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A SURVEY ON VIRTUAL DRESSER USING DEEP LEARNING

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Abstract: The Introduction of smart phones and tablets, we will enjoy online shopping anytime and while sitting in any a portion of the planet. Online shopping has certainly replaced the normal way of buying daily goods and clothing. When we choose online shopping, we get the advantage of credibility. Today, almost every online store offers cash on delivery, free shipping and reduced prices. These online shopping stores eliminate the hassles of parking, getting stuck in traffic jams and standing in long queues for billing. They have also benefited those people that always complain of shortage of your time. This is the rationale; majority of the people have turned to online shopping. Here, they enjoy quick access to a beautiful price range, prompt customer support, and free home delivery. There is little question that these are a number of the attractive features that catches the eye of the consumers. Although there's one small issue that would make people lose interest in online shopping; it'd not be possible to try-on clothes in such cases. Our motive here is to extend the time efficiency and improve the accessibility of garments try by creating a virtual room environment.
Our proposed approach is especially supported extraction of the user image from the video stream, alignment of models and complexion detection. Extraction of user allows us to make an augmented reality environment by isolating the user area from the video stream and superimposing it onto a virtual environment within the interface. We use the 3D locations of the joints for positioning, scaling and rotation so as to align the 2D cloth models with the user. Then, we apply complexion detection on video to handle the unwanted occlusions of the user and therefore the model. Lastly, the model is covered on the user in real time.

Keywords: Virtual Dresser (VD), OpenCV

I. INTRODUCTION

Trying clothes in clothes shops is usually a time-consuming activity. Besides, it'd not even be possible to try-on clothes in such cases as online shopping. Our motivation here is to increase the time efficiency and improve the accessibility of clothes try by creating a virtual room environment. The problem is simply the alignment of the user and thus the material models with accurate position, scale, rotation and ordering. First of all, detection of the user and thus the body parts are one of the foremost steps of the matter. In literature, several approaches are proposed for part detection, skeletal tracking and posture estimation. the issues are often brilliantly managed by means of straightforward software like OpenCV and visual studio.

Extraction of user image in order to form an augmented reality environment by isolating the user area from the video stream and superimposing it onto a virtual environment within the interface. Thus, the user can see a reflection of themselves within the costume of their preference and interact with the screen. The usage of web camera makes it less difficult on the worth for the users of online shopping. The implementation by OpenCV makes it more platform independent and portable and there by accessible in any kind of device.

Our approach is often summarized as follows:

- Extraction of the user from the video stream by using depth and user label data,
- Scaling of the models by using the Euclidean distance among the body joints and distance of the user from the camera.
- complexion detection so on stop unwanted occlusions of body parts and thus the model,
- Superimposition of the model on the user.

A sample application with interface is developed to see practically the performance. The interface allows the user to choose a dress by means of hand movements

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II. LITERATURE SURVE

The Paper mainly focuses on user Live video streaming, body part detection, and model alignment. Uses modules for positioning joints, rotation, and scaling to align color printing models with the user. Uses Camera with the use of Opencv and gloncv model. In this phase, the first two streams have been used to develop the human model. Within the API, the SSD mobile net provides details about the location of users standing in front of the Camera, with the detailed location. The Paper performs the initial size estimsation. Next, in Virtual Dresser customize user-friendly clothing from a Different size.

The user chooses the required dress item to wear out of the list. After selecting a costume, a user image is available. For a particular image, an image of the selected outfits is placed at the user's location.In the paper retexturing algorithm is used with the help the camera that provides depth information. The new texture implant is made using a line extension of luminance information. The Paper extracts and separates the user from the background to create an AR virtual environment. To differentiate the front They used body parts to fit shirt to the model. They smoothen the spatial coordination to minimize vibration and blurring in the joints. They calculated the angle between the joints to set the rotation angle of the parts of the model. One of the major contributions of the paper is that they automatically create an invisible (or virtual) avatar based on user's body size and uses it for appropriate clothing, alignment, and mimicry in our visual-system experiment.

