iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** VI **Month of publication:** June 2022

DOI: https://doi.org/10.22214/ijraset.2022.44690

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VI June 2022- Available at www.ijraset.com

General Knowledge Awareness by Implementing the Concept of Augmented Reality

Hemant Mahajan[1], Ajay Lalwani[2], Hritik Salunke[3], Pratik Kuratkar[4]Sangharsh Tamgadge[5], Ashish Dandekar[6]
[1, 2, 3, 4, 5, 6]*Department of Computer Engineering, Bapurao Deshmukh College of Engineering, Sevagram (Wardha)*

Abstract: ***In our introduction is a state-of-the-art review in Augmented Reality (AR) Applications. Highly developed entertainment and critical games from both research and industry are introduced. The intangible, attention-grabbing, and flexible technology that provides a Simple Education Forum In this issue we present a summary of current AR applications outlining the challenges of designing a specific education-related domain. This research is part of an ongoing research project that aims to improve a better understanding of the design environment of AR applications that recognize the context of student smartphones. AR applications that can provide sensitive content to users while releasing them to explore context. To prevent misunderstanding, we refer to mobile AR as an AR type in which a mobile device (smartphone or tablet) is used to display and interact with visual content captured by a real-time camera server. of various educational levels. People with physical and mental disabilities are found all over the world; therefore, this paper introduces the Augmented Reality Application, conducted an in-depth study of the popular taxpayer application we see based on in-depth reading / learning strategies and strategies published between 2014 and 2021 and concluded that current methods need to be differentiated in order to translate everything. data obtained correctly. Distinguishes progress in entertainment and critical sport in the education industry research. The unfortunate reality of taxpayers is seeing the sophisticated, attentive, and flexible technology that provides a simple educational platform, in this paper, we present the framework of the current AR smartphones program that helps vulnerable people to access information easily anywhere. This study is part of a larger study aiming at improving our understanding of the design environment for apps that identify student smartphone content. Mobile augmented reality is a sort of augmented reality object that uses a mobile device to display and interact with visual content in the real world that is covered by a real-time camera feed. The games and the unpopular reality of the taxpayers we encounter have been demonstrated to have a lot of learning power.***
Keywords: Augmented Reality, Virtual Environment, Smartphones, Games, 3D visualization.

I. INTRODUCTION

For the past hundred years, our world has been fast evolving, and the introduction of personal computers has accelerated this trend. Information Technology's dominance has an impact on everyone's lives. Today's schools must prepare pupils for a society that does not yet exist. That is how the world around us grows increasingly complex." It should come as no surprise that keeping one's education up to date is critical. Over the past decade, educational institutions have tried to use modern tools or as they are commonly called: Information and Communication Technology (ICT) and their scope remains to be expanded. Professional tests aim to prove the effectiveness of ICT, although some are skeptical.

Those who doubt the need for these methods are reflecting on the evidence of the past: education used successfully without the use of modern technology, good old things - books, board, congestion - should be enough to teach anyone for the rest of their lives. The new teaching and learning opportunities offered by AR are increasingly recognized by academic researchers. Students can visualise complex spatial relationships and intangible notions, as well as experience occurrences that are not feasible in the real world, thanks to the interconnection of material and real realities.

Despite the fact that AR has gotten a lot of attention in study in recent years, researchers have given the word varied interpretations. AR may also be created by merging and connecting a number of different new technologies (e.g., mobile devices, portable computers, and immersion technologies).

However, AR education ideals are directly tied to how AR is developed, utilised, and incorporated into formal and informal learning situations, just as they are to many other technologies.

Augmented Reality is a term used to describe the capacity to view computer visuals in the actual environment (AR).Unlike Immersive Virtual Reality, AR the interface allows users to see the real world at the same time as the visual photos attached to real places and objects. The user looks at the world through a portable or head-mounted display (HMD) in the AR interface, which can be images to watch or overlay in local video nature.

