A Survey on AR Newspapers

Mrs. Soppari. Kavitha[1], Busam Bindu Latha[2], K Lakshmi Bhavya[3],
Mogulagani Prashanth[4], NagiriBala Sainath[5]
Associate Professor, Department of Computer Science and Engineering[1]
IV B.Tech Students, Department of Computer Science and Engineering[2,3,4,5]
ACE Engineering College, Hyderabad, Telangana, India

Abstract: *Newspapers provide coverage of a country's economy, sports, games, entertainment, trade, and commerce. Reading the newspaper would be an excellent ritual to develop, It has already become a part of everyday life. This habit will enhance your knowledge and broaden your horizons. We can learn about the current condition of any incident by reading the newspaper, in order to learn more about it and pique the readers' curiosity, In order to assist enthusiastic readers an augmented reality application is the better solution. By incorporating a digital aspect into the printed material, it helps to bring the content of the magazine to life. It allows users to view a video, animation, or other unexpected content that appears on a page of their newspaper. When an augmented reality program and the camera software on a Smartphone or tablet work together, the illusion is generated. In order for the illusion to operate, the newspaper must be viewed through the mobile device's camera. So, a typical physical newspaper is taken and augmented reality objects can be used to increase the variety of information it gives, such as buttons to movies, links, YouTube, 3D models, and so on. The augmented reality is combined with the newspaper here. Using a marker, write: When you display markers in augmented reality, a computer identifies them and projects objects over them. You need a newspaper with a marker and a smartphone with a non-standalone application that recognizes the marker. It could be a newspaper image or a QR code. Integrating the traditional method AR experience is one of the best methods for print media to stand out from the crowd. In this work, the Vuforia Engine tool and Augmented Reality Tools are studied to design and develop a newspaper with Augmented Reality to improve user Usability..*

Keywords: Augmented Reality, image Processing, Mobile Application Development, Vuforia Engine tool, Augmented Reality Tools.

I. INTRODUCTION

The term Augmented Reality (AR) refers to an emerging digital enhanced version of the reality that is managed through the application of digitized visual elements, additional sensory stimulation such as music. Alive depiction of a visual real-world circumstances whose components are blended with augmented machine-generated pictures, creating a varied reality, is referred to as augmented reality (AR). The augmentation is usually done in real time with ambient elements in a semantic context. The related knowledge about the actual world gets engaging and fun using the newest AR techniques and technologies.

The purpose of AR technology is to make individuals lifestyles easier by bringing virtual content into their immediate surroundings, as well as any indirect sight of the actual world, such as a live broadcast. Augmented reality is not thought to be constrained by a single form relating to projection technology, such as a head-mounted display (HMD), or the sensation of vision. It has the ability to enhance all of your sensations, including sight, contact, and sound. Augmented reality may also be applied to supplement or replace a user's lacking senses through sensory replacements, for example employing auditory cues to supplement the visual blind or low-sight people, or visual clues to help deaf people hear Better.

In newspapers, augmented reality is an intriguing feature that transports readers beyond the printed page. It allows users to view a video, animation, or other unexpected content that appears on a page of their newspaper. Even if the added content isn't really available in the newspaper, the AR function might be a fun addition to the printed material on occasion. Augmented reality's application in the print and publishing industries is a relatively new concept that is gaining attraction thanks to the rapid adoption of new technology and products. It's a corollary of circumstances where

the necessary content to effectively discuss a subject is too large to fit into a printed medium's restricted space. AR in the form of QR codes, for example, can be used to build a web link between a flyer and a web page with additional digital content.

Simply consider your circulation, which pages are most read by targeted groups, and which pages are read by the majority of readers to boost your success rate. These are the finest places to grab your readers' attention and entice them to join you in the digital world. Our experience has shown that while not all readers will pick up their phones the first time they read your news paper, interest will rise over time. It's understandable that news paper publishers are concerned about their print media's dropping circulation numbers, given obvious changes in readers' media consumption choices and their shift to digital news versions. They are always on the lookout for new business models, advertising money, and methods to engage their readers.

There is an empirical study conducted and titled as "Do you read newspapers?" to aid in the development of the essential conceptual framework. "Will it be a digital or print edition?" The online poll, which was created using the Survey Monkey online software and distributed via social media in March 2018, yielded some interesting results. Despite the fact that the sample of respondents is far from representative, 71 replies were collected and analyzed in total. The findings are eye-opening. In terms of demographics, the poll respondents' ages ranged from 18 to 65+, regardless of gender. The responses came from two different countries: the Czech Republic and the Slovak Republic. For an 11-day period, the survey was advertised on Facebook with a total expenditure of 350,-- Czech Crowns.

