IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering
ISO 3297:2007 Certified
Vol. 7, Issue 3, March 2018

# Storytelling with Augmented Reality

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**Abstract**: Storytelling with augmented reality is a concept to enhance the way of learning, which will help schools to reduce the unnecessary cost invested into story book. This project tries to address how a Marker-based Augmented Reality, with the help of various applications, can enhance the current education system. In the existing education system, for example, teachers use blackboard teaching methods or show 2D images in the books to explain the elements in the real world. The above practice may or may not enhance the knowledge about the particular element of all the students in the class. But by introducing augmented reality into the education system, a teacher can show a 3D object to the students instead. The objects can be viewed from different angles left, right, top, and bottom. And the object can be scaled and animated. This idea of learning enables them to quickly grasp more and more as compared to conventional teaching approach. Thus, to enhance the education system, we proposed an idea to use augmented reality with various platforms.

**Keywords**: Marker, Scaling, Animation, Interactivity, Versatility, Vivid.

## I. INTRODUCTION

Augmented Reality (AR) is a technology which combine virtual and real environment. AR is based on coupling between the virtual and the real object that is based on their geometrical relationship. This makes it possible to combine the virtual content with the right placement and 3D perspective with respect to the real. There are many fields in which AR is used such as education, military, commerce, business etc. In this system, we are going to develop augmented reality for education system. Augmented Reality (AR) is a growing area in Mixed Reality research. Mixed Reality combines the content from the real world with virtual imagination. Augmented Reality is a subset of this where virtual content is overlaid into real objects of the world. The AR is a technology which is capable of presenting possibilities that are difficult for other technologies to offer and meet. In this research paper we will give a brief description of what is Augmented Reality and how will it change the way we see the world.

## II. LITERATURE SURVEY

There are some examples that are using AR in the classrooms for the learning purposes. However, there are so many studies conducted to prove that AR is useful to implement in the classroom and can help to develop the learning process. For example, the AR technology is now suitable to implement in storytelling. The MagicBook application developed by Billing Hurst replaced the traditional method of the book [1]. It seems the imaginary since students can see the 3D animations of computer-generated model appearing on the current pages. They can see the pop-up avatar characters from any viewpoint. It liked students participate in the situation both real and virtual known as mixed reality. An Augmented Reality Teaching Platform (ARTP) in chemistry was proposed in Iordache, Pribeanu, and Balog (2012) [2]. A periodic table is provided where students could place coloured balls to complete tasks. The researcher found the activity of placing coloured balls onto different chemical elements on the table give the children the feeling of freedom and control, which is beneficial for their mastery. The results show that students understand more comprehensively and easily with this tool. Wojciechowski and Cellary (2013) constructed an AR environment in which students could conduct chemistry experiments, for example, hydrochloric acid (HCl) and sodium hydroxide (NaOH) react producing table salt (NaCl) and water. The results show that the active participation of learners in hands-on activities has a particularly positive effect on the perceived enjoyment, resulting in their increased motivation for learning, as such seamless AR environments combine learning materials and the real scene around students, providing them with opportunities to manipulate the objects on their own.

AR also can be found to be applied in the geometry teaching, molecule arrangements, and spatial relationships between planets. These researchers tried to consume the benefit of AR to help visualize the abstract theory in a more natural way which is believed could lead to a development in students understanding. In addition, interactivity is added to support the learning method, thus making learning more entertaining and exciting.

**Smart Shopping using Augmented Reality**

Smart Shopping Using Augmented Reality on Android OS is an application which helps customers using this

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application (app) while shopping to reduce their bucks and time. Shoppers no need to walk into the store rather than that device to get detailed information of shops or malls they are interested in simply by panning the devices video camera over the shop or mall. [3]

**Virtual Guide for Tourist Assistance**

A Virtual Guide for Tourist Assistance is a mobile application system for sightseeing guidance to solve these problems. With this application system, users can post sightseeing information which involves personal viewpoints and share it by using mobile phones. This will enable them to provide more vivid and latest information to improve the quality and quantity of sightseeing information. [4]

**Augmented Reality for Board Games**

Augmented Reality for Board Games enhances traditional board games with virtual elements, by combining existing Computer Vision techniques to locate the board and the pawns. These physical elements can be manipulated by the players as usual, making our approach natural to non-expert users. [5]

