A
SEMINAR REPORT
ON

3D Future Internet : Towards A New Dimension

Third Year Computer Engineering
BY

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CERTIFICATE

This is to certify that the seminar report entitled "***3D Future Internet : Towards A New Dimension***" is being submitted herewith by "Aditi Dinesh Mulay, "T150694202 " has successfully completed his seminar work in partial fulfillment of requirements for the degree of Third Year Computer Engineering of Savitribai Phule Pune University.

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Seminar Approval Sheet

This Seminar entitled

"3D Future Internet : Towards A New Dimension"

prepared and submitted by "Aditi Dinesh Mulay" has been approved and accepted in partial fulfillment of the requirements for the degree Third Year Computer Engineering.

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Acknowledgement

I would like to express my sincere gratitude to everyone for providing their invaluable guidance, comments and suggestion throughout the course of seminar project. I would specially thank Dr. D.V. Patil sir for timely checking my progress constantly motivating me to work harder.

In this report, I hope to highlight the enormous opportunities presented by technology called 3D and its possible benefits. In my desire to work this report I have in no way any claim to come out with a perfect piece of work.

These few details lead me to realize that like all human endeavors this project is not perfect and may contain errors and shortcomings. Thus I remain open to all criticisms and suggestions which could present me with new sources of inspiration as I develop my ability to research and learn.

Abstract

Internet today has become an integral part of our lives. The World Wide Web which started as a small dull data repository has now become massive and irreplaceable. Present activities being partially or completely linked with the virtual world can be optimized to a higher level. Every activity associated with our daily life is mapped and related to some entity in the digital world. The world has seen vast advancements in Internet and in 3D stereoscopic displays. Time has come merge the two to deliver a new level of experience to the users. 3D Internet is an idea which is yet to be implemented and requires browsers having the property of depth perception and artificial intelligence. If this property is incorporated then the idea of Internet of things can become a reality which is also discussed in this report. In this report we have discussed the features, possible setup methods, applications, and advantages and obstacles faced in the implementation of 3D Internet.

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Chapter 1

INTRODUCTION

3D Internet, also known as virtual worlds, is a powerful new way for you to reach consumers, business customers, co-workers, partners, and students. It combines the immediacy of television, the versatile content of the Web, and the relationship-building strengths of social networking sites like Face book. Yet unlike the passive experience of television, the 3D Internet is inherently interactive and engaging. Virtual worlds provide immersive 3D experiences that replicate (and in some cases exceed) real life. People who take part in virtual worlds stay online longer with a heightened level of interest. To take advantage of that interest, diverse businesses and organizations have claimed an early stake in this fast-growing market. They include technology leaders such as IBM, Microsoft, and Cisco, companies such as BMW, Toyota, Circuit City, Coca Cola, and Calvin Klein, and scores of universities, including Harvard, Stanford and Penn State.

1.1 SEMINAR IDEA

Though the technology and components used for 3D internet are same as used in traditional internet also it interacts with the same servers and search engines. But being more social 3D internet is different from traditional 2D internet. The wonderful thing about 3D internet is that participants learn as much from each other as from talking to any official source of information. 3D internet search is also as advanced as it opens a vast array of possibilities when it comes to search and browse data. Through 3D internet multi users can read the same documents. You connect organically with other people that share your interests and access the same service as other use.

1.2 MOTIVATION

3D Internet, also known as virtual worlds, is a powerful new way for you to reach consumers, business customers, co-workers, partners, and students. It combines the immediacy of television, the versatile content of the Web, and the relationship-building strengths of social networking sites like Face book. Yet unlike the passive experience of television, the 3D Internet is inherently interactive and engaging. Virtual worlds provide immersive 3D experiences that replicate real life.

Chapter 2

LITRATURE REVIEW

2.1 PAPER SURVEYS

1. Towards 3D Internet: Why, What, and How? Tansu Alpcan, Christian Bauckhage, Evangelos Kotsovinos Deutsche Telekom Laboratories Ernst-Reuter-Platz 7, 10587 Berlin, Germany.

