**A Technical Seminar Report**

**on**

**3D INTERNET**

Submitted in partial fulfillment of the

requirements for the award of the degree

**Bachelor of Technology**

**in**

**Information Technology**

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**CERTIFICATE**

This is to certify that the technical seminar entitled **“3d Internet”** has been presented by **J.Neelima 15WJ1A1219** in partial fulfillment of the requirements for the award degree of **Bachelor of Technology** in**Information Technology**from **Jawaharlal Nehru Technological University Hyderabad**.

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**1.ABSTRACT**

**Internet today has become an integral part of our lives.Wide Web which started 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 thin**

**The World Wide Web, which has started as a document repository, is rapidly transforming to a full ?edged virtual environment that facilitates services, interaction, and communication. Under this light, the Semantic Web and Web 2.0 movements can be seen as intermediate steps of a natural evolution towards a new paradigm, the 3D Internet. We provide an overview of the concept 3D Internet and discuss why it is a goal worth pursuing, what it does entail, and how one can realize it. Our goal in this paper is to discuss a research agenda and raise interest in networking, security, distributed computing, and machine learning communities. We explore ?rst the motivation for the 3D Internet and the possibilities it brings. Subsequently, we investigate the speci?c system level and research challenges that need to be addressed in order to make the 3D Internet a reality**.

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**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.**

**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 and Coca Cola.**

**3D worlds also hold benefits beyond simple social interactions. Companies that specialize in interior design or furniture showrooms, where users want to view entire rooms from a variety of angles and perspectives, will be able to offer customized models through users' *homePCs*. Google representatives report that the company Google is preparing a new revolutionary product called Google Goggles, an interactive visor that will present Internet content in three dimensions. Apparently the recent rumors of a Google phone**

**The success of 3D communities and mapping applications, combined with the falling costs of producing 3D environments, are leading some analysts to predict that a dramatic shift is taking place in the way people see and navigate the Internet.The appeal of 3D worlds to consumers and vendors lies in the level of immersion that the programs offer. The experience of interacting with another character in a 3D environment, as opposed to a screen name or a flat image, adds new appeal to the act of socializing on the Internet.Advertisements in Microsoft's Virtual Earth *3D mapping*application are placed as billboards and signs on top of buildings, blendingin with the application's urbanlandscapes.**

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 ?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.  
A phrase coined in 2004 by O?Reilly Media Group; refers to a perceived or proposed second generation of Internet-based services such as Social Networking sites, Wikis etc - that emphasize Online Collaboration & sharing among users The Participatory Web. It marks the progression from static????? web pages to dynamic, interactive ones, Read/write web Sharing, collaboration, & user ?involvement, Reviews Comment on news stories,Upload photos, Share digital videos.The Amateurization of the Web The average person can put their work on the web? ex.? Photographers, journalists,???????????? aspiring writers, students, etc.The Social Web Social networking and community-? oriented sites ?ex.? myspace.com, friendster.com, facebook.com, multiply.com, tagged.com, twitter,com, etc.The User-focused Web The user needs are catered:? participate, organize, read, write & play? online   
Web 2.0 is focused on people, the Semantic Web is focused on machines. The Web requires a human operator, using computer systems to perform the tasks required to find, search and aggregate its information. It's impossible for a computer to do these tasks without human guidance because Web pages are specifically designed for human readers. The Semantic Web is a project that aims to change that by presenting Web page data in such a way that it is understood by computers, enabling machines to do the searching, aggregating and combining of the Web's information ? without a human operator.

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. In Section 3, we present an example architecture as a starting point for the 3D Internet. Section 4 summarizes the engineering challenges and explores research directions in various fields.

