Maratha Vidya Prasarak Samaj's
Karmaveer Adv. Baburao Ganapatrao Thakare
College Of Engineering
Nashik-13.
(NAAC ACCREDITED INSTITUTE WITH 'A' GRADE)

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGG.

DepartmentalTeChronicle

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Department Vision:-

To be recognized as an excellent department offering competent technical education to create competent electronics & telecommunication engineers for the benefit of the common masses.

Department Mission:-

Committed to serve the needs of society through innovative teaching learning processes, promoting industry- institute interaction to provide competent and cultured electronics and telecommunication engineers.

Greeting,

The Department of Electronics and Telecommunication is celebrating **"National Science day"** by revealing it's technical newsletter **"TeChronicle"** VOL-2, Issue-4 on 28th February 2021. This day is celebrated in India to mark the discovery of Indian Physicist Sir C. V. Raman who is also a Nobel Prize winner in Physics.

Interaction with Mr. Tariq Merchant[Founder of Indroyd Labs]

Well, someone who could read children's minds and create something that will be beneficial as well as fun activity for them is none other than Mr. Tariq Merchant. He developed his profession with a Bachelors of Engineering (B.E.) in Electronics and Telecommunication Engineering from Maharashtra Institute of Technology (MIT, Pune). As an undergraduate engineering student he always thought of becoming an entrepreneur, on which he started working during his last year and after completion of graduation in 2011 he completely focused on Entrepreneurship and building of art electronics in gaming. He is the founder of Indroyd Labs where he played a pivotal role in the development of various hardware and software products based on RFID, Image Processing and made the world know about the era of Virtual Reality, Augmented Reality, interactive marketing strategies and various other human-computer interaction models. He is an experienced entrepreneur with a demonstrated history of working in the information technology and services industry.

Few of the questions while conversing with Tariq Merchant:

Student: What are the different technologies used in the gaming industry?

Answer: Gaming industry is increasing rapidly at a very fast rate which has embarked a worldwide impact on each and every game lover. Electronics industry is changing the era of gaming with the advancement of AI and machine learning in online games. Apart from these games, when it comes to applet and console gaming, Languages mostly used are C sharp, unity for game engines and basic modeling.

Student: What does the future of the gaming industry look like?

Answer: I think we're going to see some very impressive and very compelling stuff in the next couple of years. Culturally, it seems that gaming has broken out of niche corners of the world and will only continue to become more mainstream. Artificial Intelligence isn't just part of the gameplay experience. It's part of the game-making experience.

Student: What could be the educational possibilities & career opportunities in virtual and mixed augmented reality?

Answer: As augmented and virtual reality are emerging technologies there is numerous scope in this field. Virtual reality (VR) implies a complete immersion experience that shuts out the physical world and augmented reality experiences various technologies including optical projection systems, handheld and display devices. AR provides students with opportunities to deepen their knowledge within several areas.

Student: Can you describe working of arcade game which has been installed in a mall?

Answer:Yes, So there is a game called Robo keeping. Basically you have to kick the ball and whenever the ball reaches the goal post there is a robotic goalkeeper installed. While manufacturing this game, the whole idea is pivoted around two factors i.e. Mechanics and electronics. Where the motor rotates the goalkeeper to position it and computer vision tracks the ball and identifies its trajectory. So that we can extrapolate where the ball is going to hit and the goalkeeper will move

accordingly. Here Physics plays an important role to estimate the power and select the motor on the basis of physics calculation. Computer vision is how you track the ball by using top mounted cameras.
Keynotes of the session were students are required to focus on the fundamental of electronics engineering and applied sciences with ability to solve problem using acquired knowledge.

Fundamentals of Virtual Reality

[Dr. V. M. Birari]

Unlike real reality (the actual world in which we live), virtual reality means simulating bits of our world (or completely imaginary worlds) using high-performance computers and sensory equipment, like headsets and gloves. Virtual reality (often just called VR) is the name for computer technology that makes a person feel like they are somewhere else. It uses software to produce images, sounds, and other sensations to create a different place so that a user feels like he or she is really part of this other place.
Elements: Virtual world: An imaginary space that independently exists from the real world. Immersion: The users are placed in a virtual space, cut from the real world on a sensory level. Sensory feedback, interactivity, comfort, interaction, video games, education.**5 Important Elements**
1. Viewing System.
2. Tracking System.
3. Interactivity Element.
4. Artistic Inclination.
5. Sensory Management System.

