SRUSHTI

HOW SHARED VIRTUAL WORLDS WILL IMPACT YOUR LIFE -

THE POWER AND SCOPE OF **METAVERSE**

Internet - The magic box

Introduction

Marc Andreessen, the co-author of the first widely used web browser Mosaic, once said that the Internet has always been and will always be, a magic box. Looking at where the world stands today due to Internet, one will not have to think twice to agree with Marc. Internet has actually grown so big that it has given us a separate world to dwell in. It will not be totally wrong to say that for most of us, Internet is like a wholly different world that we can switch over to. And the interesting part here is that most of the giants in Internet have tried to make it as real as the world we exist. Virtual worlds such as Second Life and Vside are some of the finest examples for that. Today, the only speed that defeats technology is that of the light. Every single minute of the day, better technologies are shaping up to amaze us. Now, with Virtual Reality about to take over the Internet, the kind of virtual worlds we have seen thus far is in for a massive revolution. Metaverse, the collective virtual shared space might soon be the big fish that uplifts the way we access the world.

A quick look at the background

It is amazing how certain science fictions could actually be science facts. Jules Verne's prediction of Man landing on Moon, Edward Bellamy's Credit Cards, H.G Wells's automatic motion sensing doors are just some of the few exemplars. It was another science fiction that sowed the seeds for the concept of Metaverse. The term was first used in the 1992 science fiction novel 'Snow Crash' by Neal Stephenson where human beings as avatars interacted with each other and software agents in a three dimensional space. The 3D environment was a metaphor of the real world and Stephenson used it to narrate a Virtual Reality based descendant to the Internet. Stephenson revealed in the afterword to Snow Crash that after completing the novel,

he learned about the Massively Multiplayer Online Role-Playing Game ‘Habitat’ that resembled his concept of Metaverse.

Steve Jackson Games launched Metaverse, a MUD- object oriented (MOO) text based online virtual reality system in 1993. Two years later, an online virtual world ‘Active Worlds’ was introduced that was completely based on Snow Crash. In 1998, Will Harvey and Jeffrey Ventrella launched ‘There’, a 3D online virtual world where users appeared as avatars. An interesting aspect about this virtual world was that it facilitated the use of ‘therebucks’, a virtual currency that could be used to purchase objects and services within the virtual world. Then in 2003 came Second Life, one of the most famous virtual worlds of all time. Linden Lab’s objective behind Second Life was to create a user defined world as in Snow Crash where people could come together to interact, play or even do business. In 2004, International Organization for Standardization approved X3D, a XML based file format as the successor to Virtual Reality Modelling language (VRML) for representing 3D computer graphics. In the same 2004 Will Harvey, Matt Danzig and Eric Ries founded IMVU, Inc; an instant messenger with 3D avatars. 2006 saw the birth of Entropia Universe, world’s first real cash economy MMORPG. High Fidelity Inc, an open source platform for users to create and distribute virtual worlds was launched in 2013.

Qualities of a Powerful Metaverse

Realism

You watch a movie rich in visual effects and computer graphics. What gets you so involved in the imaginary story world and the characters? The sense of realism they carry; isn't it? The same applies to three dimensional virtual worlds and metaverse. To get a user totally immersed in the virtual world, they have to be that realistic and believable. And in the world of metaverse, realism is concerned with a user's psychological and emotional engagement with the environment. The extent to which a user is transported to the environment and the lucidity of a user's action to his or her avatar determines the believability of that environment. So let us see how metaverse effectively carry out this task.

Sight

It comes as no surprise that sight is one of the direct links to a metaverse. One should be able to see and relate the environment within a metaverse as something he is used to. In fact, even the earliest visual mediums for virtual worlds were written as plain texts to form images inside the mind's eye. However, these words and symbols were indirect. They just illustrated the world and left the rest to a user's imagination. A constructive virtual world eliminates this indirectness and makes the environment as information rich to our eyes as the real world is. This richness is obtained mostly due to the efficient use of real time computer graphics. With the growth in graphics hardware and algorithms, virtual worlds have moved on from flat polygons to smooth shading, texture mapping and programmable shaders.

