A Model for Smart Shopping, i-Shop

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Abstract: *Shopping from a wide selection of goods online is simple and convenient. Online purchasing has a plethora of benefits. Customers can save a lot of time by purchasing goods online instead of having to physically visit a store to do it. We have set up an e-commerce website that is completely functional and has the potential to be upgraded to a smarter model by using data mining to comprehend customer purchasing behaviours and traits to predict future trends. The website was created utilising a free CMS system, a MySQL database, and the PHP programming language. First of all, as it is a free CMS system, anyone can use it. There are nine modules in this smart retail model. The I-Shop website's registration module enables users and customers to sign up before using it. Customers may easily use the Items Browse and Products Search Modules to search the website for their selected products. Customers may utilise the website in their favourite currency by using the shopping cart module, which supports several currencies. The Shipping & Billing Module, which gives the vendor control over shipping costs, is also implemented. The Payment Module offers the consumer a variety of payment options. The admin of the i-shop model can easily manage, regulate, and keep an eye on the entire website thanks to the admin user management, admin catalogue management, and admin order management modules. . Finally, this study aims to investigate how customers' attitudes toward online purchasing will change as a result of smarter shopping models.*

Keywords: I-Shopping, electronic commerce, and smart shopping

I. INTRODUCTION

With fewer than 20 years of existence, the study field of electronic commerce is still in its infancy. Academics and practitioners from a variety of sectors have paid close attention to the explosive rise of electronic commerce activities in the last 10 years. Huge company operations are being handled online in the age of modern technologies. People use the internet to sell and purchase both things and services, and many transactions are only possible online. The study on smart shopping models and online shopping is reflected in and summarised in the article that follows. Electronic commerce has grown to be a significant activity in modern corporate operations as a result of the popularity and quick spread of the Internet and network technologies. The volume of online purchasing has expanded as a result of the development of the World Wide Web [1]. An rising number of online sales occur each year, demonstrating the importance of the internet as a tool for shopping[2]. However, many internet users are hesitant to purchase online because of privacy and security worries [3], which stem from their reluctance to transfer personal data over the internet [4]. Despite this, online shopping is still expanding as online businesses become more sophisticated [3], which has a significant impact on how customers purchase goods and services [1]. Online buying is the third most common internet activity, according to Li and Zhang [6] and Wu [5], who notes that around half of internet users have made an online purchase. According to the most current global data, global online retail sales increased by 14.5% in 2009 to reach $348.6 billion, although they still still make up 2.5% of all retail sales worldwide. Global online retail sales are predicted to increase by 22.2% by 2014 to reach $778.6 billion. Retail IMAP report According to research from the GfK Group [7], there are now 31.4% more online shoppers in six important European regions than there were a year ago. This indicates that 59 million people in Europe routinely purchase online. However, not only does the quantity of online buyers increase, but so does the size of their purchases. Online retail sales in the United States climbed by 2.1% in 2009 compared to 2008, reaching a total of $145 billion, while retail electronic sales increased at an average annual growth rate of 18.1% from 2002 to 2009 [8]. 37% of internet users in the EU's 27 nations made an online purchase in

2009, an increase of 5% from the year before. More than 60% of internet users in the United Kingdom, Denmark, the Netherlands, Norway, and Sweden have made an online purchase, compared to the same percentage in the United States.

Less than 10% is made up of Greece, Lithuania, Bulgaria, and Romania [9].

Numerous studies have been done on how people shop online. The majority of them have made an effort to pinpoint elements that influence or contribute to online customer behaviour. Researchers appear to adopt various viewpoints and place various factors under different spotlights [6]. According to a study by Pérez Hernández and Sánchez-Manga's [10], having a home internet connection boosts a person's likelihood of doing online shopping by up to 14%. Online shoppers are drawn to ease and variety, according to Li and Zhang's [6] analysis of consumer traits connected to online purchasing. Additionally, they are more creative and impulsive than traditional shoppers. Additionally, they are less familiar with the product's brand and likely to see advertising and direct marketing favourably. On the other hand, Siu and Cheng [11] discovered that the economic advantages of online shopping, the product availability, the security risks, their monthly income, the product technology opinion leaders, and their attitude toward technological advancement are the most crucial factors in categorising online shoppers. The degree of faith Having a favourable link with the customer's attitude toward the store and an unfavourable relationship with the perception of danger. Finally, customer desire to purchase from a certain retailer was influenced by attitude and risk perception [12]. The scale of internet shopping adoption differs across industrialised and developing nations, as is seen from the aforementioned [13]. Any organisation that wishes to engage in this new industry and be competitive must comprehend the potential it offers.