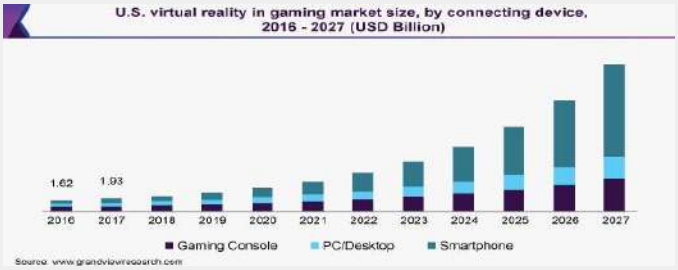
Components: Hardware, VR Devices, software, audio, human Perception.
Purpose: Virtual reality technology is used to create immersive experiences that can help educate and even entertain consumers. Outside of its popular gaming use case, virtual reality is applied in a variety of industries, such as medicine, architecture, military, and others.
Working: The primary subject of virtual reality is simulating the vision. Every headset aims to perfect their approach to creating an immersive 3D environment. Each VR headset puts up a screen (or two – one for each eye) in front of eyes thus, eliminating any interaction with the real world.
Applications: Thanks to VR, patients will be able to undergo therapy at home, and not in the hospital. VR simulators can also be used to overcome fears and different phobias. (Artificial reality significantly reduces the training time for medical students, allowing them to practice in conditions identical to a real operating theatre.)
Examples in everyday life: Virtual reality will become even more accessible within everyday jobs with people using it for medical training, new building designs, training and learning and other experiences.
1. Training and Learning: To train employees, especially in dangerous environments. For example, pilots use simulators in case they make a mistake, in the education field it makes education more easy and comfortable.
2. Healthcare: Aspiring doctors take advantage of virtual reality to avoid medical accidents.
3. Recruitment: actual assessment process.
4. Tourism: enable the viewer to explore the entire 360 degrees of a scene & used to capture tourism destinations in a unique and immersive way.
5. Meetings and Everyday Communication, Conferences: Think Skype for Business on steroids.

Requirements: The most important piece of a virtual reality kit is the headset, a device like a thick pair of goggles that goes over your eyes. The more expensive, higher quality headsets need to be connected to a computer to run apps and games, while some cheaper ones use a cellphone clipped to the front of the headset.
Difference between augmented reality and virtual reality: Augmented reality (AR) adds digital elements to a live view often by using the camera on a smartphone.
Virtual reality (VR) implies a complete immersion experience that shuts out the physical world.

Enabling a New Era of Gaming

[Ritesh Jadhav, TE ETC]

Gaming industry is in a bloom and increasing rapidly at a very fast rate which has embarked a worldwide impact on each and every game lover. Today the gaming industry is not only providing the best gaming experience to people but has also become a source of earning via you tubers, streaming, recording and advertising. Electronics industry is changing the era of gaming with the advancement of AI and machine learning in online games. The video game industry continues to grow more sophisticated and it seems as if every new release delivers faster speeds, higher-resolution detail and richer experiences. From a technology perspective, this has led to a huge demand for expanded storage capabilities. The hugely popular "Call of Duty: Modern Warfare" title, for example, set a new storage record when it launched in 2019 — requiring a whopping 175 GB of storage space. As games continue to innovate and improve, they will likely begin to exceed storage requirements of 200 GB, in turn requiring a storage capacity of 256 GB (SSD), or even larger.



For an industry where a long-lasting loading screen can single-handedly destroy a gaming experience, the solution isn't always focused on storage capacity. Often, the type of storage can have a greater impact on the overall experience. The impacts of this new storage capability will resonate across the industry. Emerging technologies, such as expanded storage capabilities, as well as the proliferation of 5G networks, are the primary reasons for the popularization of cloud gaming. A recent survey by EY found that sixty-three percent of executives agree that if major game companies do not offer consumers cloud-based games, they will be at a disadvantage in five years.
These platforms allow users to game from any internet-connected device with no installation needed. Since the game's data is stored on a central server rather than on individual devices, gamers only need a fast internet connection and a display screen. Semiconductor memory

will also play an important role in the growth of cloud gaming. As gamers turn away from high-end hardware for an experience that allows them to play their games anytime, anywhere they want. Because the vast amounts of gaming data need to be stored and exchanged, the needs for data centers will continue to surge, as will state-of-the-art storage solutions with latest SSDs and DRAMs. The development and evolution of SSD solutions technologies and the emergence of next-gen SSD form factors will enable companies to provide memory solutions with higher capacity, faster data transfer speed, and lower price. Ultimately, the data transfer speeds companies are able to offer depends on SSD controllers and NAND flash. In addition, the capacity of SSD depends on SSD form factor as the latter determines how the developers can combine NAND packages within SSDs.

