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Augmented Reality E-Commerce Assistant System: Trying while shopping

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ABSTRACT: Augmented Reality is a breakthrough technology that could considerably alleviate the implementation of complicated operations. Augmented Reality combines virtual and actual reality, making accessible to the consumer new tools to guarantee efficiency in the transfer of information for many procedures and in many environments. Present E-commerce technology can't supply enough individual information for buyers. Augmented Reality (AR) technology may enhance the operation of E-commerce by overlaying virtual info of merchandise from the actual world. This project proposes a way to incorporate point correspondence of image sequence based on passing chaotic marker-based pictures. Through this strategy, fresh marker-based visual monitoring technologies with image attributes may be utilized in AR E-commerce software.

KEYWORDS: Augmented Reality, E-commerce Assistant System, AR Shopping, Unity 3D software, SDK, GUI.

I. INTRODUCTION

The development of e-commerce has significantly changed the way the producer sell their products by taking advantage of technologies, selling at aggressive rates, and attaining a larger customer segmentation through transactions and communication via the net. These benefits have allowed e-commerce an extremely emerging and significant development of e-commerce sites offering a vast assortment of merchandise. Nonetheless, these improvements have yet to be able to completely cover the onsite shopping experiences. On-site shopping provides a border where customers really can socialize with the item right. They could view, touch, and try the item right. Even customers may also socialize with the vendor or the store assistant to ask about any information regarding this item. These encounters aren't fully acquired by customers when they shop via e-commerce. Because of this, it's frequently discovered that customers are frustrated when they get to the item in their hands. Hence augmented reality is just one of those discoveries offering answers to the aforementioned problems through technologies that may bring the digital world to the actual world.

Through this technology, customers can perform online shopping with an onsite shopping experience. Since the application of Augmented Reality in e-commerce remains comparatively new, studies that examine the Augmented Reality about factors that encourage customers to utilize the technologies and its effects on Purchase intention remain restricted. Prior studies have examined the impact of AR on e-commerce, such as technology efficacy, consumer expertise, and satisfaction. Purchase intention is another phase of customer satisfaction. This factor measures the need for customers to make purchases later on. Augmented reality is the integration between the Actual world and the virtual reality world. This technology will help consumers to determine the real universe of virtual worlds which are incorporated into the actual world. This technology will Offer a breakthrough Method to interact with virtual objects that can't be obtained directly by consumers. This technology provides many advantages from e-commerce, including increasing sales, creating brands, and forming consumer perceptions.[4]

Retail stores have adopted new technologies such as Augmented Reality (AR) in order to give customers a better shopping experience. The entire shopping experience, from the moment a customer enters a store to the moment they receive the product at home, has been transformed in ways that are unimaginable. They have increased brand engagement and created a new way for us to shop.

II. SCOPE

In the internet shopping experience, this technology enables the user to test goods via virtual worlds. The customer experience of augmented reality in e-commerce is extremely significant in influencing their ratings and buying choices. Therefore, Interactivity and vividness are just two primary augmented reality qualities that will influence consumer analysis involving the products via our app/software. About 20 decades ago, it was Amazon who scored over Wal-Mart by efficiently employing the power of the online platform.[3] In the same way, the beginning of AR and VR will cause a possible change in customer demand and technologies. By utilizing augmented reality in the ideal fashion, customers could be prompted to make the ideal purchasing decisions. This is helpful to the retailers to convince their target market. Additionally, customers will have the ability to acquire extensive data in the kind of testimonials, related products and costs.[5]

More to the point, AR, particularly, may provide users with an online shopping experience, irrespective of their location. Devices can superimpose 3D items in a variety of spaces, providing customers an opportunity to interact with electronic renderings in the comfort of their own homes. IKEA and Converse, respectively allow users to picture parts of furniture in their houses or sneakers on their toes in real-time using smartphone programs. From the clients' point of view; they could find an authentic and improved digital shopping experience.

III. PROBLEM STATEMENT

A. EXISTING SYSTEM

- **The "Don't touch" Factor**

Individuals are tactile beings and sensory experiences are an essential part of the shopping experience. Being unable to try out and get a product is most likely among the greatest pitfalls of internet shopping.

