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IMPLEMENTING AUGUMENTED REALITY IN E-COMMERCE

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ABSTRACT

The project contains a forum based on the E-commerce Android App where anyone can view the life style products and buy it at the same time. A Key Feature of the Project is that we introduced AR (Augmented Reality) to view the actual products. With the help of AR technology now customers can place their product more easily in seconds. If someone wants to buy a flower pot, they just have to look for the product. After filtering they can choose the best product. After the product selection one will get a new visual interface that they have to allow the camera permission and then it will ask to place the object by tapping on screen, he can put an advanced model in the real world. One can place that flower pot on the table anywhere and can see what it looks like with an enhanced experience. This is a visual demonstration process for modelling in the real world. This project simplifies the selection process and gives the customer a very good impression. This AR technology is very powerful and has the potential to change the current state of E-commerce Business. All lifestyle products can be designed using this model. According to us this could be the future of E-commerce. Many works of graphic designers and many of the functions of Software developers can be done in the future. Product display can actually be a big change. Many Technologies will be used. This project is scalable as we can also introduce AI / ML models, such as Computer Vision, OCR and many more.

KEY WORDS

Augmented Reality (AR), E-commerce, 3D Object, Product, AR Core Plugin, Flutter.

INTRODUCTION

Augmented Reality (AR) combines virtual world objects with real environments. Over the years, the unpopular reality of tax collectors we see has been used in many domains for a variety of purposes. In most fields, AR is used as an assistive system for performing human tasks. [4] Augmented reality is 3D immersive interface that combines real-time into real-world views with computer-generated objects. AR is an enhanced interactive experience of a real-life environment enhanced by computer-generated vision data.

The AR technology uses various modes of sensory abilities like vision, auditory perception, touch, pressure among others in doing so.[2] Augmented reality can be used in the form of making additions to the existing environment in order to enhance it or hiding things from the existing environment.[2] The use of augmented reality for research or security reasons has been around for the last two to three decades, but commercial use has only started relatively recently. It is been tried extensively in the gaming industry currently. The augmented reality game application Pokémon Go which utilizes an Image linked map (ILM) and geotagged locations with approvals show on the maps became a favourite worldwide due to its flawless ability to integrate the Pokémon characters with the real-world locations of the users.[8]

These abilities can be very much used in the vast field of E-Commerce and with its numerous versatile applications. Generally, in E-Commerce, businesses share the information about a product with either images texts or videos but while using AR we can extend this feature by adding a 3D view of the selected items.

AUGMENTED REALITY IN E-COMMERCE

AR allows ecommerce customers to preview products or services in their own environment and time, before making a purchase. By using AR, your customers can preview products and have a greater chance of choosing the right product for the first time. An AR consumer survey conducted by Google found that 66% of people are interested in using augmented reality technology to help them make a purchase. The unpopular reality of taxpayers we see helps to make ecommerce products live with detailed information, allowing customers to make informed purchasing decisions. Google found that 6 out of 10 people "said they wanted to visualize where and how a product could fit into their lives." Augmented reality technology increases customer sensitivity by allowing consumers to display these images before making a purchase. Organizations like IKEA and negotiators use the unpopular reality of taxpayers we see helping customers by imagining household items in their homes continuously using mobile apps. This extensions to the development of AR applications can be attributed to the obvious benefit to the consumer and good information. The market value for Augmented Reality was 640.4 Million out of 2015 and is required to create $120 Billion in income by 2020. In that capacity, AR is encountering a tremendous prevalence among organizations and customers. [21] E-commerce is developing at a fast movement, which is apparent in the measurements expressing that over a billion Web clients bought products through internet business sites in 2013. Truth be told, retail online business deals added up to $1.85 trillion every 2016, and retail incomes are extended to develop to $4.50 trillion out of 2021.[22] With regards to AR innovation in web-based business firms, if the Ecommerce firms wish to incorporate AR into their internet business portable application, they have to upgrade their mechanical competency by creating 3D item models utilizing 3D modeling

software and programming tool and have a solid innovative team. [20]

MOTIVATION AND PROBLEM STATEMENT

AR-based learning objects; screens do not offer a suitable observation size; there are no conceptual frameworks which can help us find innovative practices in AR implementation; support centers for teachers need to be created so that they will find it easier to produce AR-based objects, as well as their maintenance in servers; a base/basic technology must be available for its observation by students; and an information overload clearly exists. [09,10] Concerning the last obstacle mentioned above, some precautions should be adopted when designing AR objects. These have to reflect an accessible and tolerant approach with a multimedia design, oriented to the student's action and involvement. Tablets and smartphones do not constitute the goal of the educational process, and therefore, the methodology must focus on practicality and interactivity and adapt to the diversity of devices where it can be observed [11]. The objective of the project is to provide the world with a great convenience without even touch physically to the object.