The Internet is evolving to become the de-facto cyberspace or virtual environment facilitating communication, business, and entertainment on a global scale. On the other hand, metaverses or virtual worlds such as Second Life (SL) or World of Warcraft (WoW) are much younger when compared to other Web technologies. Today, the success and momentum of virtual worlds are undeniable. The market for MMOGs is estimated to be worth more than one billion US dollars and such metaverses are fast becoming significant platforms" in the converged media world according to some analysts. Virtual worlds are increasingly seen as more than game and interpreted within a business context rather than entertainment. The view that metaverses will play a significant role in the future is shared by many researchers and professionals in the field. Among them are the participants of the metaverse roadmap (MVR) who aim to explore multiple pathways to the 3D enhanced web , the Croquet Consortium , as well as the VRML and X3D communities. We envision a 3D Internet which will be to 2D graphical user interface (GUI) and Web of today what 2D GUI and World Wide Web (WWW) were to command line interface (CLI) and gopher two decades ago. While the concept seems incremental in the sense that it merely adds 3D graphics to the current Web, it is in fact revolutionary for it provides a complete virtual environment that facilitates services, interaction, and communication. From this perspective, the 3D Internet can be seen as the evolutionary end point of ongoing efforts such as Web 2.0 and Semantic Web. Our objective in this paper is to define the 3D Internet concept and discuss why it is a goal worth pursuing, what it does entail, and how one can realize it. Along with its enormous potential the 3D Internet also opens many research challenges in order to become a reality. Metaverses have recently caught the attention of gaming, advertisement, 3D design, and performing arts communities among others. However, it is difficult to claim that the same level of interest has been raised in the areas of networking, machine learning, and distributed computing. Without overcoming these engineering challenges and making a business case to stakeholders the 3D Internet is destined to be an academic exercise and remain in the realm of science fiction; a fate experienced by many initially promising concepts such as artificial intelligence or virtual reality. We discuss in the next section why stakeholders such as communication and computing companies, research institutions, and online businesses should be interested and participate in the 3D Internet.

2. 3D Internet Melvin Thomas, Gireesh Singh Thakurathi*, Haresh Savlani and Vipul Sankhe

Internet today has become an integral part of our lives. The World Wide Web which started as a small dull data repository has now become massive and irreplaceable. Present activities being partially or completely linked with the virtual world can be optimized to a higher level. Every activity associated with our daily life is mapped and related to some entity in the digital world. The world has seen vast advancements in Internet and in 3D stereoscopic displays. Time has come merge the two to deliver a new level of experience to the users. 3D Internet is an idea which is yet to be implemented and requires browsers having the property of depth perception and artificial intelligence. If this property is incorporated then the idea of Internet of things can become a reality which is also discussed in this paper. In this paper we have discussed the features, possible setup methods, applications, and advantages and obstacles faced in the implementation of 3D Internet. Through this paper we intend to provide a clear idea about 3D Internet and the possible benefits associated which clearly are worth the amount of financial investment required for it's implementation.

The Internet we are familiar with is filled with web pages, images and graphics that have a 2D existence. The time has come to upgrade the Internet itself to a much sophisticated, interactive and ubiquitous network. Ample amount of research has already been done on this topic. Research indicates that it is possible to implement 3D Internet but the hardware requirements and cost associated with it will make the evolution difficult. The advantages, security, technical obstacles and applications of 3D Internet have already been discussed in many previously published papers. In spite of all this, it has not been achieved yet. It becomes clear from this very fact, that there is a need for more research on this topic. This paper covers the traditional sections such as History of the web, applications, advantages of 3D Internet along with our solutions, current status and some unique concepts like depth perception with artificial intelligence, 3D Internet and IoT, 3D Internet and Augmented Reality.

Chapter 3

3D INTERNET TECHNOLOGY

3.1 TECHNOLOGY NECESSITY

"Why do we need it?" For most of its users the Internet is a familiar, comfortable medium where we communicate with each other, get our news, shop, pay our bills, and more. We are indeed so much used to and dependent on its existence that we don't think about its nature anymore just like we do not think about Ohm's law when we turn on the lights. From this perspective what we have, i.e. the 2D version, seems "sufficient" and the 3D Internet is yet another fad. However, if we stop and think about the nature of the Internet for a moment we realize that it is nothing but a virtual environment (cyberspace) where people and organizations interact with each other and exchange information. Once this fact is well understood, the question can be turned on its head and becomes "why do we restrict ourselves to 2D pages and hyperlinks for all these activities?"

Navigating hierarchical data structures is often cumbersome for large data sets. Unfortunately, the Internet as we know is organized as a flat abstract mesh of interconnected hierarchical documents. A typical 2D website is an extremely abstract entity and consists of nothing but a bunch of documents and pictures. Within the website, at every level of the interaction, the developers have to provide the user immediate navigational help. Otherwise, the user would get lost sooner or later. Since this is a very abstract environment, there is no straightforward way of providing a navigation scheme which would be immediately recognizable to human beings. The situation is not any better when traveling between websites. It is no surprise that Google is the most powerful Internet Company of our times.

