Development of Virtual Trial Rooms for Showrooms

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Abstract - Everyone loves to buy clothes, except for the hassle of rehearsal spaces. Augmented reality fashion displays seek to streamline the shopping process by eliminating all the hassle of trying multiple garments in tight, narrow trail spaces. You can identify people and view clothing and accessories such as watches in real time. This saves you the trouble of waiting in line and trying on clothes that someone might have worn before in the same rehearsal room.

Applications of this technology can extend far beyond the realm of fashion stores to the realm of fashion design itself. This allows fashion designers to model prototype designs and early concept art and virtually test materials and resources before committing to physical representation of those designs.

Key Words : OpenCV , Capturing Image RGB Normalization, Face Detection, Haar Cascade Classifier

1. INTRODUCTION

Despite increasing access to technology, people in the modern world are always busy. But for many, paying attention to appearance remains a top priority. Many people continue to spend time maintaining and expanding their wardrobes, buying special outfits, and more. In some cases, investing time involves going to a retail store to try on and buy clothing and accessories. The process of trying on some candidate garments and choosing the right size garment can be very time consuming. Online shopping offers a faster alternative than traditional physical stores. However, despite its advantages, online shopping has some drawbacks. One of the disadvantages is that it can be difficult to imagine what a particular item would look like if worn by that person. This is because the size and shape of the body, hair and skin color of one person are very different. Over the last decade, simulations of trying on clothes have attracted the attention of many researchers. Much of this research used a multi-view system for fabric tracking and retexturing. Optical flow is widely used in today's apparel tracing and retexturing.

2. RELATED WORK

A considerable lot of the current frameworks have variable discernments in the space of Augmented Reality which made conceivable the execution of Trial Room idea virtual. Hardly any such E-Commerce locales like Lenskart, Abof, Snapchats

and so forth, have created applications in light of augmented reality. One of those thoughts is the Virtual Trial Room which shows the client in wanted clothing. However, none of the ongoing applications give the three layered powerful imaging. To develop this region we are proposing another framework called the "3D Virtual Trial Room".

In the proposed framework, we will portray a basic and proficient Trial Room with virtual use. This application assists the client with imagining his/her own clothing without really wearing it. At first the client needs to confront the camera which centers the client picture and fit different ensembles to it and presentations. This essentially assists the client with knowing his/her decision effectively and give more noteworthy degree of fulfillment. As per the papers [1], [2] and [6] which are proposed by Shreya Kamani, F. Isikdogan and Vipin Paul individually, the execution of virtual preliminary room application is proposed with the utilization of a sensor known as Kinect sensor which essentially takes the bone estimation of an individual which is a

method for deciding the size of client's body on which the virtual fabric must be expanded. In paper [3] which is proposed by Cecilia Garcia Martin, an android application is coordinated with the idea of expanded reality. There the proposed innovation is enlarging the virtual materials on a clients' static picture and the entire application is unloaded in an android telephone. The application Virtual Trial Room can be pictured in fluctuated viewpoints and can be executed utilizing different equipment - programming combinations. One such is the utilization of OpenCV for this application advancement. This thought has been proposed in [4] and [5] by creators Nikki Singh and Sourabh Botre separately.

