AR Home Designing App

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Guide

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1)Introduction

Augmented reality (AR) is a branch of computer science that deals with the critical issue of a computer-generated mixture of reality. It refers to the real and virtual worlds that a computer or device creates or modifies. With the use of modern AR technology, information about the user's surrounding real environment becomes interactive and digitally mutable.

AR, or augmented reality, is a technology that has taken the globe by storm in recent decades. Its applications can now be found in practically every discipline. It is a technology that overlays graphics, images, and other computer-generated augmentations on top of an existing reality in order to enhance the user's experience by allowing for varied interactions between the user and his surroundings.

Augmented reality is an interactive experience of a real-world environment in which computer-generated perceptual information is used to augment the items in the real world, sometimes spanning many sensory modalities such as visual, aural, haptic, somatosensory, and olfactory.

This study explains how augmented reality (AR) works in the Home Designing application and the many technologies that are used to execute it. These technologies enable the virtual object to be projected or augmented into the real world.

We need a lot of searching and it's expensive to design any new home or current house, and we still don't know if it will look nice or not. With the help of this application, we can digitally set objects in our home to create it as if they were real, and quickly change or delete them.

2) Overview

AR is a dazzling technology that has the potential to change smartphones and tablets by adding new functionality to mobile apps.
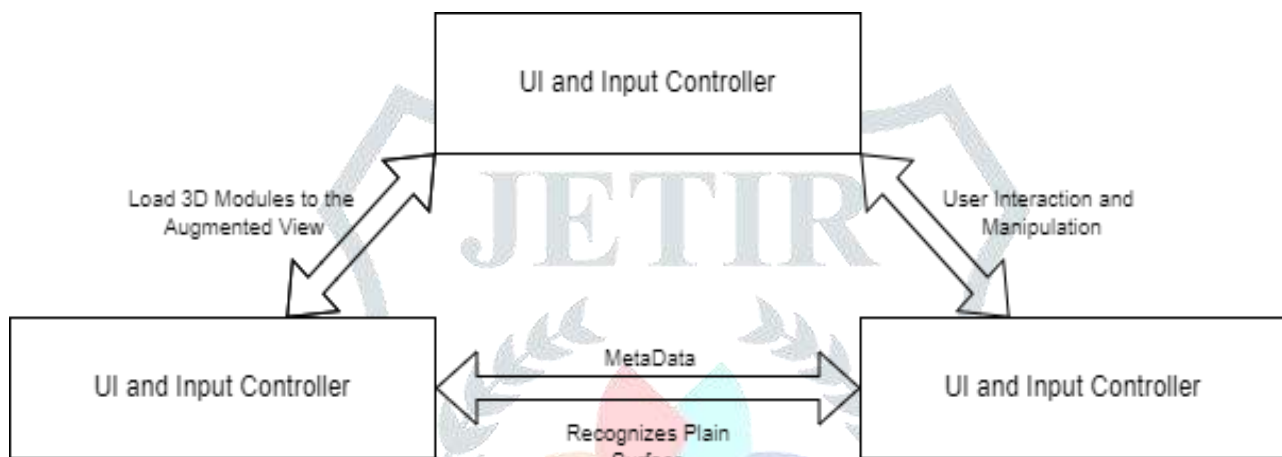
The real estate market is implementing augmented reality business applications to their full potential. The AR app is being used by realtors and real estate brokers to sell the property's advantages. AR is integrated into the smartphone app to provide a 3D view of the apartment or flat to potential buyers or tenants. Customers will save time and money as a result of this.

03) Literature Survey

1. Di Capua et.al have proposed a model for AR development and human-computer interaction through mobile devices [5].

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04)System Architecture

05)Advantages

- **Better Visualization** – AR in home design help the client visualize the project before it is developed. Using AR in home design gives an ability to the user to design the space the way they want.

- **Design editing abilities** - User will also get an ability to edit the designs and make changes even if the design is at the final stage. So, now users need not worry about the tedious corrections that are done in actual décor and furniture.

