Participation W6

Exercise 1:

What are the main differences between Augmented Reality (AR) and Virtual reality (VR)?

Sample Answer

1. Environment Interaction:

- **AR**: Augmented Reality overlays digital information onto the real world. It enhances the real environment by superimposing computer-generated images and data, allowing users to interact with both real and virtual items. AR can be experienced through devices like smartphones, tablets, or specialized AR glasses.
- **VR**: Virtual Reality creates a completely virtual environment that replaces the real world. Users are immersed in a digitally created space that can be completely different from their actual surroundings. VR is typically experienced through a VR headset which isolates the user from the real world.

2. Hardware:

- **AR**: Requires devices equipped with cameras to capture the real world and a display system to overlay digital information. This can include smartphones, tablets, or AR glasses like Microsoft HoloLens.
- **VR**: Requires a VR headset, which might be tethered to a computer (like the Oculus Rift or HTC Vive) or standalone (like the Oculus Quest). These headsets have integrated screens and motion sensors to track the user's movements.

3. User Experience:

- **AR**: Users can still see and interact with their real-world environment, making AR more versatile for daily use. It's often used in applications like navigation, information overlay, and interactive learning.
- **VR**: Provides a fully immersive experience that can transport the user to different worlds. It's popular in gaming, simulations, and training environments where complete immersion in a virtual world is desired.

4. Applications:

- **AR**: Has practical applications in fields like education, healthcare, retail, and maintenance. For example, AR can help in surgery by overlaying vital information on the patient's body, or

in retail by allowing customers to visualize products in their home.
- **VR**: Often used for gaming, simulations, and training. For instance, VR can simulate dangerous environments for training purposes in fields like aviation, military, and medicine, or offer immersive gaming experiences.

5. Development and Content:

- **AR**: Integrates real-world elements, so its development often requires understanding of the environment where it will be used.
- **VR**: Requires the creation of a completely virtual environment, which can be more resource-intensive.

Exercise 2:

- Do some online research and provide concrete examples of where AR is used in Vietnam.
- What are the potential applications of AR/VR in Vietnam and in which industry?

Sample Answer

In Vietnam, Augmented Reality (AR) is being utilized in innovative ways across different sectors, including banking and education.

- **Banking Sector**: VIB, a bank in Vietnam, has incorporated AR technology into its mobile banking application, MyVIB 2.0. This integration provides customers with an enhanced experience when performing financial transactions like managing and paying for cards/accounts, searching for nearby promotions, and locating branches/ATMs. The AR features enable customers to view real scenes overlaid with virtual objects created by their smartphones, adding an interactive element to their banking experience.
- **Education Sector**: AR technology is also making a significant impact in the educational field in Vietnam. The Ministry of Education and Training, in collaboration with UNICEF, implemented a project that involved the application of virtual reality and augmented reality technology in schools. This project was part of the "Learning for children" initiative from 2017 to 2021, targeting schools in Lao Cai, Kon Tum, Dong Thap, and Hanoi. Specifically, it focused on two educational levels: kindergarten and lower secondary school. The goal was to make teaching more engaging and effective, particularly in areas with limited internet access and where a large concentration of ethnic minorities live. The initiative aimed to close the digital divide for the most vulnerable children, especially those in remote areas with limited access to technology.

Exercise 3:

The use of Augmented Reality (AR) and Virtual Reality (VR) technologies raises several legal and ethical dilemmas:

1. Privacy Concerns:

- **AR**: Devices used for AR, like smartphones and AR glasses, often have cameras that capture real-world images. This raises concerns about unauthorized surveillance and data collection. The potential for AR to intrude on personal privacy is significant, especially if these devices capture images or data without the consent of individuals in the public space.
- **VR**: While VR environments are generally closed and self-contained, the issue of data privacy still persists. VR headsets can collect detailed information about user behavior, preferences, and even biometric data, which can be sensitive.

2. Data Security:

- Both AR and VR involve the collection and processing of large amounts of data, which includes potentially sensitive information. There is a risk of this data being misused or falling into the wrong hands, leading to security breaches.

3. Ethical Content Management:

- **VR**: In virtual environments, users can potentially create or participate in scenarios that are unethical or illegal in real life. This raises questions about the boundaries of acceptable content in VR and the responsibility of platform providers to monitor and regulate such content.
- **AR**: The augmentation of real-world environments can also include inappropriate or harmful content, potentially impacting unsuspecting individuals who are captured or included in AR scenarios without their consent.

4. Psychological Impact:

- Prolonged use of VR can lead to disassociation or difficulty in distinguishing virtual experiences from real life. This could have psychological implications, especially for younger users or those with pre-existing mental health conditions.
- AR's overlaying of digital content onto the real world can also alter perceptions of reality, potentially impacting mental well-being.

5. Intellectual Property Issues:

- Both AR and VR can reproduce and manipulate existing intellectual property (like artwork, brands, and media content) within their environments. This raises questions about copyright infringement and the rights of original content creators.

6. Health and Safety:

- Prolonged use of AR and VR technologies can lead to physical health issues like eye strain, headaches, and motion sickness. There are also concerns about the safety of users who might be distracted while using AR in real-world settings, potentially leading to accidents.

7. Accessibility and Equity:

- There are concerns about the equitable access to AR and VR technologies. These technologies can exacerbate the digital divide, where individuals without access to advanced technology or the internet are left behind.

8. Consent and Autonomy:

- In both AR and VR, the issue of consent, particularly in shared or public spaces, is crucial. Users might be unaware of the extent to which their data is being collected or how it's being used.