



# Augmented Reality eCommerce application for watch and bracelets

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**Abstract**—Augmented Reality is an enhanced version of reality in which the real world environment is augmented by placing computer generated images over the person's view of real world. Augmented Reality Watch and Bracelets for e-Commerce is a marker based Augmented Reality application which can be used in mobiles and systems for watches and bracelets which are worn in wrists to be virtually tried without actually buying them. This application can be used by watch and bracelet manufacturers and sellers in e-Commerce platform. It is always preferred to try before buying as it gives a satisfaction to users that the accessory they are about to buy suits them. This proposed work does that by letting users try before they buy watch or bracelet from an e-Commerce platform and at the same time it provides all the necessary information such as texts, images and videos about that product.

**Keywords:** Augmented Reality, watch, bracelet, e-Commerce, application, marker based.

## I. INTRODUCTION

Augmented reality (AR) is a live, direct or indirect, view of a physical, real-world environment whose elements are augmented by computer-generated sensory input such as sound, video, graphics or GPS data [1]. Augmented reality changes the user's perspective by adding visual medias and information according to person's point of interest. Augmented reality places a virtual images and components on to a real world environment thus enhancing the real world environment. Augmented reality differs from virtual reality in that there is no attempt to replace the real world so users can still interact with the real world, and at the same time perceive enhanced views with augmentations. Augmented reality enhances the human perception of reality in this application by contextualizing individual objects that are encountered in the real world with virtual complements so as to make the real objects more meaningful and appealing[2].

Ecommerce is buying things online form the internet using ecommerce platforms. e-Commerce websites, such as Amazon.com, Dell.com, and eBay.com, have become an integral part of many shoppers' lives. However, according to most shoppers' experiences, e-commerce and online shopping are still not able to fully replace onsite shopping, especially for products like clothing, shoes, jewellery and furniture [3].

## II. LITERATURE SURVEY

A camera is used with AR software to detect augmented reality markers as the location for virtual objects. The result is that an image can be viewed, even live, on a screen and digital assets are placed into the scene at the location of the markers. Limitations on the types of augmented reality markers that can be used are based on the software that recognizes them. While they need to remain fairly simple for error correction, they can include a wide range of different images. The simplest types of augmented reality markers are black and white images that consist of two-dimensional (2D) barcodes [4].

Online Shopping has been the major influencer when it comes to disruption of retail channels. It made many shops and brands to go multi-channel and diverse into fields that were not present before. It helped them reach markets that were inaccessible before and helped them target more specific consumers. But without significant changes and improvements further there is only so much that online channels can do to motivate purchases. It is in this context that technologies like 'Augmented Reality' promise to induce a breath of fresh air into online channels [5].

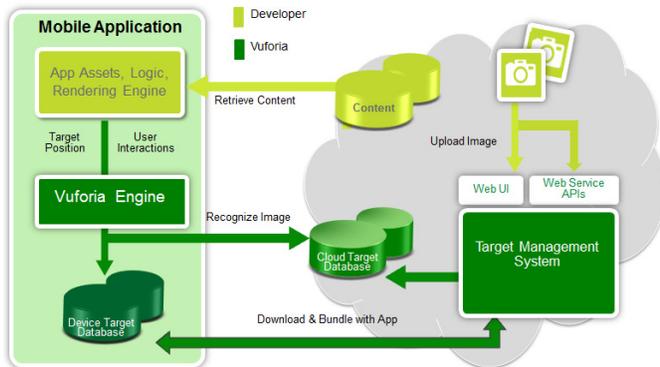
Recent studies have suggested a relationship between levels of cognitive innovativeness and the usage of augmented reality interactive technology (ARIT) [6].

A study on measuring the adequacy of Internet-based 3D ads utilized an interdisciplinary literature review (showcasing,

data frameworks, and human-computer connection) to understand the impact of the effect of utilizing 3D perception in online ads, and to distinguish the most pertinent conditions for application [7].

Another study indicated that 3-D advertising is able to improve presence, ultimately influencing the product awareness, brand perspective, and purchase objective of purchasers [8].

### III. ARCHITECTURE



The above is the architecture of Vuforia SDK. In Vuforia the images to be used as targets are uploaded to the Vuforia database which is stored in its cloud server. This enables the user and the developer to easily access and manages the application. The targets uploaded to the database are provided a rating based on the color contrast, edges and the shape of the image targets. The content is retrieved from cloud target database into the app assets of the mobile application. Vuforia engine compares the target position and based on the user interaction produces the specified output. There is a constant communication between the cloud target database, device target database and target management system. This works on edge detection algorithm. Edge detection includes a variety of mathematical methods that aim at identifying points in a digital image at which the image brightness changes sharply or, more formally, has discontinuities. The points at which image brightness changes sharply are typically organized into a set of curved line segments termed edges. The same problem of finding discontinuities in one-dimensional signals is known as step detection and the problem of finding signal discontinuities over time is known as change detection. Edge detection is a fundamental tool in image processing, machine vision and computer vision, particularly in the areas of feature detection and feature extraction [9].

## IV. PROPOSED WORK

### A. Try watch virtually



This module allows the user to try watches virtually. In this module the user places the watch target on their wrist and shows their mobile camera over it. The application detects the target image and places the virtual watch over the target image creating an illusion that the watch is on their hand. The user can switch between various watches and try them virtually. The user can try watches of different color and different shapes. This try watch virtually module makes the choosing the watch easier for online watch shopping.

### B. Try bracelets virtually



This module allows the user to try bracelets virtually. In this module the user places the bracelet target on their wrist and shows their mobile camera over it. The application detects the target image and places the virtual bracelet over the target image creating an illusion that the bracelet is worn on their hand by them. The user can switch between various types of bracelets and try them virtually. Different colors of bracelets and different kinds of bracelets can be tried. This module makes the choosing bracelets easier for online watch shopping.

### C. Information about the product



This augmented reality module works by showing information about the product on showing the camera towards the product or the advertisement of the product. This can provide information about the watches and bracelets such as their model name, price of the product, size and dimensions, suitable age group and other details about that product. It can also show media such as images and advertisement video of that watch or bracelet.

### V. CONCLUSION

This application can be extended to a large set of database and users with additional functionality to buy through the same app. In this proposed work, Vuforia SDK and unity software is used to develop this augmented reality application. The result of this application is an e-commerce application uses augmented reality in mobile application to provide

information of watches and bracelets to customer by targeting the object product using this application. It also allows the person to try the product before buying it. This can also be used by the sellers and manufacturers to market their products and sell their products.

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