In the earlier days, methods such as more and smaller polygons, higher resolution textures, interpolation techniques such as anti-aliasing and smooth shading were used to generate quality visual impact. But, with the arrival of programmable shaders and their subsequent growth as a new functional baseline for 3D libraries such as OpenGL, virtual worlds and computer graphics in general began to expand their potential. When programmable shaders became common, many features of 3D models gained an algorithm expression and thus it eliminated the need for larger polygons or textures. At the same time, this also expanded the variety and flexibility with which objects can be rendered or presented.

Thus, with the growth of processing power, display hardware and graphics algorithm, immersion has expanded from pure detail to specific visual elements. This is absolutely quintessential as the modern day 3D and Virtual Reality techniques allow users to interact and even make simulations within a virtual world. 3D and Virtual Reality do have a hindrance that you need glasses and headsets to be completely immersive. Such gadgets are becoming less obstructive day by day and will eventually come to a stage where it is completely unnecessary!

Sound

Speaking and listening is our most common form of verbal communication and virtual worlds and metaverse cannot exist without them. It is that sort of communication that instantly engage us with other residents of the virtual world and it is even more appealing than reading virtual face, posture or movement. But other than such direct verbal sounds, there is another kind of sound that is absolutely important. Imagine you are watching a movie where the protagonist is chasing the baddie across the city. Will you be satisfied with just the panting and screaming sounds of the two main characters? No… You need to get the feel of the city. The sound of the vehicles, shops, chattering of people.. Everything. All the ambience. This plays a crucial role in Metaverse too. That is, when a user is inside a pub, the environment cannot be numb or else he will exit at the first chance! It is such sounds that give us a feel of placement inside a particular situation.For the first part of direct verbal communication, we know that there are several high end voice chat technologies that accurately capture the nuances of spoken words. Such sense of hearing plays a pivotal role in conveying the avatar frame of mind as this enables effective interaction. But different virtual worlds call for different kind of interactions.

You would want to feel like you blend into the virtual world as you interact. And thus, with the modern voice masking and modulation technologies in virtual worlds, you can even control your voice tone and speak the way you want. So, while communicating, you can actually hint if you like the other person or not!

Ambience sound is a much broader concept and the extremely pleasing news is that today most of us are aware what quality sounds can achieve. From our smartphones to games, P.C and home theaters, most of us demand a sound system that seamlessly involve us. Our longing for “surround sound” is a clear indicator for the desire to be completely immersed within an audio environment. Traditional stereo systems have already given way to 2.1, 5.1, 7.1 and even beyond. Today, Virtual Reality and gaming researchers have dedicated themselves to study about three dimensional spatialized sound to know how to replicate the paths sound takes before reaching our ears. Before a sound reaches our ears, the waves undergo a series of changes depending upon the environment, the position of the sound, the location of the listener and even the shape of the listener’s head. Researchers are already developing algorithms to manoeuvre the sound sources so that these changes will be reflected before they reach the listener. Such 3D sound researchers mostly focus on the shape of the listener’s head to analyse how the sound form itself. This study is mainly carried out using a mathematical model called Head-Related Transfer Function (HRTF) and it is in turn part of a larger field of study known as binaural rendering, that aims at producing a kind of surround sound that not only produces sound from left and right but also from above and below. And just like fingerprint and prescription glasses vary from individual to individual, HRTF also is different for each person. Today, most games and VR deliver generic HRTF, but the problem here is that people whose HRTF is not close to the generic one would not get a proper feel of realism. To counter this, the creative brains are already in the process of developing sound propaganda that would enable an accurate HRTF.

Binaural rendering can be put to best use with headphones as each side represents an ear in the sound simulation setup. The sound will be rendered in speakers too but the listener’s environment outside virtual world will influence how sound reaches the ears and this will spoil the effect. Now, imagine a virtual world where every little interaction of avatars generate unique and believable sound, which is then rendered through sound propagation and binaural rendering to accurately depict spatial relationship with the user avatar. This is where we are headed for.

Touch

From walking to sitting and sleeping, you constantly make use of the sense of touch to control your movements so that you can complete the task you are working on. This is why touch is an empirical aspect of virtual world realism. To completely immerse in a virtual world, you need to get a physical stimuli of the objects inside the environment. The most common technology concerned with touch in virtual worlds is haptic or force feedback. The very idea behind haptic technology is to convert virtual contacts into physical ones. Whereas force feedback is rather a simpler form of haptic that has physical devices push against or resist the user's body; especially hands or arms.

