



# AR SHOPPING APP

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**Abstract:** The progression of science and the development of information gives rise to a bigger role of e-commerce in a person's day-to-day life. This change, however, does not come without its challenges. The limitation of personal interaction with the products poses difficulties for the majority of the consumer demographic. This experience lowers the user's perception of the products and provides no real shopping encounter. Mobile Augmented reality technology is a novel type of information technology, that has garnered much awareness and observation in recent years. Augmented reality technology has also been included in the crucial technologies that have the power to alter future shopping trends. This paper instigates the principles and basic conceptualization of Augmented Reality Technology, Analysis of Feasibility, and Development of applying Augmented Reality Technology in Mobile E-commerce in India. Augmented Reality Online Shopping is vastly different from any traditional Online Shopping Application. Online shopping with AR technology can reach real-scene video displays synchronized to Computer generated virtual content. Online shopping and Augmented Reality combined with the present scenario allow consumers to discern an immersive feeling. Augmented Reality imparts some major characteristics that make consumer's purchase intentions more powerful and secure. example; a 360-degree panoramic view and the combination of consumer goods and a real living environment purchase consumer goods fun and authenticity is greatly improved to prompt the curiosity of consumers to create a highly interactive shopping activity.

## I. INTRODUCTION

The process of integrating or "augmenting" video or photographic displays by overlaying valuable computer-generated data on top of the images in computer programming is known as augmented reality. With the rise in the popularity of online shopping, there comes a need to improve the user experience to increase the profits and sales of businesses.

In this paper, we discover ways to optimize Augmented Reality technology to construct a user-engaging e-commerce experience. We built an application that would allow users to display a three-dimensional model of any available item on the application.

The rapid development of technology and information brings about a bigger role of e-commerce in daily life. There is still a barrier that needs to be overcome with e-commerce. Often, information such as pictures and descriptions of the product provides a superficial user experience.

Augmented reality grants brands and businesses to build a smart shopping experience that positively impacts customers buying decisions. Like how a person interacts with the products in a physical store, AR creates an immersive environment for customers by making them more comfortable with interactive virtual simulations. Augmented reality shopping applications allow users to visualize items in their homes before they purchase them, or to virtually try on clothing before they buy it. They are also able to provide helpful information like product reviews and pricing comparisons.

Augmented reality shopping applications are becoming increasingly popular as more people are turning to their mobile devices to shop. Augmented reality shopping applications make shopping more enjoyable and informative. Augmented reality shopping apps have the potential to revolutionize the way people shop. By combining the physical world with virtual reality, users can experience the products they are buying more realistically. For example, a user can try on a piece of clothing without having to physically go to the store. This can save time and money, and make shopping more enjoyable.

## II. AUGMENTED REALITY

Augmented reality engenders with a camera-equipped end device such as a smartphone that has built-in AR Software. When a device is pointed at an object by the user, the software can recognize the object through computer vision technology that analyses the video stream. AR has been around for some time, but it has been gaining more attention recently. Augmented reality (AR) is a technology that amalgamates digital content and the physical world. It is now being used in different domains like healthcare, education, business, and so forth.

For example, a person standing in a room may be able to see a 3D virtual object or text projected onto the room.

In healthcare, AR has been used to help improve patient care in the form of providing doctors with detailed information about a patient's medical history, such as past treatments, medications, and laboratory results. AR can also be used to guide medical procedures, such as surgery, by providing real-time guidance and feedback. In addition, AR can be used to help patients understand their medical conditions better by displaying virtual images of internal organs and providing educational information.

In the field of education, AR has proven to be a valuable tool for creating engaging and informative learning experiences. By utilizing AR technology, students can interact with 3D models and simulations of real-world objects, such as the anatomy of the human body or the characteristics of different animals, leading to a deeper understanding of complex concepts. AR can also provide students with virtual field trips, where they can explore and learn about various locations realistically and interactively. This enhances their learning experience by making it more memorable and interactive. Overall, augmented reality has the potential to transfigure the way we interact with the physical world. It can be used in various fields, such as healthcare and education, to provide more detailed and immersive experiences. As technology continues to develop, we will likely see more applications of AR in our daily lives.

## 2.1. AR Core

AR Core is a platform developed by Google for creating augmented reality experiences. It makes use of various APIs that allow your phone to perceive its surroundings, comprehend the environment, and interact with information. Some of these APIs can be utilized on both Android and iOS devices, allowing for shared AR experiences. ARCore incorporates three main capabilities to combine virtual elements with the real world as viewed through your phone's camera:

- Motion tracking enables the phone to keep track of and comprehend its location in the world.
- Environmental understanding allows the phone to identify the location and size of different types of surfaces, such as horizontal, vertical, and angled surfaces like the ground, a coffee table, or walls.
- Light estimation permits the phone to gauge the current lighting conditions in the environment.