References:
https://www.ey.com/en_in/tmt/how-is-your-business-powering-up-for-the-next-videogaming-challenge
https://en.wikipedia.org/wiki/Solid-state_drive

Fun with Gaming

[Mr. Shubham Avhad, TE ETC]

Gaming: There is an exceptional opportunity for contemporary game developers to build apps designed particularly for wearable devices that yield highly sophisticated gaming experience for users. It is known that the gaming applications designed for wearable devices possess the capability to integrate built-in elements from the devices like gyroscopic motion sensing and gesture tracking to serve an interactive game experience. Because wearable tech devices turn prevalent among businesses and consumers, it is certain that the demand for applications which can execute on them increases. The utility and expediency of wearable devices would offer unique benefits for any business targeting to seek profit on the recent technological trends. There are several industries which have by now perceived the potential for the use of wearable computers. Furthermore, they have held on this budding trend in order to save money, save lives, boost efficiency, or develop interactive user experiences. **Technologies that have changed gaming:**Online gaming has come a long way, and gambling is not left far behind either. We now have online casinos that allow players to enjoy a real casino-like feel. Technology advancements used by the best online casinos in India include, but are not limited to, the following: Wearable Gaming Consoles, Voice recognition, Gesture Controls, High definition displays, Amazing graphics, Virtual reality.

1. Aura's Interactor brings a whole new meaning to "punchy bass." This wearable device consisted of a detuned subwoofer which the user strapped to their chest and plugged into their games console of choice. Whenever a low-pitched sound occurred in-game the Interactor would translate it into a shockwave to simulate a gunshot or a punch. It sounds like the ideal device for hitting the brown note.

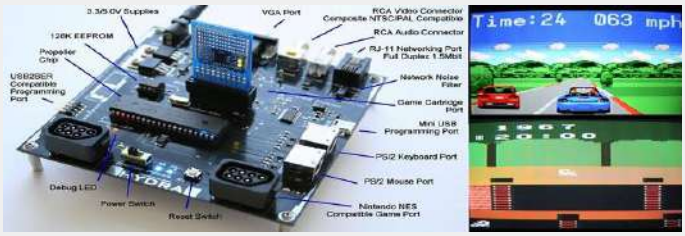
2. Nintendo's Power Glove was, in fact, years ahead of its time. The five-fingered controller included a system of trackers which registered light emitted when opticfibers were stretched across the user's knuckles and joints. The result should have been one of the first truly immersive experiences in home gaming, but a distinct lack of decent games for the system resulted in it flopping like a jellyfish falling off a diving board. However, its legend lives on thanks to Nintendo co-funded film The Wizard.

Conclusion: -Modern technology has transformed the world, and we can't imagine living without the internet, smartphones, and various high-tech gadgets. There is no better time to be a gamer than now. In coming times, we will see more technological advances in the gaming sector. The future development of the gaming industry will move towards greater integration of the real world. The new generation is all set to see more global AR games and gadgets, encouraging themselves to immerse in the online casino gaming world completely. **Reference:** https://www.europeanbusinessreview.com/how-has-technology-changed-the-gaming-industry/https://www.wareable.com/features/the-history-of-wearable-gaming

State of Art Electronics in Gaming Industry [Prachi Jorwar, SE ETC]

Electronics industry is changing the era of gaming with the advancement of AI and machine learning in online games. Margate Capital Management said that 60% of teenagers play video games and 50 colleges offer video-game scholarships. Electronic gaming has changed the playing experience of gambling world of Casinos. Electronic table games are the computers that allow participants to play confidently and comfortably and sit back, relaxing and playing at their own pace. It uses random number generators for determining the outcome. Block chain Technology is likely to change the dimensions of the gaming industry. Many observers think that this technology will play a massive role in the growth of electronic sports as to customize their experience many gamers buy the tokens and digital avatars. The technology will make the sector an increasingly attractive investment target. There are few games like Spark fun'stetris in which the microcontroller used to make a button pad. It's a touch-screen game in a manner of speaking: each of the 12x24 grids of pixels can be prodded. Hit right or left of the descending brick to move it horizontally, below it to speed its descent, or above it to flip it around. We can also play more games like tic tac toe in which the electronic device – RGB LED