**II.3D INTERNET: WHY?**

One of the often heard arguments against the 3D Internet is in the form of the question ?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 dependend 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 hierarchcal 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. Although the domain name system is somewhat helpful, using the web today is no different than reading a telephone directory. Given the current situation the term web surfing is rather appropriate as we have no control over where the web takes us with the next click. This has profound implications such as the reliance on back button in browsers which tantamounts to admitting that navigating on the web is no different from a random walk. Another consequence is the emergence of search engines as a fundamental element of the Internet. It is no surprise that Google is the most powerful Internet company of our times.  
There is actually a much better alternative way of organizing data which everybody knows and uses. We spend all our lives in a 3D world navigating between places and organizing objects spatially. We rarely need search engines to find what we are looking for and our brains are naturally adept at remembering spatial relationships. Let us consider the following fictitious scenario on the 3D Internet. Instead of a flat 2D desktop I can put my documents on my desk at home, where documents, desk, and home are ?virtual? entities that are 3D representations of real-world counterparts with spatial relationships. Later, when the need of finding these documents arises, there is a high probability that I can easily remember their location without resorting to additional processes such as search engines or a ?recent documents? folder.

Obviously, it is very difficult -if not impossible- to realize this scenario on the current Internet. We are there like 2D creatures living on flat documents not knowing where we are or what is next to us. We teleport constantly from one flat surface to another, each time getting lost, each time asking for directions or help. In contrast, the ease of use and intuitiveness of 3D GUIs are an immediate consequence of the way our brains work, a result of a long evolutionary process ensuring adaptation to our world. Although the 3D Internet is not a solution to all problems, it provides an HCI framework that can decrease mental load and open doors to rich, innovative interface designs through spatial relationships. Another important point is the Webplace metaphore of the 3D Internet which enables interaction between people in a natural way. In this sense, the 3D Internet can be seen as a natural successor of Web 2.0.

**Need of 3D Internet**

To most of the 3D users, the 3D internet seems very comforting for all their necessary works and everyone is dependent on its circumstances that they forgot to think about its nature anymore just as we don’t think about the ohm’s law whenever we switch on the light. From this point of view, what we have today is the 2D version and the 3D internet is the next level of it. Well, if we stop for a while and think about the nature of internet then it is nothing but a real environment where people exchange the information and communicate with each other.

For all these activities people are confined to the 2D pages and it is based on flat principles or theories and consist of a group of documents, images. Whenever a user enters the website then at every flat surface of communication the developers need to provide the conducting and managing help, if not then the user might get lost soon. As it is based on the flat principles there is no chance of providing a direct managing and conducting help which recognizes the human beings, this kind of situation is even worse when moving between the websites.

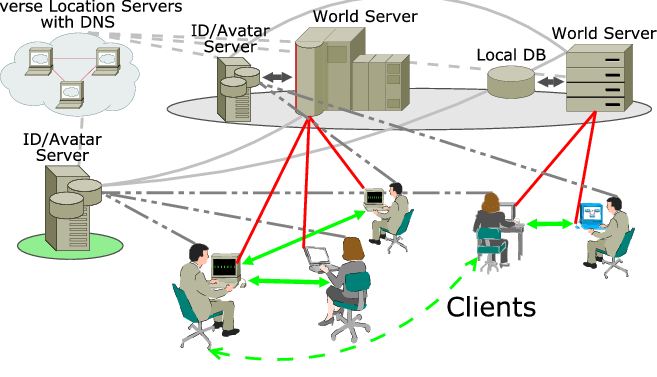
An example, of the current situation of web surfing, is perfect because we have no power over the web and it’s traveling with the next click. Another effect or result of it is the necessity of search engine and there is nothing astonishing in describing Google as the power internet company. There is much better way of arranging data which everyone knows and everyone uses it too, we spend our lives in a 3D world by managing, conducting and moving between places, representing the objects and where we rarely use the search engines.

HOW 3D INTERNET WORKS

The 3D internet is based on the following features or parameters:

* Networking or distributed computing
* Intelligent environment

1. **Networking or distributed computing:** A point of fact is that avatars have more data or information about the user who visits a 3D world than cookies do about a 2D website visitor. For example, avatars contain information about the appearance of visitor or behavior of a visitor
2. **Latency minimization:** Latency which is observed by the clients when they are involving in communication with the servers is minimized. It proposed a hybrid peer-to-peer communication and server independent peer-to-peer communication.
3. **Security and trust:** There is a group of alternatives for transporting authentication of users and avatars. Systems like ‘Microsoft Passport’ and many other are developed based on this.
4. **Intelligent Environment:** They give the extra stress on user-friendly and efficient service support. The intelligent environment also consists of intelligent services, intelligent agents, and rendering.



