



# INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

## VIRTUAL TOUR FOR COLLEGE VISITORS

<sup>1</sup>Dr.Senthil Kumar.M, <sup>2</sup>Vigneshwaran K, <sup>3</sup>Veeraragavan S, <sup>4</sup>Vasanth T

<sup>1</sup>Associate professor, <sup>2,3,4</sup>UG Student,

<sup>1</sup>Department of Computer Science and Engineering

<sup>1</sup>SRM Valliammai Engineering College, Kattankulathur, Chengalpattu district, Tamil Nadu, India

**Abstract** - We all know that Virtual reality is an emerging technology in today's world. Virtual reality has a huge potential in every industry such as Military, Gaming, Education, Automotive, Tourism, etc. We used Virtual Reality Technology to develop an Android Application. This proposed system consists of a virtual tour of the college Environment. It provides the visitors such as Staff, Students, and Parents a virtual tour of the college. Many people wish to discover the college environments and facilities, Due to their busy schedules and work they may not be able to visit the college campus. Our system provides a solution to overcome this issue by giving visitors a VR headset or they can use the Android app in their home if they are having a VR headset. This provides the guests with a virtual environment of a particular department, the whole college, or the specific sections desired by the visitor. The proposed system requires a VR headset and works in Virtual reality.

**Index Terms** – Virtual Tour, Virtual Reality, Android app, VR headset, College Tour, 360-degree images.

### I. INTRODUCTION

Nowadays The Virtual Reality is suitable and more effective In the Touring department. This Android Application is based on the Virtual Tour which provides the user to experience the environment of the college from remote location. It will provide a different experience to the user, rather than Travelling to different places and exploring things, converting everything into Virtual helps in developing new technologies like user interface and Virtual reality. The simulation technique is used in the virtual tour. The virtual tour are introduced very long time ago in the field of Virtual Reality and Computer Vision. Even so, the virtual tour is still developing and many researchers are working to resolve existing problems and for the development of the field. The virtual tour is becoming popular because it is easy to use and allow integration with other fields. So we propose a system that develops an android -based application to view a virtual tour of our college (SRM Valliammai Engineering, CSE Department) using unity 3D. Also provide a facility for searching a location of the lab, student, staff room, etc. The main aim of this project:-By using this project Many people wish to discover the college environments and facilities, Due to their busy schedules and work they may not be able to visit the college campus. This Project requires a VR Headset for a better virtual environment The Project brings an essential way to experience our college virtually.

### II. RELATED WORKS

Trivanna Widiyaningtyas, @ all has discussed about the virtual tour of the college campus in which they gave us a idea of how to develop a virtual tour with the adaptive campus [1] Li Wang, Lizhen Wang have discussed about the design and Implementation of three dimensional Virtual Tour developed by Unity 3D 2019, this shows us how to design and implement [3]. Ali, N., Ullah S., Alam A & Rafique J discussed about the Interactive virtual laboratory of the college. This system represents the laboratory facilities which are available in the college and user can able to interact with the equipment in the laboratory [9]. Antonieta A. discussed about the Virtual Simulation of Architecture spatial Experiences. This simulation allows the user to experience the Architectural Marvels [11]. Basu A, & Johnsen K discussed the go-to Virtual Reality concept which allows the user to use the navigational function in the Virtual Environment [12]. Kleven N.F discussed the system which he introduced about the hospital tour as a arena for medical training for the students to feel the environment [13].

### III. MATERIALS AND METHODS

We have come up with advanced work for the enrichment of the students and the visitors. There are many ways to provide a virtual tour for those people, But UNITY 3D provides a high-level environment. We mainly developed this method for the college visitors, who cannot able to come and visit the college in person. We include many modules and images which are not allowed even in in-person campus tours like laboratories, classes, etc.

### 3.1 System Architecture

The proposed system's architecture is developed with three modules. The architecture for the system is shown. Figure 1 represents the Architecture of the system.

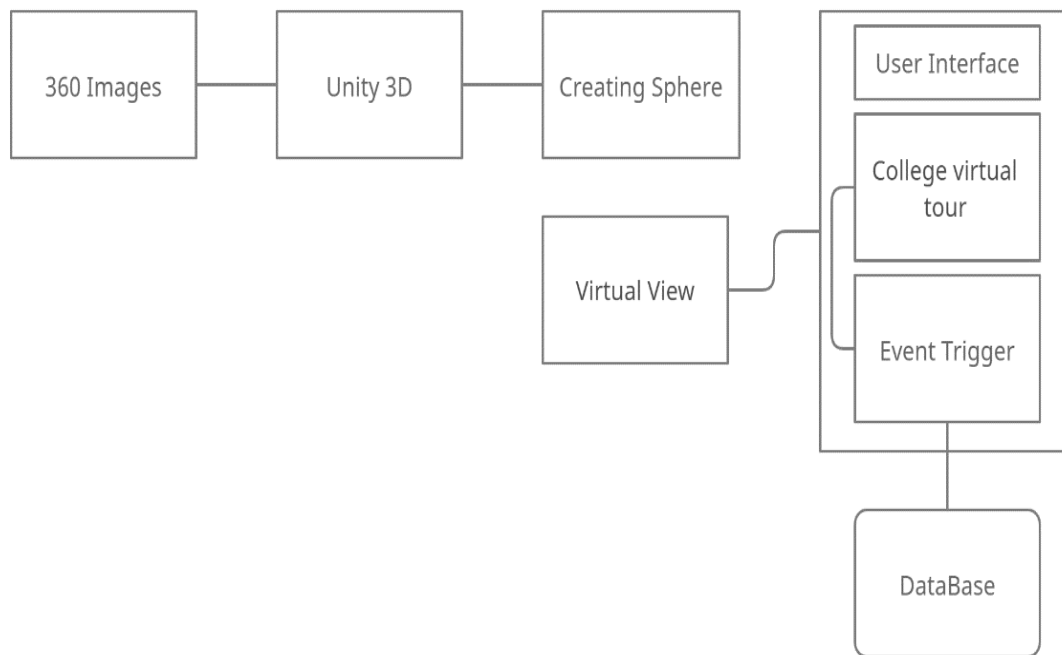


Figure 1 Architecture of the System

As per said, our work contains three modules for obtaining the outcome.

- 360 degree images
- Unity 3D
- Creating Scenes

### 3.2 360 Degree Images

360-degree images are the most important requirement in the virtual tour because the only with help of the 360 images we can be able to create the required environment in a 360 view using Virtual reality. There are many 360-degree cameras that are available on the market. We can use 360-degree cameras to capture the 360-degree camera. The capacity to turn around and see the view at 360 degrees can be obtained by the software and the number of images. The images are arranged in an order to deliver a continuous circle around the pointer. The camera has inbuilt software that helps to align the shots in order. After enough shots are captured and taken to compass the shooter, the video is also uploaded to a process to turn it into a 360-degree image. 360-degree images are effective for presenting the view, internal structure, and more in a manner that gives the experience of being there. These 360 images can also be taken with the help of smartphones. The given figure. 2 represents the 360 image of our computer science laboratory.



Figure 2. 360 Degree Image

### 3.3 Unity 3D

Unity 3D is the most popular virtual reality development software that's widely used all around the world. Unity 3d is a Multipurpose platform machine for the development of 3D content. It provides an interface at the same time it also allows low-position access for the creators. Thousands of means handed by other content generators can be reused to snappily develop immersive gests. Because of its intuitive interface, well-designed armature, and capability to fluently exercise means, 3D software can be developed in a bit of the time compared to traditional development. Consumer-position virtual- reality tackle combined with Unity has lately empowered potterers, professionals, and academics to snappily produce virtual reality operations. Because of Unity's wide use and ease of use, several virtual reality companies now completely support Unity.

### 3.4 Creating Scenes

Creating scenes is the most important process in this virtual tour development. Every scene contains different information. The scene has been at a particular angle and navigation through the scenes is the complexity of this project. The 360-degree images are inserted into the 3D sphere using the inside-out fader. This fader is used to render and implement the 360-degree image into to sphere in a perfect manner. The arrow mark is used as a navigator which will help the user to move around the place. That navigation is known as an Event trigger. Figure 3 represents the spheres that contains the 360 degree images.

## IV. IMPLEMENTATION

After Capturing the 360 degree images, the captured images has to be processed before using it. The processed the 360 images are now ready to implement into the spheres, look through the 360° panoramas to identify points of interest in each scene Hotspots can point out things such as: Rooms and infrastructure - study rooms, office space, studio space, workout room. Once the photograph is processed and implemented into the spheres the hotspot has to be inserted One important thing to consider is the scenes with a higher number of hotspots lead to higher exit rates. This shows us the higher amount of users exiting our tour. A minimum of one or two hotspots will do the trick. This gives the user time to explore the 360 environments and search the available hotspots. Once you completed the hotspot implementation create your virtual tour and add your hotspot to the development process. You need to develop a program to make your hotspots to work as we wanted it to work. Use the C# language to develop a program and make sure to test and find errors in the program and correct it. And build the Android application. To collect the feedback from the users, place the questions inside the virtual environment at the end of the tour so that you can improve the quality of the tour.

## V DISCUSSION

In this paper, we discussed how the Virtual Tour plays an important role in today's world. With the help of the project, the college can provide a virtual tour to our visitors and show the infrastructure, facilities, etc. This paper provides complete information about how the Virtual Tour works and has been developed. Our topic explored in this paper is useful for virtual tours around the college environment and provides high-quality features. This proposed system will provide the virtual environment of the college from any location. This system also provides a path searching feature. This system provides a particular path to reach the desired class or laboratory. The path searching feature is predefined and does not use any location-based services.

## VI CONCLUSION

In this research paper, we have comprehensively summarized the methods of how the Virtual reality technology helps in every industry and how the Virtual Tours play their role in college promotions and provide the user with an easy way to access the college infrastructure and facilities. The proposed system provides a virtual tour of the college specifically the computer department is grounded on Unity3D which provides a virtual view of the college structure. It helps the visitors to visit particular departments and labs from a remote position and shows the virtual view of the path to reach the destination by using the effective path showing implementation.

## REFERENCES

- [1] Triyanna Widiyaningtyas, Aji P Wibawa, Didik Dwi Prasetya 2018. Adaptive Campus Virtual Tour Using Location Based Services on Electrical Power, Electronics, Communications, Controls and Informatics Seminar (EECCIS), 15(3) :654-695.
- [2] Namrata Bakre, Aditi Deshmukh, Pavitra Sapaliga, 2017. Campus Virtual Tour on International Journal of Advanced Research in Computer Engineering & Technology (IJARCET),10(2) :23-43
- [3] Li Wang, Lizhen Wang, 2019. Design and Implementation of Three dimensional Virtual Tour Guide Training System Based on Unity 3D on International Conference on Communications, Information System and Computer Engineering (CISCE), 9(5):162-179.
- [4] Triyanna Widiyaningtyas, Didik Dwi Prasetya, Aji P. Wibawa 2018. Webbased Campus Virtual Tour Application using ORB Image Stitching on 5th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI), 15(3):256-287.
- [5] Robertson, G. G., Card, S. K., & Mackinlay, J 1993 "Three views of virtual reality: nonimmersive virtual reality". Computer, 26(2) :320-341.
- [6] Basu, A., & Johnsen, K 2014. Ubiquitous virtual reality 'To-Go' .In Virtual Reality (VR), 10(4) :997-998.
- [7] Huang, Y. C., & Han, S. R, 2017 An Immersive Virtual Reality Museum via Second Life In HCI International Posters' Extended Abstracts Springer International Publishing.15(9):579-584.
- [8] Bastiaens, T., Wood, L. C., & Reiners, T 2014 New landscapes and new eyes: The role of virtual world design for supply chain education on Ubiquitous Learning: An International Journal 30(5) :220-241
- [9] Ali, N., Ullah, S., Alam, A., & Rafique, J 2014. 3D Interactive Virtual Chemistry Laboratory for Simulation of High School Experiments. International Conference on Computer Graphics, Animation and Gaming Technologies (EURASIA Turkey),32(5) :456-467.
- [10] Antonieta, Â. 2014 Immersive Simulation of Architectural Spatial Experiences. Blucher Design Proceedings on XVII Conference of the Iberoamerican Society of Digital Graphics - SIGraDi: Knowledge-based Design, 14(7):495-499.
- [11] Izatt, E., Scholberg, K., & Kopper, R. 2014, M. "Neutrino-KAVE: An immersive visualization and fitting tool for neutrino physics education. In Virtual Reality (VR), 13(2) . 83-89.
- [12] Pensieri, C., & Pennacchini, M., 2014 Virtual Reality in Medicine on Journal For Virtual Worlds Research, 3(5):119-121.
- [13] Kleven, N. F. (2014). Virtual University hospital as an arena for medical training and health education. in Teknis-Naturvitenskapelige University, 17(9):190-192
- [14] Dr. Senthil Kumar M. 2020. Virtual Reality and its Application in Education, Healthcare and Agriculture on CSI communication (Virtual Reality) 13(6) :390-397.