



Easy Shopping Solutions with Area-mapping and Virtual Self-test

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ABSTRACT: On-line shopping these days in no way connects the buyers to the sellers. Therefore, there is a lack of trust. Our project is to develop a product that overcomes these drawbacks. The main purpose of the project is to create a direct interface between the customers and the retailers and guarantee a high level of transparency between the two. The feature of 'Area Mapping' will connect the customer with the closest retailer/supplier based on few specified parameters. The customer virtual self-test (using Superimposition feature) or try some selective products for a better online shopping experience. These features will establish a customer-retailer connect.

KEYWORDS: transparency, trust factor, area mapping, virtual self-test mode, Superimposition

I. INTRODUCTION

E-Commerce can be called as a form of electronic trade in which the buyer buys products from the suppliers online via the internet. Easy Shopping Solutions is the E-Commerce System containing deterministic features. It is a fully-featured website and shopping cart system that bends over backwards to give Retailers/shopkeepers the flexibility they need to run their online store. The basic purpose of the application is to allow the customers to view and buy products of their own choice. The product information is stored on a database at the server side (store). The Server processes the customer orders and the items are shipped to the address submitted by them by the retailers. The details of the items are retrieved from the customer view database based on the selection carried out through the given menu and the products database including information about all products is updated at the end of each transaction.

II. RELATED WORK

Six papers were reviewed in order to understand the various factors on which a customer's trust depends and also to understand the concepts of superimposition in detail. The survey can be explained as follows:

Lawrence Ang's [1] study is based on analysing the three dimensions of trust using choice modelling. Chris and Boon Chye [1] focus on understanding the contextual factors influencing online transactions. Drawback of the research was that there is a delay in the product delivery after the purchase has been made.

Further, Na wang and Dongchang liu [2] make a comparison between traditional methods of shopping and online methods of shopping. Also, an analysis on the influential as well as restrictive factors of online shopping is done. Drawbacks of the research include risk perception and comprehensive quality of the internet.

The drawbacks mentioned before are overcome by Young Hoon Kim [3] in his research. This research is based on investigating the influence of self-efficacy on purchase in E-commerce and to explore the interdependent relationship among the factors that engage in trust building in e-commerce. Dan J kim [3] later stated that the drawback of this research was that E business does not improve customer's self-efficacy. Another drawback was that customers were asked to give their responses based on their previous experiences.

In 2013, Niranjanamurthy [4] started a research on the security aspects of E-commerce. The research gives an overview of E-commerce security. It helps to understand secured steps to place an order. Other than that, it briefly explains the purpose of security in E-commerce, different security issues in E-commerce and secure online shopping guidelines. According to Dr. Dharmendra [4] the drawback of the research was that parameters like high degree of confidence needed in the authenticity, confidentiality, and timely delivery of E-commerce transactions were difficult to maintain as they are exchanged over the Internet.

To overcome the trust issues, Niranjanamurthy [5] suggested to use PayPal for online payments. His paper gives the information and recommended online payment method through PayPal and comparison with outstanding Online Payment Systems. Drawback of the research was PayPal can immediately freeze your account and hold your money. If they feel that



you have stanch a fraud or violated their policy they might freeze your account and hold your funds till further notice. Further, Vaishnavi Deshmukh and Sapna Kaushik[6] study payment systems that are central to on-line business process as companies look for ways to serve customers faster and at lower cost. As stated by Amit Tayade[6], the drawback of their research was that instead of focusing on the technical specifications of proposed electronic payment systems, they have distinguished electronic payment methods based on what is being transmitted over the network.

III. EXISTING SYSTEMS

Trust is the most important factor in online shopping. Existing online portals like flip kart, amazon, etc. have their own warehouses. When an order is placed it gets assigned to a particular warehouse. The customer does not know anything about this and has no knowledge from where his product will be delivered. Therefore, there is a lack of direct interaction between the customers and retailers/suppliers. Also, the feature of self-testing is not available in most of the portals. Customer cannot check how the product will look on him or whether the size fits him perfectly or not. This leads to customer dissatisfaction.

IV. PROPOSED SYSTEM

The figure below explains how the proposed system will work.

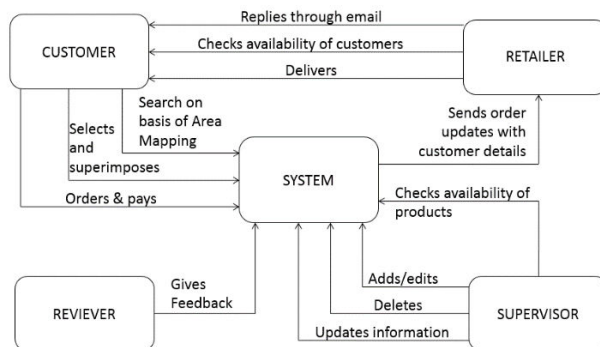


Figure: System Architecture.

