VIRTUAL MIRROR – A HASSLE FREE APPROACH TO THE USE OF TRIAL ROOM

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Introduction:
Stores generally have a large and varied options for clothes. It is physically impossible for a customer to try out all those clothing without having to spend hours on it. Also, in a physical store, in order to try on some selected clothes a common practice is to queue up and take turns to use the fitting rooms. Due to the limited number of in-store fitting rooms, shoppers usually have to spend most of their shopping time on queuing up (which will be even longer during peak hours). Prolonged waiting time will affect customers' patience, which leads to lower customer satisfaction.

Objectives:
The main objective of the Virtual mirror is to provide a virtual trail room to its users. The users pose in front of the mirror and the related depth information are tracked using the Kinect sensor. The virtual clothes are then imposed over the image of the tracked user. The clothing moves and fits according to the movement of the user.

Methodology:
A Kinect sensor is used to get the skeletal data of the user. The Kinect sensor returns the node point of the skeleton. Kinect sensor gives 23 body node points in that we use 18 nodes for virtual mirror. The upper 10 nodes such as chest center, shoulder left, shoulder right, hip center, hip left, hip right, left elbow, right elbow, left wrist, right wrist and lower 7 nodes hip center, hip left, hip right, knee left, knee right, foot joint left, foot joint right are used for shirt and pants respectively.

This data is then used by a software named Unity to impose the clothes on the user. Unity is a gaming engine which is used to build the 3D modules. In the given project the 3D cloth assets are imported into Unity. An Avatar of a human body is created internally using the data of the node points from Kinect and the clothes are configured so as to impose on this Avatar. When the application is run a livestreaming video of the user with the clothes imposed is produced as an output on the screen.
Results:

A live streaming video of the user with the clothes imposed is produced.
Conclusion:

A common problem faced by customers while shopping for clothes is the need to spend hours trying out a variety of clothes physically. This can be tiring and unpleasant when the time available is short or there is a limited number of Trial Rooms. The proposed solution to overcome this problem is the use of a Virtual Mirror that acts as a virtual trial room. It uses a Kinect sensor to plot nodes points of the human body and this data is then used to render the image of clothes over the user’s body, thereby eliminating the need to physically try on the clothes and hence helping save time and improving the efficiency of shopping.

Future Scope:

The Virtual mirror project proposed here allows the customers to choose the clothes of their choice by using a tablet which is then identified by the mirror. This project can be improvised by including gesture recognition for selection of clothes, thereby eliminating the need of an external device to select clothes.

The Project works currently for male garments like Tshirt (full sleeve, half sleeve), Pants and Shorts. The Project can be improvised to include female garments also.