UNLOCKING DOORS TO NEW REALITIES

Consumer Electronics are a vital part of our daily lives and play an important role, and one such example of a Consumer electronic is Virtual Reality which is an upcoming technology opening doors to new realities and opportunities for many.

I.INTRODUCTION

Consumer Electronics are basically digital and electronic appliances that are used for personal purposes such as for households, entertainment, official, communication or daily use purposes. Examples include:

- TV's, Video Games, Remote Control Cars, MP3 Players, DVD's etc. for entertainment purposes
- Laptops, Personal Computers, Printers, Scanners etc. for official purposes
- Mobile Phones, Personal Digital Assistants(PDA's), Telephones, Laptops for email etc. for communication purposes
- Washing Machines, Dishwashers, Fans, Driers, Refrigerators etc. for household purposes

This is state-of-the-art work is created by many by many architectural designers, software designers, technicians, engineers etc and can often be bought from stores like Best Buy, Target, Walmart etc.

As time progresses, new technologies and innovations related to the field of consumer electronics arise because of the advancements in technologies in general, and the best example of one such advancement is Virtual Reality, commonly abbreviated as VR, which is nothing but simulating real life situations by the means of appliances and making them seem surprisingly real. The idea of virtual reality is simple yet complex, simple in the sense that it aims to bring real life situations which may or may not have occurred and help consumers experience that and hence it can be considered a consumer electronic, but the complexity lies in the implementation of the technology and how it is to be generated with ever changing nature and environments and also on how these technologies are innovated and thought about.

For any virtual reality appliance, four types of technologies are essential:

- Visual, to immerse the consumer in the virtual world and block out most of the other senses.
- Graphic rendering system, that generates approximately 20 images per second or so.
- Tracking system, to sense the movement and orientation of the consumer.
- Database Construction and Maintenance System for building elaborate realistic and detailed models of the virtual world.

Virtual Reality can have various purposes in different fields throughout industries all over the world. Few applications of Virtual Reality in different fields are:

- Vehicle Simulation and Design for the Transportation and Automobile industry
- Green Screen sets, simulations, special effect set ups etc. for the entertainment industry to make fantasy situations seem more real and authentic
- Psychiatry, Psychology etc. simulators for the Medical Industry for different medical procedures
- Training for army nationals and veterans
- Architectural Design and Spatial Arrangement simulators for the Architecture and Construction industry to understand the structure of the building and other related factors more clearly.

Samsung Galaxy Virtual Reality, HTC Vive, Oculus Rift are few of the appliances associated with Virtual Reality and they didn't enter the market till early 2016. They

are essentially the amalgamation and repetition of the numerous devices, illustrative techniques, and representational strategies for bringing across a persuasive and realistic experience of three-dimensional expanse and movement, which have ever been introduced, pitched to, elaborated, and put up for sale over the past many years. This doesn't mean that consumers are fully convinced with environments so simulated by these devices to interact with the computational devices along with the costs which come along with them, as the challenge still lies in making these spaces seem more natural and as the acceptance of these devices in society.

II. DEVELOPMENTS AND FUTURE EXPECTATIONS:

A typical sales pitch for Virtual Reality devices do not have the salesman talk about a lot, but basically about the new prices and pixel count advancements associated with the device, as well as getting the customer accustomed to the idea of wearing a a monitor on his/her face, which is the headgear. The idea of Virtual reality can be dated back to the 1990's, when the marketing field began to usher in internet and technology and take away from communication boundaries. The idea began to take shape in 2012, when the Oculus Rift crowd funding campaign took place and the experimentation began with two of the company's hardware developer's kits. These kits were publicly sold so as to analyze the device before its global launch four years later, in 2016. Collaborations between many higher-level institutions around the globe gave rise to experiments related to Virtual Reality, hence bringing us to where we are today, and the result being the Virtual Yellow House Project.

The Virtual Yellow House Project is a three-dimensional recreation of Yellow House, which ran from 1970-1973, located in Sydney, a three-story terrace building which consisted of the gallery and multimedia space made by Martin Sharp, based on a concept originally introduced by Vincent Van Gogh in the 1880's. The Yellow House consisted of works by Van Gogh, Matisse, and Hokusai and many acclaimed artists, through homage by the many local, national, and international artists living in France. These artists made efficient use of the exteriors of the building so as to pay respect to the famous artists, with over 300 artists contributing works of arts in forms of paintings, sculptures, film and videos, photographs, performances. The Virtual Reality experiment began with the recreation of the Stone Room in the house which consisted of works by Brett Whiteley, George Gittoes, and Peter Kingston, as well as a 3D game engine and a Virtual Reality development platform called 'Unreal', by a postgraduate student Owen Godfrey. A rough assembly was generated by using the original blueprints of the building and scanned photographs of the gallery while it was operation, taken by photographer Greg Weight. Even though the Yellow House Project isn't an exact replica of the actual physical building and is not as sophisticated and up-to-date as in current times, it did provide a breakthrough into the world of virtual reality and introduced the world to the concept, all while acting as a base as a base for future projects. The project serves as an interface between students, libraries, and the public, with the aim to make all results open and accessible if allowed by licensing copyrights.

This breakthrough gave rise to opportunities to not only in the field of technology but also in cultural, conservation, creative oriented fields. This also encouraged use of

Virtual Reality in more student-oriented spaces, as well as opened up the opportunity of managing information and knowledge with means of virtual screens, interfaces in three-dimensional spaces and attempt to experience historical events more clearly This gave us the ability to make conclusions in a clearer way by having the opportunity to experience them in more direct way.

