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AUGMENTED REALITY FOR REAL ESTATE ADVERTISEMENT.

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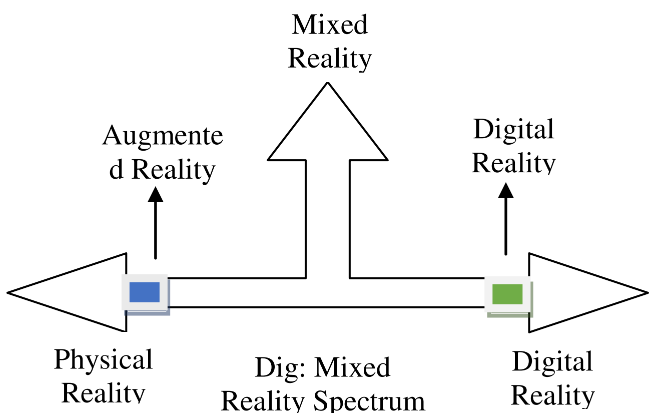
Abstract - Augmented Reality (AR) is an upcoming technology which can help individual to carry out the convoluted task. Augmented Reality merges actual world with the virtual world. Mixed Reality (MR) is the outcome of merging the physical phase with the digital phase. Mixed reality is the back-to-back up gradation in life of humans, field of computer, and environment interaction.AR expects advancements in e-vision, graphical processing potential, display technology, and input systems. Mixed reality is branched into virtual reality and augmented reality. Virtual reality (VR) is an unreal platform that is generated with unity software and presented to the client in such a way that the client accepts it as a real environment. Augmented reality (AR) is a 3-D view of a physical, real-world environment mixture in user mobile or hololens. Numerous solutions based on Augmented Reality have been discovered by the researcher community specifically in maintenance process. Augmented Reality tools have given new look and have promised drastic improvements. On the other side Augmented Reality is a highly demanding technology but it is still affected by serious exceptions that may seriously affects its implementations in the industrial sector.

Key Words: real-estate, mixed reality, virtual reality, augmented reality.

1. INTRODUCTION

In the flow of rapid development of technology, the designer's visualization tools used for product design process have been changed within the months or years, Augmented Reality especially since 1990s have been using inevitable tools frequently used in all visualization-based product from concept development to presentation and marketing by majority of designers. With the help of 3D virtual models created with these systems, designing process in terms of both time and quality have been progressed. However, such a systems join the designers to a computer-centered desk working and because of viewing 3D model from 2D screen, relationships between model and space become vague. In addition to this the designer's interaction with Virtual Reality and Augmented Reality make it easy having the multi-dimensional development environment. However, the combination of both technologies providing the rapid solution of these problem.



2. LITERATURE SURVEY

Proposed Technique	Author	Year	Published in
Mobile Tele-instruction Using Interactive Augmented Reality	Jun Park	2003	Springer-Verlag Berlin Heidelberg-erg
Mixed reality in education, entertainment, and training	C.E. Hughes ,C.B. Stapleton ,D.E. Hughes , E.M. Smith	2005	Institute of Electrical& Electronic Engineers
Presentation-Oriented Visualization-n Techniques	Robert Kosara	2016	Institute of Electrical& Electronic Engineers

Virtual Reality for Real Estates	Rasika Dilip Sonje Revati,Ravindra Lokhande, Vaibhavi Vijaykumar Joshi	2018	International Journal of Engineering Science and Computing

A well-detailed research by Jun Park (2003), Augmented Reality technology that covering the virtual object on real images that are useful for the communicating and tele-instruction. This technology current advance in mobile computing and images processing technology on real time, which enabled to image overlay on small screen mobile such as smartphone using the micro-camera. However, the images capability is not being efficiently affected leveraged not providing many applications. Accordingly, to Jun Park describing that, an interactive mobile teleinstruction technology where an on-site non-expert can be gives instructed using graphics and text annotations created by an off-site expert. That tracking and visualize on 3D sense known as Visualization, thus there is augmented reality technologies are applied**.**

By C.E. Hughes, C.B. Stapleton, D.E. Hughes, E.M. Smith (2005) consistent with this paper to make the Mixed Reality for transforming the technical capability for emerging the Mixed Reality mainstream which including integration and evaluating proven systems. However, this article describes the multidimensional uses of mixed reality. Thus, these applications are used for multi uses for it.

By Robert Kosara (2016) consistent with this paper to visualize mainly focus on the exploration analysis. The visualization depends upon presentation of Images are important factor for 3D Sense. The traditional visualization techniques treat the presentation as afterthought but Mixed Reality uniquely stable to images representation. Thus, this article focuses on presentation-oriented techniques considerable for their uses.

