



OPEN ACCESS INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING

A SURVEY ON VIRTUAL REALITY FOR DRESSING ROOM

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Abstract: A Virtual Trial Room application utilizing Augmented Reality which enables a client to try on virtual garments. The client posture and profundity is followed utilizing the Microsoft Kinect sensor and virtual garments are lined up with the followed client. The garments moves and adjusts practically and the lighting force of the material render is adjusted to coordinate surrounding lighting conditions. The exhibited application enhances related increased reality application by including full client posture following and by utilizing 3D dress models joined with fabric recreation rather than 2D pictures.

Keywords: Augmented reality, Microsoft Kinect sensor, 3D clothes

I INTRODUCTION

Looking for garments is a typically increasing movement both in-store and on the online sites. An in-store customer more often tries on some selected garments and inspects how well they fit. While an online customer more often than not checks how well the garments fit the models in the online pictures. Firstly, in a physical store, with a specific end goal to try on some selected clothes, a typical practice is to line up and alternate the garments utilizing the changing rooms. Because of the few number of in-store changing rooms, customers usually have to spend most of their shopping time on lining up and try on the garments physically and during online shopping the garment may not fit the customer due to size variation of different brands and also the lighting effect may mislead the original color of cloth which leads to return of the clothing for exchange which increases the transportation losses and also in many cases these garments are sold in stock sales which decreases the profit. Both in-store and internet shopping having unavoidable constraints which leads to clients' unsatisfied shopping encounters and in addition the retailers' misfortune of potential sells.

To avoid this problem observed, A thought called "Virtual Try On" is put forward. Clients would have option to see the visual picture of how they look like by attempting on garments basically with the goal that they can effectively

shift through a few choices without using the fitting rooms and changing the garments.

II RELATED WORK

“ARDressCode”[1]

This paper introduces a new augmented reality concept for dressing rooms enabling a customer to combine a tactile experience of the fabrics with easy simulated try-on. The dressing room has a camera and a projection surface instead of a mirror. The customers stick a few visual tags to their normal clothes. Then the ARDressCode application features motion capture and provides an AR video stream on the AR “mirror” with the selected piece of clothes mixed in and fitted to the customer body. Design issues and technical implementation as well as the prospects of further development of the techniques are discussed.

“Virtual Makeover and Virtual Trial Dressing Author”[2]

Now-a-days everyone wants to look fashionable But, it is difficult for ordinary users to have artistic makeup and hairstyles. Moreover, when you are in a nude look and want to share a better look with your friends, the fastest and easiest way is virtual makeup. However, current existing makeup software needs many user inputs to adjust face landmarks, which influence the user experience. And, it cannot remove the flaws on skin as good as real cosmetic makeup. Hence, the author has introduced such system that allows you to do almost all the makeup work. The system

would be platform independent and made up of all the free-source development tools so that if taken commercially later the cost will be as low as possible. This will make it accessible in small time running beauty parlors.

“VIRTUAL TRIAL ROOM USING AUGMENTED REALITY”[3]

This paper presents a Virtual Trial Room application using Augmented Reality which allows a user to try on virtual clothes. The user’s pose and depth is tracked using the Microsoft Kinect sensor and virtual clothes are aligned with the tracked user. The clothing moves and folds realistically and the lighting intensity of the cloth render is adapted to match ambient lighting conditions. The presented application improves on related augmented reality application by adding full user pose tracking and by using 3D clothing models combined with cloth simulation instead of 2D images.

“Design and Implementation of Interactive Augmented Trial Room”[4]

This paper gives a user friendly visual interface which auto-detects the human face and tries to merge the chosen accessories (either jewelry or eye-glasses) on them using a webcam as an input device and displays it to the screen based on Augmented Reality [AR]. With this, a lot time is saved to choose the accessories in a virtual display. To achieve this author uses HAAR algorithm, this takes the responsibility of detecting the face thereby merging the accessory. Here the accessories are merged using the joints and position of the coordinates. In addition, the author’s proposed paper also detects the red pixels on the user’s fingertip to change the accessories based on the gesture automatically. Thus this makes a user-friendly virtual trial room application instead of a real-time trial room.

“Human Friendly Interface Design for Virtual Fitting Room Applications on Android Based Mobile Devices” [5]

This paper presents an image processing design flow for virtual fitting room (VFR) applications, targeting both personal computers and mobile devices. The proposed human friendly interface is implemented by a three-stage algorithm: Detection and sizing of the user’s body, detection of reference points based on face detection and augmented reality markers, and superimposition of the clothing over the user’s image. Compared to other existing VFR systems, key difference is the lack of any proprietary hardware components or peripherals. Proposed VFR is software based and designed to be universally compatible as long as the device has a camera. Furthermore, JAVA implementation on Android based mobile systems is computationally efficient and it can run in real-time on existing mobile devices.

“VIRTUAL TRIAL ROOM” [6]

This paper presents a Virtual Trial Room software using Augmented Reality which allows the user to wear clothes virtually by super imposing 3d clothes over the user.

