Enhancement of Electronic Payments for Hyper Market System

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GJCST-E Classification : K.4.4

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Strictly as per the compliance and regulations of:

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I. Introduction

The internet and the World Wide Web have become a part of our daily life. Since 1997, the web has progress into a true economy and a new frontier for business [1], It has changed life and the way of business. Therefore, many businesses have changed to online business. However, not all e-commerce websites can success as there are many competitors out there. As e-commerce website is all about attracting and retaining customer, it is crucial to guarantee that users are having a good experience throughout the whole process [2].

EC is the use of computer networks to improve organizational performance as well as increasing the profitability ratio. Moreover, it helps to get a share in the market and improve customer service by creating a Web page and supporting the investors' relations or communicating electronically with customers [3].

Now a day many sites have a good business and become well known ecommerce sites, such as ebay.com, Amazon.com, taobao.com and others. Business is evenhanded to the process of shopping on the web site. It becomes the way of shopping spread widely for different purposes. Including personal need, house need or business need. Online shopping with its 24-hour availability, a global reach, the ability to interact and provide custom information and ordering, and multimedia prospects, the Web is rapidly becoming a multibillion dollar source of revenue for the world's businesses.

Along with EC areas, Business to Business (B2B) is being spotlighted as an interesting research area considering its size and the potential impact it has overall. Now various B2B systems are being used in seller-centric E-marketplaces, intermediary-centric E-marketplaces, and buyer-centric E- Marketplaces etc [4].

Internet commerce brings new technologies and new capabilities to business, but the fundamental business problems are those that merchants have faced for hundreds or even thousands of years: you must have something to sell, make it known to potential buyers, accept payment, deliver the goods or services, and provide appropriate service after the sale. Most of the time, you want to build a relationship with the customer that will bring repeat business [5]. From this we believe the good designed site and the optional services provided in the shopping site is the promise of good business.

In this paper, we have created some enhancements in electronic commerce. From the basic functions of the shopping sites and the development stage of this market we analyzed the enhancement of some cases:

The first case is multi-payment services, a payment system and method for electronic commerce transactions is disclosed. In an exemplary embodiment, a payment Administrator receives a request for payment notice for an electronic commerce transaction, such as a purchase on a merchant website. In response, the payment administrator creates a payment notice comprising a transaction amount (which may be converted between different currencies), an age restriction for the purchased product (if applicable), and a unique identifier for the electronic commerce transaction. Preferably, the unique identifier is presented in both human-readable form and machine-readable form (such as a barcode) on the payment notice [6].

The second case is the convenience of searching and comparing products with new way to challenge other shopping sites and save more time and effort during all customers' visits.

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II. Enhancements

The tremendous growth of the Internet has led millions of companies to set up shop on the Internet and over 100 million consumers worldwide are eagerly participating in the global online marketplace [7]. From the beginning of electronic commerce to its current status has received a quantum leap of development and progress in many aspects.

From this development of electronic sites we start to get destruct with the payment systems methods and security to meet users and customers' expectations. The enhancements of this website are designed to meet such needs including the payment features and site features.

The payment features are designed to make the users have the ability to choose multi-able payment methods by himself or his partners or other companies when the payment was by percentage between them. Which mean the system supports the payment from different methods or different parties.

Site features include the compare part which allow user to compare products according his choice or according his search and displayed results even if he does not choose them to compare. The compare feature also allows him to choose one property as default compare.

The second part of site features also include very advanced way for search which allows the user beside the normal search and advanced search of all available sites to search by his phrased description of his desired product. That's because the advanced search method only have limited properties for search which the users may have and it is not available in the basic advanced search.

Using data mining search the user will have his desired search fast and easy.

The user or customer can find his desired search very easy and compare it with others to help him decide the payment process.

