Virtual Reality in Fashion E-Commerce

Shwetabh Singh[1], Dr. Suruchi Mittar[2]
[1]*Software Engineer*, [2]*L&D Director*
[12]*Appster Information Technology, India*

Abstract - Are you thinking of really trying the dress you are watching on your computer or mobile screen by just diving into the screen. A virtual place where you don't need to go to a store to experience the fit and still feel the fit. In a fast changing world, fashion e-commerce industry should certainly consider the replacement of traditional ways of selling garments online with the new emerging technologies like Virtual Reality (VR). It provides a rich, interactive and engaging environment to the consumers. Intangibility and inability to try the fit of the garment leads to decline of customer's trust on fashion e-commerce. This paper proposes the idea and discusses the comprehensive insight into benefits of using virtual reality in fashion e-commerce industry.

Keywords: virtual reality, fashion, e-commerce, customer's trust, intangibility

1. INTRODUCTION

If you think of trying the dress you are watching on your computer or mobile screen in a virtual place where you don't need to go to a store and still feel the fit. A place where all your reasons of going to a fashion store are being met whenever you want right in front of you on your device. A place where brands design and provide stores for customers to carry them in their mobile devices. An app that transforms your surroundings to an elegant fashion store, where you can pick up clothes from the shelves, try them and interact with people visiting the same virtual store. Virtual reality can make this possible where a consumer today can sit in his own chair and have a store experience right on his smart phone or the tablet and a VR gadget.

The inability to try and touch garments during the purchase decision-making process is a shortcoming of fashion e-commerce and is one of the big challenges for fashion retailers. For fashion, intangibility is the principal determinant of risk in online purchase rather than privacy and system security concerns. This lack of sensory input along with fitting insecurity prevents consumers from being able to make an informed purchase decision [2]. Clothing has been classified as a high involvement product category that needs to be seen, tried for fitting and touched to be evaluated. The lack of tactile and fitting input while buying online, presents a challenge for retailers. With the increase in competition, clothing manufacturing brands should take advantage of Virtual Reality (VR) to improve the look and feel of their products.

Virtual reality (VR) experiences are typically provided through wearable headgear that block out the real world and immerse the user in a virtual one. In this digital age, fashion brands wishing to compete, must rethink and rework their use of technology and explore ways to enhance the customer experience using various technologies like virtual try-on, mix and match function, virtual models, sharing these virtual models in real time etc. Such interactive technology offers solutions to support and enhance nearly every aspect of the fashion e-commerce business.

When people view fashion, they tend to imagine themselves wearing the products. Virtual Reality helps solve that problem. CAD (Computer Aided Design) software has been in use by designers to create sketches, croquis, repeats, patterns, and silhouettes. Convergence of CAD technology with web technology is now aiming to increase production efficiency and reduce delivery times. This concept is popularly being addressed as "e-prototyping" or sampling through the net. The integration of E-prototyping within the garment industry will lead to increased efficiency of sampling with shorter delivery time and lower costs. Other advantages will be better interaction with the buyer through networking and vendor and user friendliness. There is a great potential for companies that are willing to leap ahead of the industry curve and start thinking digitally [3].

Close-up pictures, zoom facility, 2D or 3D rotation, mix-and-match function which simulates how items would look together, virtual try-on facility using personalized models in virtual dressing rooms, and virtual reality apps can provide online shoppers with an enhanced ability to evaluate the properties of the item online, overcoming the relative sensory impoverishment when compared to shopping in a physical store.

2. LITERATURE REVIEW

2.1 VIRTUAL REALITY

Virtual reality is a simulation in which computer graphics is used to create a realistic looking world. This world is not static, but responds to user's inputs (gesture, verbal command). This defines the key feature of virtual reality,

which is real time interactivity. Here real time means that the computer is able to detect the user's input, and modify the virtual world instantaneously. People like to see thing change on the screen in response to their commands and become captivated by the simulation [24].

Fig 1. Virtual Reality (Image Source : Bim Goes Virtual, google images, http://archvirtual.com)

2.2 CUSTOMER'S TRUST ON FASHION E-COMMERCE

E-commerce organizations operating are forced to extend traditional marketing practices and focus on developing long-term relationships with customers to ensure their retention and loyalty. Customer relationships constitute an important new asset category, as the accumulation of relationship capital increasingly provides a new foundation for marketing and sales revenue [4]. The cornerstone for a successful and lasting relationship with the customer is trust, as it could determine the customer's future behavior and loyalty towards the business [7]. Considering the cost and return of relationship investments that a business needs to make to establish its position in ecommerce, building loyalty becomes an economic and competitive necessity [6] rendering trust, its predecessor, the "sine qua non of the digital economy" [4].

