A Study of Advanced Online Shopping Web Application with its Impact on Consumer Intention to Purchase Online and Seller Intention to Sell Online

W.A.I. Kalpadith[1], S.G.J. Chamika[2], D.H.M. Samadhi[3], N.T. Weerasinghe[4], D.I. De Silva[5] and H.M.P.P.K.H. Samarasekara[6]
[1]Department of Computer Science and Software Engineering, Sri Lanka Institute of Information Technology, SRI LANKA
[2]Department of Computer Science and Software Engineering, Sri Lanka Institute of Information Technology, SRI LANKA
[3]Department of Computer Science and Software Engineering, Sri Lanka Institute of Information Technology, SRI LANKA
[4]Department of Computer Science and Software Engineering, Sri Lanka Institute of Information Technology, SRI LANKA
[5]Department of Computer Science and Software Engineering, Sri Lanka Institute of Information Technology, SRI LANKA
[6]Department of Computer Science and Software Engineering, Sri Lanka Institute of Information Technology, SRI LANKA

[1]Corresponding Author: it20243180@my.sliit.lk

ABSTRACT

The purpose of this study is to develop an advanced web application for online shopping and to increase the customer and seller intention to buy and sell via online web platform. This study is focused on variables of website characteristics, customer and seller interactions, physical telepresence and consumers thoughts and their feedback towards online shopping web applications. And behavioral controls of customers and sellers which will describe the consumer thoughts and intention towards the online purchasing. This study reveals the customer's and seller's perspective and attitude towards the online purchasing and online shopping. And this study explores about factors that affect to build a trust and intention in consumers towards online purchasing. A web application will be developed by considering above mentioned factors. Smart bay is the improved web application that is planning to develop by analyzing above mentioned all focused areas to perform with vast area of functions in very user-friendly environment.

Keywords-- Satisfaction, Influence, Efficiency, E-Commerce

I. INTRODUCTION

In the present recession and competitive areas in the business-to-consumer (B2C) and business-to-business (B2B) e-commerce, vendors face significant problems when converting their site visitors into real customers of them. Because of that, the great challenge in the web merchants is to attract customers to their web application. [1] Web merchants should be aware to create a compiling, attractive and enthusiastic web site to push potential customers to purchase products from them. Online shopping is the best choice of smart consumer, that they can easily compare, search for the quality as well as discounts and make their purchase with few steps in small time frame. In addition to that consumers can reach to their purchased product on their doorsteps by delivery services. [2] There are many amounts of comparison sites such as ebay, amazon, alli express etc.

During this study, the Smart Bay is a web application that provides more functionalities than the comparison sites. This application track and deliver the purchased products without any third-party delivery agent. Customer satisfaction is the most important point to consider. After that customer service is the worthiest section. Most comparative web sites just focus on their number of sold and selling items. But the Smart Bay is a very convenient place to both customers and sellers.

II. RELATED WORK

A. Online Shopping-An Overview

As far as the problems faced by consumers in purchasing products and sellers in selling products are concerned, solutions have been proposed by various research papers. [3]

Which suggested the do and don'ts of offering an online shopping method as a solution instead of the traditional shopping method. Several important points have been mentioned in preparing an online system considering the ease of entering an online shopping system.

1. Considering the consumer's preference as the main consideration.
2. Giving the consumer a considerable amount of time to review the relevant online shopping website before providing the consumer's payment information.
3. Protecting the security of consumer payments.
4. Informing consumers about policy statements of the system.
5. Ensuring that systems are implemented in such a way that only the necessary amount is charged while charging the user
6. Such matters should be considered.

Almost all the points mentioned above in the research paper are considered only from the point of view of the customer. But the facts put to above research can be

considered from the customer's point of view in looking for solutions to our traditional customer and sales shopping method. That is,

1. The user should be able to handle and understand an online system easily.
2. To bring to the customer only close-up views of the goods as much as possible.
3. Making online shopping more convenient for the customer than a traditional shopping method.
4. Protecting the Confidentiality of User Information.
5. Securing the consumer's payment.