- **Boring Experience**

The attention span of an internet shopper is not any shorter than that of some other shopper around the high road. The vital difference: When online shoppers are diverted, uninspired or exhausted, they are gone.

- **Model Vs. Truth**

Sizing charts might have exact dimensions, but they do not take height, physique, or weight into account. It is hard for the ordinary person to envision what a product looks like in their entire body.

B. PROPOSED SYSTEM

- **Virtual Perception**

Entice your shoppers with persuasive product try-on encounters that highlight the advantages of every attribute and appeal to your creativity.

- **New and Smart Expertise**

Produce rich, enjoyable experiences which resonate with the current impatient shoppers. Integrating technologies and approach Which Make shopping more engaging and interactive, using:

1. Gamification Techniques
2. Interactive Product Guides
3. Augmented Shopping

- **Pragmatic Merchandise Features**

Augment various models of various shapes and sizes sporting every item. From Augmenting height and weight specs of various body types, shoppers may have more of a realistic expectation of what a product will appear to be in their entire body.

The proposed method aims to provide an environment that will help the consumers to put artificial 2D in addition to 3D objects to real life via using AR Markers. The proposed program also permits the user to pick, where to set the thing in the actual world. When the item was set in the scene, then it is going to be displayed accurately based on this perspective from the first scene, which is particularly challenging in the case of 3D virtual objects? The suggested system solves the issue of perspective monitoring and digital object interaction. The principal benefit of this proposed system is that it's customer-oriented rather than a solution or service-oriented hence enabling the users to reinforce a product of the desire.

IV. SYSTEM REQUIREMENTS SPECIFICATIONS

Software Requirements

- Operating system/Development: Windows 10/Mac
- Coding Language: C#
- IDE: UNITY 3D and Android Studio
- Application Platform: Android/iOS

Hardware Requirements

- System: AMD Ryzen 3rd Gen/Intel i3 9th Gen
- Hard Disk: 40 GB
- Monitor: 1080p Color
- Mouse: Logitech
- Ram: 4 GB

V. PROPOSED METHODOLOGY

A. ARCHITECTURE

In this model, we are using Android Studio for Navigation and Image Design (System Planning), Vuforia Software for registering image target (Marker Based), and Unity 3D software for designing AR objects.

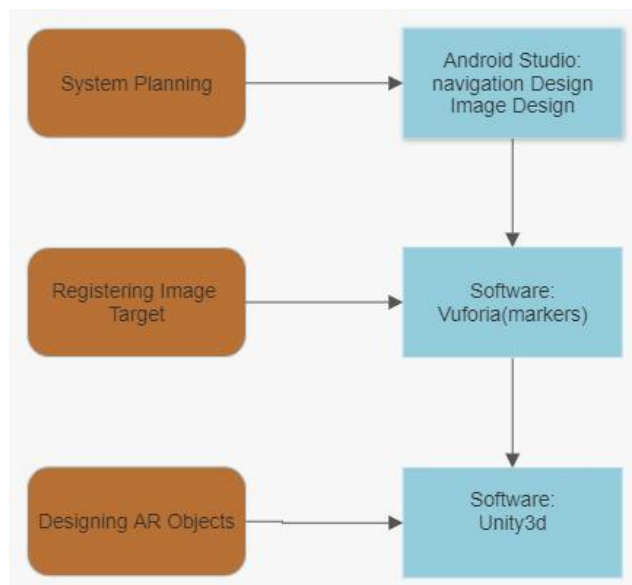


Fig 1: System Architecture

B. METHODOLOGY

The proposed model in our project aims to offer an introduction to AR advancement by sampling the performance available to a developer in an app made with Unity and Vuforia, a software development kit (SDK) for AR. Vuforia is a Software Development Kit (SDK) for producing AR apps. It utilizes Computer Vision to monitor pictures and 3D objects in real-time. This permits Placing virtual 3D objects regarding real-world objects in the camera display. The program will perform three tasks: first, it is going to recognize certain items and graphics in the actual world and spawn a match thing upon locating the real-world product. You will be able to interact with this thing by tapping it, and the program will recognize if your device is near the compromised thing. Ultimately, an Easy graphical user interface (GUI) will be forced to show how the normal Unity features a programmer uses works just too in an AR program. [2]