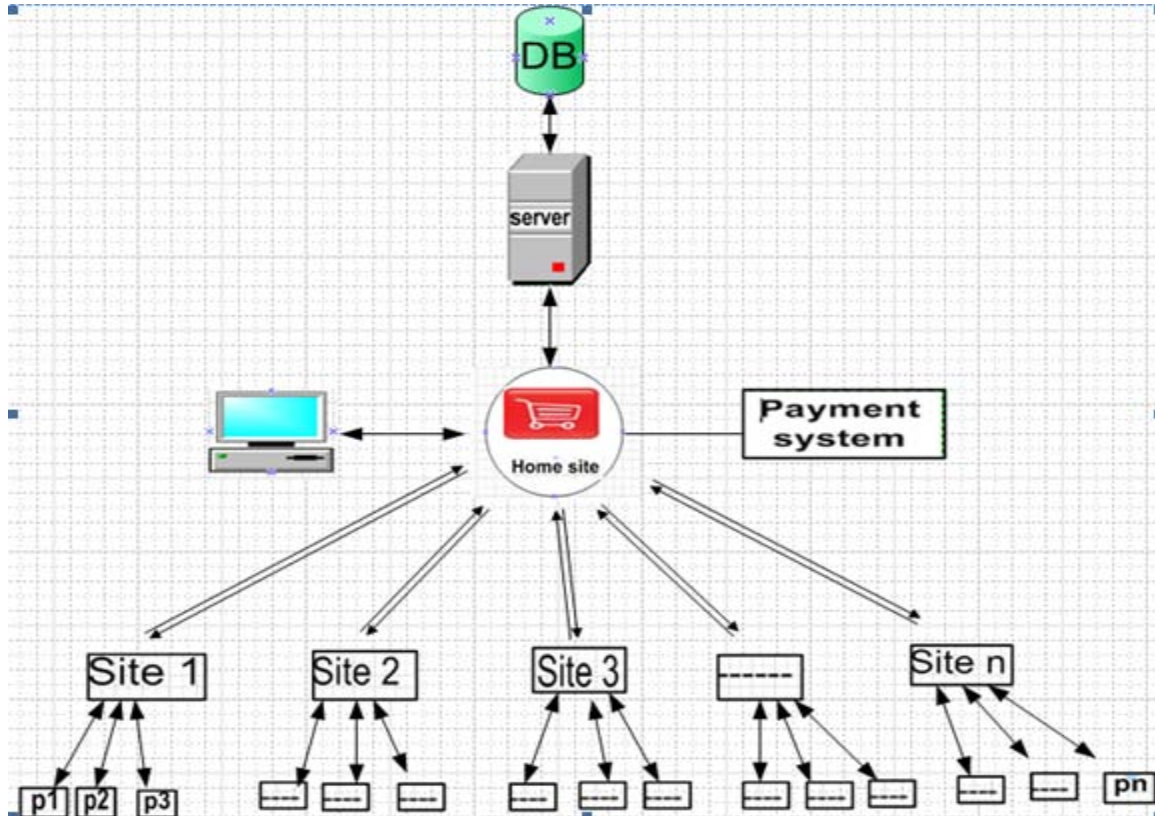He can find the product in any small shop site in the main shopping site.

Figure 1 : Architecture of E – Hyper Market System

a) Enhance of Payment

Electronic Payment System (EPS) always uses transactions between three kinds of entities: A client (payers), electronic shops (payees) and the bank (Trusted Third Party). The Architecture of system is Shown in Figure (2) [8].
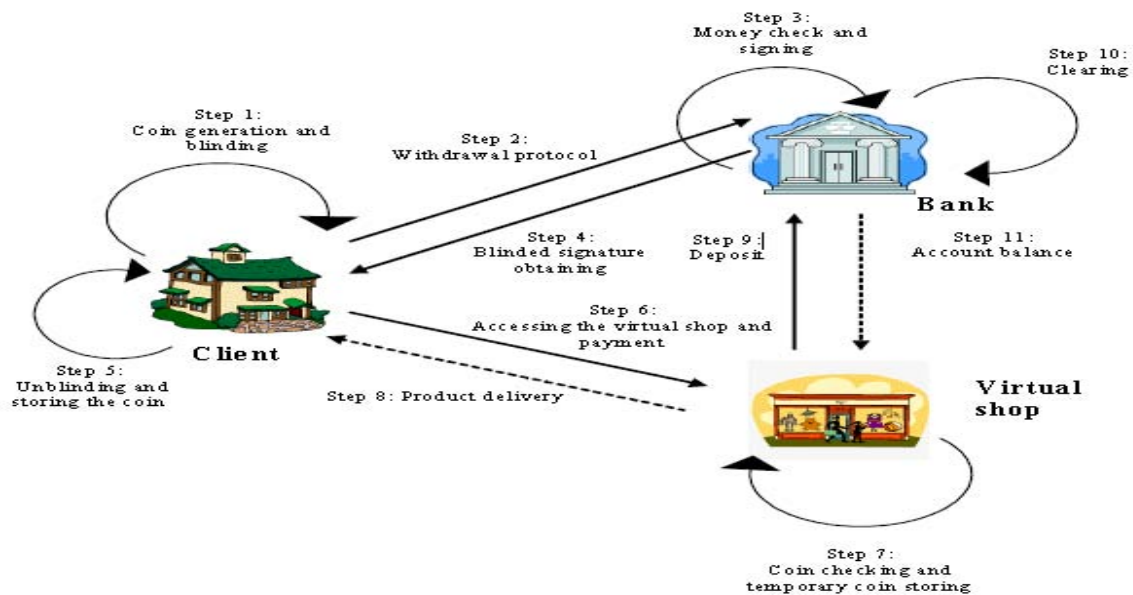
Figure 2 : Architecture of on- line EPS

In general, EPS is classified into two categories, the systems with on-line verification and the systems with off- line verification [9].

