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Enhancing Online Furniture Shopping for Seniors and Physically Challenged Individuals through AR

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Abstract: ***"Augmented reality (AR) technology has potential to revolutionize the way we interact with and visualize the world around us. One area where this technology has great potential is in the field of furniture design and home decor. The goal of the Augmented Reality Furniture project is to develop a platform which allows users to virtually preview and interact with furniture in their own home environments using AR technology. Using a smartphone or other AR-enabled device, users will be able to see how different furniture pieces will look and fit in their own living spaces before making a purchase. The project will involve the use of 3D models of a variety of furniture items, aswell as the development of AR software that can accurately place and scale these models in the user's environment. The platform will also include a user-friendly interface for browsing and selecting different furniture items, as well as tools for customizing and arranging the items in the virtual space.***

I. INTRODUCTION

Nowadays people are ready to buy things from their phone. The idea of purchasing items from the phone just can happen on account of the creation of the web. Furniture plan in a house or in an office can be monotonous work assuming that there is an excessive number of furniture to be put in theroom or on the other hand just individuals don't know how to design the furniture. Individuals can either draw up the room and furniture in paper or use PC applications that help individuals or they can simply orchestrate furniture immediately to perceive what it looks like, what's more fits in the room. In our proposed framework, we will utilize the idea of AR to assist with peopling view the furniture in their room without really putting it in the area. We present an intuitive furniture format Android application that makes a difference clients organize their furniture by straightforward activities like sliding ,squeeze in, squeeze out, and so forth This will extraordinarily limit the buyer's time and exertion .In simple a user catches the picture of a certifiable item ,also the fundamentalstage identifies a marker, which triggers it to include a virtual item top of this present reality picture and shows on your camera screen.

Augmented Reality(AR) is only heretofore a fiction. It has risen to become a fresh challenge formany researchers, scientists and technologists around the globe and has helped change the way users interact with the world sensationally. With the spiking rate of new smartphones, Augmented Realityis moving forward to bring creativity to life and help users interact with the organisations at a deeper level. Simply put, it is a formidable technology that enhances a user's real-world experience.

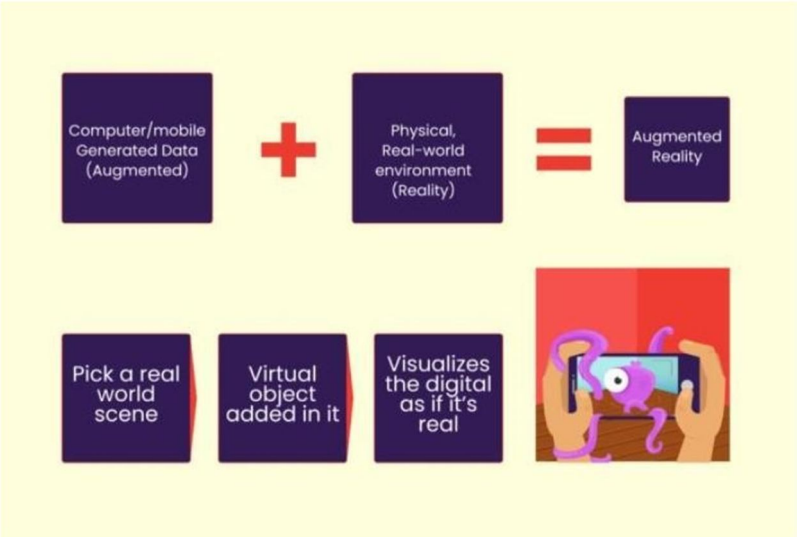

Fig : Relationship between the Real world and Virtual world.

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II. PROBLEM STATEMENT

The user will actually want to see the furniture practically in their home construction as opposed to going for the actual work of buying and putting the furniture in their home climate. The fundamental issue looked by the client needs to take estimation and check for the appropriatesize of the item that accommodates their home climate[3]. Our application will permit the user tosee the item they need to buy as per their requirements and home climate.The current landscape of online furniture shopping lacks an immersive and accurate visualization experience, leading to challenges such as difficulty in visualizing furniture in real living spaces, inaccurate size perception, and higher return rates. There is a pressing need for an innovative solution that leverages Augmented Reality (AR) to provide users with a more realistic and personalized online furniture shopping experience, ultimately reducing uncertainties and enhancing customer satisfaction. This project aims to address these issues by developing a user-friendly AR application integrated with online furniture shopping platforms**.**

A. Existing System

The applications which are presently being utilized are slower in picture catching and give low goal, which further debases the client experience and client deals with issues and needs to sit tightfor the picture to process appropriately, even the illustrations of the items utilized for furnitureare lower in goal[7]. The primary disadvantages in the modes of existing framework are:

- Static perspective on plan which can't pass on
- Can't decide if the furniture will fit our requirements.
- Data like tallness and expansiveness can't be known.

