Virtual Try-on System using Image Processing and Augmented Reality

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Abstract

Virtual try-on applications have become popular because they allow users to watch them -selves wearing different clothes without the effort of changing them physically. This helps users to make quick buying decisions and thus improves the sales efficiency of retailers. In our system user can select multiple number of virtual clothes for trying-on and they can also change the background of the image. The system physically simulates the selected virtual clothes on the user's body in real-time which help the user to see virtual clothes fitting. User can also virtually try eye-glasses in this system. The major contribution of our system is that according to the user's body size we are automatically simulating the cloths on the user body .so that it can be used for proper alignment and fitting of the virtual cloths. In our proposed system we are using image processing and Augmented Reality to achieve a virtual try-on.

Keywords: Database Management, Social Issues, IBVH (Image Based Visual Hull), Optical Character Recognition, compression, Enhancement, Image-Based Visual Hull, Principal Component Analysis

I. INTRODUCTION

Physical try-on of several clothes is a headache as well as it's a time consuming procedure in retail shopping. It requires try-on of several clothes before the shopper can make decision on color, design and size of the apparel that satisfies him/her. Virtual try-on can be used to speed-up the process as the shopper can see the clothes on her/him body without actually wearing them, or narrow down her selections before physical try-on. Furthermore, it can be useful to enhance the user's shopping experience through new features, such as simultaneous viewing of outfits from different angles and side-by-side comparison of various clothes.

To implement Virtual Try-On System for garments and different accessories like eyeglasses using image processing and augmented reality techniques. Also allowing changing background according to different functional occasion and technical event, which helps to user to choice accordingly? Virtual try-on applications have become popular because they allow users to watch themselves wearing different clothes without the effort of changing them physically. This helps users to make quick buying decisions and thus improves the sales efficiency of retailers.

In our system user can select multiple number of virtual clothes for trying-on and they can also change the background of the image. The system physically simulates the selected virtual clothes on the user's body in real-time which help the user to see virtual clothes fitting. User can also virtually try eye-glasses in this system. The major contribution of our system is that according to the user's body size we are automatically simulating the cloths on the user body .so that it can be used for proper alignment and fitting of the virtual cloths. In our proposed system we are using image processing and Augmented Reality to achieve a virtual try-on.

II. RELATED WORK

The system presented in [1] took a user's picture in minimum clothes and covered it with those segmented from a picture of a model wearing target clothes. Hilsmann described a dynamic texture overlay method from monocular images for real-time visualization of garments in a virtual mirror environment [1]. In [2], ducal markers were used to change the texture of a user's shirt. [3] Presented a virtual clothing system, in which a user is scanned and registered to the system once, and then clothes can

be simulated on the reconstructed model. In [4], a regenerated 3D human model in target clothes was superimposed on a user's 2D picture.

Shotton, J. and Fitzgibbon, have developed system which is predicts the 3D positions of body joints from a single depth image. They used algorithms such as density estimator per body part and mode ending approach based on mean shift with a weighted Gaussian kernel [5]

The implemented system introduced an advanced methodology which is presented for the purchase of clothing through a virtual try on platform, which consumes far more less time than the normal process ,making it easier for the both seller and customer. This provides a realistic behavior for the suitability of the garments details.[6]

The implemented system wear representing mixed reality system for 3Dvirtual clothes try-on that enables a user or shopper to see herself/himself wearing virtual clothes just by looking at a mirror display, without removing his /her actual clothes.[7]
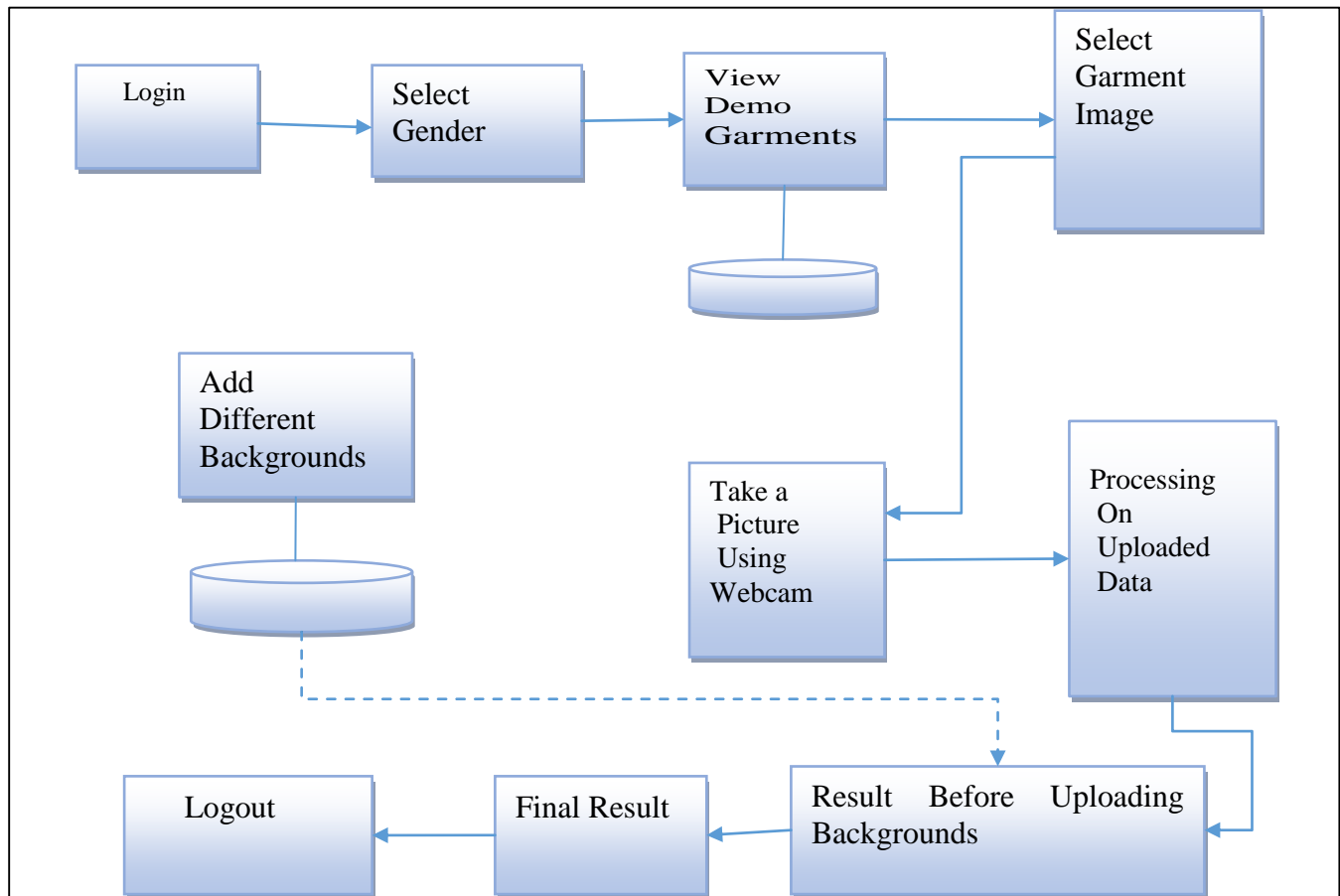
III. SYSTEM ARCHITECTURE