However, the value of AR is not limited to reducing print space by 'condensing' enormous amounts of information into a tiny printed space, but it is also expanded by supplementing the user's sensory perception through interactive digital media that complement and enrich print media. This paper explains in detail how augmented reality (AR)techniques can be applied to classic newspaper ways to enable AR experiences in newspapers.

II. LITERATURE REVIEW

The application recognizes the active area of the newspaper when the user Scans it, and hovers the features on that active area. The user then accepts the digital objects and begins interacting with the program. These capabilities include 3D models, video playback buttons, and examinations, among others. Unity 3D and the Vuforia SDK [10] are used to create this app.

Trien V. Do and Jong-Weon Lee.al [1] A complete methodology and different approaches for building a 3D modelling system in augmented reality are discussed in this study. The main benefit of incorporating augmented reality into this modelling system is that users may construct3D models much like they would in the real world. The system's additional benefits are that it's interesting and simple to use. Tasks for setup are also easy. Simply execute print all of the markers in the Pattern folder using a setup file and switching on a camera will allow customers to immediately interact with the AR environment to create 3D models without the need for extensive computer knowledge training. There are no additional libraries or hardware devices required. We expect that AR systems will be used by a wider range of people.

Alexandru Gherghina, Alexandru-Corneliu Olteanu and Nicolae Tapuset.al [2]The suggested client-server model is proposed to be a general-purpose augmented reality app that may be utilised in any situation where extensive and interactive material can be superimposed on top of a Barcode. Surface recognition is used to project the pictures so that they appear to be part of the environment. The client's design is built on a pipeline structure, with the goal of reducing the time it takes for the component in charge of showing pictures on the mobile screen to respond. Each component operates on its own process, taking input from the previous file and writing output to the next. This is consistent with Android software design principles, in which the main UI thread, which is capable of showing the cam view, cannot be postponed. Based on customer requests, the server was built utilizing the Google App Engine software to take use of its replica features.

Jonathan Rodriguez and Ching-Yu Huang et.al [3] This article outlines an autonomous research methodology for university students interested in learning about augmented reality, geographic information systems, databases, and mobile app development. A research like this 5demonstrates how geo location may be utilised to create systems that offer more immersive encounters with the surroundings around an user as geo based applications become more popular and gain more exposure. This research has aided in understanding how geo location works and how we may leverage

locations such as towers to construct objects on top of them. this research really aids in knowledge of how to construct a consumer geo location application. Because this is a work in progress, the goal for the Spring semester is to complete the project and trial a pilot with Open House sessions to give potential students an authentic experience of the institution.

Nor Farhah Saidin, Noor Dayana Abd Halim & Noraffandy Yahay et.al [4] AR technique offers great ability to be further advanced in education, according to this overview of studies performed in various sectors of education. Because the benefits and useful applications of AR features may engage learners in developing processes and give them better their visual abilities. Because augmented reality is still a relatively new technology in education, it has significant drawbacks. However, a study of the literature reveals that the majority of the constraints are technical in nature. As research on the integration of AR in education is duplicated and refined, such constraints will be solved over time. When the maximum capabilities of AR technologies is realised, its advantageous functions may be employed broadly in all sectors of education, enhancing the productivity of the educational process.

Vincent hing and Heekooikhoo et.al [5] BCAR was created to make it simple and efficient for users to get contact details from actual business cards. The programme was created to alleviate users' difficulties in obtaining contact details from business cards, eliminating the need for them to stress their eyes on small-font-printed business card contents and storing the data onto their devices. The programme has been further developed by offering a more dynamic display of business cards to users using the notion of augmented reality technology. It also encourages users and business cards to connect with one another. It can digitally store data from business cards and give functions that make accessing the insight into business cards easier. It has economic potential and can be integrated into daily life. At the same time, it aids in the growth of business income by catching the eye of fellow clients and customers.

S. Selvakumara Samy, Vikash Kumar, Rishabh Raj Singhet.al [6] The current educational system in schools and colleges requires gradual improvements, which may be achieved by incorporating innovation into all aspects of our life. This paper will assist understudies in gaining a thorough understanding of 3D spaces and queries in 3D spaces. The use of Augmented Reality in training is beneficial in this case, since it allows understudy to grasp the lesson more thoroughly. Our e-learning platform not only provides understudies with more visual content, but it also improves their learning efficiency. The impact on the formation with markers is simple and engaging to the point that no special training is necessary to use the system. The system is advantageous since the associated recordings may be listened to as many times as necessary till the learner is completely comfortable with the topic being discussed. As a result, the learning environment is enhanced.

