Virtual Dressing Room

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Abstract

The twenty-first century has seen design develop into a way of life. The amount and style of clothing worn may vary based on physical stature, gender, as well as social and geographic factors. The majority of consumers still associate shopping with their in-store shopping experience when they think of it. Customers can try on clothes in real time, but this process takes too long when there aren't enough trial rooms. Our goal is to create a virtual environment that is locked down, intuitive, and astonishingly realistic, allowing users to select from a large selection of clothing plans while simulating those clothes on virtual people. We have suggested a structure that aids in the synchronization in this thought. In this study, we suggested a paradigm that aids in the synchronization of daily attire. The virtual dressing room that uses live video feed may alter how someone shopping for and dresses themselves. Using the concept of "Virtual Reality," customers can try on a variety of items without really wearing them. The advantage of doing things in this manner is that trying the outfit on would require less time and effort. By reducing the need for customers to try on every piece of clothes, this extension aids in the management of advertising. Additionally, by not keeping a large inventory on hand, merchants can save time and space.

I. INTRODUCTION

When individuals first discovered computers, they began to work cautiously. He has been working to make the advanced and virtual universes easily synchronized. Many innovations were developed in an effort to close the gap between the virtual and actual worlds. Three programmers that connect the
virtual and actual worlds are virtual reality, extended reality, and blended reality. This led to the development of a wide range of devices that enable users to simultaneously engage in the virtual and real worlds. The swift expansion of the innovation improvement sector has had a significant impact on our daily lives with keen advancements that streamline our activities. For instance, online shopping emerged quickly. People are becoming increasingly accustomed to using the internet. People are becoming more accustomed to using online businesses, bartering over the internet, etc., to buy the items they are interested in. This type of exchange has replaced the most well-known one and provides customers. In any case, a drawback of online apparel purchasing is that customers cannot try the item on before buying it. How the client feels after dressing influences their decision to purchase the goods. The need for virtual dressing rooms that can replicate the visual component of dressing is growing as a result. A few techniques for locating body parts and evaluating poses have been included in the writing. Thanks to the use of web cameras, online shoppers are better able to keep track of expenditures.

II. PROBLEM DESCRIPTION

Planning a arrangement for lessening human time and making their online shopping way better by planning a virtual styling room utilizing live video bolster it moreover Gives a virtual room to undertake attire through e-commerce websites sometime recently buying it.

III. RELATED WORK

[1] Previously many researches performed on implementation of virtual dressing room.

[2] RashmiS.Shinkar and Nagaraju Bogiri International Journal of Innovative Technology and

Exploring Engineering, Volume 8 Issue 11,September 2019 (ISSN: 2278-3075).There are frequently long waits to enter the trial rooms where customers can try on actual items. By employing height and skin tone, it starts to create a clone human that is similar to a real- time simulation in order to give the skeleton an identical appearance.[2] Rafi Mohammed Mahin and Abdullah Al Noman. It is obvious that we need real-time virtual dress-up technologies. First off, customers may quickly estimate their body proportions for customised apparel and save time getting dressed. Customers usually spend a lot of time trying on various items before making a dress purchase. Every time they find a seductive outfit, they must take the garments they intend to try on, enter the dressing room, take them off, and then put them back on. Second, since they no longer need changing rooms, store owners can save money. Additionally, there will be less clothing waste when customers are fitted. [3] A.M.S.B., W.K.I.L. Wanniarachchi, and
N.G.C. In this work, we created a technique for measuring human biological parameters without actually touching the subject. This implementation includes the techniques for obtaining 3D measurements from the Kinect v2 depth sensor. The development system is already able to recognise and collect individualised body data like height and shoulder length. A single web camera and a virtual clothing based on a camera array should be used by the application host computer to process the photos. [4] Haotian Lin3, Mingyu Lu1, Yueyi Li4, Suyin Chen2, and others.Advances in Economics, Business, and Management Research: Proceedings of the Third International Conference on Management and Cultural Industry (ICMCI 2021).This study looks at consumer behaviour, e-commerce trends, and relevant rational preferential policies to analyse the Chinese market for virtual changing rooms. [5]An Improved Deep neural network-based virtual changing room developed by K.P.A.P. Dilshann, H.M.Y. VGunthilake, and C.S. Illeperuma. The virtual changing room has a

PC, two webcams, and a TV. It shows the customer's dressed object and records their body using two web cameras. Another requirement of this system is the customization of clothes to match client needs and the recommendation of various clothing designs. A pre- trained model can be used to calculate human stance. To deal with the trained model, it employs a Python API to find human corpses.[6]July 2022: IJARSCT Volume 2, Issue 2. International Journal of Advanced Research in Science, Communication, and Technology ISSN(Online)2581-9429, Sumi S. and Nisha O.S.The website for creating contemporary clothing and accessories is offered here along with an effective cost-value-add highend superstore created exclusively for modern design and shop services. People's lives have been altered by the COVID-19 occurrences, hence it is imperative to keep a continual social distance.

[7] Implementation of a Virtual Fitting Room Using Image Processing by Srinivasan K. Vivek S. Department of Electronics and Instrumentation Engineering, Sri Ramakrishna Engineering College Coimbatore, India Using the Virtual Dressing Room technique, a person can be virtually dressed by separating them from the background, accounting for changes in lighting and doing so with as little disruption to the objects around them as possible.[8] Image Processing Design Flow for Virtual Fitting Room Applications used in Mobile Devices by Cecilia Garcia, Nicolas Bessou, Anne Chadoeuf and Erdal Oruklu, Department of Electrical and Computer Engineering Illinois, Institute of Technology Chicago, Illinois, USA. This work successfully created a mobile device application for a virtual changing room. The primary goal of creating a real-time, platform- neutral application was accomplished.[9] A Virtual Trial Room using Pose Estimation and Homograph Kshitij Shah, Mridul Pandey, Sharvesh Patki, Radha Shankarmani. Department of Information Technology Sardar Patel Institute of Technology Mumbai, India The development of a mobile application that allows users to virtually try on clothing utilising open CV and TensorFlow lite technologies would greatly improve the shopping experience. Al suggested a solution that would align the input fabric on the person representation using a Geometric Matching Module.[10] There are

frequently long waits to enter the trial rooms where customers can try on actual items. To give the skeleton a precise appearance using height and skin tone, it starts the process of generating a clone person that is akin to a real- time simulation. We use graphical user interface software to control hardware sensors, such as camera, light, and motiondetectors.[11] In order to elaborate on the current situation and anticipated development trends in China, this paper examines the marketing environment of virtual fitting technology from three perspectives: consumers, e-commerce trends, and salient rational preferential policies. China claims that privacy and offensive interactions are two major problems.[12] Usually, trying things on in a store takes a long

time. Additionally, it might not even be possible to try on clothing in situations like online shopping. We intend to increase accessibility and speed up the fitting process by creating a virtual changing room setting. The use of online retailers and auctions to purchase items of interest is becoming increasingly commonplace. This style of transaction has become prevalent and provides the customerwith enormousconvenience.

IV. MATERIALS AND METHODS

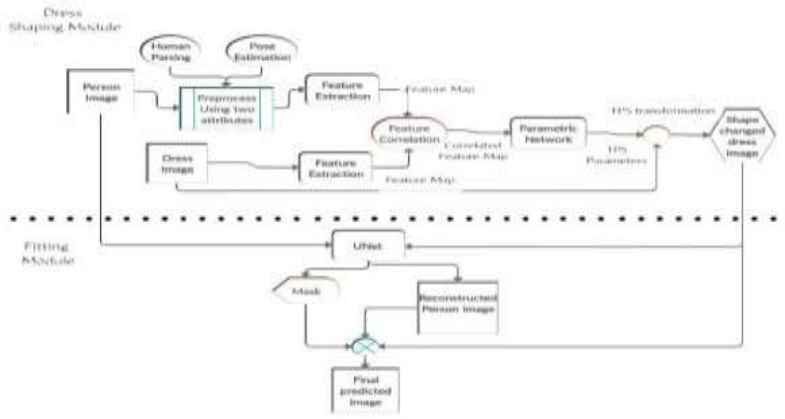


Fig: High Level Diagram

METHODS REQUIRED

1. Human Pose Estimation

Pose estimation uses the camera image to instantly determine the user's position and pose. This entails identifying and following important body parts, such as joints and limbs, as well as calculating the user's body's 3D position and orientation. Clothing can be tailored in real time to the user's body using this information. Pose estimation can be used to model how apparel will look when worn by the wearer.

2. Human parsing

The process of locating and tagging the various semantic components of a human body in an image or video is known as human parsing. Virtual dressing room systems can make use of this information to precisely mimic how items will fit and look on the user. Human parsing can be utilised in a virtual changing room system to recognise and name different body parts, including the shoulder, arms, and head. The fit and appearance of clothing on the user can be properly simulated using this information.

3. Geometric Matching Module

After obtaining the garment segment, we can geometrically compare it to the clothing on display in stores. In order to make shop clothing as geometrically similar to the model clothing as feasible, our current goal is to learn transforms. Thisis illustrated clearly in the graph below. An exampleis a grid of six images.

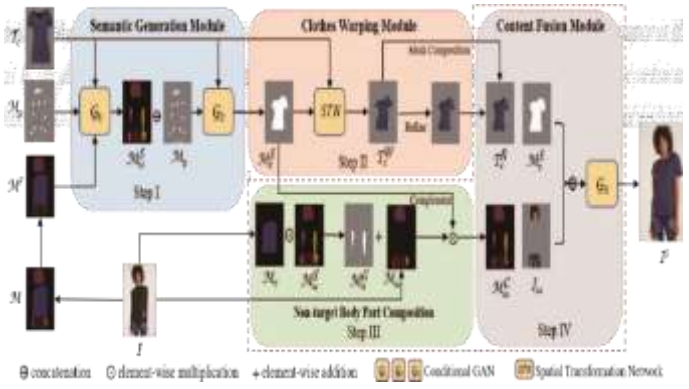
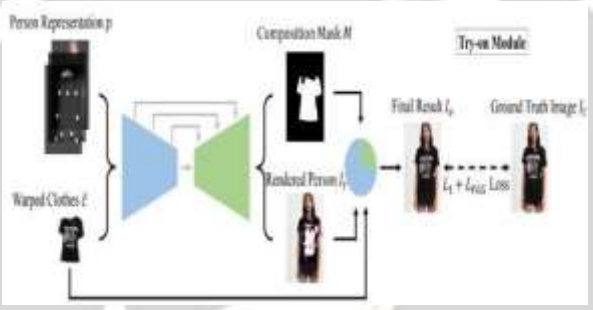


FIG: The general layout of our ACGPN. (1) The target clothing image Tc, the pose map Mp, and the fused body part mask MF are provided to the Semantic Generation Module (SGM) in Step I in order to anticipate the semantic layout and produce the synthesised body part mask MS and the target clothing mask MSc; (2) In Step II, a second-order difference constraint is implemented to help stabilise the warping process as the Clothes Warping Module (CWM) warps the target clothes picture to TcR in accordance with the expected semantic layout; (3) Using the original clothing mask Mc, the synthesised clothing mask MSc, the body part mask M, and the content fusion module (CFM) in Steps III and IV, the Content Fusion Module (CFM) initially creates the composited body part mask MC. the body part image I from earlier steps, the synthesised body part image I from earlier steps, the synthesised body part image I, the synthesised body part mask M, and the synthesised body part mask MS, and then utilises a fusion network to construct the try-on images.

Try-on Module

The instinctive response is to just paste the new outfit over the old one, but as is clear, this will cause problems with the hands and hair

overlapping, and the old outfit will still be there, giving the impression that it is quite unnatural. The solution to this issue was the encoder-decoder network implementation in the try-on module.



REQUIREMENTS:

Developer Side:

IDE : Anaconda

Programming Language : Python,HTML,CSS,BOOTSTRAP.

PackagesUsed : Dlib(19.15.0), OpenCV(3.4.2.17),SciPy(1.0.0),Cascade trainerGUI(1.8.0),Tkintercanvas(8.6.8),NumPy(1.18.1),FlaskWeb framework(1.1.1)

Front end language : HTML,CSSData Source.

Back end language : Python(3.7.4)

V. CONCLUSION

The prevalence of internet shopping and consumers' willingness to take full use of it while purchasing clothing supports the need for an algorithm to digitally dress them in the chosen attire. Clients frequently have the need to spend hours physically trying on a variety of clothes when shopping for apparel. It's possible that the time available is insufficient, and this could be tiresome. The suggested solution for this problem is to use a virtual styling room that doubles as a trial room using live video feed. Using a Kinect sensor, the nodes and points of the human body are plotted, and this data is then used to generate an image of clothing over the user's body, eliminating the need for actual fittings and time saving. Online shoppers would be extremely grateful for the technology that would allow them to more easily try on different outfits. Our research showed that the exercise is actually time-saving. It does not require additional work. Anyone can utilise this virtual machine, regardless of technical ability. It doesn't require a lot of technical knowledge. Therefore, it is available. It is

therefore the ideal addition for a clothier. Overall, it looks like the proposed virtual dressing room is a good choice for accurate and quick virtual garment fitting.

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