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VI June 2022- Available at www.ijraset.com

Other computer linkages, on the other hand, take users away from the actual world as well as on screen, whereas AR Links promote real-world self-awareness. When students are focused on a similar task, they work better together in the classroom. This is more difficult to do with computer-based schooling.

Even though they are near to one other, children working on multiple computers do not do as well as children working on a single computer. When students are allocated to individual computers, researchers noticed that they spontaneously form pairs and trios around them.

Even when seated in front of the same computer, diverse patterns of group communication emerge. When students work at the table, space in between are used to share communication features such as view, touch, and speechless behavior. When people talk about things on the table, then the task-space is a small part of the communication space. WE Participants can see each other and the communication signals shared on at the same time with the things they discuss.

However, when users together in front of a desktop screen, they often sit side-on the side and their attention is focused on the screen space. In this case, the Work space is part of the screen space and differs from social network. In contrast, in the Augmented Reality interface students can be seated we went around the table and saw each other at the same time as the visible heart floating among them. This results in more conversational behavior it is more like a natural face-to-face interaction than a screen-based one interaction.

George Chang proposed the various uses of Augmented Reality (AR) programs in different fields of education. AR is a technology that allows for the advanced placement of computer-generated 3D objects over a real-world environment. In recent years, there has been an increase in AR systems in all areas of information technology.

Specifically, this paper describes the features of AR programs and their current applications in various fields of education and training, such as mathematics, science, and medicine. Andreas Dunser proposed the Virtual reality (VR) and Augmented reality (AR) cover material in the real world offers exciting and comprehensive opportunities to learn different aspects of human behavior and psychological processes.

One aspect of human awareness that has been constantly explored using VR technology is the ability of space. Research extends from training courses exploring how capabilities and / or improvements through the use of these new technologies to courses that focus on specific aspects of local capabilities where VR is an effective research tool.

Peng Chen proposed the In recent years, there has been a growing interest in using Augmented Reality (AR) to create different educational settings. This paper reports on literature reviews about the unpopular reality of taxpayers that we see in educational settings taking into account factors including utilization, benefits, features, and the effectiveness of non-virtual reality in educational programs.

In total, 55 studies published between 2011 and 2016 in the Social Sciences Citation Index database were analyzed. Key findings in this review provide the current state of the art in AR research in education. In addition, this paper discusses trends and vision for the future as well as opportunities for further research on additional facts about educational settings.

Nor Farhah Saidin proposed the educational technology can encourage students to study diligently and can motivate them, which in turn leads to a more efficient learning process.

Previous study has found that if the technology employed does not foster critical thinking, reasoning, or comprehension, it will generate a practical learning process.

The unpopularity of the taxpayers we see (AR) has been demonstrated to have a good influence on an effective, efficient, and meaningful learning process since its debut. This is due to the fact that its superior technology allows consumers to engage with real-time and real-time apps in a natural way.

Moreover, the integration of AR with education has recently attracted the attention of research due to its ability to allow students to immerse themselves in real-life experiences. Therefore, this concept paper reviews the research done on AR.

Yuting Zhou proposed Virtual reality (VR) and augmented reality (AR) have been widely employed to support museum reading by providing an interesting and engaging experience. In this discipline, however, meta-analytic reviews of robust studies are lacking. This study looked at 51 publications to see how AR and VR are used in museums and how they are incorporated into museum learning, as well as a meta-analysis of 17 studies to see how these approaches affect learning accomplishment.

Azuma proposed the Augmented reality (AR) field, where 3D virtual reality is integrated into a real-time 3D environment. Medical applications, production, acquisition, route planning, entertainment, and military testing are all covered in this book. The properties of augmented reality systems are discussed in this paper, which includes a full comparison of optical and video integration technologies.

Registration and hearing errors are two major problems in building visual systems that do not like the taxpayer we see, As a result, this report describes current attempts to address these issues. Future directions are discussed, as well as topics that require more research. This study is a good place to start if you have a research question or a practical application that you don't think taxpayers will like. Carlos Bermejo proposed the promise of Augmented Reality as a platform for innovative and exciting applications has piqued curiosity. This document gives an overview of the imaging and optics issues that near-eye optical see-through AR display systems face. This research looks at the subject of Augmented Reality, which involves incorporating 3-D items into a real-time 3-D environment.