III.RELATED WORK

We have gone through various papers which had similar idea of super imposing an attire usually clothes on a human body. This helps the user to visualize his/her in a wearable without actually wearing it. Initially the user needs to face the camera which focuses the user image and fit various costumes to it and displays. This basically helps the user to know his/her choice easily and provide greater level of satisfaction.

According to the papers [1], [2] and [6] which are proposed by Shreya Kamani, F. Isikdogan and Vipin Paul respectively, the implementation of virtual trial room application is proposed with the usage of a hardware sensor known as Microsoft Kinect sensor which mainly takes the bone measurement of a person which is a way to determine the size of user's body on which the virtual cloth has to be augmented. There are several commercial products available now in the market for virtually trying out clothes. This has reached a boom in the market. So, the current existing technique which is in a popular demand is using Microsoft's Kinect and Asus Xtion devices. In this when the person stands in front of the screen which is which is with a Kinect scanner it detects the human body according to its coordinates and prepare a human skeleton as per that. As soon the structure is made a 3D model of the user is prepared.

In paper [3] which is proposed by Cecilia Garcia Martin, an android application is integrated with the concept of augmented reality. There the proposed technology is augmenting the virtual cloths on a users' static image and the whole application is dumped in an android phone. The application Virtual Trial Room can be visualized in varied perspectives and can be implemented using various hardware – software integrations. One such is the usage of OpenCV for this application development. This idea has been proposed in [4] and [5] by authors Nikki Singh and Sourabh Botre respectively. This idea gave cost effective and accurate results and hence was a major influence to our implementation.

IV. PROPOSED SYSTEM

The Proposed System Uses OpenCV and Extraction of user image to create an augmented reality environment by isolating the user area from the video stream and superimposing it onto a virtual environment in the user interface. Thus
the user can see a reflection of themselves within the costume of their preference. Object Detection in Computer Vision is as simple because it sounds detecting and predicting objects and localizing their area and therefore the SSD Object Detection extracts feature maps employing a base deep learning network, which is CNN-based classifiers and applies convolution filters to finally detect objects. Our implementation uses MobileNet as the base network then we Overlap the dress and the accessories on user with that we get the final results