B. Factors that Influence Customer Satisfaction in Online Shopping

[4] Factors affecting customer satisfaction in the online shopping platform called Shopee used in Malaysia. This research paper has mentioned a few things that lead to customer satisfaction. That is, the factors that contribute to customer satisfaction in online shopping concepts, website design, functionality, privacy, reliability, and recovery are reviewed.

According to our problem, the solutions to the problems such as the congestion that occurs during traditional shopping, the difficulty of parking vehicles, and the increase in the tendency of theft were well stated in this research paper. That is, this paper shows how the service in online shopping systems has been improved to ensure that the customer is satisfied with online shopping rather than with physical shopping.

C. Factors that Influence Seller's Sales in Online Selling

[5] Since if a large-scale seller or a small-scale seller, or a self-employed person sells their goods through an online service, the facts affected for them. A major part of the problem in our research is that small-scale sellers and self-employed people tend to have very little experience selling online. This article has provided solutions to a similar problem, and it indicates the factors that have caused the problem are the brand of the relevant goods, the condition of the content used to describe the goods, identifying the needs of the buyer, and providing the goods that fit the buyer's budget.

D. Points to consider when planning an online shopping system

Designing and implementing an online shopping system can be complicated because both involve many considerations.

[6] That should be present and important when designing an online shopping system.

1. **Designing the system to suit the products which are stored in the system-** The system should be designed in such a way that it is relevant to the products that are sold through the system. It is important to make it very comprehensive.
2. **An attractive showcase of the product should be shown to the customer-**In other words, high-definition product images and attractive descriptions of the products should be added to the system when they are shown to the customer.
3. **Cart functions play an important role in online shopping-** It is clearly stated in this paper that the customer should be able to go through various product pages and select products to add to the cart and remove and keep all the added products until the customer's order is completed.
4. **Always maintain safe storage of goods**- In the traditional shopping system, the storage of goods can be subject to various thefts, so expensive methods such as CCTV technology must be used to protect them. But online shopping is very beneficial as such need does not arise.
5. **Setting up several payment options in the system to pay money-** In an online shopping platform, there should be several ways to pay at the end of the transaction for the convenience of the customer.

Apart from that the security of the entire system should be taken into consideration which is more important than all the above.

III.   METHODOLOGY

A.   Tools and technologies

Project is planned to base on C# and Microsoft.NET framework. Willing to use MySQL for the database. Microsoft.NET contains main front-end and back-end operations. The main purpose is to select MySQL as the database because it is quite easy to use to integrate with pages and easy to manage all the data tables. Visual Studio 2019 version is used to collaborate all these components and develop the project. And bootstrap is used to give an attractive view to web pages and increase the pleasant view of the pages. Apart from that will use SQL server management studio 2018 to make queries and data tables.

We are planned to use Selenium as the IDE to teat our application. By using selenium, we can add test cases automatically and can be tested that test cases easily.

And to check the code quality and the completeness, we are planned to use SonarQube IDE. Because it is shown the incomplete of the code as well the solutions for re-arrange the code.

