# Implementation of Traditional 2D Website into 3D by Using Augmented Reality

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*Abstract -* **The Web, as we know it has long history for design and creativity, and new level aim to wide range of emerging technologies to web AR, VR, IOT etc. We adding AR and Unity 3D capabilities to the web and using it try to level up standard of existing web sites. 3D modeling of Web in Augmented Reality the name itself is self-explanatory, It is a branch of augmented reality which makes us feel and experience the enhanced reality with the help of daily use devices like mobiles, tablets, etc. What we feel if we experience 3D Web in augmented reality by just surfing on device? Well, this is possible with the help of this technology. After Wearing Holo-lens web content viewable to user in real life.**

*Index Terms -* **Augmented reality, 3D modeling of web, Web AR, Holo-lens, world wide web, Unity 3D, Vuforia.**

## INTRODUCTION

3D Modeling of websites using the concept of Augmented Reality is the use of the mobile camera to see the object in the real world. In this era, the technologies are rapidly developed, and it may give our lives a new interface and thus make it more accurate and snug, and precise. The technologies that capable to make this successful is Augmented Reality (AR) Technology. Currently, we are using 2D websites like e-commerce, Educational sites.

In this rapidly changing world, we need to upgrade web technology too. As we see user and website visitors want to know something new and interesting, as per user need we have to add new and emerging technology to the web. As a result of newly emerging demands, 3D modeling of Web in Augmented reality using unity 3D, Vuforia, Blender can satisfy all dynamic demands of the user. The use of augmented reality and Holo-lens shows us web content in real life. As we propose this paper is nothing but just a further

advancement in marketing and it changes the whole era of using websites.

"Augmented reality" term started in the 90s, at that; it is used for navigation purposes. But nowadays it's used from the gaming industry to diff types of gadgets; it is gaining fame/eminence with changing times. Now we can use augmented reality in Web Development too. The use of augmented reality and Holo-lens shows web content in real life. As we propose this paper is nothing but just a further advancement in marketing and it changes the whole era of using the website.

## FEATURES OFSYSTEM

To change the edge of websites by converting them into 3D using unity 3D, Augmented reality, Blender. It gives real time experience to user.
You have to wear Holo-lens and web content appear in real life or we can say in front of your eyes.

## OBJECTIVES

1. To design assets in 3d for website content with the help of blender software.
2. To apply that assets and markers in website with help of vuforia. (This could add a new interactive dimension to this conventional.)
3. To develop such website in unity 3D which gives immersive personalized and interactive experiences to real world.

## LITERATUREREVIEW

Ramanujam R Srinivasa, Uthra P Veluchamy, Joy Bose Proposed "Augmented Reality Adaptive Web Content" (Feb 2016). In this paper they present the design of an Augmented Reality (AR) browser which

renders web pages without clog the view of the world, We can see things using an AF headset, for example, Oculus Rift, Gear VR, or Google Cardboard. The browser seamlessly overlays the contents of the web page on the user's view and is capable of adjusting the font size, colors, and layout of the web page in this way it render the user view of page. This technique differs from other AR apps such as Amazon Flow in that it is more customizable and functions as a true browser.[1]

Blair Mac Intyre and Trevor F. Smith proposed "Thoughts on the Future of Web XR and the Immersive Web" 2018. In this paper, they discovered the WebXR device API which brings the AR and VR technologies capability to the web

and allows that technology to be added to traditional websites. In the enhancement of the initial WebXr Device API to support a more extensive set of capabilities, additional web API and frameworks will be needed to create or expand to satisfy the theory of web-based AR and VR. So as part of this project they need to know and decide that what will not possible with web technology and In what fields web-based AR and VR will grow. [2]

## METHODOLOGY

We propose this paper with the objective of, to give a new view to the traditional websites by converting the web into a 3D Web in Augmented Reality. By creating 3D assets and markers for the website. To change the edge of websites by converting them into 3D we are using unity 3D, Augmented reality, Blender Vuforia. It gives a real-time experience to the user. You have to wear Holo-lens and web content appear in real life or we can say in front of your eyes. Instead of Holo-lence we use AR camera for the same.