Although online shopping is growing exponentially, consumers still prefer to buy bricks and mortar to make sense. These problems may be answered with integration of AR technology in online shopping but due to its lack of privacy some users might not be interested in it. Augmented reality (AR) closes the gap felt by customers between visual and online shopping. The gap seems to be widening as a result of the Covid-19 epidemic, which prevents retail stores from opening, leaving consumers unable to enter stores and physically seize products.

ARCHITECTURE

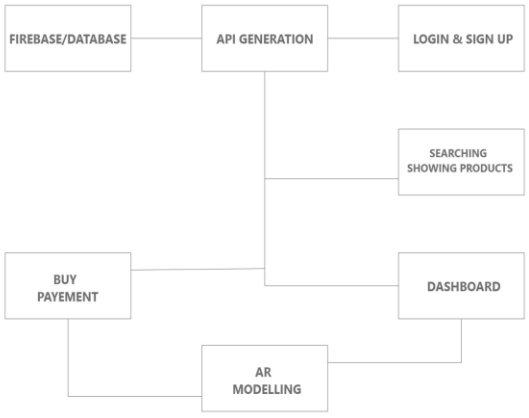

Fig.1: Design of the System

The Design of the System is in the same manner as many of the e-commerce sites and apps work. The main app starts with an information screen which tells about the integration of flutter and ARcore after that the main app starts showing the dashboard of the app. Here all the products their categories and with implementation of search and filter methods are shown. Client can login and signup with an option given at the top-right side. After applying for the search and after finding the required product the buyer is able to see the detailed explanation the product with an AR button and buying option. Here Add to cart option is also added. All the UI uses Material Design. Using AR modelling option, they are able to see the 3D object Demonstrations with a single Tap on the desired plane/surface. This is implemented using AR Core Flutter Plugin. Where Local assets as well as online assets can be used for the 3D Modelling. Due to this customer can get a good understanding of the product. After this the buyer get option to buy a product with different methods. Once returns 3D hand key points with high reliability.

METHODOLOGY

- Flutter Framework is used to Make Different UI and the Business Logic
- Blender is used to obtain well Designed 3D objects.
- AR Core Plugin is used For AR Demonstrations.
- Unity is used to start the AR implementation.

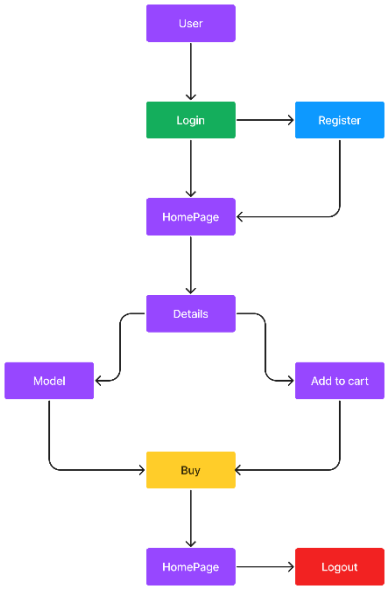

Fig. 2: UML Diagram

This model explain the Internal Working of the whole System in Different Levels The Base Level 0 is The main Database use to store Local Assets And the Level 1 Contains the manipulation of GUI and AR core plugin. The final Level 2 contains the main Android Software which runs the AR.

FUTURE SCOPE

With the use of AR/VR imaging, a detailed mapping can be done for pre-operative mark-up of tumor boundaries. This will help to understand the structure of a complex tumor. It will also help during lumpectomies for tumor resection and surgeons can make sure that no residual tumor is left [2]. The combination of AR technology with the educational content creates new type of automated applications and acts to enhance the effectiveness and attractiveness of teaching and learning for students in real life scenarios. [13] AR makes that cockpit or cabin feel real to the gamer and helps improve their real-life abilities in a safe environment. Similarly, it can help soldiers, drivers, and students to enhance their skills. [14]

All the more significantly, AR especially, can provide clients to in-keep purchasing revel in, paying little heed to their region provider can superimpose 3-D objects in numerous spaces, allowing clients to interfacing with advanced delivery to their own vicinity with comfort.

RESULT

Featured item / Product with unpopular taxpayer information we see in e-commerce allows the client to update objects or knowledge to manage the rational appearance of an object in their daily life before to buy. The implementation of this paper may include a new incentive to catch up client consideration and impact, attitude and behavior. This could include paying attention to credit marks and give clients the opportunity to experience the benefits of those features themselves. Clients can not only buy an item / product online using real visual connectors but also try something. Vendors can overcome visible restrictions and grant access to each item including, ultimately bringing in more clients to the sales force for maximum flexibility.