Additionally, several studies are concerned about the attitudes of internet consumers [14]. Which variables influence customers' decisions to buy from a certain electronic store is a crucial subject in this field [15]. Different product kinds have an impact on customers' acceptability of online purchasing, according to Liang and Huang [16]. According to Cho [17], a customer's online shopping behaviour is influenced by the kind of goods or service they are looking for. In the modern world, e-commerce may be a highly lucrative endeavour, but more study and inquiries are essential since better models and methods of buying are required as e-commerce takes over. In order to address the aforementioned problem, this research proposes a more clever web-based commerce paradigm. Although several research have demonstrated the significance of customer traits in online purchasing, the bulk of those studies disregard the impact of online shopping convenience. The purpose of this study is to investigate how a smarter shopping model would affect customers' attitudes toward online buying in an effort to get beyond this constraint. This work is organised as follows: Section 2 provides the theoretical underpinnings of this investigation. The research topic is presented in Section 3, and the ishop model is presented in Section 4. Finally, we'll wrap up our investigation in the conclusion Section by leaving open the possibility of further study for less experienced researchers.

II. THEORETICAL BACKGROUND

The World Wide Web is expanding quickly, and as it gains in popularity, more and more people become familiar with it and start using it to conduct online informational searches and conduct online purchases [1]. The elements that impact user approval of online shopping are summarised in this part, together with the determinants that shape consumer behaviour and a brief overview of earlier studies on the topics covered.

2.1 Factors Affecting Consumer Behaviour

Four groups of elements — cultural, social, personal, and psychological — have an impact on consumer behaviour. Terms like culture, subculture, and social class fall within the first group of cultural elements [5]. The term "culture" is broad and encompasses a wide range of skills and behaviours that a person acquires just by being in a certain community, including knowledge, beliefs, the arts, laws, ethics, conventions, and many more [18]. The second category, which deals with social variables, comprises social roles, families, and peer groups [5]. Reference groups are all social groupings that can directly or indirectly affect a person's attitude or conduct [12]. Depending on their age, people's preferences for goods or services fluctuate. Additionally, their purchases are influenced by the stages of their life cycle, which are the stages that families go through as they grow and mature through time [12]. A second element that affects a person's purchasing habit is their line of work. Psychological elements including motivation, perception, learning, beliefs, and attitudes make up the fourth category [12]. People's conduct is influenced by motivation, an

internal and complicated process that is brought on by specific reasons including hunger, thirst, recognition, and dedication.

2.2 User Approval of Online Shopping: Determinants

Consumer traits, personally perceived values, website design, and product have been identified as the four primary elements influencing user acceptability of online buying in previous research.

Consumer characteristics include personality traits like knowledge of the internet and social environments [6], self efficacy, which refers to one's belief in one's ability and means to successfully complete a certain action [6], demographic profile, which contains variables like age, gender, education, and income [6], and most recent acceptance of new IT applications, which refers to the user's attitude towards the adoption of IT [12].

2.3 The Attitude of Consumers Toward Online Shopping

Usability, security, after-sales support, and reputation are just a few of the major characteristics that have been described in prior research as having the potential to affect customers' attitudes regarding online purchasing.

A. Actual Usability

Usability is the degree to which a website makes it possible for users to use its features effectively and easily [12]. Making the design of a website simple enough so that users, who by nature tend to be goal-driven, may complete their work as fast and painlessly as feasible is a definition of web usability.

B. Security Perception

"The degree to which one feels that the World Wide Web is secure for transferring sensitive information," according to Pearson [19], is how secure one perceives the Internet to be. Their research led them to the conclusion that the security of e-transactions has an impact on consumers' intentions to make purchases online.

C. Perceived After-sales Service Quality

The delivery service for providing goods to a client after payment, technical help after sales, etc. are all examples of what is meant by "after-sales service" [19]. Services that are classified as unexpected services include replacements, returns, and repairs for items that have sold out.

D. Perceived Reputation

According to Hyde and Goss chalk [20], reputation is more crucial in the virtual world than it is in the conventional market arena. Customers cannot physically inspect the products in the virtual world before making a purchase. They can only rely on the vendor's product description and information from the website about the product. As a result, consumers' attitudes toward online shopping are now significantly influenced by an online vendor's reputation.

III. RESEARCH QUESTION

The earlier sections illustrated the present trend of internet shopping. Online security, privacy protection, and after-sales support are just a few of the many elements that online shoppers find difficult to control because the entire purchasing transaction takes place online in a virtual environment.

Many individuals think that these issues might have a direct impact on how they feel about adopting internet purchasing. People also think that it is impossible to physically inspect the quality of the goods when shopping online and that the process is too complicated. Additionally, fraud has grown to be a serious problem that deters online shoppers.

As a result, the following is the research question for this study: What is the level of consumer satisfaction and attitude toward the "i-shop a Model for Smart Shopping" new and improved shopping model? The purpose of this study is to present the "i-shop a Model for Smart Shopping," a novel and intelligent shopping paradigm.