The user pose and depth is tracked using the Kinect sensor and virtual clothes are imposed over the tracked user. The clothing moves and folds according to the movement of the user. The presented software use 3D object files instead of 2D images.

A Real Time Virtual Dressing Room Application using Kinect” [7]

The author introduces a virtual dressing room application using the Microsoft Kinect sensor. Author extracts the user from the video stream by using depth and user label data provided by the Kinect sensor. It then registers the cloth model with the Kinect skeletal tracking data, and detects skin to adjust the order of layers. We report an average percentage of overlap between the user and the cloth models.

“Towards a Development of Augmented Reality for Jewelry App”[8]

This paper gives an idea which automatically detects the human face and tries to stick the chosen accessories (either jewelry or eye-glasses) on them using a webcam as an input and displays it to the screen on Augmented Reality [AR].When a person enters the of view of the camera, the camera will start detecting face of the person, and the algorithm of the system will start tracking the face of the person in order to recognize various face feature of that person. Applying this technique, a lot time is saved to choose the accessories in a virtual display. To achieve this the author use HAAR algorithm which takes the responsibility to detecting the face and merging the accessory. Here the jewelry is merged using the joints and position of the coordinates. Thus by doing so, the accessories are automatically positioned to the detected human face using a parallel transformation.

III SYSTEM ARCHITECTURE

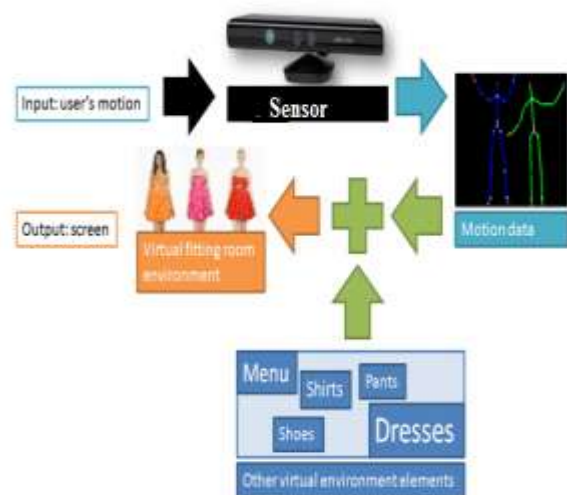


Figure 1 System Architecture

3.1 Modules 1: Setting Up the Room

For this project we need to make an augmented reality software in which the client can try on virtual garments. We will utilize the Kinect sensor to catch the client's pose following and depth sensing.

3.2 Module 2: User Tracking

The client will stand before the Microsoft Kinect sensor. The Kinect sensor uses RGB shading detecting and depth sensing to recognize the human standing before the Kinect. The Kinect distinguishes the joints which is obvious for the Kinect and furthermore predicts the joint which is undetectable for the client. The joints and the skeleton focuses are mapped by the Kinect utilizing Kinect coordinate mapping. All the skeleton joints which are identified and anticipated by the Kinect is joined to shape the full skeleton structure of the human and the human is detected.

3.3 Module 3: Cloth Object Creation

The virtual garments which are worn by the client are 3D object file. This 3D object file is produced utilizing skanect programming. This skanect programming is utilized to filter the 3D object file from the environment utilizing Kinect. This 3D objects are basically set over the client utilizing measuring and fitting calculation.

3.4 Module 4: Interactive Cloth

The cloth which will fit over the human body will be fitted using the skeleton joints of the client. The extent of the chest is measured by computing the distinction between the shoulders. And the height is figured by the contrast between the neck and the hip. The material moves according to the movement of the skeleton joints of the client.

3.5 Module 5: Skinned Cloth

The cloth is precisely fitted to the client by utilizing skinning. Every vertex of the skeleton joint is mapped and precisely coordinated with the points of the 3d dress. In this way by the correct mapping of every vertex of the skeleton joints with the purposes of the 3d dress the dress is flawlessly superimposed over the body of the client.

IV APPLICATIONS

- 1) It can be used in small time running beauty parlors.
- 2) It can also use in large malls where large queue for waiting room.
- 3) Textile shops

V ADVANTAGES

- 1) Virtual trial of garment.
- 2) No need to queue up for a trial room.
- 3) Trial of garment before buying from online shops.
- 4) Saving of Transport expenses due to return of incorrect clothing.
- 5) Saves lot of Time.
- 6) Actual view of how Clothing will look Interfacing with Gestures.

VI DISADVANTAGE

Extra Expense is required for using the Kinect Sensor.

VII CONCLUSION

We studied and present the observations in clothes shopping experiences and figure out the potential problems. The Virtual Fitting Room system is introduced and implemented which is aimed to increase customers' satisfaction during clothes shopping. This Paper presents the system design, the preparation process and the iterative implementation process of the Virtual Fitting Room system. In addition, different types of evaluations have been done, and the final result of the system evaluation shows that the system meets general people's needs, although it is still in an immature stage. The current version of the system does not support 3D clothes modelling and animations. Users feel inflexible with 2D clothes textures.

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