The proposed system overcomes the disadvantages of the existing systems as it aims at connecting the user with the suppliers. This is done using the area mapping feature in which product information in the nearest shops will be given to the user along with the supplier and shop details. Also, customer satisfaction is ensured by the feature of self-testing. The proposed project will have four modules:

- Customer Module:** The customer module deals with the user functions. This module works as follows: The customer begins by searching products using filters based on the parameters. Then he enters the pin code for his area. The feature of area mapping selects nearby shops as per the entered pin code. Then the customer selects the desired products. The customer can implement product self – test using superimposition if he wishes to. Finally he places an order.
- Retailer Module:** The retailer module works as follows: A mail regarding an order with customer details is sent to the retailer. He checks availability of the customer. Finally the product is delivered within the stipulated time.
- Reviewer Module:** A reviewer can be any customer, supervisor or supplier. His task is to provide feedback for our product.
- Supervisor Module:** A supervisor is the one who checks whether everything is working correctly or not. There will be one supervisor per shop and he will have special access permissions. He checks the availability of the products. He adds, edits or deletes products as required. Also, he updates respective retailer’s information.

V. SUPERIMPOSITION TECHNIQUE

Superimposition is a technique that places an image or video on top of an already-existing image or video, usually to add to the overall image effect, but also sometimes to conceal something. In this system, superimposition is used for implementing the feature of virtual self-testing. The user can virtually try the product by using webcam. After selecting any product (optical), the user can try or self-test the product. As user clicks the “self test” button, the camera will appear on screen giving the functionality to try the optical product. The product (optical) will be superimposed on the face(eyes) using some parameters. For implementing this feature, KLT (kanade-lucas-tomasi) algorithm[7] is used. The KLT

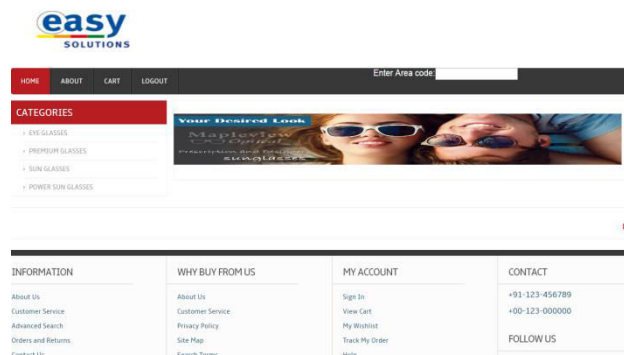
algorithm is used by many portals but those portals use it for stationary image while in this system it is used virtually i.e. when a user is trying the self-test feature it can be used for virtually trying the products. The face-parameters such as eyes area, mouth area and ears area are tracked and then, the image of the product is placed on the tracked face based on the parameters. The algorithm is implemented as follows:

1. Detects a face
 - Tracking or Locating the face-parameters based on color and shape information.
 - Using supervised pixel-based color classifier on facial parameters.
 - To mark all pixels which are within a pre-specified distance of “skin color”.
2. Identification of facial features to track.
 - Computing eigenvalues and eigenvectors from the spatial covariance matrix
 - Utilized to fit an ellipse to the skin region.
3. Track the face
 - Uses Symmetry-based cost functions
 - Locates the centre of the eyes, tip of nose, and side of Mouth within the facial segmentation mask.
4. Superimpose the product image on the eyes based on facial parameters that are tracked.

The KLT algorithm automatically detects a set of feature points. Then the detected points are tracked. During the detection process, salient feature points are found and added to the already existing ones. Afterwards, in the tracking process for each feature point its corresponding motion vector is calculated. The system uses **Kanade–Lucas–Tomasi (KLT)** algorithm for detecting human faces[8] and subsequently localizing the eyes, nose, and ears. With the help of these parameters superimposition can be performed.

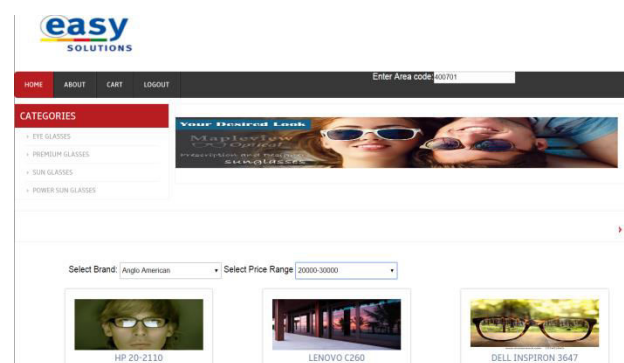
VI. SIMULATION AND RESULTS

1. Home page: Figure(a) is a layout of home page of the proposed system.



(a)

2. Area mapping: Figure(b) is a layout of the result after entering area pincode. The products are filtered on the basis of the pincode.



(b)

3. Superimposition: Figure(c) shows the layout of the virtual self-test that detects or tracks the facial features and superimposes the optical products according to the parameters tracked.



(c)

VII. CONCLUSION

The system will provide a medium for the local shops to become a network. Also, it will be an effective method to implement pin code mapping. The product promises to ensure transparency and personal touch between the customer and sellers. In future the feature of virtual self-testing can be improved super imposing and detection techniques. The Product will Provide transparency between customers & sellers and establish customer-satisfaction.

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