# Augmented Reality Technology With Its Applications

**Rishabh Swami[1],Anil Dhankhar[2]**
[1]Dept of MCA
[2] Assoc. Professor,Dept of MCA
[1, 2]RIET Jaipur

***Abstract-*** *This Research paper is a presentation of the topic Augmented Reality (AR) and about the crucial concepts of Augmented Reality. This presentation describes about what AR is and how it involved in the modern technology and how it is evolving in the coming years. Some of the applications of this technology will be discussed and this research paper will provide an introduction to them.*

***Keywords***- Augmented Reality, Crucial, Modern Technology.

## I. INTRODUCTION

Augmented Reality refers to the placing of digital products in the real-world objects digitally is known as the concept of Augmented Reality. It is an immersive technology that involves representing digital products through computer graphics.

Here is a term which comes into the mind when talking about Augmented Reality that is Virtual Reality (VR), uses VR headsets to create a simulator environment and helps an individual to immerse into it to experience an entirely different reality. Augmented Reality (AR) and Virtual Reality (VR) can be combined to produce a Mixed Reality. Mixed Reality is all about blending the real world with virtual reality.

Figure 1: AR example with Virtual chairs and a Virtual lamp Mixed Reality can also be called AR 2.0. Telepresence is a set which refers to the technologies allows a person to feel as if they were present, which gives the appearance to the person of being present, or to have an effect of it, via telerobotic, at a place different from there their true location.

AR is a technology between telepresence and VR. While in Virtual Reality the surrounding is completely virtual (rather than actual) and in telepresence it is completely real, In Augmented Reality the user sees the surroundings or real world augmented with the virtual objects.

Figure 1: Virtual chairs and Virtual lamp through AR

## II. HOW AUGMENTED REALITY WORKS

Augment Reality converts the surrounding or environment nearby into a digital interface or experience by placing digital virtual objects in the real world, in real time. The three main categories of Augmented Reality tools. 3D Viewers of AR, which allows users to place life-size 3D models in your real-life surroundings with or without the help of trackers. Trackers are simply computer graphics through which 3D models can be attached in AR. Browsers of Augmented Reality increase your display of camera with brief information. For example, you can point your mobile phone at an apartment to display its history of construction or estimated value. The last tool of AR technology can be presented through gaming creating augmented gaming experiences that utilize the real world around you. The most popular example of gaming in AR is the game Pokémon Go which allows users to catch Pokémon that is virtual which are hidden in a real-world map.


## III. APPLICATIONS OF AUGMENTED REALITY

**I. Medical Training:** From difficult surgeries to operating MRI equipment, Augmented Reality helps in boosting the deepness and success of medical training in many areas through collective 3D format.

**II. Repair and Maintenance:** AR has a biggest use in repair and maintenance of complex machine whether it's a motorcycle or MRI machine through AR headsets which show spots that need to be fixed.

**III. Modeling and Design:** Through AR, professionals are getting help in interior design to architecture and construction which steps directly into their building and spaces to see how their designs seems to be look through AR headset virtualization.

**IV. Tourism Industry:** AR represents a big opportunity for travel brands and agents to give tourists an even more enticing experience before they travel. Imagine taking a virtual "Walkabout" Paris before on AR glasses before a ticket is booked for Rome.

**V. Classroom Education:** Through AR headsets, students get help to experience the different aspects of topics in the real world digitally.

**VI. Entertainment:** In Entertainment field, Augmented Reality is spreading as a deeper bond relationship with the users through its tools such as gaming or movies make with the help of AR technology or tools such as Spiderman or Harry Potter.

## IV. ADVANTAGES OF AUGMENTED REALITY

1. With the help of AR, customer has an ease of access to the store.
2. AR provides distinctive chance for Immersive Reality.
3. AR enables children by introducing newer levels of connected experiences.
4. AR provides advancement in Automobiles technology.
5. Without risk, AR provides workforce training.
6. AR is an emerging and evolving technology.
7. With the help of AR various industrial problems can be solved through depiction of AR 3D models .
8. It is an immersive technology.

## V. DISADVANTAGES OF AUGMENTED REALITY

1. Very Expensive for implementing and difficult to maintain AR based projects.
2. Costly to develop AR provided services.
3. Low privacy is a major issue of augmented reality.
4. During testing, low performance can be seen from AR devices.

## VI. CONCLUSION

Augmented reality is an immersive and evolving technology in the modern era and can be applied to various domains for solving their complex problems and represent challenges in a more definite way through computer graphics and 3D models which provides a basis for easy understanding. Although it has some demerits which can be solved in the near future to make it better and efficient technology.

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