- **Better guidance** – AR in home design will let a user guide the designer in the best possible manner. Even the minute details related to the designing process can be communicated interactively using AR.

- **Find and try products remotely** – The clients can try various products for their new project such as the furniture without paying a penny.

- To get or enhance creativity.

- Provide a new product experience

- Able to preview the product visually

- Build real-time data experiences

- Enjoy experimental experiences

- Functional uses demo

- It can save money by testing in emergency situations.

- It make things memorable and eye catching.

- It provides different view towards our real world and virtual world.

- Improves thinking and interaction with the real world.

06) Limitations

- Rendering digital data into meaningful graphics

- Scaling digital data to be suitable with the perspective of the visual field

- In smartphones, AR must work with limited storage, small processing power and small amount of memory.

- The app is that It's a new technology so it does not supported by much devices But in future this problem may not exist.

07) Applications

- Navigation: To get from point A to point B, many programmes use upgraded GPS and Augmented Reality. Users can observe the selected route over the live view using their phone's camera.

- Sightseeing: Augmented Reality is used in a variety of applications in the sightseeing and tourism industries. Consider an application that adds statistics and figures to a new view of museum exhibits. Another interactive kiosk in the museum that allows visitors to interact with the 3D show.

- Military: The military employs a (HUD), or Heads Up Display, with an Augmented Reality application incorporated within it. A fighter pilot's display, for example, will show information like as the plane's altitude, airspeed, horizon line, and other crucial data. This eliminates the need for the pilot to look down at the aircraft's equipment to obtain the necessary information.

- Medical students use an Augmented Reality programme designed for medical students to practise surgery. Patients can benefit from augmented reality as a visual help while determining a complex medical condition. During a surgery, augmented reality can give surgeons better sensory experience, lowering the risk.

- Wearing an Augmented Reality headset allows a mechanic servicing an engine to see a superimposed image and obtain information about the engine. The AR headset may show important steps in the repair procedure, as well as the tools and precise motions that the mechanic must do. Users that interact with it should receive proper training.

- Gaming: Augmented Reality gaming is gaining popularity, with many people investing large sums of money in this field. Zombie Shoot AR, for example, is a popular mobile AR game in which zombies are superimposed on your phone. With the use of their cell phones, the players can shoot the zombies. Another popular Augmented Reality game on the market is Pokémon Go.

- Amusement: Many Augmented Reality applications are created for the sole aim of entertainment. The Augmented Reality application from Lego, for example, allows you to interact with 3D Lego objects.

08) Conclusion and Future Work

The future of home design is augmented and virtual reality. With these immersive technologies, things that were once impossible are now possible.

AR will only grow in popularity as computer vision technology improves and hardware becomes more affordable. AR provides its own set of benefits and is particularly adept at addressing visualisation issues. Purchasing furniture in an AR environment might be simple and convenient while also saving money. reducing the likelihood of product returns to zero. The purpose of this study report was to look at how a marker-less Online furniture sales could benefit from augmented reality. We proposed a smartphone application to solve this problem. Users can utilise virtual reality to visualise furnishings.

Augmented reality (AR) applications have the potential to improve the learning process, motivation, and efficacy. Despite the encouraging findings, more research is required. There appears to be a lot of future potential for Mobile Augmented Reality applications if all issues and problems are addressed. One of the primary concerns with Augmented Reality is privacy. For example, aiming your phone at someone's face and having their Facebook page immediately open may make some people uncomfortable. While operating an AR application, the user's data, such as the user's position and personal information stored on the mobile device, can be hacked. We expect that greater research into the subject will lead to the creation of amazing Augmented Reality applications that do not compromise the privacy or comfort of users.

We're attempting to integrate photogrammetry into our existing platform so that we can recreate a 3D model of furniture from photographs. Currently, the user can only see 3d models stored locally; however, we would like to broaden this functionality. We plan to connect the app to a cloud repository where users may browse and import furniture in real time. We also intend to use photogrammetry concepts to alter the way we communicate information.

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