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Vastrani (Virtual-Garment-Try-On)

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ABSTRACT

Trying on different clothes in the store and finally choosing the right one can be a time-consuming and tedious process. So, a real- time virtual fitting room is a concept where a customer can buy pieces of her clothes without having to wear them. The virtual fitting room environment is the online equivalent of her fitting room in a store. People usually avoid buying wearable clothes online. To solve this problem, I decided to create an online test room application. Our research involves recording a video of user using the system camera, segmenting the video into individual frames to extract user 's body, and developing an application that transforms, rotates, and makes wearable. is focused on as image that scales in real time to fit the user. An overview of the literature describes different ways to achieve the goal, along with their respective strengths and weaknesses. This project is a web application implemented in in Flask using OpenCV, a Python module. This application works on device with built-in or attached camera, internet and web browser. This project introduces an augmented reality-based Virtual Trial Room software. This allows the user to dress digitally by layering her 2D clothes on the device and virtual clothes on the supervised user. Clothes move and expand according to the movement of the user. This web implementation uses 2DAugmentedReality.

Keywords: Python, OpenCV, Virtual dressing room

I. INTRODUCTION

Courtrooms are not completely secure, so no one can be sure there are no hidden cameras. As a result, changing clothes in court poses a direct threat to women's safety. You have to stand in front of the camera. With the help of algorithms, cameras scan the human body from the environment. A webcam and a monitor connected to the device processor present the consumer with a virtual clothing list. A webcam scans the scene and displays live video streaming in a window. A list of clothes that the user should wear is also displayed on the monitor. When the user selects an address, a dress is selected and the user virtually wears it. A dress is placed on it by scanning the joints of the user's skeleton. The tailored dress moves in sync with the user's movements in front of the webcam.

II. PROBLEM STATEMENT AND MOTIVATION

Online shopping, also known as e-shopping, is now growing exponentially all over the world with the advanced growth of technology. Advances in e-shopping have spurred a shopping revolution that allows customers to purchase goods anytime, anywhere. Although e-shopping has its advantages, there are some drawbacks that discourage customers from purchasing items online. The most common problem faced by online shoppers, especially when it comes to clothes, is the inability to try them on. Most people want to make sure the clothes fit their size, as sometimes the clothes they buy don't match the seller's size description. Offering a return policy or free shipping on returns, while intended to compensate for the improper fit and size of content, creates a lot of inconvenience for sellers. Some people like to try on clothes in stores to see if they fit. But at popular clothing stores, the fitting rooms are always full, with long lines especially during peak holidays. Even just trying on a few clothes results in long queues, which leads to customer dissatisfaction. In fact, a customer chooses clothing shopping styles, online shopping for her or in-store, depending on their specific needs. However, neither measure falls short of the goal of allowing customers to see the size, fit, or style of their favourite clothes without actually trying them on. Therefore, this project proposes a virtual AR dressing room to help customers achieve their shopping goals.

III. OBJECTIVE

Developing an automated clothes trial system using convolutional neural networks.

- Developing a CNN model to visualize clothes trail through images.
- Integrate both models and test the system with both images and videos.

IV. VIRTUAL TRIAL ROOM WITH A REALISTIC VIEW

Computer-generated Reality execution is pointless on the off chance that it doesn't feel regular, which is just conceivable if the buyer can encounter a similar sensation they do while wearing a texture, which is not the same as the vibe of wearing a cotton material against a fabric. Regardless of whether it can't give that level of authenticity at this moment, it can in any event make the client's view more trust worthy, as though they're taking as tab at the material in a mirror inside genuine Try on space. The expression "increased reality" alludes to an immediate or aberrant perspective on true components that have been upgraded utilizing PC programming. Valid and mimicked segments are consolidated in Augmented Reality. It fundamentally consolidates programming information and refines the client's perspective on the genuine world. A buyer can see both virtual and characteristic light in most enlarged reality games. This is refined by utilizing extended pictures to layer pictures and intuitive virtual items onto the client's perspective on this present reality. Increased Reality frameworks are frequently independent, untethered, and needn't bother with a link or a PC to work OpenCV is an abbreviation for Open-Source Computer Vision Library, which has interfaces in Python. It is principally expected to improve computational execution while likewise stressing constant applications. At the point when the code is written in python this bundle has the extra advantage of multi- center handling. Clients' time is saved and the disarray caused during the acquisition of wearables is decreased by utilizing enlarged reality innovation to carefully put them on.

