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# Survey on: Benefits of Augmented Reality in Education - Advantages and Challenges

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***Abstract:*** *To enhance the analytical thinking, problem solving skills and programming skills of undergraduate engineering students by using Augmented Reality. The effect of activity enhances the thinking power of students. This paper addresses this advantages and challenge using Augmented Reality as a collaborative learning tool to develop programming efficiency and evaluation of the learners. To overcome the problem faced by learners in teaching learning we have done some surveys. The overall results prove that there is drastic change in programming ability of learners.*
***Keywords:*** *Augmented Reality, Online Learning*

## I. Introduction

When somebody discusses AR, they are alluding to innovation that overlays data and virtual articles on true scenes progressively. It utilizes the current condition and adds data to it to make another fake condition. Numerous designers are making expanded reality applications, and this has opened up the innovation to numerous applications and a more extensive gathering of people [5].

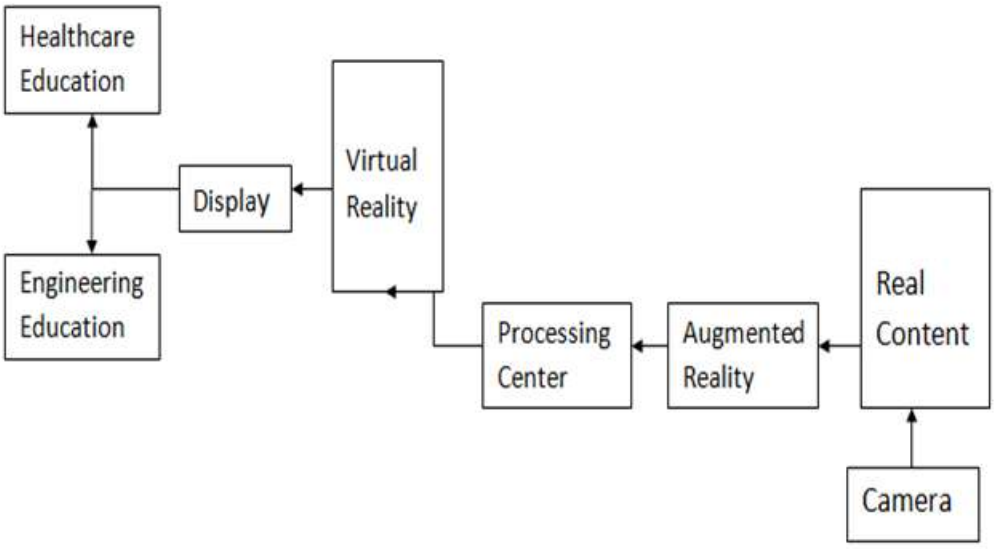


**Fig. 1.** Architecture of Augmented Reality

Augmented reality in training can fill various needs. It helps the understudies effectively get, process, and recall the data. Furthermore, AR makes learning itself additionally captivating and fun.
It is likewise not restricted to a solitary age gathering or dimension of training, and can be utilized similarly well in all dimensions of tutoring; from pre-school instruction up to school, or even at work.

## II. Review Of Literature

Augmented reality (AR) advancement, be that as it may, is changing the pioneer's association by impacting the need to travel fundamentally increasingly steady, keen, and essential. This development makes it possible to layer modernized upgrades over a present reality or authentic circumstance. AR development furthermore changes how one can find and experience close-by attractions, culture and fervor. Using applications constrained by AR, Tourists can't simply research and investigate to the spots they wish to visit, yet

they can experience them in an impressively increasingly critical way with cutting edge overlays containing natural information about the lifestyle or history of the site. For example, when setting off to a chronicled focus, they can scope or take photos of showcases, and revive them with AR, with natural information and preoccupations. AR information systems can help voyagers in getting to vital information and improving their understanding concerning a touristic interest or an objective, while redesigning the guest experience and offering extended dimensions of redirection all through the methodology. Specifically, such information systems can redo the transport of the mixed media content according to the customer's characteristics and the use setting, therefore supporting their association for different circumstances. AR advancement is currently used as a piece of different fields for instance: course of action, heading and continued arranging among others. It is in like manner used inside the travel industry division, intending to upgrade the voyager experience. From one point of view, a couple of cases have shown that AR can help explorer affiliations and specialists towards reaching an increasingly broad gathering of observers by filling in as the movement advancement of drawing in sight and sound substance and compact applications, fine- tuned to various learning levels [1].

In human-robot shared assembling, mechanical robots would work nearby the human labors who mutually play out the doled out undertakings. Ongoing inquires about uncovered that perceived human movements could be utilized as contribution for mechanical robots control. Be that as it may, the data criticism channel from mechanical robots to human specialists is as yet restricted. In light of the prerequisite, this exploration investigates the capability of embracing enlarged reality (AR) advancements in a specialist emotionally supportive network for human-robot communitarian fabricating. The robot directions and laborer guidelines can be practically enlarged for human specialists naturally and quickly [2].