Haptics are predominantly classified into two; Kinesthetic and Tactile. Kinesthetic consists of things you feel from sensors in your muscles, joints, tendons etc. Imagine you have a mug of coffee in your hand. Kinesthetic feedback will inform your brain the approximate size of the mug, its weight and how you hold it with respect to your body. Tactile haptics are the things you feel on your fingers or on the surface. The tissue in your fingers have variety of sensors implanted in and underneath the skin. This helps your brain to feel vibration, pressure, touch, texture etc.

In the 2009 Electronic Entertainment Expo (E3), Microsoft unveiled their 'Project Natal' which demonstrated a controller free gaming environment. The project later came to be known as Kinect and it was the first popular "come-as-you-are" motion system. The users didn't require a controller to regulate the movement of characters or objects inside the game. They could easily fight or drive a car exclusively with their body movements. Such type of controller free haptic feedbacks became common in the following years but it still lacked the quality of being totally immersive. For example, during collision with objects or firing weapons, most of them had a sensory mismatch which made it hardly more realistic than a beep or icon on the screen. This is why targeted haptic feedback, body sensations that integrated more naturally to the virtual environment became an interesting area of study in the recent past.

Tactai, an American Company introduced a touch controller that could be clipped onto your finger. The device can be worn in any or every finger, but only the index finger is required to feel things. Its applicability depends on what users are doing. For example, shopping in Virtual Reality can be done with one index finger while opening a virtual bottle of water will require a device on each index finger.

SOURCE : PROJECT NATAL

What if you want to pat a virtual dog or play a virtual keyboard? You can have five devices per hand which would give you a fantastic feel of what you are interacting with. The tactai software regularly reads the position of your finger in a virtual space using headset camera or external measurement system. Every time it receives a new measurement, it determines where your finger is in the virtual space. If it is in a free space, the software instructs the device in the platform to move away from your fingertip so that you won't feel anything. And if your finger is on a virtual object, the software calculates a Dynamic Tactile Wave which in turn sends a vibration onto your finger that closely matches the feel you will get if you moved around the object in real space.

Lamsaptics, a Los Angeles based startup and Maseeh Entrepreneurship Prize Competition team used ultrasound arrays and predictive learning based algorithms to generate touch sensations for VR and AR applications. Their research is mainly on a mobile tool that makes use of ultrasound waves, air pressure fields, high frequency sound waves and ultrasound transducers to trigger the neurons in your hand, much like how they are used in medicines to create high resolution images. In other words, it can be thought of as a similar process to how bats echolocate using sound waves or how radars spot planes using electromagnetic waves. Their algorithms are designed to match human experience, that is, how humans perceive shapes, textures etc. Lamsaptics aims to document all human sensations so that they can generate a more enlightened experience for users.

Gestures and Expressions

The more natural and expressive an avatar gets, the more is the perception of reality in the virtual environment. Customary avatars have already given way to broader cues such as poses, incidental sounds and facial expressions. Such cues facilitate intricate details such as blinking and even the movement of lips while talking. Anything that makes the avatar look alive contributes significantly to the sense of immersion. Jim Blascovich and Jeremy Bailenson, two of the pioneering experts in Virtual Reality describes this feature as human social agency. They identify the main components as; movement realism- that deals with gestures, expressions, postures etc, anthropometric realism- that deals with recognizable human body parts and photographic realism that deals with closeness to actual human appearance.

MindMaze introduced a VR headset 'Mask', that can track a wearer's expression and transfer them to their Avatar. As a result, a user can use his or her own face to enact in VR that helps in improved personalization and humanization. Mask uses foam electrodes to track a user's face that detect facial electrical impulses which are then scrutinized by algorithms that generate a neural signature of an individual's expression.

SOURCE : VEESO - THE FIRST FACE TRACKING VR HEADSET

The advanced machine learning and biosignal processing of MindMaze helps to decode and translate expressions, tens of milliseconds before they actually arrive on the wearer's face! This early detection is what makes real time simulation of the expression on the avatar possible.

