

AR Sneakers Mobile Application

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Abstract: Gone are the days when people used to do shopping offline, but now-a-days people shop using technology in virtual manner. All the hectic way of getting ready to go to market then trying out things to ensure ourselves to buy certain quality stuffs. The aim of this research paper is to resolve this issue by providing a unique solution using future technologies. A mobile application that could help you explore quality products at click of your fingertips and will give you a feeling of virtual shopping at home. Our purpose being very clear of making e-commerce experience easy. Thus, the people will become habituated to trying and buying products easily at their comfort anytime and from anywhere.

I. INTRODUCTION

AR is a term associated with augmented reality which is a technology-enhanced depiction of the physical world in a sense that resonates with experiencing something as reality which is actually a virtual version of it. It is made feasible by the inclusion of digital visual components, audio, or other sensory stimulation. This is a new trend, particularly among companies active in mobile computing and commercial apps. Augmented reality has grown and is becoming more common in a wide range of applications. Marketers and technology firms have attempted to dispel the myth that augmented reality is only a marketing tool since its debut. The idea of AR is to enhance the experience of homo-sapiens by portraying virtual information on top of the current real-world surroundings. Indeed, augmented reality can be found in a variety of applications, like Snapchat lenses, which help you find your car in crowded parking lots, and other shopping apps that allow you to discover things and try out different clothing or accessories without even. The only unknown is how developers will incorporate these features into the products that we will use frequently. We in coming years would definitely see different startups based on AR tech in the IT industry and one of the sole reason for that is the buzz around it. If you ask a tech expert you would get to know that an android application consisting of AR feature can easily be incorporated using unity and Vuforia whereas for doing that so in iOS we require ARKits and specific bundles. Apple and Google are still refining their mobile devices to meet the needs of AR-specific apps.

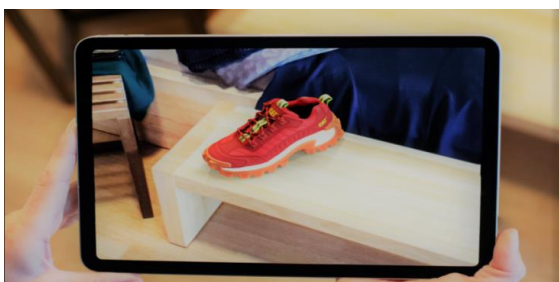


Fig. 1. App Preview

With increasingly faster processors for iPhones, iPads, and the entire galaxy of Android smartphones, these handsets are now powerful enough to run data-intensive apps of all kinds, including applications that use augmented reality. Google promotes the AR platform Tango, which includes a visual search feature via Google Lens and various camera-enabled AR apps. Apple is also running ARKit, which provides programmers with the code needed to build AR apps for iPhones and other iOS devices. The mobile application will provide a user-friendly interface in which one would be able to search out different sneakers of their choice. This application would also provide a platform for augmented reality shoe viewing experience on your smartphone. Because smartphone users dominate online shopping, smartphones are expected to serve as a common platform for virtual try-on systems, imposing stringent requirements on the real-time performance and computational efficiency of the algorithms used. Currently, there is no foot benchmark for virtual shoe fittings, so we will create and comment on a large pioneer benchmark for training and evaluation. All feet in the benchmark, including come with all virtual shoe fitting tags, including eight key points for each foot and a leg and foot segmentation mask. Note that neither the multi-camera system nor the 3D bounding box is used to collect or annotate data. Instead, we suggest using a traditional single camera to take a picture of the foot and annotate the data in a new way. This provides a platform to use the tech in maximize way and to its true potential. Multi-branch networks have been proposed for simultaneous key point detection, Two-dimensional pose estimation, and segmentation.

II. RELATED WORKS

Two-dimensional posture estimation refers to the positioning of the joint coordinates of the human body. 16 body joints in the MPII dataset and 32 body joints in the Human 3.6M dataset for an example. The method based on heat map prediction and coordinate regression is two types of cardiac state (SOTA) [1] 2D pose estimation systems. The stack hourglass network, which dramatically improves the accuracy of pose estimation using a network architecture such as a symmetric hourglass, is a typical approach to heatmap prediction-based sorting. Due to the lack of spatial and contextual information, the coordinate regression-based approach directly regresses joint coordinates, which has received less attention in recent years. There are similar studies on hand pose estimation. For example, the Nonparametric Structure Regularization Machine (NSRM) and Rotationally Invariant Mixed Graph Model Network (RMGMN) perform 2D hand pose estimation via a monocular RGB camera. [3] OpenPose performs 2D pose estimation for multiple people and creates a key-point dataset for the human foot. It annotates each foot with-3-

III. AR SHOE MODEL

The three main components of the ARShoe model are:

- A quick and accurate network for key point prediction, posture enhancement, positioning, and segmentation.
- A realistic occlusion creation mechanism.
- A three-dimensional model stabilizing method.

The projected part affinity fields (PAFs) assess the foot position, aiming to organize estimated key points into correct foot instances. After that, mapping 2D key points from each foot yields 6DoF foot postures. The 3D shoe models can then be generated into the appropriate postures. The [2] segmentation findings are utilized to locate the correct location on the 3D shoe model that the leg should obstruct. Finally, the virtual try-on effect is seamless and lifelike thanks to the 3D model stabilization module. In addition, for accurate and effective comments.

IV. VIRTUAL TRY-ON FEATURE IMPLEMENTATION

In recent years, the virtual fitting community has made great strides in developing virtual fitting rooms. Virtual try-on methods can be divided into two categories: image-based methods and video-based methods.

