A survey on virtual changing room using augmented reality

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Abstract:-This system presents a Virtual Trial Room application using Augmented Reality which allows a user to try on virtual clothes. There has been a great increase in interests towards online shopping. In case of purchase of products like apparels which always require a sense of knowledge on how cloths would fit upon a person. This is the major reason why less number of apparels is being shopped online. Hence, a virtual dressing room which would make people knows how cloths personally fit in would be a great luxury for the online sellers which could give a wide choice for customers. For online marketers, this would be a great tool for enhancing its market.

The user interface design evaluation and final system evaluation have been done carefully to show the system usability. The targeted purpose of system is to increase users shopping experience. so they can spend less time in queue for fitting rooms and can also easily share their appearances after downloading their photos.

Keywords:-Augmented Reality, Blurring, Thresholding, Centre of Gravity (COG).

I. INTRODUCTION

In recent years, particularly the last five years there has been a hike in usage of internet in all the categories. The number of people access the internet and utilizing internet for shopping keeps on increasing due to the development in the field of information technology. Online marketing helps the producers to bring out their varieties of products to a mass in the easiest way. For customers, online shopping would give more information and availability of all kinds of products in every stream. This makes every product to come to the doorstep and gives consumers the choice of taste and purchase. But when this comes to dressing the quantity purchased is comparatively less. This is because of the fact that people wish to know how cloths looks on oneself and how both the top and bottom matches together and also how the size of clothes fits the contour of oneself. A Virtual Dressing Room is to fulfil all the above necessities and would give the comfort ability of online shopping of clothes and hence a wide choice to consumers. This also strengthens the platform of marketing to the producers of dress materials leading to the development of mass retailing of dress marketers. Also, this should be made in a way requiring least external aid is of prime concern.

The technique of Virtual Dressing Room for the virtual fitting of clothes to a person involves the recognition of human from the background with respect to light variations and with least disturbance of other objects. This is to be followed by detecting contour of both upper and lower body, which is done by taking filter and then edge detection. After then, feature points are extracted based on the basic structure of human. With these points as reference the sample shirt is warped to fits.

II. LITERATURE SURVEY

[1]This paper describes a complete methodology for cloning and dressing people by using a website. The input is simple photographs or body measurements that anybody can produce in any environment. Then the web-based virtual-try-on allows users to see them dressed. The basic methodology uses a pre-calculated generic database to produce personally sized bodies and animate garments on a web application.

[2] This paper presents a new, simple, and efficient segmentation approach, based on a fusion procedure which aims at combining several segmentation maps associated to simpler partition models in order to finally get a more reliable and accurate segmentation result. The different label fields to be fused in our application are given by the same and simple (K means based) clustering technique on an input image expressed in different color spaces. Our fusion strategy aims at combining these segmentation maps with a final clustering procedure using as input features, the local histogram of the class labels, previously estimated and associated to each site and for all these initial partitions.

[3] The goal of visual surveillance is not only to put cameras in place of human eyes, but also to accomplish the entire surveillance task as automatically as possible. In one statement we can say that video surveillance is nothing but taking the video, identifying unwanted entities, actions, understanding their actions and raising an alarm.

[4] This paper presents a technique for motion detection that incorporates several innovative mechanisms. For example our proposed technique stores, for each pixel, a set of values taken in the past at the same location or in the neighborhood. It then compares this set to the current pixel value in order to determine whether that pixel belongs to the background and adapts the model by choosing randomly which values to

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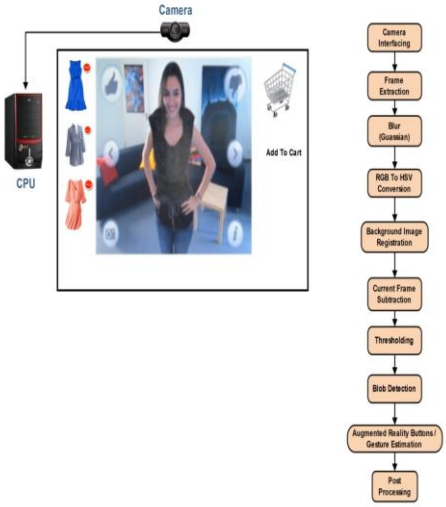
substitute from the background model.
[5] In this paper of color constancy using faces is based on two observations: first, skin colours tend to form a cluster in the colour space, making it a cue to estimate the illuminate in the scene; second, many photographic images are portraits or contain people. The proposed method has been tested on a public dataset of images in RAW format, using both a manual and a real face detector. Experimental results demonstrate the effectiveness of our approach. The proposed method can be directly used in many digital still camera processing pipelines with an embedded face detector working on grey level images.

III. SYSTEM ARCHITECTURE

Frame Extraction:-

Here we are just extracting the required frames from the camera input it led to retrieve relevant and useful data.



Blurring:-

In image processing, a Gaussian blur (Gaussian smoothing) is the result of blurring an image by a Gaussian function. It is a widely used effect in computer graphics, typically to reduce image noise and reduce detail. Mathematically, applying a Gaussian blur to an image is the same as convolving the image with a Gaussian function. This is also known as a two-dimensional Weierstrass transform. We are using the Gaussian blur function for reducing the background details and focusing only to the frames of system user.

RGB to HSV Conversion:-

The images generally follows the RGB model (Red, Green Blue) but this model does not provide the higher level of accuracy that we want in system so there is need to convert the RGB to HSV(Hue, Saturation, Value) model as it provides higher level of accuracy.

Background Image Registration:-

Image registration is the process of transforming different sets of data into one coordinate system. Here, we are transforming user frames and the virtual cloths.

Current Frame Subtraction:-

Background subtraction, also known as foreground detection, is a technique in the fields of image processing and computer vision where in an image's foreground is extracted for further processing. Here we are subtracting the background noise from users frame and is necessary for focusing on foreground details i.e. focusing on body of user.

Thresholding:-

The simplest thresholding methods replace each pixel in an image with a black pixel if the image intensity $I_{i,j}$ is less than some fixed constant T (that is, $I_{i,j} < T$), or a white pixel if the image intensity is greater than that constant.

Blob Detection:-

The forme process is known as BLOB extraction and the latter as BLOB classification. BLOB stands for Binary Large Object and refers to a group of connected pixels in a binary image. The term “Large” indicates that only objects of a certain size are of interest and that “small” binary objects are usually noise.

Gesture Estimation:-

In the system we are providing gesture recognition functionality. Providing some general gestures such as try next cloth, try previous cloth, like, dislike, take a screenshot.

Post Processing:-

This includes some final touch to the output frames.

IV. CONCLUSION

This report presents survey on augmented reality application where in the users are made to try out clothing that is rendered on a screen over the image of the user. The lightning is adapted to match the intensity of the user’s environment. The clothes are properly aligned according to the user’s positions and movements.

V. FUTURE WORK

The system is an improvement to the existing system where the tracked user is able to try 3D clothes that include cloth simulation and can be viewed from different angles and react as real clothes. As enhancements to this Virtual Trial Room, social networking features can be added, such as sharing on social networking platforms, e-mailing a snapshot to a friend or uploading the snapshot somewhere for friends and family to comment. Also, to expand upon the clothing created to try out, accessories such as hats, shoes, jewellery, bags etcetera can be included. One final enhancement can be to use two Kinect sensors simultaneously to get a 360 degrees view of the user, and render clothes that are completely wrapped around the body so that the user can check his front as well as back and sides.

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