3.2 3D INTERNET CONCEPT

3D Internet can be called as the combination of Internet and 3D graphics. The result of such a combination will be interactive and real time 3D graphics all delivered through the web. It is the simulation of a 2D web page in true to life graphics. Sections of Internet that we use today come under the category of web 2.0 and web 3.0. The next form of Internet takes user interaction and 3D experience to a whole new level. This type is often so lively that it is considered as virtual reality. 3D Internet can be visualized as a virtual world. People who are active in the virtual world are more interested and active in the digital world than in real life. It can be termed as the combination of:

- Passiveness of television
- Vastness of web
- Networking like in the social media
- Stereoscopic experience of 3D movies

But as we can see Television is a passive source whereas 3D Internet is engaging and interactive. An example of such a virtual world can be “Second Life”. The people in this world are called as residents. The residents are capable of doing the following things:

- Participate in social events
- Distance attendance to meetings and educative classes
- Meeting new people
- Participate in virtual commerce
- Trying new products
- Participate in brand experience which is like the real world

3D Internet has the live broadcasting property of television with the copious content of the Internet. The disadvantages of the current Internet can be given as follows:

- Wastage of time due to mouse movements
- Less interactive web pages
- Less Efficient i.e. slow speed of working
- Ineffective representation of certain images and 3D graphics

Thus we can see the current technology is highly futile. It needs a replacement or an upgrade in the coming time. The solution to these shortcomings can be covered in 3D Internet.

3.3 EVOLUTION OF 3D INTERNET (TYPES AND HISTORY)

Web 1.0, 2.0, 3.0. This three web are having a very drastic difference in it.
WEB 1.0 - It is just having pictures and documents. And main limitation of this web is whoever the clients are or whatever the requirements is, whoever coming to this website will see the same thing which all the user see.

Example- We have microsoft.com, we all know about microsoft.com for its famous operating system which is windows which is mostly running on everyone's computer or laptop this days so whoever is going in this microsoft.com will definitely get their link for their operating system or some of the products only, It won't be like a dynamic webpage providing separate information for separate people.

WEB 2.0 - What happened is along with pic and documents we started to see videos.

Example- YouTube , if we search for an animation , cartoons or whatever we like and we are searching it for 1 or 2 day the YouTube algorithm which will be running in background will recognize what are we searching and in which genre we're most interested then the next day if we'll open the same website again then we will get extensive amount of recommendations on topic which has searched before.

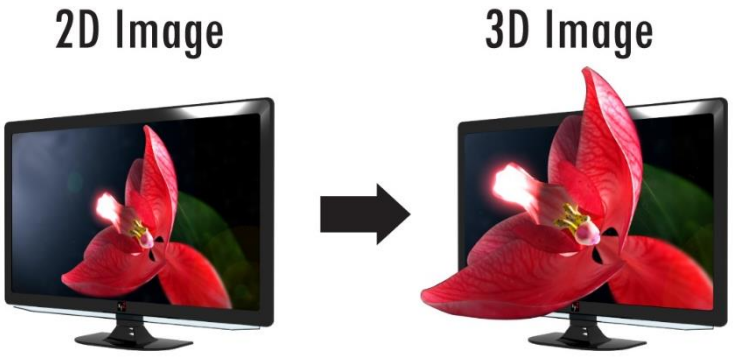

Fig. 3.3: 2D to 3D conversion

WEB 3.0 - Along with video we started taking 3d image and 3d graphical representations also and this is an integration of data over the internet from various means so it will be integration of all the devices which we are having now like cellphones, laptops we have cars which are even smarter like smartphones we can control cars using voice recognition.