Dimitris Chatzopoulos, Carlos Bermejo, Zhanpeng Huang, and Pan Hui et.al [7] Mobile Augmented Reality (MAR) has gone from science fiction to reality recent advances in the features of mobile devices such as smartphones, tablets, and wearables, as well as pervasive and affordable Web access and advances in cooperative social networks, image processing, and mobile cloud services. Despite mobile devices are computationally restricted in relation to existing computers, they do contain a plethora of sensors that can be utilised to create more advanced MAR applications and can be helped by distant servers for the execution. With some typical instances, we provide a categorization of the application fields. The reader is then introduced to the user interface and experience (UI/UX) in MAR applications before moving on to the MAR systems' fundamental parts of the system. Following that, we'll go over recent advancements in monitoring and registry, as their functioning is essential to any MAR application and network access.

Kyusung Cho, JaesangYoo, and Hyun S. Yanget.al [8]. An augmented book is a program that uses augmented reality technology to add virtual 3D elements to a printed book. Some markerless approaches for augmented books have been presented so far. They can only identify one page at a time, though. As a result, there are limitations on how augmented books may be used. We offer a unique markerless tracking technique capable of detecting and tracking numerous objects in this study. Our earlier work with the general randomised forest was the foundation for the suggested approach (GRF). The prior work used the GRF to locate one page in the overall picture, but the new technique divides an image into subregions, applies the GRF to each part of the region, and uses the GRF findings to find address space.

Jack C. P. Cheng, Keyuchen, Weiweichen et.al [9] .This article draws the following findings after contrasting marker-based AR with markerless AR based on the proposed decorating system: Developing markerless AR is typically more difficult since existing AR SDKs are better suited to marker-based AR. The precision of marker-based AR is

much higher, but the precision of markerless AR may be enhanced by employing more precise technologies like RFID, Wi-Fi, or UWB. The accuracy of markers and the development of AR SDKs have a significant effect on the reliability of marker-based AR, but the intricacy of virtual models has less impact. The comparative of markerless and marker based findings can be used by future developers to make decisions about which sorts of AR to use.

Victoria Shafombabi, et.al [10] Nowadays, information technology is a key facilitator for all businesses. It has become a concept and an essential component of marketing for all types of companies. This article outlines a strategy for utilising Augmented Reality (AR) to promote hotels in Namibia. It shows the work done at a one-week coding camp at Onjala Lodge in Windhoek, Namibia, as well as the exceptional AR app that was created. Writing a magazine article on the lodge was also part of the coding week, with the photos serving as two-dimensional markers for the AR application. The augmented reality material includes photos and videos from throughout the resort, and also three-dimensional animal models, and therefore should pique viewers' interest in the resort.

Tahir Ahmed T, Vijaya Shetty S, R.Samirasimha et.al [11] Humans may now engage with both real and virtual world items because to developments in information and computer technology. Augmented Reality (AR) is a technology that combines digital data with the user's surroundings in real time. It superimposes virtual items on the users' perspective of the actual environment, such as information, computer produced pictures, and so on. In this article, we propose to create and analyze the "AR Furniture App," an Android app with an augmented reality-based system that uses the Kudan SDK to overlay AR content on natural elements identified in the environment. The user may imagine how the furniture would look in the actual world using this programme, which provides a preview of furniture in one's own setting. Furniture sellers may gain a competitive advantage in the market by using this application. Customers may sample renderings of furniture placements in the available space before purchasing them, which eliminates revenue loss for the company, a tarnished brand image for the service provider, customer attrition, and stakeholders' interests deteriorate.

M Sarosa, A Chalim, S Suhari, Z Sari and H B Hakim et.al [12] You will be presented with some advantages when using the Unity Engine in conjunction with the Vuforia SDK to create an Augmented Reality system for education: The first is that we could create the AR system for a low development cost since Unity is less expensive (there is also a free version) than other engines, and creating the assets with Blender, which is also free, makes it virtually free. The second benefit is that Unity supports Ruby, which allows us to create complicated transformations such as creating an AR system with multiple 3D assets in a short amount of time. Last but not least, using the Vuforia SDK, it is possible to create an AR system without the use of a specific device such as an HMD (Head Mounted Device) [18], simply by using any mobile device that supports AR. As a result, the system can be used in any educational setting, making it ideal for improving character education.

