Introduction move around in the virtual space.

Business, Industries

INTRODUCTIONNaturally, virtual reality comes from both virtual and reality. Where word virtual meansnear and reality is what human's experience.

So the term virtual reality meansnear-reality this could of course, means anything but usually it refers tospecific type of reality emulation. Intechnical terms it is straight forward. It used to describe to athree-dimensional computer generated environment which can be examined by aperson. That person becomes a part of this virtual world. We know the worldthrough our senses and perception. We have fine senses taste, touch, smell, sight and hearing.

These are the obvious senses but the reality is that humanshave many more senses that is, sense of balance. Our brains and sensory inputsensures that we have a rich flow of information from the environment. Ourentire experience of reality is simply a combination of sensory information andour brains sense making mechanism for that information.

1 Figure 1: Virtual Reality. HISTORY{Nowadays, the technologies in virtual reality based upon ideas back in 1800's. In 1838the first stereoscope was invented, which has twin mirrors and it display asingle image. In the mid 1980's Jaron Lanier, founder of VPL research, usedthis term virtual reality" begin to develop the gear, including gogglesand gloves, for the experience what he called " virtual reality". Evenbefore that, however, technologists were developing. One of the biggestmilestone was the Sensorama in 1956. Morton Heilig's background was in theHollywood motion picture industry.

He wanted to see how people could feel likethey were in the movie. In this experience you " rode" through on a motorcycleand it is like a real city

environment. Multisensory stimulation let you seethe road, hear the engine, feel the vibration and smell the motor's exhaust inthe designed " world." In1960 Heilig also worked on a head-mounted display device, called the Tele-sphereMask.

By1965, Ivan Sutherland, recommended " the Ultimate Display," a head-mounteddevice that he suggested would serve as a " window into a virtual world."} Figure 2: Key events in the evolution of virtualreality hardware devices. The 1970s and1980s were a mind blowing time in the field. Optical advances ran parallel toprojects that worked on haptic devices and other instruments that would allowyou to move around in the virtual space. {In the mid-1980s at NASA Ames ResearchCentre, the Virtual Interface Environment Workstation (VIEW) system combined ahead-mounted device with gloves to enable the haptic interaction.}{Currentvirtual reality pays a gratitude to the pioneering inventors of the past sixdecades who paved the way for the low-cost, high-quality devices which areeasily accessible.

}TYPESOF VIRTUAL REALITY (VR)§ WINDOWON WORLD{Thisis also known as " Desktop VR". In this VR the user sees the 3-D world throughthe " window" of the computer screen and navigates through the space with acontrol device such as mouse. This provides a first-person experience as likeimmersive virtual reality does.} One low-cost example of a " Through the window" virtual reality system is the 3-D architectural design planning tool Virtus walkthrough that makes it possible to explore virtual reality on IBM computer. Developed as a computer visualization tool to help plan complex high-tech filmmaking for the movie. A similar, Virtus VR less expensive and

lesssophisticated program that is starting to find use in elementary and secondaryschools.

§ IMMERSIVEVRWhenwe think of virtual reality, we usually think of immersive systems involvingcomputer interface devise such as a head-mounted display (HDM), fiber-opticwired gloves, position tracking devices, and audio systems providing 3-D(binaural) sound. Immersive virtual reality provides an immediate, first-personexperience. With some applications, there is a treadmill interface to simulatethe experience of walking through virtual space. And in place of thehead-mounted display, there is a Boom viewer from fake space labs which hangs suspendedin front of the viewer's face, not on it, so it is not as heavy and tiring towear as the head-mounted display. In immersive VR, the user is placed insidethe image: the generated image is assigned properties which make it look and actreal in terms of visual perception and in some cases aural and tractileperception (Books, 1988; Tribitt, 1990; Begault, 1991; Minsky, 1991; Gehring, 1992). There is even research on creating virtual smells; an application topatent such a product has been submitted by researchers at the SouthwestResearch Institute (Varner, 1993).§ TELEPRESENCE{Telepresenceis exactly what it sounds like: tele, " at a distance", and presence, " beingpresent".

The cyberspace concept is linked to the idea of telepresence, thefeeling of being in a location other than where you actually are, related tothis teleoperation means that you can control a robot or another device at adistance. Thesensors are controlled and operated remotely by the user. Consider bombdisposal robots, undersea exploration, and drones as being

operated viatelepresence VR.}§ MIXEDREALITYThelast kind of Virtual Reality that we will be looking at a Mixed reality. Thisis where computer generated inputs are brought together with the previouslymentioned telepresence inputs or the user's view of the real world to create avaluable output.

Thiscould be a fighter pilot's view of maps or key data points displayed inside hishelmet, or a surgeon being able to view real-time patient information during acomplex surgery while wearing an HMD.

2   TECHNOLOGIESOF VIRTUAL REALITY (VR){VirtualReality makes it possible to experience anything, anywhere, anytime. It is themost enchanting type of reality technology. The largest technology companies onplanet earth currently investing billion of dollars into virtual realitycompanies and startups. The future of virtual reality is set to be a pillar ofour everyday lives.

3} Chart 1: 3-D View ofGlobal VR Headset Shipments. YEARS SMARTPHONE-POWERED HEADSETS PC-POWERED HEADSETS GAME CONSOLE-POWERED HEADSETS 2022 55 15 30 2021 45 15 20 2020 35 13 20 2019 25 11 15 2018 15 10 10 2017 5 2 3 2016 2 1 0 Table 1: Percentage showing Powered Headsets. APPLICATIONS OF VIRTUALREALITY (VR){Many people are familiarwith this term " virtual reality" but they are un-assured about the uses of thistechnology.} Gaming is an obvious virtual reality application as are virtualworlds but there are a whole host of uses for virtual reality-some of which aremore challenging or unusual.   Chart 2: 3-D View ofVR Patent Distribution based on Application. ONEOF MAIN APPLICATION OF VIRTUAL REALITY (VR) INCLUDESØ TRAININGSIMULATION § VirtualReality in

Military{The military has been adopted the Virtual Reality. Thisincludes all three services (army, navy and air force).

It is used for trainingpurposes. This is useful for training soldiers for combat situations or otherdangerous settings where they have to learn how to react in an appropriatemanner.}A virtual realitysimulation enables them to do so but without the risk of death or a seriousinjury.

They can re-enact a particular scenario, for example engagement with anenemy in an environment in which they experience this but without the realworld risks. This has proven to be safer and less costly than traditionaltraining methods. Useof VR in Military§ FlightSimulation§ Medictraining (battlefield)§ Virtualboot camp§ VehicleSimulation41https://www. vrs. org. uk/virtual-reality/what-is-virtual-reality. html 2https://appreal-vr. com/blog/virtual-reality-and-its-kinds/3http://www. realitytechnologies. com/virtual-reality4https://www. vrs. org. uk/virtual-reality-applications/