B.   Functions of the project
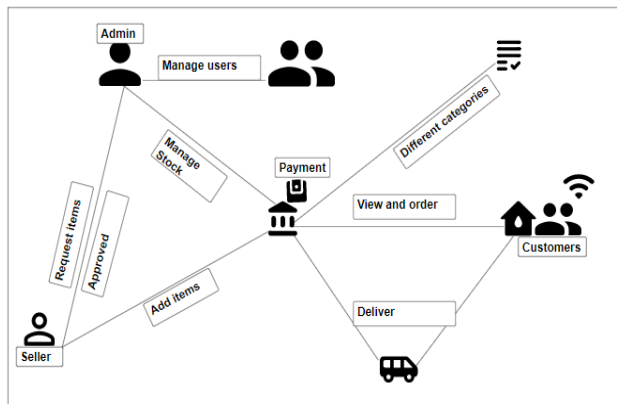
Figure 1: High-Level Architecture diagram

The above diagram represents the high-level architecture of the Smart Bay online shopping system. There are three main actors will be involved in the system. They are customer, seller, and the administrator, respectively. Customer can manage the profile and view the items according to the categories and add to the cart. They can order items after viewing then after confirming the order, they can add them to delivery after made payment. As all are the users in the system (admins, customers, and sellers) they can view profile, update profile, and delete profiles according to their wish. Administrators are responsible to manage the items, payments, manage the users, and deliveries. Item admins view the usable stock and add them to the main view of the website which can see the customer and manage the cart details that entered by the user. Delivery administrators is responsible to assign vehicles to deliveries and update the delivery status that can be view by the customer. According to Figure 1: High-Level Architecture diagram for Smart Bay, seller can request item to add to the company with the prices that he or she wish. Sellers also can manage the profile by entering personal details. The requested items should be accepted by the admins and view the status to the seller. Then the seller will get the payment according to the usability of the items that they added. All the functionalities mentioned above will be tracked by the system and they will be stored in the database in a proper manner.
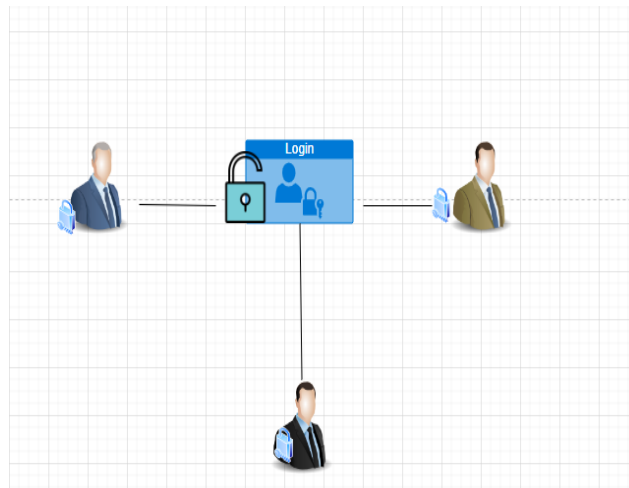
IV. PROPOSED SYSTEM

Three main actors -:
1. Administrator (authorized person who are going to have a login access directly from the database.
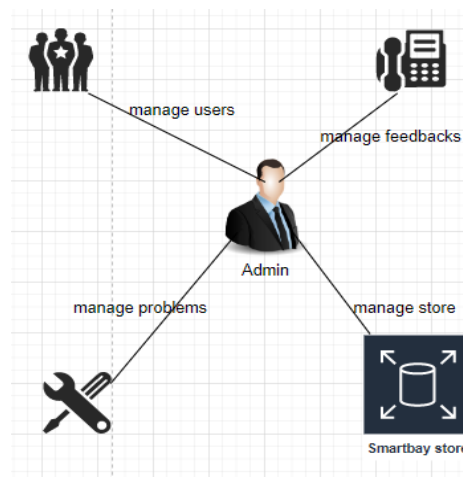2. Customer (buyers from the system)
3. Seller.

Features of the app -:

All users must have an authorization to use the application except the customers who are only viewing the application. [Figure 2]

Figure 2: User authentications

Admin functions -:

Figure 3: Admin features

[Figure 3] Admins can manage the orders, manage deliveries, and manage the users according to the way that they want in a fully automated environment. And admins should get user feedbacks and have to maintain the system. Databases are updated by the admins in different sections and keep track of all the data which is stored in the databases. Customer functions -:
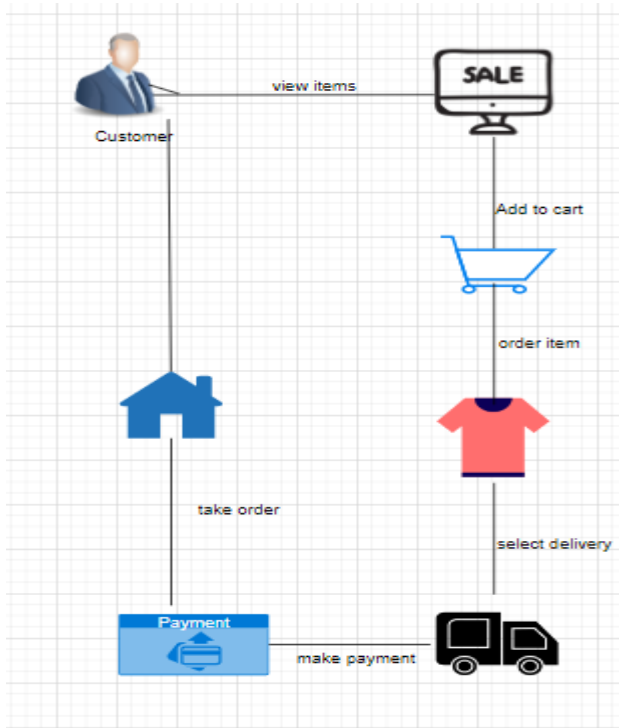
Figure 4: Customer features