### 2.1.1 How Does AR Core Work?

Essentially, ARCore performs two tasks: it tracks the movement of the mobile device and builds its perception of the real world. The motion-tracking technology of ARCore utilizes the phone's camera to identify and track distinctive points, referred to as features, over time. By combining the movement of these features and the data from the phone's inertial sensors, ARCore calculates the position and orientation of the phone as it moves in space.

Furthermore, ARCore not only recognizes significant points but also detects flat surfaces, such as a table or floor, and calculates the average illumination in the surrounding area. These features work together to give ARCore the ability to construct its perception of the environment. ARCore's comprehension of the real world enables you to position objects, annotations, or other information in a way that blends in smoothly with reality. For example, you could place a sleeping kitten on the edge of your coffee table or add biographical information about an artist to a painting as an annotation. Motion tracking enables you to freely move and examine virtual objects from various perspectives and if you leave the room and come back later, the kitten or annotation will remain in the same location where you last left it. This feature enhances the overall experience by giving a sense of presence to the virtual objects in the real world.

ARCore offers SDKs for several widely-used development environments, providing native APIs for all of the crucial AR features, including motion tracking, environmental understanding, and light estimation. With these features, you can create entirely new AR experiences or incorporate AR capabilities into existing applications.

## 2.2 AR Core-Supported Devices

What is the definition of a device being supported? In simple terms, it means that it has undergone and passed our certification process. Certification is crucial as we aim to provide users with an optimal experience with your AR application. This is mainly regarding precise motion tracking, which is accomplished by combining the camera image and the motion sensor inputs to determine the movement of the user's device in the real world. To certify each device, we evaluate the quality of the camera, motion sensors, and design architecture to ensure that it functions as intended. Additionally, the device must have a sufficiently strong CPU that is compatible with the hardware design to guarantee good performance and efficient real-time calculations. We are continually collaborating with manufacturers to make sure their hardware and designs meet these standards. At the same time, we are working internally to ensure that ARCore integrates smoothly with every certified model to provide users with a good experience.

## 2.3 Supported Devices Models

A list of device models which are currently supported are:

- Android device emulators

- IOS

## 2.4 AR Sceneform

ARCore itself is not an SDK, but rather a platform that facilitates the rendering of objects for SDKs. To utilize its capabilities, Google has released the Sceneform SDK, which enables developers to construct AR apps for Android without having to learn OpenGL.

Sceneform is equipped with a variety of useful features, including:

- A compatibility check is performed automatically to determine if a phone is enabled for ARCore.
- Checking for camera permissions.
- A scene graph API to simplify and hide all complexities.
- A plugin for manipulating 3D assets.

## III. FLOWCHART

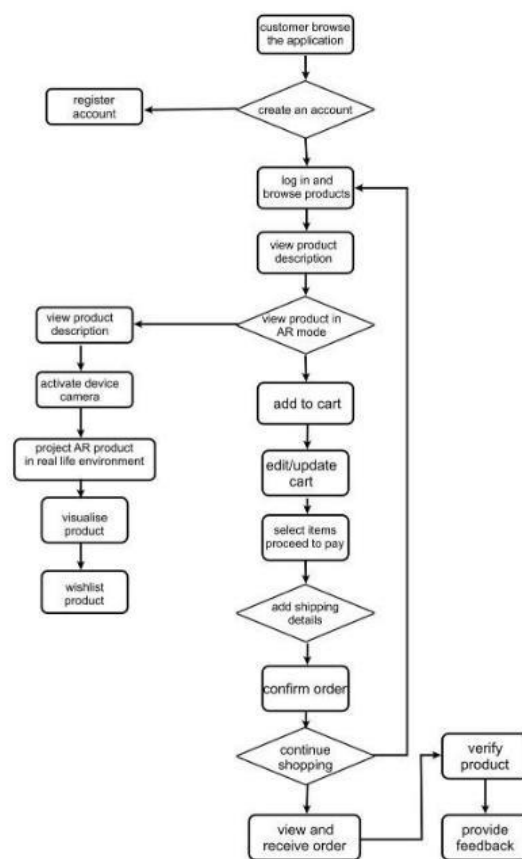


Figure 3.1

The flowchart in Figure 3.1 illustrates the process of purchasing products through our proposed mobile application. First-time users must create an account before they can start using the application. Once they have registered, they can browse all the available products and view their details by clicking on the product image. They can choose to view the product in 2D mode or in Augmented Reality, where they must grant camera access to the application to see the 3D model of the product in their real-world environment. Customers can add the product to their shopping cart or Wishlist, and if the product is on promotion, they will receive a notification. In the shopping cart, users can edit and confirm the products before proceeding to checkout and payment. The system will check if the user has provided shipment information, and if not, they will be prompted to fill it out. After the payment and order are placed, customers can view their order history and verify the received products. They also have the opportunity to provide feedback on the product.