Veeso is another such VR headset that reads your face and transmits expressions onto a virtual avatar in real time. This smartphone based VR headset is equipped with two infrared cameras to obtain the user's facial expressions. One of them is located between the eyes to obtain pupil movement, eyebrows, eyelids etc and the other is at the bottom ofthe unit to read jaw, lips and mouth. The company aims to provide better emotional connections through social games and chat applications.

Ubiquity

One of the striking qualities of the superhit film franchise ‘Star Wars’ was its depiction of a used future. While most futuristic films showed a clean and high profile world, Star Wars gave us a future that was regularly used and dirty! This sense of commonness is absolutely crucial for virtual worlds too. The physical world has our signature in it. It is a platform for our human culture and interaction which makes it psychologically compelling to involve in. Along with moving along and interacting with anyone anytime, our presence in the physical world encompasses our body features such as voice, fingerprints, retina and also global features such as signature, birth certificate, passports together with key documents such as bank accounts, credit cards etc. Then, our identity is again broadened by what we produce and consume: books, movies and music that we like and the food we cook or eat. Our comprehension about the real world can change; for example when we are sleeping, but our identity remains the same even if our senses are not aware of it. Similarly, our identities may be damaged, broken or stolen but there is always a real “me” that sustains. For a 3D virtual world to be effective, some of these elements have to be incorporated.

Easy access and availability

In a traditional scenario, you have to be located at an appropriate spot to access virtual worlds. You need a computer or a laptop, working internet connection, headsets and also an atmosphere that isn’t too noisy. This is far from the realm of the actual physical world that you can access on the go. But, thanks to smartphones and other modern gadgets, this situation is changing. You can now access the amazing world of metaverse even when you move around which makes their availability quite easy. The advanced audiovisual power, front facing cameras, accelerometers, gyroscopes and multi touch screens have tremendously improved the scope of Virtual worlds accessibility. Moreover, with most modern wearable technology on the rise, their availability is only supposed to be easier. Very soon, with a blink of an eye or the move of a wrist you will be inside a virtual world which will be as real as the physical world you dwell in.

Display unique persona and presence

There is a digital “me” that exists for everyone in the physical world. We use our bank accounts, credit cards and memberships in various organizations as credentials that represent us. We use them literally everywhere to get things done. Personal, social, financial, entertainment… All our needs are carried out by such credentials that represent us. With the growth of such systems, the flow of information too has changed from producers and consumers to ‘prosumers’, who simultaneously create, view and modify content. So, a persona is a sum total of a person’s online presence, the digital content that he creates, views or modifies. Such presence is vital in the virtual world too. Many virtual worlds have virtual banks and currencies embedded in them that facilitates buying, creating and viewing. Users are assigned with various virtual identities that they can use to access various content. Very soon, using them, you will be able to watch a live concert happening thousands of miles away or even tour another country!

Interoperability

This is probably the driving force of Metaverse. Let us just take a look at the Internet. Internet is equipped with layered standards that allow different and diverse networks and subnetworks to clearly interact with each other. In the real world, when our bodies move between locations, our identity too travels from one place to the other without any trouble. Even our possessions and assets can be transferred from one location to the other without undergoing any major changes. So, there is a continuity in the real world that keeps us and our objects intact during transit. And this is why, metaverse, the integration of various virtual worlds aims at providing a platform for socio cultural interaction, just like in the physical world. Such amalgamation would make all virtual worlds, regardless of its size and canvas, part of a larger entity or existence.

Standards that facilitate interoperability

The first popular standard for Virtual World was Virtual Reality Modelling Language. (VRML). VRML defined an individual 3D space as a single world file that can be downloaded and displayed using any VRML compatible browser. VRML was followed by X3D that expanded on the graphics potential of VRML. Then came COLLAborative Design Activity (COLLADA) which was an interchange format. The popularity of COLLADA ensured easier exchange of goods and behaviors from one virtual world to another. COLLADA is not just a virtual world standard but it can also be used as a general purpose 3D object interchange mechanism.

Layers of interoperability

Interoperability in Metaverse should exist in various layers. To begin with, there should be a model standard to reproduce properties, geometry, assets and even behavior of virtual world environments. VRML, X3D and COLLADA are predominantly model standards.

Protocol standard enables interactive and transactional contract between a virtual world user and server. This provides a try and test scenario for both users and servers within the realms of compatibility. Open Cobalt is one of the efficient platforms that makes it easy to create collaborative and hyperlinked multi user virtual workspaces, virtual exhibit spaces and game based environments that run on all major software operating systems.