IV. MODULES IMPLEMENTATION

Following a thorough examination, it was determined that the system should have the following modules. There are nine components in this smart shopping model (www.ilabaustralia.org/ishop2016/). The I-Shop website's registration module enables users and customers to sign up before using it. Customers may easily use the Items Browse and Products Search Modules to search the website for their selected products. Customers may utilise the website in their favourite currency by using the shopping cart module, which supports several currencies. The Shipping & Billing Module, which gives the vendor control over shipping costs, is also implemented. The Payment Module offers the consumer a variety of payment options. The admin of the i-shop model can easily manage, regulate, and keep an eye on the entire website thanks to the admin user management, admin catalogue management, and admin order management modules.

V. PROPOSED MODEL

For a better online purchasing experience, a new and intelligent shopping model was created. The following graphic is essential to the software development life cycle (SDLC) since it outlines all of the system's requirements. It is intended for usage by programmers who want to improve the new system even further. The goal of this software development is to design and implement online shopping, which will allow clients to conduct their typical home buying over the internet. All needs were understood in advance. The system development life cycle for our suggested i-shop model is shown in Figure 1.
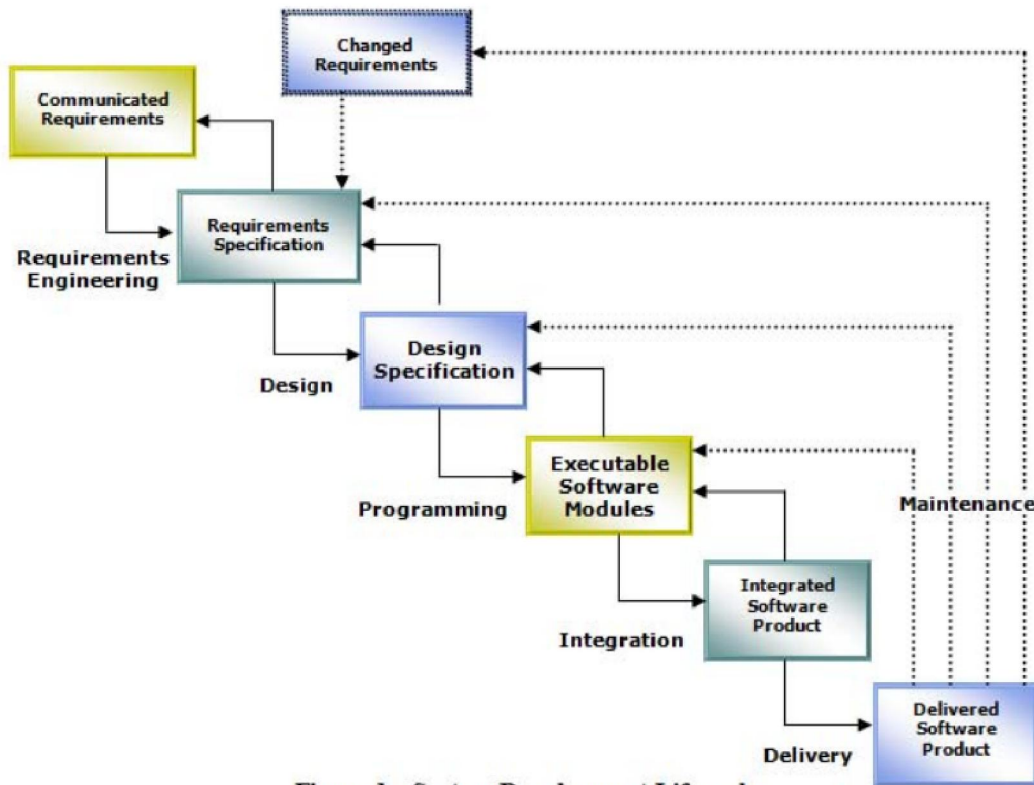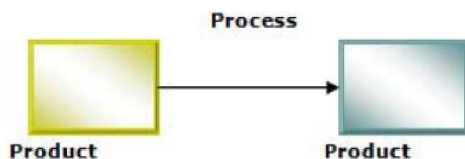