By Rasika Dilip Sonje, Revati Ravindra Lokhande, Vaibhavi Vijaykumar Joshi (2018) consistent with this paper to covering the advantages of virtual reality, mixed reality is result of amalgamated the real world with digital world. Augmented reality is extended version of virtual reality and next evolution in human computer and interactive environment virtual reality an artificial environment that's creates in manner the user accepted as real environments.

3. PROBLEM STATEMENT

After analyzing many existing Augmented Reality tools, we have now the obvious vision of the project to be developed that is defined in our problem statement as:
To make android application of AR for real estate advertisement to avoid actual site visiting.
To make the system presentable and easily understandable.

4. FEATURE OF PROJECT

Our squad is directed towards developing an android application for real estate which overlay the site section of real time environment where as the user is applicable to search their respective site with the help of smartphone in such manner micro-camera that uses scanning of target image.

5. OBJECTIVES

The major objectives of this project are mentioned below:

- To develop an application that deals with the day to day requirement of any Real Estate organization
- To provide competitive advantage to the organization and fast access to real estate for the user without the actual presence of the user.
- To provide detailed information about the various components of target.

6. METHODOLOGY

This application majorly focuses on providing the 3-Dimensional model of the real estate. This android app not only reduces the human effort of visiting the different sites personally but also provide various navigation feature along with the easier communication to the owner.

Android Application:
The client tier is the top-most tier which basically consist of the graphical user interface and the 3-D model visibility.

VR and AR SDK:
Unity demands for AR and VR SDK are the software development kits for augmented and virtual reality and JDK (Java Development Kit) for software development purpose. This is the level of the architecture which takes printed view of the apartment from the lowest level and generates the virtual or augmented view of that buildings. Virtual or Augmented view is then transferred to superior level where program is implemented with C# language. In this level, touch implementation, data manipulation, customer libraries, redirection is performed.

Vuforia AR SDK:
Vuforia is an Augmented Reality SDK platform for android enabled devices that enables the creation of Augmented Reality applications. It requires AR camera to recognize and track planar images (Image Targets). This image recognition capability allows developers to position and orient virtual objects, such as 3D models and other media, in combination to real world images when these are observed through the camera of a mobile device. The virtual object then traces the position and orientation of the image in real-time so that the viewer's perspective on the object corresponds with their perspective on the Image Target, so that it appears that the augmented object is the part of the actual world.

Unity Editor:
It is feature-rich and highly flexible editor. Unity is an ultimate game development software platform. Unity is used to build high-quality

3D and 2D games and can used for various app like entertainment, education likewise and present them across mobile, desktop. Different tools and framework make it quite simpler for making the augmented applications.

7. SYSTEM IMPLEMENTATION

The Augmentation of the 3-Dimensioal view of the building is done in the unity software which with the help of the software development kit and java development kit is converted into an android application. The Vuforia has the complete database of the target image.

The target image which is already set when exposed to the camera view, Vuforia engine determines the image with the help of the feature points and fetches the complete image from the Vuforia target image database.
As soon as the complete image is identified the unity gives the 3-D model of the building and various C# code is working for redirecting the software to different sites like owner website and contact information (here as a prototype we have used the college website)

A. Data Flow Diagram
The graphical representation of how the complete process will be carried out, can be seen through the Data Flow Diagram.
The step by step process makes the understanding of the implementation much easier.

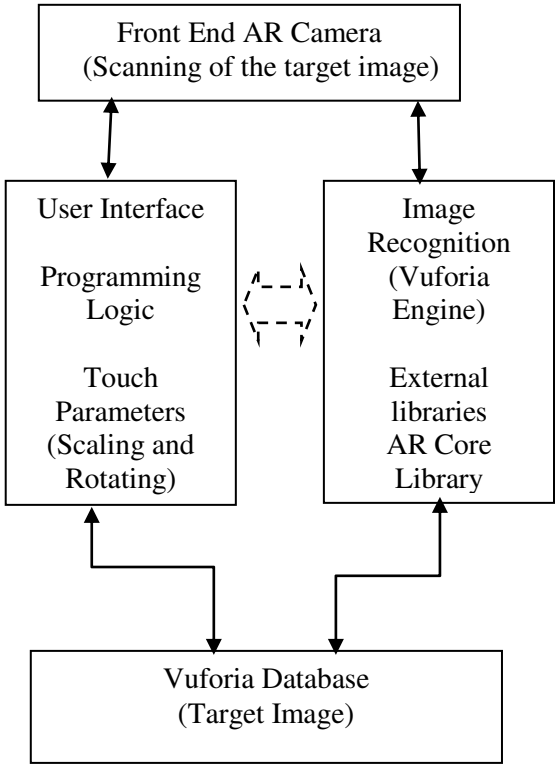


Figure: Data Flow Diagram

In above mentioned diagram, there are four main blocks user-interface, target image, lean touch and virtual database. Where user is the customer, interface in medium to interact with VR mode, database is the tracked view of the apartment and virtual database is actual virtual database which is our system.