III. METHODOLOGY

The framework essentially utilizes a mobile phone camera which supports Augmented reality to gather what is considered to be the genuine scene view seen by naked eye and stacks the 3D furniture models on the screen shown. Above all else, we really want to arrange the scenes in Unity 3D for User Connection point of use like buttons, text regions, foundation picture and virtual item determination[6]. Later we fabricate 3D furniture models via Autodesk Maya and import the models into Unity 3D. Through recognizing and following the surface region, the camera gets pointers utilizing Google AR Center and builds up projection models, finally stacks the imported 3D virtual model in the True view. Since Android PDA has a contact screen interface ,we can put the furniture by sliding screen.

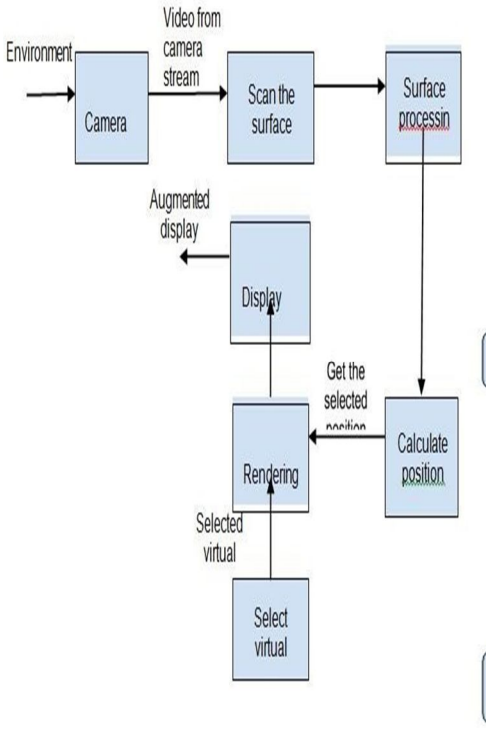

Fig : System Architecture

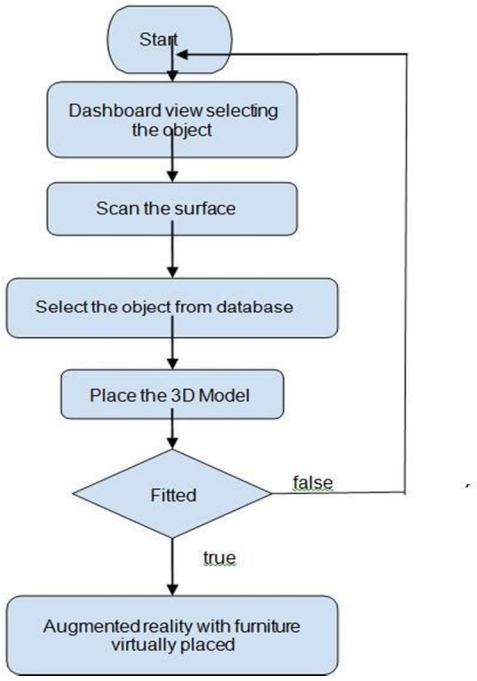

Fig : Flow Chart

IV. PROPOSED SYSTEM

The proposed framework involves Augmented Reality as a reason for upgrading client experience and for a superior impression of things. This is a vital element in expanded reality (AR), making it conceivable to know the field-of-view and viewpoint of the client - taking into account the climate to respond likewise or the arrangement of expanded reality content as per genuine world[4]. While marker-based techniques for movement following utilize explicit optical markers, less positional following does not need them, making it a more adaptable technique. It additionally evades the requirement for an arranged climate in which fiducial markers are set. The fundamental reason of the proposed framework is to overlay advanced 3D models on top of genuine articles utilizing a camera. The proposed system is an online shopping system using Augmented Reality Online shopping is a boon to the retail market that has reduced efforts and increased retailers' profits. Focusing on minimizing potential errors if purchases can be made using AR and increasing accuracy.

V. ALGORITHM

ARCore uses a process called Concurrent Odometry and Mapping (COM) to understand where a smartphone is connected to the real world around it[9]. go to the smartphone to do Motion Tracking and calculate the point or mark point of the highest feature using the parallax formula.Provides details about the position and position of the smartphone at the sixth level off reedom The next step is Group Understanding is used to understand where the coplanar element points. which helps the smartphone to find the plane In the final step the light intensity is used by ARCore to determine the intensity of light in a different area

Concurrent Odometry and Mapping (COM) is a process used in Augmented Reality (AR) and other machine vision technologies[2]. It involves tracking the position of a device relative to the world around it as the device moves[2]. This is achieved by combining a real-world image captured from a device's camera with virtual content, such as digital objects or information2.

