

Augmented Reality: to converting and placing object into 3D model

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Abstract:- Augmented reality (AR) is an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory and olfactory.

An augogram is a computer generated image that is used to create AR. Augography is the science and practice of making augograms for AR. AR can be defined as a system that fulfills three basic features: a combination of real and virtual worlds, real-time interaction, and accurate 3D registration of virtual and real objects. The overlaid sensory information can be constructive (i.e. additive to the natural environment), or destructive (i.e. masking of the natural environment). This experience is seamlessly interwoven with the physical world such that it is perceived as an immersive aspect of the real environment. In this way, augmented reality alters one's on going perception of a real-world environment, whereas virtual reality completely replaces the user's real-world environment with a simulated one. Augmented reality is related to two largely synonymous terms: mixed reality and computer-mediated reality.

INTRODUCTION

Recently, mobile devices have become an ideal platform for Augmented Reality (AR). Technology of AR creates an opening to explore new ways for the interaction between the actual and virtual world, which is a very important area for future research . By introducing AR, it can even provide a new direction for the real world that we are living in that is by placing virtual objects into the scene. In AR system, users are conscious with their surroundings while interacting with AR application and the virtual content added to it . A mobile device in addition has integrated with camera, power processor and even full color display and 3D graphics. Moreover, it has equipped with accelerometer and compass. The rising in mobility and portability throughout our daily life have encouraged user to use mobile devices not only to connect with friends and family through calls, messages, social networks (e.g. Facebook and twitter) and emails but also have become user's personal assistants, media center, office desk, navigator, game console, tour guide and others. For this, there is a need to explore and conduct a research on the application areas where Mobile AR systems are used considering that only a limited number of researches on use in real settings are available, even though the popularity of Mobile AR application is rising. The history of AR began when the concept appeared in 1960's and when a man named Ivan Sutherland created a first augmented reality system using an optical seethrough head-mounted display. However, the term of AR is coined by Caudell and Mizell in 1992 to refer to overlaying a computer-presented material on top of the real world .

Content: Mobile AR technologies can be divided into 2 categories: one that uses an image analysis to overlay content and another one that uses various types of sensors to determine what content to overlay and where to display it. The one using the image analysis has 2 types of approaches called “markers” and “markerless”. Related to this, Rekimoto has introduced 2D matrix markers, a square-shaped barcodes, which is one of the first marker systems to allow camera tracking with six 6DOF as shown in Figure 1. Mobile AR will detect the marker in the processed image and perform pattern matching the extracted marker. A virtual object will subsequently be projected to the screen. On the other hand, by using sensors, the position data are obtained from GPS and orientation from accelerometers and geomagnetic sensors. Based on the definition of mobile AR, the development of mobile AR application thus comes to be feasible in multidisciplinary areas such as games and edutainment, cultural heritage, medicine, navigation and path findings, maintenance and inspection and others.



Example of AR

1.in this app we built a environment where user can place object like sofa,chair,bed,etc..in real world with help of plane detection where it detect a ground surface.. reason behind that when we shift to new place for home then for arranging furniture we using a human force to displace an object like bed,chair,sofa,etc.. and also time needed to set all furniture.,and if we not like the settings then again set the all thing again so by this with this app we can set object as we want without external force ,like human force .

2 and also a scan an layout and built it's 3D view it help in were we want to built building or home with help in scanning layout and it form 3d view of that view .”we combine 2 function were you place object in real world and also scanning object and generate its 3D model”

Future Scope:

In future there is lot of improvement in this project were to get combine more object with in one frame and also providing internet access for dynamic data collection and implement it for runtime 3D view/model of that data

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