3. METHODOLOGY
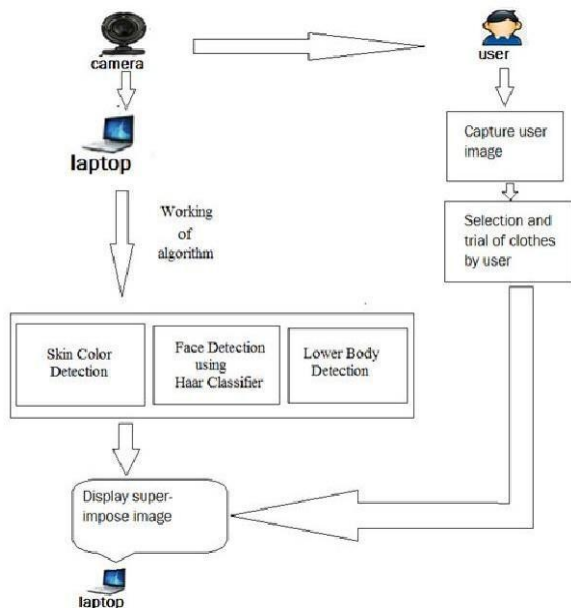
3.1 System Architecture
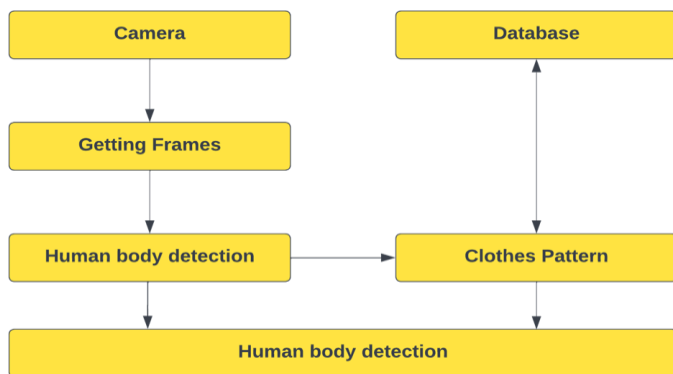
In this above figure shows the overall work flow of the project. We are passing live captured frame only as input system will detect the person human body and cloth pattern and matches the simulation.

4. IMPLEMENTATION

4.1 OpenCV

Our essential thought is to distinguish the form of an individual's picture remaining before the camera. OpenCV is a cross stage open-source programming bundle that contains countless programming capabilities that give the client a door to interface with PC vision. The capabilities are worked to give a typical stage as well as framework for applications and issues connected with PC vision. The capabilities are coded so that they are proficient to incorporate AI thoughts and functionalities. OpenCV capabilities contains north of 2500 calculations that together give functionalities like face

recognition, distinguishing objects, identify human activities in a video and considerably more.
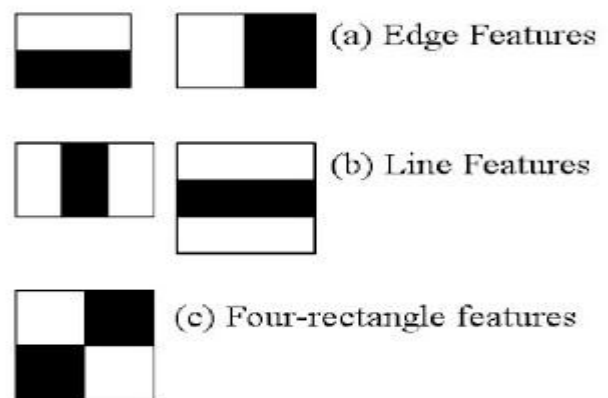
4.2 Capturing Image

OpenCV contains capabilities that are explicitly worked to catch pictures and video from a machine outfitted with various cameras, be it ht e inside or a remotely joined camera. It can peruse live video feed from a camera and separate it into outlines for helpful handling in additional stages. In this work we catch a video contribution of the client from the camera and apply the application code rationale straightforwardly on the information stream of casings without saving the real video record anyplace in the framework. This makes the application memory effective as video records are exceptionally enormous in size and need gpu resorces to deliver the video. Likewise by this training we can recreate a virtual climate wherein we truly do proper increases on the constant video picture of the client.

4.3 RGB Normalization

OpenCV utilizes variety contrast based separation of items by distinguishing the pixels which dwell on the limits where varieties change esteems altogether, yet this cycle can't be completely precise as in true situations pictures can be hard to examine in light of variety separation. As an illustration consider the beneath image(include picture with fig no.) in which an individual's video feed is being broke down for identifying the T-Shirt he is wearing.

4.4 Haar Cascade Classifier

 Here we will work with face identification. At first, the calculation needs a great deal of positive pictures (pictures of countenances) and negative pictures (pictures without faces) to prepare the classifier. Then we really want to remove highlights from it. For this, haar highlights displayed in beneath picture are utilized. They are very much like our convolutional piece. Each element is a solitary worth got by deducting amount of pixels under white square shape from amount of pixels under dark square shape.