Working Architecture of 3D Internet

The visual system provides server-side created both static and dynamic content designing up some specific web source (3D environment) involving avatar data, visuals, physics engine, and median and mostly to client programs.

A system server has an essential duty of coordinating the co co-existence of related users. Establishing communication with them and by ensuring in-world uniformity in real-time.

A virtual identity organizing system containing avatar information and identity and also an inventory of connected users, which provides this system to individual world servers and specific client programs during ensuring security and privacy of available information.

The universe location servers include current [DNS server](https://www.lifewire.com/what-is-a-dns-server-817513) availing virtual graphical data as well as provides connection to the methods. This server also works as the distributed directory for the world within network, users and avatar servers.

Additionally, other components of 3D Internet use web-places and 3D object creation and editing software, which is easy to use in [3D modeling and design](https://www.upwork.com/hiring/design/3d-modeling-the-science-and-art-behind-it/) programs like standardized markup language, sketch-up and communication protocols.

World servers :

It Provides the user or administrator formed, fixed and active contented which makes unambiguous website place (3Dimensional atmosphere) that has imagining, physics related machine, avatar’s informaton funding, hypermedia, providing many other features to the client and server sequencers. the worldwide servers have a imperative task of harmonizing actuality with the users that are connected, starting to communicate within themselves, which ensures space in consistency in realistic machines. These are also used to give various other services such as mails, immediate memorandum, uploading, downloading fast and more.

Avatar/ID servers:

Computer-generated individuality running systems encompassing identity and avatar material as well as account of enumerated employers these all provide an environment in which the information of the world servers and the individual servers are having privacy and security.

Universal Location Server:

The systems which are used for virtual management that are same as the (DNS),these DNS are used to provide the information regarding virtual geography The (ULS) can also facilitate as a distributor of id servers and the user.

Clients:

Programs running on the user system like a browser which needs a caching , network and a3 dimensional functions to run in the system. There are some additional software’s which are needed to support 3dimensional functions such as editing software’s and placing websites in client system. It is expected that discovery of new tool and software development kits will overcome this problem.

