Innovation in Shopping Experience using augmented reality and integration with social networking

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Abstract— The paper puts forth a developed system which aids and improves the shopping experience of users. Many a times while shopping alone, the shopper ends up being confused about his/her selection and often wishes to seek advice from his near and dear ones. Also, the shopper spends much time searching the entire retail outlet for some particular color or design or brand. Thus, to overcome this scenario, the paper deals with an application which provides the shopper with a contact point in the form of a touch panel at the outlet. This touch panel allows the shopper to preview the entire catalogue of the shop. Moreover, it allows the shopper to get feedback regarding various apparels. The panel, equipped with a high resolution camera, captures him trying out some apparel and then sends this image across to his friends. His/her friends can then review the image using a platform independent chat application at their desktops. The touch panel then displays the comments and ratings received. This greatly enhances his/her decision making ability. Furthermore, the touch panel would allow shoppers to virtually try out all available colors of a product without having to wear them physically. Furthermore, the panel would also simulate different environments for various occasions.

Index Terms— Augmented Reality; Innovation; Shopping, Social Networking; Customer Experience, E-shopping.

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1 INTRODUCTION

THIS Humans need advice on almost every issue, so as to enhance their decision making ability. What if we could have the opinion of our near and dear ones on the products we are planning to purchase, what colors, designs and patterns to choose when we shop in spite of we staying far away from them? Communication system used for sharing of such opinion should be advanced and intelligent. Our system uses such a communication system which allows its user to connect to anyone, anywhere by any existing means.

In current scenario where time is the critical resource, everyone seeks to achieve the best in easiest and shortest way. In order to save both time and energy, shoppers would greatly appreciate a system that will show them the entire collection of a retail outlet at one go. Keeping this in mind we come up with the system called Shop-with-me for the shopping world. Shop-with-me would assist the shopper to make a best buy in less than usual time he/she spend on shopping. Also it would assist the retailers to target a large untapped market and hence boast up their sales. Hence a win-win situation for both shoppers and retailers is created.

'Shop-With-Me' is a completely modularized software solution. Three prominent modules have emerged out of it:

1.1 Web Portal

It is a web site which handles the registration of various classes of customers (i.e. shoppers, brands and suppliers). It also hosts the downloadable installer of the desktop-side application.

1.2 Mall-side application

A software application which runs on computers with embedded touch screen device and integrated camera and RFID reader at the shopping mall. It is the contact point for the shoppers in the mall.
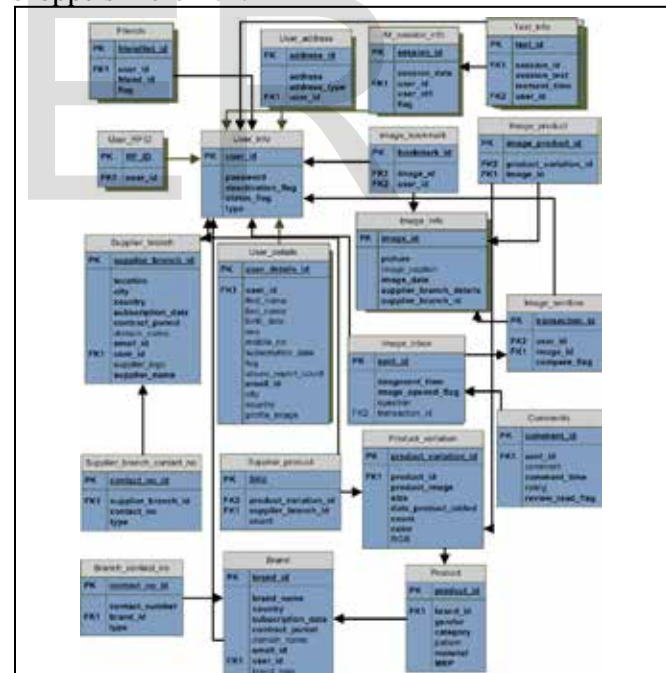

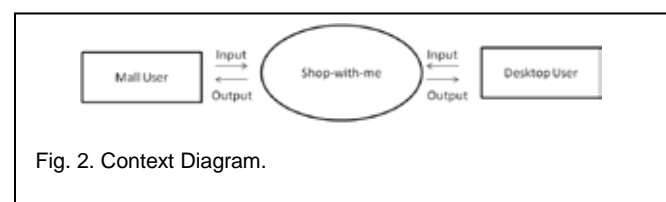
Fig. 1. Data Model for the project.
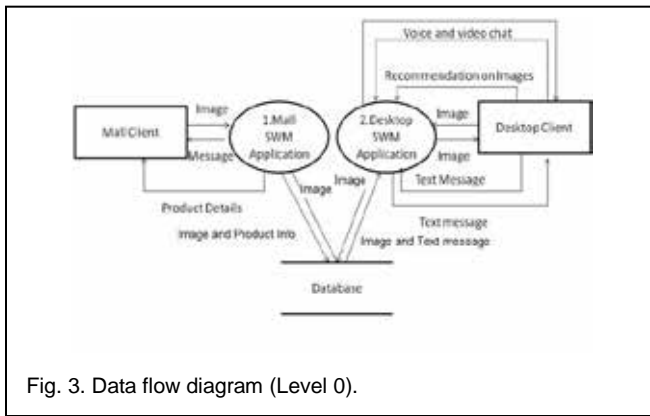