used, and one more game like Network's Electronic Quiz Game requires a dozen screws, a 7.5v screw-base lamp, duct tape and not much else. There is one kit named as Hydra Console Game Development Kit. It is an open-source machine built atop a tiny motherboard and ready for coding in a BASIC-like language called SPIN, or assembly language. It can even switch between 8-bit and 16-bit-like modes, depending on your favored flavor of old. The Hydra has an 80 MHz chip — a good 10 times faster than the era's best offerings — a 128k EEPROM, two NES game controller ports, and multiple video-out options. It can show up to 256 colors at 640x480.



The most recent trend is the growing availability and popularity of multi-functional gaming consoles, which is emerging in the market and helping in growing the market of video games globally. A video game console is an interactive entertainment computer or modified computer system that produces a video display signal which can be used with a display device (a television, monitor, etc.) to display a video game. Electronic Arts began a technical trial for a cloud gaming service. In launching the trial of the service, EA is joining the bandwagon for cloud gaming, which Google has been evangelizing in advance of its Stadia service launching in November. Sep 2019 - Razer planned to invest USD 7.2 million to drive growth in Singapore's gaming scene. With the investment, Razer looks to support e-sports teams and gaming companies based in the city-state or founded by Singaporeans. This funding will also go in part to Team Singapore, which they are supporting for the SEA Games. With the advent of smartphones, the gaming experience has been taken out of the arcade and the living room and put into the palm of your hand. As evidenced by the countless people on your morning train commute huddled over games on their devices, technology has made the love of digital gaming spread beyond hardcore console-consumers and online gamer. So this is a big change made by electronics in the gaming industry.

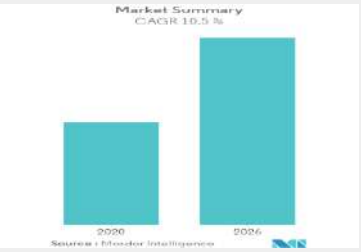
References:

https://www.prnewswire.com/news-releases/global-gaming-industry-growth-trends-and-forecast-2020-2025-301042773.html

Augmented Reality in Gaming

[Shivani Phadtare, SE ETC]

Virtual reality (VR) in gaming is where a person can experience being in a three-dimensional environment and interact within the environment in the game. Virtual reality in gaming gives gamers a more realistic experience of being a part of the game.Virtual reality has been trending in the gaming industry for a very long time. VR gives a better experience to gamers. Many gaming companies have invested in cutting edge technologies like VR. The use of technology in the gaming industry is moving at a rapid pace, from the last few years VR has been trending in the gaming sector.More and more developers have started to take an interest in developing VR games. The growing trend of VR games has benefited both the gamer and industrial owners. There have been more investors for VR games as they see a lot of revenue in the making with the help of technologies.



Benefits of Virtual Reality In Gaming: Virtual Reality has been a game-changer in the gaming industry. The gamers get better experience of the game with the help of VR. Virtual Reality has a lot of benefits in the gaming sector.

Better user experience for gamers: Virtual Reality gives a better experience and feels of the game. Unlike normal games, VR games give a more realistic experience to the gamer. It feels if you are actually in that environment and having a better experience of the situation.

Stress Reduction: Gaming has always been a stress reduction for many of the gamers. A recent study found that after hours of work or study people find it relaxing while playing a game. Gaming has always been a stress buster for many individuals. With the help of VR people will enjoy being in an environment away from their day to day life.

Overcome any phobia: Virtual reality has been used to eliminate any sort of phobia with the help of games. VR games which consist of height, darkness, water, or any other can be used to overcome our phobia. This could be a great tool for people who have a phobia and to overcome it in a virtual manner.

Future of Virtual Reality Gaming: As gamers are loving to play more VR games. There are more investors coming into the gaming sector to invest in VR technologies. There is a huge future for VR in the gaming industry as the sector can see massive growth with the help of technology. Top game developers have been working on creating adventure role-playing games with the help of VR technology.

Reference:

https://www.zzoomit.com/https://technologylimitless.com/virtual-reality-in-gaming-industry/

Website: www.kbtcoe.org
Email Id: techronicle.etc@gmail.com