We had been using websites for a long time. Traditional websites have two Dimensional views. But traditional websites have limitations and it's high time to start a new era of websites. On traditional sites we have limitations, For example on shopping sites we buy any furniture for our home but after delivering we found that the purchased item is not suited for our house interior. But what if we can try the things without buying, well this is possible with Augmented Reality.

For 3D Modeling of websites, we have to use the blender for creating assets and markers for the web

objects. Using blender we create 3D objects for our websites. General Flowchart/Architecture of proposed system for 3D modeling of Website is shown in Figure1.



Fig. 1:- Work Flow of Proposed System

## PROPOSED WORKFLOW

In this system, the content of websites appears in front of your eyes and you experience it in the real world. It is possible due to Augmented Reality, Unity, and Vuforia Engine.

At the core, AR is basically image tracking technology, therefore we added images to track 3d model.

Now Vuforia engine will actually convert image into The grayscale image inside their target image database.

In other words, the AR engine is actually color blind.

So don't create an image that may look contrast in color but looks low contrast when converted to grayscale.

After that go to the Vuforia website which is Vuforia.com. We have to download three things from the Vuforia website i.e Vuforia plug-in for unity, the license key for the application, download database which contains the image targets.
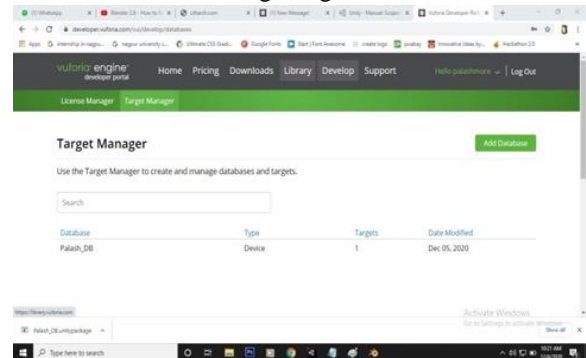


Fig. 2: Image Target Database in Vuforia Engine

As our project contains multiple image targets we can have a single database for all image targets. Now in unity, we have to open the unity plug-in. Then import the Vuforia plug-in. To do this simply go to assets menu > import package > custom package. Choose the file of the Vuforia plug-in and hit open and Press import.[*]
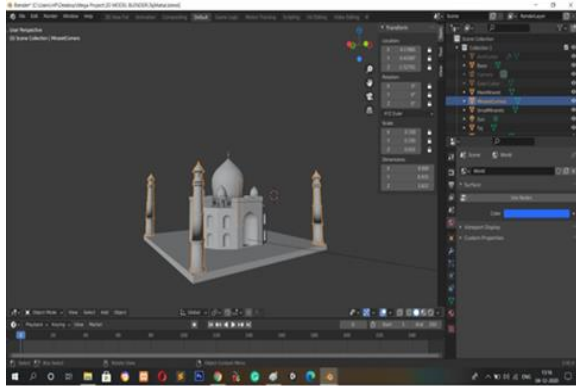


Fig. 3: 3D model of Taj Mahal in Blender

Now the Vuforia library is alive inside our project. Vuforia has their own dynamic camera which tracks and move dynamically in 3D space according to the movement of user's device when tracking the image target. There no need for the default unity camera, so delete it. Add Vuforia camera prefab into the scene. Browse to Vuforia > prefabs and choose "AR Camera", click and drag this to the hierarchy panel to the scene.

Next, we need to import the database into our project. Just do the same method as before. [*] After the database goes into the project. Go back to the camera and turn on "databasename_DB data" and then check on activate button. Now add the image target into the scene place in its proper position.
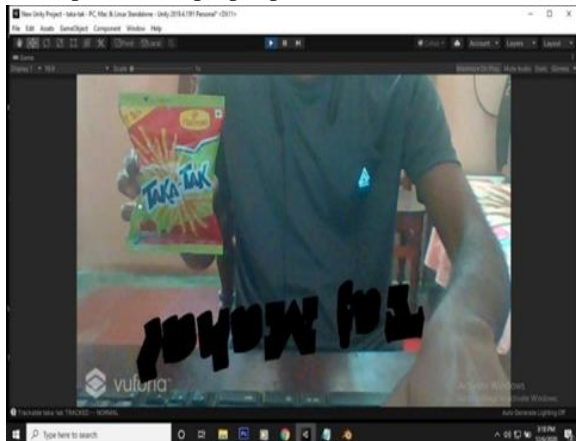


Fig.4 : Tracking of 3D model with image target in Unity Software

Importing 3D content from Blender to unity. For importing you have copied the ".blend" file and the texture file which is a ".png" image format. There are two things you usually need to do after importing 3d models to unity is, set up the material and texture and set up the animation.