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## IV. IMPLEMENTATION

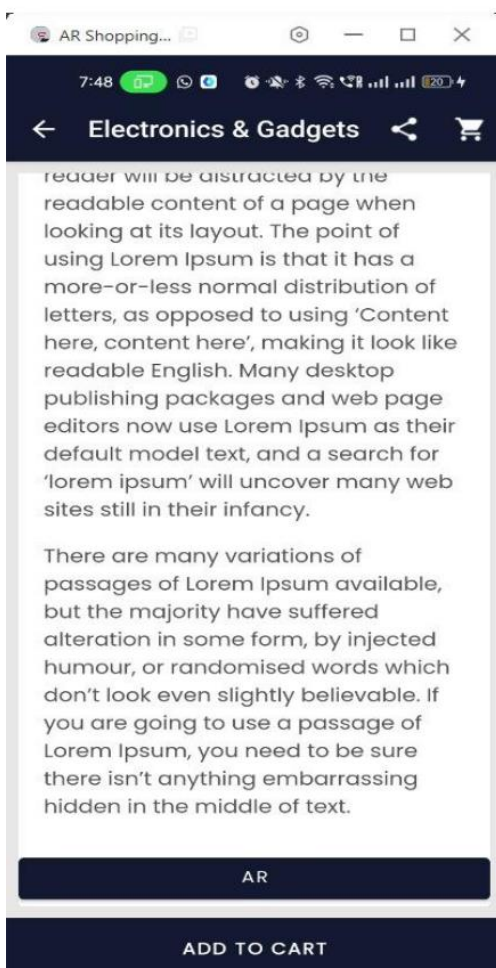
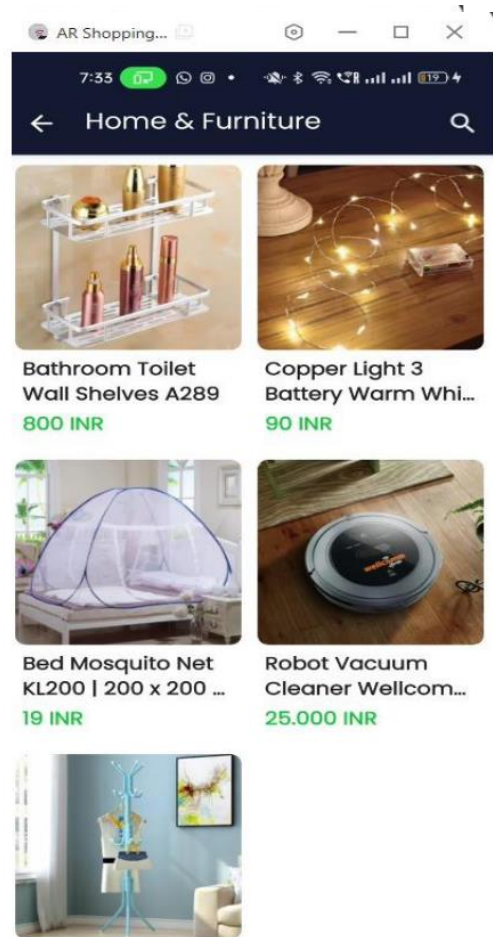
### 4.1 Requirements

