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"Home Furnishing Shopping using Augmented Reality"

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Abstract - *Augmented Reality is a breakthrough innovation that could simplify the complex tasks. Augmented reality(AR) depicts the physical-world interaction where data is overlaid in the physical world with more information. This concept can be used to make online purchases to improve user experience.*

Key Words: Augmented reality, shopping, virtual world, virtual reality, Artificial Intelligence

1. INTRODUCTION

Before we all became aware of online shopping we had to go to the physical store, look for the product you like from the limited designs and products available and choose the product we like and pay for it with cash or credit / debit card and we were introduced to online shopping and no need to go to the store but we have been able to view and purchase products online, and now with augmented reality been introduced in online shopping it has become more easier for us to purchase using online techniques. With AR we will be able to visualize how the item will look when it will get delivered and most of our problems would be solved all thanks to AR.

Almost 22% of the purchase is done online now with AR being introduced to us we will definitely add extra dimensions to the shopping experience and see an increase in these numbers.

A computational photographer Steve mann named the word wearable computing in 1980, the word "virtual reality" was named by Jaron Lainer in 1989 and the world "Augmented Reality" was named by Thomas P Caudell in 1990. As Artificial Intelligence is advancing swiftly it will have a virtual mind similar to that of a human mind. Augmented reality can transfer from a virtual agent-centered framework to a human-centered framework.

This paper proposes the concept of Augmented reality which shows the relation between virtual element and real world.

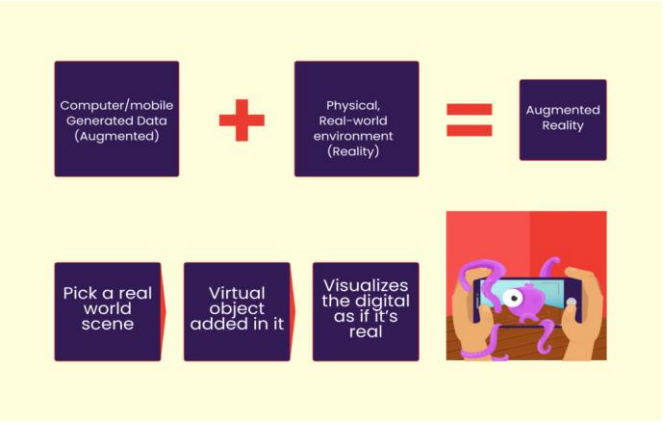

Fig1: Relationship between the Real world and Virtual world.

1.1 Ease of use

1) Select a product

First, confirm that you have the correct product design according to your requirements. AR uses the virtual environment to help you envision and select the product.

2) Maintaining the Integrity of the Specifications

The product which will be delivered to the user will be the same as it was shown by the AR. Various descriptions such as colour, dimensions and quality will not be compromised, and the product will completely meet users expectations.

1.2 Required Devices

If you intend to use AR for purchasing purposes you will need other devices. With the help of these devices users' experience of buying using AR will be improved.

1) Camera

The camera will serve as a visual device between the real world and the physical world. The camera shows the real environment in which AR content is embedded. AR-capable devices are equipped with a variety of technologies such as computer vision, sophisticated image processing, and machine learning that is used to produce high quality images. or we can better say that the phone camera will improve mapping and tracking of real-world objects and locations and AR objects will be attached more accurately.

2) Gyroscope

Nowadays most modern devices are equipped with gyroscopes. Measurement, retention and angular velocity were performed with a gyroscope. It can sense 360-degree angular movement. The gyroscope sensor is also called an angular rate sensor or angular velocity sensor.

3) Accelerometer

The gyroscope accelerometer is also installed on many modern devices. The Accelerometer takes measurements on a three-dimensional aircraft. The Accelerometer takes line measurements in the x, y & z direction, which means it can detect direct movement, which will help find what we are looking for somewhere.

4) Display

Since we know that anything captured by the camera needs to be shown elsewhere, here the display acts as an output device and without display it will not be possible to see objects from the visible area. Displays on different devices available in different resolutions depending on the required quality, such as 2K, 4K and 8K. The higher the resolution the better the result will be.

