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Moduletitle: Personal development skills for computingModulecode: DipIT 01Submittedto: Sanjiv UdasSubmittedby: Nischal PokharelStudentid: Submittiondate: Wordcount: Contents Introduction. 1 General Introduction: 1 Current scenario and Application areas: 1 Simulation-based Learning: 1 Remote interaction: 1 Heads-up Display: 2 Gesture Recognition: 2 Wearable holographic computers: 2 Medical fields: 3 Background: 4 Elaboration of Introduction: 4 Working Principles and features: 4 Current scenario in Nepal: 4 Implementation: 5 Conclusion: 7 Summary: 7 Future plan: 7 Tableof Figures: Figure 1: simulation based traning (Zamora, 2017). 1Figure 2: heads-up display (MACK, 2017). 2Figure 3 : gesture recognition.

2Figure 4: holographic computers. 3Figure 5: MR in medical (CUTHBERTSON, 2016). 3IntroductionGeneral Introduction: Mixed reality (M. R), alsoknown as hybrid reality is the combination of real and virtual world. Itproduces new environment and visualization in which the physical and digitalobjects can interact with each other in the real time. (Milgram, 1994)M. R is the hybrid system thatinvolves both physical and virtual elements.

It is the fast growing one of thetechnologies in the world. It is mostly used by the users for watching moviesand playing games. Thus it gives full entertainment to the users. (Research Beam Market, 2017)Current scenario and Applicationareas: Mixed reality has been used in many developed countries mostly ingaming, watching movies and simulation purposes.

The global market of mixedreality in 2015 was US$35. 30 mn to 39. 1%CAGR in 2016. (Transparency Market Research, 2016) Mixed reality (M. R) is used in various areas. It has becomeone of the basic needs. Using M.

R our works becomes easier and faster. Some ofthe application areas where mixed reality is used are as follows:-Simulation-based Learning: Simulation basedlearning have taken learning to next level. It is very helpful when we arelearning something but we do not have any space for it.

Creating the virtualenvironment, we can learn as in the real world. Figure 1: simulationbased traning (Zamora, 2017)   Remoteinteraction: It is not alwayspossible to attend all the special meetings or events. Mostly many companiesare facing these types of problems. But mixed reality has made it possible tointeract virtually in a virtual environment using some electronic equipment asin the real world. Heads-upDisplay: Figure 2: heads-up display (MACK, 2017)Augmented reality can be used to add importantinformation in front of a user's view where it is most helpful. Fighter pilotsuse this technology when information from the gauges below their line of visionis projected in front of them.

This same technology could be used forconference signage or agendas at events. Gesture Recognition: This type of mixed reality is new. It is usedin entertainment purpose. This type of technology is used in latest games wherewe can use our real-life gestures to affect virtual games.

Figure 3 : gesture recognition   Wearableholographic computers: These wearables contain sensors that map the physical world andcreate a holographic display. There are some veryinteresting applications for venues as users can pin these holographic imagesto physical objects. For instance, a venue coordinator could help eventplanners see a layout to have a better appreciation for the space.

Figure 4: holographic computers   (Solaris, 2017)Medical fields: Mixed reality can be used in medical sector for diagnosingdiseases more easily and accurately with 3D view of inner parts of the humanbody. This technology helps medical experts to do pre-plan before surgery. (The Medical Futurist, 2018) Figure 5: MR in medical (CUTHBERTSON, 2016) Background: Elaboration of Introduction: Mixed reality provides the user to check outthe real and virtual world seamlessly at the same time. Because of the use ofspace and coordinates, virtual objects are seen in the real world and as in thereal world, their size changes when we look them through different angles andperspectives. So we can manipulate and interact the virtual objects in the sameplace. (Brown, 2017) For example, a gamecalled Pokemon Go uses augmented reality in which the movement in the realworld affects the virtual world. (T.

, 2016)Working Principlesand features: Mixedreality is one of the latest technology that combines virtual and augmentedreality with the use of space and coordinates. Magic Leap is the company which isworking for the development of M. R and they are looking for their best results. This technology uses projector for displaying images on semitransparentmaterials. Using beam-splitting technology, those images reflects to our eyes. (Brown, 2017).

Someof the features of mixed reality are:·   It has high refreshrates i. e 90Hz per second which helps in fast view.·   It has feature ofrecording and picturing the virtual world that we experience.·   It consists of mirrordesktop which helps to view what we see in the desktop.

·   It has got highresolution graphics. (Microsoft, 2017)Current scenario in Nepal: Currently, in Nepal, use of mixed reality is not muchdeveloped because of its high price rates. In Nepal VR is mostly used in gamingand watching films.

VR box is a type of heads up display that gives firstperson view to the user. It is mostly used in watching movies and playinggames. It consists of 360° angle view as in the real world. This is mostly usedfor entertainment purpose. (Rouse, 2016) Implementation: Mixed reality can be implemented in various fields inNepal such as in entertainment, simulation training, military, health services, etc. But due to high expensive price and advanced equipment, this technology isnot mostly used. Even though some shopping malls uses VR for entertainmentpurposes.

In the context of Nepal, we can implement mixedreality in medical sector for education purpose because in the context of Nepal, due to lack of proper medical equipment, medical experts cannot recognize thedisease easily and many patients have to lose their life due to this reason. Usingthis technology in medical sector, medical experts can teach their studentsmore practically through simulation. With the help of this technology, medicalsexperts can view their patient's internal parts in 3D, which helps them to investigateabout the disease before surgery. This helps much in saving patient's life. For the implementation of this technology, firstly, permission should be granted form the government of Nepal. The basic hardwarerequirements for using mixed reality are as follows: 1.   Operating system with windows 10.

2.   Seventh generation Intel core. 3.   RAM with 8 GB size or higher. 4.   At least 10 GB free disk space.

5.   Integrated Intel HD graphics 620 orgreater WDDM 2. 2 graphics driver6.

USB type 3. 07.   Bluetooth 4. 08.   HoloLens Basic software requirements are: 1.   Surfacepro 20172.   Surfacebook 2 After hardware and software requirements, technicalskills are needed to operate.

Some technical experts are required. Trainings shouldbe provided to the medical experts about the use of this technology. The pricefor the implementation of this technology is comparatively high but the resultit gives is better.

Conclusion: Summary: Mixed reality is the combination of virtual realityand augmented reality. Through the use of space and coordinates, we can viewvirtual world in all angles and the movements in the real world can affect thevirtual world. This technology uses beam-splitting technology to reflect theimages in our eyes. It is still in the developing phase. Thus it is mostly usedonly in entertainment purposes and a little in simulation, military and medicalfields in developed countries.

But in the developing countries like Nepal, virtual reality is used only for entertainment purpose like playing games andwatching movies. Because the price is still high and gadgets and more advanced, people of Nepal cannot afford this technology. In the coming future, thistechnology can be very helpful in most of the sectors like entertainment, health, education, business etc. This technology will be one of the basic needsof the people in coming generation. Future plan: Fromthe time of development of M.

R, it has got rapid market. The global mixedreality market size is expected to be $2. 8 billion dollar within 2023 rising atthe market growth of 77.

3% CAGR during the forecast period. The mixed realitymarket is rapidly growing due to increasing demands in innovative and wearableproducts. The aerospace and defense sectors further add to the marketexpansion.

(Ahmad, 2017)From the above data we can assume that the use of mixed reality is increasingrapidly and the future of mixed reality is assumed to be more satisfactory. Itis also said that within some more years, mixed reality will be one of thebasic needs..