kART

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Abstract
Shopper behavior is changing every day and the advent of immersive technological innovations is modeling newer experiences that a shopper explores while buying a product. Avenues to shop a product are enormous and technology is influential in shaping up the way in which shopper decides to buy a product - physical store, online, mobile, virtual stores and many other channels. Money and time are precious and valuable. Nowadays, there are a lot of brands and stores to purchase a product in a shopping store or mall. So, it is impossible to check in each and every store. Therefore we have developed an application called AR Kart which makes shopping an interactive experience. With the help of AR, this application not only helps the customers to choose their product but also it will be easier in the marketing area of the product for the seller or the manufacturer. For example, if you have been to a mall for the first time, you don’t know exactly which store sells the product you need and where it is located, AR Kart will guide you to the store and assist you in choosing the right product based on your preferences. As a one-liner, it is a perfect shopping companion which makes your on-store shopping experience easy and interactive.

Keywords
Marketing, customer, AR (Augmented Reality).

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1. Introduction
Mixed Reality is used to denote the entire spectrum between the real world and the virtual world. It is an attempt to combine the best of both worlds i.e. Augmented Reality and Virtual Reality. Real world refers to the environment we live in. Recreation of real life objects allows for an immersive experience. Augmented Reality refers to the environment in which real life objects are integrated into virtual environments. Augmented reality is used to impose images over an environment in real time. The concept of AR is the idea of interaction with the real world by augmenting it with 3D objects that seem to appear in the real time environment. Both AR and Virtual Reality overlap each other and sometimes complement each other. Virtual reality is an experience that takes place in a stimulated environment. Whereas, Augmented Reality projects images into the environment. There are 3 approaches present in Augmented Reality: SLAM, Recognition based and Location Based. SLAM maps the structure of the environment and localizes the sensors. Recognition based also known as marker based, augmented reality utilizes a camera to detect objects, to impose an image only when the marker is sensed. This technology depends upon the camera to differentiate a marker from other objects. The position and orientation of the image can also be calculated. Once the marker is detected it is replaced with a 3D object. Rotating the marker would also rotate the 3D object. Location-based Augmented Reality also known as marker less Augmented Reality relies on a Global Positioning System, accelerometer to provide information about the location. Some of the types of augmented reality are: Projection based, outlining AR, Superimposition based AR. Projection Based AR projects images on objects in the real world. Outlining AR uses object recognition instead of image recognition to detect, and the accuracy is better compared to Projection based AR. Similarly object recognition is also used in Superimposition based AR.
2. Background search

The customer’s shopping behavior may not be influenced by the brand when they make a purchase decision. They may be influenced by reviews, ratings etc. Meaning, the digital platform has a blooming effect on consumer’s purchase decision. Each customer is becoming more aware, and through online reviews, customers can influence other potential buyer through their experience with the product. Risk and trust are two important factors influencing people’s’ behavior in digital platform. Customers are mainly influenced by the comparison of prices of the same product with offline shopping. Buying Decision may be influenced by the following: Firstly, people cannot examine whether the product satisfies their needs before they receive it. Secondly, the customer may be concerned with customer care services.

3. Existing system

The shopping mindset of a person is changing every day and customers get easily bored with the old style of shopping. Many Companies and Start Up’s have come forth and provided various innovative solutions in the field of shopping. Holo Lens can be used to unbox a toy virtually making the experience all the more interactive. Virtual Try On includes standing in front of a digital mirror and trying out clothes virtually. Furniture can be digitally placed in preferred spots in your home without the hassle of moving real furniture reducing man power and cost. There are also some other Augmented Reality applications such as Pokemon Go, a game which has proven to be a great hit among the players of the game. The game used location tracking coupled with image imposition which gave the user a feel of realness in a digital world. There are also some issues in the current system which are mentioned below.

A. Issues in Current System

- Cost is high.
- Not suitable for a huge set of clients.
- Extra gadgets other than our phone are required.

4. Proposed system

Unity and Vuforia work side by side in our application. Unity was integrated with Vuforia SDK and android SDK. The development was done in C#.

The system has a front-end interface for the clients to login and a back-end interface using fire base to store the client’s information. After logging in, Unity will serve as the front-end and Vuforia will serve as the back-end. A chatbot is developed with the help of dialog flow where all the datasets are imported in JSON format. There are many SDK alternatives to Vuforia such as AR Core by Google for Android and IOS, AR Kit by Apple for IOS, Wikitude for Android, IOS, Windows and smart glasses. Each SDK has certain features and we chose Vuforia which satisfied our requirements.

A. Front-End

All the product information are collected and organized and mapped to each product, different modules are created each serving an unique purpose. Actions are given to each component with the help of scripting in C#.
5. Expected output

Our solution is developing an augmented reality application, which assists you throughout the entire process of shopping. Our application has different modules, and each one performs a distinct function. When you enter the mall for the first time, there will be a QR code at the entrance of the shopping mall, by scanning QR code you can get the AR Kart application installed on your smartphones or tablets. After the application is installed in your device, you can scan the shopping mall with the AR Kart camera opened, it shows you the different stores available in the mall, and you can select the preferred store based on the product you are going to purchase. By reaching the store, a virtual assistant will pop up on your device screen which will assist you if there are any queries and offers available in the store. By scanning the store with the AR Kart application, you will get the different categories of products available in the store, by selecting the product you will be navigated to the product’s destination. After selecting your product, by scanning it with your AR Kart application, you will get a 360-degree view of the product and its features such as:

- Sizes available
- Colors available
- Features and specifications
- Prices and offers
- Reviews.

Buy now, Add to Cart. In the shopping mall, there are a lot of advertisements in lobby areas, lounge. By scanning any one of the advertisements which are in digital or printed form, you will get a complete 3-dimensional view of the product and you can visit the store present in the mall or you can directly buy it.

6. Conclusion

Thus, the AR kart is a perfect shopping application, which will guide through all the process and stages of the shopping process on the store. Once you have installed the kARt application, from selecting the store to navigating to the store from your location to scanning the product details, to adding the product to the cart and visiting the store and buying the products directly from scanning the print ads or digital ads. We believe, that this AR Kart application will bring a revolution in the retail sector and the method of shopping followed. This will be a boon not only to the customers for easy shopping but also for the sellers for effective marketing of their products.

References