Fig. 1: System Architecture

In this Architecture user has to login first and select the gender after that user has to choose the garment from the database and take the picture of himself/herself and upload that image on our system and what our system does is it processes on uploaded data after processing your virtually tried image is ready but in our system user also can upload the background so he/she can see him/her with different backgrounds. Because of login/logout options our system is very secure so that no one can access users uploaded data.

In above architecture we are proposing Image processing and augmented reality, which is based on web application. here we are using JAVA eclipse, MYSQL database.

A. Admin:

This module is the main part in the system architecture. It maintains username and password of the users. admin can access users information and add different cloths[8].Also, it allows user to access his/her uploaded information. The admin part provides registration interface to the new users.

B. User:

User need to go on our website using their laptops. The user needs to sign-up with their personal details name, e-mail and mobile number and user has to create a new password [9]. User can search the clothes according to the recommendations like size color.

C. Database:

The database used in this system is MySQL database. Only admin can access the database. The database contains information about user like his/her age, gender, height, size and color [10].
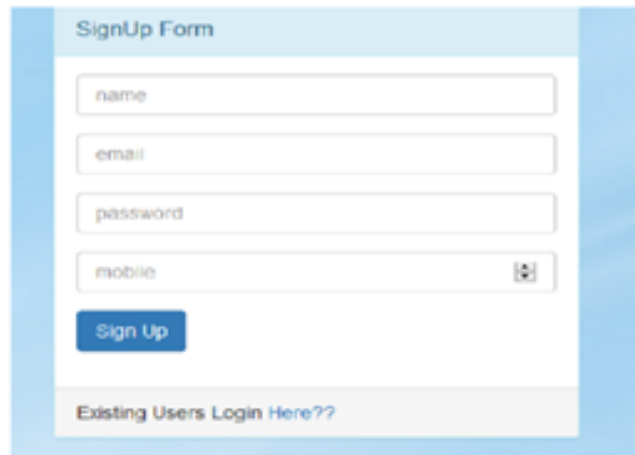
D. Steps for Implementation:

Fig. 2: singup

Fig. 3: Captured/Database stored image

Fig. 4: Apply Cloth

E. Algorithm

1) Start
2) Store images into database
3) Capture user image by webcam or select user image from database
4) Choose garment image according to gender
5) Processing on demo image
6) Processing on user image for setting proper alignment
7) Get output
8) If system goes off then go step 9
9) Exit

IV. CONCLUSION AND FUTURE SCOPE

Our system presented an efficient and affordable method for real time virtual dress up system. The method consisted of two major steps, select garment and capture image. There existed many benefits from this real time virtual dress up systems for customers and shop owners, such as space saving and reduce wasting cloth tried on. Moreover, it did not require physical space and it was much easier to use. Therefore, system had used an image processing and augmented reality to resize the input dress images respected to body size lively for blending clothes accurately over subject body. This real time virtual dress up system can be user directly using internet and used for on-line dress shopping. This virtual dress up system could solve the sizing problem by having virtual trying on dress instead of physical one. It also made people easier to choose dress perfectly within a short time. Finally, experimental results were demonstrated this proposed method is accurate and reliable to solve the promising and challenging real-time automatic dress up system.

In future using our system user can try different accessories like shoes, jewelleries, mobile accessories etc.

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