2. LITERATURE SURVEY

In the papers we found some facts and came to certain conclusions. Some of the conclusions are mentioned below

1) Collection of important data using sensors

The most significant step in augmented reality is to collect the data by various sensors like the camera, gyroscope and the accelerometer and identifying the plain surface and the surrounding.

2) Visualization of objects on surfaces

The camera and various other sensors process the collected data which is used to visualise the object and then the result is projected on the display in the physical world.

3. PROBLEM STATEMENT

Creating windows / prototype based on Android for online shopping program using different softwares

OBJECTIVES:

1) Finding more space.
2) Finding out what is best for us.

4. MOTIVATION

1) Not a good experience with online furniture purchases.
2) The product purchased does not have the right fit.
3) The same problem experienced by many users.
4) Difficulty with returns and refunds if it does not help.

5. PROPOSED SYSTEM

The proposed system is an online shopping system using Augmented Reality Online shopping is a boon to the retail market that has reduced efforts and increased retailers' profits. Focusing on minimizing potential errors if purchases can be made using AR and increasing accuracy.

6. ALGORITHM

ARCore uses a process called Concurrent Odometry and Mapping (COM) to understand where a smartphone is connected to the real world around it. go to the smartphone to do Motion Tracking and calculate the point or mark point of the highest feature using the parallax

formula. Provides details about the position and position of the smartphone at the sixth level of freedom

The next step is Group Understanding is used to understand where the coplanar element points. which helps the smartphone to find the plane

In the final step the light intensity is used by ARCore to determine the intensity of light in a different area.

7. EXPECTED RESULT

1) Surface detection
2) Object projection using AR
3) Visual of objects virtually
4) Smart Recommendations for measurements

8. ADVANTAGES

1) Purchasing becomes much effortless and more structured using AR
2) We can get some digital information by looking at the object.
3) Envisioning and presentation are easy.
4) No need to visit the store and purchase products.

9. DISADVANTAGES

1) The great disadvantage of buying using AR is that it is expensive to develop and maintain the seller.
2) The 3D item of each item that the seller wants in their product list should be made by scanning the product.
3) Big things are hard to scan or need to build.
4) If the item is not properly scanned the shape and accuracy of the product will decrease.

10. METHODOLOGY

In this project we use the unpopularity of the taxpayers we see in real life to take advantage of online purchases. Here the location and acquisition method is used. In land acquisition and object discovery the system analyzes the location / object and determines the size of the object that will assist in the representation of objects in real-world objects.

11. CONCLUSION

1) This project will help us use the power of real AR to improve the online shopping experience and improve the architecture process.
2) The Augmented reality of we see is the use of plain detection techniques and image
3) Processing methods to locate places or objects to give us the result you want.
4) It helps Designers and Developers to minimize errors in their work and make their work more complete.