VI. CONCLUSION

Our project is just a humble venture to satisfy the requirements to manage their project work. many user friendly cryptography have additionally adopted. This package shall persuade be a robust package in satisfying all the necessities of the college. the target of package coming up with is to supply a frame work that allows the trough to create affordable estimates created inside a restricted time-frame at the start of the package project and will be updated often because the project progresses. At the tip it's over that we've got created effort on following points. A description of the background and context of the project and its regard to work already exhausted the realm. created statement of the aims and objectives of the project. the outline of Purpose, Scope, and pertinence. we have a tendency to outline the matter on that we have a tendency to area unit operating within the project. we have a tendency to describe the need Specifications of the system and also the actions that may be done on these items. we have a tendency to perceive the matter domain and manufacture a model of the system that describes operations that may be performed on the system. we have a tendency to enclosed options and operations well, together with screen layouts. we have a tendency to designed program and security problems associated with system. Finally the system is enforced and checked in line with test cases

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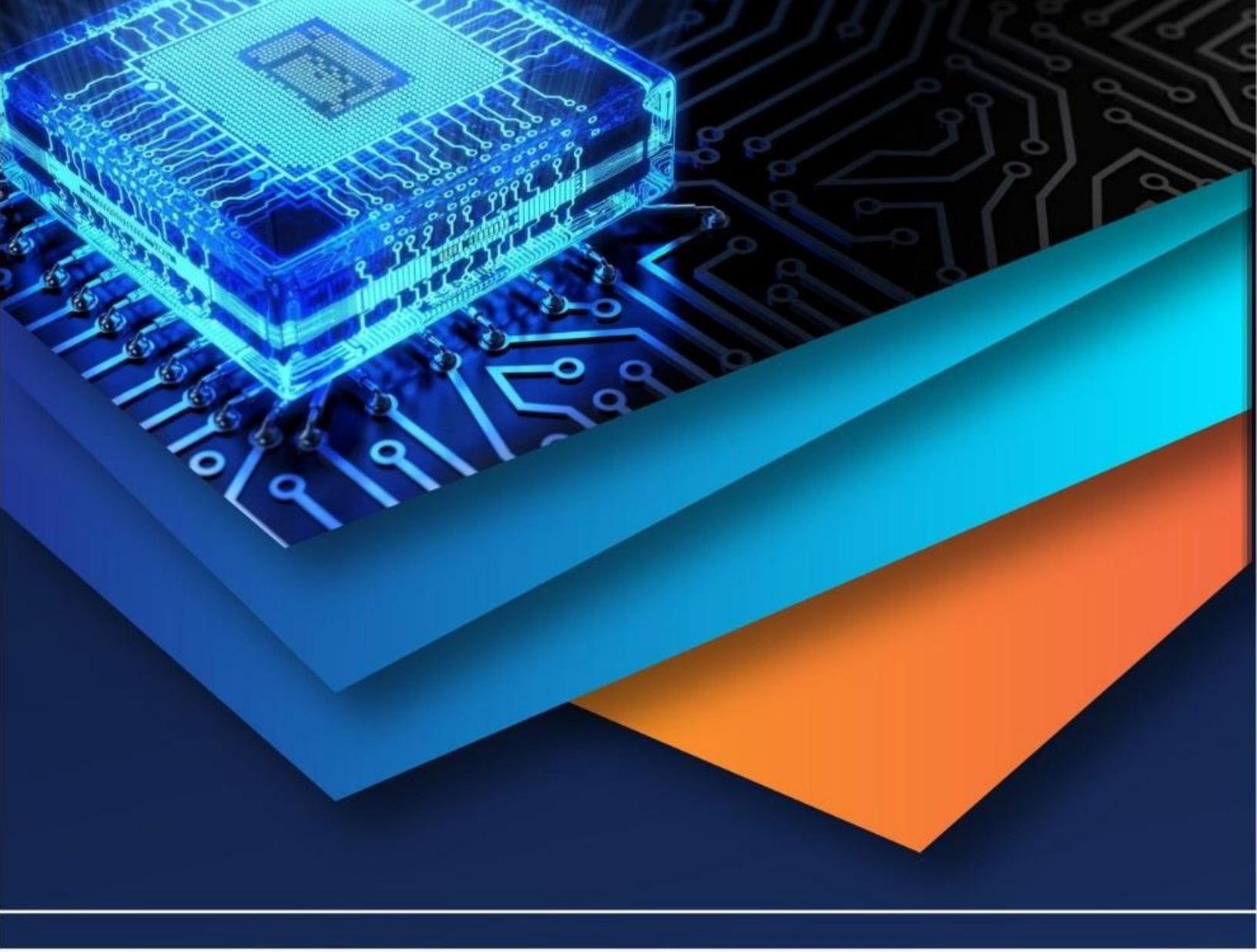

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