CONCLUSION

We developed a system, that uses AR technology to improve learning and understandingof a product for electronic products consumers [4]. With the most E-commerce market in India set to grow at a fast pace, the adoption of an AR-enabled feature to serve customers better can be a game- changing and differentiating factor. 2019 was the start of AR in retail. In the coming years, we can expect to see a great deal more enterprise activity takes advantage of this technology [12]. We have yet to see the full potential of augmented reality, but one thing we can all agree on is that it has already changed the way that people shop on the web. The coming years are going to be very important, as they will show us other layers of immersion in the world of AR. All that matters at this point is that everyone is aware of the importance of adapting to this technology and we as a group with the help of this project can also contribute towards this technology.

REFERENCES

[1] Augmented reality in mobile Devices, Sneha Kasetty Sudarshan, May 2018.

[2] Application of Augmented reality for Survey and Patience Care, Sailee Bhambere, summit Hirve, B. Abhishek, May 2021

[3] Augmented Reality Based Platform To share Virtual Worlds, Prof. Dhanjay Gaikawal, Akash Chikane, Jan 2018.

[4] 3D object Tracking and Manipulation in Augmented Reality, Shaunak Shirish Deshmukh, Jan 2018.

[5] Situated Game Level Editing in Augmented Reality, Gary Ng, Joon Gi shin, Alexende plupsk christan sandor, Daniet Saaks, March 2018.

[6] Flutter Official Site from https://flutter.dev/

[7] ARCore Plugin by https://developers.google.com/ar

[8] Borge, Ariel (11 July 2016)."The story behind 'Pokémon Go's' impressive mapping". Mashable. Retrieved 13 July 2016

[9] Marín, V. The augmented reality in the educational sphere of student of degree in childhood education. Case study. Pixel Bit Rev. Medios Educ. 2017, 51, 9–24

[10] Barroso, J.; Gallego, O. Production de recursos de aprendizaje apoyados en Realidad Aumentada por parte de los estudiantes de magisterio. Edmetic. Rev. Educ. Mediát TIC 2017, 6, 23–38.

[11] Gallego, O.; Barroso, J.; Marín, V. Análisis de la motivación de los estudiantes universitarios como productoresde recursos educativos utilizando la Realidad Aumentada. Espacios 2018, 39, 8.

[12] Impact of augmented and virtual reality on retail and eCommerce industry by Samta Arora from www.globallogic.com

[13] Augmented reality in education: current technologies and the potential for education Mehmet Kesima, Yasin Ozarslanb* aAnadolu University, Yunusemre Kampusü, Eskisehir, 26470 Turkey bOsmangazi University, Meselik Kampüsü, Eskisehir, 26480 Turkey

[14] Augmented Reality (AR) in Gaming by lampix from https://medium.com/@lampix.

[15] X.Liu, Y.-H. Sohn, and D.-W. Park, “Application development with vuforia and unity 3D,” Int. J. Appl. Eng. Res., vol. 13, no. 21, p. 43, 2018.

[16] S. S. Deshmukh, C. M. Joshi, R. S. Patel, and Y. B. Gurav, “3D Object Tracking And Manipulation In Augmented Reality

.," Int. Res. J. Eng. Technol., vol. 5, no. 1, pp. 287–289, 2018.

[17] D. R. Anamisa, M. Yusuf, F. A. Mufarroha, and N. Rohmah, "Design of Virtual Reality Application for Taharah Using 3D Blender," J. Phys. Conf. Ser., vol. 1569, no. 2, 2020, doi: 10.1088/1742-6596/1569/2/022071.

[18] J. N. Marcinčin, J. Barna, M. Janák, L. N. Marcinčinová, and V. Fečová, "Utilization of Open Source tools in assembling process with application of elements of augmented reality," Proc. VRCAI 2011 ACM SIGGRAPH Conf. Virtual-Reality Contin. its Appl. to Ind., pp. 427–430, 2011, doi: 10.1145/2087756.2087836

[19] Augumented Reality in E-commerce: https://www.reydar.com/augmented-reality-ecommerce, https://www.shopify.in/enterprise/augmented-reality-ecommerce-shopping

[20] S. Chandra and K. N. Kumar, "Exploring factors Influencing organizational adoption of augmented reality in e Commerce: Empirical analysis using technology Organizationenvironment model," J. Electron. Commer. Res., Vol. 19, no. 3, pp. 237–265, 2018.

[21] M. Y. C. Yim, S. C. Chu, and P. L. Sauer, "Is Augmented Reality Technology an Effective Tool for E-commerce? An Interactivity and Vividness Perspective," J. Interact. Mark., vol. 39, pp. 89–103, 2017, doi: 10.1016/j.intmar.2017.04.001.

[22]https://iopscience.iop.org/article/10.1088/1757899X/1012/1/012041/pdf/