

Augmented Reality Navigation System To Provide Information About An Infrastructure

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Abstract- There are so many different types of applications that deal with various types of augmented reality, that provide augmented facility mapping. But There is no particular augmented reality software that is designed to detail out information of a building from the inside constructions and inside views, from the point of a man visiting the building for the first time. Thus we have initiated and designed an augmented reality application that shows all the sight information about the location we need to know about. This information displayed visually is dynamically maintained and also provides the users with a 3D mapping service. This could greatly help the users to navigate themselves to the place of their desire, especially inside a complex building or a construction.

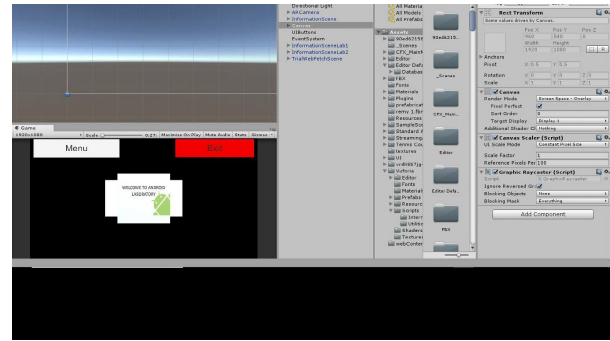
Keywords- augmented reality, marker based, virtual map, campus information

I. INTRODUCTION

Augmented Reality is one of the trends of the computer science industry, A lot of new methods have been implemented using augmentation, apart from games, interaction with the virtual world has become a possibility and with this technology.

Industry experts are looking after major part of their work, they haven't given much importance to new project ideas, even their own office wouldn't have a virtual tour system or an info-graphic about their workspace.

Applications that use GPS to show a path in an augmented way has had a great impact among developers. A GPS component plays an important role in detection and identification of locations. We came up with a solution to use a more effective method without using GPS instead using pre-defined markers to help anyone reaching out to a completely strange or new environment with the help of Unity3D, a creation engine.



II. EXPLANATION

Unity3D is a creation engine that helps in creating 3D environments and interactive games, we combine it with Vuforia a SDK for Unity which helps in creating augmented reality experiences with a lot of features provided by Unity for the developers.

There are several flaws in the existing work flow, that is there was a need for GPS to function properly and it is already with a disadvantage of only being accurate to 10 meters, and does not work very well when used inside a closed complex and the information provided by these applications are not enough most of the time.

The goal is to create an application that can provide all the information and also a navigation system.

Many Developers are looking for a solution to implement a more accurate way to help their users navigate, this is implemented by allowing developers create a 3-Dimensional Model and also an animation so that a navigation can be shown as a part of the visualization.

The 3D model could be anything that can be designed using other software such as Maya, Blender etc. Once 3D models are imported they can be added to the scene and an animator controller is introduced to navigate the model in a 3D environment.

III. IMPLEMENTATION

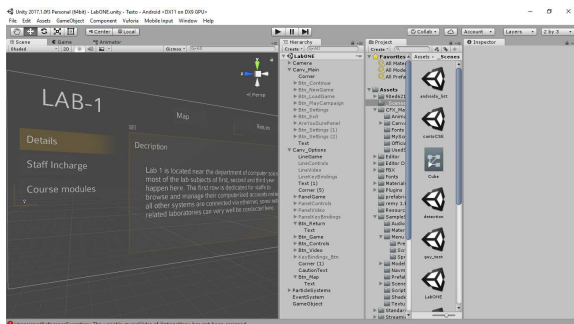
There is a tracking module, which tracks an image, which should be of a much higher quality with a higher resolution.

Vuforia helps developers create these trackers, it uses a greyscale check and provides a rating for the provided image, with a maximum of 5 stars, which denotes the quality .

We can also upload multiple targets to help with our tracking system to track more than one image and deliver content based on the tracker.

Unity3D editor has a 3D environment in which we place 3D models which can be the entire building model of the private local complex.

Multiple 3D models can be used to design and provide an animation for lifelike buildings and structures.



IV. ADDITIONAL FEATURES

We have introduced a dynamic system, through a server, where the text we upload will then be fetched by our application. .

This is entirely managed by creating a PHP file on the server which is then fetched through a text component inside the Unity editor.

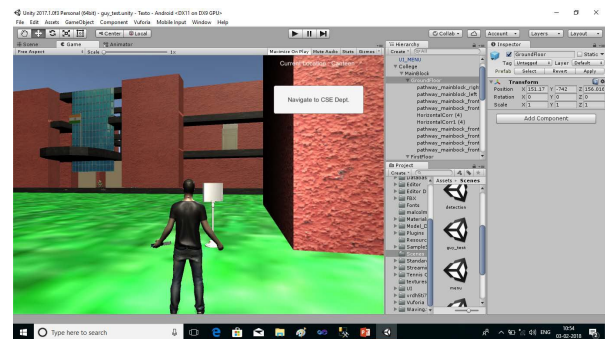
For instructing the users with their current location inside the campus and also all the locations can be selected using buttons which are inside a Canvas component, all the UI elements are customized and are used to show out information and change scenes or change animations based on button click.

Vuforia and Unity can be combined to help developers create such immersive augmented and virtual environments.

V. COMPOSITION

C# is the scripting language used to achieve this entire application's completion, from 'detect and change scene' to 'click and change scene' everything is controlled using these scripts.

A 3D model of our institution is provided with a 3D model of a person and an animator controller to move him based on selected locations are present.



VII. CONCLUSION

This Project would help a large number of institutions and private infrastructures and their users with an advantage over others as it provides information and a virtual map in their own personal devices.

VIII. ACKNOWLEDGEMENT

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