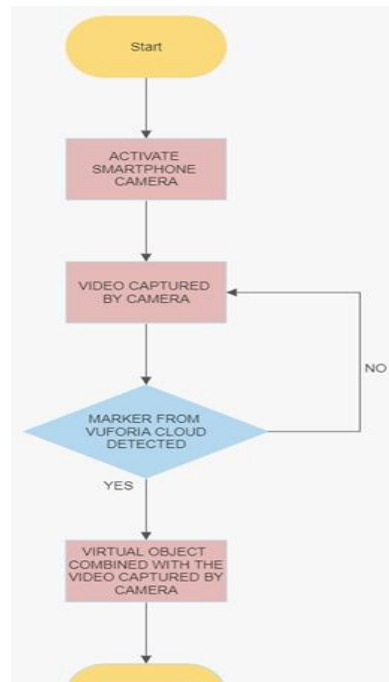


Fig 2: Working flow diagram

C.MARKER RECOGNITION



Fig 3: Marker for Scanning



Fig 4: Inbuilt marker recognition
By Vuforia engine Step1



Fig 5: Marker recognition
Step 2

D.APP DEPLOYMENT



Fig 6: Placement of Marker



Fig 7: 3D Augmentation of products

VI. BENEFITS OF AUGMENTED REALITY IN E-COMMERCE

1. Engages clients

Experiential marketing is the most precious kind of promotion but has always been the hardest and cost-restrictive. Today, Augmented Reality is turning into every kind of advertising into experiential advertising.

2. Makes Online Products "Tangible"

"Try Before You Buy" and "See It In Your Area" Augmented Reality is very popular with online shoppers. The beauty and fashion sector are offering clients "TryBefore You Buy" AR features so that they can observe the way the item appears on them.

3. Enhances customer satisfaction and reduces yields

By making online goods "concrete," brands enhance customer confidence and confidence, consequently, reduces yields. Clients are more inclined to hit "add to cart," which enhances sales.

4. Personalizes the purchasing experience

Augmented Reality in e-commerce enhances the shopping experience by making it more interactive. By providing clients control over electronic components in their actual distance, they're more connected to this item and your brand new.

5. Offers self-evident shop navigation

Talking of a flooring salesperson at their hands... Augmented Reality can encourage brick-and-mortar sales, also. As an instance, have you jumped around a large hardware store looking for an associate to assist you? Well, suppose this shop's site had an AR attribute that will paint a yellow-brick street for one to trace through the shop to the product that you want? That is just one easy thing AR can perform.

6. Reduces hygiene problems

In the present social climate, social and germs distancing is a large concern. Online sales are greater than they have ever been before to prevent cross-contamination. At-home AR shopping adventure areas near real-life shopping adventures as you can, which makes stay-at-home orders more bearable.

7. Creates Content for societal media

Augmented Reality in e-commerce almost provides a readymade digital advertising and marketing effort.

VII. CONCLUSION

At each new inflection in communication technologies, the advertising and marketing community attracted their current versions together in their initial attempts to adapt to the new medium. Radio, TV, Internet, Internet and Mobile have seen this progress perform and VR and AR will probably follow that version also. Finally, there'll be inventions around the manners an advertiser may bend the messaging approaches, strategies, and strategies of AR advertising to

communicate to target viewers a persuasive, emotionally persuasive story leading to some measurable amount of brand awareness. The new AR/VR ecosystem may not occur in most of the manners foreseen but it certainly will occur in a number of those ways. This upcoming big thing in advertising is guaranteed to render obsolete several present advertising and marketing business models and replace them with fresh ones. It's reasonable to conclude that entrepreneurs have to be prepared to embrace this ecosystem or view competitors gaining brand awareness and market share at their cost if they don't do it initially. Every forward-thinking marketer needs to deliver a healthy curiosity and openness to experiment and adapt their content and advertising strategies to choose the best benefit of the lively, wild, and wonderful fresh ecosystem. Marketers, company owners, and fundraisers, and many others challenged with producing persuasive digital advertising campaigns must adopt AR/VR and find new strategies to come up with creative, engaging, powerful, and memorable messages.

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