Available online at www.sciencedirect.com

ScienceDirect

Procedia Computer Science 79 (2016) 525 – 532

Procedia Computer Science

7th International Conference on Communication, Computing and Virtualization 2016

# Shared vision system

Er. Saiqa Khana[a], ZaidRehman[b], Faraz Virani[c], Murtaza Vadnagarwala[d]

[a]*Asstintant Professor, M.H.S.S.C.O.E, Mumbai-400008, India*
[b]*Student, M.H.S.S.C.O.E, Mumbai-400008, India*
[c]*Student, M.H.S.S.C.O.E, Mumbai-400008, India*
[d]*Student, M.H.S.S.C.O.E, Mumbai-400008, India*

**Abstract**

Augmented Reality (AR) is a general term for a collection of technologies used to merge computer generated information with the viewer's natural senses, it was first exhibited in the 1960s, but only recently have technologies emerged that can be used to easily locate AR applications to many users. Since previous AR system's involved burden to carry physical markers everywhere, the main goal of our system is to build an application of AR which includes the advantage of creating an instant marker.
As the markers were selected at the development stage it didn't allowed users to select their own markers, but in our system, instant markers allow users to select their own markers.


Peer-review under responsibility of the Organizing Committee of ICCCV 2016

*Keywords:* Augmented Reality; Instant Marker;

## 1. Introduction

Augmented Reality (AR) is a new technology that projects computer generated graphic objects into real world as shown in the Figure 1.

Fig 1 AR example with virtual Sofa-chair [11].


Peer-review under responsibility of the Organizing Committee of ICCCV 2016
doi:10.1016/j.procs.2016.03.067

Projection of computer generated objects creates an illusion, that virtual object exists in the real world. All you need to have is a computer and webcam. Augmented reality (AR) is a live direct or indirect sight of a physical-world environment whose components are augmented by sensory input such as sound, video, graphics which are computer-generated. It is a good way to render real world information and demonstrate it in an interactive way so that virtual elements are included as a part of the real world. Augmented reality displays overlapped information in user's field of view and can take the user into a new world where the real and virtual worlds are tightly linked.

AR within a more general context termed as Mixed Reality (MR) or hybrid reality [1]. This technology lies between Virtual Reality (VR), AR, telepresence and other related technologies [1]. Virtual Reality creates a virtual environment and allows the user to interact with it while telepresence aims to achieve the illusion of presence at a remote location [1].While in VR the environment is completely simulated and in telepresence it is completely real, AR can be considered a technology between VR and telepresence[1].

## 2. Literature Survey

Following are the systems implemented in the past for augmented reality developments.

### *2.1 The Approach based on smart phone app that changes building interior 3D object viewing design style using augmented reality.*

This system deals with locating an object with respect to its best place, position, model and color into a smart home, efforts to develop a planning tool that focuses on best place to project the 3D object and also visualize in all orientation has been made. With the development of augmented reality (AR) technology, it has been observed an opportunity for collaborative and interactive framework modeling of distinct computer generated objects into real environment. Black and white markers were used to augment the virtual objects into real world and with help of Unity 3D detection of these objects is possible. This system is used for placing an object with respect to its context and also visualization at all possible angles[1].

### *2.2 The approach based on Computer Supported Collaborative Work based on Augmented Reality.*

For 3D computer supported collaborative work Virtual Reality (VR) appears to be a natural medium for 3D computer supported collaborative work (CSCW). This system works with user's traditional tools by adapting to the computer interface, rather than moving the user apart from the real world as does immersive VR. Augmented Reality can be a good solution, as in the real world it overlays the virtual objects. Here it explains about the Shared Space concept - the application of Augmented Reality which is for three-dimensional CSCW. It can be observed that it combines various advantages available with virtual reality with current approach to CSCW[2].

### *2.3 The approach based on various problems faced in the design and evaluation of augmented reality system for an organization.*

Cooperative work supported by some systems, applications and features share two characteristics: A significant investment was made in the development, and the successes have uniformly fallen short of assumption. Examination on several application areas reveals common dynamic problems which include the disparity between those who would get benefit from the application and those who must do additional work to support it, secondly the decision-making failure which is leading to ill-fated development efforts and the lack of management intuition for CSCW applications and the last problem is the extreme difficulty of evaluating these applications because of the failure in learning from new experiences. Due to two natural but ultimately misleading analogies these three problem areas escape adequate notice: the analogy between multiple-user applications and single-user applications, as well as the analogy between and multiple-user computer systems and multiple-user application programs. The way we visualize the system about cooperative work designers and applications and decision-makers is failing to recognize their limits because of the influence of these analogies. Several CSCW application areas were examined in detail in this system[3].

### *2.4 The approach based on an attempt to make use of collaborative design for augmented reality*

This system presents TransVision, the shared augmented reality system. Computer graphic objects were augmented on real table-top in TransVision. The world is looked through the display by two or more participants holding a palmtop size see-through display. It helps in sharing the same virtual environment with the environment in real world. As the users were not isolated from the real world, natural and mutual communications such as body gestures could be effectively used during collaboration[4].