The topics of medical applications, production, detection, route planning, entertainment, and military testing are all covered. This paper describes the properties of Augmented Reality programmes and contains a detailed explanation of transactions between optical and video integration technologies. This paper highlights current efforts to solve registration and hearing errors, which are two important issues in developing effective Augmented Reality systems. Future directions are discussed, as well as topics that require more research. This survey is a good place to start if you're interested in learning more about Augmented Reality and using it.

II. METHODOLOGY

Our proposed system is to design an application for the android user as well as system user that they are get a knowledge about the virtual things real-life situations. It can be used by anyone either physically or mentally disabled people, it is also used for small children in which they will not like to study.

We develop a gaming application in which student play as well as learn from that. It is more interactive because it gives us a 3D object figure of a thing which they want. also, the people which they facing the problem of hearing they are also use this application and play as well as get knowledge about virtual thing, like dinosaurs and other also which are not present real-life situations.

Tho's application is a one type of game to get knowledge easily without boring, because people want to learn without boring. the most important thing is that can be use anywhere, and the main objective of our application is it used small space and give too much knowledge. This application is user friendly and interactive.

With the help of this augmented reality application, that will help us to understand the educational topics deeply. Like the picture will give the 3D output that will be easy to understand. and this application is also used as the learning medium in the kindergarten.

Because augmented reality apps are interactive by design, it's no surprise that they improve student participation. Additionally, students can learn subjects better and faster thanks to these apps. It is simple to engage in learning activities both in the classroom and at home with the help of our application.

With the help of this application people and students can increase learning time, with the help of this augmented reality application people can get accurate knowledge. And it is less expensive as the long run and get on spot result. With the help of this learning is much easier and entertaining.

The Objectives of our Proposed System are: -

1) To create an interactive learning environment using Gamification & Augmented reality.
2) To introduce augment reality as one of learning medium in the kindergarten.
3) To build environments with the high degree of participation and interactivity.
4) To allow students to gain knowledge through rich visuals and immersion easily

A. System Architecture

In this paper, we have mentioned below an architecture which describes the complete understanding about how it works. Our Proposed System works on augmented reality application. Let's discuss the working of Augmented Reality application. We have created our own unique dataset by importing the aspects of some virtual thing and saving their information with the help of google scholar. After successful creation of the dataset, we need to train the dataset using TensorFlow which helped us in achieving accuracy of 90% and predicting the text accurately.

Now, if any person wants to learn about the virtual things, the Augmented Reality application proves to be helpful in creating a 3D object of the picture. Developing our own distinct dataset of the Animated aspects which would help us to give the 3D of the picture. The user can input the picture manually. Developing our own distinct dataset, we need to train the dataset using TensorFlow which helped us in achieving accuracy of 90% and predicting the text accurately.