This paper aims to explain use of augmented reality in education aided by the implementation of some AR applications. Using augmented reality the learner learns from the experiences, various applications and then develops new skills, different outlook or innovative thinking through reflection of such experiences. Experiential learning coupled with augmented reality applications guarantee accurate achievements by improved and increased employability through active and experimental learning. This paper forces one to look into different aspects of experiential learning by means of comparison of Teaching Learning and apply those skills to implement AR applications. It also attempts to present the outcome of experiential learning resulting from identification of environmental effectiveness and facade of the entire learning process [3][4].

## III. Benefits And Challenges Of Augmented Reality In Education

**Detail of Benefits [5]**

- Open learning materials – whenever, anyplace. Augmented reality can possibly supplant paper reading material, physical models, notices, printed manuals. It offers compact and more affordable learning materials. Thus, training turns out to be increasingly open and portable.
- No exceptional gear is required. Dissimilar to VR, expanded reality doesn't require any costly equipment. Since 73% of all youngsters as of now claim a cell phone, AR advancements are promptly accessible for use for most of the intended interest group.
- Higher understudy commitment and intrigue. Intelligent, gratified AR learning can have a huge positive effect on understudies. It keeps them connected all through the exercise and makes learning fun and easy.
- Enhanced coordinated effort abilities. Augmented reality applications offer tremendous chances to expand and shake up exhausting classes. Intelligent exercises, where all understudies are associated with the learning procedure in the meantime, help enhance cooperation abilities.
- A quicker and increasingly powerful learning procedure. AR in training enables understudies to accomplish better outcomes through representation and full drenching in the topic. Words usually can't do a picture justice, correct? Along these lines, rather than perusing hypothesis about something, understudies can see it with their own eyes, in real life.
- Practical learning. Aside from tutoring, proficient preparing can likewise profit significantly from the utilization of AR. For instance, exact multiplication of in-field conditions can help ace the down to earth aptitudes required for a specific employment.
- Sheltered and effective working environment preparing. Envision having the capacity to rehearse in heart medical procedure or working a space transport without putting other individuals in threat or gambling a great many dollars in harm if something turns out badly. It is conceivable with AR.
- All around appropriate to any dimension of instruction and preparing. Be it learning recreations for kindergarten or hands on preparing, AR isn't constrained to just a single use case or field of use.

**Challenges Of Augmented Reality In Education [5]**

- An absence of important preparing. A few instructors may battle putting these new advances into training as their experience preparing doesn't give the vital aptitudes. Just the most receptive instructors and creative instructive foundations are prepared to apply increased reality applications in training.
- Reliance on equipment. Utilizing enlarged reality in the classroom requires a specific asset base. For instance, not all understudies have cell phones fit for supporting AR applications.
- Content conveyability issues. The AR application you fabricate requirements to work similarly well on all stages and gadgets. Be that as it may, it is for all intents and purposes difficult to give a similar nature of AR content on any gadget.

**Augmented Reality In Education With Examples [5]**

- **Augmented reality in the classroom**

Likely, the most famous application for enlarged reality in training is the utilization of AR applications straightforwardly in the classroom. For this situation, they can enable the instructor to clarify a subject, give a visual portrayal of the material, and help understudies try out their insight by and by.

To be specific, you can discover an AR application for practically any subject, including science, geometry, zoology, sentence structure, and notwithstanding programming.

**Image 1:** Example of Augmented Reailty : Application 1 [5]

- **Distance learning**

By utilizing expanded reality, understudies can adapt even outside the classroom. In addition, on the web or separation learning can be less demanding and increasingly proficient with AR-helped instructive materials.

For instance, Modally, a language-learning application, has as of late coordinated an AR-based virtual educator to enable clients to rehearse their abilities as though they were in a genuine setting.


**Image 2:** Example of Augmented Reailty : Application 2 [5]

- **Marketing in education**

There is enormous potential in AR innovations for promoting and publicizing, even in the training field. Various colleges in the USA are as of now utilizing AR visits to expand enlistment and help new understudies discover their way around grounds.

For instance, the Community College of Beaver County, Pennsylvania, utilizes expanded reality to convey different sorts of substance, including video, sound, and advanced productions. In this way, the

application gives a fun and instructive approach to investigate the grounds. The application additionally has gamification components to make the experience much all the more captivating

## IV. Conclusion

There is a direct impact on student's approaches to learning by the nature of assessment used by the teachers. Practicing the experiential learning helps the students to get technical or practical knowledge in their core subjects. The continuous implementation of teaching learning approach via Augmented Reality is the best method of understanding for students are more likely to restate the knowledge acquired. Hence, active learning using Augmented Reality actually enhances the employability of the students. The impact of such Augmented Reality applications on the student understanding is high. Hence the College plans to extend this experimental learning activity that will boost their understanding as well as employment opportunity for students.

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