In the every E market when you use the market payment the system will show you the total price of the product you're willing to pay and you need to pay it from one machine at once, as a customer this way may be an inconvenient one for different reasons and may cause you loss lot of customers. From different corner coincide with the developing of the e market and Procurement partnership or company discounts for employees that what we can see is, this way of payment cannot face all these requires and development.

b) Compare Products

Online shopping is often conducted to compare products, or processes to select the one which has the highest reliability. For some products, a failure is said to have occurred when a performance characteristic reaches a specified threshold.

For these products, reliability is defined by the performance characteristic.

Then comparing the reliabilities of two products can be turned into comparison of their performance characteristics.

During testing, it is possible to measure the performance characteristics at different times. Measurement data can be employed to predict whether or not the performance characteristics of the two products will be significantly different at the time of interest, when there are sufficient data to make such a prediction with a high degree of confidence, the test can be terminated as a result[10].

Shopping over the net and facing the difficulty of searching for the appropriate item you want to purchase, the standard way for that is the key search by typing the related word of item and goes searching, but with the huge data over the net and sites also the growth of the manufacturers and suppliers you will face the problem of choosing the suite item for your need.

And now by using the compare function according items properties you can see the differences between items and choose the suitable one for you before going payment.

And the different site will provide a different item or even the same but with different properties that will make the customer need to go through a different sites and compare the items manually to choose the right one for him. This will cause the customer more time and may lead him to another site to buy the appropriate item for him.

c) Described Search

One of the main obstacles in e- commerce is that it is not easy for customers to search for relevant information about the products they want [11].

As we know the most sites already have the When button called (Properties- based Search) which allow the customer to enter the specific characteristics. He can search using a specific value for the property he wants. But, according to the users interface of the site, the advanced search may not contain the property which the user want to search by even if it very available in the product properties, in this website the user can use the function of described search to type down the phrased description of his desired product and hit search which will compare all product properties with this phrased description and give the match result to the user by 100% accurate and post all related product by very quick and correct way,beside this function the user also can use the normal search or advanced search which also available in this site.

III. Architecture Design

The Figure3 shows the architectural structure of the database of this site which represents the logical schema. SQL server is used for this database.
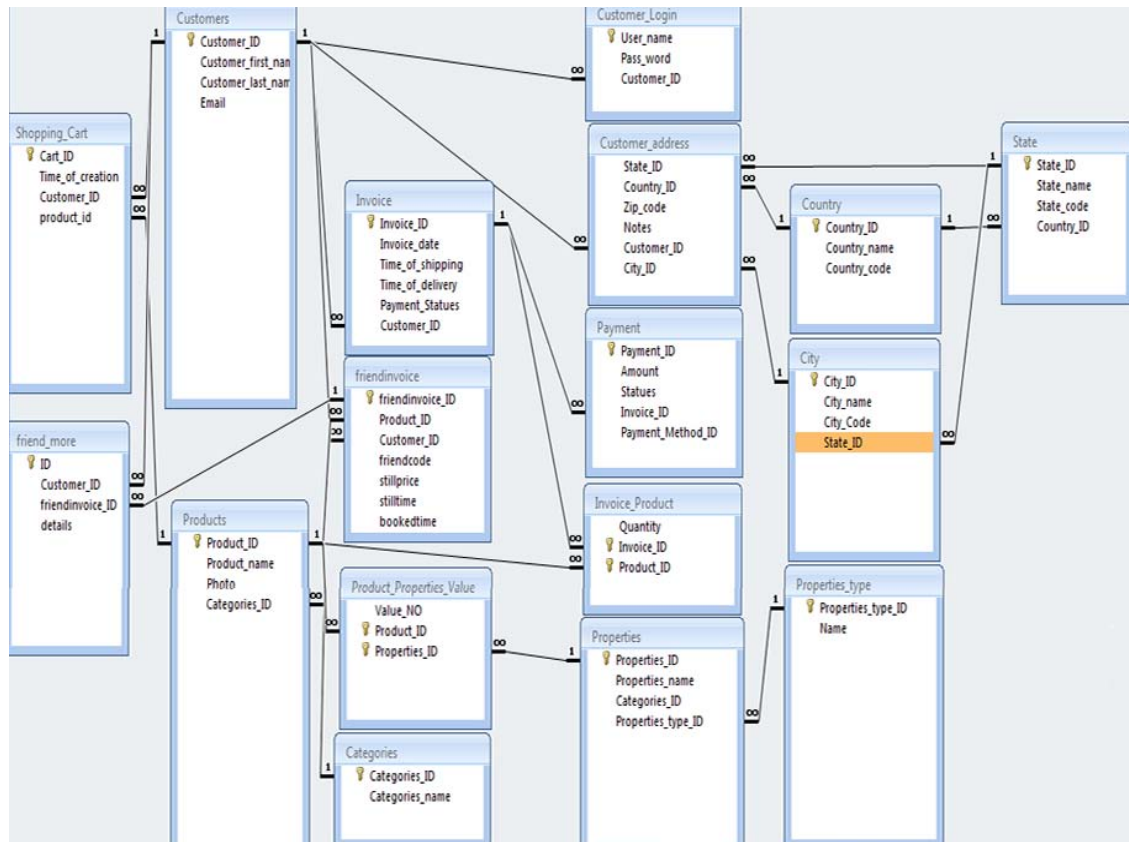