V. USE CASE DIAGRAM –

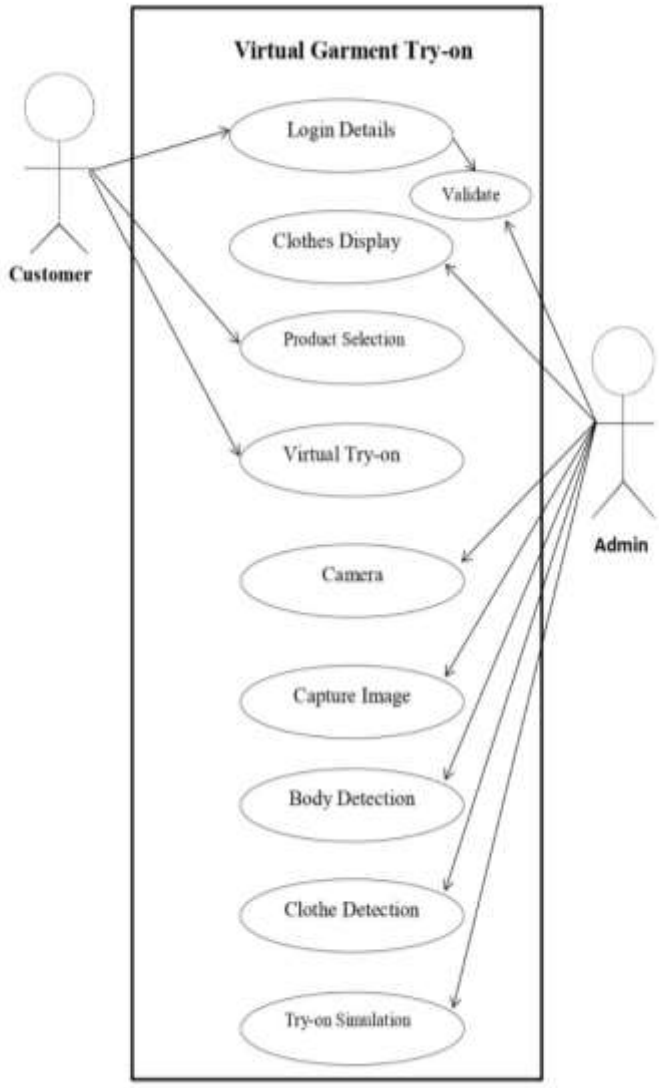

Fig1: Use case Diagram for Virtual Garment Try-On

VI. Methods of study selection

A. Neural Network

- A neural network, also known as an artificial neural network (ANN), is an interconnected system of artificial neurons similar to those found in the human brain. These artificial neurons use complex mathematical or computational models to process information based on a coupled computational approach. In most cases, artificial neural networks are adaptive systems, changing the structure of the network in response to the flow of information externally or internally within the system.
- Deep learning has two main learning modes: supervised learning and unsupervised learning. In supervised learning, data given as input to the network are appropriately tagged with appropriate tags associated with the data. For example, say you have data x and label y. The goal is to have the machine learn a function that maps from x to y. Supervised learning is used in classification, regression, object recognition, image annotation, etc. Unsupervised learning does not label the data during the training process. Our goal in unsupervised learning is to make machines learn the underlying hidden data structures. Unsupervised learning is used in clustering, feature learning, density estimation, etc. A convolutional neural network is feed-forward artificial neural network, which is commonly applied to analyze visual imagery in various fields. The CNNs use Supervised learning method. CNNs are used in solving various problems related to different fields like Image and Video Recognition, Medical image analysis, Object Detection and Natural language processing. The structure of a CNN mainly consists of a series of layers which are an input layer, an output layer as well as single or multiple hidden layers present in between them. The convolutional layers, pooling layers, fully connected layers and normalization layers are the layers which constitute a typical hidden layer of a CNN.

Knowledge about Machine Learning

- Machine Learning is a subfield of Artificial Intelligence (AI). The main goal of the machine learning technology is to understand the structure of the data and fit that into specific models which later can be able to understand the data and used by humans for various application throughout life.
- In general, there are two types of Machine Learning: (i) deductive machine learning and (ii) inductive machine learning. The deductive ML method learns from the previous data or existing data and the inductive ML method learns by taking examples.
- Machine Learning has three main types of learning; they are; Supervised learning, unsupervised learning and reinforcement learning. Many algorithms are used to visualize the simulation of clothes trail in research articles.
- Support Vector Machine (SVM): Support Vector Machine SVM is a supervised ML method used for binary classification purposes. SVM transforms the input data to a required data using a set of functions like linear function, nonlinear function, and polynomial function. They are mostly used for medical applications. SVM lower the error in the empirical classification and enlarge the geometrical margin and hence it is named as maximum margin classifier.
- K-Nearest Neighbour (KNN) Algorithm - The KNN algorithm can be used in the research of supervised learning and unsupervised ML problems. In the present situation, KNN is the most needed ML algorithm. KNN algorithm stores the dataset at the raining phase and when the algorithm gets the new data, then it classifies that data into category which is more similar to the new data. KNN algorithm can be used for regression as well as for classification.

