
ASSIGNMENT # 3

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Question # 01

(a) Many researchers are beginning to explore the potential of ubiquitous computing technologies and applications in the home environment. Discuss how the application themes of context awareness, automated capture and the continuous interaction of everyday computing are relevant to domestic life. Focus your answer on the challenges of family life or life for an aging population.

Answer

Ubiquitous computing will become most apparent in the key economic areas of production, logistics and commerce. This will play a role in smart homes. Significant efficiency gains from ubiquitous computing are expected for housework, professionals working at home, and homecare of the elderly and/or ill. The motivation for introducing ubiquitous computing into the smart home is to increase

personal comfort. Experts apparently anticipate effects similar to those resulting from the introduction of modern household appliances during industrialization.

Clear positive effects are predicted in the personal activities in medicine, the home, communications and automobiles, while moderately positive effects are expected in inner and external security, and in production, logistics and commerce. Improvements in safety are anticipated primarily in military and security-related applications, especially in medical applications. The automotive branch will also profit.

(b) 2 Virtual reality has found a number of applications in the games market. Is this a suitable use of such technology? Discuss the possible benefits and disadvantages of exploiting leading edge technology in a leisure market.

Answer

The leisure market is important to the computer industry and, being commercially lucrative, can provide an impetus for development which can then be exploited in other spheres.

If virtual reality takes off in games it will result in the development of cheaper equipment and more robust techniques, since the games customer tends to be young but with sophisticated expectations. Indeed, many research projects in universities are currently using equipment developed specifically for games, since the more powerful, general purpose equipment is prohibitively expensive. Another possible advantage is that it makes the technology familiar and therefore accessible and acceptable.

A possible disadvantage is that the use of this technology in games may trivialize it so that it is not considered as a serious solution to other weightier problems. However, this seems less likely than the advantages outlined above.

Question # 02

Data visualization techniques have often increased our comprehension of phenomena: consider the effect that 3D graphics has had on looking at complex models such as those of the atmosphere or the ocean, or in understanding the structure of molecules. What do you consider to be the areas that may benefit most from virtual reality visualization techniques?

Answer

This exercise could be expanded to allow students to carry out a brief literature review on the applications of virtual reality techniques. In general, they are most promising in areas that cannot be explored in reality, either because it is physically impossible such as in the manipulation of molecules or physically dangerous, as in space. Models can be physically manipulated and interacted with using virtual reality methods rather than simply observed. Chemical and medical research, meteorology, oceanography, seismology are all areas that could benefit from such techniques.