3.4 ARCHITECTURE OF 3D INTERNET

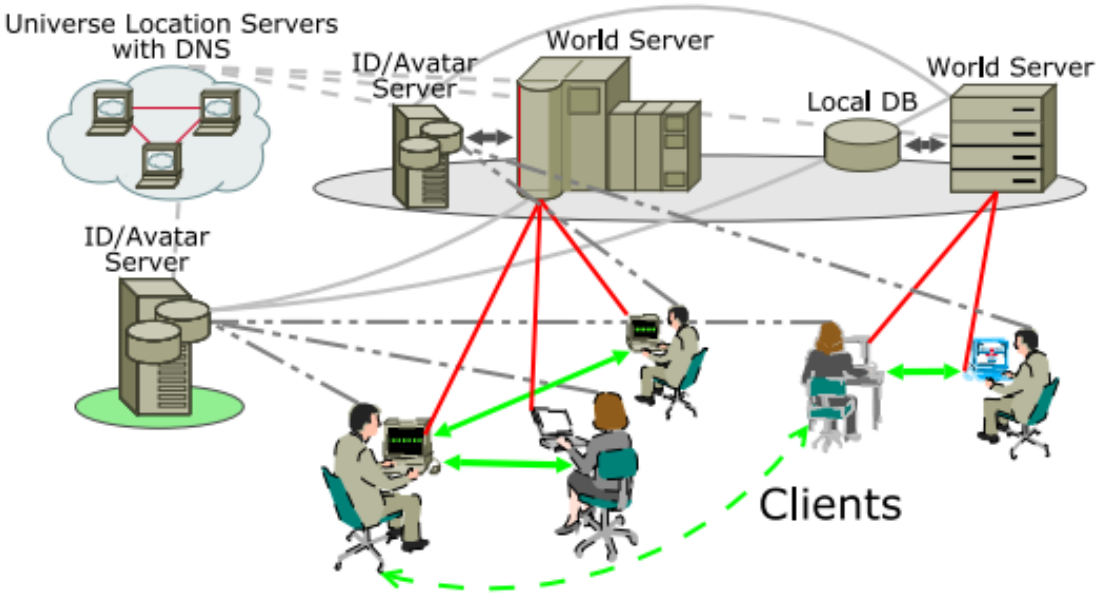

Fig. 3.4: 3D Internet Architecture

1. A simple graphical depiction of the proposed 3D Internet architecture is provided in Figure 1. We adopt here the terms universe, world, and webplace as 3D counterparts of WWW, website, and subdomain, respectively.

- **WORLD SERVERS**:

  Provide user- or server-side created, static and dynamic content making up the specific webplace (3D environment) including visuals, physics engine, avatar data, media, and more to client programs. A world server has the important task of coordinating the co-existence of connected users, initiating communication between them, and ensuring in-world consistency in real time. They may also facilitate various services such as e-mail, instant messaging, and more.

- **AVATAR/ID SERVERS**:

Virtual identity management systems containing identity and avatar information as well as inventory (not only in world graphics but also documents, pictures, e-mails, etc.) of registered users and providing these to individual world servers and relevant client programs (owner, owner's friends) while ensuring privacy and security of stored information. Avatar/ID servers can be part of world servers.

- **UNIVERSE LOCATION SERVERS**:

Virtual location management systems similar to and including current DNS providing virtual geographical information as well as connection to the Internet via methods similar to SLurl. They can also act as a distributed directory of the world, avatar servers and users.

- **CLIENTS:**

Browser-like viewer programs running on users' computers with extensive networking, caching, and 3D rendering capabilities.

2.Additional components of the 3D Internet include webplaces (replacing websites) and 3D object creation/editing software, i.e. easy-to-use 3D modeling and design programs such as Sketch-Up and standardized mark-up languages and communication protocols. Emergence of new software and tools in addition to the ones mentioned should naturally be expected.

CHAPTER 4

IMPLEMENTATION OF 3D INTERNET

4.1 SOFTWARE APPROACH

4.1.1 DEPTH PERCEPTION WITH ARTIFICIAL INTELLIGENCE

Here we discuss the conversion of web pages, graphics and images using artificial intelligence. Imagine a browser that can think, a browser that doesn't need inputs all the time like the present browsers that we use. A browser smart enough to understand the difference between two colors, difference between the depth of two objects. Such a browser is capable enough to understand a still image that is being displayed on the screen, if the objects in it are near the observer or away from it.

For ex when we see the motion of a bullet on screen, the still image of this bullet is on the basis of the x and y co-ordinates. Now the same motion of the same bullet on a browser capable of perceiving depth it can estimate the z coordinate of the moving bullet and display it appropriately. Due to which the user viewing this motion can experience a 3D effect on screen.

As browsers are becoming more and more self-adaptive and responsive to the client's needs, users need not worry about general problems like screen resolution, platform dependency, etc. Similarly, a 3D web browser may in-cooperate additional feature of storing estimated depth or elevation of a selected entity. These values will be entered by the person hosting the website or the browser can be self-reliant and give the necessary depth to this entity based on its estimation. Artificial intelligence must be incorporated for the latter implementation. This parameter will decide the extent to which the user on the client end may experience the 3D effect. The hardware required to implement such ideas may need some thought process.