## III. PROBLEM

Traditional studying techniques have their own distinct strengths. But they are static. Our project aims at improving the learning experience. Users need to place the camera on the marker to view the augmented object. However, all the actions are based on the data being augmented. While the popularity of interactive learning is growing day-to-day, the complexity of augmenting the data may become more complex day by day. Therefore, we need to develop a system in which users gain knowledge not only in a traditional way, but this system should also provide video and audio enhancement which would help in better understanding of the concepts. Response depends on human behaviour. Example, suppose the person sitting at the reception is not in a cheerful mood or busy talking on the phone, then the response time to user requests increase. With the advancement in technology today, students find that learning in traditional ways are dull and boring since there are so many entertaining alternatives out there which are more interesting, and it is difficult to find meanings of complex concepts in traditional blackboard teaching which is made easy by our project. (Parhizkar et al. 2011). Therefore, it is very important to create an engaging environment to encourage them to learn. Humans learn when they explore and find something intriguing, manipulate a wide range of real objects and get to see the results of their actions immediately (Berk, 2010). The project is designed to observe the familiarity of the AR application especially its implementation in a learning environment and to determine the effectiveness of AR application in the classroom. The use of Augmented Reality (AR) in the classroom has the potential to enhance the traditional learning method. It uses AR technology to implement an AR-learning environment for students across a wide range of streams.

## IV. PROPOSED SYSTEM

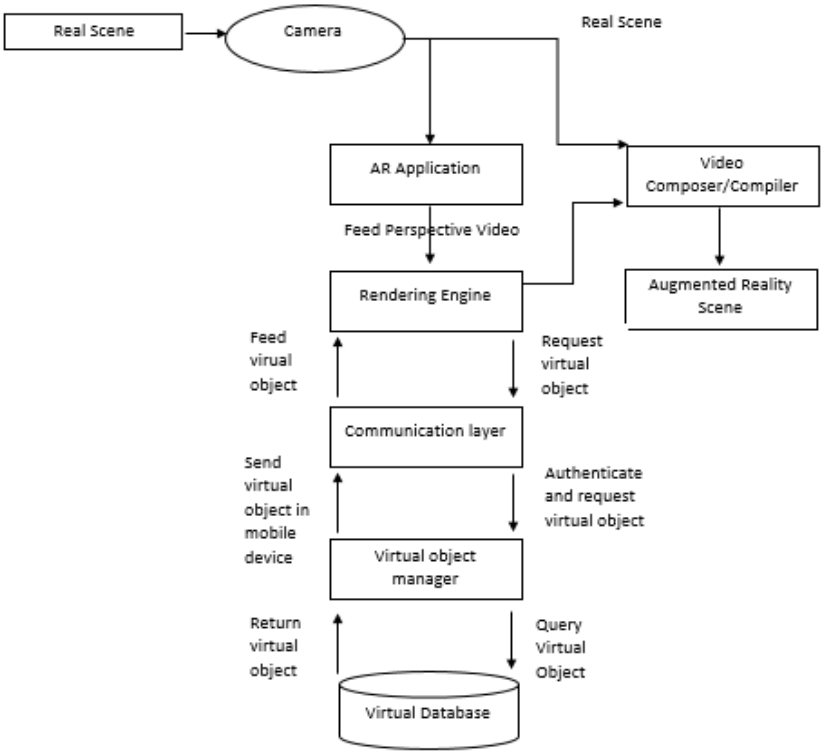


Figure:1 System Architecture

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## V. ADVANTAGES AND DISADVANTAGES

A. ADVANTAGES:

1. The project is useful for the age group of around 2-8 years. Children can learn new things in a interesting way.
2. Learning made easier for kids.
3. The stories are show in an innovative way which interests the kids. They can enjoy and study at the same time.
4. AR allows learners to directly interact with the learning material. This increases the engagement factor, also the motivation to learn. The use of this technology can appeal to a range of learners.

B) DISADVANTAGES:

1. May create performance issues with low end Smartphones.
2. People may not want to rely on their cell phones, which have small screens on which to superimpose i nformation. For that reason, wearable devices like Sixth-sense or augmented-reality capable contact lenses and glasses will provide users with more convenient, expansive views of the world around them.

## VI. CONCLUSION

AR allows learners to directly interact with the learning material. This increases the engagement factor and also the motivation to learn. The use of this technology can appeal to a range of learners. It provides an interactive interface for the user and creates much joy to users by 3D visual and audio enhancements. These settings for engaging learning provide learners the opportunity to examine and evaluate each of their actions, processes or procedures, and prepare them for experiences they may not frequently encounter. Learners can learn from their mistakes and arrive at the right method; they will have the freedom to try again and again.

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