Another such example of a breakthrough is the VR First initiative started by Crytek. About 17 years ago, when the company was founded by three brothers Avni, Cevat, and Faruk Yerli, they were rejected by almost every company for their concept, until they showed their idea in a short period to the company NVIDIA. This finally gave rise to the Cryengine Technology and thereby establishing Crytek as a strong and influential member of the video game design and software industry.

VR First is built upon the idea that it can provide a suitable environment for future tech pioneers and give them a space to display their developments and ideas in the most professional way possible. It aims to establish Virtual Reality labs in several university and school campuses by the next decade, equipped with the state of the art Virtual Reality technology; they have already begun with their first lab in Istanbul's Bahçesehir University, with more campuses signing up every day. It is said that as increasingly engineers begin to use the CryEngine technology, there will be a drastic transformation the entertainment and communication industry, as well as how the human eye perceives the world.

Virtual Reality is mainly used for the purpose of gaming, which is visibly noticeable through the multitude of multiplayer games online. The purchase of Oculus by Facebook established the fact that within the next decade that within the next decade or so, Virtual Reality will go mainstream and become an inevitable part of our lives, comparable to social media today. An initiative like VR First enables the easy integration of the technology into our lives as it is giving rise to new minds with a different tangent of thinking and understanding, and the future innovators are now being accustomed to the mindset and thinking with the equipment and techniques so provided. VR First is an attempt to give rise to a future community of Virtual Reality developers who not only share knowledge with one and another, but also contribute to society in a logical and practical way, thus easing their transition from students to proactive global citizens and becoming influential members of the Virtual Reality Development Society.

Another example of such a development is in the field of communications, to be specific, 360 degrees' communication. For example, when this sort of communication acts as a boon is of an ill mother who cannot attend her 5-year-old daughter's ballet recital. Hence, by wearing the Virtual Reality headgear and watch the recital through Skype or Google Hangout from the comfort of her bed, it would be like she was there and never missed a moment, hence establishing a deeper connection with her daughter. These appliances need to be paired up with applications such as Skype, Google Hangout, WhatsApp, Facebook Messenger essentially to establish an elaborate framework for effective communication and connect people from different parts of the globe. Virtual Reality Headgears can highlight stereoscopic 360-degree environments to consumers, making them feel completely immersed into the environment. Fresh minds are developing new lenses, headgears, and other equipment, so as to make the process even easier and

more personal, and thereby to bring one closer to their loved ones and also facilitate easier face to face contact, as well as establish a more elaborate framework for communication. Through this equipment, one can not only communicate their thoughts but also share experiences as like for action sports and games, such as videos related to sharing one's experience Sky Diving or snorkeling. It becomes easier thanks to newer technologies so one can experience new situations without being there. It can also help in medical situations for psychologists and psychiatrists, such as in phobia removal.

As they say, there is always room for improvement, and in the case of Virtual Reality, it has its limitations in practicality, materials, costs, and legal rights, as there is an unavoidable cost for the set up, then hardware costs as well, along with a cost for the and a cost for obtaining rights of the technology as due to copyrights and then extra external costs upon that, hence giving a hefty price for the technology. An initiative like VR First, though helpful, isn't that viable to be implemented efficiently and properly without the proper resources and equipment, which are usually of very high cost and hence making the global implementation of the program tough. Due to this reason, resources need to be chosen and allocated carefully to get the maximum benefit of the initiative. Also, the Virtual Reality headgear may have adverse effects on health such as on one's eyes and mental health and hence needs to be used responsibly. An innovation and concept like Virtual Reality needs to encompass is the fact that nothing in nature is constant, that one's surroundings are always changing and it needs to catch up with time and be inclusive of the factor of change. Though this is logically a difficult task to achieve in today's world, as it requires many resources, funds would be required which may or may not be arranged soon.

III. CONCLUSION:

Consumer Electronics are appliances used for daily household and official purposes, one of the prime such technologies being Virtual Reality. If we were in the last century, no one would have ever thought that the very idea of Virtual Reality would be in existence today, but as we can see with pride that it is slowly becoming an essential component of our lives, but it is a bane as it is a boon and it needs to be used carefully and responsibly as to receive the full benefits of the technology.

REFERENCES:

Introduction:

[1] “Consumer electronics,” *Wikipedia*. [Online]. Available: https://en.wikipedia.org/wiki/Consumer_electronics. [Accessed: 26-Nov-2016].

Developments and Future Expectations and Conclusion:

[2] “IEEE Consumer Electronics Magazine,” IEEE Xplore: IEEE Consumer Electronics Magazine. [Online]. Available: http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=5962380. [Accessed: 27-Nov-2016].

[3] C. Moore, “The Virtual Yellow House: Experimental tangling with virtual reality - IEEE Xplore Document,” *The Virtual Yellow House: Experimental tangling with virtual reality - IEEE Xplore Document*. [Online]. Available: http://ieeexplore.ieee.org/document/7574449/. [Accessed: 27-Nov-2016].

[4] F. Ozkan, “Introducing VR First: Unlocking the door to a future in virtual reality [Future Directions] - IEEE Xplore Document,” *Introducing VR First: Unlocking the door to a future in virtual reality [Future Directions] - IEEE Xplore Document*. [Online]. Available: http://ieeexplore.ieee.org/document/7574448/. [Accessed: 28-Nov-2016].

[5] “Current Issue: Sports Data Visualization,” *IEEE Computer Graphics and Applications Magazine*. [Online]. Available: https://www.computer.org/cga/. [Accessed: 28-Nov-2016].

[6] L. Brun , “Enabling 360° visual communications: Next-level applications and connections - IEEE Xplore Document,” *Enabling 360° visual communications: Next-level applications and connections - IEEE Xplore Document*. [Online]. Available: http://ieeexplore.ieee.org/document/7450751/. [Accessed: 28-Nov-2016].

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