Wanninger et al., (1997) suggest that building customer relationships in e-commerce involves meeting customer expectations of service encounters that take place in an electronic servicescape, one of the three primary components that comprise an information system specifically designed to support commercial transactions over the internet. The other two are the supporting infrastructure plus the customer database and analytical tools to support the relationship marketing. The three components are interrelated enabling the close integration of the traditionally discrete functions of relationship marketing, advertising and fulfillment. These are represented by the separate but partially overlapping functions of making, enabling and keeping customer promises [14], leading to customer satisfaction and relationship building. Based on the above conceptualization we suggest that e-commerce web sites should be transformed to customer-centric servicescapes offering a digital experience that can contribute towards the development of an indelible relationship between the business and the customer [5].

Trust is a highly complex and multidimensional phenomenon [8]. Its importance to interpersonal and commercial relationships is evidenced by the plethora of research efforts within the various disciplines such as social psychology, sociology [8-11], economics [15-16] and marketing [17-21]. A large stream of literature has emphasized the role of trust as being central to the success of customer relationship building, in all contexts of relational exchanges [12-13].

2.3 CUSTOMER'S STUDY OF RETURNING ONLINE PURCHASED PRODUCTS

Given that the net margin in the clothing industry is barely 5%, it is understandable that few retailers can absorb the cost of transporting products sold per unit, not to mention defraying return costs. MVM (my virtual model) software is targeted specifically to address the approximately 17% of the returns that are due to selecting the wrong size or fit. MVM dressing room provide shoppers with information that will reduce returns, thus impacting retailers bottom lines and increasing consumer confidence in buying online. Return rates among consumers who have used virtual reality, are on the average, 40% less. Overall the installation of virtual reality model has boosted online orders by an average of 16% [23].

2.4 USER ACCEPTANCE OF E-COMMERCE IN FASHION

According to a study conducted by America online in April 2003, 50% of American consumers mentioned that they considered buying clothing online. Thus this category was put ahead of software and computer equipment (44%) and books (40%). 50% of consumers said that they would buy clothing on the web, but only 2% do so. Opinion Research Corporation found that the main reason consumers are not purchasing online is because they cannot try on clothing (73% of respondents report). Other reasons include the fact that they cannot touch that fabric and that they cannot return. On the other hand, the main reason people are in favor of online clothing purchase is to avoid crowds and save time. Most analysts predict that as customers gain confidence in online purchasing, their clothing purchase will increase [23].

2.5 MOBILE APPLICATIONS IN FASHION E-COMMERCE

Mobile applications provide better and user friendly shopping experience to customers. In view of the increasing competition in mobile service industry, it is important for fashion retailers to investigate on how to enrich the user experience and motivate them [1]. Major fashion brands like Myntra, Jabong, Lifestyle, Shoppers Stop, Amazon fashion, Flipkart etc are trying hard to make user experience better for fashion e-commerce in their mobile application.

3. OBJECTIVE

To integrate virtual reality and 3D modelling in fashion e-commerce segment for understanding the fit of the garment and better customer experience.

4. METHODOLOGY

Secondary data was collected to understand the implications of virtual 3D modelling using CAD. Research was conducted to understand the parameters of virtual reality and an exhaustive listing was pulled out to finalize the parameters of integrating the VR model, 3D modelling and how it can benefit the e-retail segment for a better perspective for the consumer. The studies were looked from the fashion industry, e-commerce sector to understand the reasons for return of the garments, to identify the problems associated with the same.

Primary Data: Personal interviews were conducted with consumers to understand their perspectives on e-fashion and problems they encounter while making the purchase of the garments. Interviews were also conducted to conceptualize the model for integrating the technologies and complete consumer buying experience.

5. CONCEPTUALISATION OF THE MODEL

This will be a 3D model according to a user specific profile. Information such as size, measure, weight, hair, color, height etc, that will let users give a desired appearance will be taken as input. They create a virtual representation of themselves. This model will let you try on clothes before buying them using virtual reality gadget and a gesture recognizer device like leap motion controller. Consumers can share the virtual model to friends in real time. The virtual dressing room is also ideal for people who dislike trying on clothes in stores. This approach allows you to try garments and see how those would fit on you. It lets consumers try on clothing and imagine how they look when they wear them in real. In addition, this technology decreases the probability of customers returning clothes. VR in fashion e-commerce will provide shoppers with information that will reduce returns, thus impacting retailers bottom lines and increasing consumer's confidence in buying online.

VR allows us to see fit problems that can't be seen on a static form. New ideas can be tried and visualized. Pattern errors can be identified. This way time, effort and most importantly money is saved. User can interact with the virtual space and try different clothes. The user can also be interact with other people in the virtual space and this would help making informed decisions while shopping in virtual space.