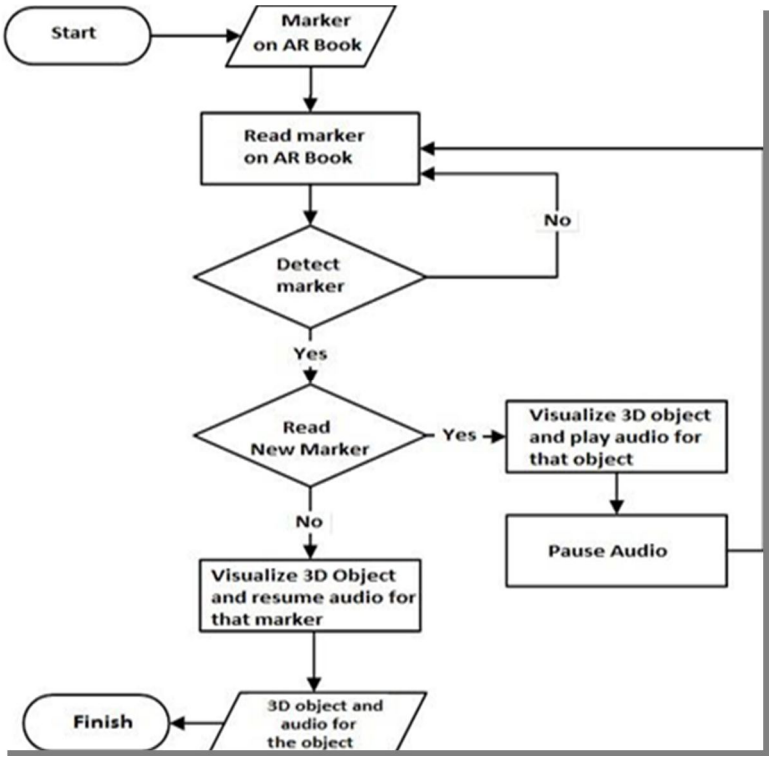


Fig. 1. System Architecture

B. System Design

Forms of input: -

As fresh information became available, We tweaked the taxonomy and went over the articles we'd previously looked at. To filter out inapplicable systems, the same selection criteria were used as in the previous step. The two case studies were among the 29 EMARGs that made it to the results table after passing inspection.

In addition, two articles were added during the manuscript revision process based on reviewer suggestions, bringing the total number of EMARGs to 31. The following methodology was used to investigate mobile AR platforms. We described mobile AR platforms as SDKs for developers as well as non-programmatic toolkits that allow non-technical people to create AR applications.

One or more mobile device platforms must be supported by a qualifying platform. First, we made a list of all AR platforms mentioned in the third-stage possible EMARG articles, as well as the AR platform articles discovered in the first stage. Then, using the search terms "augmented reality SDK," "augmented reality platform," and "augmented reality toolkit," We supplemented these discoveries with more platforms discovered using Google.

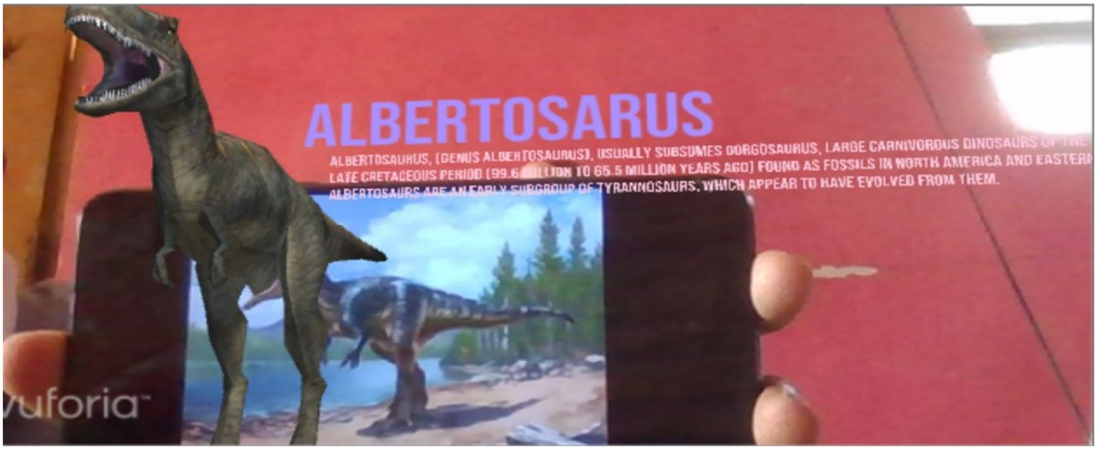


Fig. 2. Scan Virtual Image Demo 1

III. CONCLUSION

In this work, this project is primarily intended for users of an android platform enabled smartphones. The android operating system proved to be most suitable as over the years, the main significance of our project is to tackle existing technological challenges, to enable users enhanced mobile options. This project allows users to receive feedback on the spot and reduce delay. it offers a mobile user to convenience to acquire information with single image taken.