Such a browser will give the developers and website creators a new functionality that can be adjusted as desired to give their content the exact level of 3D effect as required to make their content more interactive and entertaining.

4.1.2 WebGL

Making a dream of 3D graphics on Internet can become a reality by using WebGL which stands for Web graphics library. It is a JavaScript library for displaying interactive 2d and 3d content on the compatible web browser without any use of plugins. It has been derived from OpenGL ES (Embedded Systems) 2.0. WebGL is capable of transforming the static visual variables of shape, size, texture, color, value, orientations and overall presentation of information into 3D virtual space providing a rich 3d graphics experience on the browser.

WebGL provides a delightful experience and function as a great data visualization tool that can turn normal data into a compelling virtual story. Major browser vendors Apple (Safari), Google (Chrome), Mozilla (Firefox), and Opera (Opera) are working on WebGL.

4.1.3 VRML SYSTEM AND ITS PRACTICAL APPROACH

VRML is the Virtual Reality Modelling Language, a system for describing 3D scenes on the Web. Using text files in a similar format to the HTML which you have been studying, VRML allows a browser to produce the illusion of a three dimensional environment.

The very first thing we need is a VRML browser, to view your worlds, as well as other peoples. The most popular one is Cosmo Player from Cosmo Software (Win95/NT).

The next thing you need to do is create your own worlds. There are two ways of doing this. First, you could use one of the many VRML authoring tools, which are like 3D models in which you can build your world. The other way is to code it by hand. All you need for this is a text editor, such as notepad or wordpad. Simply type in the code as, and save it as filename.wrl.

PRACTICAL APPROACH

vrml for co-ordinating nodes - The transformation A simple text language for describing 3-D shapes and interactive environments

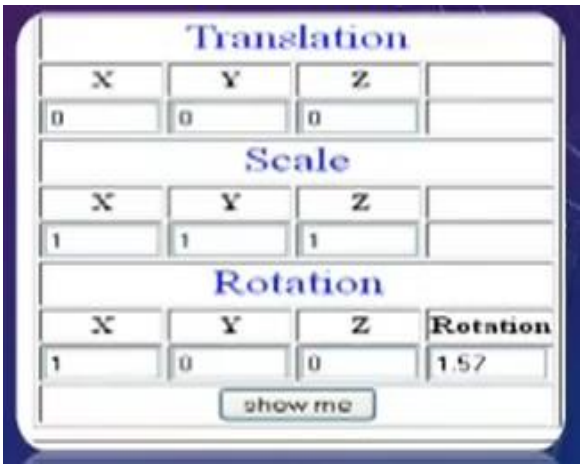

Fig.4.1.3 VRML System (Graphical Components)

```
#VRML V2.0 utf8
#A Cylinder
        Shape {
         appearance Appearance
             {
               geometry Cylinder
                {
                    Height 2.0
                    radius 1.5
               }
            }
        }
```

VRML files contains:
The file header
Comments - notes to yourself
Nodes - nuggets of scene information
Fields - node attributes you can change
Values - attribute values

4.2 Hardware approach

4.2.1 3D LENS

The benefits of this idea will be similar to that of a normal lens over a 3D glass. But this idea is abstract and research is necessary in this field.

4.2.2 ANAGLYPH GLASSES

It consists of glasses of chromatically opposite colors (e.g. Cyan and Red). When used as a pair of glasses they send two separate images to the viewer to create a stereoscopic image.

4.2.3 POLARIZED GLASSES

By projecting two images simultaneously, one horizontally and other vertically polarized, one can produce 3D effects.

4.2.4 SHUTTER GLASSES

Stereoscopic image can also be created by blocking the view of one eye at a time and repeating this at very fast rates.

CHAPTER 5

TECHNICAL NECESSITITES

5.1 TECHNICAL REQUISITE

5.1.1 SPEED:

Internet speed is one of the most significant implications that are being faced by the 3D Internet. A research shows that not many countries in the world are in a state to fulfill the internet speeds that are required for the implementation of the 3D Internet. These are in terms of limitation of bandwidth. As 3D Internet requires high end graphics and models, the requirement of high bandwidth is mandatory. The report shows that the world average Internet speed is 5.1 M bit/s.. This report shows that there are very few countries with high speed Internet while others lack the necessary speed for 3D Internet. Thus even though some countries do have good speed, most of them can't support 3D Internet.