A locator standard helps in finding places and landmarks across Virtual Worlds. The internet is already familiar with this technology in the form of URLs and the same can be completely adapted for virtual landmarks. Linden Lab already used that for their Second Life locations.

An identity standard gives a user unique credentials that can be used across virtual world boundaries. This could be equivalent to our real life license numbers, social security numbers, passport etc.

A currency standard will define the value of virtual objects and creations, thus enabling their trade and exchange. Different virtual worlds already feature their own unique virtual currency and very soon there will be developments in Open Metaverse Currency that will serve as a universally accepted virtual form of currency.

The Future

We know the effect globalization had on human society as a whole. Products made anywhere in the world reached almost every corner and thus helped enrich our standard of living. The same kind of an effect or if not even more can be expected when virtual worlds merge together to form one Metaverse. Let us see how Metaverse can influence different arenas of our life.

Business and Shopping

The challenges posed by traditional shopping are aplenty which is why online shopping has become a common phenomena. You don't have to worry about closing hours or wait along an extensive line of customers to get your need addressed when you shop online. With WebVR, Virtual Reality will soon hit your everyday browsers and it will be smoother than ever to check out the products you love. But still, websites do have limitations. As a business entity, it is not such a charming thing to add all your products and varieties on your website. People too don't expect a website to be a shopping mall. This is where virtual stores can come in. Virtual stores will give you the exact feel of being in a shopping arena and there will never be any limitation of time or geography. How would you like to take a virtual trip around a shopping complex in China or Great Britain by remaining in your room! Furthermore, there will be customized digital sales assistants that can speak any language in every metaverse shopping center to provide you one to one assistance. You will be able to make them appear or disappear with just the tap of your finger. By staying in your room, you can check out a piece of toy or jewellery that exists in a shop that is actually thousands of miles away. You will even be able to view indepth details such as how the products were made, where it was made, what materials were used, how long is it supposed to last etc. You can even determine how the product will operate in different scenarios and conditions. That is, if you are buying a motorbike from a showroom in England, you can see how the bike will fare in your city based on your roads and traffic! Moreover, due to the increase in the number of data collected everyday, when you visit a specific store, the smart digital assistants will be able to instantly provide you with products that you may love. Virtual Intelligent assistants such as today's Siri and Alexa will have a big role to play in the future.

You can just command a shopping list to them or even set a regular schedule and the virtual assistant will visit the relevant store in the metaverse and do the shopping for you. You will not even have to think about buying daily products. And with the increasing scope of Internet of things, you will be able to connect your daily appliances like fridge, coffee machine etc to Internet and they will fill up automatically without any intervention from the user!

A relevant contemporary example that promises a future like this came from Mastercard, in collaboration with Swarovski. The duo launched a virtual reality shopping app where users could browse and make purchases with Masterpass, Mastercard's digital payment service. The app showcases the value of the pieces, the creative journey of the designer, the brand's inspiring story and the complex procedures that go into the manufacturing of such pieces in an interactive and engaging way. Customers can checkout from the VR experience itself instead of having to add payment details. By placing the phone into a compatible VR headset, a user can enter into the virtual home and explore five areas to check designs from world renowned artists. Once they are inside the virtual environment, they can discover the stories about each piece, read descriptions, see pricing and even watch videos about the craftsmanship. Once a customer decides upon a product, he or she can add it to the cart by focusing on the Mastercard button, bottom of the description. Once the customer removes the headset and exits the application, they will be logged out of their Mastercard account to protect them from unintended purchases.

Education

For example, imagine you are a Management student. How would you like it if you can visit a virtual store of IBM and take part in a meeting where an agreement is negotiated. Remaining in your very own classroom, you can be a part of business arrangement held by industry experts anywhere in the world and thus get a taste of how the real business world works. On a similar note, medical students can be a part of surgery conducted by expert doctors anywhere in the world and thereby broaden their knowledge. Science students can visit virtual space centers and even gain an experience of a Mars visit! Students and professors all around the world will be able to smoothly collaborate with each other and improve their standard of education. Students can also easily showcase their final year projects and get analysed by experts all around the world. With Virtual Reality arriving on the web, they can also relive any moment of the history or even explore the molecular and atomic particles of any organism.