Fig. 2. Context Diagram.
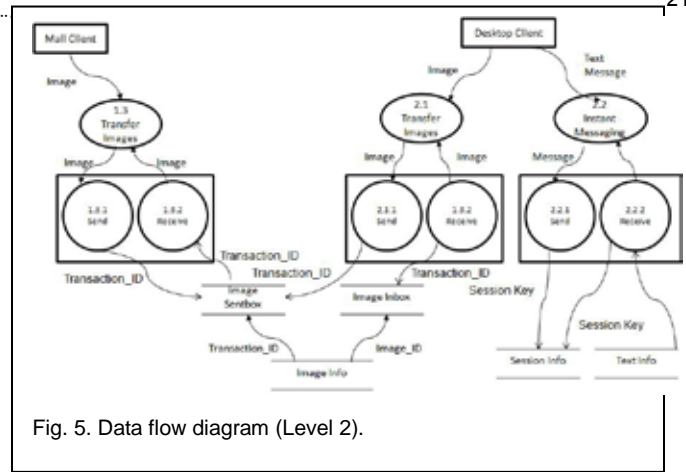
Fig. 3. Data flow diagram (Level 0).

Fig. 5. Data flow diagram (Level 2).

1.3 Desktop-side application

It is a software which is configured and installed on the desktops of the remotely located clients. This is the contact point for such users.

The system also involves the use of a web server (IIS 7) and a database server (MS SQL Server 2005). The mentioned modules use web services to communicate with each other. Thus, we plan to develop an application for:

1) Sharing text and images while shopping with your remotely located friends and relatives.
2) Showing the entire product range of the shopping mall

Eventually, this would enrich the decision making process of the user and enhance the whole shopping experience.

2 PROJECT DESIGN

Fig 2 shows the context of this system. Shop-with-me is the main projected system where all processes run, Mall users and Desktop users are the external entities for this system.
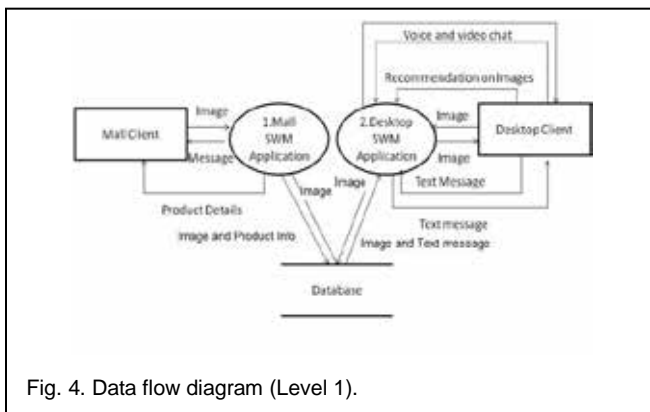

Fig. 4. Data flow diagram (Level 1).

Fig 5 describes the further details of the processes in the previous diagram. Image transfer process is further divided into sending and receiving of images. Instant messaging also contains the similar processes of sending and receiving of text message.

3 PROJECT IMPLEMENTATION

Fig. 6. Mall-side Application snapshot.

Fig. 7. Desktop Application Snapshot.
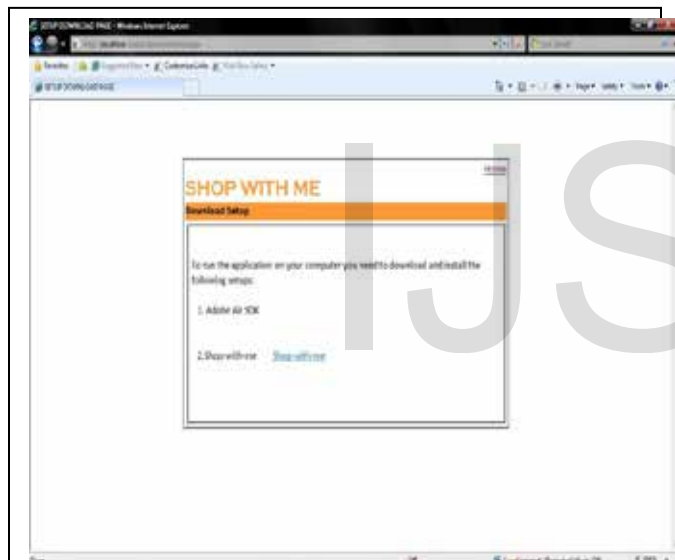
Fig. 8. Web Portal Login Page Snapshot.

Fig. 9. Web Portal Snapshot.

4 FUTURE WORK

We intend to extend the features of desktop side application to cell phones so as to include an even broader array of online contacts. The system can be instilled with functionality of online shopping (which involves online ordering and payment and subsequent shipping to the user specified address). By integrating various image processing libraries, we could achieve a working model of 'Virtual mirror'. This will help shoppers try out apparels without having to wear them physically. Also, these image processing libraries could be used to simulate different environments for particular shopping occasions like marriages. The system can be made smarter by implementing an AI mechanism which will send out intelligent suggestions to shoppers. For instance, it would be able to sug-

gest what pair of shoes available will complement the apparel the shopper is trying.

5 CONCLUSION

Helping out shoppers make a quicker and better purchase decision was the main motivating factor behind 'Shop-With-Me'. The system has been designed keeping in mind the role which customer relationship management play in the retail industry. 'Shop-With-Me' is beneficial for both the shoppers and the shop owners. It helps the shoppers make better purchase decisions and improves the footfalls to actual purchase ratio. Thus it brings new business to the shop owners. Currently, the system is based on centralized database architecture. But as and when the number of users grows, the system will be required to migrate to distributed database architecture. Also, the web server will be required to be optimized so that it doesn't suffer any degradation in performance. 'Shop-With-Me' successfully meets the needs which were the motivational factors in its development. It helps the users communicate in the medium they want to. Its real time working environment helps users get instantaneous responses for their queries. Moreover, 'Shop-With-Me' is a feasible solution in the real world scenario

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