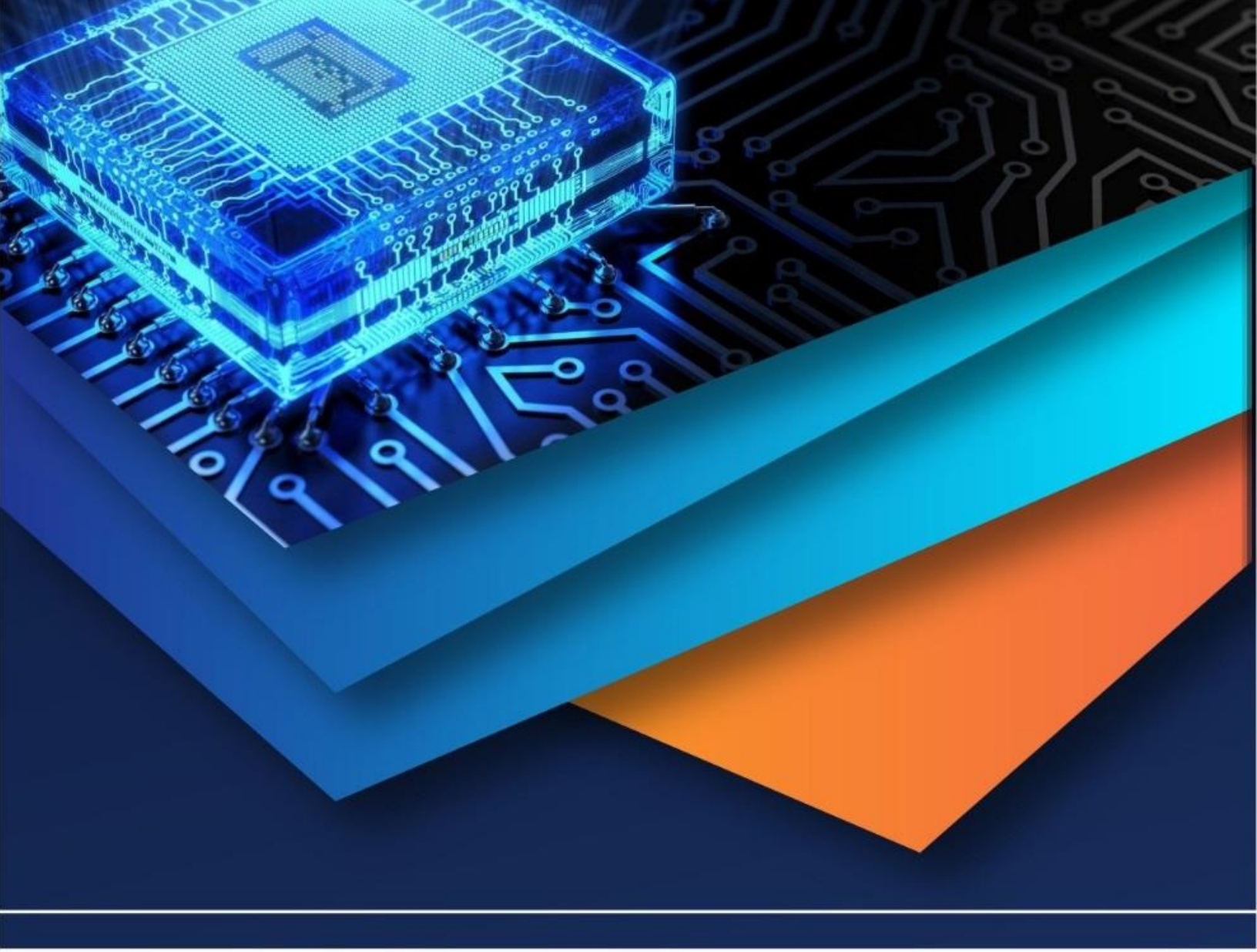
IV. ACKNOWLEDGEMENT

We extend our special thanks to our project guide Prof. A. R. DANDEKAR sir, all the teaching faculty for their valuable guidance and encouragement.