[Figure 4] Customers can view items from online platform according to the categories. After login to the system from their own accounts, they can order items, manage their cart, and view total bill according to the order. Deliveries are arranged according to the detailed that they provided to the system and the delivery charges calculated according to them. Payment types can select according to the way that user wishes. Users can give feedbacks about the system and the services provided by the company.
Seller functions -:
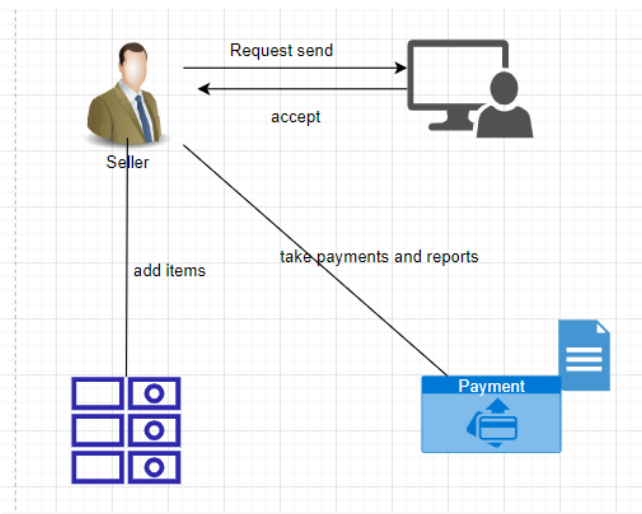
Figure 5: Seller features

[Figure 5] Sellers can log in to the system and request for the items from the admin that they want to sell in this platform without any delay. After they can view the requested items and the status given by the admin and take quick payments according to the items that they have sold.

We have designed sample UI prototype views to implement and below are the some of them. We are looking to develop user friendly interface for the users. Any person who has different minds should be able to understand and use this application.
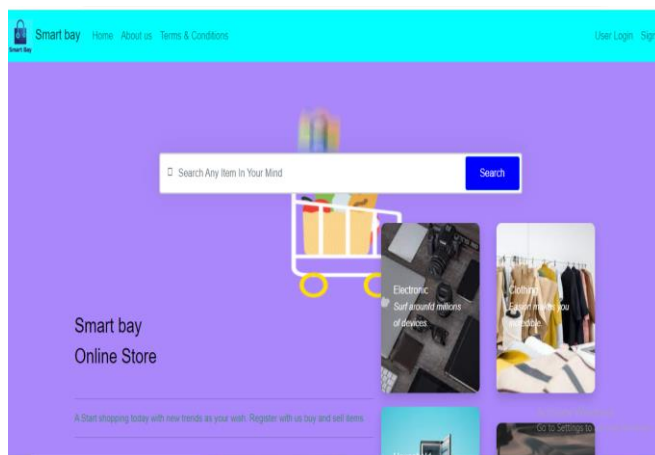