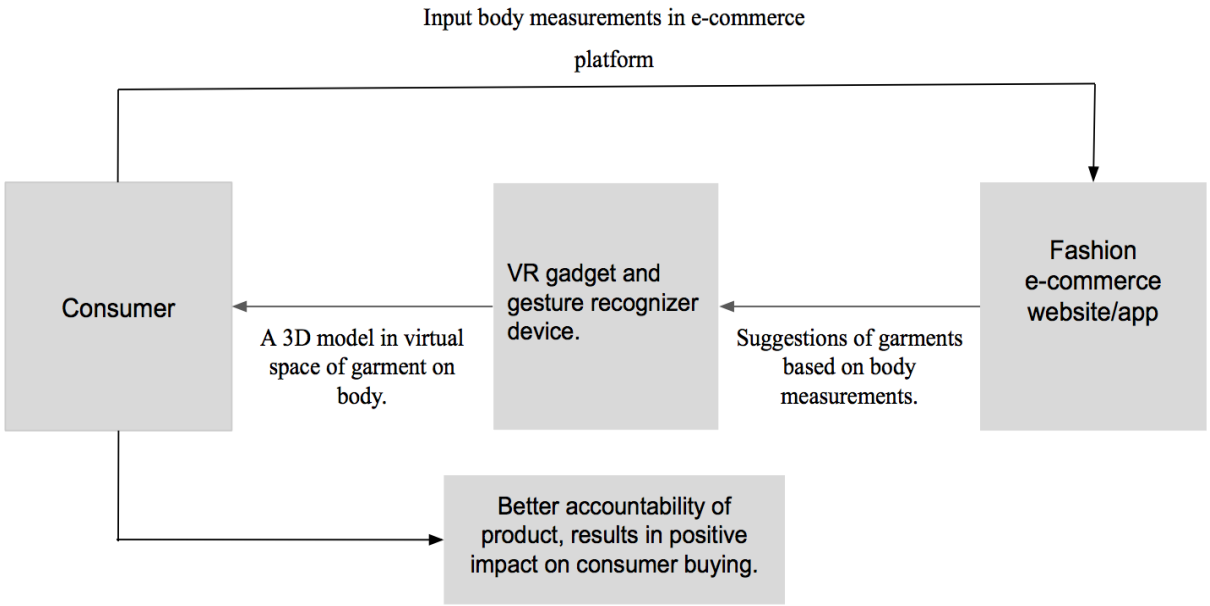

Fig 2. Conceptual Framework

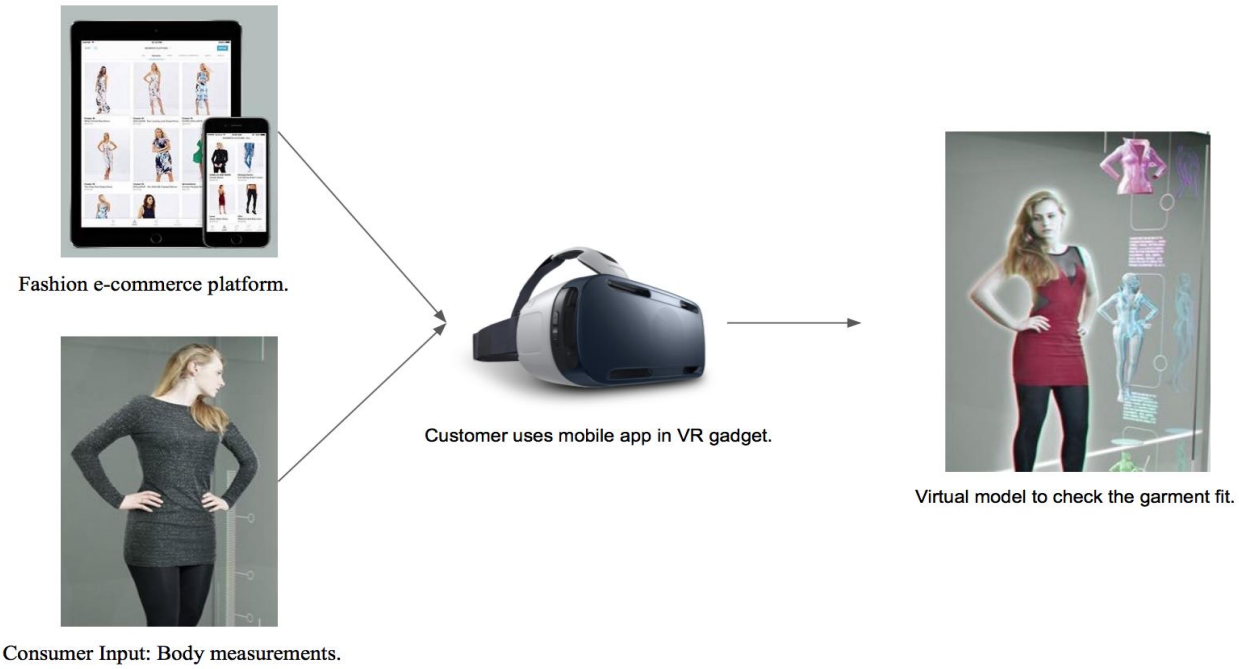

Fig 3. Pictorial representation of conceptual framework

6. CONCLUSION

As virtual reality makes the fit of the garments more real, it enhances the customer experience. VR helps in creating more intimate shopping experience, which is missing in the present fashion e-commerce industry. VR can not only improve the experience, it can revolutionize the fashion industry. VR will really take the online fashion shopping experience to a whole new level.

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