There are already plenty of education based virtual spaces available in virtual worlds such as Second Life, Kaneva, Cybertown, Active Worlds etc. Subquan, a learning space in the virtual world Second Life, is a replacement of the traditional math system which uses 3D graphical representations to help students better understand mathematical concepts. Another example is the Truths Earth Observation Satellite that helps to collect data 10 times as perfect as any other indicator. And Virtual University of Edinburgh is a virtual educational and research institute specialized in bringing together anyone within the university who are interested to use virtual worlds in order to research, educate and outreach.

Advertising

For long, advertising has been about observing rather than experiencing and this is soon going to change. Today, we know that ads are everywhere and most of them are so annoying that we skip a major portion for good. But, with the kind of in depth and detailed data that is being collected like the user's age, purchase history, brands followed in social media, network of friends etc through gadgets such as smart phones, advertisers will soon be able to provide you a more personalized experience of advertisement viewing. With devices such as smart watches that capture our pulse, advertisers can even understand what ads do we like the most. Every ad we see will depend upon who we are instead of the common ad system we have today! You can view advertisements on the go and stay updated about the modifications and updates that await your favorite product. So, when in a metaverse, you will immediately be notified about an interesting product or store that you can check out depending upon where you are in the metaverse. The content and narrative of the advertisement will also change according to the changes you make in the design, layout and other features of a product. Additionally, brands will also be able to offer you virtual seats to big events such as a World Cup or a major live concert. Every major event will have big brands as sponsors and imagine Coca-Cola giving you a virtual seat for a World Cup Final. Remaining in your room, you can view the match as if you are in the Maracana stadium!

Here is an example of Virtual Reality already doing wonders in advertising. For its latest SL Model, Mercedes took customers for a virtual drive on the Californian Pacific Coast Highway. Customers were able to explore the interior of the car, watch through the sunroof and observe as the car moved along the road. When switched over to the convertible mode, a look to the right also showed the Pacific Ocean.

When VR becomes a common entity in the web, even greater experiences will be part of our daily virtual lives.

Healthcare

With human computer interfaces, virtual reality and metaverse on the rise, consulting doctors and health specialists will be smoother and efficient than ever before. You can walk into a hospital unit set up anywhere in the metaverse and avail the service of any doctor in the world. With communication systems like smart dust, doctors can install sensors into your body, easily diagnose and treat your disorder with a simple computer program instead of complex operations or surgeries! Doctors will also be able to assign virtual healthcare assistants for you who will remind about your medications and exercise. For your every activity such as eating, working, walking and sleeping you will get live and instant feedbacks on how they affect your health. When it comes to healthcare, time and awareness is the key factor. Hence, with technology we will be able to spot any run in the mill way before it brings any threat to us.

Office and Workplace

How often have you felt worn out attending innumerable interviews on different locations. You invest your time, energy and money in hope of pursuing a career that you love. Everyone who was once a jobseeker would have gone through this pain. And even after all this, physical interviews have plenty of limitations. You can only go as far as your rail, air network and your pocket can afford to take you. Yes, you can drop an email or give a call to any firm anywhere in the world, but the response to such kind of requests are quite numb. Now, what if you could visit a firm's virtual corporate office in a metaverse and see if they are hiring people. From the comfort of your room, you can actually pay a visit to offices in U.S or Great Britain! You do not have to waste your precious time, money or energy to get interviewed by the top companies in the world. Even when you are hired by a company far away and in another continent, you will not have to sell your fortune to get your work permit visa, tickets or numerous other formalities. You can remain in your own home, sign in to your office in the metaverse and begin your work! Your supervisor might be in another part of the world, but with an almost lifelike 3D avatar, he can come and sit near you and guide you on your work.

In other words, very soon, metaverse might be the one culminating point for every workplace. The need for physical buildings or office structures in the outside world will be very minimal. Imagine the kind of space, money and manpower we could save!

Right now, there are almost 125 virtual companies where employees work remotely! 10up, Acceleration Partners, AgileBits, Aha!, Aids Free World are some of them.