Figure 6: Home page

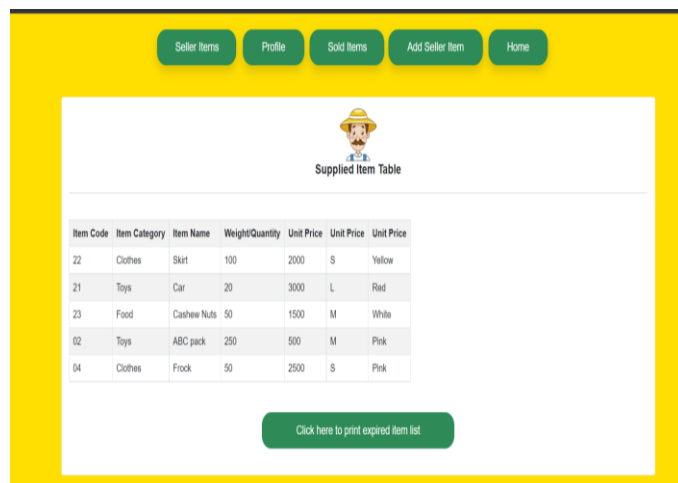[Figure 6] Can use to login as many user types.

Figure 7: Seller report

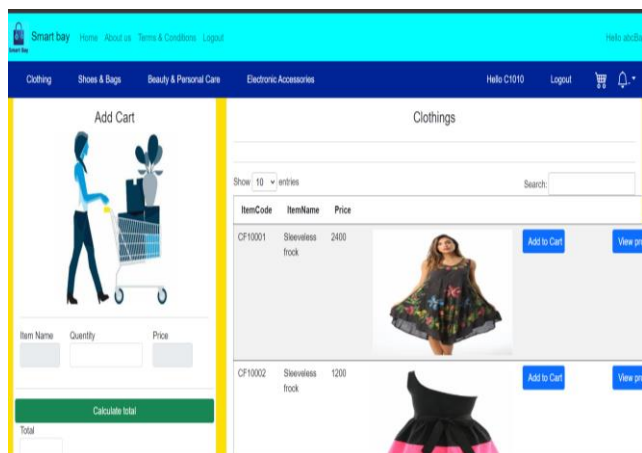[Figure 7] can use to get sales reports to the sellers

Figure 8: Shopping cart

[Figure 8] Can use to manage cart items

Figure 9: Deliver report.

[Figure 9] can use to get delivery reports to the managers.

Figure 10: Payments

[Figure 10] can use to choose different payment types.

V. DISCUSSION

With this Smart Bay, anyone from a self-employed person to a large-scale businessperson across the globe can easily sell their products through this proposed system. Moreover, any person around the world can get the desired products at home. Through this system, the manufacturer can add his products for sale to the system, get details about the products sold, details about the products he has sent for sale, etc.

Buyers also can select and buy any item as their wish, check their prices, and add items to the cart. After selecting items to the card, they can pay easily by using payment gateway.

All functions related to this system are evaluated with the help of Selenium testing tool to minimize errors. And the quality of this method has been checked multiple times with the help of Sonar Cube testing tool as below chart [Figure 6], to provide the best product to the customers.
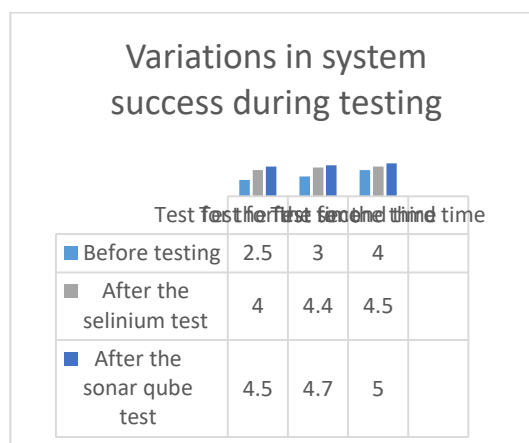

	Test the first time	Test the second time	Test the third time
■ Before testing	2.5	3	4
■ After the selinium test	4	4.4	4.5
■ After the sonar qube test	4.5	4.7	5

Figure 6: Variations in system success during testing.

VI. CONCLUSION

The overall purpose of this system is to make it easier for all users of Smart Bay to manage their accounts efficiently while ensuring accuracy of records and make good intention on customers and buyers towards the application in every step of the user journey. At the same time, the system was also developed to help users get better and faster information about all their interactions with the system. For customers, it is a way to order the goods they want rather than using other comparative systems. It is also good for sellers as it is very easy for them to store and retrieve data without manual system and they can sell their products online without wasting time to find actual buyers.

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