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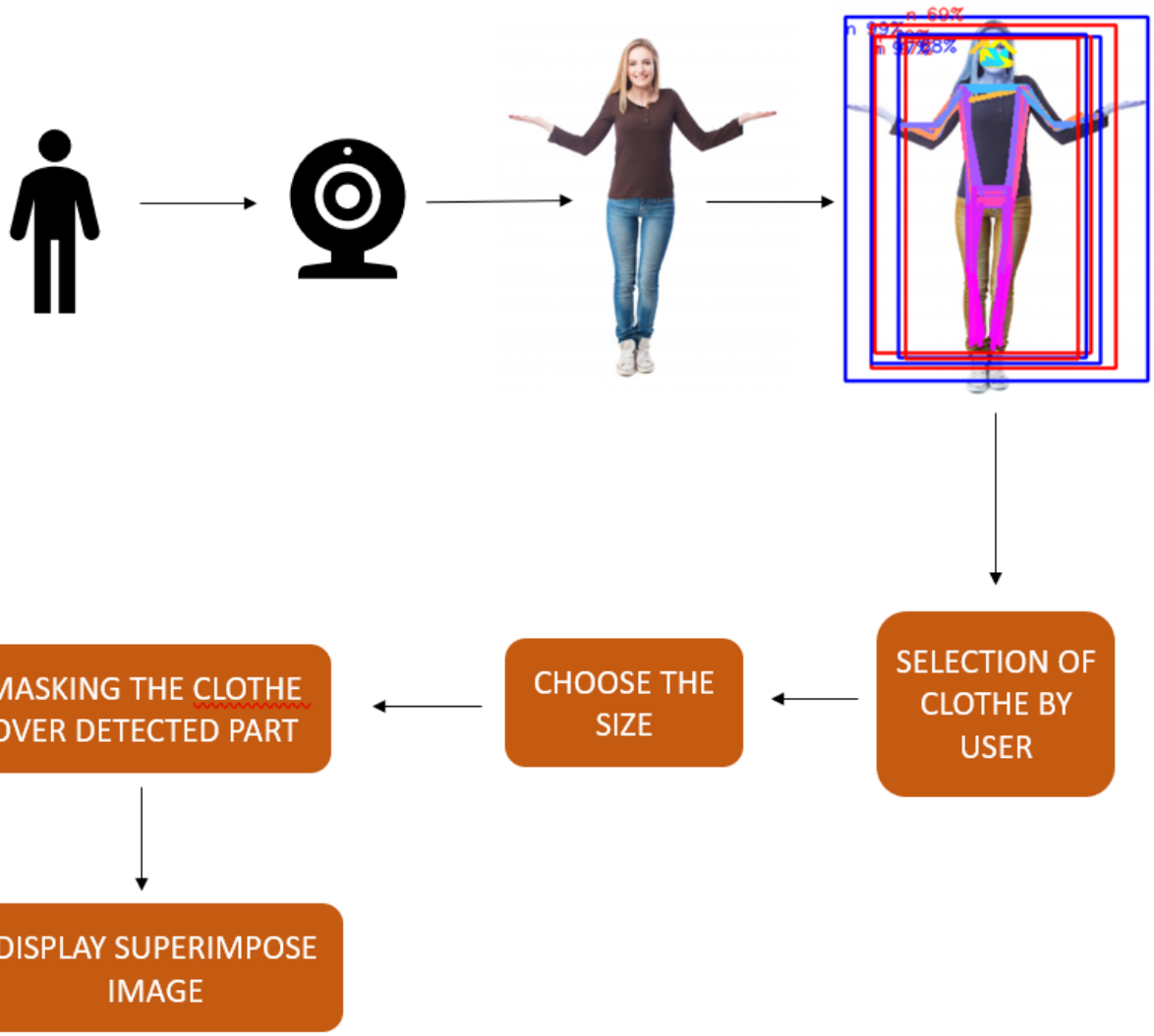

The purpose of body measurement is to find the right size of the user so that choosing the wrong size of virtual garments will not happen. In the real world, the standard sizes of garments that customers can choose from are S, M, L, or XL. Customers can choose any size depending on their body sizes. Measuring body sizes in the real world can be done easily using a tape measure and then comparing those parameters with tables that can tell the size of garments that would fit the customer best. There are many standard sizes of garments, such as standard US apparel size and standard Asian apparel size, because the body sizes of people in different parts of the world are different

V. ADVANTAGES

1. The most obvious benefit to a virtual dressing room is
2. giving the customer the ability to sample and model
3. products remotely.
4. Low chances of Covid-19
5. Quicker and Easier to try clothes yourself in seconds.
6. Reduce exchange and return rates.

VI. DISADVANTAGES

1. Texture of the fabric can't be sensed.
2. Stitching and cut can't be replicated.

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VII. CONCLUSION

At this time the virtual Dresser application requires only a front image. for every product to superimpose it onto the user and thus the 2D graphics of the merchandise seem to be relatively satisfactory and practical for several uses. The presented methodology is used to align the models with the user and to see the procedure under different conditions. The experiments have resulted with acceptable performance rates for normal postures. There are many possible executions regarding the model used for fitting. it's possible to use a homographic transformation to the photographs rather than the simple scale-rotate technique so on match multiple joints altogether although it'd require more computation. Another alternative could be using many pictures at different angles so as that it'd be possible to form more realistic video streams. One could achieve a uniform effect using 3D models and rendering them according to this angle and positions. Second approach would also make it possible to implement a physics engine to follow side the model.

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