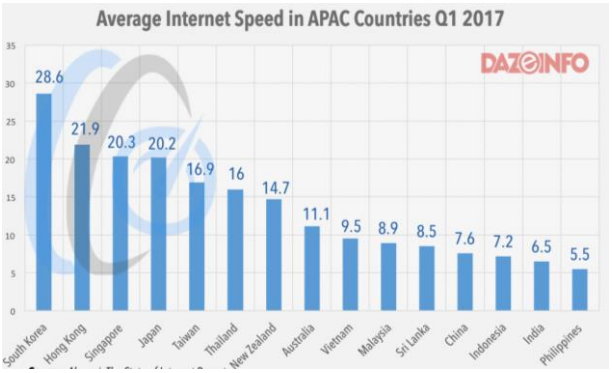

Fig. 5.1.1: Average Internet Speed

5.1.2 HARDWARE:

Hardware implications are not quite serious implications to be thought of, because the main Hardware implication that we face to implement the 3D Internet is that the display device used to display the images are 2D in nature, but with the inclusion of the 3D internet there would be great difficulty to view the 3D objects in the 2D devices. We will also require separate tools to view these 3D images. Moreover rendering of such high end models requires high usage of RAM and GPU. Thus upgrading to this technology requires an overall upgrade of the present system around the world

5.1.3 COST :

Cost involved in the overall implementation is high, which may discourage the masses.

5.2 SOLUTIONS ON OBSTACLES OF TECHNOLOGY

5.2.1 SPEED:

Presently, India ranks 130th in providing broadband connections. The answer to the average broadband Internet speed problem is Google Fiber. Google Fiber provides a lightning speed of 1 gigabit per second (1,000 Mbit/s) which is about 100 times faster than that the current speeds. It has already laid its roots in some cities with a vision of expanding worldwide.

PARAMETERS	GOOGLE FIBRE		NORMAL CABLE	
Speed	1000 Mbps		15 Mbps	
Pricing	Internet and TV	$ 120/month	15 Mbps Internet and TV	$ 79.99/month
	Internet only	$ 70/month	50 Mbps Internet and didital TV	$ 99.99/month
	Free internet with one time construction fee	300 $	NO SUCH SERVICE	
Availability	Kansas City with it's roots potentially developing everywhere		Globally Available	

Table. 5.2.1: Differences between Google fiber and normal cable.

5.2.2 HARDWARE:

The best solution to hardware implications is to use a Vision Station. Vision Station provides a 180 degrees ultra wide view of 3D visual world, providing a terrific 3D experience over the Internet at a cost much lower than the multi- projector systems and other hardware devices implementing 3D graphics.

CHAPTER 6

APPLICATIONS OF 3D INTERNET

The world is moving into a digital era. Our day to day activities are getting digitalized and Internet is at the center of everything. A few possible applications of modernizing the current Internet to 3D Internet have been listed below.

6.1 EDUCATION

By implementing 3D Internet in education, people can have a better understanding of the subject. They can view lectures and experiments in a 3D manner that will help them learn more efficiently than the traditional approach. One such example can be that the Medical professionals can view operations in 3 dimension, distance education will be valued, illustrative and demonstrative tutorials shall be more effective.

6.2 REAL ESTATE

3D Internet can drastically change the real estate industry. Customers can view the property they are interested in online with a stereoscopic view. They will get a basic idea of the area and locality they are going live in even before its complete construction. This will ease the selection process of property to a great extent.

6.3 TOURISM

It is important to choose the right destination to spend holidays which can be much easier after the implementation of 3D Internet. Tourists can have a sample 3D view of the desired locations and later decide which destination has to be visited. They can have a short demo of the place they are about to visit and decide if its worth investing on the trip.

6.4 SOCIAL INTERACTION

The current generation has a much more active online social life as compared to real life. Addition of 3D to social networking can revolutionize our digital world. Video calls can be more interactive and appealing. 3D chat spaces can be introduced to social media. Personal interaction won't be limited to real world. People unable to meet on regular basis can interact online.