Another smart initiative of the present era that could well contribute to the future of office space came from 'Meta', a San Francisco startup. They are specialized in producing augmented reality headsets to overlay holographic information on to the real world. Users can control 3D models with their hands, browse web pages, send emails or write codes using the flowing virtual screens. This modern office setup replaces the traditional keyboards, monitors and even cubicles through the use of augmented reality. Meta's goal is simple. They want to flawlessly use augmented reality as an extension of the real world, one where people can interact with holograms, much the way one interacts with real objects today. Instead of clicking, dragging or pushing buttons, Meta allows users to monitor 3D content with their hands.

Entertainment

You are in a movie hall that is surrounded by a 11.1 sound system. You had no idea how the sound will be like, but once inside, you feel like it is a lot more than you prefer. In the physical world, you cannot go on to change the sound system just for you. Inside the metaverse, you can! You can get into any virtual movie theatre and adjust the screen, sound or even the seating, the way you like. Thus, each person inside a virtual movie hall will have separate experience for the same movie. Even the movies (or whatever it is called in the future) might call for your immersiveness and it's story could progress the way you interact with the characters. Similarly, you can visit any pubs, DJ parties, concerts or live events anywhere in the world through your Metaverse avatar.

Paramount launched a virtual reality movie theater to experience 'Top Gun' in 3D. Fans also had the option to catch up with friends before entering the movie screens. The film was shown in 30 minute increments for a period of 24 hours and users were able to wear any brand of VR headset and log in to bigscreenvr.com to enter into the virtual reality theater.

To simulate it as close to the real world, the virtual theater space had a theatrical one sheet and even played trailers before the screening! The idea behind the project was to have a social experience without really having to go anywhere.

Revive History

Want to know how Man and different life forms evolved? Want to know how dinosaurs died? Or how civilizations were born? Or the birth of language? Or how the first World War was fought? You could just login to Metaverse and visit a nice history museum! Simple. Whatever your topic of interest is, you can see the events unfolding right in front of your eyes. Today, if you want to gain a complete understanding of any event in the history, it is simply not easy to collect all the rare textbooks or watch the available videos. There is also the concern of one version being different from the other. No such problem will exist in the future. No doubt about history will exist beyond a visit to a Metaverse museum.

Computer Love 2.0 is a virtual reality museum that allows digital users to move around the exhibitions just as they would in real life. The 3D gallery, developed by University of Sheffield, is equipped with virtual equivalents of real artefacts from three of Sheffield's Museums. This virtual depiction has stayed true to its real world counterpart as one could even see fire alarms, plug sockets, air vents and emergency exits. One of the interesting features of the virtual museum is the National Fairground Archive Section, which is entered through a giant gaping mouth and involves a ghost train experience from the 19th century. The giant skull of an extinct species of eagle and digitised mock glass slipper are some of the other attractions that await in the virtual museum.

Tourism and Exploration of Unknown Worlds

Remember the travelling agency in the Arnold Film 'Total Recall'? What do they specialize in? Providing a real life experience of visiting any destination of your choice. This might more or less be the future! (Though not as villainous as in the film). Though we would all gladly love to travel with our loved ones in the real world, there might be some that agree that real life tourism can be a little hazardous. First of all, it is really expensive. You cannot get to an exotic location without spending a fortune. Then, there is the number of legal formalities that you have to go through to visit a spot outside your nation.

Depending on the number of people for the journey, the size of the luggage you have to carry can also give you headaches. Not to mention the other fact that you could actually forget some of your luggage when you have to carry too many. For those who think this is tedious, Metaverse might just have the solution for you. You can simply visit a virtual travel agency, select your destination and enjoy the trip! You will absolutely experience no difference from visiting the place in real. And who knows, maybe like Arnold you might even be able to go to Mars or other distant planets!

Conclusion

If we like it or not, we have to accept the reality that life is more or less machine driven today. Even our perception of reality changes with the impact of a major revolution. Today, we just cannot think of a world without social networks such as Facebook and Twitter! Wait… Now, think about a world without internet. How about one without computers? We just cannot think of any existence, can we! Such is the impact technology has had on humanity. Rephrasing Marc Andreessen a little, technology is indeed a magic box. It is upto us to make the best out of it. With its promising potential, Metaverse might have a giant role to play in the future life of human beings. Like all its amazing predecessors, let us hope they will make us smarter and easier.

"If you need help with an upcoming project,
do write to us on hello@srushticreative.com and we'd be glad to help!"

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