12. SYSTEM SCREENSHOTS

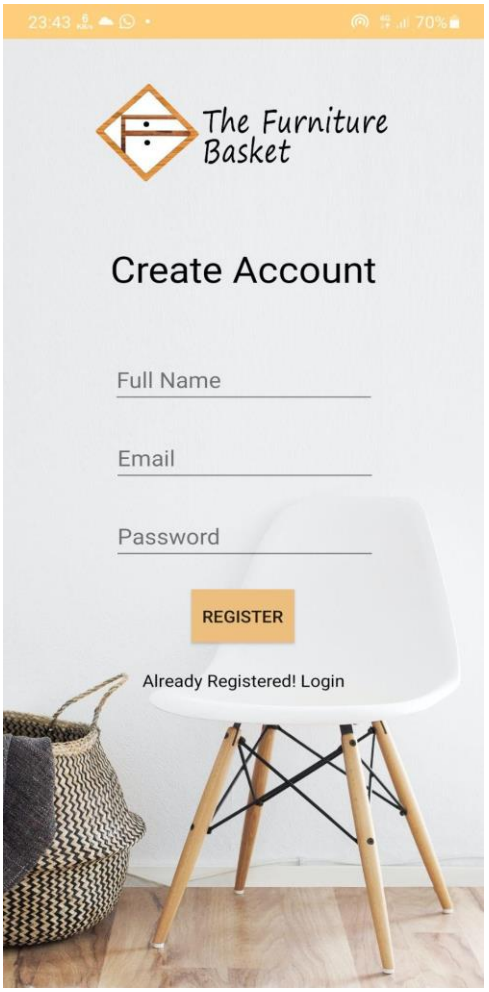

Fig2: Registration Page

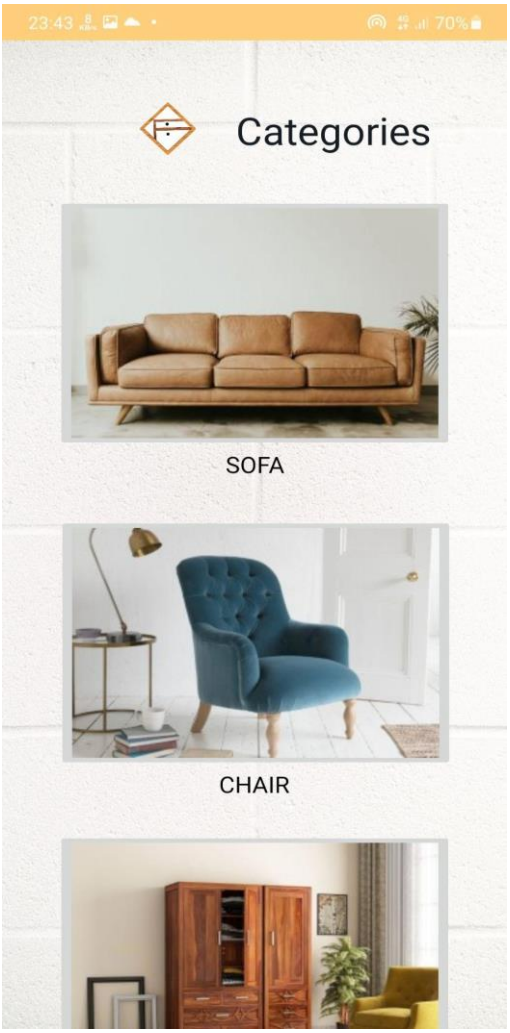

Fig3: Categories screen

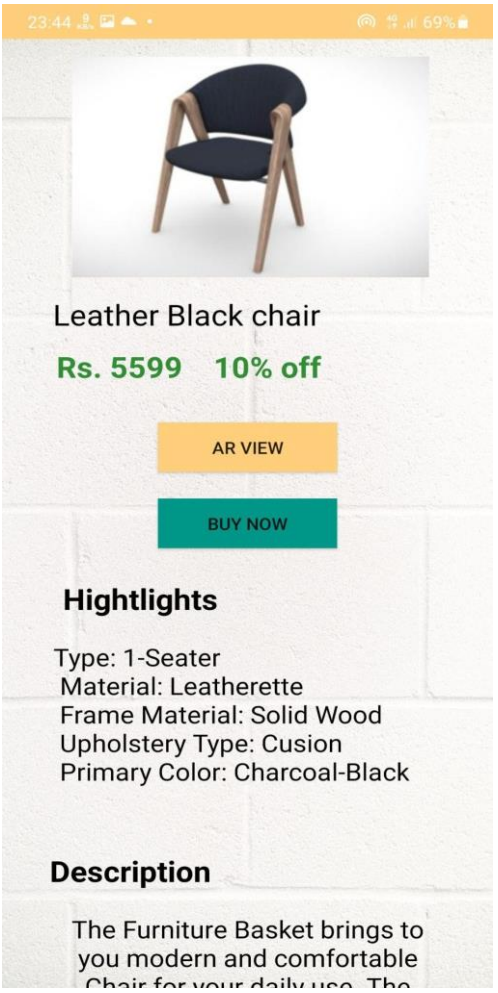

Fig4: Product Description

Fig5: Camera UI with Augmented Reality Chair

13. ACKNOWLEDGEMENT

Things that cannot be seen with our eyes but that have not been able to be revealed before can now be shown using the concept of truth of disagreement and invisibility.

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