There is a trend that need to be understood in order to have a wide perspective of how these techniques works. Virtual fitting of other fashion items such as cosmetics, eyewear, and shoes is of less research interest than virtual fitting of clothing. Researchers have found out that virtual try-on has immense potential to outgrow as a service for software's. These methods work best in environments with simple backgrounds and is difficult to apply in real-world situations.

It is also not suitable for mobile devices due to its high processing costs. Meanwhile, this study focuses on virtual shoe fittings and introduces a simple new framework for getting realistic rendering results while working in real time on your smartphone. The application mostly focuses more on the outcome. What we have achieved is showing a model rendered using AR using the above discussed methods.

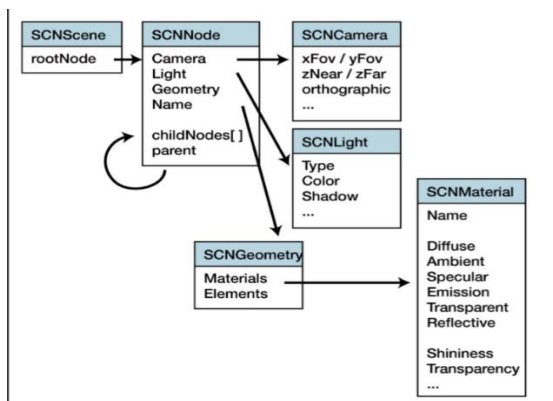


Fig. 2. Virtual Try-On Working Flowchart

So now there is a flow chart of how things work in our app. [4] First of all there is SCNScene at second SCNNode and at third SCNCamera at fourth SCNLight at fifth SCNGeometry and at last SCNMaterial.

All the steps consist inbuilt procedures of breaking down the model and showing in augmented reality domain.

V. ER ARCHITECTURE

In the architecture, there is a login which has 3 attributes mainly email, password and new user sign up. It has a relation with user which has 4 attributes mainly user name, user Phone no., user cart and user email. It also has a relation with sneakers that consist of sneaker price, favourite sneakers and sneaker AR Model attributes.

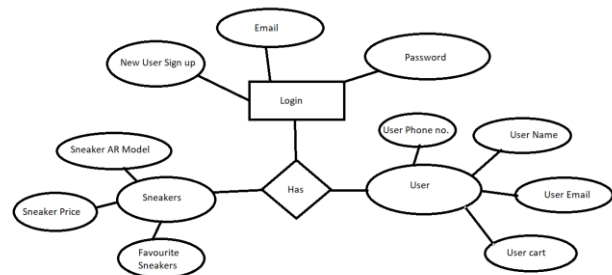


Fig. 3. ER Diagram

VI. AR SNEAKERS APPLICATION

The home screen contains a top bar with cart option and favorite section. The bottom of the screen has card of sneakers with images, name and price of it.

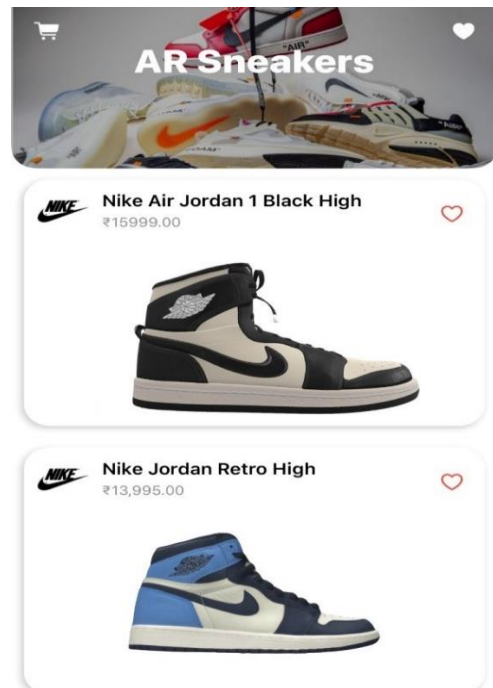


Fig. 4. App Home Screen



Fig. 5. AR Sneaker Try-On

So, this next figure focus on the Augmented Reality part of the AR Sneaker application.

It consists of background of camera on which try-on of sneaker would take place and on top of it has a card of the sneaker details and price.

V. RESULT & DISCUSSION

AR Sneaker app is a highly efficient virtual shoe fitting system introduced in this paper. A new multi-branch network has been proposed to effectively estimate key points, PAFs, and segmentation masks at the same time. A unique three-dimensional shoe overlay generation approach and new stabilization methods have been proposed to achieve a smooth and realistic try-on effect in real-time. Extensive quantitative and qualitative assessments show that AR Sneaker app produces excellent virtual try-on effects at real-time speeds on smartphones. Apart from the methodology, this task uses annotated virtual shoe fitting information to create the first large foot benchmark. In summary, we are confident that both the new virtual AR Shoe fitting system and a well-built foot benchmark will make a significant contribution to the virtual fitting community and would impact the technology market with ultimate.

AR can be treated as a newborn baby who has a lot to do but Needs guidance in order to achieve the maximum.

The concept of virtual try-on of different sneakers at home is a dream come true. The advancements in the technology made it possible for us to build the application in easy manner without complicating the process of making it. AR will be a game changer for coming generation because of the easiness it would provide while buying sneakers online. Cart facility would be very beneficial for the customers which is also present in the application. This paper puts down an interesting idea of how AR application can be built effectively and easily. It helps to resolve the problem of going to market to buy sneakers or other things. As for the future work in the AR app would be deployed on play store or Appstore with quality being the priority. Also, the features will be updated in regular way.

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