Figure 3 : Logical Schema

From this figure we can deal with the all enhancements feature that mentioned in this paper.

a) Enhance of Payment

There are various proposals for EPS the vast majority have been failed to achieve, rely on a large scale. Reasons for non-success of some of the proposals and others fail remains unclear [12]. But as a customer and market manager we can see the development of the payment systems, online market, manufactures, trusted sides and Procurement partnerships is a way to make us feel the optional way for the payment is the most success way for the payment system. This way can be implemented by giving different options while the item been selected to face the customer plan of payment. This options need to include the most famous ways available to the customer and face his actual plan of payments. Payment options will include the internet bank and visa card, by friend, partner, and delivery, etc.

Using these options after selecting items will face the most desirable plan of payment of customer. This what we have seen in the recent research, in this paper we are providing a more optional way for the payment: which will allow more than user to make the payment, which mean I can pay part of the payment price and can let my friend or company to pay the second part the same as the third part and so on. This function is great way for banks percentage buyers or big company which can buy the discount percentage for its employees and the employee can buy and pay the rest of the price of the product.

It means that enhancement of the payment feature allows the product to be paid by two payers and the both of them can use multiple options of payment methods. This will face a certain demands of customer specially for friends and partners, when the customer choose the item and goes for payment options he will see the by friend option he can choose the appropriate way for himself to pay and after that by clicking the by friend option will allow him to copy a special code he can send this code to his friend or partner to complete the payment, in the other side customer's friend can also see the name of his friend and the original price of the item and how much his friend is already paid for the item and complete the payment using the same options available in the system.

And also the customer can make the payment separated or not he can choose pay at once and pay the total price of the item using one option of the system and complete the buying process.

The tables below and their relationship tables cover the main function of payment enhancements:

Table 1 : Payment Options

S.no	Name	Type	Description
1	Product_ID	Number(int)	Primary Key For Product
2	Product Name	Varchar	
3	Category ID	Number	Foreign key from Category
4	Photo	Blob	
5	Site ID	Number	Foreign key from Sites

Table 2 : Friendinvoice Method

S.no	Name	Type	Description
1	FriendinvoiceID	Number (int)	Primary key for friend invoice
2	Product_ID	Number	Foreign key from product
3	Customer_ID	Number	Foreign key from customers
4	friendcode	Number	Special code for the friend
5	bookedtime	Date	Date to complete by friend
6	stilldate	Date	The date of starting by customer

b) Compare Products

Electronic commerce is the area that requires ontology mapping on product comparison over different product classification taxonomies of various shopping malls [13]. The customer need to compare the item he wants to buy with different items which has the same use or different brands in the same web store or the same item form different sites web stores to see all properties and differences and choose the appropriate one to buy. This function will allow the customer to view different items from different sites and select some of these items and compare them by their all properties and see the best for his/her choice.