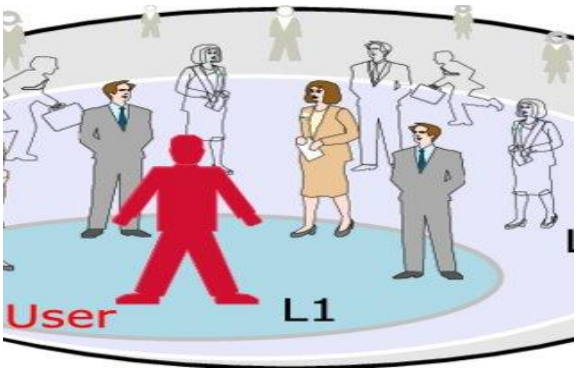

Fig. 6.4: Pictorial View of Social Interaction

6.5 ENTERTAINMENT

Online 3D games, 3D movies, etc., won't be a dream anymore. All this can be achieved using 3D Internet. Users won't be compelled to go to a multiplex for experiencing a 3D movie. Gamers can enjoy 3D online games at home and can easily connect with their friends. Live action sports will be more interesting.

Fig. 6.5: Virtual Gaming

6.6 E-COMMERCE

Online Shopping can be more realistic and reliable with the employment of 3D Internet. Concept like Online Shopping Malls and Stores can be implemented so that the users can visit virtual malls from Internet. Vicarious feeling of shopping can be fulfilled by consumers by sitting at home. It will be a benefit to both, the buyer and the seller as the basic necessity to meet at a common trading place will be eliminated completely while the shopping experience will remain intact.

Fig. 6.6: Virtual Shopping

6.7 SPIRITUALISM

People can visit their desired holy place without actually traveling to the destination. Religious organizations can plan meetings at a selected time covering devotees of a specified region and 3D Internet will maintain the experience of the trip and cut the cost and traveling time on the other hand. 3D avatars and first person view will make it easy for users to devote time to their religion.

6.8 CULTURE

3D Internet will open gates to art forms that don't exist at today's date. Artists can portray their artwork to the whole world in a entirely new fashion. Just as 2D art has a ton of different forms such as paintings, drawings, photography, mixed media, craft, etc. 3D art will also create a new genre of creative forms, something that can't be imagined as of now due to the absence of a 3D platform and human brain's limited scope to 2D imagination.

CHAPTER 7

GLIMPSE INTO 3D VIRTUAL WORLD

3D Internet is yet to achieve it's full potential but virtual world's like "Second Life" have made an attempt to avail 3D features to traditional Internet. Second life is a 3D world created by Linden Lab where everyone the user meets is a real person and every place the user visits is created by developers]. The platform also provides users with Oculus Rift which helps the user experience the 3D effect. Using this hardware, the user can enjoy a full panoramic view of the virtual world. It has features like head tracking and motion sensing, users no longer suffer from 2D boxed visions on their regular LED/ LCD displays. Linden Lab has taken care that their stereoscopic view of second life doesn't leave the users with motion sickness, thanks to the motion tracking features and fast response to minute movements.

Users can choose between first person and third person view. First person view will make the experience more realistic as people can see the world from their avatar's perspective.

7.1 3D INTERNET MEETS THE INTERNET OF THINGS (IOT)

Today's Internet is not limited to our laptops, smart phones and tablets. Everything (living and non-living) having a distinct IP address, which can be identified uniquely can be considered to be a part of this massive network (e.g. People using heart implants that can be monitored via Internet are also considered to be a part of IoT). Various embedded systems are now accessed via Internet and are capable of data transfer and this idea is termed a IoT (Internet of Things). Electronic appliances, lights in household and commercial environment, speakers, vending machines, cars, thermostats, security systems are all examples objects that fall in the scope of Internet of Things for now. In future IoT can be combined and largely benefited by the onset of 3D Internet. Avatars in 3D Internet would be more realistic and could be considered as the spitting image of the user himself.

Imagine buying a new car, clothing, footwear, smart phone, etc. in near future. People would no longer need a test drive to judge if the car will satisfy their needs. The user can fit their avatar inside the car model to see if it is spacious enough and fulfills other specific requirements using 3D Internet. They could also control the vehicle in real world without leaving their room with the help of IoT and view the test drive in 3D. Thus with the combination of "3D Internet" and "Internet of Things" a lot can be achieved.

7.2 AUGMENTING REALITY WITH 3D INTERNET

Abbreviated as AR, Augmented Reality is a type of virtual reality that aims to duplicate the world's environment in a computer. An augmented reality system generates a composite view for the user that is the combination of the real scene viewed by the user and a virtual scene generated by the computer that augments the scene with additional information. The virtual scene generated by the computer is designed to enhance the user's sensory perception of the virtual world they are seeing or interacting with. The goal of Augmented Reality is to create a system in which the user cannot tell the difference between the real world and the virtual augmentation of it.