First, we need to set up the material, by default, Unity will convert material from Blender to standard material.
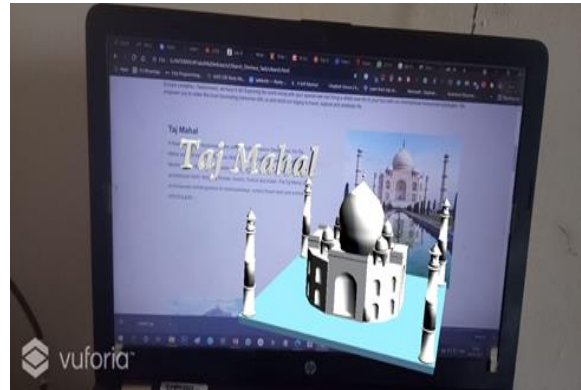


Fig-5: 3D View of Taj-Mahal in Real World.

Now as per website requirement we do the same procedure for multiple image targets on the website by arranging all 3D models in our application, our website is ready to view in AR with help of Holo-lens.

### SYSTEM REQUIREMENTS

Hardware & software is the most essential part of any technology system. 3D Modeling of Website In Augmented Reality used following hardware & software system.

A) Hardware Requirements:

Holo-lens: It is based on augmented reality, which they call "mixed reality". Holo-lens use multiple sensors, advanced optics, and holographic processing which combine with the environment. These holograms are used to display information, blend with the real world, or simulate to the virtual world.

B) Software Requirements:

1. Blender: It is available for download on Windows Vista, 7, 8, 10 32-bit/64-bit; Mac OS X 10.6+ 64-bit, GNU Linux 32-bit/64-bit FreeBSD 64-bit. Graphics drivers must be up to date and OpenGL is should support them. Blender needs minimum requirements; so check requirements before installing Blender.

2. Unity: Unity is a cross-platform game engine for creating games in both 2D and 3D. Unity supports building games for many platforms such as Windows 7 SP1+, 8, 10, 64-bit versions only; Mac OS X 10.12+; Ubuntu 16.04, 18.04, and CentOS 7, Oculus Rift, and many more.

3. Vuforia Engine: It is a software development kit (SDK) for creating Augmented Reality apps. Developers can easily add advanced computer vision functionality to any application, it recognizes images and objects.

## APPLICATIONS

1. With less potential for error than with wearable technology, AR is already starting to improve user experience on desktop and mobile.

2. E-commerce web designers can use this technology, making use of webcams or Smartphone cameras to help consumers choose their products.

3. In fashion retail, for example, AR is used as a "virtual dressing room" experience.

4. Users can point their desktop or Smartphone camera towards themselves and scroll through outfit choices that are displayed on the screen.

5. AR is not just improving the user experience in the retail – besides webcams or smartphones; it is also being used with headsets in the engineering, education, and aviation industries.

6. Visual representation is just one facet of AR – users can also interact with sound, touch.

## RESULT

1. As a result of technology, It boosts the user experience of websites and more convenient to use. It can change the definition of surfing on a website.

2. Visitors get more details about the product and increase chances to buy a product or use the service given by the Website.

3. Due to the 3D modeling of websites there is a drastic change in digital marketing trends.

4. It also improves the online educational facilities and makes more efficient to the learner.

## CONCLUSION

1. Augmented reality combining with web development will be an excellent way of providing an amazing user experience.

2. Using these techniques one can make his/her website more interactive.

3. Tech giants like Amazon, Flipkart, and many other companies can use this approach to catch more users and increase their revenue.

4. Our approach of adding AR to a Website is simple yet effective so that anyone can work on it.

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