filled all required fields

Table 2 test cases

The following table shows how the various testing cases will be accomplished. The alternative output shows the deviation from the system intended purpose.

TC	Condition	Input	Output	Alternative output
TC01	Testing logins	Username & Password	Valid destination page	Error message
TC02	Viewing items added to cart	User adds items to cart	Cart page popups and options to	Empty cart

			delete items added	
TC03	Admin can upload products	Login then upload products	New items successfully uploaded	No products added to the system
TC04	Admin can view registered users	Login and view users	User list	Empty database
TC05	Users who placed orders	Logins and order list	Orders placed	Empty database
TC06	No checkout with empty cart	Logins and view cart	Disabled checkout option	Checkout button active
TC07	FAQs questions and answers	Type a question	Suggested Q&A	No answer found

Table 3 Testing Cases Extended**Outcome**

Table 3 lists the test cases that were used while testing the interface along with the expected result and the actual results for each test case.

Test case	Expected result	Actual output
TC01	Positive	Positive
TC02	Positive	Positive
TC03	Positive	Positive
TC04	Positive	Positive
TC05	Positive	Positive
TC06	Positive	Positive
TC07	Positive	Positive

Table 4 Output**5.3 Usability Testing**

System usability is an important part of the system. It is important that we test for usability in a bid to ascertain the success of the system. The following table shows elements tested for usability.

Element	Output
intuitive design	Yes

Help-support	Yes
Catalog navigation	Yes
Site navigation	Yes
Performance	Yes
Dead hyperlink and plugin dependency	No
Runtime error messages	No
Incorrect display of pages	No

Table 5 Usability testing**5.4 System Changeover**

System changeover is an important part of any system implementation. The process of putting new system into operation demands critical thinking and close collaboration among the various business units of an organization. There exists a number of changeover techniques but this project will take advantage of direct changeover technique. Despite the fact that it is the least favorable model of system implementation, it is desirable since it will save on cost. Using this model, the entire system is replaced in an instant. Basically, as soon as the new system is powered up, the old system is shut down. This type of changeover carries the most risk because, if something goes wrong, reverting back to the old system usually is impossible.

In addition, it is very difficult to detect minor errors as due to absence of parallel system. Errors may be there because testing data is not as big as there may be live data. Sometimes major errors can terminate the system so whole operation will be stopped and there will be difficulty of back up. To help mitigate system downtimes, the company will analyze system use and identify the time when users do not access the system in huge numbers. By doing this, we will help reduce the overall impact the system will cause on sales and profits.

CONCLUSION AND FUTURE WORKS**6.1 CONCLUSION**

Online shopping has grown by leaps and bounds in the last few years and is fast becoming popular. The promise of online shopping is now evident more than ever. Growth of online shopping has been characterized by strong consumer demands and the increasing number and type of goods available. The internet is only going to become more popular as time goes by and purchasers worldwide become more comfortable about the security and on-time delivery of their purchases. This is the one area of merchandising that continues to have a positive outlook far into the future. This project has been instrumental in demonstrating the fact that online shopping is possible moving into the future. In this project, customers will be able to browse through the various product categories, add to cart and interact with the context-based FAQs.

6.2 Project success

- i. The project allows user to browse through the different product categories
- ii. Customers can add products to the cart and view them before proceeding with the checkout process
- iii. A success message is displayed to the users upon payment and successful checkout

- iv. Users are able to interact with the context-based FAQs

6.3 Future Work

The following section discusses the work that will be implemented with future releases of the system. One of the features that will be integrated into the system in the future is a chatbot. There exist huge advances in AI and machine learning and E-commerce platform can benefit from these developments by incorporating a chatbot to help users navigate the site and have their issues resolved automatically without the need to have human intervention. Additionally, Payment options continues to advances across the globe with the entry of cryptocurrencies such as bitcoins and blockchain technology. This should be incorporated as the payment options mature. Lastly, advances in artificial intelligence will allow businesses to provide custom tailored custom experience to its users since the system remember your preferences, gauge your level of interest in a certain item, and make dynamic adjustments to the price and options.

REFERENCES

- [1] Fontinelle, A. (2017). *Electronic Commerce - ecommerce*. [online] Investopedia. Available at: <http://www.investopedia.com/terms/e/ecommerce.asp> [Accessed 15 Oct. 2017].
- [2] www.tutorialspoint.com. (2017). *E-Commerce Business Models*. [online] Available at: https://www.tutorialspoint.com/e_commerce/e_commerce_business_models.htm [Accessed 15 Oct. 2017].
- [3] Da Costa, E. (2016). *Global e-commerce strategies for small businesses*. Mit Press.
- [4] [Online]. Available: <http://8.http://www.kilimall.co.ke/>. Accessed: Nov. 17, 2017.
- [5] [Online]. Available: <https://www.jumia.com.ng/>. Accessed: Nov. 17, 2017.
- [6] Rupu, "Popular categories," 2016. [Online]. Available: <https://www.rupu.co.ke/>. Accessed: Nov. 17, 2017.
- [7] "Buy and sell for free anywhere in Kenya with OLX online Classifieds," olx.co.ke. [Online]. Available: <https://www.olx.co.ke/>. Accessed: Nov. 17, 2017.
- [8] PigiaMe, "Classifieds - property, electronics & more," 2017. [Online]. Available: <https://www.pigiame.co.ke/>. Accessed: Nov. 17, 2017