REFERENCES

[1] Xiuquan Qiao; Pei Ren; Schahram Dustdar; Ling Liu; Huadong Ma; Junliang Chen, "Web AR: A Promising Future for Mobile Augmented Reality—State of the Art, Challenges, and Insights" Augmented Reality. (23 Feb 2021).
[2] Teemu H. Laine, "Mobile Educational Augmented Reality Games: A Systematic Literature Review and Two Case Studies", Augmented Reality(sep.2019)
[3] Ajanki, A., Billinghurst, M., Gamper, H., Jarvenpaa, T., Kandemir, M., Kaski, S., Koskela, M., Kurimo, M., Laaksonen, J., Puolamaki, K., Ruokolainen, T., & Tossavainen, T. (2010). An augmented reality interface to contextual information. Virtual Reality, (Mar.2021)
[4] Julier, S., Lanzagorta, M., Baillot, Y. & Brown, D. (2002). Information Filtering for Mobile Augmented Reality. In Proceedings of the 3rd International Symposium on Mixed and Augmented Reality (ISMAR'03), IEEE Computer Society, (2 July.2021)
[5] Olsson, T., & Väänänen-Vainio-Mattila, K. (2011). Expected User Experience of Mobile Augmented Reality Services. Proceedings from the 13th International Conference on Human Computer Interaction with Mobile Devices, MHCI2011, Stockholm, Finland.
[6] Seo, B.-K., Kim, K., & Park, J. (2011). Augmented Reality-Based On-Site Tour Guide: A Study in Gyeongbokgung. In Koch, R. (Ed), ACCV 2010 Workshops, Part II, 276–285. Berlin: Springer-Verlag.
[7] T. P. Caudell and D. W. Mizell, "Augmented reality: an application of heads-up display technology to manual manufacturing processes," in Proceedings of the Twenty-Fifth Hawaii International Conference on System Sciences, 1992, 1992, vol. ii, pp. 659–669 vol.2.
[8] T. N. Arvanitis, A. Petrou, J. F. Knight, S. Savas, S. Sotiriou, M. Gargalakos, and E. Gialouri, "Human factors and qualitative pedagogical evaluation of a mobile augmented reality system for science education used by learners with physical disabilities," Pers. Ubiquitous Compute., vol. 13, no. 3, pp. 243–250, Nov. 2007.
[9] M. Dunleavy, C. Dede, and R. Mitchell, "Affordances and Limitations of Immersive Participatory Augmented Reality Simulations for Teaching and Learning," J. Sci. Educ. Technol., vol. 18, no. 1, pp. 7–22, Sep. 2008.
[10] Y.-C. Hsu, J.-L. Hung, and Y.-H. Ching, "Trends of educational technology research: more than a decade of international research in six SSCI-indexed refereed journals," Educ. Technol. Res. Dev., vol. 61, no. 4, pp. 685–705, Apr. 2013.
[11] H.-K. Wu, S. W.-Y. Lee, H.-Y. Chang, and J.-C. Liang, "Current status, opportunities and challenges of augmented reality in education," Comput. Educ., vol. 62, pp. 41–49, 2013.
[12] K.-H. Cheng and C.-C. Tsai, "Affordances of Augmented Reality in Science Learning: Suggestions for Future Research," J. Sci. Educ. Technol., vol. 22, no. 4, pp. 449–462, Aug. 2012.
[13] K. R. Bujak, I. Radu, R. Catrambone, B. MacIntyre, R. Zheng, and G. Golubski, "A psychological perspective on augmented reality in the mathematics classroom," Compute. Educ., vol. 68, pp. 536–544, 2013.
[14] R. Wojciechowski and W. Cellary, "Evaluation of learners' attitude toward learning in ARIES augmented reality environments," Comput. Educ., vol. 68, pp. 570–585, 2013.
[15] J. L. Chiu, C. J. DeJaegher, and J. Chao, "The effects of augmented virtual science laboratories on middle school students' understanding of gas properties," Compute. Educ., vol. 85, pp. 59–73, 2015
[16] M. Akçayır, G. Akçayır, H. M. Pektaş, and M. A. Ocak, "Augmented reality in science laboratories: The effects of augmented reality on university students' laboratory skills and attitudes toward science laboratories," Compute. Hum. Behave., vol. 57, pp. 334–342, 2016.
[17] P. Sommerauer and O. Müller, "Augmented reality in informal learning environments: A field experiment in a mathematics exhibition," Comput. Educ., vol. 79, pp. 59–68, 2014.
[18] H.-C. K. Lin, M.-C. Chen, and C.-K. Chang, "Assessing the effectiveness of learning solid geometry by using an augmented reality-assisted learning system," Interact. Learn. Environ., vol. 23, no. 6, pp. 799–810, 2015.
[19] A. M. Kamarainen, S. Metcalf, T. Grotzer, A. Browne, D. Mazzuca, M. S. Tutwiler, and C. Dede, "Eco MOBILE: Integrating augmented reality and probeware with environmental education field trips," Comput. Educ., vol. 68, pp. 545–556, 2013.
[20] J. Zhang, Y.-T. Sung, H.-T. Hou, and K.-E. Chang, "The development and evaluation of an augmented reality-based armillary sphere for astronomical observation instruction," Comput. Educ., vol. 73, pp. 178–188, 2014.
[21] C. Chen and C.-H. Wang, "Employing Augmented-Reality-Embedded Instruction to Disperse the Imparities of Individual Differences in Earth Science Learning," J. Sci. Educ. Technol., vol. 24, no. 6, pp. 835–847, May 2015.
[22] H.-S. Hsiao, C.-S. Chang, C.-Y. Lin, and Y.-Z. Wang, "Weather observers: a manipulative augmented reality system for weather simulations at home, in the classroom, and at a museum," Interact. Learn. Environ., vol. 24, no. 1, pp. 205–223, 2016.
[23] S. A. Yoon, K. Elinich, J. Wang, C. Steinmeier, and S. Tucker, "Using augmented reality and knowledge-building scaffolds to improve learning in a science museum," Int. J. Comput. -Support. Collab. Learn., vol. 7, no. 4, pp. 519–541, Aug. 2012.
[24] T. H. C. Chiang, S. J. H. Yang, and G.-J. Hwang, "Students' online interactive patterns in augmented reality-based inquiry activities," Comput. Educ., vol. 78, pp. 97–108, 2014.