8. EXPERIMETAL RESULTS

Figure: Target Image I (3-Dimensional Model of building)

Figure: Target Image II (Internal view of the building)

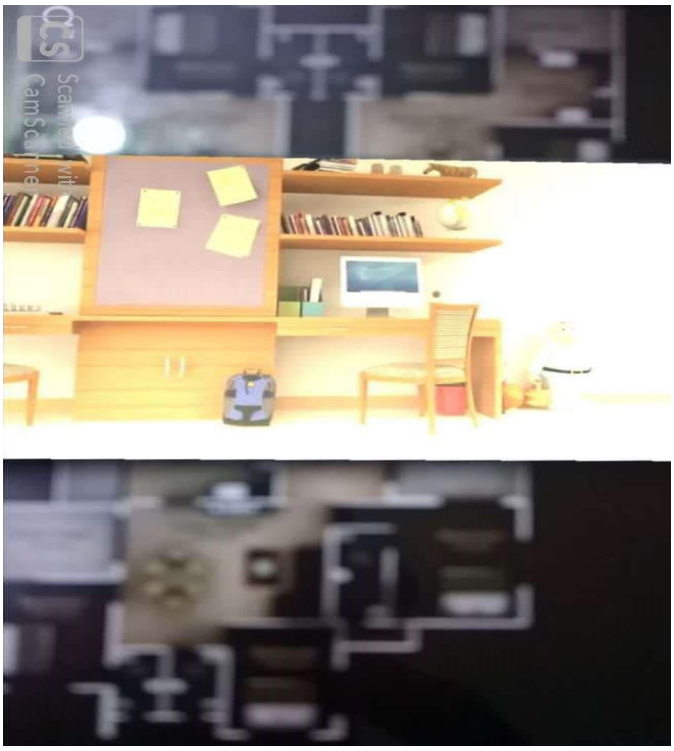


Figure: Interior view of building

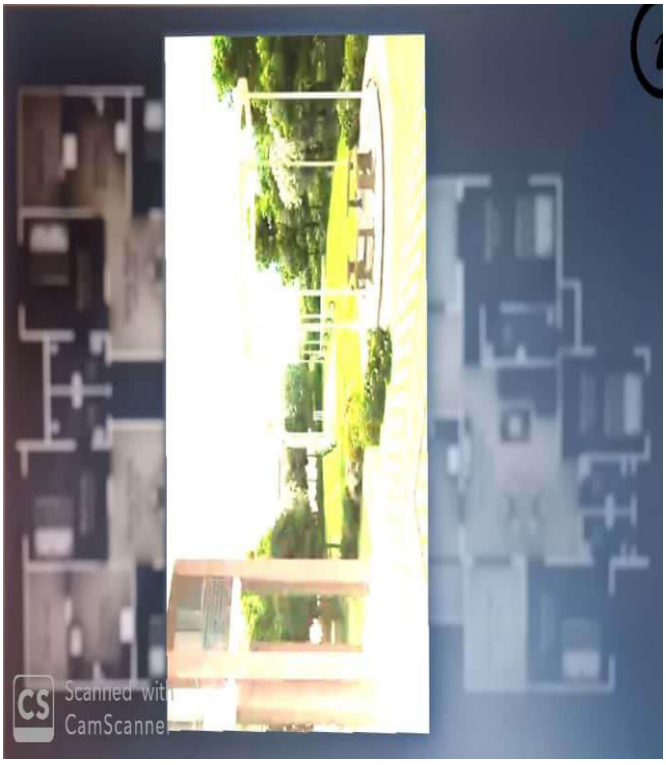


Figure: Exterior view of building.

9. CONCLUSION

Augmented Reality for Real-Estate made with the Vuforia Unity Software majorly has the 3-Dimensional model of the building which can be seen through the android application. The proposed system gives real world experience to user using Mixed Reality that is augmented as well as Virtual Reality in simulation. Involvement of AR has potential to give the enhanced visual perception to the user which seems much lively. Different target images are set for the different models.
The Unity software is quite slow in execution because it identifies various feature point image by image detection through Vuforia.

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