Several augmented reality software's have already surfaced. However these applications are only created for devices that produce 2D output. When we think of our surroundings, we think in 3D, we experience the world in 3D, so augmenting the world and showing the output in 3D makes more sense. If 3D Internet is implemented several devices having 3D displays will surface and developers will start creating augmented reality applications for such devices. Such devices will produce much more realistic view of the reality that we are trying to augment. The function of the software will remain same in both the cases, but because we are receiving a 3d view, it will be much more realistic. Also it will help us understand the augmentation clearly. In short, we will be augmenting reality and it will be in 3d, so the result after augmentation must also be 3d.

For example consider a application which allows user to view themselves while trying different clothes out. A camera records the user and projects it on a screen where user can browse through several clothes. The computer automatically adjusts the clothes on screen according to the positioning of the person. A 2D output like this gives us a general idea about how the clothes will look on you. On the other hand a 3D output will give a more detailed view, explaining how the dress will look in real life. 3D Internet will cause a lot of applications like these to be developed, shared and used. 3D Internet will prove to be a backbone for improving current AR experience.

CHAPTER 8

ADVANTAGES OF 3D INTERNET

Every aspect of human life is now linked with the digital world or 2D Internet. Businessmen and potential investors can use this as their advantage to attract more consumers or visitors to market their products. By adding 3D effects to the normal web, we can increase the productivity of various fields.

8.1 PARTICIPANTS EXPERIENCE VIRTUAL WORLD

Several virtual world environments have already been produced where users can experience a false but appealing reality. This experience can be improved tremendously with advanced hardware which can produce 3D outputs. This entire process translates to experiencing a virtual world having its own applications such as social interaction, education, entertainment in actual 3D just like our day to day activities instead of 2D.

8.2 PARTICIPANT HAVE CONTROL OVER ENTIRE VIRTUAL SPACE

3D Internet allows the user to enter into a virtual space which enables him to interact with several others. This virtual space can be completely controlled by the user accessing it. This includes the movement of the user, changes of directions, entering/exiting structures etc.

8.3 PARTICIPANTS CAN CHOOSE TO ENGAGE WITH AN OFFERING

The user has a choice of accepting or rejecting the communication or interaction requests that are offered in this virtual world.

8.4 BETTER UNDERSTANDING OF CONCEPTS

3D Internet provides a platform for improving the understanding of several concepts. Certain concepts cant be understood directly from 2D monitors as they require visualization of 3D objects. 3D Internet provides a way for teaching and learning such concepts.

8.5 REPLICATES REAL LIFE

3D Internet provides the user an experience which is very similar to real life. Users will experience real life situations in this virtual world. Avatars will play a key role in revolutionizing the future Internet. It will change the way in which people tend to interact with each other. Conversations, rendezvous and other private meetings will move from real world to virtual as it will be more promising, secure and private.

8.6 EFFICIENCY

3D Internet when implemented can improve the overall efficiency by reducing the mouse movements. People would no longer have to manually enter data via keyboard and other time consuming input devices.

Chapter 9

FEATURES

One of the best features of 3D internet is that it also supports 3D internet TV. Now Sony is thinking to launch new technology for 3D TV that is 3D internet TV and HDTV 3D internet TV Wi-Fi. In such TVs internet connectivity will be built up in TV via Wi-Fi. The picture and graphic quality will also be tremendously improved along with a lot of TV channels that is building in internet connectivity with 3D TV, to improve quality and to increase number of channels that user may access. With Sony internet 3D TV, it will also be possible to enjoy other services on TV such as Skype.

CONCLUSION

In this report we have discussed the general idea, history, future prospects, current status, benefits, implementation methods and restrictions involved in revolutionizing the present quality of Internet. We can see that 3D Internet is the future as it will surely change the way we perceive Internet today. The advantages and applications clearly surpass the cost associated with the implementation. The need of a ubiquitous and intelligent Internet can surely be fulfilled by 3D Internet. Businessmen and interested investors are aware of the true potential of the user friendly, interactive, productive and addictive market side of it. But due to many obstacles like Internet bandwidth, hardware, cost factors and lack of research it isn't easy to implement. At this point the society has the capability to evolve the digital world to a much more versatile and intriguing version but it does need a lot of research and the required financial support for becoming a reality It is a powerful new way for you to reach consumers, business customers, co-workers, partners, and students. It combines the immediacy of television, the versatile content of the Web, and the relationship-building strengths of social networking sites like Facebook. Yet unlike the passive experience of television, the 3D Internet is inherently interactive and engaging. Virtual worlds provide immersive 3D experiences that replicate (and in some cases exceed) real life.

Chapter 10

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