Riya Aggarwal, Riya Aggarwal et al. [13] Augmented reality combines the actual world with a computer-generated or virtual environment. It is accomplished by superimposing computer-generated graphics over real-world photographs. There are four forms of augmented reality: marker-based, marker-less, projection-based, and superimposition-based. It has a wide range of real-world applications. Medical, education, manufacturing, robotics, and entertainment are just a few of the sectors where augmented reality is employed. The field of mixed reality encompasses augmented reality. It may be thought of as the polar opposite of Virtual Reality. They have certain features and differences in common. This article discusses Augmented Reality and how it got started. It examines several forms of augmented reality, their uses, and their benefits and drawbacks. This article also informs us about the biggest dangers to augmented reality in the near future, as well as its present and prospective uses.

Elissavet Georgiadouet al. [14] Augmented reality is a developing study topic that aims to improve the actual world by overlaying additional virtual information on top of it. The article discusses augmented reality as a useful technique for modernising traditional print media. It begins with an overview of the concept, then delves into its core concepts and technology, with an emphasis on its implementation in print media. It analyses the technology behind augmented print media and reports on notable examples of augmented newspapers, magazines, books, and packaging items. Finally, the article tries to emphasise the significance of augmented reality in redefining print media's place in the digital age. It examines the differences between print and digital media and demonstrates the role of augmented reality in transforming print into an advanced transmission media.

Sung LaeKim, Jeong Hwa Kanget al. [15] Previous AR systems faced obstacles such as the inconvenient use of head-

mounted displays and computer backpacks, as well as the need for external data processing infrastructure. Smartphone-based mobile AR eliminates these issues. We described two versions of the Calory Battle AR exergame, which uses mobile AR to visualise and interact with the game. The player's goal in Calory Battle AR is to locate and defuse virtual calory explosives in a real-world setting. The game's first prototype was produced without the use of a third-party rendering or gaming engine. This posed a number of problems in terms of 3D data processing and presentation.

Ronald Azuma, Yohan Baillot et al. [16] the state of the art in AR today is comparable to that of VR in the early days. Many research systems have been exhibited, but few have progressed beyond lab-based prototypes. We've broken down the primary roadblocks to AR adoption into three categories: technological limits, user interface limitations, and social acceptance issues. The final hurdle is gaining social approval. How can AR, like a mobile phone or a personal digital assistant (PDA), become an accepted part of a user's regular life if it has optimal hardware and an intuitive interface. Many people are familiar with visuals of simulated AR from movies and television.

Rohan Moares, Vaishnavi Jadhav et al. [17]The user can alter the features of virtual furniture and build their own configurations in the actual world in this AR environment. The user can detect the plan surface using the smartphone camera and then select and instal furnishings on the screen using the programme. This mobile application can also be combined with artificial intelligence to boost the user's imagination and provide an animated experience in a real-time setting. This study focuses on the deployment of an immersive design solution on a mobile platform using Augmented Reality principles (AR). This application, as a design solution, can assist reduce prototyping costs and mimic a better user experience.

Dalius Navakauskaset al. [18] Individual square markers' attributes were investigated using a specialised augmented reality system that took advantage of virtual environment scene capabilities. Other types of markers can be investigated with the system. The identification efficiency of 100 square markers was tested in an experimental setting with angles of rotation and illumination changes. The recognition efficiency of individual markers was tested. A new technique for classifying markers was proposed, and the analysed marker set was divided into three categories using it. It is advised that while constructing a marker that is resistant to rotating angles and diverse lighting circumstances, the vertical and horizontal middle aspect symmetry be maintained, and that internal marker elements have common points with the marker border.

Year	Technique/Methodology	Pros	Cons
2001	3D modelling for augmented reality	The experiments clearly shows that a 3D topological model can be adopted for an augmented reality application	Still more experiments are needed to clarify, that will assure the best performance
2013	A marker-based augmented reality system for mobile devices	Mobile applications runs well	It takes more time to find the QR code
2013	An Emerging Study in Augmented Reality &Geographical Information System	This research has aided in understanding how geolocation works and how we may leverage locations such as buildings to construct entities on top of them.	It is rather costly to use in everyday life, and it may be beyond of reach for small enterprises.
2015	A Review of Research on Augmented Reality in Education: Advantages and Applications	AR technology has the potential, according to research performed in various sectors of education. to be developed further in Schooling	It was not specified how it deals with technological difficulties.
2017	Business card reader with augmented reality engine integration	It encourages interaction between users and business cards, reducing the user's difficulty in getting information.	It can be extended to more features
2017	E-learning System using AR	Students will have a deeper knowledge of 3D places and things in 3D environments as a result of their research. Our e-learning technology not only delivers	--