Not only this but the system will allow him to choose what properties his considering more and the system will provide him the comparison according his chosen properties. And with most exited part of the compare function, the system will also allow him to choose whether he want to compare with the selected items only or to also search and compare according his chosen properties from other unselected products which has related properties and not chosen by him and display the result in one page easily and smartly, after displaying the result in the default view it also allow you to display the result in different view according to your sort option provided in the system (numeric ranking, standard ranking, site ranking) The following tables and relations cover the enhancement of compare:

Table 3 : Product Table

S.No	Name	Type	Description
1	Product_ID	Number (int)	Foreign key from Product
2	Describtion	Varchar	
3	_ID Value	Number (int)	Foreign key from Properties

Table 4 : Product description

S.no	Name	Type	Description
1	Properties_describe_ID	Number	Primary key for Properties type
2	Name	Varchar	

c) Described Search

As we know the most site already have the When button called (Properties- based Search) which allow the customer to enter the specific characteristics. He can search using a specific value for the property he wants. But according to site entry by user, the advanced search may not contain the property which the user want to search by even if it very available in the product properties, in this website the user can use the function of described search to type down the phrased description of his desired product and hit search which will compare all product properties with this phrased description and give the match result to the user by 100% accurate and post all related product by very quick and correct way.

Beside this function the user also can use the normal search or advanced search which is also available in this site.

The following tables with other related tables cover the described search on the database schema:

Table 5 : Category Table

S.no	Name	Type	Description
1	Categories_ID	Number	Primary key for Categories
2	Categories_name	Varchar	

Table 6 : Description Table

S.no	Name	Type	Description
1	Describtion _ID	Number	Primary key for description table
2	Name	Varchar	
3	Categories_ID	NUMBER	FK
4	Properties_de scribe_ID	NUMBER	FK

IV. IMPLEMENTATION

ASP.NET is a multi-language of the .NET, we used c# to code this website pages .By entering the main page of this site the user can see the recommended products, features, new, etc. user can be one of three types: admin, shop owner, customer , the admin can manage and grant the most function of the site including shop owner, news, notes etc.

Shop owner can register and log in, after being granted he can add, modify, and delete his own product in the site.

Customer can browse search buy and make the payment using all available functions of the site.

Here we will focus on the Enhancements functions we discussed in this paper.

a) The enhancement of payment

Figure 4 : Payment Page

After completing shopping process and deciding the payment step the page of payment (Figure 4) will appear to the customer and as we see in this page the customer can decide the amount he is willing to pay and confirm that which will direct him to the payment plan by choosing full or divided payment full payment which will direct him to choose the payment methods and pay the all price at once, or by choosing divided payment which allow him to choose the multiple methods of Payment (Credit Card, Internet Bank, so on) [14].

Before finishing his payment process he will be asked to fill the address of shipping for the product delivery, and the email address for the payment details,

this email will contain the code of completing payment to give it to other payment parties to complete the payment of the product.

Figure 5 : Payment Page

As we see in the figure(5) above when the other parties get the code of payment he can go through the main page completing payments button to the code payment page Figure 4. In this page he can put the code of the payment and see the all details of the payment and previous payment and by clicking the continue the payment he can fill his information and choose his payment plan from full payment or divided payment the same as the first payer except on delivery option, also the same if the payment is not finished yet he will be sent an email contains code of completing payment to other parties till the minimum payment which will ask the last payer to pay the all payment to finish the payment process.

b) *Compare Products*

The compare function is very good way to let the customer know the different between products and making a sound decision for his product use, as we see in Figure7, when the user search and browse products he can easily compare between them. By selecting items from the browse page and he can directly compare the product without configuring any of the product properties; also he can specify a one property for his compare by selecting one of the product properties shown in figure (6) below:

Figure 6 : Payment Page

After selecting this property small window will pop up to let the use know he can choose to compare the selected items only or to choose the selected and related items and go compare, by choosing the related items the result will include all related items side by side according to the selected property.

c) Described Search

From the main page of the site every user can see the recommended product according best sales or recent sales, he can see also the search input to search the product he wants very easy and by using the advanced search he can refine his search for example the price range. The third enhancement of search is the described search after clicking (described search button) the user can type the phrased description about his desired product, for example he can type (red, 200$, apple, iPod) this will give him his desired search very accurate and desired from the market availability. Figure (7), shows the main search function of search.

Figure 7 : Described Search

Then click on the search button to obtain the search results as accurate as shown in the following Figure 7.

V. Conclusions

The goal of this paper is to enhance the online market sites by providing developed and useful functions to meet the user and customer expectations and needs, taking the full consideration of online commercial developments from this following:

1. Enhancing payment service by dividing the total price to be optional for more than one payer and each of these payers has the ability to choose multiple methods to make his payment.
2. Enhancing the comparison of product by providing the function of compare by property and function of compare the selected items or selected and related items to show more valuable data to the user and help him to make his payment decision.
3. Enhancing the search service by providing the function of described search which will allow him to write down his desired item description and get the result very quick and easy. This function will save the user time of browsing and searching by keywords.

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