[25] T. H. C. Chiang, S. J. H. Yang, and G.-J. Hwang, "An Augmented Reality-based Mobile Learning System to Improve Students' Learning Achievements and Motivations in Natural Science Inquiry Activities," Educ. Technol. Soc., vol. 17, no. 4, pp. 352–365, Oct. 2014.
[26] P.-H. E. Liu and M.-K. Tsai, "Using augmented-reality-based mobile learning material in EFL English composition: An exploratory case study," Br. J. Educ. Technol., vol. 44, no. 1, pp. E1–E4, 2013.
[27] "Computer-Assisted Culture Learning in an Online Augmented Reality Environment Based on Free-Hand Ges…" [Online]. Available: http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6750035. [Accessed: 31-Mar-2016].
[28] M. B. Ibáñez, Á. Di Serio, D. Villarán, and C. Delgado Kloos, "Experimenting with electromagnetism using augmented reality: Impact on flow student experience and educational effectiveness," Comput. Educ., vol. 71, pp. 1–13, 2014.
[29] K.-E. Chang, C.-T. Chang, H.-T. Hou, Y.-T. Sung, H.-L. Chao, and C.-M. Lee, "Development and behavioral pattern analysis of a mobile guide system with augmented reality for painting appreciation instruction in an art museum," Comput. Educ., vol. 71, pp. 185–197, 2014.
[30] Y.-L. Chang, H.-T. Hou, C.-Y. Pan, Y.-T. Sung, and K.-E. Chang, "Apply an Augmented Reality in a Mobile Guidance to Increase Sense of Place for Heritage Places," Educ. Technol. Soc., vol. 18, no. 2, pp. 166–178, Apr. 2015



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY