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AIRPORT CENTRIC APPLICATION

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ABSTRACT

During Covid-19 pandemic lockdown, AAI (Airport Authority of India) changed the guidelines for boarding procedures often, in order to ensure the safety and health of the passengers. But this changes which are made often, had put the passengers in trouble as they were unaware of the new guidelines issued by the Airport Authority at that time. The most affected in this case, were the first-time travellers, who faced a lot of troubles in finding a specific location inside the airport. Though the help desks were made available and direction boards were created where ever possible, another constraint which had troubled the passengers was language and communication. This project, "Airport centric application", which we have proposed helps the passenger to overcome all the troubles which we have mentioned previously. This application, not only helps the passenger to overcome the trouble, but also encourages more people to use the airport services effectively. The "Airport centric application" uses the virtual structures of the Indian airports to guide the passengers and it also gives a real time touring experience inside the airport which can be viewed from anywhere and at any time. The creation of virtual structures of the airport and virtual touring is made possible using the Blender tool and the touring experience of our application is powered by the FPS which is available in Unity3D. The application which we have created, is very light weight app and platform independent. As the application is not dependent on the latest Hardware, it can be run on any low-end mobile device. It is also highly reliable and privacy concerned, as it requests only location access permission from the user's device in order to provide location-based search results. The airport authority can push important and updated guidelines for the passengers as a notification through this application's dedicated information page instantly.

I. INTRODUCTION

Many people have begun to use the air transport services as the ticket prices have become cheaper nowadays. Though many are eager to use the air transport, the people are facing trouble in using the airport services properly. Though the airport authority provides the services and rolls out them effectively, help desks could not be run successfully by the airport authority till now. The help desks and direction boards are used by the literates and the regional people. Whereas if the passenger is from different region in India, he/she may not find the current services useful as the communication and the language exists as a major barrier for providing a good airport service by the airport authority. This project "Airport centric application" provides a good solution for all these problems and helps the Airport Authority of India (AAI) a lot.

II. LITERARTURE REVIEW

Tengku Siti Meriam Tengku Wook et al, [1] demonstrated that the virtual tour greatly enhances the interaction experience when compared to the other methods of information delivery like display and delivery of static text. The virtual tours will make the users to feel that they are immersed in the environment they are viewing while navigating through it.

Namrata Bakre et al, [2] experimented the virtual touring technique by developing a virtual tour site for their college campus using photo-stitching technique. The benefit of using this technique is to get the panoramic view of the campus area which will enhance the journey of the user on the internet. The virtual tour helped to engage all the senses of the people and also helped to familiarize the campus infrastructure.

Ravikumar. J.S, Syed Mohammad Ghouse, T Narayana Reddy: [3] This paper on the study of using Google virtual tour for business promotions further gives an idea on how the virtual tour helps an organization to achieve its goal by reaching the targeted audience and to deliver the proper data to the users.

Erik Kučera et al, [4] describes the method to create the virtual structures using the Unity 3D game engine. The structures created using the Unity3D game engine mimics the real-world structures which helps in the simulation of the real-world objects.

Pa. Megha, L. Nachammai, T.M. Senthil Ganesan [5] developed a First-Person Shooter (FPS) game using Unity 3D game engine. By implementing the FPS feature in a game, the player can feel the movement and gets the

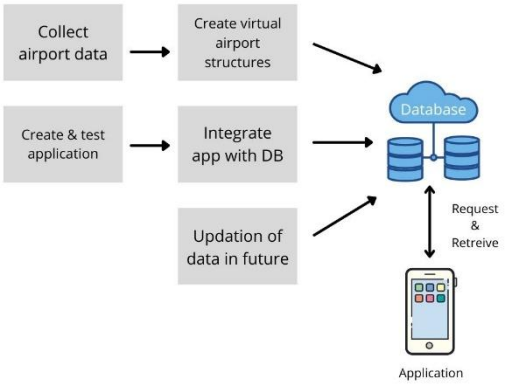
dedicated view of what the character does. Adding the first-person perspective feature would definitely improve the virtual touring experience.

Shroneet Dhuri et al, [6] proposed and developed a single and multiplayer game using Unity 3D game engine and made it responsive, in order to adapt it to the Android environment. The method that they have implemented for the android adaption, can also be used for providing the virtual touring experience in android devices.

The virtual tours are more dependent on the 3D structures. Without the virtual structures that simulates the real-world objects, virtual touring could not be made effective. Dahlan Abdul Ghani et al, [7] provides a detailed view on how the 3D structures and characters should be created that mimics the real objects. Kremena Cankova et al, [8] describes in detail the process of fine-designing 3D models and structures using specific exemplary primitive, text, and with relatively complex form that are created using modern technological tools such as Blender.

III. PROPOSED METHODOLOGY

Direction signs can be misleading at huge airports. Virtual touring and exploration of the airports can be an effective solution for this problem. To create 3D infrastructures, we have chosen Blender 2.8. In order to achieve the first-person perspective (FPP) movement, Unity3D game engine has been used. Airport infrastructure details and layout plan are gathered from Airport Authority of India (AAI). The collected data are further processed to create the virtual structure using Blender. Created 3D model is being imported to Unity3D for further proceeding with the First-Person perspective (FPP) movement. In order to import the model, the blender file is being converted into FBX file which is a 3D Object file and accepted by Unity3D. The processed data is being stored in database. The mobile application is being built to function in Android and iOS platforms. Nowadays, the flutter framework is an emerging and trending framework among the developers. To make it adaptive and sustainable application with future perspective, the flutter framework has been chosen. The firebase is used since it provides both database and server services. Also, it's cost effective and can retrieve dynamic data rapidly. Finally, the application is integrated with the firebase and the user version of the application is made available at respective app stores.



IV. CONCLUSION

The abrupt development of internet facilities and the sudden improvement of the smart devices, have made the common man to access those facilities easily. Air services market in India is still in its growth phase. In a press interview, Salil Gupte, president of Boeing India, said," From the market point of view, India is going to be a world leader in the civil aviation with over 2000 aircrafts coming into India over next 10 - 20 years". Though the Indian airport authority is constantly working hard to provide high-tech services for air travellers and builds amazing infrastructures in order to attract the new passengers, the services are either not used by (or) have not reached the people completely. There are some barriers which disturbs this smooth growth. Our intention of developing this project is to break the barriers in the growth of civil aviation and to make the airport services used by all the people easily. Visual guidance can be more effective when compared to the voice guidance and

written instructions. So, we tried to provide the virtual tours for Indian airports and use it as a tool for airport guidance. Any service which are made available in the market, must be given more importance for the designing, as it interacts with the users directly. So, we made the interface very simple and presented in a way that can be understood by the people of any age. We hope, this Airport centric application will help the AAI to achieve their future growth plans and make the air services to be used by all the people.

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