VII. LITERATURE REVIEW

A. Webcam Social Shopper

Webcam Social Shopper (WSS), also known as Augmented Reality Dressing Room, In fact, while online shopping streamlines searching, browsing, researching, and completing transactions, it does not lend itself to in-store experiences such as trying on clothes. For this reason, the WSS software was developed to help online her shoppers see the clothes “wearing” them on their webcams, giving them confidence in making purchasing decisions. Since this software supports his 2D, 3D and depth-sensing cameras, WSS software is an advanced product visualization tool that enables online shoppers to virtually try on clothes by turning cameras into real-time interactive mirrors. Create a clothing-like visualization by overlaying a 2D still image of virtual clothing on the human body. Additionally, this software allows users to manipulate the software her content using hand gestures without having to go back to the keyboard or mouse to perform operations. Using this motion detection system, users can browse through different clothing options by simply moving their arms overhead. The user must give her WSS software permission to access the camera Through the camera, the software can detect where the user is standing and adjust the position of the clothing on the user's body accordingly. For the software to perform its operations accurately and successfully, the user must stand in the center of the view, 4-5 feet away from her from the camera.

VIII. Algorithm to create Virtual Trial Room

Step1: Use of OpenCv

Step2: Capturing the video using openCv packages (cv2)

Step3: RGB Normalization – OpenCV uses color contrast-based differentiation of objects by detecting the pixels which reside on the boundaries where colors change values significantly.

Step4: S.O.T.A – GluonCV contains a various function which together helps in detecting the contours of different objects in a frame.

Step5: Augmentation of colours and logos -. Here in our case, we want the outermost containing contour which will relate to the T-shirt which the user or test object is wearing.

Step6: With mxnet deep learning algorithm we impose the clothes and ornaments to human body.

Step7: It makes the process user interactions with the help of Numpy/OpenCV packages for edge detection and Context Embedding.

IX. Proposed work for

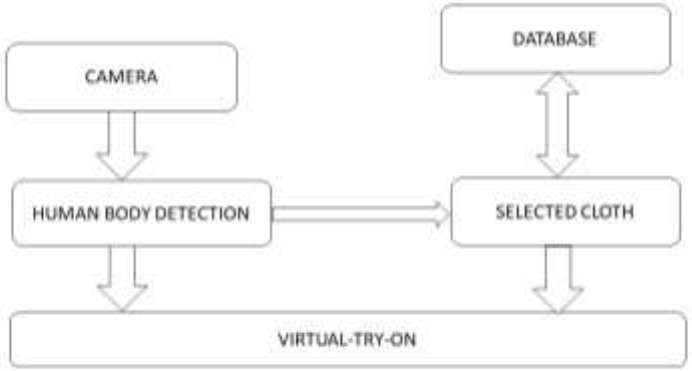

Fig2:Virtual Cloths System Architecture

X. Model

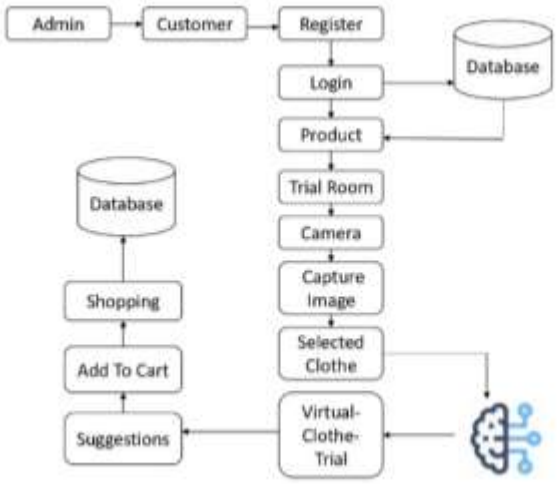

Fig3: System Architecture

XI. Future Scope

In this paper, we studied the classification and detection of botnet viruses. This malicious software is rapidly used by developers for application development, these led to an increase in the amount of malware in the system. Therefore, in future implementations, the proposed methodology will work for detecting the various types of botnet viruses. At the end of the studies, we will come to the conclusion that a feature selection-based system will build in the future.

XII. CONCLUSION

This article describes a dynamic texture overlay method from monocular images for real-time visualization of clothing in a virtual mirror environment. Much like looking into a mirror when trying on clothes, we create the same impression, but with substantially textured clothes. The mirror is replaced by a large display showing the camera's mirror image. upper part of the human body. The virtual mirror system is designed for dressing room purposes. Our motivation here is to create a virtual fitting room environment to increase time efficiency and improve the accessibility of dress fitting. The system allows

the wearer of the shirt to move freely in front of a mirror, while swapping the shirt's color and texture, stretching and bending like a cloth, and performing elastic deformations that move it closer and further away from the camera.

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