HISTORY OF 3D INTERNET

In 1995 the Virtual Reality Markup Language (VRML) came to existence. The attraction of 3Dimensional was small;, hence all focuses were to generalized net html. Vrml (Virtual Reality Model Lang ageing) was deployed versions of the Virtual Reality Markup Language in 1995. The first Vrml version was achieved in November 1994. The complete version is Vrml97, which was the latest version of this language. Vrml was latest and much emphasized for 3Dimensional on net. The reasons for this might been the lacking of availability band width for users at sometimes. In the era of 2000 many wanted to improve the quality level of virtualization effects in Vrml. it is also required to look to the level of DirectX 9.0. But that was having its own solutions. The Vrml has been outdated by the normal X3Dimensional, molded by the Web3Dimensional group. The X3Dimensional was acknowledged as worldwide normal by ISO. We have a new 3Dimensional on Internet ordinary. X3Dimension is the file format for 3Dimensional computer graphics. The X3Dimensinal has the addition \*.x3d, \*.x3db, \*.x3dv. The X3Dimensional sustenance multi stage / touch condense. It supports shader with lightmap and normal map. Newest form of X3Dimensional allows real time atmosphere and echo towards lighting. The X3Dimensional can also use content from other opens source terminologies like Xml, Dom and XPath 1.Platform performance: FP is intensively client/server, Const. bandwidth and Low latency. Thus, the link has to be premeditated competently to overwhelmed these trials of low dormancy due to high graphic software. The use of PC with 20X GPU and 3XCPU can increase the performance. 2. User created contents (UCC): Portability over world, is to Easy-to-use tools, Realistic rendering. This is online content that has to be created by an Internet user. Tools are must to be provided to create this content. They must produce tools for content creation and enhancement free. Site like one of the YouTube allows its user to distribute their material in different ways that were impossible previous decade. Some virtual sites give users chance to modify individual oriented data and might stop the amount that can be environmentally directed. Each world would have a value associated with single style of data. There are also various revenue styles. constraints in the early stages. Wunsch-Vincent and Vickery (2007) define UCC is defined as: happy made public obtainable across the net, which replicates a imperfect sum of creative effort and which is fashioned universally professional daily repetitive and exercise. While measuring is in its beginning, availability of data show that broadband users products and shares contented at a high speed rate, and this is mostly huge for younger age people . Giving strong network construction effects a few platforms draw large value of delay, and online video sites and social system sites are emerging to be the most popular websites worldwide INTERNATIONAL JOURNAL OF TECHNOLOGY ENHANCEMENTS AND EMERGING ENGINEERING RESEARCH, VOL 2, ISSUE 6 131 ISSN 2347-4289 Copyright © 2014 IJTEEE. 3. Simulation services: Dense avatar measures, diverse client styles, Unified graphics or physics. Simulation service can be carried out on server side or client side. Tools and models must be accepted on. 4. Ecosystems: Stimulation standards, such as 3D browser standards, Identity are opposite. Capacity to delivery of unified and intuitive user experience over many devices such as High Definition TV, tablets and more. 5 The management of multilevel identities: Identity managing is basic so that while on numerous virtual world the individual has the similar identity and can be verified. In this concept, conditions and aspect of self are incrementally externalized as divided into both 2Dimensional and 3Dimensional digital personalities reflecting any number of combination of now malleable aspects of race, sex ,dob, body type, personality and physic. 6. Monetizing of virtual assets: Each virtual world now has their own money system. Second life renders Dollar. In the same way that web application like e-Bay and Amazon net has their own currency system, services. The ogoglio used services won’t be a slightly bounded as the Second Life's grid, so there is not going to be a one company which can control a payment or exchange. 7. Applicable rules or privatization of “digital avatars”: One of the main values of most popular in the report based around the effects of technology and modern society, is security. Private things is seen as a basic human right in all western democratic countries, and is often argued to be a essential condition for using of other human rights. Many of them relate controls to be private: The individual control over who have access to the personal live and info. Control across interactions with others, Control across handling one personal information, against surviving and observing, and a physical control over one personal world. A main characteristic of Second Life's is anonym, which enable user to distinguish their online, in the world identity (their avatars) from their offline identity. Many user states that they are feeling like their Second Life identities are not identical, and even significant different from their "real life" identities. In this aspect Second Life differ from social network which needs user to login and use their general names and identifications. 8. Speed: The connection speed in internet is one of the meant glitches which are often confronted by the 3Dimensional net technology. Many republics all around the earth are trying to meet the demand of the net rapidity speed, which are needed for 3Dimensional net. With their introduction of 3rd Generation, 4th Generation etc., there is an increase in speed measured always 3-G is the 3rd generalization of telecommunication typical and for mobile schmoozing. 3rd Cohort influences are wide arena mobile network that emerged to provide good net access speed and video telephony technology. The expectations from the 3rdGenerationis that it will deliver high broadcast speed, the smallest rate of 2Megabit/seconds and all of 14.4Megebit/seconds for motionless consumers , whereas 348 Kilobit/seconds for a car, which is in motion. Thus, with announcing of 3rd Generation technology, the speed rate operations included with the 3Dimensional net will be suppressed earlier. 9. Visualization and Interfaces: First access to 3Dimensoinal net is the problem of visualization and interfacing. Devices that can be used to perform such a aim includes PET's , basically known as cell phones and PARTS'. PET's are able of creating holographic imagery, and permissive the visualization of 3Dimensional images and videos. PARTS's make up an advanced versions of today’s multimedia vision glass, making it to view 3Dimensional imagery and even involving them in the practical world.[