Year			
		visual augmented content to students, but it also improves their learning efficiency and focus.	
2017	Mobile augmented reality survey: from where we are to where we go	In terms of application areas, user interfaces, and experience metrics, system components object tracking and registration, network connectivity, and data management, it presents a thorough overview of advancements in mobile augmented reality.	It is confined to mobile and phones does not address issues such bandwidth limitations, mobile computing, or cooperative Mobile computing
2017	A Study on the Marker less Augmented Reality for Picture Books	It enhanced viewers' learning motivation by removing the need for further input via the keyboard, mouse, and other physical instruments. It gives viewers a different reading experience by changing the display style and allowing them to interact with simulated 3D objects.	--

III. CONCLUSION

The reason for the study is to build up an Augmented reality application by persistently acquiring article from newspaper, and when you frame the Image on your smartphone, you'll see a video related to the story you're reading. The study include major Challenges like scarcity of tried-and-true business models, Content of poor quality, Technology Problems & Limitations, Social Issues etc., This paper explains in detail how augmented reality (AR)techniques can be applied to classic newspaper ways to enable AR experiences in newspapers and also explains the comparisons among all methods.

ACKNOWLEDGEMENT

REFERENCES

[1]. Trien V. Do and Jong-Weon Lee, 3D modelling for augmented reality International Journal of Mathematical and Computational Sciences Vol:4,No:3, 20

[2]. Alexandru Gherghina, Alexandru-Comeliu Olteanu and Nicolae Tapuset, A marker- based augmented reality system for mobile devices, EduNet International Conference, 2013

[3]. Jonathan Rodriguez and Ching-Yu Huang, An Emerging Study in Augmented Reality &Geographical Information System, 2017 International Journal ofComputer Theory and Engineering 9(6):447-450

[4]. Nor FarhahSaidin, Noor Dayana Abd Halim & Noraffandy Yahay, A Review of Research on Augmented Reality in Education: Advantages and Applications, 2015International Education Studies 8(13)

[5]. Vincent hing and Heekooikhoo, Business card reader with augmented reality engine integration, 9th International Conference on Robotics, Vision,Signal Processing & Power Applications (ROVISP 2016

[6]. S. Selvakumara Samy, Vikash Kumar, Rishabh Raj Singh, E-learning Systemusing AR International Journal of Pure and Applied Mathematics Volume 118No.202018S

[7]. Dimitris Chatzopoulos, Carlos Bermejo, Zhanpeng Huang, and Pan Hu, Mobile augmented reality survey: from where we are to where we go, IEEE Access (Volume: 5)2017

[8]. Kyusung Cho, JaesangYoo, and Hyun S. Yan, A Study on the Marker less Augmented Reality for Picture Books, Joint Virtual Reality Conference of EGVEICAT-EVR(2009)

[9]. Jack C. P. Cheng keyuchen, weiweichen, comparison of marker-based ARand marker-less AR: A case study on indoor decoration system. 2017Conference: Lean & Computing in Construction Congress (LC3)

[10]. Victoria Shafombabi, Using augmented reality to enhance printed magazine articles about Namibian lodges, 2018 the Second African Conference for Human Computer Interaction.

[11]. Tahir Ahmed T., Vijaya Shetty S., R. Samirasimha, Performance evaluation of augmented reality based 3d modelling furniture application,2018 International Conference on Advances in Computing, Communications and Informatics(ICACCI)

[12]. M Sarosa, A Chalim, S Suhari, Z Sari and H B Hakim, Developing augmented reality based application for character education using unity withVuforia SDK, 2019Journal of Physics Conference Series

[13]. Riya Aggarwal, Augmented reality and its effects on current life,2019 9thInternational Conference on Cloud Computing, Data Science & Engineering

[14]. Elavet Georgiadouet, The application of augmented reality in print mediaJournal of Print and Media Technology Research, 1-2019

[15]. Sung Lae Kim Jeong Hwa Kang, Augmented Reality game developmentusing unity and Vuforia ,2014 IEEE World Forum on Internet of Things (WF-IoT)

[16]. Ronald Azuma Yohan Baillot, Augmented Reality and its working,December 2001-IEEE Computer Graphics and Applications 21(6):34-47

[17]. Rohan Moares Vaishnavi Jadhav, E- Furnishing using AugmentedReality, Proceedings of the 5th International Conference on Cyber Security& Privacy in Communication Networks (ICCS) 2019

[18]. Dalius Navakauskas, Performance Analysis of Augmented Reality Based onVuforia Using 3D Marker Detection, May 2014Electrical Control and Communication Engineering