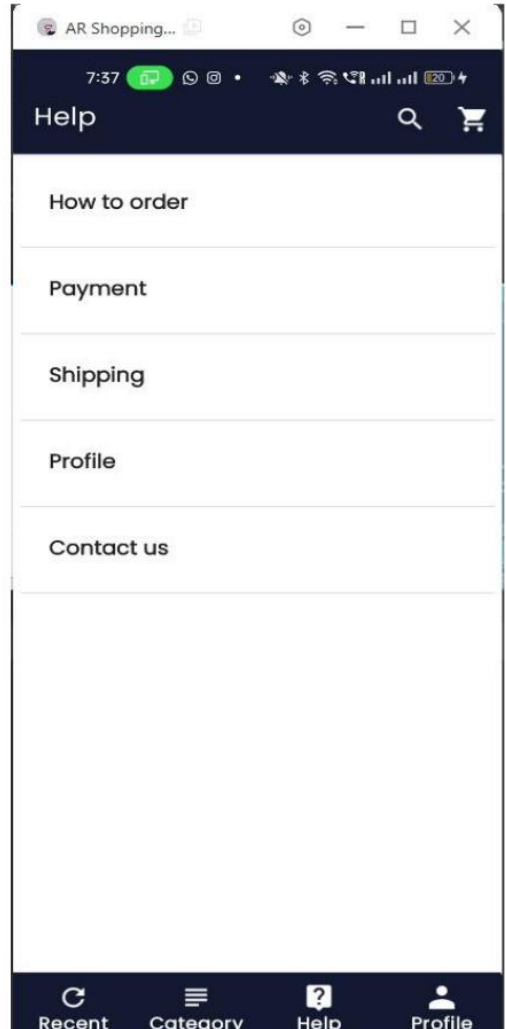
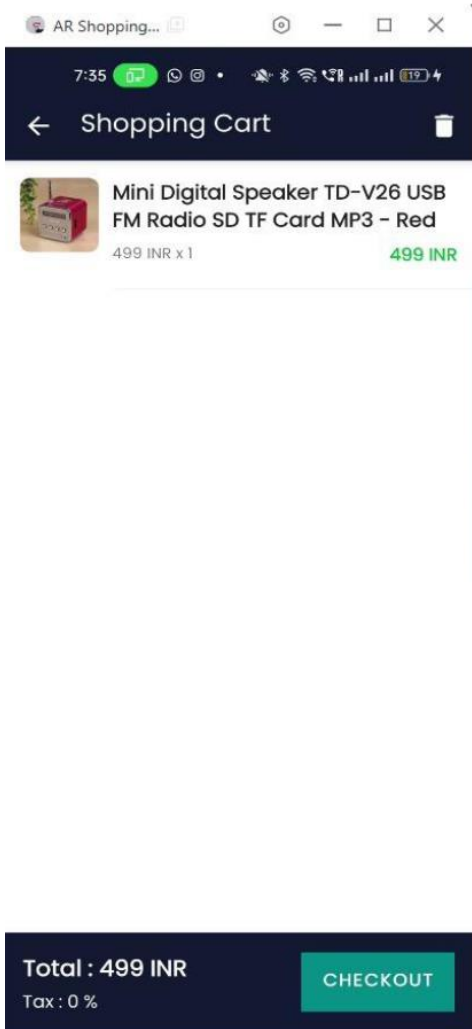
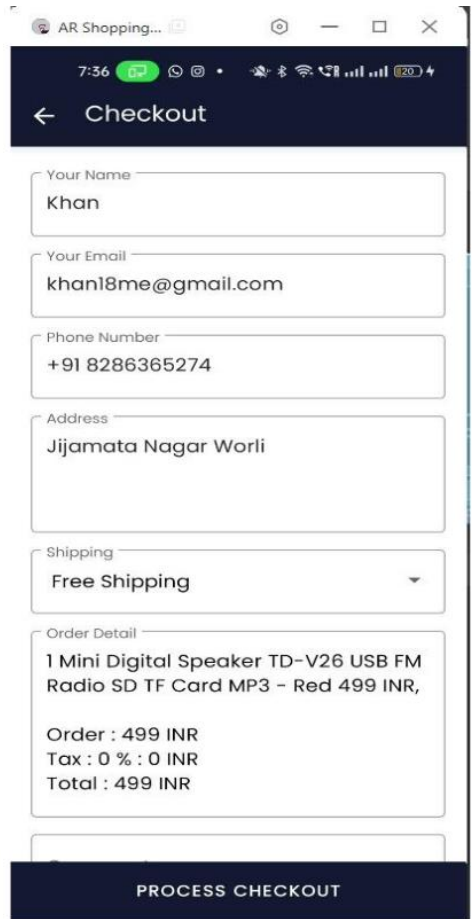
- Device with augmented reality compatibility.
- Adequate Lightning condition for optimal use of augmented reality features.

### 4.2 Features

- Email and password authentication for users.
- E-commerce functionality including product viewing, product descriptions, and purchasing options.
- Support for viewing in augmented reality.
- Real-time rotation and panning capabilities for 3D objects.

V. RESULTS





## V. CONCLUSION & REFERENCES

### 5.1 Conclusion

Our system will provide better and more efficient solutions to the current hiring process. This will give the organization the required skilled candidate and a candidate with full experience in that field. Provide potential candidates to the organization and the candidate will be successfully placed in an organization that appreciates his/her skill set and ability.

The major objective of our system is to take the current resume ranking system to another level and makes it more flexible for both the entity.

### 5.2 References

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