Figure 1: System Development Lifecycle

VI. ADVANCED SYSTEM CAPABILITIES

I-shop offers the merchants a wide range of sophisticated features. The ability to see and alter order status as well as change customer records. Orders can have their status modified, for example, from "pending" to "delivered," and comments can be made. A customer's "My Account" area or the Administration area can, at the customer's request, be made available for seeing the status and comments related to an order. the ability to add, remove, or change categories, items, manufacturers, customers, and product reviews. The solution also enables management of the shop's catalogue layout and examination of client and purchase-related reports. Control over how shipping charges are determined for each order and control over how payments are handled are two additional crucial features that i-shop offers. Customers have a selection of payment alternatives thanks to the installation of many payment methods. Support for websites that support several languages and currencies, as well as the ability to manually update conversion rates or link to servers that store exchange rates. To protect the store's data from computer breakdowns, i-shop also includes effective backup options. The i-shop also has several tools that users may use to make shopping and keeping track of previous purchases simple. Customers may evaluate their purchases to check and keep track of the status of their orders. Each order's status is available for customers to see. The programme gives the consumer comprehensive details about their order, including whether it has been sent or processed. Customers may look back over their prior purchases thanks to access to their whole transaction history. Additionally, buyers may sign up to get email notifications of any relevant product changes. Customers may evaluate items and browse reviews left by other customers thanks to an optional feature for product reviews that the store owner can disable.

Additionally, customers have the choice to email a friend about our product.
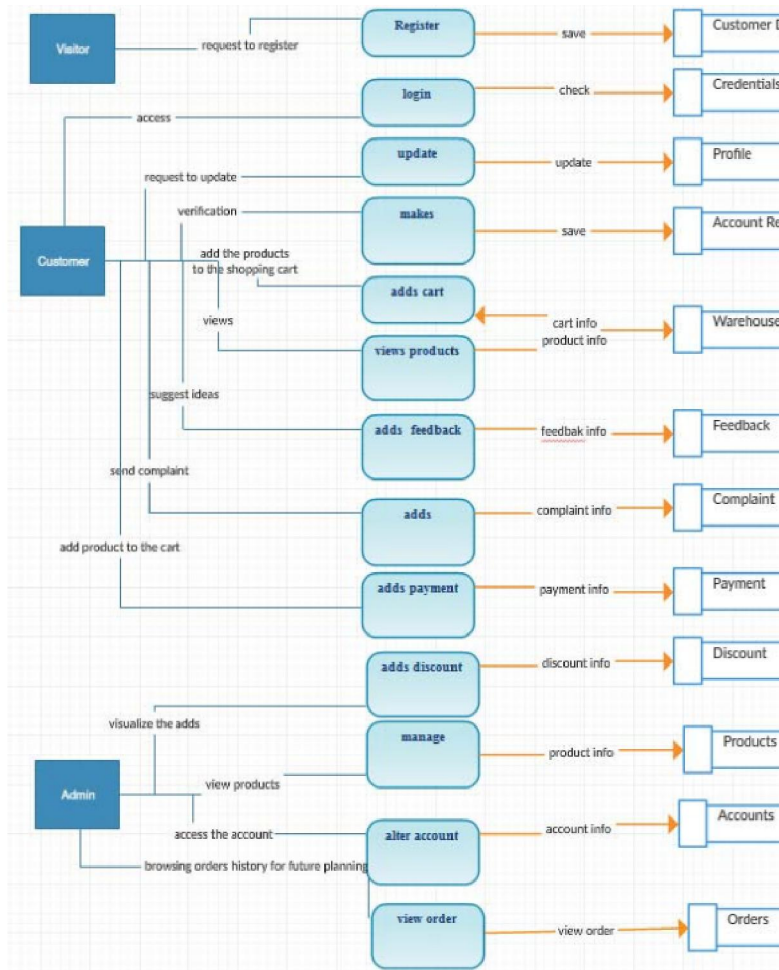
VII. I-SHOP DATA FLOW DIAGRAM

Figure 1: Data Flow Diagram

The suggested ishop model's data flow diagram is shown in Fig. 2 below. It models the process characteristics of the "flow" of data via the i-shop system through the use of graphs. This DFD demonstrates the types of data that will be entered into and exported from the system, as well as where the data will be kept.

VIII. CONCLUSION

This research served as the initial stage of a larger research project whose ultimate goal was to uncover and quantify the user experiences and web-based characteristics that are connected to the enjoyment and quality of the newly built, more intelligent shopping model. The motives and needs of online shoppers should also be taken into consideration when developing a website's design and strategy. For instance, most internet customers do not demand or expect "high touch" care until they have inquiries or issues with customer support, in which case they anticipate reasonably prompt responses (within 24 hours) that are appropriate to their particular issues. Goal-oriented consumers are more satisfied with any features that give them a greater sense of control and independence, such as order monitoring, purchase histories, preserving information to speed up future sessions, and opt-in email notifications of new items and promotions.

This model offers a limited number of appealing alternatives. For instance, a customer can choose between the economic and brand modes to swiftly complete his transaction. All of the accessible information on clients, goods, daily transactions, etc., would be generated by this system. Then, using computational intelligence theory, we may use massive data to extract knowledge. A crucial idea that practically everyone has now come across is "big data". But in the realm of e-commerce, a sizable proportion of companies have not yet completely committed to using this large data to provide important insights and produce lucrative modifications.

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