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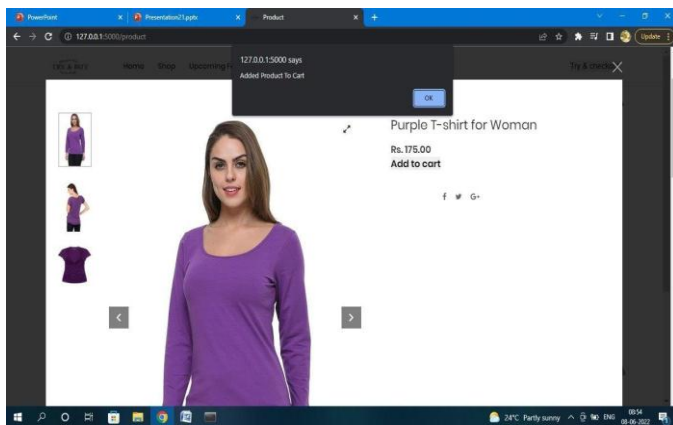
4. RESULTS & FUTURE WORK

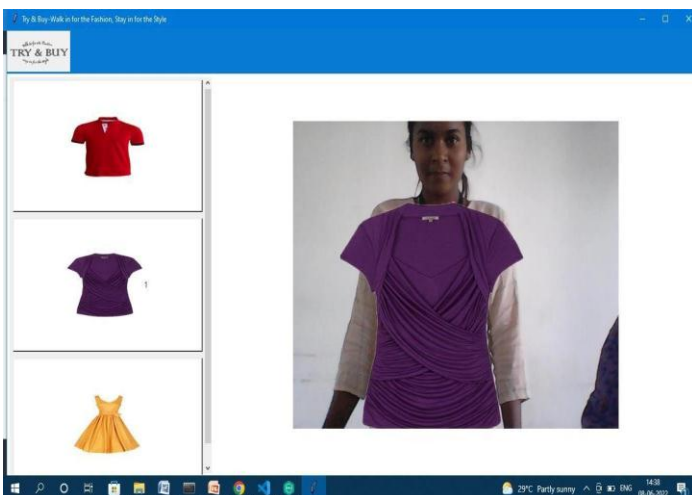**Fig - 1**: Displaying selected product and to add to cart for trial

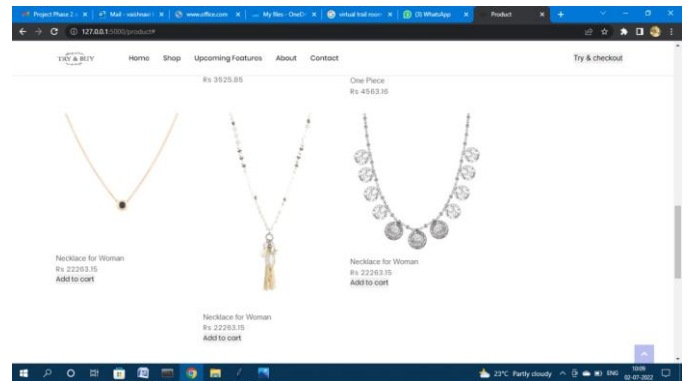**Fig – 2:** Output Screen displaying results

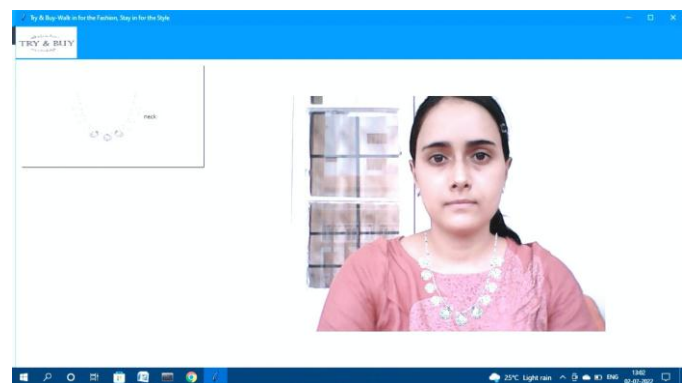**Fig - 3:** Accessories display screen

Fig – 4 : Accessories try out

5. CONCLUSION

As the last result, framework will show the accessible dresses from information base as per situating and estimations of client. The client can get to the GUI by hand motion and can choose the clothing or additionally select different classification. Accordingly it will be exceptionally helpful and bother free for the client to pick the ideal attire through virtual means without a lot of burden. As we have taken Front Haar Cascade calculation , here we have accepted face as the central issue and attempted to change the dresses and embellishments. Alongside this the cost of the item portrayal about the chose class can likewise be shown.

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